



**US Army Corps  
of Engineers** ®  
Memphis District

**ISSUE DATE:** December 15, 2015

**EXPIRATION DATE:** January 15, 2016

**PUBLIC NOTICE**  
**U.S. ARMY CORPS OF ENGINEERS**

**Availability of Draft Environmental Assessment  
and Draft Finding of No Significant Impact**

**REPLY TO:**

ATTN: Andrea Carpenter, Environmental Compliance Branch  
U.S. Army Corps of Engineers  
167 North Main Street, Room B-202  
Memphis, Tennessee 38103-1894  
Tele: (901) 544-0817  
Fax: (901) 544-3955  
E-mail: [Andrea.L.Carpenter@usace.army.mil](mailto:Andrea.L.Carpenter@usace.army.mil)

**TITLE:** Mississippi River Levee Maintenance, New Madrid to Sikeston Ridge (Farrenburg)  
Levee Rehabilitation, New Madrid County, Missouri

**AUTHORITY:** The renovation of the Farrenburg Levee is authorized and would be funded as part of the Mississippi River Levees (MRL) portion of the Mississippi River and Tributaries (MR&T) Project. The MR&T Project is authorized by the Flood Control Act of 15 May 1928, as amended.

**LOCATION:** The proposed Farrenburg Levee Rehabilitation Project is located in New Madrid County, Missouri, and extends along the levee from the City of New-Madrid approximately 11 miles north. Suitable earthen material to repair the levee would be obtained from material previously dredged from the Setback Levee Ditch located 4.5 miles east of the Farrenburg Levee (Figure 1).

**TO WHOM IT MAY CONCERN:** Pursuant to the National Environmental Policy Act of 1969 as amended, the U.S. Army Corps of Engineers, Memphis District, is issuing this notice with the intention of rehabilitating the entire length of the Farrenburg Levee.

**PURPOSE:** This levee was constructed in the 1930's, and the culverts placed at that time have exceeded their expected project life. Also, lack of maintenance has degraded the levee at the several sites, causing a potential for hazardous conditions. Continued erosion from heavy rains

