

DRAFT ENVIRONMENTAL ASSESSMENT

POWE DTCH, STODDARD COUNTY, MISSOURI GRADE CONTROL STRUCTURE

INTRODUCTION

The Corps of Engineers, Memphis District, has prepared this Environmental Assessment (EA) to evaluate potential impacts associated with installing a rock weir grade control structure to alleviate channel headcutting in Powe Ditch, Stoddard County, Missouri. The project site is about 8.0 miles southwest of the town of Powe, Missouri. Channel headcutting has progressed about 550 feet upstream from the mouth of Powe Ditch at the St. Francis River. If left unchecked, scouring could continue upstream resulting in the unraveling of adjacent drainage ditches, and eventually impacting State Highway U. The Cropland along the top banks has surface cracks at the headcut that are indicative of eminent bank sloughing. The weir would be located about 400 feet upstream of the confluence of Powe Ditch and the St. Francis River, which is about 150 feet downstream of the head cut (Appendix – Figures 1 through 5). Installing a rock grade control structure would stabilize the headcutting and raise the channel bottom to near its original elevation. A small amount of excavation would be done within the project rights-of-way to slope the banks to accommodate the rock riprap armor. No overall channel enlargement would be done. All excavated material would be deposited on cropland on the old excavated material pile from the earlier St. Francis River work. No wetlands or endangered species would be impacted with construction. No cultural resources would be impacted.

This EA was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as interpreted by Council on Environmental Quality Regulations (40 CFR Parts 1500-1508) and the U.S. Army Corps of Engineers Regulation ER-200-2-2, and employs a systematic, interdisciplinary approach. The following sections include a discussion of the need, authority, and impacts of alternative plans on natural and cultural resources associated with the proposed action.

PROJECT DESCRIPTION

The channel banks at this project site are nearly vertical and 25 feet deep. The top bank width is about 60 feet. Both ditch banks are overgrown with thick vegetation of grasses, vines, and saplings that sprouted from the stumps of previously cut small trees. About 60 linear feet of both ditch banks would be graded and shaped back making a new top bank width at the weir of about 160 feet. The excavated material would be deposited about 180 feet away on the north side of the ditch, on cropland that is on the slope of the old excavated material embankment from earlier St. Francis River work. The new disposal area dimensions would be about 120 feet x 150 feet, and 10 feet high at its thickest. Approximately 3,640 cubic yards of material would be excavated. All exposed soil would be seeded in a grass cover to prevent erosion. Approximately

304 tons of limestone filter material would be laid down in the channel, first. Then about 6,150 tons of R650 limestone riprap rock would be placed on top of the filter gravel to complete the rock grade control structure. The bottom of the weir would be about 10 feet thick. The project plans are included in the Appendix to this document.

NEED FOR ACTION

Purpose

The purpose of this project is to arrest the headcutting in Powe Ditch with a small rock weir grade control structure by armoring the banks and raising the ditch bottom elevation at the weir. This would make a hard point that would resist erosion, thus providing channel bottom and bank stabilization. If left unchecked, headcut scouring could continue upstream resulting in the unraveling of adjacent drainage itches, and eventually impacting State Highway U.

Public Concerns

Continued Powe Ditch channel scour degradation has the potential to adversely impact adjacent ditches and affect the drainage of a much larger area. If unchecked, headcutting could eventually affect State Highway U, located a few miles upstream. There is even potential for channel erosion to adversely affect the confluence of Powe Ditch with the St. Francis River.

PROJECT AUTHORITY

This project is authorized by the Flood Control Act of 1950, as amended and supplemented. As part of this Act, the Federal government is responsible for major maintenance of the constructed flood control features.

ALTERNATIVES

Three alternatives were considered during plan formulation.

Alternative 1: No Action: The no-action alternative is defined as termination of the project. Headcutting and bank scouring would continue. This could eventually lead to public safety issues should Highway U be impacted. Also, alterations to the St. Francis River could create adverse downstream impacts.

