DEPARTMENT OF THE ARMY
ST. LOUIS DISTRICT, CORPS OF ENGINEERS
ROBERT A. YOUNG BUILDING - 1222 SPRUCE ST.
ST. LOUIS, MISSOURI 63103-2833

7 February 2014

Reply to:
US Army Corps of Engineers
St. Louis District
Environmental Compliance Section (PD-C)
1222 Spruce St.
St. Louis, MO 63103-2833

RE: Columbia Bottom Levee District Levee Repairs

Dear Sir or Madam:

We are providing for your review an Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) for the Columbia Bottom Levee District that will require repair due to damages incurred during the spring and summer 2013 flooding. An electronic copy can be obtained from the St. Louis District's website at http://www.mvs.usace.army.mil/Missions/ProgramsProjectManagement/PlansReports.aspx. Please note that the Draft Finding of No Significant Impact is unsigned. The FONSI will be signed into effect only after having carefully considered comments received as a result of this public review.

Levees throughout the St. Louis District were damaged during flooding in April and July 2013. Many drainage and levee districts have requested assistance under Public Law 84-99 which provides repair assistance for flood damaged levees. We are in the process of preparing plans and specifications and completing all necessary documentation including environmental compliance documents.

We invite your comments related to the content of the environmental assessments. Please address your comments or questions to Francis Walton of the Environmental Compliance Section (CEMVP-PD-C), at telephone number (314) 331-8102, facsimile number (314) 331-8606, or e-mail at <francis.j.walton@usace.army.mil>, by close of business on February 28, 2014.

Thank you,

Timothy K. George

Timothy K. George
Chief, Environmental Compliance Section

ENVIRONMENTAL ASSESSMENT
AND
DRAFT FINDING OF NO SIGNIFICANT IMPACT

PUBLIC LAW 84-99
EMERGENCY FLOOD DAMAGE REPAIR FOR THE
COLUMBIA BOTTOM LEVEE DISTRICT

MISSISSIPPI RIVER
ST. LOUIS COUNTY, MISSOURI

FEBRUARY 2014

1. INTRODUCTION

This document is an Environmental Assessment (EA) with an attached Draft Finding of No Significant Impact (FONSI) for levee repairs to the Columbia Bottom Levee District (CBLD). The purpose of this EA is to address potential environmental impacts of the proposed rehabilitation, and to serve as a record of interagency coordination for the emergency rehabilitation actions.

1.1. Project Authorization

Emergency actions undertaken by USACE to repair flood control works damaged or destroyed by flooding are authorized by Public Law 84-99, as amended by Section 206 of the Flood Control Act of 1962 (hereafter referred to as 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 Part 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 the repairs on the environment must be considered. This includes the effects of construction on endangered species (P.L. 93-205) and archeological and historic properties.

1.2 Project Location and Scope

Columbia Bottom LD is a non-federal levee system that protects approximately 4,222 acres of conservation (MDC) and agricultural lands (see Figure 1). The levee provides protection from a 5-year flood with two feet of freeboard. The system consists of over eleven miles of levee constructed with an eight-foot crown width and one on three side slopes.

A high water event on the Mississippi River in the summer of 2013 damaged the Columbia Bottom Levee District (LD). Heavy rains throughout Missouri and Illinois in April and May 2013 caused flooding along the Mississippi River drainage system within the USACE, St. Louis District in Missouri and Illinois. Heavy rainfall in April saturated the soil in the Midwest causing much of the heavy May rains to develop directly into runoff. The saturated soil combined with the heavy rains created near record river levels throughout the northern portion of the St. Louis District. The St. Louis District declared a high-water emergency on 18 April 2013. The levee overtopped and later breached. The levee system suffered 4 breaches with an estimated 6,010 cubic yards of erosion to repair. Work associated with these repairs will include clearing, grubbing, stripping crushed stone and establishment of turf.

1.3 Project Purpose and Need

Columbia Bottom Levee District (St. Louis County, MO), is located on the upper Mississippi River between river miles 191 and 195 and Missouri river miles 0 and 5. Action is needed to repair the levee damage and, therefore, prevent future flooding of the 4,222 acres (3,958 cropland acres) protected by the levee. If the levee is not repaired, Mississippi River waters will enter the levee district at approximately a 50% (2-year frequency) chance exceedance flood. The repair project will provide protection against a 20% (5-year frequency, pre-flood design) chance exceedance flood. Without federal involvement through the PL84-99 program, it is unlikely that the CBLD has the financial ability to restore the level of protection according to USACE standards.

1.3.1 Damage Description

The levee overtopped and breached at four locations. The breaches did not produce deep scour holes.

Damages included a 275’ wide breach on private (non-Missouri Department of Conservation) property, on the riverside slope of the levee along the Missouri River. An existing private asphalt access road was destroyed during the high water event. The destroyed asphalt access on the levee will be removed. An estimated 3,250 cubic yards is required to repair the breach and 1 acre of new turf would be established.

Three additional breaches, approximately 220, 150, and 120 feet wide, occurred on the Missouri Department of Conservation (MDC) property. An estimated 2,760 cubic yards of material, and 1 acre of new turf were required to repair the breaches in this area. The MDC has already completed this work.