**New Madrid-Sikeston Ridge Levee Rehabilitation  
New Madrid County, Missouri**

**U.S. Army Corps of Engineers  
Regional Planning and Environment Division South**

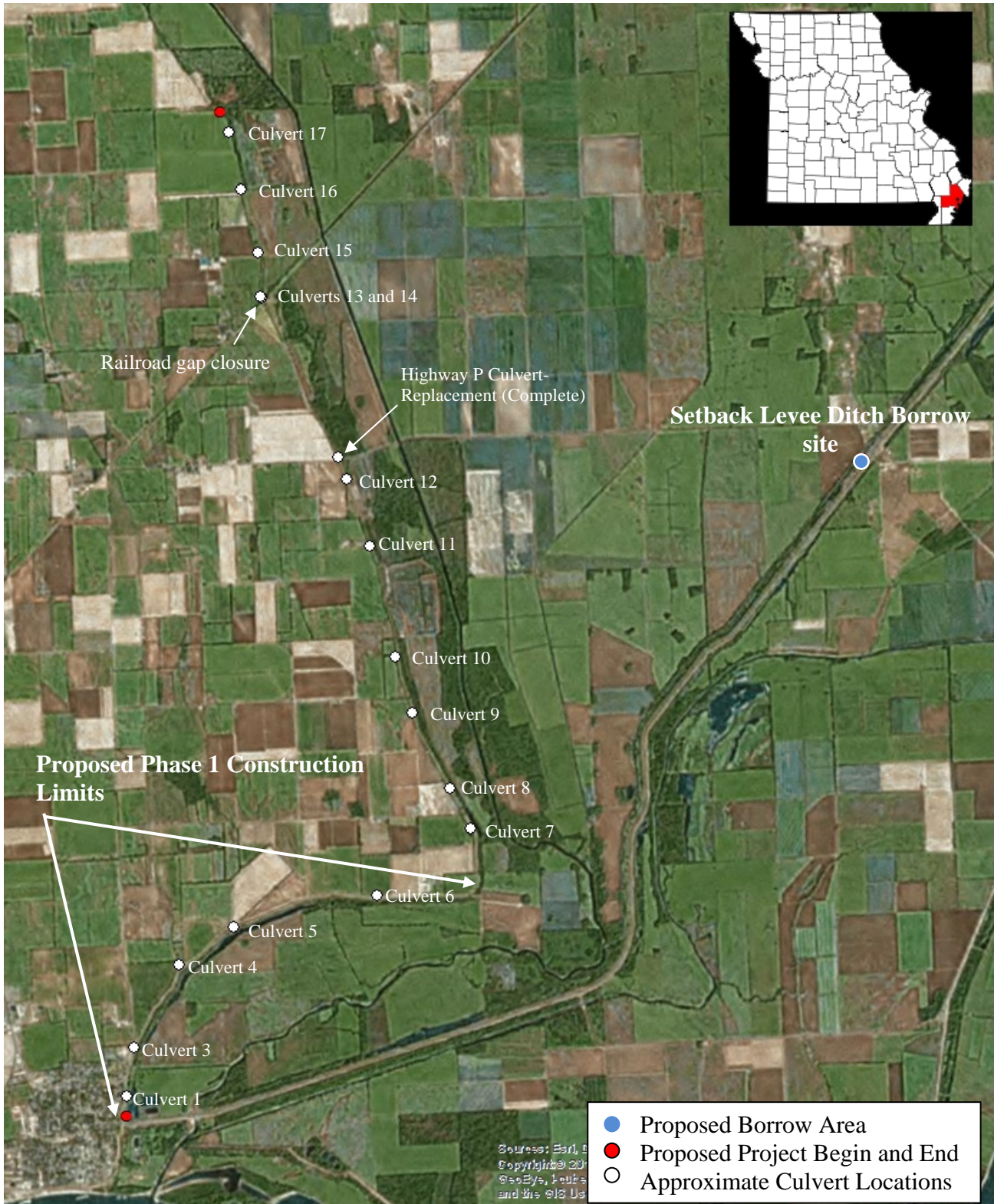


Figure 1. Aerial of proposed New Madrid-Sikeston Ridge (Farrenburg) Levee Rehabilitation Project showing approximate proposed project beginning and end, Phase 1 Construction Limits, approximate culvert locations, and borrow area.



and Mississippi River flood conditions may lead to a levee failure, which could result in human injuries and/or loss of life as well as damage to residential and agricultural properties.

**1.1 PROPOSED ACTION:** The proposed project would rehabilitate the entire length of the Farrenburg Levee in multiple phases of construction. Proposed work would include tree clearing within the 15-foot vegetation-free zone (VFZ) on each side of the levee and maintenance of existing culverts, both pursuant to USACE Levee Safety Program standards (USACE 2014, 2000, and 1998); repairing levee slides and sinkholes; and re-grading and/or raising the levee to the authorized elevation of 309' in low or eroded areas and at road crossings. A gap in the levee caused by a non-functional stop log structure at an old railroad crossing would be closed and the levee built to grade which may impact any traffic utilizing the unnamed, dead-end road (Figure 1). Gravel would be placed on the levee crown as part of the project to provide a 15-foot access road for inspections and routine maintenance. Gravel road construction and repair of sinkholes and levee slides would not impact wetlands or require tree clearing.

Eighteen culverts are located within the project area (Figure 1). Of those eighteen, one has been determined to be outside of USACE responsibility (culvert 2, not listed on Figure 1). Culverts (1, 5, and 6) are currently repairable to a functioning state until they are replaced sometime in the future; two require immediate replacement (3 and 4), and one has been replaced at Highway P which was previously cleared in the August 2014 "*Mississippi River Levee Maintenance, Farrenburg Levee Culvert Replacement, Near Levee Milepost 10 (LMP 10), New Madrid County, Missouri*" EA (Figure 1). The remainder of the culverts (7-17) are under investigation to determine the appropriate type of maintenance required to provide the required drainage. Eventually, every culvert (including those that are determined to be currently repairable) would be replaced with 36-inch, 48-inch, 60-inch or 72-inch reinforced concrete pipe (RCP) depending on the amount of flow expected at each site; therefore, compensatory mitigation is proposed for replacement of all eighteen culverts in Farrenburg Levee as well as tree clearing in the 15-foot VFZ, and the levee gap closure at the old railroad. Culvert repairs or removal would occur where it is determined in the best interest of the public.

