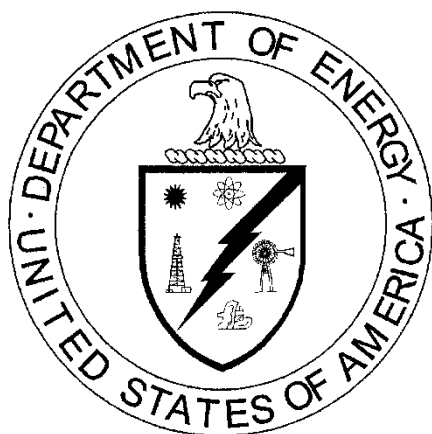


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**Floodplain Assessment for Proposed
Transport Road Bridge Demolition
at the Paducah Gaseous Diffusion Plant,
Paducah, Kentucky**



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Transport Road Bridge Demolition
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Paducah, Kentucky**

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U.S. DEPARTMENT OF ENERGY
Office of Environmental Management

Prepared by
FOUR RIVERS NUCLEAR PARTNERSHIP, LLC,
managing the
Deactivation and Remediation Project at the
Paducah Gaseous Diffusion Plant
under Contract DE-EM0004895

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CONTENTS

ACRONYMS.....	iii
1. INTRODUCTION.....	1
2. PROJECT DESCRIPTION	1
3. FLOODPLAIN IMPACTS.....	4
4. ALTERNATIVES	5
5. CONCLUSIONS.....	5

ACRONYMS

<i>CFR</i>	<i>Code of Federal Regulations</i>
DOE	U.S. Department of Energy
EO	Executive Order
FEMA	Federal Emergency Management Agency

1. INTRODUCTION

This floodplain assessment has been prepared in accordance with 10 *CFR* Part 1022, *Compliance with Floodplain and Wetland Environmental Review Requirements*, for the purpose of fulfilling U.S. Department of Energy (DOE) responsibilities under Executive Order (EO) 11988, *Floodplain Management*. EO 11988 requires that federal agencies take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities for (1) acquiring, managing, and disposing of federal lands and facilities; (2) providing federally undertaken, financed, or assisted construction and improvements; and (3) conducting federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities.

A floodplain is defined under 10 *CFR* Part 1022 as an area that is lowlands adjoining inland and coastal waters and relatively flat areas and flood-prone areas of offshore islands.

DOE is proposing to deactivate, demolish, and disposition Transport Road Bridge C900057 (Bridge 2) over Bayou Creek at the Paducah Site that supported the former uranium enrichment facility. Bridge 2 is aging and/or deteriorated, and is no longer needed for current site activities.

Demolition of the bridge may require that an excavator enter Bayou Creek and its floodplain to safely support demolition and cleanup activities. The remaining bridge support strut, which has fallen into Bayou Creek, will be removed from the creek's floodplain to maintain natural flow through the creek.

DOE prepared this floodplain assessment to evaluate the potential impacts of implementing a portion of the proposed project within a floodplain (i.e., proposed floodplain action), as required by 10 *CFR* Part 1022.

2. PROJECT DESCRIPTION

DOE is planning to deactivate, demolish, and disposition the transport road bridge over Bayou Creek at the Paducah Site. Demolition of the transport road bridge will require excavators to push/pull the approximate 70 ft × 17 ft steel beam bridge across Bayou Creek. This will be accomplished by placing one excavator on one side one excavator on the other side of the bridge, lifting it up, and pushing/pulling it towards the north side of Bayou Creek. Once the bridge is far enough over to safely set it down, the bridge will be put down and an excavator will enter Bayou Creek to pick it back up and continue pushing/pulling onto the top of the embankment. The bridge will then be characterized for potential reuse at other locations in the West Kentucky Wildlife Management Area, then recycled and/or properly dispositioned. There is one bridge support strut that is located in the floodplain which will be retrieved and properly characterized. Any loose material that may become dislodged during movement will be retrieved and properly characterized for disposition. The bridge abutments and three remaining support strut footers will be left in place to be removed at a later time.