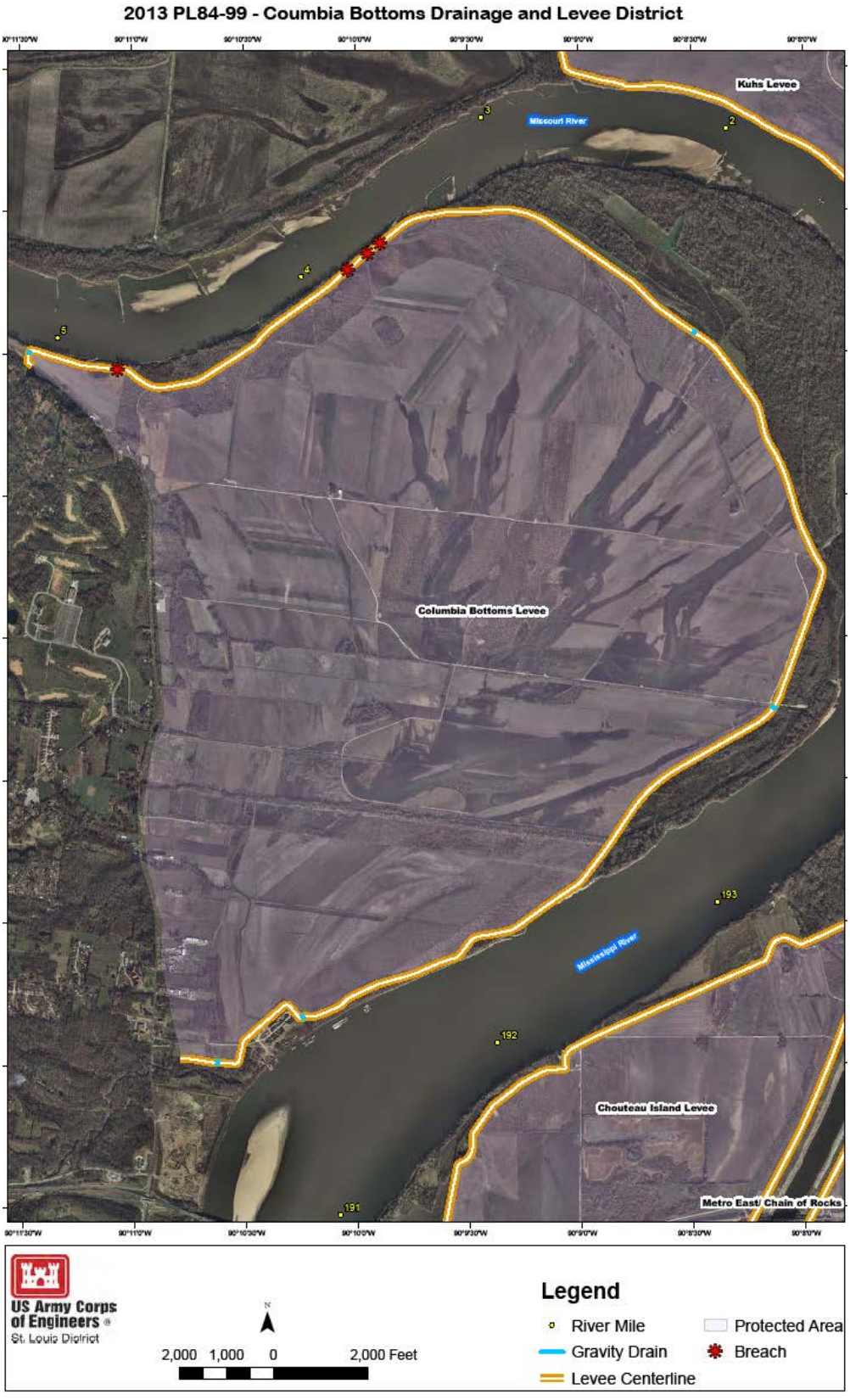

Figure 1 - Columbia Bottom Levee District and 2013 damages (four breaches).

2. ALTERNATIVES

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 give consideration to nonstructural measures to reduce or prevent flood damage.

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

Under the No Action Alternative, the federal government would not repair the damages to the CBLD. The CBLD has made temporary repairs with pervious material without federal assistance. Environmental impacts of repairs made by the CBLD would be similar to the proposed action, except that the repair duration may differ and the environmental protections may be reduced.

Therefore, due to the uncertainty of the CBLD repairs, the environmental impacts of allowing the damage to remain unrepaired correctly 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.

2.2. Alternative 2 – Nonstructural Measures

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 (levee setbacks), flood warning and preparedness systems, and regulation of floodplain uses. This allows flood waters to spread out over a larger area reducing flood heights and damages. Allowing the river to have greater access to the floodplain re-establishes some of the river's historic productivity by creating wetlands and by providing connection to wetlands that are essential to the long-term viability of aquatic and terrestrial communities.

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.****"*

The CBLD declined to request the pursuit of a non-structural alternative; therefore, this alternative was eliminated from further consideration.

2.3 Alternative 3 – Repair of Levees with Federal Assistance

Under this alternative, the federal government would repair the damaged areas at the private property breach to the pre-flood level of protection. The proposed repairs include the reconstruction of the levee at the breach location, including replacement of the road material that was used to temporarily close the breach. The damaged portions of the levee will be reconstructed to original construction contours, requiring the importation of borrow material. All repair areas would then be reseeded with cool season grasses when conditions are suitable for grass germination to prevent or minimize erosion.

