

DRAFT ENVIRONMENTAL ASSESSMENT

WHITEWATER AND WALNUT RIVERS LOCAL FLOOD PROTECTION PROJECT AUGUSTA, KANSAS



US Army Corps
Of Engineers
Tulsa District

MAY 2006

FINDING OF NO SIGNIFICANT IMPACT

In accordance with the National Environmental Policy Act of 1969, including guidelines in 33 Code of Federal Regulations, Part 230, the Tulsa District has assessed the environmental impacts of a local flood protection project to provide additional flood relief within the city of Augusta, Kansas. The City has a history of flooding and significant flood damage occurred during the November 1998 flood when floodwaters overtopped an existing levee. This assessment was prepared in accordance with U.S. Army Corps of Engineers Regulations, Part 230, Policy and Procedures for Implementing the National Environmental Policy Act. It has been determined from the enclosed Environmental Assessment that the project will have no significant adverse effects on the natural or human environment. Therefore, an environmental impact statement will not be prepared.

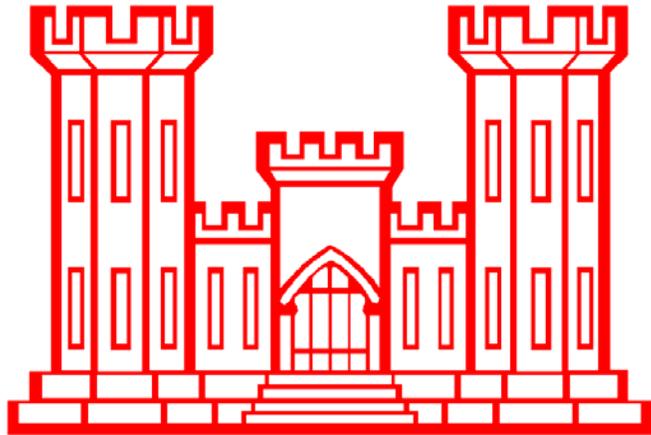
Date

Miroslav P. Kurka
Colonel, U.S. Army
District Engineer

Enclosure
Environmental Assessment

DRAFT

**Environmental Assessment for
Whitewater and Walnut Rivers
Local Flood Protection Project
Augusta, Kansas**



**U.S. Army Corps of Engineers
Southwestern Division
Tulsa District**

May 2006

ENVIRONMENTAL ASSESSMENT ORGANIZATION

This Environmental Assessment (EA) evaluates the effects of a Section 205 Local Flood Protection Project to reduce flooding within the City of Augusta, Kansas. This EA will facilitate the decision process regarding the proposed action and alternatives.

SECTION 1 *PURPOSE, NEED AND SCOPE* of the proposed action summarizes the purpose of and need for the proposed action, provides relevant background information, and describes the scope of the EA.

SECTION 2 *ALTERNATIVES* examines alternatives for implementing the proposed action.

SECTION 3 *PROPOSED ACTION* describes the recommended action.

SECTION 4 *AFFECTED ENVIRONMENT* describes the existing environmental and socioeconomic setting.

SECTION 5 *ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION* identifies the potential environmental and socioeconomic effects of implementing the proposed action and alternatives.

SECTION 6 *MITIGATION PLAN* summarizes mitigation actions required to enable a Finding of No Significant Impact for the proposed alternative.

SECTION 7 *FEDERAL, STATE, AND LOCAL AGENCY COORDINATION* provides a listing of individuals and agencies consulted during preparation of the EA.

SECTION 8 *REFERENCES* provides bibliographical information for cited sources.

SECTION 9 *APPLICABLE ENVIRONMENTAL LAWS AND REGULATIONS* provides a listing of environmental protection statutes and other environmental requirements.

SECTION 10 *LIST OF PREPARERS* identifies persons who prepared the document and their areas of expertise.

APPENDICES

<i>A</i>	Coordination/Correspondence
<i>B</i>	Section 404 Permit
<i>C</i>	Fish and Wildlife Coordination Act Report
<i>D</i>	Cultural Resources Coordination
<i>E</i>	Public Comments
<i>F</i>	Newspaper Public Notice

TABLE OF CONTENTS

Section	Page
1.0 PURPOSE, NEED, AND SCOPE.....	1
2.0 ALTERNATIVES.....	3
2.1 No Action Alternative.....	3
2.2 Action Alternatives.....	3
3.0 PROPOSED ACTION	4
4.0 AFFECTED ENVIRONMENT	10
4.1 Social and Economic Conditions.....	11
4.1.1 Study Area.....	11
4.1.2 Population	11
4.1.3 Employment and Income.....	11
4.1.4 Social Ecology.....	11
4.2 Natural Resources.....	12
4.2.1 Terrestrial.....	12
4.2.2 Soils.....	13
4.2.3 Prime Farmland	15
4.2.4 Wild and Scenic Rivers	15
4.2.5 Aquatic and Wetlands	16
4.2.6 Wildlife	16
4.2.6.1 Fish.....	17
4.2.6.2 Amphibians and Reptiles.....	17
4.2.6.3 Birds	19
4.2.6.4 Mammals	19
4.2.7 Executive Order 13112.....	19
4.3 Threatened and Endangered Species	19
4.4 Cultural Resources.....	19
4.5 Air Quality	20
4.6 Hazardous, Toxic, and Radiological Waste	20
5.0 ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION.....	21
5.1 Social and Economic Impacts.....	21
5.1.1 Future Without-Project Conditions	21
5.1.1.1 Population.....	21
5.1.1.2 Employment	21
5.1.1.3 Income	21
5.1.1.4 Social Ecology.....	21
5.1.2 Future With-Project Conditions	23
5.1.2.1 Population.....	23
5.1.2.2 Employment	23
5.1.2.3 Income	23
5.1.2.4 Social Ecology.....	23

TABLE OF CONTENTS (Continued)

Section	Page
5.2 Natural Resource Impacts	23
5.2.1 Terrestrial	23
5.2.2 Prime Farmland	24
5.2.3 Aquatic, Wetlands, and Water Quality Permits.....	24
5.2.4 Wildlife	24
5.2.5 Executive Order 13112.....	25
5.3 Threatened and Endangered Species	25
5.4 Cultural Resources.....	25
5.5 Air Quality	25
5.6 Hazardous, Toxic, and Radiological Waste	25
5.7 Noise	26
5.8 Cumulative Impacts	26
6.0 MITIGATION PLAN	26
7.0 FEDERAL, STATE, AND LOCAL AGENCY COORDINATION.....	28
8.0 REFERENCES.....	28
9.0 APPLICABLE ENVIRONMENTAL LAWS AND REGULATIONS.....	29
10.0 LIST OF PREPARERS.....	30

LIST OF FIGURES

Figure	Page
1.0 Vicinity Map, Whitewater and Walnut Rivers Local Flood Protection Project, Augusta, Kansas.....	2
3.0 Typical Levee Design for Augusta Levee.....	7
3.1 Borrow Area 1 (South).....	8
3.2 Typical Cross Section for Borrow Area 1	8
3.3 Borrow Area 2 (North).....	9
3.4 Typical Cross Section for Borrow Area 2	10
4.2.5 Cross-section of Whitewater River at Towanda.....	16
4.2.6.1 Longitudinal profile of Whitewater River at Towanda.....	18
6.0 Scattered Segments of Riparian Timber along new Levee Alignment.....	27

LIST OF TABLES

Table	Page
5.0 Impact Assessment Matrix	22
9.0 Relationship of Plans to Environmental Protection Statutes and Other Environmental Requirements	29

TABLE OF CONTENTS (Continued)

LIST OF PHOTOS

Photo	Page
3.0 General Location of the Augusta Levee Project.....	5
3.1 Northward levee extension.....	6
4.2.1 Levee footprint; northward extension from Station 186+00.....	12
4.2.2 Cropland adjacent to existing levee (Brewer silty clay loam) (SW View - Station 185+00).....	14
4.2.3 Prime farmland (Verdigris silt loam) adjacent to Whitewater River.....	15
4.2.6 Habitat along the Whitewater River.....	17
4.2.6.1 Bank vegetation provides shade in Whitewater River.....	18

LIST OF APPENDICES

A Coordination/Correspondence.....	31
B Section 404 Permit.....	51
C Fish and Wildlife Coordination Act Report.....	53
D Cultural Resources Coordination.....	73
E Public Comments (final EA).....	84
F Newspaper Public Notice (final EA).....	85

**DRAFT
ENVIRONMENTAL ASSESSMENT
WHITEWATER AND WALNUT RIVERS
LOCAL FLOOD PROTECTION PROJECT
AUGUSTA, KANSAS**

SECTION 1.0 PURPOSE, NEED, AND SCOPE

The U.S. Army Corps of Engineers, Tulsa District, and the city of Augusta are conducting a feasibility study for flood control under the authority of Section 205 of the Flood Control Act of 1948, (Public Law 80-858), as amended. The feasibility study was requested by the city of Augusta in November 1988, but funds to initiate the study were not available until March 1999. The feasibility cost sharing agreement was signed in March 2001. The Detailed Project Report was completed in April 2005. The city of Augusta, as the local sponsor would be responsible for acquisition of lands, easements, rights-of-way, relocations, and disposal areas that would be required for the project. Acquisitions must be completed before construction can begin. Funds will be provided by the Government and by the city of Augusta, on a 50% cost-share, after the first \$100,000, which is all federally funded.

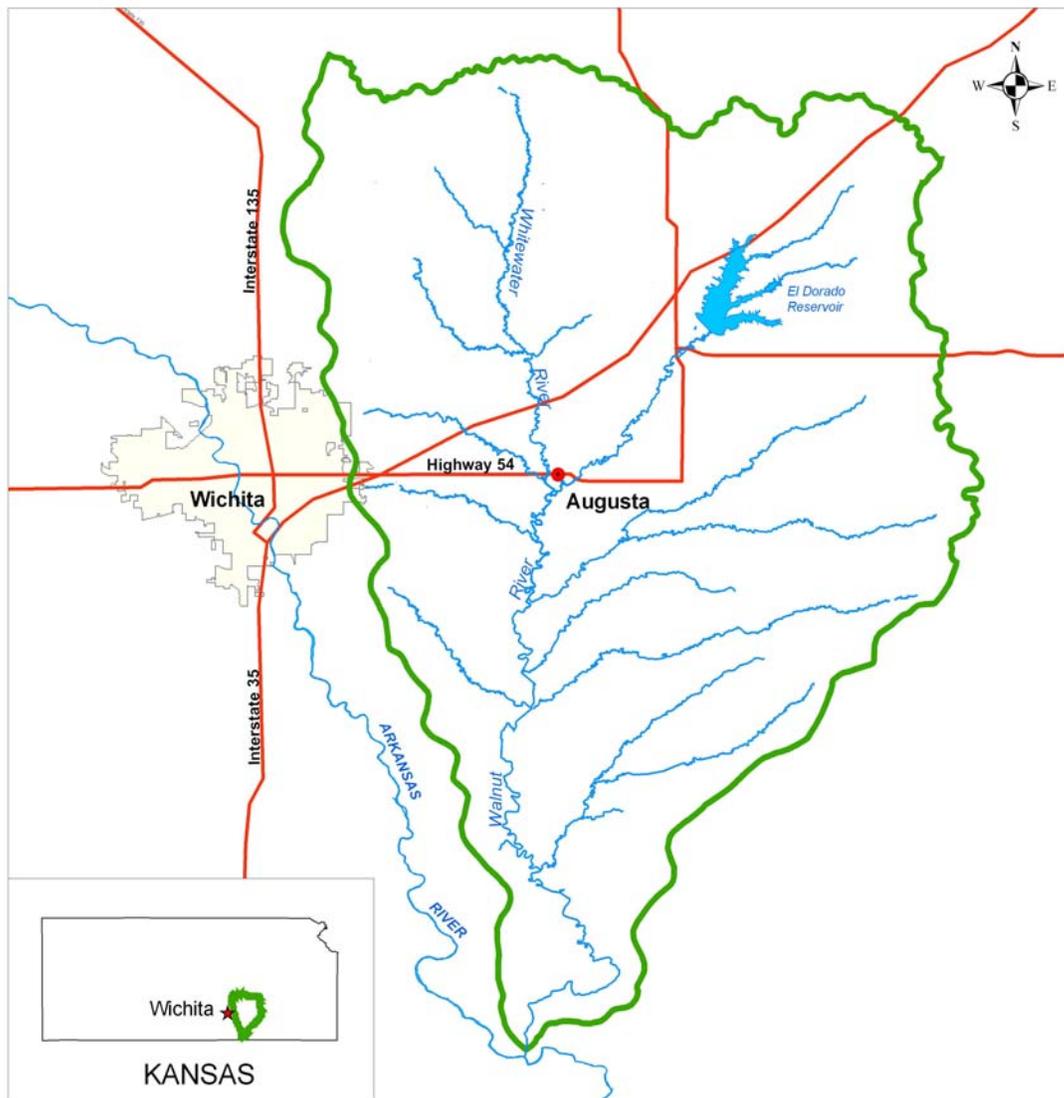
The environmental effects of this project were previously addressed in an Environmental Assessment circulated for public review in April 2004. A Finding of No Significant Impact was signed in May 2004. However, the city of Augusta has decided to move the alignment of the new levee extension that would be constructed at the north end of the project. The revised alignment would be a 3,555 foot extension of new levee that would be constructed north from about station 186+00 of the existing levee. The previous alignment was from the end of the existing levee (Station 199+47). This Environmental Assessment addresses the effects of the levee project with the revised alignment.

The Walnut River Basin covers an area of approximately 2,380 square miles and encompasses most of Butler and Cowley Counties and small portions of five other counties in south central Kansas (Figure 1.0). The major streams in the basin are the Walnut River and its tributary, the Whitewater River. The Whitewater and Walnut Rivers converge approximately 1½ miles south of Augusta, which is bounded by water on three sides. The current project was requested by the city of Augusta after flooding in late October and early November of 1998 (Known as the Halloween flood of 1998. The majority of the 1998 flooding occurred when floodwaters from the Whitewater River either overtopped the western side or got behind the northwest side of the levee built by the Kansas Works Progress Administration in 1938. This same levee was breached in 1965, but floodwaters came from the Walnut River. El Dorado Lake was placed in operation on 1980 and offers protection from the Walnut River. The city of Augusta requested that the Corps put them in the levee inspection program in the late 1960's to early 1970's to make the city eligible for Federal levee repair funds.

The project area is the city of Augusta, Kansas, and the Whitewater and Walnut Rivers immediately above and below Augusta. Alternatives have been developed that include modifications to the existing levee with a northward extension. The existing levee is 19,948 feet long and includes a reinforced, concrete floodwall approximately 1,013 feet long. The Corps of Engineers rehabilitated the floodwall around 1979 under Public Law 84-99. Land inside the levee is primarily urban and industrial. Outside the levee it is farmland with riparian timber in scattered tracts and along the river.

Several alternatives were considered by the Corps to alleviate flooding in the City of Augusta. These alternatives consist of structural and non-structural plans including levee modification, channelization, upstream detention, buyout, and flood proofing. The proposed project includes modification of the height and length of the existing levee. The existing channel of the Whitewater River and the Walnut River would not be disturbed. A No Action alternative was also considered.