The expected impacts from replacing the remaining 16 original culverts would include the tree clearing of a total of approximately 24.5 acres of BLH wetlands and an additional 1.3 acres of BLH forested wetland within the 15-foot VFZ. Culvert 3 would require approximately 1 acre and culvert 4 would require approximately 2.5 acres of tree clearing in BLH wetlands. Each of the remaining 14 culvert replacements are expected to impact approximately 1.5 acres of BLH wetlands. A total of approximately 9.7 acres of BLH trees that were not determined to be wetlands would also be cleared. This would include approximately 7.7 acres of clearing within the 15-foot VFZ and up to 2 acres of tree clearing required to close the levee gap at the old railroad crossing.

Generally, culvert replacement sites would require a backhoe or other equipment to excavate a trench through the levee to accommodate the new culvert and remove the existing one. The proposed action would include several design features to reduce erosion and risks associated with culvert replacement. Concrete inlet and outlet structures would be constructed at the ends of the culvert pipes, and riprap and filter gravel would be placed around the inlet and

outlet structures as well as within the landside drainage ditches to prevent erosion of the new structures. Silt fences would be placed along the boundary of the project work areas in compliance with Missouri regulations to contain runoff material during construction activities. When necessary, suitable earthen material would be obtained from material previously dredged and stockpiled on the left-descending bank of the Setback Levee Ditch (Figure 1). No tree clearing is expected within the approximately 5.3-acre stockpile area which was previously cleared in the August 2014 “*Mississippi River Levee Maintenance, Farrenburg Levee Culvert Replacement, Near Levee Milepost 10 (LMP 10), New Madrid County, Missouri*” EA. Temporary stockpile/staging areas would be required at each site. These are expected to total approximately 0.2 acres or less per culvert site and would be located on adjacent non-wet farmed field or other upland area landside of the Farrenburg Levee Right-of-Way.

Phase 1 construction (Figure 1) is expected to occur during FY 2016, would include tree clearing within phase 1 construction limits only, and would involve replacement of culverts 3 and 4 (Figures 2 and 3), detailed below.

**Proposed Phase 1 Construction:** The Culvert 3 replacement site would require a backhoe or other equipment to excavate a trench through the levee to remove the existing culvert and to accommodate the replacement. Culvert 3 is a 72-inch square concrete culvert and would be replaced with two 48-inch RCP. Concrete inlet and outlet structures would be constructed at the ends of the culvert pipes, and 360 tons of R400 riprap and 85 tons of filter gravel would be placed around the outlet structure. Approximately 1 acre of BLH tree clearing and temporary fill for construction of a coffer dam to prevent back-flooding during construction would be required (Figure 2). Less than 0.1 acre of the clearing would be permanently maintained by mowing. No permanent fill would occur at this location, and temporary fill would be removed post-construction.

Culvert 4 would require inlet channel realignment; therefore, impacts exceeding the typical culvert replacement impacts would be expected. Two levee trenches would be cut to remove the existing culvert and construct the replacement. A sinkhole has been identified at this location and would be repaired at the time of construction. Culvert 4 is currently a 72-inch square concrete culvert and would be replaced with two 72-inch RCPs. Concrete inlet and outlet structures would be constructed at the ends of the culvert pipes. Approximately 636 tons of R400 riprap and 153 tons of filter gravel would be placed around the inlet ditch and structure, and approximately 424 tons of riprap and 102 tons of filter gravel would be placed at the outlet structure ditch to prevent erosion of the new structures. Approximately 2 acres of BLH wetland tree clearing, temporary fill for construction of a coffer dam, and removal of the existing culvert would be required on the flood side of the levee. Post-construction temporary fill would be removed, and less than 0.1 acre would be permanently maintained by mowing. The inlet realignment would require approximately 0.5 acre of BLH wetland tree clearing on the land side of the levee, construction of a new inlet ditch, and permanent fill of approximately 250 feet (1,900 cubic yards) of the existing inlet ditch (Figure 3).