Borrow is proposed to be taken from an agricultural field within the CBLD shown in Figure 2. The borrow area will be excavated to a maximum of three feet. The estimated borrow quantity for the repairs to the Colombia Bottoms Levee are approximately 3,250 cubic yards of material to complete the remaining repairs. The site is a six acre farm field made up of a farmed field and a 3 foot deep duck pond. Only the agricultural field will be used for borrow. The borrow site is adjacent to the repair areas. The top layer of soil at the site is 1.5 foot thick layer or silt. Lean clay is present from 1.5 feet deep to 3 feet deep. The top layer of silt will need to be stripped off, stockpiled and then redistributed as topdressing on the disturbed area. The site contains hydric soils. However, no physical evidence of wetland hydrology exists within the borrow area. No wetland vegetation, volunteer or otherwise, existed during the investigation. A review of aerial photographs of the site did not indicate wetland hydrologic signatures in a majority of years reviewed. The site had recently been tilled at the time of the site visit. No cultural remains were found during a walkover by the USACE archeologist. The agricultural field will continue to be farmed, therefore the borrow activity in this area is exempt from the Section 404 Clean Water Act Regulations (Section 323.4).

The Columbia Bottom LD is a Non-Federal project that is active in the USACE Rehabilitation and Inspection Program (RIP). Therefore, Columbia Bottom LD is eligible for Flood Control and Coastal Emergency (FCCE) funding authorized by PL84- 99. The total project repair cost is approximately $256,800. The Non-Federal cost share amount is $43,880, with a benefit to cost (b/c) ratio of 1.2 to 1.