The National Environmental Policy Act (NEPA) of 1969 (Public Law 91-190) requires all Federal agencies to address the environmental impacts of any major Federal action on the natural and human environment. Guidance for complying with the NEPA is contained in Title 40 of the Code of Federal Regulations (CFR), Parts 1500 through 1508, and in Engineering Regulation (ER) 200-2-2, *Procedures for Implementing NEPA*. The primary intent of NEPA is to ensure that environmental information is made available to public officials and citizens regarding major



Source: ArcView StreetMap, ESRI, 2001

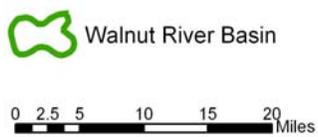


Figure 1.0 Vicinity Map, Whitewater and Walnut Rivers Local Flood Protection Project, Augusta, Kansas.

actions taken by Federal agencies. This environmental assessment was developed to assure that construction of the proposed project complies with the intent of NEPA.

The Tulsa District issued a news release to the local media announcing a public information workshop for the Augusta Local Flood Protection Project (Appendix A). Retail advertisements were placed in the Augusta Daily Gazette on April 12, 22, and 23, 2002. The Tulsa District sent scoping and workshop announcements to State and Federal resource agencies. Both the advertisement and the announcements specified the beginning of the NEPA scoping process.

The workshop was held April 23, 2002, to inform the public of the initiation of the Section 205 flood protection feasibility study and to provide information and allow the public an opportunity to comment on the project. Approximately 25 citizens attended the workshop. Most of the attendees were interested in how the project would affect their lives. Many were affected by the 1998 flood and were in favor of additional flood protection. Several comments addressed environmental concerns or concerns surrounding abandoned houses that had been flooded and never renovated or demolished. Several citizens expressed concerns regarding the non-operational refinery and pipelines crossing parts of the city.

SECTION 2.0 ALTERNATIVES

2.1 No Action Alternative

The Council on Environmental Quality (CEQ) regulations implementing the provisions of the National Environmental Policy Act of 1969 (NEPA) require Federal agencies to consider a "no action" alternative. These regulations define the "no action" alternative as the continuation of existing conditions and their effects on the environment, without implementation of, or in lieu of, a proposed action. This alternative represents the existing condition and serves as the baseline against which to compare the effects of the other alternatives. Under existing conditions, expected average annual damages from flooding along the Whitewater River in Augusta are expected to be \$497,000. This alternative would retain the existing condition and would not result in any change in environmental conditions or fish and wildlife habitat.

2.2 Action Alternatives

The Corps of Engineers considered several flood reduction plans during the preliminary screening of alternatives. Requirements for the selected plan included technical soundness, economic feasibility, and environmental acceptance. The selected plan should provide the greatest amount of protection for an area, and the benefits received from flood protection must be greater than the costs to construct and maintain the project. The selected alternative should also achieve the City's planning objectives and adequately address social, environmental, and economic impacts. The alternatives considered included four levee modification plans, channelization of the Whitewater River, upstream detention, flood proofing, and property buyout. A levee modification plan was determined to be economically feasible, justified a Federal interest, and would meet the City's planning objectives.

a. Levee Modification. This alternative would consist of extending the northwest end of the existing levee by approximately 2466 feet and at a height to protect against future 100-year event (1% chance of occurring in a year) floods and the existing portion of the levee would be rehabilitated to ensure the entire levee would consistently protect the city from future 100-year event floods. This plan was dropped from further study.

b. Levee Modification. This alternative would consist of extending the northwest end of the existing levee by approximately 2466 feet and at a height to protect against future 200-year event (0.5% chance of occurring in a year) floods, and the existing portion of the levee would be raised to a height to ensure the entire levee would consistently protect the city from future 200-year event floods. This plan was dropped from further study.

c. Levee Modification. This alternative would consist of extending the northwest end of the existing levee by approximately 2466 feet and at a height to protect against future 500-year event (0.2% chance of occurring in a year) floods, and the existing portion of the levee would be raised to a height to ensure the entire levee would

consistently protect the city from future 500-year event floods. **This alternative was the Proposed Action in the previous Environmental Assessment completed in May 2004.**

d. **Levee Modification.** This alternative would consist of extending the northwest end of the existing levee by approximately 2466 feet and at a height to protect against future 600-year event floods, and the existing portion of the levee would be raised to a height to ensure the entire levee would consistently protect the city from future 600-year event floods. This plan was dropped from further study.

e. **Channelization.** This alternative would consist of the channelization of the Whitewater River to sufficiently pass floods in excess of the 100-year event. This alternative was not a viable option due to the large area of the 100-year flood plain (approximately 2 miles wide) adjacent to the existing levee and the depth of water during a 100-year event. This plan was dropped from further study.

f. **Upstream Detention.** This alternative would consist of detention structures on the Whitewater River upstream of the city of Augusta. It would allow for the protection of the city from greater than 100-year events. This alternative was eliminated from further study because the Whitewater River drainage area is so large that the amount and size of detention structures required to protect the city of Augusta from future 100-year floods would be cost prohibited. This plan was dropped from further study.

g. **Flood proofing.** This alternative would consist of various flood proofing measures applied to all structures within the 500-year flood plain to protect them against future 500-year events. This plan was dropped from further study.

h. **Property Buyout.** This alternative would consist of buying all remaining property within the 500-year flood plain and would restrict building on such property. This plan was dropped from further study.

i. **Levee Modification. This alternative represents the revised alignment of the new levee extension which is the change from the previous Environmental Assessment.** In the previous Environmental Assessment alternative 'c' was the proposed action. This alternative ('i') is the new proposed action and would consist of extending the north end of the existing levee approximately 3,555 feet from approximately station 186+00. The entire levee would be raised to a height that would protect the city of Augusta during 500-year flood events. This alternative is the preferred plan and is discussed further in SECTION 3.0, PROPOSED ACTION.

SECTION 3.0 PROPOSED ACTION

A levee modification plan that would provide 500-year protection for the city of Augusta is the selected plan. It would consist of raising the existing levee and constructing a new extension on the north end of the levee to provide 500-year protection (Photos 3.0 and 3.1). It would have a favorable benefit/cost ratio of 1.66, is the NED plan, and meets the requirement of a Federal interest. The local sponsor supports this plan.

The existing levee is approximately 19,948 feet long and protects the city from flood flows generated by the Whitewater River to the west and the Walnut River to the east. It has a crest width of 8 to 10 feet and side slopes varying from 1V: 2H to 1V: 3H. An existing concrete floodwall exists between stations 0+00 to 1+00 and 31+65 to 41+50.

The selected plan consists of enlarging and improving the existing levee as well as extending the north portion of the levee further north. Improvement includes removal of the top portion of the levee, which contains topsoil or unsuitable material, and backfilling with quality controlled material. An inspection trench would be excavated at the toe of the levee towards the river side.

As shown in Figure 3.0, an impervious section will be constructed on the riverside portion of the levee with the remainder of the section being random fill. Construction would involve stripping six inches of topsoil off the existing levee and placing quality controlled impervious material. The crown width would be increased to 10 feet and side slopes would be one vertical to three horizontal. The crest elevation would vary from elevation 1230 feet

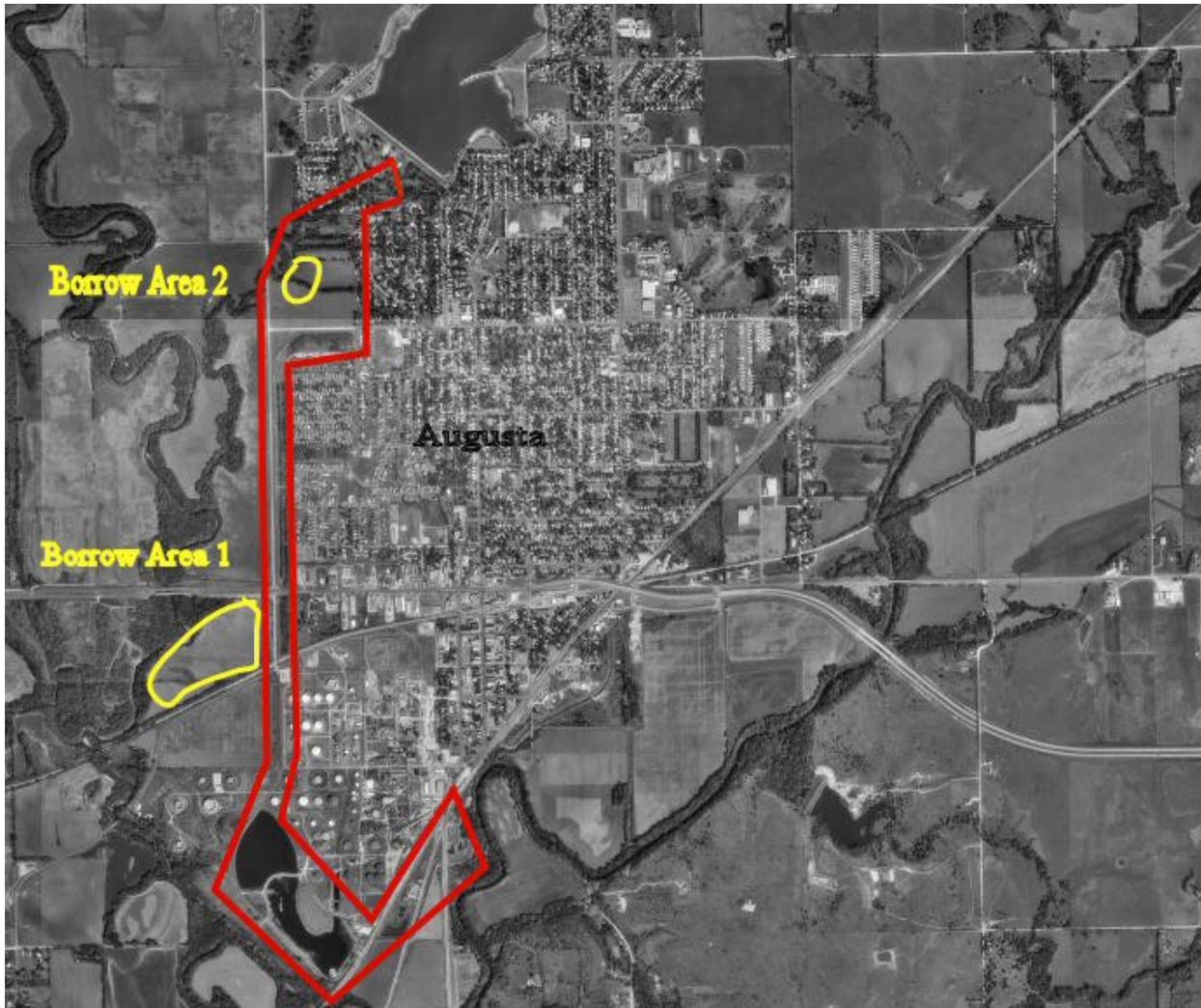


Photo 3.0. General Location of the Augusta Levee Project.

National Geodetic Vertical Datum (NGVD) to 1238 feet NGVD. A six-inch layer of topsoil would be placed over new construction surfaces and seeded, fertilized, and mulched.

A six-foot deep inspection trench would be excavated at the riverside toe of the new slope to locate existing utilities, debris, unsuitable material or other items that could be detrimental to the levee. The trench would also have one vertical to three horizontal slopes and would be re-vegetated the same as the levee.

Clearing and grubbing would be accomplished on the existing levee, adjacent to the levee where construction would occur, and along the footpath of the northward extension. Clearing would consist of complete removal of all material from the construction site including trees, fallen timber, brush, rubbish, vegetation, loose and soft soil, abandoned structures, and similar debris. Tree clearing would be limited to the levee right-of-way. Grubbing would consist of removal of all stumps, roots, buried logs, old piling, old paving, drains, roots, and other objectionable material.

Construction along the existing levee would also include extending existing culverts, constructing new culverts with headwalls and flap gates, constructing new stop log structures, constructing asphaltic concrete road ramps; and planting trees. Existing gravity drainage structures would be modified. Existing stop log structures would be replaced unless modification to existing structures would be possible. First Street located on the west side of the refinery and 6th Street would be ramped to a higher elevation to meet the 500-year flood level. Highway 96 would not be ramped because it currently exceeds the 500-year flood level.

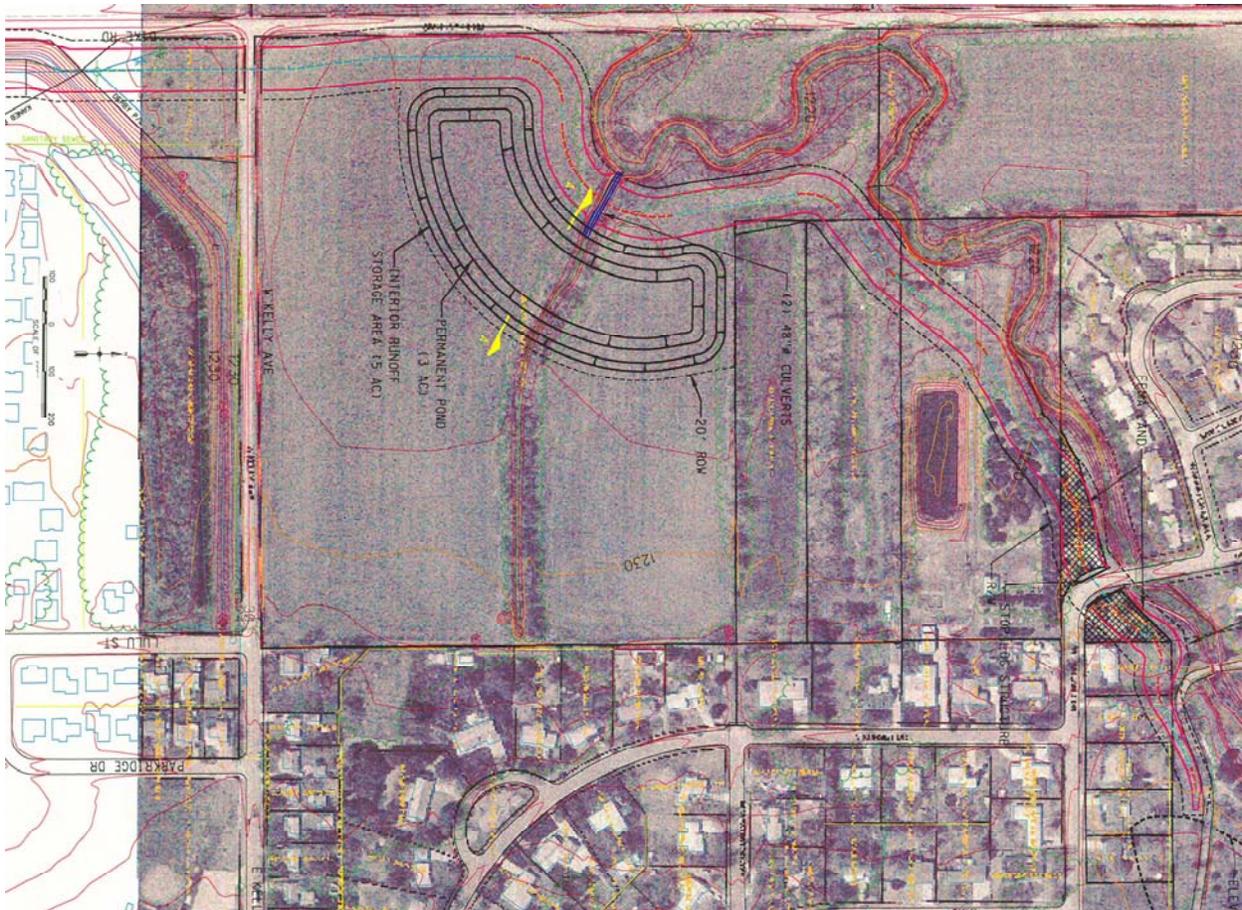


Photo 3.1. Northward levee extension.