Alternative 2: Install a Hard Point Near the Mouth of Powe Ditch to Stop Headcutting: A small rock weir would armor the banks and ditch bottom with rock, and slightly raise the bottom elevation of Powe Ditch. This would create a hard point to arrest the headcutting so that it does not continue moving upstream. The weir would also prevent future bank failures.

Alternative 3: Install a Sheet Pile Hard Point Near the Mouth of Powe Ditch to Stop Headcutting: Metal sheet piles would be driven into the earth across the entire width of Powe

Ditch. This would be more costly to construct than using rock to build a weir. In addition, the banks and ditch bottom would not be armored sufficiently enough to prevent downstream bank erosion, thus creating a greater bank stabilization problem that what presently exists.

Consequently, Alternative 2; construct the hard point and armor the banks, is the only feasible alternative.

FLOODPLAIN MANAGEMENT

Powe Ditch lies in an ancient Mississippi River floodplain created when the Mississippi River flowed in a different course to the west of Crowley's Ridge. The St. Francis River now occupies that ancient floodplain. Installing a hard point in Powe Ditch to prevent further headcutting would, in the future, protect upstream habitat. Since this work must take place completely within the ditch and immediate vicinity, there is no practical alternative to constructing this project within the floodplain.

HAZARDOUS, TOXIC AND RADIOACTIVE WASTE (HTRW)

A record search was conducted by Corps personnel through the EPA EnviroMapper Web Page (<http://maps.epa.gov>). The EPA search engine did not indicate any superfund sites, toxic releases, or hazardous waste sites within, or directly adjacent to the project site. Absence of a historical file on a particular property is not meant to constitute a guarantee that activities have not occurred or the site has never been impacted. However, a site inspection was conducted on October 30, 2007; and no evidence of potential or present HTRW problems was found.

ENVIRONMENTAL SETTING

Location

Powe Ditch is located in Stoddard County, in southeast Missouri. The grade control structure would be located near the confluence of Powe Ditch with the St. Francis River, about 8.0 miles southwest of the town of Powe, Missouri. This site is also about 1.5 miles south of Missouri Highway U.

Climate

Stoddard County has long hot summers and rather cool winters. The average winter temperature is 37 degrees Fahrenheit, and the average daily winter minimum temperature is 28 degrees Fahrenheit. In summer, the average temperature is 78 degrees Fahrenheit, with the average daily maximum temperature of 90 degrees Fahrenheit. Precipitation is fairly heavy throughout the year, and prolonged droughts are rare. Summer precipitation falls mainly in afternoon thunderstorms. The total annual precipitation is about 48 inches. Of this, approximately 50 percent falls from April through September, which includes the growing season for most crops. Average snowfall is between 6 and 11 inches, annually. However, this

varies greatly from year to year. The average relative humidity in mid afternoon is about 55 percent, and occasionally reaches 80 percent.

Soils

The project site is located in the ancestral Mississippi River valley on alluvial soils that were deposited thousands of years ago, during the Pleistocene glaciation, when the Mississippi River flowed on the west side of Crowley's Ridge. As a result, the area is relatively flat with only gradual changes in elevation due to several different ancient river terrace levels. The major soil association within this is the Falaya-Zachary association. These soils are nearly level, somewhat poorly drained, and poorly drained, silty soils, on floodplains. They formed in alluvium washed from nearby loess-covered uplands. The specific soil type at the project site is Amagon silt loam. Amagon soils are poorly drained, slowly permeable soils on low terraces that were formed in silty sediment. These soils are rarely inundated. The surface layer of Amagon soils is dark grayish brown silt loam about 7 inches thick. The much deeper subsoil is light brownish gray, mottled, firm silty clay loam in the upper part, turning to grayish silty clay loam and silt loam in the lower parts. The soils are suited to cultivated crops, with corn, cotton, grain sorghum, soybeans and winter wheat being the primary crops.