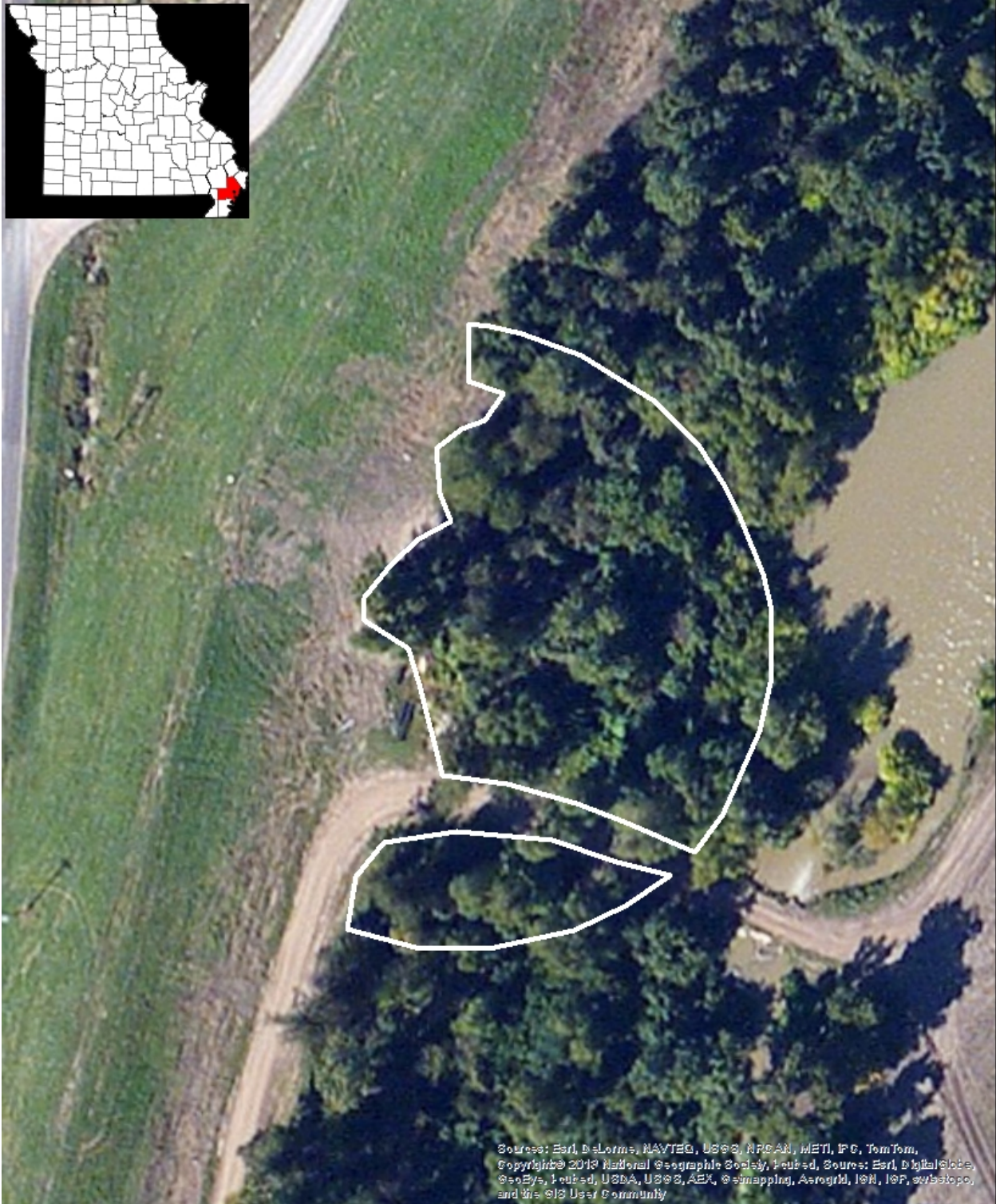


Figure 2. Proposed Culvert 3 tree clearing for the New Madrid-Sikeston Ridge (Farrenburg) Levee Rehabilitation in New Madrid County, Missouri.