The new alignment would extend north and east for approximately 3,555 feet from the existing levee near W Kelly Avenue and SW Hunter Road. It would tie into the existing levee at about station 186+00 and extend north about 1,100 feet before turning northeast at about station 197+00. From here it would meander along the south side of Elm Creek for another 1,900 feet before crossing N Highland Drive. From N Highland Drive it would extend another 555 feet to the east where it runs parallel and terminates along the south side of Garvin Park Road. The crown width would be 10 feet and side slopes would be one vertical to three horizontal.

The proposed plan would involve excavation of borrow material from two sites located in agricultural land as shown on Photo 3.0. Material from the abandoned section of the existing levee above Station 186+00 will be removed and used as fill material. Excavated soil from the borrow sites will be used as fill and topsoil for the project. Borrow area 1 located south of Highway 54 is approximately ten acres in size (Figure 3.1). It will be excavated to a depth of about six feet with side slopes of one vertical to four horizontal. Borrow area 2 located adjacent to the new extension will be about five acres in size (Figure 3.3). It will be excavated to a depth of about 14 feet with side slopes of one vertical to three horizontal. The bottom eight feet (about three acres) will be maintained as a permanent pond after project completion. The upper six feet (five acres) will be left as a dry area that will be available for temporary storage of storm runoff. The two borrow sites would be developed and maintained as mitigation areas upon project completion. Each borrow area would be developed with various plant species established to provide wildlife habitat as described in Section 6.0. Section 6.0 provides information on measures that would be implemented to alleviate habitat losses associated with the project. Figures 3.2 and 3.4 illustrate a typical cross-section for the Augusta Levee borrow sites.

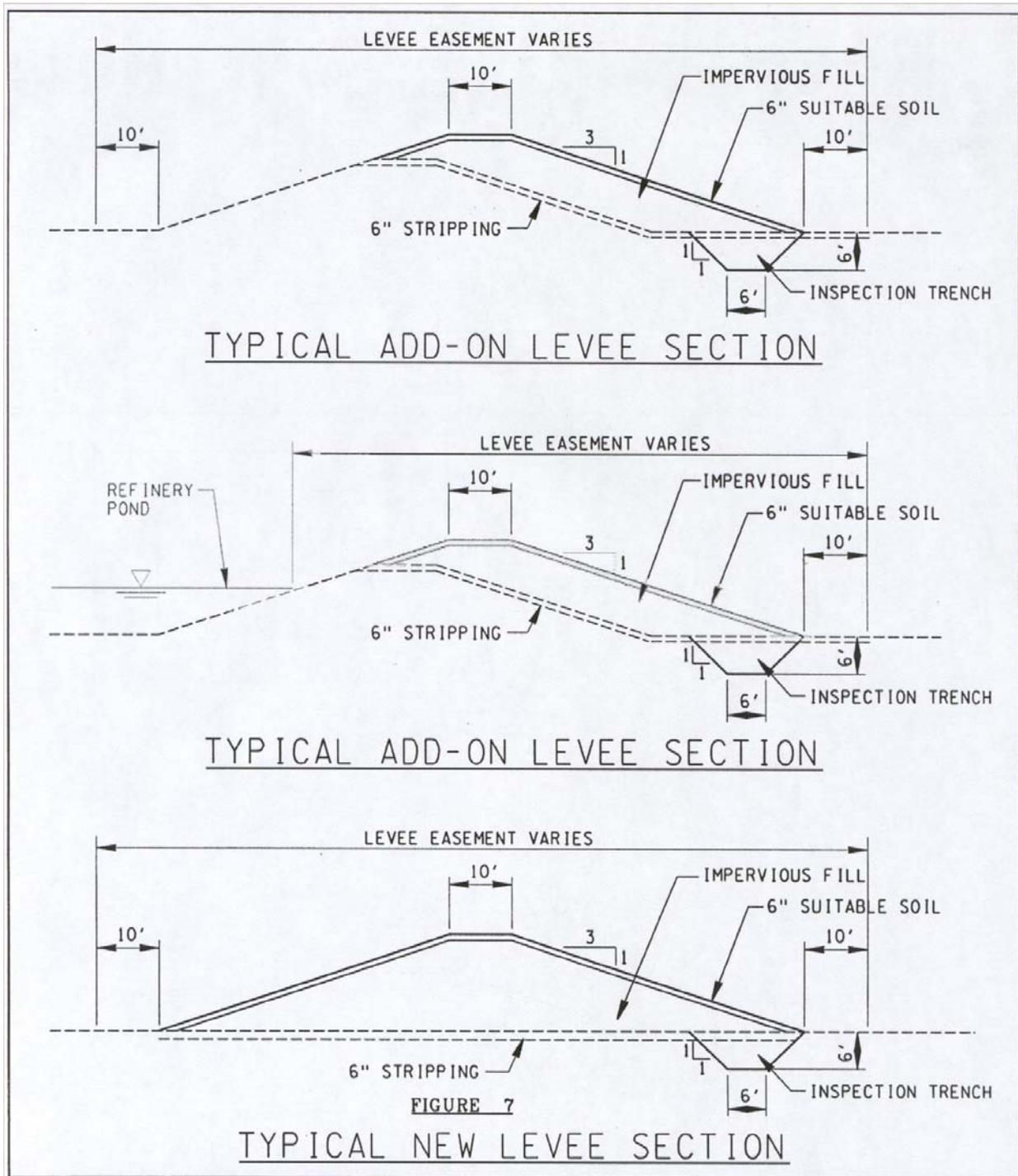


Figure 3.0 Typical Levee Design for Augusta Levee.

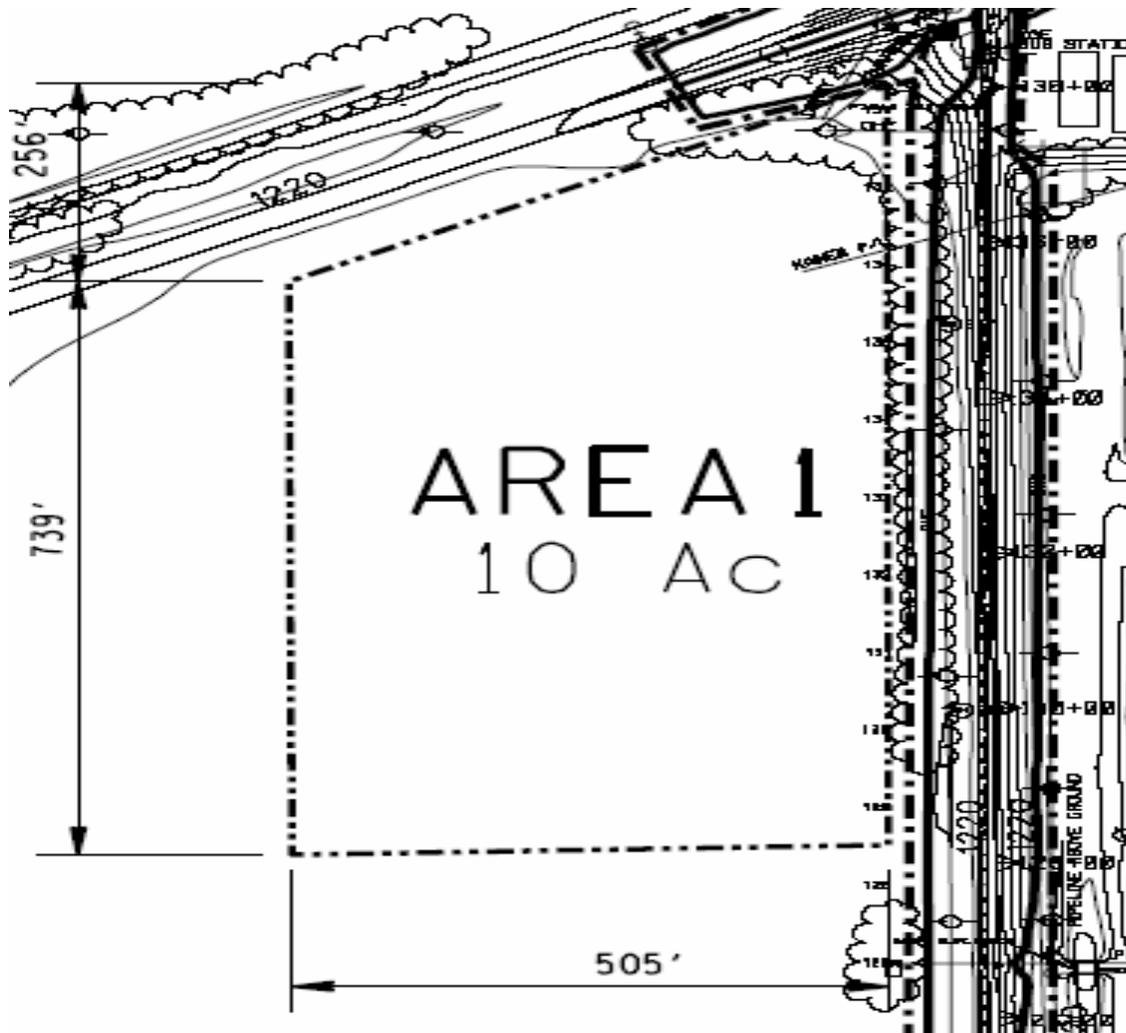


Figure 3.1. Borrow Area 1 (South).

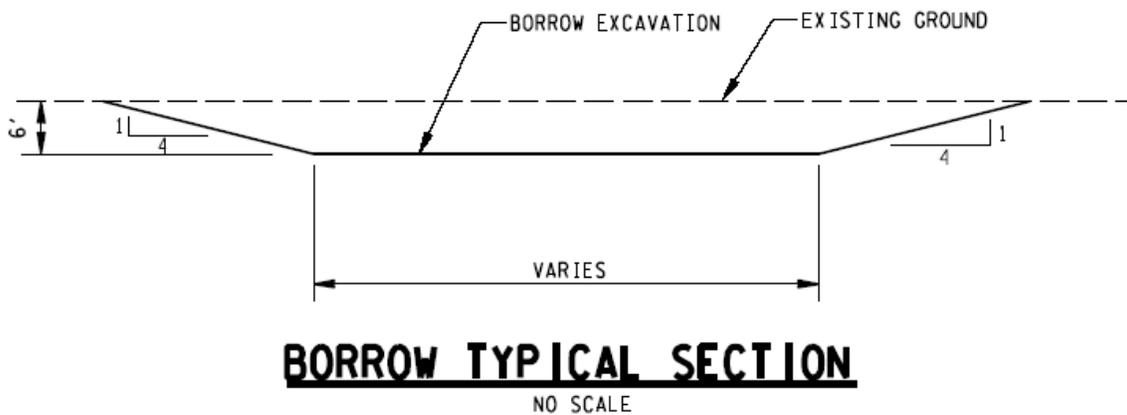


Figure 3.2 Typical Cross-Section for Borrow Area 1.

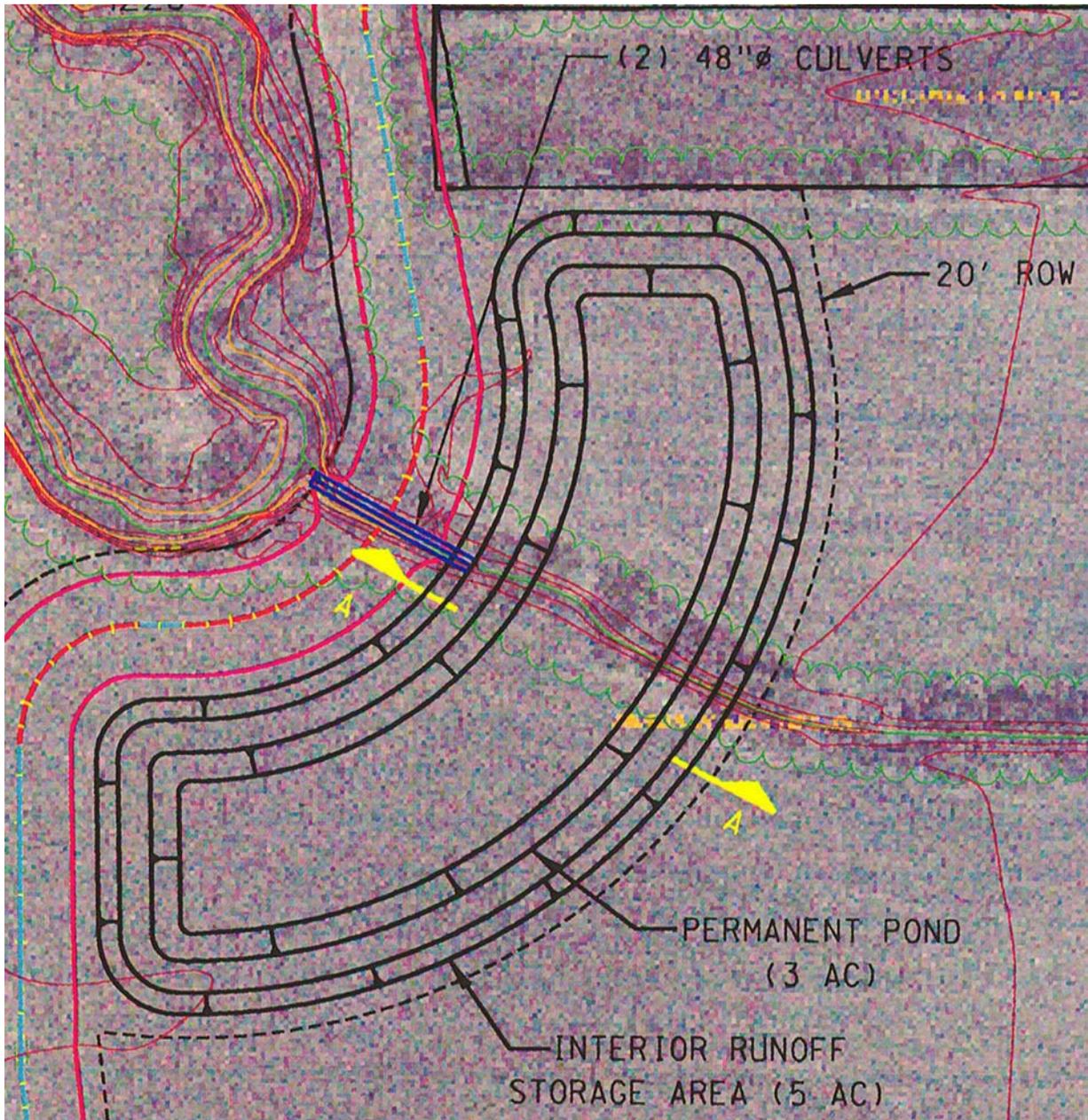


Figure 3.3. Borrow Area 2 (North).