SIGNIFICANT RESOURCES AND IMPACTS

Vegetation

Row-crop farming takes place up to the top banks of Powe Ditch. A narrow strip of small trees and brush is found along each bank from the top bank down to the water. The vegetation is volunteer growth since earlier channel maintenance work, or sprouts of existing trees that grew from the stumps after they were cut. The tree species found at the project site were black willow, red maple, willow oak, silver maple, persimmon, sassafras, hop horn beam, sumac and river birch. Other typical plant species observed were cat briar, black berry, privet, morning glory, trumpet vine, and various grasses. All species are typical and common to the area. Less than 0.25 acres of this ditch bank vegetation would be removed with construction. Wheat and corn had been planted in the croplands along both sides of the ditch. The excavated material would be deposited in one rectangular-shaped pile on cropland on the north side of the ditch. The deposition site is on the slope of the old excavated material embankment that runs along the St. Francis River. All exposed earth would be seeded with a grass cover. The loss of such a small amount of very common plant species along the ditch would be very minimal compared to what is found throughout the area.

Agricultural Lands

The Natural Resource Conservation Service (NRCS) reported there are no prime and unique farmlands within the project area. Thus, no adverse impacts to these types of cropland would occur from the proposed project. Over time, the excavated material pile would eventually be graded down and spread over the adjacent cropland.

Wildlife Resources

Wildlife resources that could be expected to inhabit the project area include raccoon, opossum, rabbit, mice, rats, shrew, songbirds, turtles, snakes, amphibians, coyote, deer, and other small animals typically found along brushy ditch banks. All animals are common to the area. Project-induced impacts to wildlife are expected to be minimal due to the limited construction area, the nature of the proposed construction, and the similar types of wildlife habitat within the project area. Overall, there should be a slight benefit to wildlife once the cropland and ditch banks are protected from headcutting.

Aquatic Resources

Powe Ditch is about 60 feet wide at top bank and 25 feet deep. The thalweg is about 9 feet wide and 3 feet deep. Powe Ditch does not carry water all year round. It is mostly a storm water drainage ditch that conveys runoff water from the fields after a rainstorm and throughout the wetter parts of the year. The lower parts of Powe Ditch regularly receive water that backs into the ditch during high St. Francis River stages. Other than these times, Powe Ditch is dry. The types and amounts of vegetation on both ditch banks and the lack of water related signs or impacts on the vegetation indicated a dry ditch for most of the year. This indicated that aquatic resources would be very limited and ephemeral. Some fish and invertebrates could possibly move into and out of Powe Ditch at high St. Francis River stages. These would be species common to the area that are typical of previously modified small channels. Minimal adverse impacts would be expected since construction would take place when the ditch is dry. After the rock weir is installed, water would likely be impounded for several hundred yards upstream of the weir. This small pond would provide habitat for lentic invertebrate and fish species that would soon colonize the site during high river stages. However, it is expected that any ponded water would dry up during low rainfall periods in the summer and early fall. However, whenever there is ponded water in the ditch, it will benefit the aquatic resources as well as any terrestrial species that might frequent the ditch for food or water.

Endangered Species

Memphis District biologists visited the project impact site on October 30, 2007. Although the ditch contained water during field surveys, habitat conditions revealed that Powe Ditch is likely dry for parts of the year. Nevertheless, an endangered mussel survey was conducted. No mussels of any species were found. The mussel survey report is included in the Appendix.

No other endangered species were observed or are known to occur within the project area. This project is being coordinated with the U.S. Fish and Wildlife Service.

Cultural Resources

Memphis District archaeologists conducted a cultural resources survey of the project site on November 30, 2007. Their findings were negative. Based on this survey, the District Archaeologist determined there would be no adverse cultural resources impacts with

construction. He concluded that no further cultural work would be required for this project unless the scope of work or project rights-of-way change.

Should deeply buried artifacts or other site indicators be uncovered during construction, the Memphis District Archeologist, Missouri State Historic Preservation Office, Federally Recognized Tribes, and the Missouri State Archeological Office will be immediately notified to ensure compliance with all Federal and state laws and regulations.

Wetlands

Memphis District biologists visited the project impact site on October 30, 2007. They found that there are no wetlands within the project rights of way, or near the project area. Thus, there would be no wetland impacts. This project meets the criteria of Nationwide Permit 13 for bank stabilization. No Section 404(b)(1) evaluation is required.