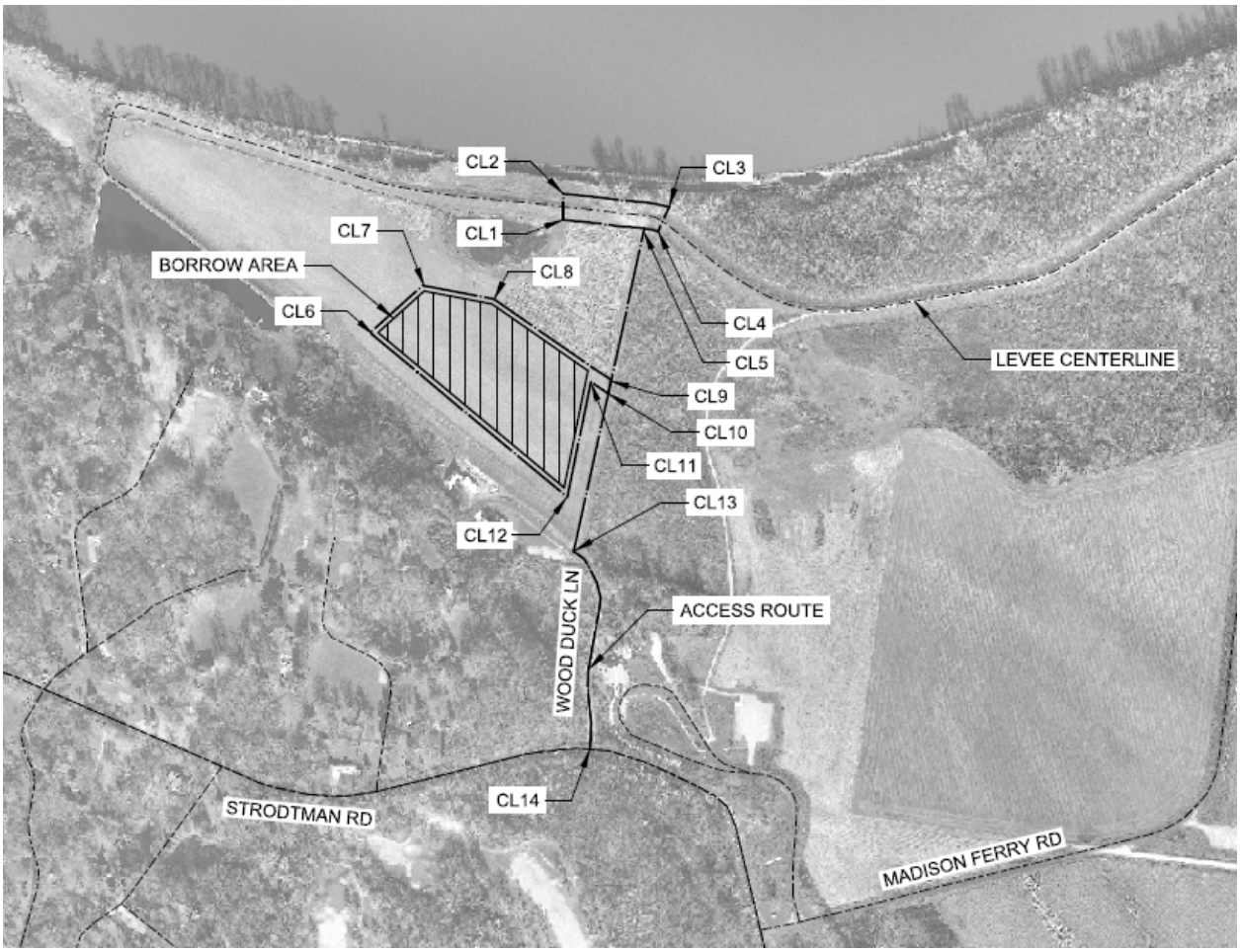

Figure 2 - Breach and borrow area in the Columbia Bottom Levee District

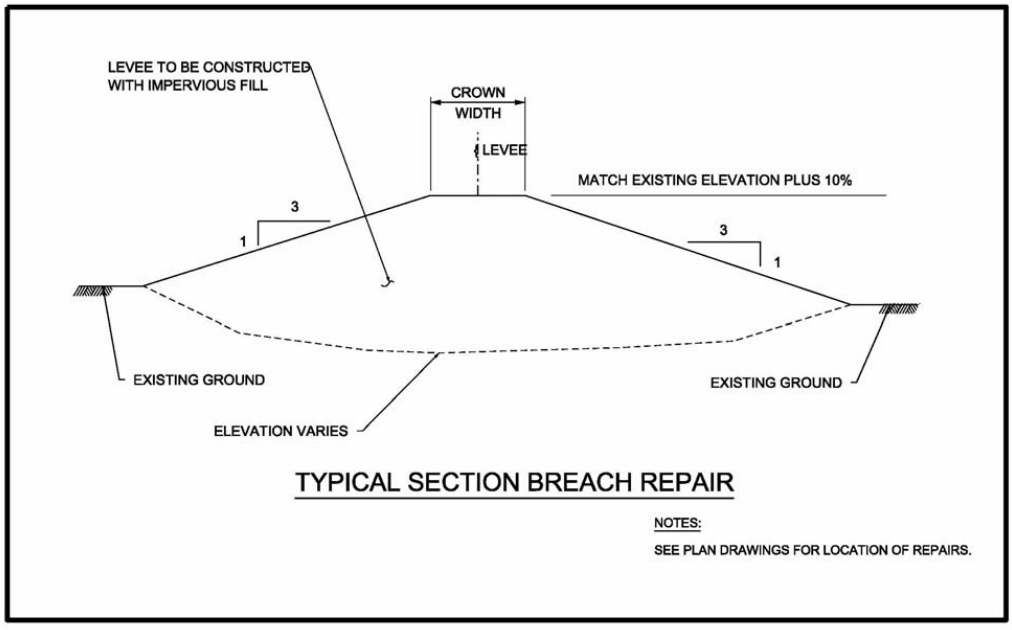

Figure 3 - Breach design repair.

2.4 Evaluation and Comparison of Alternative Plans

Under Alternative 1 - No Action, the levee system would remain in its damaged state (non-federal temporary repair) 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 - Repair of Levees with Federal Assistance, the damaged levee would be repaired to pre-flood conditions to the Federal standard. It is for these reasons that the Repair of Levees with Federal Assistance Alternative is the tentatively selected alternative.

Table 1 – Comparison of Project Alternatives

Resources	Alternatives	
	No Action	Proposed Action
Physical Resources	Flooding may occur if the levee is not repaired and the levee's integrity is compromised during a flood. Estimated protection is reduced to 2-year flood level with current damages.	Erosion and slide repairs would meet the Federal standard. The area inside levees would be flooded only when flood stages exceed levee design heights.
	Increased potential for further erosion of levee and sedimentation within the levee district during flood events.	Possible temporary minor impacts to water and air quality during construction.
	Does not meet project objective of repairs to Federal standard.	Meets project objective of 5-year protection level.
Biological Resources	If levee system is compromised, there is potential for beneficial impacts due to potential increase in floodplain wetland habitat.	Construction would be confined to the levee and borrow area which may result in minor temporary impacts.
	Federal T&E species would not be adversely impacted.	There would be no mature hardwood tree clearing; therefore, proposed action should have no adverse affect on listed species.
	Meets project objective of minimal environmental impacts.	Meets project objective of minimal environmental impacts.
Socioeconomic Resources	The levee district would be susceptible to future floods and potential negative impacts to the levee district and regional economy due to levee damages.	Repair of levee would result in the protection of croplands and conservation area from floods up to the design (5- year frequency) of the levee system.
	Does not meet project objective of protecting the socioeconomic value of the levee district.	Meets project objective of protecting the economic value of the levee district.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section describes the affected environment and environmental consequences of both the No-Action and the Federal Action Alternatives on those conditions.

3.1 Threatened and Endangered Species:

Existing - In compliance with Section 7(c) of the Endangered Species Act of 1973, as amended, a list of species (Table 2) was acquired from the USFWS website on February 5, 2014 (USFWS 2014). Habitat requirements and impacts of the alternatives are discussed for each species below.

No Action - Under this alternative, conditions for threatened and endangered species would remain the same.

Table 2. List of federally threatened and endangered species and their habitat potentially occurring in the project area

Species	Status	Habitat
Gray bat (*Myotis grisescens*)	Endangered	Caves
Indiana bat (*Myotis sodalis)*	Endangered	Hibernacula: Caves and mines; Maternity and foraging habitat: small stream corridors with well developed riparian woods; upland forests
Northern long-eared bat *Myotis septentrionalis*	Proposed as Endangered	Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests during spring and summer.
Pallid sturgeon (*Scaphirhynchus albus*)	Endangered	Mississippi and Missouri Rivers
Pink mucket (*Lampsilis abrupta*)	Endangered	Rivers
Scaleshell *(Leptodea leptodon)*	Endangered	Bourbeuse and Meramec Rivers
Sheepnose (*Plethobasus cyphyus*)	Endangered	Shallow areas in larger rivers and streams
Snuffbox (*Epioblasma triquetra*)	Endangered	Small to medium-sized creeks with a swift current
Spectaclecase (*Cumberlandia monodonta*)	Endangered	Meramec River
Decurrent false aster (*Boltonia decurrens*)	Threatened	Disturbed alluvial soils
Mead's milkweed (*Asclepias meadii*)	Threatened	Virgin prairies
Running buffalo clover (*Trifolium stolonifereum*)	Endangered	Disturbed bottomland meadows

Gray bat (*Myotis grisescens*) occurs in several Illinois and Missouri counties where it inhabits caves during both summer and winter. This species forages over rivers and reservoirs adjacent to forests.