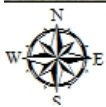
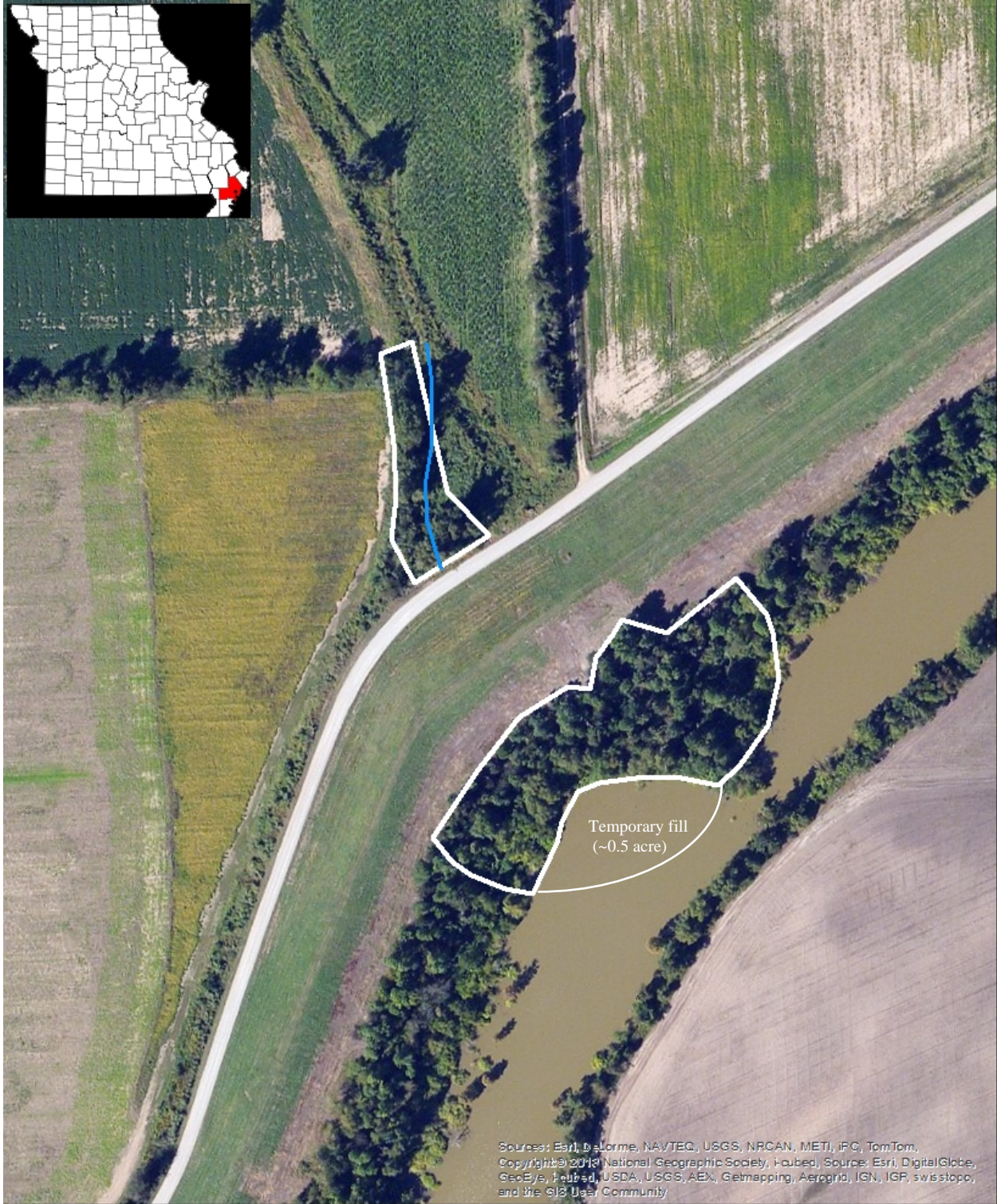


Figure 3. Proposed Culvert 4 tree clearing and temporary fill for the New Madrid-Sikeston Ridge (Farrenburg) Levee Rehabilitation in New Madrid County, Missouri including proposed inlet ditch realignment.



Phase 1 tree clearing within the 15-foot VFZ would total approximately 0.25 acres, which would be mitigated as described below in “*Mitigation*”. The majority of the tree clearing in the VFZ proposed for Phase 1 Construction would include isolated trees that grow on the levee proper. Approximately 0.1 acre has been determined to be within BLH forested wetland. No permanent fill would be required for this action. Gravel road construction and repair of levee sinkholes and slides would not impact wetlands or require tree clearing. The remaining phases of construction would occur as the Corps receives sufficient funding and real estate rights of way until all culverts have been addressed.