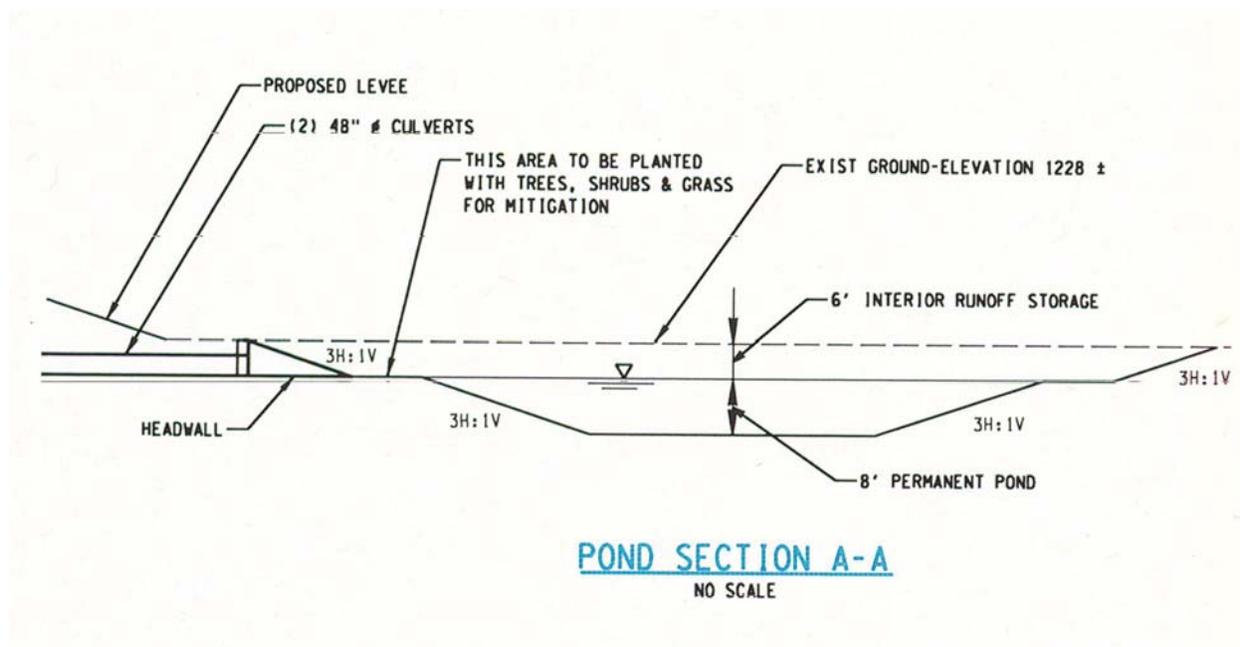


Figure 3.4 Typical Cross-Section for Borrow Area 2.

SECTION 4.0 AFFECTED ENVIRONMENT

The Walnut River drainage basin covers approximately 2,380 square miles and encompasses most of Butler and Cowley counties and small portions of five other counties in south central Kansas. The Walnut and the Whitewater Rivers are the two major drainages in the basin and converge just downstream of Augusta. El Dorado Lake is located on the Walnut River about 20 miles above Augusta and provides flood relief for the City. The Whitewater River is not impounded and is responsible for the majority of the flood threat to Augusta. The drainage basin for the Whitewater River covers about 518 square miles within the Walnut River basin.

Butler County is the largest county in Kansas. It is situated entirely within the Flint Hills Physiographic region underlain by Lower Permian limestone and shale. Most of the area is devoted to rangeland for cattle grazing. Winter wheat and other crops are raised mainly toward the west, and cotton is grown in the southernmost portion. Larger cities include El Dorado and Augusta; rapid suburban growth is taking place in the southwestern portion of the county near Wichita.

Augusta's elevation is just over 1,300 feet above sea level. Augusta is located in the Central Great Plains where masses of warm moist air from the Gulf of Mexico collide with cold dry air from the Arctic region. Augusta has a distinct four-season climate and a wide range of weather year round. The climate is mild with brief periods of extreme temperatures. The average annual daily low is 45 degrees F; the average annual daily high is 67.4 degrees F; and the average annual daily temperature is 56.2 degrees F. The average summer temperature is 78.9 °F, and the average daily maximum is 90.1 °F. The average winter temperature is 33.3 °F, and the average daily minimum is 23 °F.

Augusta averages about 225 days of sunshine annually. Wichita Mid-Continent Airport operates under VFR (Visual Flight Rules) conditions about 91% of the time. The prevailing wind is southerly and averages about 9 miles per hour.

Summers are usually warm and moderated by steady wind and relatively low humidity. Temperatures above 90 degrees occur an average of 63 days per year. Winters are usually mild with short periods of very cold weather. Temperatures below zero occur about 2 days per year. Spring is the most varied season and is the period of heaviest rainfall due to severe thunderstorms and occasional tornadoes. The prevailing winds are from the north in February and from the south the remainder of the year.

Rainfall averages about 29 inches per year, with 70% occurring during the April-September growing season. Snow flurries are common, with snowfall averaging 15 inches per year from December through March. Occurrence of more than 1 inch of snow, ice or sleet happens on average about 5 times per year. Occurrence of more than 3 inches happens about twice per year. Snow seldom covers the ground for a period greater than three days.

Kansas ranks sixth among states in average number of tornados per year (Texas, Oklahoma, and Florida top the list.) Kansas weather is generally benign. The likelihood of experiencing a tornado on a given section of land in Sedgwick County, which lies just west of Augusta, based on area and frequency over the last 40 years is estimated to be once in every 1,460 years. Civil defense systems are in place to ensure adequate warning in case of severe weather.

4.1 Social and Economic Conditions

4.1.1 Study Area

The project alternatives will have the most direct impact on persons living and working in the western portions of the City of Augusta. This area is considered the social area within which the primary impacts of the proposed project will occur.

4.1.2 Population

The U.S. Census Bureau estimates that the City of Augusta had a population of 8,423 in 2000 a 7% increase from the 1990 population of 7,876. Butler County had a population of 59,482 in the year 2000, a 17.6% increase from the 1990 Census count. The State of Kansas posted a population increase of 8.5% during the same period. This increased rate of growth for Butler County is attributed to the relatively rapid growth in Wichita, which is approximately 15 miles west of Augusta. The area surrounding the project is partially located in the City of Augusta and partially rural land on the western border. According to the 2000 Census, 28% of the population of the social area (City of Augusta) was under the age of 18. Hispanic or Latino people report 2.8% of the total population. One percent of the 2000 population in the social area was American Indian/Alaska Native.

4.1.3 Employment and Income

In 2000, there were 4,239 residents in the labor force in the City of Augusta of which only 4.4 percent were unemployed. Unemployment for Butler County was slightly less at 3.6 percent, which is slightly lower than the State of Kansas unemployment rate of 4.2% during the same year. The majority of the area's employees work in manufacturing, educational, health and social services sectors.

The 2000 per capita income (PCI) for residents in the City of Augusta was \$19,094. Butler County PCI was \$26,488 in the same year. This compares with \$20,506 for the State of Kansas and \$21,587 for the entire United States.

4.1.4 Social Ecology

The social area is primarily residential, with an additional mix of industrial, commercial and agricultural operations along the western edge of the City of Augusta. As a smaller community of approximately 8,400 people, the town of Augusta serves as a center for retail and service businesses. The town center served as a social and economic hub when the region's economy was more agriculturally oriented. Employment and business development in Augusta is closely related to development outside the community because of its relatively close proximity to the significantly larger City of Wichita.

4.2 Natural Resources

4.2.1 Terrestrial

The Walnut River drainage basin is located in the Flint Hills Upland section of the Central Lowland Physiographic Province (Schoewe, 1949). The project lies within the floodplain of the Walnut and Whitewater Rivers and drains an area that has a flat lowland topography with very little relief. The floodplain in this area is either highly urbanized or has been developed into farmland (Photo 4.2.1). Essentially none of the original floodplain vegetation remains in the immediate project area.

Overstory vegetation includes cottonwood, hackberry, mulberry, green ash, elm, pecan, black willow, and honey locust. Understory vegetation on the levee includes sunflower, Illinois bundleflower, ragweed, Johnson grass, golden rod, morning glory, Bermuda grass, fescue, smartweed, aster, dandelion, barnyard grass, foxtail, purpletop, horseweed, and vetch. Eastern red cedar, roughleaf dogwood, sumac, and hawthorn provide shrubby habitat.



Photo 4.2.1. Levee foot print; northward extension from Station 186+00.

The Flint Hills form a prominent erosional massif that stands well above lower plains to the east and west. The bedrock strata are revealed as a result of pervasive stream erosion, which has dissected deep valleys that cross the Flint Hills in all directions. The Flint Hills includes the largest region of native tall-grass prairie remaining in North America, and so the surface geology and geomorphology are readily visible in the landscape. The Flint Hills are underlain by Permian limestone, shale and evaporates. This bedrock generally dips gently toward the west or northwest. Local variations in bedrock dip are found over the crest of the buried Nemaha uplift. Erosion of interbedded shale and limestone strata has resulted in landscapes with steep east-facing escarpments separated by

gently west-sloping cuestas. Thick cherty limestone units weather to produce residual chert lag deposits that are highly resistant to chemical breakdown. Such residual chert is responsible for maintaining high topographic relief and gives the Flint Hills their name. Unconsolidated sediments are common, especially within river valleys and on some upland areas. Soils are developed in residual (weathered) bedrock material, alluvial deposits, and loess sediment.

Using climate and vegetation as ecoregion indicators Bailey (1995), places the area within the Prairie Parkland (Temperate) Province of the Prairie Division. Prairies are typically associated with continental, mid-latitude climates that are designated as subhumid. Precipitation in these climates ranges from 20 to 40 inches per year, and is almost entirely offset by evapotranspiration. In summer, air and soil temperatures are high; soil moisture in the uplands is inadequate for tree growth, and deeper sources of water are beyond the reach of tree roots.

Prairie vegetation is dominated by tall grasses and associated subdominant broad-leaved herbs. Trees and shrubs are almost totally absent, but a few may grow as woodland patches in valleys and other depressions, and in riparian corridors along streams. Grasses are deeply rooted and form a continuous cover. They flower in spring and early summer, with forbs appearing in late summer. Because there is less rainfall in the grasslands than in forest, there is also less leaching of the soil. Soils of the prairies have black, friable, organic surface horizons and a high content of bases. Grass roots deeply penetrate these soils. Bases brought to the surface by plant growth are released on the surface and restored to the soil, perpetuating fertility. These soils are the most productive of the great soil groups.

The Prairie Parkland (Temperate) Province covers an extensive area from Canada to Oklahoma, with alternating prairie and deciduous forest. The topography is mostly gently rolling plains, but steep bluffs border a number of valleys. Some areas are nearly flat; others have high rounded hills. Butler County is relatively flat.

An intermingling of prairies, groves, and strips of deciduous trees characterize vegetation. The alternation of forest and prairie results chiefly from local soil conditions and slope exposure; trees are commonly found near streams and on north facing slopes. Grasses are the dominant prairie vegetation. Most are moderately tall and usually grow in bunches. Deciduous forest is encroaching on the prairie where grazing and fire are controlled. Upland forest is dominated by oak (*Quercus sp.*), and hickory (*Carya sp.*). Deciduous forests are found on floodplains and moist hillsides. Major species include eastern cottonwood (*Populus deltoides*), black willow (*Salix nigra*), common hackberry (*Celtis occidentalis*), American elm (*Ulmus americana*), green ash (*Fraxinus pennsylvanica*), black walnut (*Juglans nigra*), Osage orange (*Maclura pommifera*), and bur oak (*Quercus macrocarpa*). Sycamore (*Platanus occidentalis*), honey locust (*Gleditsia triacanthos*), Kentucky coffee tree (*Gymnocladus dioica*), box elder (*Acer negundo*), and mulberry (*Morus rubra*) are present to a lesser degree.

Loess and river valley deposits support extensive cropland agriculture of winter wheat and grain sorghum.

Woody shrubs or smaller trees along the waterways include American plum (*Prunus americana*), rough-leaved dogwood (*Cornus drummondii*), redbud (*Cercis canadensis*), hawthorn (*Crataegus sp.*), sumac (*Rhus glabra*), buckbrush (*Parthenocissus quinquefolia*), green briar (*Smilax sp.*), and Virginia creeper (*Parthenocissus quinquefolia*). Other vines and plant species found in the project area include dewberry (*Rubus sp.*), giant ragweed (*Ambrosia trifida*), Illinois bundleflower (*Desmanthus illinoensis*), Johnson-grass (*Sorghum halepense*), cocklebur (*Xanthium strumarium*), curly dock (*Rumex crispus*), brome (*Bromus spp*), sedge (Cyperaceae), smartweed (*Polygonum sp.*), purpletop (*Tridens sp.*), water primrose (*Jussiaea sp.*), and spike-rush (*Eleocharis sp.*). Prairie species include big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), and Indian grass (*Sorghastrum nutans*), with switchgrass (*Panicum virgatum*) in more mesic sites.

4.2.2 Soils

Soils in the project area are of the Verdigris-Brewer-Norge association. These soils are deep, nearly level to sloping soils that have a silt loam or silty clay loam surface layer and a silty clay loam or silty clay subsoil. They are found on flood plains and terraces (U.S. Natural Resource Conservation Service). Three soils occur along the proposed project. They include Brewer silty clay loam, Norge silt loam on 1 to 3 percent slopes, and Verdigris silt loam. Each is classified as prime farmland. A significant part of the existing levee is located adjacent to agricultural land (Photo 4.2.2).



Photo 4.2.2. Cropland adjacent to existing levee (Brewer silty clay loam) (SW View - Station 185+00).

Brewer silty clay loam is a deep, nearly level, moderately well drained soil on flood plains. These soils formed in clayey alluvium. In a representative profile the surface layer is dark-gray silty clay loam about 14 inches thick. The subsoil is about 27 inches thick. The upper part is very dark gray, firm heavy silty clay loam. The lower part of the subsoil is dark-gray, very firm silty clay that has common, dark-brown mottles. Brewer soils have high available water capacity and slow permeability. Except for narrow, irregularly shaped areas adjacent to streams, most of this soil is cultivated. Flooding occurs, but serious damage to crops is infrequent. This soil is well suited to all the locally grown field crops, grasses, and trees.

Norge silt loam is a deep, nearly level to sloping, well-drained soil on high terraces and uplands. These soils formed in loamy sediment. In a representative profile the surface layer is dark-brown, heavy silt loam about 9 inches thick. The subsoil is about 63 inches thick. The upper 9 inches is friable, reddish-brown silty clay loam. The next 24 inches is firm, reddish-brown silty clay loam; and the lower 30 inches is firm, yellowish-red silty clay loam. Norge soils have high available water capacity and moderately slow permeability. This soil is easy to farm, and most of it is cultivated. This soil can be cropped intensively if well managed. It is easily worked and has no serious limitation to use for crops.