As part of the preparation for an excavator to get into Bayou Creek, some trees will be removed to clear a safe access into Bayou Creek for the excavator. Impacts to the aquatic environment will be limited to 100 linear ft of stream impact and 0.3 acre of floodplain impacts. U.S. Fish and Wildlife consultation concluded that the proposed action “may affect but is not likely to adversely affect” the gray bat and Indiana bat, and the clubshell, fanshell, fat pocketbook, longsolid, orangefoot pimpleback, pink mucket, rabbitsfoot, ring pink, rough pigtoe, sheepsnose mussel, and spectaclecase mussel species. In view of these findings, the Section 7 requirements of the Endangered Species Act of 1973 for this project are fulfilled.

The transport road bridge is located in the Bayou Creek floodplain which flows approximately five miles north to the Ohio River. The quantity and quality of flows of Bayou Creek are highly variable and depend on precipitation, storm-water runoff, and treated effluent discharges. This segment of Bayou Creek (mile point 0.0 to 12.6) is listed for nonsupport of uses in the *2024 Integrated Report to Congress on the Condition of Water Resources in Kentucky*. The nonsupported uses are warm water aquatic habitat (nonsupport). The pollutants of concern are copper, lead, mercury, nutrient/eutrophication biological indicators, and sedimentation/siltation.

The proposed project site is within special flood hazard zone A, which is subject to inundation by the 1% annual chance flood (100-year flood) with no base flood elevations and is identified as a 100-year floodplain area by the Federal Emergency Management Agency (FEMA) on the FEMA Flood Insurance Rate Maps for McCracken County Unincorporated areas (FEMA, Map No. 21145C015F, 11/02/2011) (see Figure 1). The proposed demolition work will not be performed when a rain event is forecasted to be in the area. This will minimize the potential flooding hazard to personnel and equipment associated from the rainfall.