Federal Action - No caves would be impacted. The proposed project is not likely to adversely affect the Gray bat.

Indiana bat (*Myotis sodalis*) forages on flying insects typically along the shorelines of rivers and lakes, in the canopy of trees in floodplains (Humphrey et al. 1977), and in upland forests (Brack and LaVal 1985). In summer, these bats occupy wooded or semi-wooded areas, mainly along streams. Females bear their offspring in hollow trees or under loose bark of living or dead trees. Trees standing in sunny openings are attractive because of warmer air spaces and crevices under the bark. Maternity sites have been reported in riparian areas, floodplain forests, and upland habitats. Limestone caves with pools are preferred for hibernacula during winter (Hall 1962).

Federal Action – No trees greater than 9 inches dbh would be removed before or during the levee repairs. Therefore, the proposed project may affect, but is not likely to adversely affect the Indiana bat.

Northern long-eared bat (*Myotis spetentrionalis*) is a Federal candidate for listing as an endangered species throughout its range (Federal Register 2 October 2013). 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. Suitable northern long-eared bat summer habitat may be located in the forested areas in and adjacent to the levee district.

Federal Action: The proposed project would not affect any caves or more than about three trees less than 9-inch dbh near the breach location. Thus, the St. Louis District has determined that the proposed project may affect, but is not likely to adversely affect the northern long-eared bat.

Running buffalo clover (*Trifolium stoloniferum*) is a native Missouri clover believed to have originally inhabited the ecotone between open forest and prairie in the eastern and central U.S. The species apparently depended on grazing and disturbance by large animals such as the buffalo for population viability, and partial shading also appears to have been an important component of

its original habitat. Current habitats include disturbed bottomland meadows and areas with rich moist soils that are subjected to mowing, trampling, or grazing, especially disturbed areas in woodlands. Running buffalo clover is known from 24 counties in Missouri.

Federal Action - The repair would take place within the footprint of the existing levee, designated construction limits, and borrow area. Shady habitat with moderate to heavy grazing does not exist in the project area. Therefore, the proposed project may affect but not likely to adversely affect running buffalo clover.

Spectaclecase mussels (*Cumberlandia monodonta*) are "known to occur in the Meramec River and may potentially occur in the Mississippi River north of Monroe County, Illinois" (USFWS 2004a). 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."
Scaleshell mussel *(Leptodea leptodon*) are known to exist in 14 populations in Arkansas, Missouri, and Oklahoma (USFWS 2004b). Their preferred habitat includes major rivers and tributaries with good water quality.
The **snuffbox (*Epioblasma triquetra*)** is usually found in small- to medium-sized creeks, inhabiting areas with a swift current, although it is also found in Lake Erie and some larger rivers.
Sheepnose mussels (*Plethobasus cyphyus*) live in larger rivers and streams where they are usually found in shallow areas with moderate to swift currents that flow over coarse sand and gravel. However, they have also been found in areas of mud, cobble and boulders, and in large rivers they may be found in deep runs.
Pink mucket mussel (*Lampsilis abrupta*) is found in medium to large rivers. It can be found in mud and sand in areas with shallow water (USFWS 1997).

Federal Action - Levee repairs would take place within the footprint of the levee and designated work areas and would not impact any mussel habitat. The only action with a potential to impact mussel species would be a decrease in water quality due to the erosion in areas of exposed soils if heavy rains fell and the silt fencing failed. Water quality impacts would be minor and short-term. The proposed project may affect, but is not likely to adversely affect any federally listed mussel species.

Pallid sturgeon (*Scaphirhynchus albus)* are found in the Mississippi River downstream of its confluence with the Missouri River. Pallid Sturgeon forage for insects, crustaceans, snails, clams, and fish along the bottom of large rivers (USFWS 1993). 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.

Federal Action - Levee repairs would take place within the footprint of the levee and designated work areas and would not impact any Pallid Sturgeon habitat. The proposed project may affect, but is not likely to adversely affect the Pallid Sturgeon.

Decurrent false aster (*Boltonia decurrens*) 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. Decurrent false aster 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. Decurrent false aster prefers a moist habitat but can tolerate drought (MDC 2008).

In Missouri, decurrent false aster distribution is restricted to the Mississippi River floodplain from the Illinois River southward. Current populations are fewer and more isolated than in historical times. Former distribution of this plant included Lincoln, St. Charles, St. Louis, and Cape Girardeau counties. Presently it is only known to occur in St. Charles County (MDC 2008).

Federal Action - The proposed project is located in an active agricultural field and on maintained levees; therefore, the project may affect but is not likely to adversely affect the decurrent false aster.

Meads milkweed (*Asclepias meadii*) requires moderately wet (mesic) to moderately dry (dry mesic) upland tallgrass prairie or glade/barren habitat characterized by vegetation adapted for drought and fire. It persists in stable late-successional prairie. This milkweed formerly occurred throughout the eastern tallgrass prairie region of the central United States, from Kansas through Missouri and Illinois and north to southern Iowa and northwest Indiana. It currently is known from 171 sites in 34 counties in eastern Kansas, Missouri, south-central Iowa, and southern Illinois.

Federal Action – The proposed project is located in an active agricultural field and on maintained levees. In addition, there is no virgin prairie located within the project area; therefore, the project may affect but is not likely to adversely affect the decurrent false aster.