Air Quality

No air quality monitoring data has been collected for this area by the Missouri Department of Natural Resources. However the project site is in an attainment area, and there are no air pollution concerns. Although the State of Missouri does not require permits for air emissions from mobile sources within attainment areas, best management practices shall be used throughout the construction to minimize air pollution. No adverse impacts are expected.

Water Quality

No excavated material would be deposited in wetlands. The 3,640 cubic yards of excavated earth would be moved when the ditch is dry and deposited on existing cropland on the old excavated embankment of the St. Francis River. Approximately 6,454 tons of rock riprap and filter gravel would be deposited across the existing ditch and on the ditch banks to construct the hard point grade control weir; thus providing channel bottom and bank stabilization.

Best construction practices would be followed throughout construction to minimize any erosion or sediment runoff. All exposed earth would be seeded immediately after construction to reduce any sediment runoff that might occur during rainfall conditions. The slight amount of silt or sediment that would be carried into the ditch and eventually the St. Francis River would be minimal compared to what naturally comes off the adjacent croplands during a heavy rainfall event in the spring plowing season. Overall, water quality impacts would be minimal during construction, and would improve over time.

Once constructed, the weir would stabilize the ditch channel. This would reduce bank sloughing and erosion, and thus subsequently reduce the amount of sediments and nutrients entering Powe Ditch and St. Francis River. Overall, water quality would be expected to slightly improve.

CUMULATIVE IMPACTS

Long-term, indirect impacts would be that the rock weir across Poe Ditch would prevent continued headcutting. This would ensure that integrity of the adjacent ditches would be maintained, that no erosion problems begin at the confluence of Powe Ditch and the St. Francis River. The grade control structure would also prevent any headcutting that could, if unchecked, possibly proceed five miles upstream and adversely impact Highway U. The bank and channel stabilization provided by this project would reduce erosion and improve water quality over time.

COMPLIANCE WITH REGULATIONS

Project compliance with applicable Federal and state regulations is shown in Table 1. Since this project meets the conditions of Nationwide Permit 13, Section 401 water quality certification is not required. A coordination letter was sent to the U.S. Fish and Wildlife Service requesting their concurrence regarding no adverse impacts to endangered species. The NRCS was also contacted regarding prime and unique farmland. Signing of a Finding of No Significant Impact (FONSI) would bring the project into full compliance with the listed laws and regulations.

TABLE 1: RELATIONSHIP OF PLAN TO ENVIRONMENTAL LAWS AND REGULATIONS

The relationships of the recommended plan to the requirements of environmental laws, executive orders, and other policies are presented below:

<u>Federal Policies and Acts</u>	<u>Compliance Status</u>
Archeological Resources Protection Act of 1979	1
Bald Eagle Act	1
Clean Air Act Amendments of 1977	1
Clean Water Act of 1977, as amended	1
Endangered Species Act of 1973, as amended	2
Farmland Protection Policy Act of 1984	1
Fish and Wildlife Coordination Act of 1958	1
Flood Control Act of 1946, as amended	1
Food Security Act of 1985	1
Land and Water Conservation Fund Act	1
National Environmental Policy Act of 1969	2
National Historic Preservation Act of 1966, as amended	1
River and Harbor and Flood Control Act of 1970	1
Water Resources Development Act of 1986	1
Water Resources Planning Act of 1965	1
 <u>Executive Orders</u>	
Floodplain Management (E.O. 11988)	1
Protection, Enhancement of the Cultural Environment (E.O. 11593)	1
Protection of Wetlands (E.O. 11990)	1
 <u>Other Federal Policies</u>	
Prime and Unique Farmlands	1
Water Resources Council, Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies	1

1/ Full compliance with the policy and related regulations has been accomplished.

2/ Partial compliance with the policy and related regulations has been accomplished. Full compliance will be accomplished upon signing of the Finding of No Significant Impact (FONSI).

3/ Consultation is ongoing; should remains be encountered, full compliance with policy and related regulations will be accomplished.