Verdigris silt loam is a deep, nearly level and gently sloping, moderately well drained soil on bottomlands. These soils formed in loamy alluvial sediment. In a representative profile the upper part of the surface layer is dark grayish-brown silt loam about 8 inches thick, and the lower part is friable, dark-gray silty clay loam about 25 inches thick. The next layer is about 24 inches thick. It is friable, very dark grayish-brown silty clay loam that has common, fine, distinct mottles. Verdigris soils have high available water capacity and moderate permeability.

Except for narrow, irregularly shaped areas adjacent to streams, most of this soil is cultivated. Runoff is slow. Although flooding occurs, serious damage to crops is infrequent. All locally grown crops, grasses, and trees are well suited to this soil. Practices that maintain productivity and soil structure can be carried out more easily on this soil than on most other soils in the county.

4.2.3 Prime Farmland

Prime farmland soils, as defined by the U.S. Department of Agriculture, are soils that are best suited to producing food, feed, forage, fiber, and oilseed crops. Such soils have properties favorable for the economic production of sustained high yield crops. Prime soils produce the highest yields with minimal inputs of energy and economic resources, and farming these soils results in the least damage to the environment. Soil that is prime or unique farmland as defined in the Farmland Protection Policy Act is classified as prime farmland. Each of the three soils discussed above; Brewer silty clay loam, Norge silt loam on 1 to 3 percent slopes, and Verdigris silt loam, are classified as prime farmland.



Photo 4.2.3. Prime farmland (Verdigris silt loam) adjacent to Whitewater River.

4.2.4 Wild and Scenic Rivers

There are no streams within the project area that are classified as wild and scenic pursuant to the Federal Wild and Scenic Rivers Act, Public Law 90-542.

4.2.5 Aquatic and Wetlands

The Whitewater River is a perennial stream with a streambed composed primarily of sand. Rock outcrops and areas of silt are plentiful. The Kansas Water Office classifies the Whitewater River at Towanda, just upstream of the project site, as an E5 stream type. The Whitewater River is slightly entrenched with a channel gradient of approximately 4.8 feet per mile. At the Towanda Gage it has a bankfull width of 105 feet, a mean depth of 9.1 feet, and an estimated bankfull discharge of 4,968 cubic feet per second (Figure 4.2.5). It has a very low width to depth ratio (9.1), very high sinuosity (1.82), and the dominant particle size is sand. These stream types are found in broad alluvial valleys with well-developed flood plains. The banks along the river vary from one foot to forty feet in height. The lowlands of the lower portion of the river are largely cultivated, so that this portion of the river is usually more turbid than the smaller streams of the upper watershed.

Potential limiting factors associated with the small streams emptying into the Whitewater River are low flows, silt, turbidity, trash dumps, feedlot and oil field runoff, crop sprays, city sewage effluents, and channelized sections.

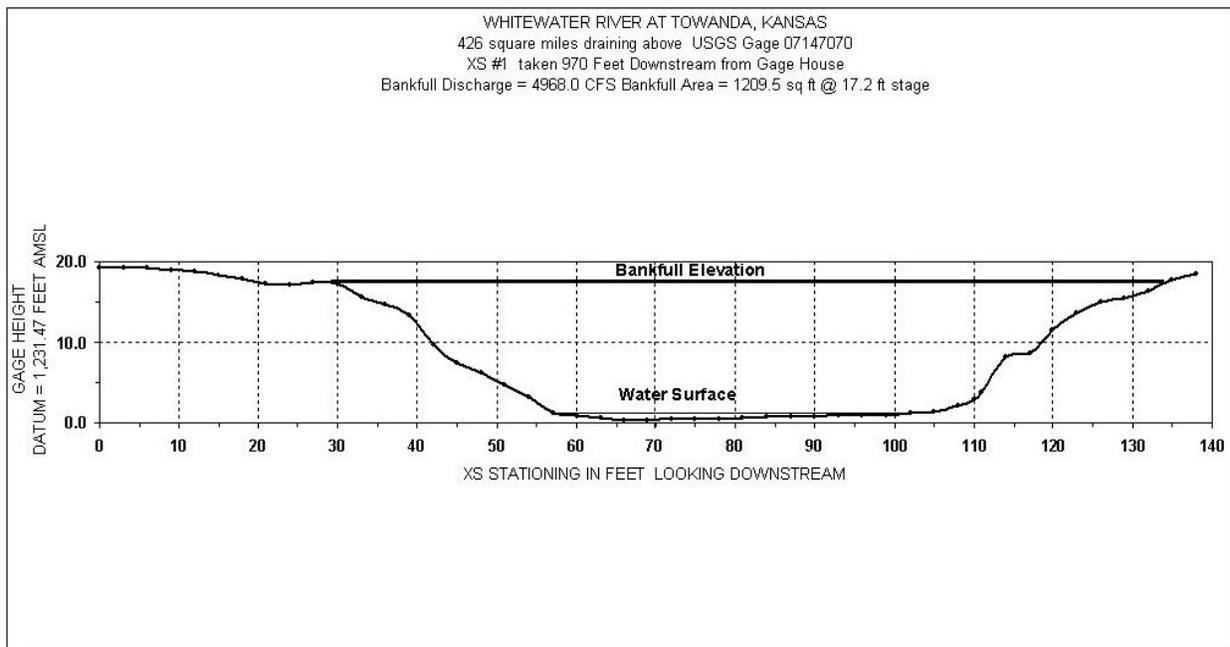


Figure 4.2.5. Cross-section of Whitewater River at Towanda.

The Whitewater River Basin contains widespread sources of pollution including natural sulfates, oil field brines, and total dissolved solids. The Kansas Department of Health and Environment (KDHE) does not classify it as outstanding natural resource water. Designated uses established by the KDHE include expected aquatic life support, contact recreation, domestic water supply, food procurement, groundwater recharge, industrial water supply, irrigation, and livestock watering.

Elm Creek, Dry Creek, the Walnut River, and the Augusta City Lake are in the vicinity of the project. These water bodies are currently listed on the Kansas 303(d) list as impaired water bodies and on the Kansas 305(b) list as not supporting the state designated uses. About 1,700 feet of the new levee extension runs adjacent to a segment of Elm Creek below Augusta Lake. The other three water bodies are outside the immediate project area. Dry Creek and the Augusta City Lake are upstream of the project.

4.2.6 Fish and Wildlife

Most streams with riparian corridors contain a rich diversity of fish and wildlife because of the abundance of food, vegetative cover, and water normally found there (Photo 4.4.6). The diversity and abundance of wildlife is reduced by the proximity to an urban area and by farming operations that utilize all available land to the edge of the



Photo 4.2.6. Habitat along the Whitewater River.

bank. A small amount of floodplain forest remains in a narrow corridor along the river. The following four subsections provide a listing of fish and wildlife species that could occur in the project area.

4.2.6.1 Fish

The Whitewater River is a moderately clear stream characterized by long pools separated by riffle areas (Figure 4.4.6.1). The river is turbid for varying periods following rainfall. Stream flow is adequate during normal rainfall years but zero flows occur during periods of extended drought. Except for the most severe droughts, deep pool areas provide fish habitat during zero-flow periods. Cover is provided by well-vegetated banks, aquatic vegetation, and at the lower end, limited amounts of structure consisting of logs and rocks. Bank vegetation forms a canopy over the stream and shades it in some areas (Photo 4.2.6.1).

The quality of fish habitat ranges from poor to excellent depending upon water conditions. Fishes present include catfish, bullhead, largemouth bass, white crappie, black crappie, carp, buffalo, sucker, gar, sunfish, and minnows. Channel catfish, flathead catfish, carp, and bullheads are the species that receive the bulk of the fishing pressure. A total of 51 species of fish are reported from the Walnut River basin.

4.2.6.2 Amphibians and Reptiles

Numerous species of amphibians and reptiles are found in south central Kansas. Common species of amphibians that could occur in the project area include Woodhouse's toad (*Bufo woodhousei*), Great Plains toad

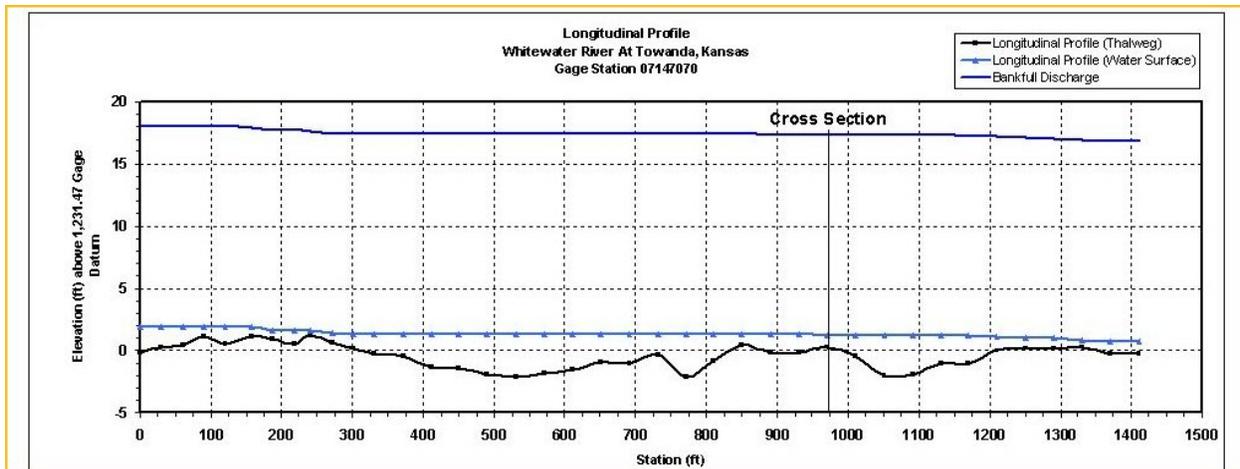


Figure 4.2.6.1. Longitudinal profile of Whitewater River at Towanda.



Photo 4.2.6.1. Bank vegetation provides shade in the Whitewater River.

(*Bufo cognatus*), plains leopard frog (*Rana blairi*), western chorus frog (*Pseudacris triseriata*), Blanchard's cricket frog (*Acris crepitans*), and bullfrog (*Rana catesbeiana*). Common species of reptiles that could occur in the project area include the northern water snake (*Nerodia sipedon*), snapping turtle (*Chelydra serpentina*), and western painted turtle (*Chrysemys picta*).

4.2.6.3 Birds

Birds that are most likely to occur in the area include mourning dove, great horned owl, barred owl, red-tailed hawk, wood duck, redheaded woodpecker, hairy woodpecker, downy woodpecker, great blue heron, blue jay, Carolina chickadee, European starling, English sparrow, warblers, flycatchers, native sparrows, red-winged blackbird, brown-headed cowbird, and cardinal. Neotropical migrants utilize the bottomland forests along the river during spring migration.

4.2.6.4 Mammals

Mammals most likely to occur in the project area include species that are tolerant of urban activity. These include fox squirrel (*Sciurus niger*), pocket gopher (*Geomys bursarius*), raccoon (*Procyon lotor*), opossum (*Didelphis marsupialis*), mink (*Mustela vison*), striped skunk (*Mephitis mephitis*), spotted skunk (*Spilogale putorius*), coyote (*Canis latrans*), cottontail rabbit (*Sylvilagus floridanus*), several species of rodents, and several species of bats.

4.2.7 Executive Order 13112

On 3 February 1999, President Clinton issued Executive Order 13112 (EO 13112), Invasive Species, which notes that invasive species annually cause significant economic, ecological, and human health impacts in the United States. The executive order defines invasive species as an alien species whose introduction does or is likely to cause economic and environmental harm or harm to human health. Executive Order 13112 requires Federal agencies to not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States; and that all feasible and prudent measures to minimize risk or harm will be taken in conjunction with the actions. Executive Order 13112 is addressed in this NEPA document to incorporate measures that will prevent the inadvertent spread of exotic and invasive species. These preventative measures are described in Section 6.0, Restoration Plan.

4.3 Threatened and Endangered Species

The threatened bald eagle (*Haliaeetus leucocephalus*) may occur occasionally along the Walnut or Whitewater Rivers during winter. Eagles utilize areas where large trees provide perch sites in proximity to open water. The proposed project approaches the Whitewater River near the south end of the levee but habitat disturbed by construction of the levee does not extend through the riparian zone adjacent to the river. Construction activities will be outside the channels of those two rivers.

The state-listed threatened eastern spotted skunk could occur in the project area in suitable habitat. Spotted skunks are smaller and more weasel-like in body shape than the more familiar striped skunk. The spotted skunks' strips are broken in pattern, giving it a 'spotted' appearance. Spotted skunks may occur in suitable habitat anywhere in the state. They seem to prefer forest edges and upland prairie grasslands, especially where rock outcrops and shrub clumps are present. In western counties, it relies heavily on riparian corridors where woody shrubs and woodland edges are present. Woody fencerows, odd areas, and abandoned farm buildings are also important habitat for spotted skunks.

4.4 Cultural Resources

In accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended), in March 2003 consultation was initiated with the Kansas State Historic Preservation Office (SHPO) and the Wichita and Affiliated Tribes of Oklahoma (see Appendix D). The Wichita and Affiliated Tribes did not provide any comment on the project.

During the period of July through October 2003, 4G Consulting performed a literature review and field reconnaissance at the request of the Tulsa District. No historic properties were identified in either the levee footprint or the two proposed borrow areas. In a January 27, 2004 letter (see Appendix D) to the Kansas SHPO, Tulsa District established an agency position of "no historic properties affected" for the Whitewater and Walnut Rivers

project. The Kansas SHPO agreed in a return letter dated January 29, 2004 (see Appendix D). Section 106 coordination is therefore complete for the project.

Archaeological investigations were again initiated in January 2006, targeted at the northern section of the modified levee project area. This work was conducted by engineering-environmental Management, Inc. (e²M). No historic properties were identified in either the levee footprint or the proposed borrow area for this project modification. In a February 22, 2006 letter (see Appendix D) to the Kansas SHPO, Tulsa District again established an agency position of "no historic properties affected." The Kansas SHPO agreed in a return letter dated March 6, 2006. Section 106 coordination is therefore complete for the modification to the northern section of the Augusta levee project.

4.5 Air Quality

The U.S. Environmental Protection Agency (EPA) published a Conformity Rule on November 30, 1993, requiring all Federal actions to conform to appropriate State Implementation Plans (SIP's) that were established to improve ambient air quality. At this time, the Conformity Rule only applies to Federal actions in non-attainment areas. A non-attainment area is an area that does not meet one or more of the National Ambient Air Quality Standards for the criteria pollutants designated in the Clean Air Act (CAA).

The project area is within the City of Augusta, which is a small rural town about 12 miles east of the City of Wichita. The Wichita-Sedgwick County Health Department monitors air quality in Wichita and the surrounding area for both criteria pollutants and air toxins. National Ambient Air Quality Standards exist for six pollutants: carbon monoxide, ozone, particulate matter smaller than 10µm, sulfur dioxide, nitrogen oxides, and lead. These "criteria pollutants" are the only ones for which standards have been established. The EPA assigns designations, based on an area's meeting, or "attaining" these standards. The Wichita-Sedgwick County area is designated "In Attainment" for criteria pollutants and air toxins.