3.2 Water Resources:

Existing - The area proposed for repair is located in the portion of the levee that runs along the Missouri River. 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.

No Action – Some increase in sedimentation, due to exposed soils, is likely if eroded levee areas are left unrepaired.

Federal Action – Impervious fill would be placed in the breach followed by grading and compacting. These areas would then be seeded with cool season grasses and allowed to revegetate. Because of erosion from repairs and placement of fill, a temporary increase in water turbidity may occur in water around repair operations if heavy rain occurs. Repairs would be completed following all applicable regulations including the installation of silt fencing to ensure water quality protection. After vegetation is reestablished, impacts to water quality would cease. The borrow area would remain in agricultural production.

3.3 Topography, Geology, Soils and Land Use:

Existing - The levee district lies in the floodplain of the Mississippi and Missouri Rivers. The landscape is typical ridge and swale topography created by the river as it migrated across the floodplain. The low ridges in the flood plain typically are composed of sandy or silty material, while the lower swales have surface soils that are typically silty clays.

The levee protects roughly 4,222 acres from a 5-year flood event. Of the protected area, 3,958 acres is prime farmland. Columbia Bottom Conservation Area occupies the majority of the protected area. The remaining area is farmed.

No Action – Because of the increased risk of levee failure and landside flooding under the current conditions, future high water events could have adverse impacts. These impacts may include scour and sedimentation as well as temporary or permanent changes in land use.

Federal Action – Repair of the breach area would reduce the chance of adverse affects on land use on the interior of the levee. Soil conditions and elevation in the borrow area would change as a result of borrow material removal. For purposes of the Farmland Protection Policy Act, NRCS does not consider creation of artificial wetlands, such as borrow areas that retain water, conversion to non-agricultural use due to the fact that these areas could be returned to crop production if the landowner chose to do so.

3.4 Flora:

Existing - Vegetation on the river side of the levee is dominated by mature floodplain forest and scrub/shrub communities. Habitat along the land side of the levee includes a small wetland and agricultural land managed for wildlife. The habitat on the levee consists primarily of non-native turf grasses.

No Action – Without flooding, the damaged areas would re-vegetate and no other impacts would occur. With flooding during the growing season, flood waters could kill vegetation behind the

levees as flood water ponds on typically dry areas dominated by upland plant species. Over time with continued periodic inundation, wetland vegetation would establish within the CBLD.

Federal Action - Levee vegetation (predominantly cool season grasses) would be removed during repairs. These areas would be reseeded after project completion resulting in no long term vegetation and erosion impacts. The borrow area would return to agricultural production.

3.5 Fauna:

Existing – Floodplain and bottomland forest, swamps, and aquatic habitats support a great variety of insects, crustaceans, mollusks, reptiles, amphibians, fish, birds, and mammals. Typical terrestrial species utilizing this habitat include turkey, white-tailed deer, beaver, raccoon, opossum, wood duck, and many songbirds.

No Action – Because the level of flood protection is reduced, flooding may occur more frequently displacing upland species. Over time, wetland species would become dominant.

Federal Action - Wildlife populations in the vicinity of the repair areas would be disturbed by noise, habitat disturbance, increased water turbidity, and exhaust. Disturbed areas would be replanted, and once vegetation reestablished, wildlife utilizing the area would likely return to pre-project levels.

3.6 Fisheries:

Existing – Some of the common fishes that occur within the Mississippi and Missouri River and associated tributaries and backwaters include sturgeon, paddlefish, gar, shad, carp, buffalo, catfish, freshwater drum, and numerous minnow and sunfish species.

No Action - Because the level of flood protection is reduced, flooding may occur more frequently. This would benefit spawning and rearing of many fish species.

Federal Action - 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 during repairs should have no long term adverse impacts to fish or their habitat.

3.7 Air Quality:

Existing – The Clean Air Act of 1963 requires the U.S. Environmental Protection Agency (EPA) to designate National Ambient Air Quality Standards (NAAQS). They have 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. St. Louis County, Missouri does not meet EPA air quality standards for 8-hour ozone, fine particulate matter (PM2.5), and lead (USEPA 2009). The state is responsible for preparing a State Implementation Plan (SIP) with a plan to "attain" NAAQS. Federal actions occurring in the non-

attainment zone must conform to the SIP and not prevent the state from achieving air quality goals.

No Action – There would be no change in air quality under this alternative.

Federal Action – With implementation of the proposed action, temporary increases in air pollution would occur due to particulate and combustible emissions from construction vehicles, mobile equipment, and their actions. Because emissions are from mobile sources, manufacturers are required to meet performance standards. The construction equipment would have catalytic converters and mufflers to reduce exhaust and emissions. Additionally, due to the short duration of construction, any increases or impacts on ambient air quality are expected to be short-term and minor. Therefore it is not necessary to quantify emissions given the lack of ambient emissions thresholds that could be used to make the determination of air quality impact. This project is not expected to cause or contribute to the violation of federal or state ambient air quality standards.

3.8 Hazardous, Toxic and Radioactive Waste Sites:

Existing - No Recognized Environmental Conditions have been identified that would indicate a risk of HTRW contamination within the project area. Given the agricultural nature of the land use in the project area, the likelihood of hazardous substances existing or adversely affecting the project area due to the proposed construction activities is very low.

No Action – Because the level of flood protection is reduced, flooding may occur more frequently increasing the risk of contamination from household and agricultural chemicals.

Federal Action – The St. Louis District will conduct a modified Phase I Environmental Site Assessment including a site investigation prior to notice to proceed to ensure that no HTRW contamination exists within the project area. Restoration of a pre-flood level of flood protection would reduce the chances of chemical contamination.