**Stockpiled Dredged Material:** When required, earthen material to repair the Farrenburg Levee would be obtained from material previously dredged from the Setback Levee Ditch and stockpiled within an area approximately 2,300 feet by 100 feet (5.3 acres) located between the ditch and the adjacent Birds Point-New Madrid Setback Levee (Figure 1). Project activities would be conducted during dry or low water periods as practicable. Bulldozers would be utilized to clear and grub the 5.3-acre stockpile site as needed to obtain sufficient quantities of earthen material to repair the Farrenburg Levee. Excavation of suitable earthen material would start at the existing top of bank and extend no closer than 50 feet from the toe of the levee. The vegetation and unsuitable earthen material removed would be temporarily stockpiled on-site. The cleared area would then be excavated to an elevation no lower than natural ground, approximately 295 feet NAD83 (North American Datum of 1983). From this point, the excavation would continue towards the levee at a 1.0% grade. The tie-in to existing grade would be made at a 1V:6H slope and would tie-in to the existing grade no more than 50 feet from each toe of the levee. Should seepage occur, the water would drain with the slope of the excavated area. Excavators would then remove the earthen material deemed suitable, which would be processed on site to reduce the moisture content within the soil. The moisture content processing would be performed by mechanical methods such as utilizing bulldozers to stockpile materials and disks to further reduce the moisture content of the soil.

**ALTERNATIVES:** Five alternatives were considered for the proposed action: 1) no-action; 2) remove the existing culverts and repair the levee without installing new culverts and clear existing trees within the 15-foot VFZ; 3) remove some culverts, construct drainage ditches, and repair/replace remaining culverts and clear existing trees within the 15-foot VFZ; 4) repair all existing culverts in place and clear existing trees within the 15-foot VFZ; 5) replace or repair existing culverts, repair levee slides and sinkholes, close the levee gap, and clear existing trees within the 15-foot VFZ.

2.1 Alternative 1 – No-action alternative. The no-action alternative would result in the continued degradation of the Farrenburg Levee as no project features would be constructed. Continued erosion of the culverts from heavy rains and during flood conditions would eventually lead to levee failures. Sinkholes and levee slides would worsen and continue to endanger the levee and the areas it protects. Additionally, woody vegetation encroachment would continue to increase the risk of seepage through the levee and prevent proper inspections and maintenance of the levee. Failure of this flood protection levee would result in potential human injuries and/or loss of life and damage to residential and agricultural properties. Therefore, the Memphis District has determined that this alternative would not effectively address the active degradation

of Farrenburg Levee; and the levee would continue to not meet the USACE Levee Safety Standards.

2.2 Alternative 2 – Remove the existing culverts and repair the levee without installing new culverts and clear existing trees within the 15-foot VFZ. This alternative would remove all culverts from the Farrenburg Levee, eliminating the existing drainage of water from the landside areas to the floodside of the levee. Tree clearing within 15-foot VFZ would impact approximately 1.3 acres of BLH forested wetlands and approximately 7.7 acres of BLH trees that were determined not to be wetlands. Minimal environmental impacts due to culvert removal would occur as work would be completed almost exclusively from the levee proper. Total culvert removal would result in repeated flood damage to the City of New Madrid and residential areas, rural and agricultural areas, and roadways, potentially resulting in human injuries and/or loss of life. Once it was determined that this alternative would create adverse unanticipated impacts by worsening landside flooding, Memphis District determined this alternative was not practicable and removed this alternative from further consideration.

2.3 Alternative 3 – Remove some culverts, construct drainage ditches, and repair/replace remaining culverts and clear existing trees within the 15-foot VFZ. This alternative would remove a number of culverts from the Farrenburg Levee, construct new drainage ditches throughout the project area, and repair or replace remaining culverts. This alternative would result in additional hydrologic studies, construction time, and real estate costs. Construction would depend on willing sellers to provide land in the appropriate places. Environmental impacts, such as impacts to farmed wetlands and increased tree clearing would add additional mitigation requirements. Memphis District determined this alternative was not practicable and removed it from further consideration based on the costs and additional environmental impacts of this alternative versus the remaining alternatives.

2.4 Alternative 4 – Repair all existing culverts in place, repair levee slides and sinkholes, and clear existing trees within the 15-foot VFZ. Alternative 4 would repair all culverts located within the Farrenburg Levee, regardless of current state, by coating the inside of each culvert using bituminous materials. An estimated total of approximately 1.6 acres (approximately 0.1 acre per culvert) of tree clearing in forested wetlands would occur to allow for access to repair the culverts. With the construction of this alternative, erosion of the inlet and outlet structures would continue and all culverts would still require replacement in the future as all culverts have exceeded their project life. Some of the culverts, such as 3 and 4, are currently beyond the point of repair in place. Memphis District determined this alternative was not practicable as it could not be used to repair culverts 3 and 4, would not effectively provide a satisfactory level of protection as the culverts have exceeded their project life, and would not, by itself, address continuing erosion issues at the inlets and outlets of the culverts.