COORDINATION

U.S. Department of the Interior, U.S. Fish and Wildlife Service, Columbia, MO
U.S. Department of Agriculture, Natural Resources Conservation Service, Stoddard Co., MO
Missouri Department of Conservation, Jefferson City, MO
Missouri Department of Natural Resources, Jefferson City, MO

RELATED ENVIRONMENTAL DOCUMENTATION/REFERENCES

U.S. Army Corps of Engineers, Environmental Desk Reference (IWR) Report 96-PS-3), Institute for Water Resources Policy and Special Studies Division, July 1996.

USDA, Food Security Act.

Council on Environmental Quality Regulations

CONCLUSION

This office has assessed the environmental impacts of the proposed action and has determined that the proposed work will have no significant impacts upon vegetation, fish, wildlife, cultural resources, or the human environment.

PREPARER

For additional information, please contact John Rumancik at (901) 544- 3975.

APPENDIX

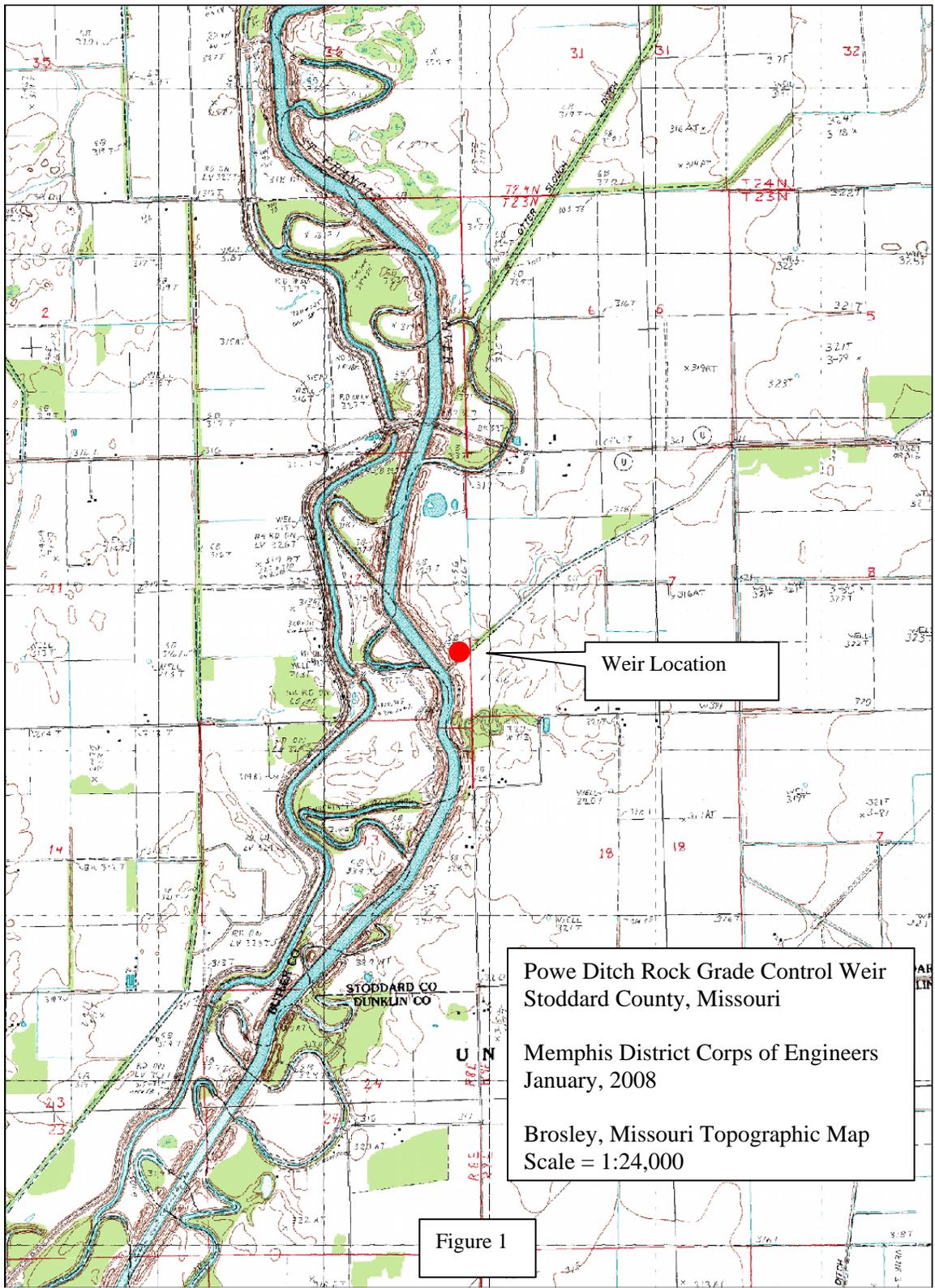
Figure 1: Project Map

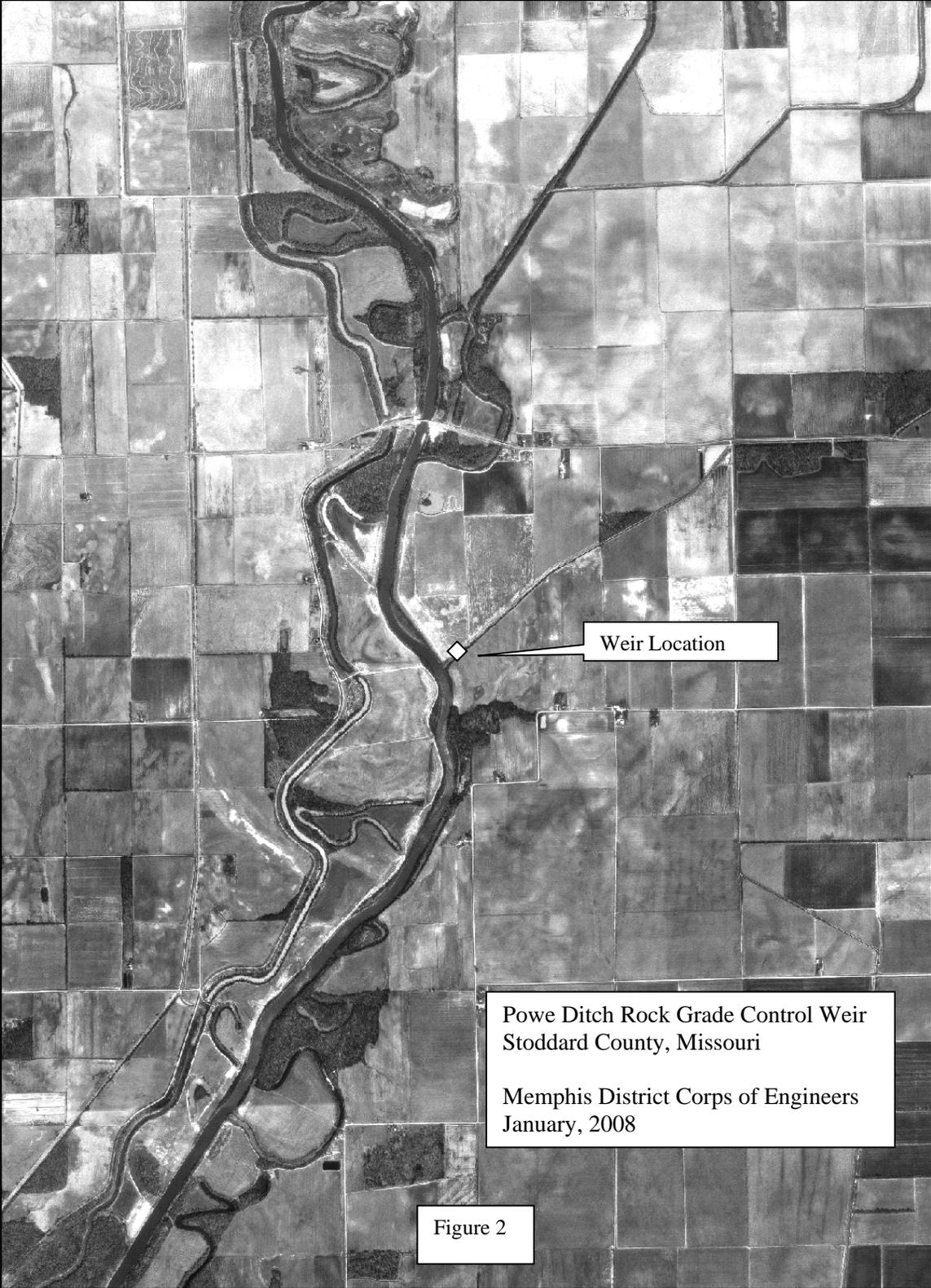
Figure 2: Aerial Photograph

Figures 3, 4, 5: Photographs of Project Site

Endangered Mussel Survey Report

Correspondence from the Natural Resources Conservation Service, Stoddard County, Missouri







Powe Ditch Grade Control Weir
Stoddard County, MO
Downstream Left Bank
November, 2007

Figure 3



Powe Ditch Grade Control Weir
Stoddard County, MO
Downstream Right Bank
November, 2007

Figure 4



Powe Ditch Grade Control Weir
Stoddard County, MO
Excavated Material Site
November, 2007

Figure 5

**Site Visit and Mussel Survey
Powe Ditch Grade Control Structure