3.9 Noise:

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

No Action – No change is anticipated.

Federal Action - The proposed project would be expected to temporarily increase noise levels near repair sites. 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 by the USACE MVS in the past, noise above this level would not be expected to occur for periods longer than eight hours.

3.10 Recreation:

Existing - Popular recreational activities in Columbia Bottom Conservation Area and nearby recreational areas includes hunting, bird watching, nature study, and hiking.

No Action – Because the level of flood protection is reduced, flooding may occur more frequently. This would prevent most recreation activities until flood waters recede.

Federal Action - Construction equipment and activities would cause temporary disruption to nearby recreation activities (hunting and bird watching). This disruption would occur during the summer months when most hunting seasons have ended. Upon construction completion, all disruption would end.

3.11 Aesthetics:

Existing - The levee repair area is within and near natural areas and nearby agricultural fields. Bottomland forest, floodplain forest, and wetlands are conspicuous features directly adjacent to the repair areas.

No Action – With flooding, flood damage, sedimentation and scour would cause degradation to the landscape.

Federal Action - Construction equipment and activities would cause short-term visual modification of the landscape. Once construction is complete, all equipment would leave the area, and the seeded repair area would re-vegetate to closely resemble pre-flood conditions.

3.12 Socioeconomic:

Existing - The protected area is primarily agriculture and Missouri Department of Conservation lands. Included in the protected area are residential, commercial, and farm structures.

No Action – The current level of protection puts this area at greater risk of flooding. Without the federal action, the level of protection provided by the levee would be reduced putting property and crops at risk.

Federal Action – Local agricultural and recreation would benefit from levee repair and subsequent restoration of the pre-flood level of protection. The proposed levee repairs would not require residential displacement and could provide short-term employment for local contractors and laborers for up to one year.

3.13 Environmental Justice:

Existing – The standard unit of analysis for environmental justice is the Census-designated Block Group. Columbia Bottom falls within 1 Block Group that covers an area of 15.14 square miles east of St Louis, MO. Census data suggests populations within this levee district are increasing slightly. Demographic data indicates that the population is 75% Caucasian and 22% African American.

No Action – No population group would be differentially affected under this alternative.

Federal Action - Levee repairs would not differentially affect any group. The local community would gain short-term employment. Additionally, levee damage would be repaired in a shorter time period, decreasing risk to crops and livelihoods.

3.14 Cultural Resources:

Existing – The repair site location is composed of areas of erosion in recently deposited material or recently-placed levee berm material. There are no recorded archaeological sites in the repair site locations.

No Action - Without flooding, there would be no change from current conditions. With flooding, there is the potential for damage to culturally significant sites protected by the levee.

Federal Action - The proposed repairs to the levee within the Columbia Bottom Levee District will have no effect upon significant historic properties (archaeological remains or standing structures). The borrow area for Columbia Bottom Levee District is an agricultural field about 300 feet distant from the landside toe of the levee at the breach location. No sites are recorded in the borrow area and a pedestrian survey of the area failed to find any cultural remains.

In the unlikely event that earthmoving activities associated with the proposed repairs did impact potentially significant archeological/historic remains, all construction activities and earthmoving actions in the immediate vicinity of the remains would be held in abeyance until the potential significance of the remains could be determined. The precise nature of such investigations would be developed by the Saint Louis District in concert with the professional staff of the Missouri State Historic Preservation Office.

All actions taken will be in accordance with the National Historic Preservation Act of 1966, as amended (NHPA). The NHPA requires that any Federal undertaking consider the effects to historic properties and consultation with State Historic Preservation Officers and the Advisory Council on Historic Preservation. This 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 Missouri Historic Preservation Office (SHPO). Any future actions will be coordinated with SHPO's concurrence.

3.15 Tribal Coordination:

The St. Louis District consults with 27 tribes that have an interest in projects along all rivers within our district boundaries. Many levees adjacent to the Missouri and Mississippi rivers

within the U.S. Army Corps of Engineers St. Louis District boundaries were damaged by flooding in 2013. The recovery and repair of these damaged levees, authorized under PL84 -99, will be coordinated with all tribes in the following manner.

An initial letter to the tribes will describe the locations of existing flood damaged structures, lands and fills. Maps of the areas and a description of the types of impacts resulting from construction are also included. The tribes are requested to contact the USACE if there are known tribal areas of concern in any of the project areas and if they desire further consultation on each or any project. Depending on tribal response, the USACE continues the consultation process until the completion of the project.

4. CUMULATIVE IMPACTS

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 2013. 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 CBLD PL84-99 project along with several other levees will require borrow for levee repairs. Borrow sites have been examined and selected in order to avoid sensitive areas and resources. Borrow for the majority of these projects will come from agriculture areas, low quality farmed wetlands, and previously identified borrow areas. 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 PREFERRED ALTERNATIVE TO ENVIRONMENTAL REQUIREMENTS

Table 3 - Relationship of Preferred Alternative to Environmental Requirements Environmental Act/Executive Order	Compliance
Bald Eagle Protection Act, 42 USC 4151-4157	FC
Clean Air Act, 42 USC 7401-7542	FC
Clean Water Act, 33 USC 1251-1375	FC
Comprehensive Environmental Response, Compensation, and Liability Act, (HTRW) 42 USC 9601-9675	FC
Endangered Species Act, 16 USC 1531-1543	FC