2.5 Alternative 5 – Replace, repair or remove existing culverts as needed throughout project area, repair levee slides and sinkholes, and clear existing trees within the 15-foot VFZ. This alternative, as described under section “1.1 Proposed Action”, would comply with the USACE Levee Safety Program requirements, maintain drainage from landside areas to the floodside of



the levee, and improve the integrity and stability of the Farrenburg Levee by incorporating erosion control features as part of the construction design.

A total of approximately 35.5 acres of tree clearing would occur to address the 15-foot VFZ, all currently planned and future culvert replacements and temporary coffer dam construction, and closure of the levee at the old railroad crossing. The expected impacts from replacing the remaining 16 original culverts would include the tree clearing of a total of approximately 24.5 acres of BLH wetlands and an additional 1.3 acres of BLH forested wetland within the 15-foot VFZ. Culvert 3 would require approximately 1 acre and culvert 4 would require approximately 2.5 acres of tree clearing in BLH wetlands. Each of the remaining 14 culvert replacements are expected to impact approximately 1.5 acres of BLH wetlands. A total of approximately 9.7 acres of BLH trees that are not wetlands would also be cleared. This would include approximately 7.7 acres of clearing within the 15-foot VFZ and up to 2 acres of tree clearing required to close the levee gap at the old railroad crossing.

Compensatory mitigation consists of the restoration of approximately 99.5 acres of prior converted or non-wet agricultural land to bottomland hardwoods, or a comparable amount of forested wetland mitigation credits would be purchased from an approved mitigation bank. All factors considered, Alternative 5 is the most practicable solution for flood risk reduction and is the preferred alternative for the proposed project assessed in this EA. No significant adverse environmental impacts are associated with this alternative.

**MITIGATION:** A total of approximately 25.8 acres of forested wetlands would be impacted by the proposed project. Approximately 24.5 of those acres would be impacted due to planned and future culvert replacements, and 1.3 of those acres would be impacted due to tree clearing within the VFZ. Compensatory mitigation would occur at a ratio of 3:1 to offset the impacts of clearing 25.8 acres of BLH forested wetlands, resulting in approximately 77.4 acres of prior converted or non-wet agricultural land being restored to BLH forested wetland or a comparable amount of forested wetland mitigation credits would be purchased from an approved mitigation bank. The recently completed emergency replacement of the culvert at Highway P impacted 0.9 acres of forested wetland, and mitigation of 2.7 acres of compensatory mitigation is still required. This mitigation has not yet been completed as it was determined that all impacts for the Farrenburg Levee rehabilitation would be mitigated with the largest contiguous tract possible, and is included in the total acres of compensatory mitigation for this proposed project.

An additional 9.7 acres of tree clearing would occur on land that was determined not wet, based on higher elevations and a site visit conducted by USACE Memphis District Regulatory Branch and Environmental Compliance Section. Tree clearing in these areas would be mitigated at a lower ratio of 2:1 for a total of 19.4 acres, as they are not within wetlands, and are largely within a tree line that is overgrown with various woody vines, isolated on the levee, or are a very small part of the forested area on the flood side of the levee, and not providing a great deal of wildlife habitat. These areas would be mitigated due to the scarcity of forested habitat in the general area.

Plans for future construction phases are not complete, and some changes to expected impacts may occur. If changes occur that would alter the total impacts or required compensatory mitigation, additional coordination between agencies would occur. Based on expected activities, a total of 99.5 acres of compensatory mitigation would be completed to offset impacts to wetlands and wildlife.

**CLEAN WATER ACT:** The proposed project is authorized as part of the Flood Control Act of 1928, as amended, and the proposed project action to replace the existing Farrenburg Levee culvert is considered to be maintenance. Requirements for Section 404 of the Clean Water Act are fulfilled by the Nationwide Permit Section 3 Maintenance (a) as follows:

3. Maintenance. (a) The repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure, or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, requirements of other regulatory agencies, or current construction codes or safety standards that are necessary to make the repair, rehabilitation, or replacement are authorized.

The proposed project action also meets the requirements set forth in the State of Missouri, Clean Water Act Section 401 Water Quality Certification, 2012 General and Specific Conditions. The project does not trigger any new permit requirements set forth in the conditions noted in the Missouri Nationwide Permit Regional Conditions for all Nationwide Permits. In particular, the wetlands within the proposed culvert replacement project area are not designated as a priority watershed by the State of Missouri.