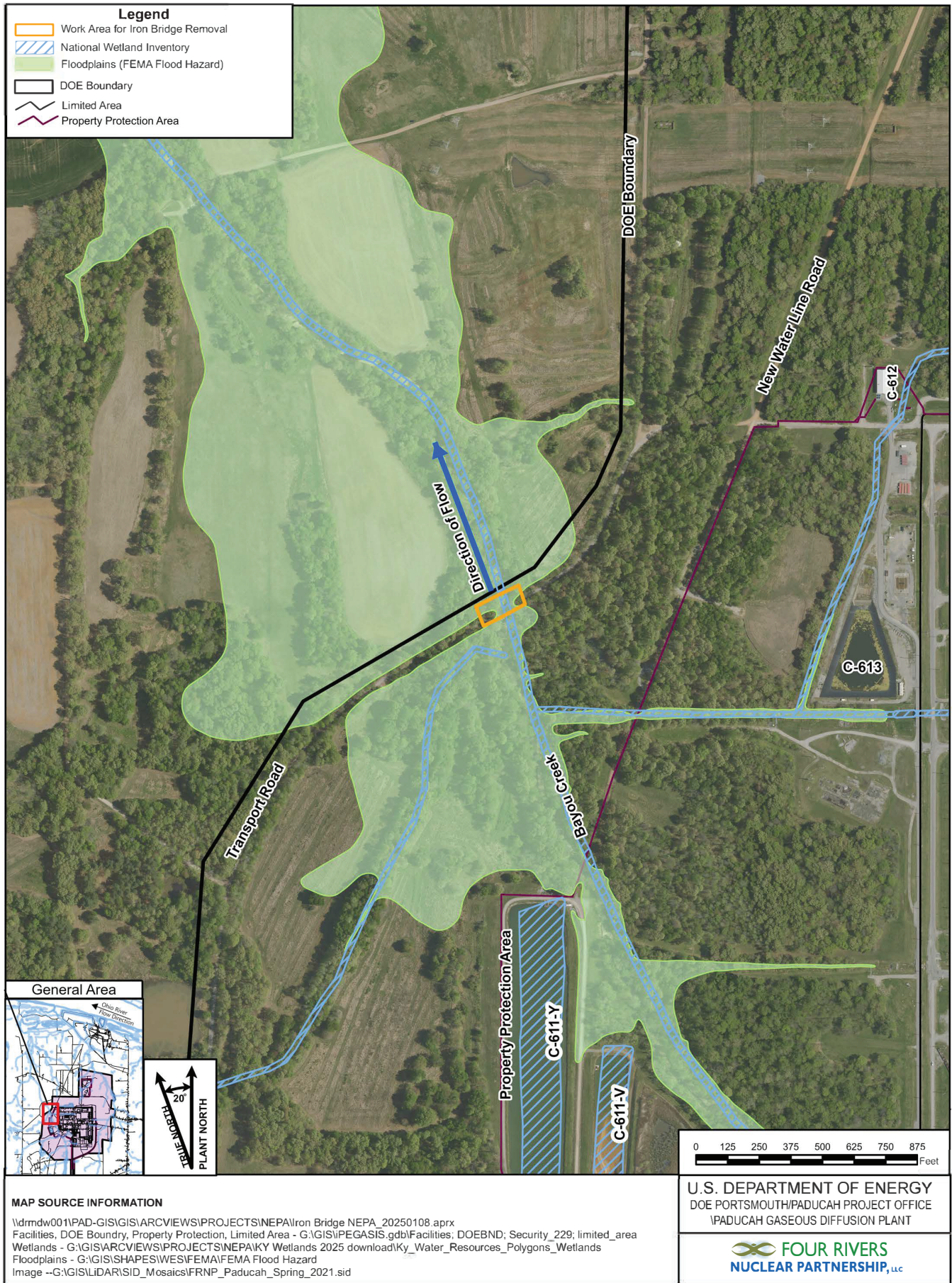


Figure 1. Transport Road Bridge Removal Floodplain Map

3. FLOODPLAIN IMPACTS

Demolition activities associated with the proposed project and subsequent removal of the transport road bridge would involve work within the 100-year floodplain. The existing elevations and flow paths of the area within the floodplain are not expected to change. The nature and extent of the flood hazard caused by the proposed project is not expected to change from the present conditions.

Short-term direct impacts to the floodplain would result from the temporary disturbance of the area during demolition activities associated with the removal of trees, the transport road bridge, and the support strut. Although the trees will be cut down, the stumps and roots will be left in place to minimize sediment disturbance; the surrounding habitat will remain woodland/forested. No conversion of the floodplain habitat will occur due to this action. Additionally, the possibility of sediment run-off or erosion could occur as a result of operation of an excavator in Bayou Creek and/or a storm during the demolition. However, sediment and erosion controls would minimize any disturbance to the floodplain and adjacent areas.

No long-term negative direct or indirect impacts to the beneficial values of the 100-year floodplain would be expected under the proposed project.

The transport road bridge spans Bayou Creek in the West Kentucky Wildlife Management Area on DOE property. The bridge has been posted to not permit vehicle or pedestrian traffic across the bridge. No effects to lives and property associated with floodplain disturbance are anticipated.

There would be incidental temporary disturbance of the floodplain from operation of equipment during demolition. This temporary disturbance would be minimized through the following actions.

- No mechanized clearing in the floodplain will be conducted.
- Roots of the trees removed will be left in place to avoid ground disturbance.
- Low ground pressure equipment or mats during the clearing and demolition activities will be used to minimize rutting and reduce soil compaction.
- If equipment must be refueled, spill pans and additional best management practices will be employed to prevent spills and/or leaks into wetlands or drainages.
- Hazardous materials, chemicals, fuels, and oils will not be stored in or adjacent to the floodplain.
- Floating silt fencing will be used downstream from the work area to minimize silt migration in Bayou Creek.
- Floating oil boom will be used downstream from the work area to minimize the impact from any potential spills.
- Other best management practices to reflect field conditions, as necessary.

4. ALTERNATIVES

The alternatives to the proposed project include no action and bridge replacement as described below.

No Action—The no action alternative was considered, but not selected because the transport road bridge has lost its structural integrity, poses safety concerns to pedestrian traffic, and has the potential to collapse into Bayou Creek. The collapse would impact flow in the creek and disrupt flow during storm water events.

Bridge Replacement—The bridge replacement alternative was considered, but not selected because of funding. The transport road bridge is not required for DOE operations. The land is leased to West Kentucky Wildlife Management and has alternate routes available. The cost to replace the bridge does not fit the life cycle cost baseline for the usage it receives.

5. CONCLUSIONS

The proposed demolition of the transport road bridge would have no impacts on floodplains associated with Bayou Creek. Demolition activities will have short-term impacts on 100 linear ft of stream impact and 0.3 acre of floodplain from the operation of equipment and removal of trees.

Implementation of the measures to minimize temporary disturbance during demolition will further reduce floodplain impacts as discussed in Section 3. If erosion controls are utilized as best management practices, then they will be maintained until impacted areas no longer have a concern of erosion. No significant floodplain impacts would result.