Table 3 - Relationship of Preferred Alternative to Environmental Requirements Environmental Act/Executive Order	Compliance
Farmland Protection Policy Act, 7 (Prime Farmland)USC 4201-4208	FC
Fish and Wildlife Coordination Act, 16 USC 661-666c	FC
Food Security Act of 1985 (Swampbuster), 7 USC varies	FC
Land and Water Conservation Fund Act, (Recreation)16 USC 460d-4601	FC
National Environmental Policy Act, 42 USC 4321-4347	PC
National Historic Preservation Act, 16 USC 470 et seq.	PC
Noise Control Act of 1972, 42 USC 4901-4918	FC
Resource, Conservation, and Rehabilitation Act, (Solid Waste) 42 USC 6901-6987	FC
Rivers and Harbors Appropriation Act, (Sec. 10) 33 USC 401-413	FC
Water Resources Development Acts of 1986 and 1990 (Sec 906 – Mitigation; Sec 307 - No Net Loss - Wetlands)	FC
Floodplain Management (EO 11988 as amended by EO 12148)	FC
Federal Compliance with Pollution Control Standards (EO 12088)	FC
Protection and Enhancement of Environmental Quality (EIS Preparation) (EO 11991)	FC
Protection and Enhancement of the Cultural Environment (Register Nomination) (EO 11593)	FC
Protection of Wetlands (EO 11990 as amended by EO 12608)	FC

FC = Full Compliance, PC = Partial Compliance (on-going, will be accomplished before construction); Source: U.S. Army Corps of Engineers, St. Louis District.

6. COORDINATION, PUBLIC VIEWS, AND RESPONSES

This EA and Draft FONSI will be provided to state and federal agencies and the public for their review, comments, and concurrence during the 21 day public comment period. See Appendix A for the EA distribution list.

To assure compliance with the National Environmental Policy Act, Endangered Species Act and other applicable environmental laws and regulations, coordination with the following agencies will continue as required throughout the planning and construction phases of the proposed levee repairs.

U.S. Fish and Wildlife Service
Federal Emergency Management Agency
Missouri Department of Natural Resources
Missouri State Historic Preservation Office
Missouri Emergency Management Agency

7. REFERENCES

Brack, V., Jr., and R.K. LaVal. 1985. Food habits of the Indiana bat in Missouri. Journal of Mammalogy 66: 308-315.

Hall, J.S. 1962. A life history and taxonomic study of the Indiana bat, *Myotis sodalis*. Reading Public Museum and Art Gallery Science Publication 12: 3-68.

Humphrey, S.R., A.R. Richter and J.B. Cope. 1977. Summer habitat and ecology of the endangered Indiana bat, *Myotis sodalis*. Journal of Mammalogy, Vol. 58, No. 3. August. pp.: 334-346.

Missouri Dept. of Conservation, 2008. http://mdc.mo.gov/nathis/endangered/endanger/aster/index.htm

USEPA (U.S. Environmental Protection Agency). 2009. The Green Book Non-Attainment Areas for Criteria Pollutants. Available at http://www.epa.gov/oar/oaqps/greenbk/index.html (Accessed on March 24, 2009).

USFWS (U.S. Fish and Wildlife Service). 1993. Pallid sturgeon recovery plan. U.S. Fish and Wildlife Service, Bismarck, North Dakota. 55 pp.

USFWS (U.S. Fish and Wildlife Service). 1997. Endangered species facts: Pink Mucket (*Lampsilis orbiculata*). U.S. Fish and Wildlife Service, Fort Snelling, Minnesota. 1 pp.

USFWS (U.S. Fish and Wildlife Service). 2004a. Species assessment and listing priority assignment form, *Cumberlandia monodonta*. U.S. Fish and Wildlife Service, Twin Cities, Minnesota. 26 pp.

USFWS (U.S. Fish and Wildlife Service). 2004b. Endangered species facts: Scaleshell mussel (*Leptodea leptodon*). U.S. Fish and Wildlife Service, Fort Snelling, Minnesota. 2 pp.

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DRAFT FINDING OF NO SIGNIFICANT IMPACT

PUBLIC LAW 84-99
COLUMBIA BOTTOM LEVEE DISTRICT
ST. LOUIS COUNTY, MISSOURI
February 2014

1. I have reviewed the document concerned with the proposed levee repairs to the Columbia Bottom Levee District. The purpose of this project is to repair levee sections damaged by an extended high water event during the spring of 2013. 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 permanently repair the levee.

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 Columbia Bottom 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.

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

a. The no action 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 area deemed acceptable by the borrow inspection team. The selected borrow site location is shown in the Environmental Assessment. 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 recommended plan.

d. The recommended plan is not expected to cause significant adverse impacts to aesthetic quality, recreational use, or general fish and wildlife resources.

e. The recommended 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 recommended plan.

g. No prime farmland would be adversely impacted as a result of the recommended plan.

h. No significant impacts to historic properties (cultural resources) are anticipated as a result of the recommended plan.

i. Under the recommended 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-2013 flood protection.

4. The following environmental commitments are part of the recommended plan:

a. If any suspected hazardous materials are found, the USACE would notify the Missouri Environmental Protection Agency, 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 will 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 the environmental analysis of the recommended plan, no significant impacts on the environment are anticipated. The proposed action has been coordinated with appropriate resource agencies, and there are no significant unresolved issues. Therefore, an Environmental Impact Statement will not be prepared prior to proceeding with this action.

_____ _____

Date

Christopher G. Hall
Colonel, U.S. Army
District Commander