Dunklin County, Missouri**

Date: 14 November 2007

Participants: K. Pigott (PM-E)
M. Smith (PM-E)

On 14 November 2007 members of the Memphis District's Environmental Branch performed a site visit and mussel survey on a potential grade control structure location in the St. Francis River Basin. The work to be performed consists of grading the banks of Powe Ditch prior to its entry into the St. Francis River and constructing a grade control structure. The proposed work limits are approximately 100 meters from the river channel. No work is planned for the river channel.

The purpose of the visit was to determine whether threatened or endangered mussel species were present within the work limits or in the immediate vicinity. The survey site was located within Powe Ditch downstream of the State Highway U bridge crossing (36.64891, -90.1386) in Dunklin County, Missouri.

A qualitative survey was conducted by wading in Powe Ditch where a hand search method was used to locate mussels. Two individuals searched approximately 50 meters of the ditch upstream and downstream of the proposed project limits for 15 minutes. All available microhabitats within the reach were searched. No live mussels were encountered at the site. The ditch was approximately 3 meters wide with an average depth of 1 meter. The substrate consisted primarily of large chunks of clay and woody debris over clay. Turbidity was high, possibly from recent headwater event storms.

January 11, 2008

Mr. Wade Bonds
Natural Resources Conservation Service
18450 Ridgeview Lane
Stoddard County SWCD