A conformity determination based on air emission analysis is required for each proposed Federal action within a non-attainment area. Since this geographical region is in attainment and meets the National Air Quality Standards for the criteria pollutants designated in the CAA, a conformity determination is not required.

4.6 Hazardous, Toxic, and Radiological Waste

Potential for discovery of hazardous material during construction was evaluated through examination of historic and current land use, review of environmental databases, interviews with local regulatory personnel, and visual observations. Avoidance of HTRW during construction is desirable in order to minimize project delays, remediation costs, and environmental damage.

Undeveloped lands in the project area primarily are composed of agricultural land, riparian woodlands, and other categories of undeveloped lands. These lands have not been subjected to industrial development or other land use activities that normally produce significant contamination. In addition, undeveloped lands in close proximity to the project share similar uses and have a low potential for contaminant transport onto the project.

A search of the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database revealed the presence of five CERCLIS-listed sites in Butler County, Kansas. Each is a significant distance from the proposed project. Two hundred twenty eight sites listed on the Resource Conservation and Recovery Act Information System (RCRAinfo) database were noted in Butler County. Fifty of these are located in Augusta, Kansas. All are outside the construction area. The decommissioned Mobil refinery is located within the construction area. A review of the information provided on the refinery site indicates the possibility of the presence of hazardous, toxic, and radiological waste although the site was closed in accordance with Environmental Protection Agency (EPA) and Kansas Department of Health and Environment (KDHE) standards. The decommissioned refinery still contains some refinery equipment.

In addition to searches of environmental databases, local personnel from Augusta and Butler County were contacted for information related to potential areas of contamination that could affect project construction or operation. These included personnel from the Augusta Fire Department and Butler County Health Department and

residents in Augusta, Kansas. None of the contacted individuals were aware of any HTRW related issues in the project area.

A site visit was conducted on May 27, 2003 and included a search for visual evidence of potential HTRW related problems.

SECTION 5.0 ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

A summary of environmental impacts is presented in Table 5.0, Impact Assessment Matrix.

5.1 Social and Economic Impacts

5.1.1 Future Without-Project Conditions

5.1.1.1 Population

Under the without-project conditions, population trends of the past decade will likely continue with lower than average rates of population growth and continued higher than average ages within the City of Augusta. This trend continues the out-migration of the working age population as the opportunities in the nearby City of Wichita and other metropolitan areas draw from the available labor force in Augusta. Job opportunities in The City of Augusta and the demand for residential lands will be linked to future population dynamics in the area. In the absence of flood control improvements, a large portion of the western area of the City of Augusta will experience reduced maintenance of residential, commercial and industrial properties, and reduction of population growth in the area. The flooding along Whitewater and Walnut Rivers will continue to disrupt the lives of those conducting business, going to school and residing in flood prone areas. The health and safety of these individuals will continue to be at risk.

5.1.1.2 Employment

The unemployment rate will remain higher than the state level. Manufacturing and education, health, and social services will remain an important part of the industrial segment of the economy, and management and retail trade are expected to increase in their importance as part of the Butler County economy. Floodwaters will continue to pose a threat to business, as traffic access is restricted to the area in addition to operational interruptions that occur from flooding. Flooding will continue to disrupt farming operations in the areas adjacent to Augusta. The abandoned oil refinery located along the southwestern portion of the City of Augusta will remain inoperable and reconstruction of the industrial land at the location and employment opportunities will not likely take place.

5.1.1.3 Income

Income of persons living in the area is expected to remain lower than the State and national averages. Flooding will continue to reduce the income of those living and working in areas subject to inundation by Whitewater and Walnut Creeks as flood insurance or flood related costs reduce disposable income. As employment opportunities remain lower in Augusta than peripheral areas, the income of residents of Augusta will likely be tied to employment in the City of Wichita and the surrounding region. Property values will stabilize at lower levels than areas not subject to flooding.

5.1.1.4 Social Ecology

The land use for the Augusta area will continue to be a mixture of low, moderate and high-income residential properties, commercial development, and light industrial lands. Demand for new residential developments will increase the transition of agricultural lands into residential areas although at a pace that will be slower than in the surrounding metropolitan areas. The Augusta area will continue to be a center for retail businesses, service and educational facilities.

**Table 5.0
Impact Assessment Matrix**

Name of Parameter	Magnitude of Probable Impact						
	Increasing Beneficial Impact			No Appreciable Effect	Increasing Adverse Impact		
	Significant	Substantial	Minor		Minor	Substantial	Significant
A. Social Effects							
1. Noise Levels				x			
2. Aesthetic Values					x		
3. Recreational Opportunities				x			
4. Transportation			x				
5. Public Health and Safety	x						
6. Community Cohesion (Sense of Unity)		x					
7. Community Growth and Development		x					
8. Business and Home Relocations					x		
9. Existing/Potential Land Use				x			
10. Controversy				x			
B. Economic Effects							
1. Property Values			x				
2. Tax Revenues			x				
3. Public Facilities and Services			x				
4. Regional Growth				x			
5. Employment				x			
6. Business Activity			x				
7. Farmland/Food Supply					x		
8. Flooding Effects	x						
C. Natural Resource Effects							
1. Air Quality				x			
2. Terrestrial Habitat					x		
3. Wetlands			x				
4. Aquatic Habitat			x				
5. Habitat Diversity and Interspersion				x			
6. Biological Productivity				x			
7. Surface Water Quality			x				
8. Water Supply				x			
9. Groundwater			x				
10. Soils					x		
11. Threatened and Endangered Species				x			
D. Cultural Resources							
1. Historic Architectural Values				x			
2. Pre-Historic & Historic Archeological Values				x			

5.1.2 Future With-Project Conditions

5.1.2.1 Population

The flood control project will have a direct impact on the number of people living in the study area. Population trends of the past decade will continue although at higher rates of growth, as some residents of the nearby metropolitan area will likely migrate to the less congested nature of the City of Augusta. Construction may temporarily increase noise and traffic, which will affect persons living in and those commuting through the project area. Lands will be required for levee alignments and borrow areas. The acquiring of these lands may displace some property owners although greater flood protection will reduce the threat to health and safety of the population living in and commuting through the areas currently subject to flooding. Additional residential construction in flood-protected areas will stimulate population growth in the area in future decades.

5.1.2.2 Employment

The project construction may slightly increase job opportunities in the area until construction is complete. Long-term area employment will increase in response to additional residential construction, commercial employment, and the increased retail trade that will increase as area residents commute less and spend income in the Augusta community. The overall employment rate will increase in response to wholesale and retail sales increases in the area.

5.1.2.3 Income

Short-term construction related employment would increase area incomes, as expenditures for materials and labor will be made during the flood control project construction. Long-term increases in income within the area will be realized as construction of residential and commercial property takes place in response to reduced flood hazards within the area. Additionally, as increased population growth in the area occurs, less travel to employment outside the Augusta area will increase economic activity within the social area.

5.1.2.4 Social Ecology

Although land use for the Augusta area will continue to be a mixture of low, moderate and high-income residential properties, commercial development, and light industrial lands, development of larger industrial sites may occur in the absence of the flood hazard. The Augusta community will develop a more diverse population profile with increases in area employment from residential growth. Demand for new residential developments will increase the transition of agricultural lands into residential areas although at a pace that will be slightly slower than in the surrounding metropolitan area. The Augusta area will continue to be a center for retail businesses, service and educational facilities and additional business growth will follow increased population.

5.2 Natural Resource Impacts

5.2.1 Terrestrial

The project area includes the existing levee, a 2466-foot northward extension of the levee, and two agricultural fields that will provide borrow material for the project. Construction would include removal of all vegetation from the existing levee, widening the base, raising the height, and extending the levee northward. Impacts from construction would be confined to disturbance on and immediately adjacent to the levee and to the two borrow areas. Construction access would be routed through treeless areas where possible to avoid impacting riparian areas. Borrow material will be removed from two agricultural fields currently being farmed. The two borrow areas are currently in cropland and are devoid of ground cover. Approximately 7.8 acres of tree/shrub habitat along the base of the levee would be disturbed by the project. The predominant overstory species are cottonwood, hackberry, and elm. Lesser numbers of green ash, mulberry, honey locust, and pecan occur there. A few cottonwood trees are 24" diameter. A few remnants of riparian timber occur at the lower end of the levee where a lack of maintenance of the levee has allowed them to grow. Some shrubby vegetation including sumac, hawthorn, dogwood, and eastern red cedar will be removed.

Wildlife habitat in the project area primarily is limited to habitat formed along the narrow corridor on and adjacent to the levee. Wildlife species utilizing this habitat would be displaced. A wetland mitigation area will be developed at each borrow site as part of the project to offset these losses (Section 6.0). Additional minor temporary impacts would be caused by construction activity but they would disappear after project completion.

5.2.2 Prime Farmland

Three soil types are transected by the project. All three are classified as prime farmland. These are Brewer silty clay loam, Norge silt loam, and Verdigris silt loam. Brewer silty clay loam soil occurs approximately between stations 118+00 and 200+00. Norge silt loam soil occurs on the north end of the project beginning at about station 200+00. Verdigris silt loam soil occurs at the south end of the project below about station 118+00. The principal impact to prime farmland will be at the site of the two borrow areas where material will be excavated to construct the levee. Soils at the site of Borrow Area 1 are Brewer silty clay loam. Soils at the site of Borrow Area 2 also are Brewer silty clay loam with a small area of Verdigris silt loam at the southwest corner of the borrow area. About 20 acres will be impacted in the two borrow areas by the excavation. Approximately 7,300 feet of the existing levee extends through Brewer silty clay loam. However, very little impact to prime farmland will occur along the levee footprint since that soil was previously disturbed during construction of the existing levee.

The 2466-foot new levee extension at the north end of the levee will extend through Norge silt loam soils. Crops are planted on about 1400 feet of the site and urban yards with native and ornamental trees occur on the remaining 1000 feet. This northward extension of the levee contains the only segment of Norge silt loams crossed by the project.

Verdigris silt loam soil occurs at the south end of the project along the existing levee. No prime farmland impact would occur to Verdigris silt loam soil on this project because the footprint of the levee at this location is on or adjacent to the refinery and was previously disturbed.

The only prime farmland impact occurs at the borrow sites and along the northern levee extension. Cropping patterns, average yields, gross value, and net returns would change on these areas with the project.

5.2.3 Aquatic, Wetlands, and Water Quality Permits

Activities associated with construction of the Augusta levee would not impact existing wetlands. A positive impact will occur with the development of new wetlands in the borrow areas. Development of the borrow areas is discussed under Mitigation (Section 6.0).

The location and design of the project, including the revised alignment, is such that the placement of dredged or fill material would not be required into any waters of the United States. Therefore, this project is not subject to regulation pursuant to Section 404 of the Clean Water Act. The U.S. Army Corps of Engineers, Tulsa District has assigned Identification Number 11093 to the project (Appendix B).

During construction, there would be a temporary increase in siltation from sheet runoff associated with soil disturbance. Following construction and re-vegetation there would be a return to existing conditions in water quality from the maintained levee. The proposed project would not have permanent negative impacts on the quality of surface or ground water. Positive impacts to water quality should occur as a result of the lower frequency of residential and commercial flooding and associated contamination afforded by the project.

Elm Creek, Dry Creek, the Walnut River, and the Augusta City Lake are in the vicinity of the project but would not be negatively impacted by the levee.

5.2.4 Wildlife

Minor impacts would occur to those species of wildlife residing in the project area that utilize the habitat at the south end of the levee below about station 125+00 where woody vegetative growth and native grasses have become established. Above station 125+00 habitat is limited and consists primarily of a narrow band of overstory

vegetation. Several narrow strips of woody or shrubby vegetation occur along the project area, which total about 7.8 acres. Impacts would be temporary and would be replaced through mitigation discussed in Section 6.0.

5.2.5 Executive Order 13112

Several species of exotic or invasive plants and animals have the potential to be transported into or out of the construction area by the equipment to be used by the contractor. Executive Order 13112 requires Federal agencies to not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States; and that all feasible and prudent measures to minimize risk or harm will be taken in conjunction with the actions. The potential exists for the transport of species covered under this Executive Order. Section 6.0 addresses actions that will be taken by the contractor to prevent the inadvertent spread of exotic and invasive species.

5.3 Threatened and Endangered Species

The threatened bald eagle may occur along the Walnut or Whitewater Rivers during winter. Eagles utilize areas where large trees provide perch sites in proximity to open water. The proposed project should cause no adverse impact to this species. The levee approaches but does not extend to the banks of the Whitewater River where perching trees primarily exist. A few scattered cottonwood trees would be removed adjacent to the levee on the south end of the project. However, these are mostly trees with trunks less than 16 inches in diameter. Cottonwood trees larger than 30 inches diameter will be avoided where possible. Listed fish species would not be affected by the project since the project does not connect with the Whitewater or Walnut Rivers. Construction activities will be in the floodplain away from the channels of those two rivers.

The U.S. Fish and Wildlife Service concurs if the proposed project does not intrude into the existing riparian habitat (Appendix C). Construction activities at the south end of the levee near the Whitewater River could result in the loss of a few trees that are large enough to support eagles for perching. However, large trees will be avoided if possible.

The state-listed threatened eastern spotted skunk could occur in the project area in suitable habitat. Spotted skunks may occur in suitable habitat anywhere in the state. They seem to prefer forest edges and upland prairie grasslands, especially where rock outcrops and shrub clumps are present. Woody fencerows, odd areas, and abandoned farm buildings are also important habitat for spotted skunks. Removal of a small amount of shrubby habitat potentially suitable for the spotted skunk would occur during project construction along the levee below station 125+00. The loss of suitable habitat would be temporary during construction. Spotted skunk habitat would be created at the borrow sites as a part of the mitigation for the project as discussed in Section 6.0. Vegetation utilized by spotted skunks would also return along the base of the levee upon project completion.

5.4 Cultural Resources

As outlined in Section 4.6 of this report, Section 106 coordination (National Historic Preservation Act of 1966, as amended) is complete. The proposed project and associated modifications will have no effect on historic properties.

5.5 Air Quality

Construction related and site development impacts on air quality may result from temporary fugitive dust (particulate) emissions in and around the project site. Construction contractors will comply with all appropriate Federal air quality regulations to limit the dispersal of particulate matter. A temporary increase in exhaust emissions from construction equipment would also be expected during construction of the proposed project.

5.6 Hazardous, Toxic, and Radiological Waste

The site visit involved contact with local regulatory personnel, walking the project area, as well as a visual reconnaissance of surrounding areas. Areas of soil staining, evidence of unusual vegetative distress, drums of

containerized waste, unusual topography (mounds or depressions), or other visual evidence of potential contamination were not noted at any location.

Areas identified that have a potential for hazardous material discovery include the decommissioned Mobile refinery and a small area within the refinery that contained a small amount of construction debris. Although the decommissioned refinery has been cleaned and closed following EPA and KDHE guidelines, there remains a potential for discovery of hazardous materials in the area. The construction debris area appears to have been used only for the disposal of construction debris, but there is a potential for discovery of hazardous materials. Because of the type of linear construction involved with this project the potential for discovery of, or significant problems related to, HTRW during project construction appears low except for these two areas.