**THREATENED AND ENDANGERED SPECIES:** USACE biologists conducted a survey for threatened and endangered species within the proposed Farrenburg Levee project area. Potential summer roosting habitat for the federally endangered Indiana bat (*Myotis sodalis*) and threatened northern long-eared bat (*Myotis septentrionalis*) was observed within proposed project limits. An acoustic survey of the phase 1 construction limits was conducted by MVM staff from 10-14 August 2015. The survey indicated the likely presence of northern long-eared and gray bats. Upon coordination with the U.S. Fish and Wildlife Service it was determined that all tree clearing for phase 1 construction could be completed during the winter hibernation period while these species are not present in the area to avoid the potential for direct take of any federally threatened or endangered bats. Based on the project location, amount of habitat to be disturbed and the survey provided, the proposed work may affect, but is not likely to adversely affect the gray and northern long-eared bats, if implemented with seasonal tree-cutting restrictions (November 1-March 31). No other habitat suitable for federally threatened or endangered species was observed within the project area.

Future phases of construction would be coordinated with USFWS prior to tree clearing and construction. Acoustic surveys would be completed as future phases of construction are

developed. All future construction would be coordinated with USFWS to determine the appropriate measures to avoid impacts to federally threatened and endangered species.

**CULTURAL RESOURCES:** A cultural resources survey of the project rights-of-way for the proposed Farrenburg Levee culvert replacement work area was conducted in March 2014 and August 2015. No cultural resources were found during the survey, and no previously recorded cultural resources were found in the State of Missouri data base. As earthen material to repair the levee would be obtained from previously stockpiled dredged material, no cultural sites would be disturbed to obtain the borrow material. No further archeological work is recommended. A Cultural Resource Assessment-Section 106 Review was received from the Missouri State Historical Preservation Officer on September 28, 2015, indicating that an adequate cultural resource survey was completed and no historic properties would be affected by the proposed actions.

**PUBLIC INTEREST REVIEW:** The purpose of this public notice is to advise all interested parties of the proposed activities and to solicit comments and information necessary to evaluate the probable impact on the public interest. This notice is being circulated to federal, state and local environmental agencies; Native American tribes; and public. The decision to proceed with the proposed modifications will be based on an evaluation of the probable impact, including cumulative impacts, of the activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The potential benefits of the activity must be balanced against its reasonably foreseeable detriments. Potential direct, indirect, and cumulative effects of the activity on the human environment will be considered.

Memphis District is soliciting comments from the public; federal, state, and local agencies and officials; Native American Tribes; and other interested parties in order to consider and evaluate the impacts of the proposed activity. Any comments received will be considered by Memphis District to determine whether to proceed with the proposed action. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and other public interest factors. Comments are used in preparation of the final environmental assessment and/or draft environmental impact statement pursuant to the National Environmental Policy Act and are also used to determine the overall public interest of the proposed activity. **The Draft Environmental Assessment and Draft Finding of No Significant Impact have been completed and will be circulated to agencies and any other party that responds to this notice requesting a copy. Copies have been placed on the District's website at:**

<http://www.mvm.usace.army.mil/About/Offices/Regulatory/PublicNotices.aspx>. The files are located towards the bottom of the screen in the table, Memphis District Civil Works Projects. Refer to the column for State: Missouri, Project: Farrenburg Levee Culvert Replacement. Under the column for Document, click on Environmental Assessment to access the draft EA, and click on Finding of No Significant Impact to access the draft FONSI.

**PUBLIC HEARING:** Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this proposed project action. Requests for



a public hearing should clearly state the reason for holding a public hearing. The District Engineer will determine if the issues raised are substantial and whether a hearing is needed in order to reach a decision on the project. Failure of any agency or individual to comment on this notice will be interpreted to mean that there is no objection to the proposed work.

**COMMENTS OR REQUEST FOR ADDITIONAL INFORMATION:** If you wish to obtain additional information or to submit comments on this proposal, please contact Andrea Carpenter at the U.S. Army Corps of Engineers, Environmental Compliance Branch, 167 North Main Street RM B-202, Memphis, Tennessee 38103-1894, at 901-544-0817 or [Andrea.L.Carpenter@usace.army.mil](mailto:Andrea.L.Carpenter@usace.army.mil). **Comments should be forwarded to this office by January 15, 2016.**

Sincerely,



Edward P. Lambert  
Chief, Environmental Compliance Branch  
Regional Planning and Environmental Division South