Dexter, MO 63841-9776

Dear Mr. Bonds

Thank you for taking my phone call this morning regarding a proposed rock grade control structure that the Memphis District Corps of Engineers proposes to install near the confluence of Powe Ditch and the St. Francis River. The NEPA process requires that I address prime and unique, and farmed wetlands along with prior converted farmland in the environmental assessment (EA) for this project.

Will you review the enclosed Draft EA and project plans and let me know what the NRCS classifies the cropland within the project rights-of-way as? During our conversation you said you would reply either by telephone or by e-mail. My e-mail address is: john.p.rumancik@mvm02.usace.army.mil.

As part of the NEPA coordination for this project, you will soon receive a Public Notice (via the e-mail) requesting your agency's comments on the Draft EA and Draft FONSI. But in the meantime, I send both documents to you to assist you with the farmland classification.

If you have question, please call me at 901-544-3975. Thank you for helping with this.

Sincerely,

NRCS #: 573-624-5939 Ext. 3

John Rumancik
Fishery & Wildlife Biologist

From: Bonds, Wade - Dexter, MO [wade.bonds@mo.usda.gov]
Sent: Monday, January 14, 2008 3:20 PM
To: Rumancik, John P MVM
Cc: Gross, Michelle - Dexter, MO
Subject: Powe Ditch Grade Control Structure

John Rumancik

After reviewing the case file for this farm I have determined there to be no adverse effects to your concerns.

Wade Bonds
NRCS Soil Con. Tech.
18450 Ridgeview Lane
Dexter MO 63841
573-624-5939 Ext#3
Fax 573-624-7509