5.7 Noise

During construction, there would be an increase in noise from heavy equipment, but this would be temporary and last only during the construction period.

5.8 Cumulative Impacts

No cumulative impacts are anticipated to occur as a result of the proposed project.

SECTION 6.0 MITIGATION PLAN

Project related impacts were identified during project formulation and data gathering for the Environmental Assessment, and coordination planning with the Kansas Department of Wildlife and Parks and the US Fish and Wildlife Service (Appendix C). The proposed project would have minor impacts to upland habitat along the base of the existing levee and riparian habitat along the new levee extension. Mitigation was developed to offset project related impacts, which includes avoidance and plantings. The removal of existing trees and brush will be minimized.

Avoidance is recommended along three sections of a mature shelterbelt that provides valuable wildlife habitat along about 4,700 feet of the inside of the levee between stations 141+00 and the north end of the existing levee. Shelterbelts provide important nesting, feeding, and resting cover for many wildlife species. They are especially significant in Kansas. They are also important as travel or migration links across otherwise treeless areas. These three sections of shelterbelt provide about four acres of habitat and comprise the most significant terrestrial habitat with potential for project impact. They will be avoided if possible. Several large cottonwood trees grow adjacent to the base of the levee. Trees larger than 24 inches diameter breast height and large snags will be avoided if possible. Construction activities in wooded or brushy habitat where migratory birds are nesting will not begin during the months of April, May, or June to avoid the active nesting season. Adherence to these guidelines will help avoid the taking of migratory birds under the Migratory Bird Treaty Act.

A combined total of approximately one acre of riparian timber will have to be removed from scattered segments along the new levee extension to construct the new levee and borrow area 2 (Figure 6.0).

Planting to offset losses of upland habitat consists of planting shrubs, native grasses, and forbs in the two borrow areas. In addition, trees will be planted in Borrow Area 1 (NE¹/₄, S28, T27S, R4E). These areas would not be subject to continual mowing/manicure.

A native grass/forb mix will be planted at a seeding rate of 18 pounds per acre on the 12 acres of the two borrow areas (approximately 216 pounds of seed mix). This includes planting all ten acres of Borrow Area 1 and the two acres above the permanent pool of Borrow Area 2. The mix consists of sideoats grama (50 pounds), blue grama (50 pounds), buffalo grass (25 pounds), sand lovegrass (20 pounds), western wheatgrass (15 pounds), Illinois bundleflower (31 pounds), and partridge pea (25 pounds). Lime and fertilizer will be applied per soil tests for that mix on a well-prepared seedbed. The mixture will be planted with a grass or pasture drill equipped with an agitator in the seedbox to provide equal distribution of seed. Seeding depth will be shallow per planting specifications for

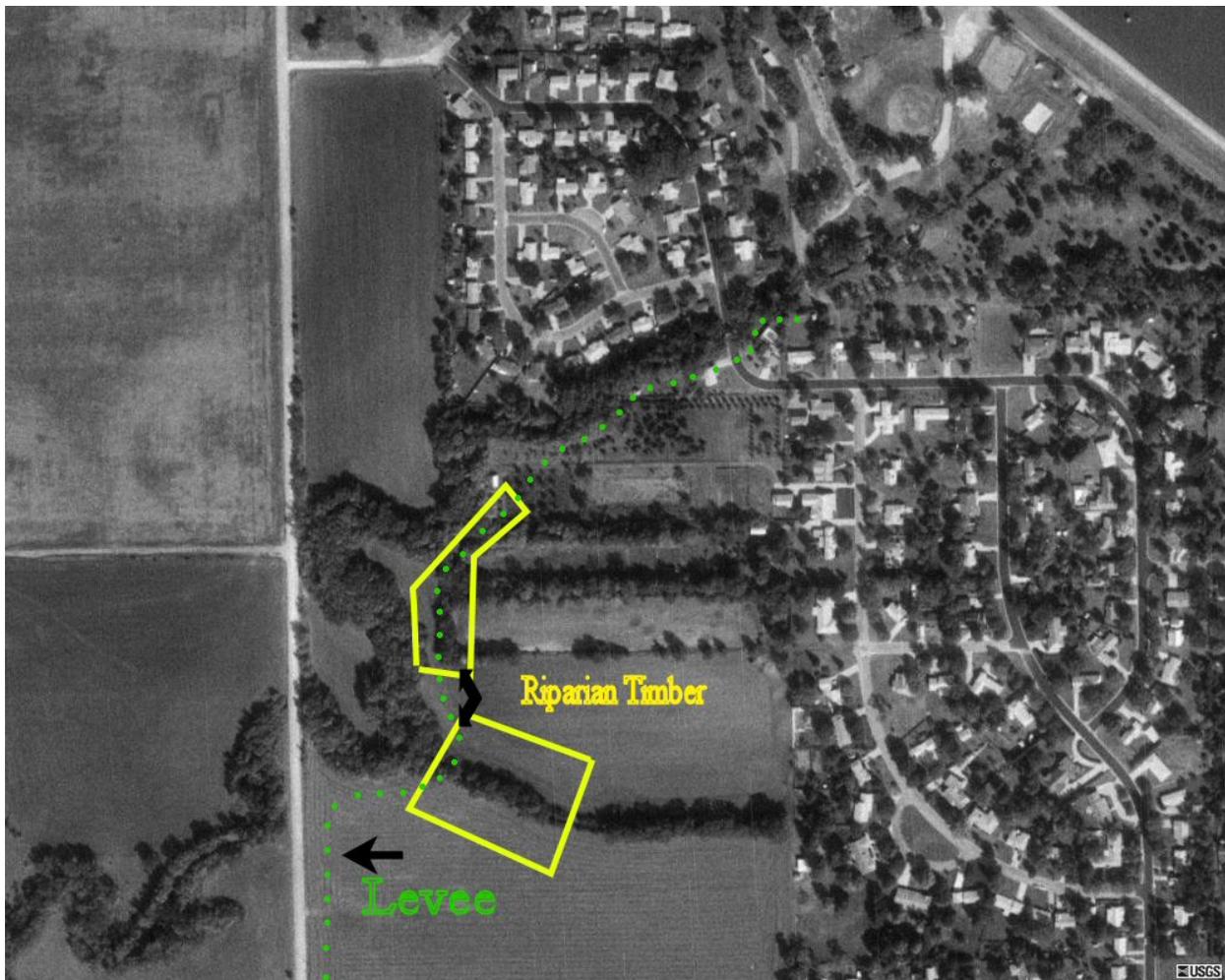


Figure 6.0. Scattered Segments of Riparian Timber along new Levee Alignment.

the mix and the area will be mulched. The Kansas Department of Wildlife and Parks office in Wichita, Kansas, has a list of sources for native grass seed.

Trees will be planted in the south borrow area to compensate for project related losses of upland and riparian overstory habitat. Shrubs will be planted in each borrow area. They will be planted on the same mitigation acreage that is seeded with the native grass/forb mix. Approximately six acres of trees will be established to mitigate project impacts on four acres of upland timber (1:1 ratio) and one acre of riparian timber (2:1 ratio). If the mature shelterbelts described above that exist inside the existing levee between stations 141+00 and the end of the existing levee are destroyed then ten acres of trees will be planted in the borrow area to provide for the additional loss of the shelterbelt habitat.

Tree species will consist of bare root seedlings of black walnut, red oak or bur oak, cottonwood, hackberry, and pecan. The number of trees to be planted will be 275 of each species unless the shelterbelts described in paragraph two of this section are destroyed. Then the number will be increased to 460 of each species over ten acres. Species will be mixed as they are planted with the exception that cottonwood may be planted in the center of borrow area 1. The grass mix discussed above will be applied to the tree planting area prior to planting the seedlings. Bare root seedlings may be planted using a 'dibble bar' and should be planted on 14-foot spacing's. The upper slope of the borrow area shall be planted first, then extending down the slopes and to the center of the borrow site. Two clusters of shrubs will be planted in each borrow area to compensate for the loss of shrub habitat. Shrub species planted will be Sand Hill Plum. They will be planted on 5-foot spacing's in groups of 144 plants at each of the four clusters. Plants within each cluster will be contiguous but the dimensions do not have to be 12 rows

x 12 rows. They may be rectangular but should be no less than four rows in width (15 feet). Trees will not be planted within the shrub clusters. The clusters will be planted on the slope on separate sides of the borrow areas so they are not adjacent to each other. The Kansas Forest Service has information on the availability of these species of trees and shrubs through the Kansas Conservation Tree Planting Program.

The three acre pond area in Borrow Area 2 will be developed into a fishery and stocked in accordance with guidelines provided by the Kansas Department of Wildlife and Parks.

The introduction and spread of exotic and invasive species is a major concern with the use of heavy equipment for this project. Therefore, the contract specifications for this project will include the following condition. All equipment brought on site will be thoroughly washed to remove dirt, seeds, and plant parts. Any equipment that has been in any body of water within 30 days of its arrival at the work site will be thoroughly cleaned with hot water (hotter than 40° C or 104°F) and dried for a minimum of five days before being used at this project site. In addition, before transporting equipment from the project site all visible mud, plants, and fish/animals will be removed, all water will be eliminated, and the equipment will be thoroughly cleaned. Anything that came in contact with the water will be cleaned and dried following the above procedure.

SECTION 7.0 FEDERAL, STATE, AND LOCAL AGENCY COORDINATION

The draft environmental assessment (EA) was coordinated with the following agencies having legislative and administrative responsibilities for environmental protection. A copy of the correspondence from those agencies that provided comments and planning assistance for preparation of the draft EA are in the appendices. The mailing list for the public review period for this EA is in Appendix A.

U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service
Natural Resources Conservation Service
Kansas State Historical Society
Wichita and Affiliated Tribes
Kansas Department of Health and Environment
Kansas Water Board
Kansas Department of Wildlife and Parks

SECTION 8.0 REFERENCES

- Bailey, R.G. 1980. *Ecoregions of the United States*. Miscellaneous Publication No. 1391. USDA, Forest Service, Washington, DC.
- Omernik, J.M. 1987. *Ecoregions of the Conterminous United States*. Ann. Assoc. Amer. Geogr. 77(1): 118-125.
- Schoewe, W. H. 1949. The geography of Kansas. Trans. Kans. Acad. Sci. 52:261-331.
- Soil Conservation Service. 1981. *Prime Farmland, Soil Survey Map Units, Kansas*. U.S. Department of Agriculture (USDA), Salina, Kansas. 34p.
- Soil Conservation Service. 1975. *Soil Survey of Butler County, Kansas*. USDA, Manhattan, Kansas. 60p.
- U.S. Bureau of Census. 2001. *2000 Census of Population and Housing, STF3*. www.census.gov/
- U.S. Department of Defense. 2001. *Defense Environmental Network & Information eXchange*. www.denix.osd.mil

SECTION 9.0 APPLICABLE ENVIRONMENTAL LAWS AND REGULATIONS

Table 9.0

Relationship of Plans to Environmental Protection Statutes and Other Environmental Requirements

Policies	Compliance of Alternatives
<u>Federal</u>	
Archeological and Historic Preservation Act, 1974, as amended, 16 U.S.C. 469, <u>et seq.</u>	All plans in full compliance
Clean Air Act, as amended, 42 U.S.C. 7609, <u>et seq.</u>	All plans in full compliance
Clean Water Act, 1977, as amended (Federal Water Pollution Control Act, 33 U.S.C. 1251, <u>et seq.</u>	All plans in full compliance
Endangered Species Act, 1973, as amended, 16 U.S.C. 1531, <u>et seq.</u>	All plans in full compliance
Environmental Justice (E.O. 12898).....	All plans in full compliance
Farmland Protection Policy Act, 7 U.S.C. 4201, <u>et seq.</u>	All plans in full compliance
Federal Water Project Recreation Act, as amended, 16 U.S.C. 460-1-12, <u>et seq.</u>	All plans in full compliance
Fish and Wildlife Coordination Act, as amended, 16 U.S.C. 661, <u>et seq.</u>	All plans in full compliance
Floodplain Management (E.O. 11988)	All plans in full compliance
Invasive Species (E.O. 13112).....	All plans in full compliance
Land and Water Conservation Fund Act, 1965, as amended, 16 U.S.C. 4601, <u>et seq.</u>	All plans in full compliance
National Historic Preservation Act, 1966, as amended, 16 U.S.C. 470a, <u>et seq.</u>	All plans in full compliance
National Environmental Policy Act, as amended, 42 U.S.C. 4321, <u>et seq.</u>	All plans in full compliance
Native American Graves Protection and Repatriation Act, 1990, 25 U.S.C. 3001-13, <u>et seq.</u>	All plans in full compliance
Protection of Children From Environmental Health Risks and Safety Risks (E.O. 13045)	All plans in full compliance
Protection of Wetlands (E.O. 11990).....	All plans in full compliance
Rivers and Harbors Act, 33 U.S.C. 401, <u>et seq.</u>	N/A
Watershed Protection and Flood Prevention Act, 16 U.S.C. 1001, <u>et seq.</u>	N/A
Wild and Scenic Rivers Act, as amended, 16 U.S.C. 1271, <u>et seq.</u>	N/A
Water Resources Planning Act, 1965	N/A

Note: Full compliance - Having met all requirements of the statutes, Executive Orders, or other environmental requirements for the current stage of planning.

SECTION 10.0 LIST OF PREPARERS

This EA has been prepared to assess the Whitewater and Walnut Rivers Local Flood Protection Project, Augusta, Kansas. The following personnel contributed to the preparation of this document.

Stephen L. Nolen - Chief, Environmental Analysis and Compliance Branch; Biologist; 19 years U.S. Army Engineer District, Tulsa.

Jerry C. Sturdy - Biologist; 3 years U.S. Fish and Wildlife Service; 8 years U.S. Army Garrison, Fort Chaffee, Arkansas; 24 years U.S. Army Engineer Districts, Tulsa and Fort Worth.

Kenneth L. Shingleton, Jr. - Archaeologist; 7 years U.S. Army Engineer District, St. Louis; 5 years U.S. Army Engineer District, Tulsa.

Edwin J. Rossman, Ph.D. - Sociologist; 2 years University of North Texas; 23 years U. S. Army Engineer District, Tulsa.

James R. Sullivan – Economist; 31 years U.S. Army Engineer District, Tulsa.

APPENDIX A

COORDINATION/CORRESPONDENCE

Mailing List for Whitewater and Walnut River Local Flood Protection Project Draft EA

Senator Sam Brownback
245 N. Waco
Suite 240
Wichita, KS 67202

Senator Pat Roberts
155 North Market St.
Suite 120
Wichita, KS 67202

Congressman Todd Tiahrt
155 North Market St.
Suite 400
Wichita, KS 67202

Senator Peggy Palmer
5 Flanigan Drive
Augusta, KS 67010

Representative Everett Johnson
1142 Henry
Augusta, KS 67010

Mr. Michael LeValley, Project Leader
U.S. Fish and Wildlife Service
Kansas Field Office
2609 Anderson Avenue
Manhattan, KS 66502-6172

Mr. Harold L. Klaege
State Conservationist
USDA Natural Resource Conservation Service
760 South Broadway
Salina, KS 67401-4642

Ms. Jennie Chinn
State Historic Preservation Officer
Kansas State Historical Society
6425 SW 6th Avenue
Topeka, KS 66615-1099

Mr. Jim Schmidt, Director
Emergency Management
and Homeland Security
2100 N. Ohio, Suite B
Augusta, KS 67010

Ms. Tracy Streeter
Executive Director
Kansas State Conservation Commission
109 SW 9th Street, Suite 500
Topeka, KS 66612-1249

Mr. John Wine, Chairman
Kansas Corporation Commission
1500 SW Arrowhead Road
Topeka, KS 66604-2425

Mr. David L. Pope
Chief Engineer
Kansas Department of Agriculture
Division of Water Resources
109 SW 9th Street, 2nd Floor
Topeka, KS 66612-1283

Mr. Dennis Carlson, District Forester
Kansas Forest Service
9 West 28th Suite B
Hutchison, KS 67502-3453

Mr. James B. Gulliford, Regional Administrator
US EPA Region 7
Environmental Services Division
ATTN: Joe Cothorn
901 N. 5th Street
Kansas City, KS 66101

Mr. Paul M. Liechti
Kansas Biological Survey
2041 Constant Avenue
Lawrence, KS 66047

Mr. Clyde D. Graeber, Secretary
Kansas Department of Health and Environment
1000 SW Jackson
Topeka, KS 66612

Mr. Al LeDoux, Director
Kansas Water Office
901 S. Kansas Avenue
Topeka, KS 66612

Mr. Gary McAdams
Wichita and Affiliated Tribes of Oklahoma
P. O. Box 729
Anadarko, OK 73005

Commissioner Randy Waldorf,
District #2 Commissioner
205 W. Central
El Dorado, KS 67042

Mr. J. Michael Hayden, Secretary
Kansas Department of Wildlife and Parks
1020 S. Kansas, Rm 200
Topeka, KS 66612

Mr. Darryl Lutz, P.E.
Butler County Engineer's Office
205 W. Central
El Dorado, KS 67042

Mr. Gus Collins, Director
Butler County Economic Development
226 W. Central, Suite 214
El Dorado, KS 67042

Mr. William Keefer
City Manager
P.O. Box 489
Augusta, KS 67010

Mr. Wes Starnes
Director
Augusta Public Works
P.O. Box 489
Augusta, KS 67010

Dick and Carlene Pennington
117 West 7th
Augusta, KS 67010

Ms. Kate Crandell
1001 Wirth St.
Augusta, KS 67010

Ms. Kimberley Smith
502 W. Broadway
Augusta, KS 67010

Mr. Don Davis
Senior Environmental Engineer
Williams Companies
One Williams Center
P.O. Box 3483, MD 48-6
Tulsa, OK 74101

Ms. Charla Zerbe
312 Woodridge Ct.
Augusta, KS 67010

Bill and Sharon Slade
1705 Sunset Dr.
Augusta, KS 67010

Mr. J. Benington
11746 SW Hwy 77
Augusta, KS 67010

Mr. Floyd Zwahl
1707 Sunset Dr.
Augusta, KS 67010

Mr. Eric Grooms
2500 Lakepoint Ct.
Augusta, KS 67010

Mr. Martin Goedocke
Goedocke Engineering
2055 Main
El Dorado, KS 67042

Harlan and Susan Bartel
1200 Leckliter Dr.
Augusta, KS 67010

Mr. Steve Gillies
1104 Helen
Augusta, KS 67010

Dr. Sheryl L. Erickson
1147 Helen
Augusta, KS 67010

Glen and Luella Vance
1101 Leckliter Dr.
Augusta, KS 67010

Myrna Hale, Library Director
Augusta Public Library
1609 State Street
Augusta, KS 67010

Mr. Jim Randolph
905 W. Fredericksburg
Broken Arrow, OK 74011

Mr. Jerry Sturdy
10750 N. County Rd 4445
Stigler, OK 74462



DEPARTMENT OF ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

May 11, 2006

Planning and Environmental Division
Environmental Analysis and Compliance Branch

TO INTERESTED PARTIES

The Tulsa District has assessed the environmental impacts of a levee modification project to provide additional flood relief within the City of Augusta, Kansas. The City of Augusta is experiencing flooding from the Whitewater and Walnut Rivers and tributaries during intense thunderstorms. The flood control project extends the north end of the existing levee approximately 3555 feet and raises the levee to protect against the 500-year flood.

This assessment was prepared in accordance with U.S. Army Corps of Engineers Regulations, Part 230, Policy and Procedures for Implementing the National Environmental Policy Act. It has been determined from the enclosed Environmental Assessment that the project will have no significant adverse impact on the natural or human environment.

The Draft Environmental Assessment is enclosed for your review. If you have comments they should be submitted within 30 days from the date of this letter to the U. S. Army Corps of Engineers - Tulsa District, ATTN: Environmental Analysis and Compliance Branch (Augusta Levee Project), 1645 South 101st East Avenue, Tulsa, Oklahoma 74128.

Sincerely,

A handwritten signature in dark ink, appearing to read "Stephen L. Nolen", is written over a horizontal line.

Stephen L. Nolen
Chief, Environmental Analysis
and Compliance Branch

Enclosure

~Announcing~

PUBLIC INVOLVEMENT WORKSHOP

as related to the

Augusta, Kansas, Feasibility Study

in compliance with

Section 205 of the 1948 Flood Control Act

Workshops

The U.S. Army Corps of Engineers will host a public workshop to inform the public about the Whitewater flood control feasibility study and to solicit comments and questions. The workshop will be open house format, with no set or formal presentation. Interested persons may arrive anytime between 6:30 - 8:00 p.m., visit the information tables, discuss the study with Corps personnel, and make comments. The workshops will be held at the following location:

Augusta, Kansas, Workshop

City Council Chambers

6th and School, Box 489

Augusta, KS

Tuesday, April 23, 2002

Any time between 6:30 - 8:00 p.m.

Scoping Process

The Corps of Engineers Feasibility study will investigate the flood problems of the Whitewater and Walnut Rivers area, formulate a variety of alternative to reduce future flooding, identify other concerns or needs of the project area, and formulate a recommended plan of action or non-action. The Corps evaluation includes consideration of environmental impacts that may occur as a result of each alternative. The environmental impact evaluation is done in compliance with the National Environmental Policy Act. The first step in the evaluation is the scoping process involving input from the public about potential alternatives and related impacts. As part of the scoping process, the Corps of Engineers requests that the public; interested parties; and Federal, State, and local agencies identify environmental issues related to the project alternatives. Comments and questions can be forwarded to:

Mr. David L. Combs

U.S. Army Corps of Engineers, Tulsa District

1645 S. 101st East Avenue ATTN: CESWT-PE-E

Tulsa, OK 74128-4629

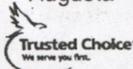
Phone: 918-669-7660

e-mail: David.L.Combs@usace.army.mil

got the win in
e, shutting out
s through five
e one saw
even hits while
e errors. Game
pick up 17 hits
ball only once.
ins, Douglass
l for the season
y against Belle



609 State
Augusta



Auto - Home - Life - Health - Business

Call 775-2200

Lower auto rates
from Real People!

Your hometown

PROGRESSIVE

AUTHORIZED INDEPENDENT AGENT



Kay Small

the whole family!"
ARTY SPECIALS

LY 1 PM

er Leagues

*Holiday
Bowl*

310 State • Augusta
775-7011

ZTR!

Months
Same
Cash!

easy handling
ibility
2", mulching
ions
owing time in
o run, too!

me Demo!



Mowers

Inc.



800-461-3311

316-265-9401

prestige golf and turf.com

~Announcing~

PUBLIC INVOLVEMENT WORKSHOP
as related to the
Whitewater and Walnut Rivers, Augusta, Kansas Project
in compliance with
Section 205 of the 1948 Flood Control Act



Photo courtesy of the Augusta Daily Gazette

The U.S. Army Corps of Engineers will host a public workshop on the Whitewater and Walnut Rivers flood control project. Interested persons are invited to stop by the open-house workshop anytime between 6:30 - 8:00 p.m., visit the information tables and discuss the project with Corps personnel and city officials. Comments gathered will be considered in the official scoping process. The workshop will be held at the following location:

Whitewater and Walnut Rivers, Augusta, Kansas Project Workshop
City Council Chambers
6th and School, Box 489, Augusta, KS
Tuesday, April 23, 2002
Any time between 6:30 - 8:00 p.m.

Scoping Process

The Corps of Engineers feasibility phase of this project will investigate the flooding problems of the Whitewater and Walnut Rivers area, formulate a variety of alternatives to reduce future flooding, identify other concerns or needs of the project area, and formulate a recommended plan of action or non-action. The Corps evaluation includes consideration of environmental impacts that may occur as a result of each alternative. The environmental impact evaluation is done in compliance with the National Environmental Policy Act. The first step in the evaluation is the scoping process that includes public input on potential alternatives and related impacts. As part of the scoping process, the Corps of Engineers requests that the public; interested parties; and Federal, State, and local agencies identify environmental issues related to the project alternatives. Comments and questions can be forwarded to:

Mr. Steve Nolen
U.S. Army Corps of Engineers, Tulsa District
1645 S. 101st East Avenue ATTN: CESWT-PE-E
Tulsa, OK 74128-4629 • Phone: 918-669-7666
e-mail: Steven.L.Nolen@usace.army.mil

*Augusta Daily Gazette
Tuesday, April 23, 2002*



DEPARTMENT OF ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

February 28, 2006

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. James B. Gulliford
Regional Administrator
U.S. Environmental Protection Agency
901 N. 5th Street
Kansas City, KS 66101

Dear Mr. Gulliford:

This is to inform you that the Tulsa District has been requested by the City of Augusta, Kansas, to study the feasibility of a local flood protection project to provide additional flood protection from the Whitewater and Walnut Rivers. We previously addressed this problem in an Environmental Assessment in May 2004. However, the City of Augusta has requested that approximately 2,800 feet at the upper end of the levee be constructed in a different location. As a result, we are beginning the process of preparing an Environmental Assessment to address the effect of the new alignment. The study is being conducted under authority of Section 205 of the Flood Control Act of 1948, as amended.

The city currently is afforded some protection by a levee that was constructed by the Works Projects Administration in the 1930's. However, significant flooding occurred in the city in 1965 and in 1998 when water either overtopped or got behind the levee on the western edge of town. Alternatives include extending the length and raising the height of the existing levee to provide additional protection.

We are preparing documentation for compliance with the National Environmental Policy Act of 1969 and would appreciate comments from your agency concerning this proposed action.

If you have any questions or require additional information, please contact Mr. Jerry Sturdy at 918-669-4397.

Sincerely,

A handwritten signature in blue ink, appearing to read "Stephen L. Nolen".

Stephen L. Nolen
Chief, Environmental Analysis
and Compliance Branch



DEPARTMENT OF ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

February 16, 2006

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. Mike LeValley
Field Supervisor
U.S. Fish and Wildlife Service
315 Houston, Suite E
Manhattan, KS 66502-6172

Dear Mr. LeValley:

This is to inform you that the Tulsa District has been requested by the City of Augusta, Kansas, to study the feasibility of a local flood protection project to provide additional flood protection from the Whitewater and Walnut Rivers. We previously addressed this problem in an Environmental Assessment in May 2004. However, the City of Augusta has requested that approximately 2,800 feet at the upper end of the levee be constructed in a different location. As a result, we are beginning the process of preparing an Environmental Assessment to address the effect of the new alignment. The study is being conducted under authority of Section 205 of the Flood Control Act of 1948, as amended.

The city currently is afforded some protection by a levee that was constructed by the Works Projects Administration in the 1930's. However, significant flooding occurred in the city in 1965 and in 1998 when water either overtopped or got behind the levee on the western edge of town. Alternatives include extending the length and raising the height of the existing levee to provide additional protection.

We are preparing documentation for compliance with the National Environmental Policy Act of 1969 and would appreciate comments from your agency in accordance with the Fish and Wildlife Coordination Act and the Endangered Species Act.

If you have any questions or require additional information, please contact Mr. Jerry Sturdy at 918-669-4397.

Sincerely,

A handwritten signature in black ink, appearing to read "Stephen L. Nolen", is written over a faint, larger version of the same signature.

Stephen L. Nolen
Chief, Environmental Analysis
and Compliance Branch



DEPARTMENT OF ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

February 16, 2006

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. Clyde D. Graeber
Secretary
Kansas Department of Health and Environment
Charles Curtis State Office Building
1000 SW Jackson
Topeka, KS 66612

Dear Mr. Graeber:

This is to inform you that the Tulsa District has been requested by the City of Augusta, Kansas, to study the feasibility of a local flood protection project to provide additional flood protection from the Whitewater and Walnut Rivers. We previously addressed this problem in an Environmental Assessment in May 2004. However, the City of Augusta has requested that approximately 2,800 feet at the upper end of the levee be constructed in a different location. As a result, we are beginning the process of preparing an Environmental Assessment to address the effect of the new alignment. The study is being conducted under authority of Section 205 of the Flood Control Act of 1948, as amended.

The city currently is afforded some protection by a levee that was constructed by the Works Projects Administration in the 1930's. However, significant flooding occurred in the city in 1965 and in 1998 when water either overtopped or got behind the levee on the western edge of town. Alternatives include extending the length and raising the height of the existing levee to provide additional protection.

We are preparing documentation for compliance with the National Environmental Policy Act of 1969 and would appreciate comments from your agency concerning this proposed action.

If you have any questions or require additional information, please contact Mr. Jerry Sturdy at 918-669-4397.

Sincerely,

Stephen L. Nolen
Chief, Environmental Analysis
and Compliance Branch



DEPARTMENT OF ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

February 16, 2006

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. J. Michael Hayden,
Secretary
Kansas Department of Wildlife and Parks
900 SW Jackson St., Suite 502
Topeka, KS 66612

Dear Mr. Hayden:

This is to inform you that the Tulsa District has been requested by the City of Augusta, Kansas, to study the feasibility of a local flood protection project to provide additional flood protection from the Whitewater and Walnut Rivers. We previously addressed this problem in an Environmental Assessment in May 2004. However, the City of Augusta has requested that approximately 2,800 feet at the upper end of the levee be constructed in a different location. As a result, we are beginning the process of preparing an Environmental Assessment to address the effect of the new alignment. The study is being conducted under authority of Section 205 of the Flood Control Act of 1948, as amended.

The city currently is afforded some protection by a levee that was constructed by the Works Projects Administration in the 1930's. However, significant flooding occurred in the city in 1965 and in 1998 when water either overtopped or got behind the levee on the western edge of town. Alternatives include extending the length and raising the height of the existing levee to provide additional protection.

We are preparing documentation for compliance with the National Environmental Policy Act of 1969 and would appreciate comments from your agency concerning fish and wildlife species of concern that might occur in the project area.

If you have any questions or require additional information, please contact Mr. Jerry Sturdy at 918-669-4397.

Sincerely,

A handwritten signature in black ink, appearing to read "Stephen L. Nolen", with a long, sweeping underline.

Stephen L. Nolen
Chief, Environmental Analysis
and Compliance Branch



DEPARTMENT OF ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

February 16, 2006

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. Al LeDoux, Director
Kansas Water Office
901 S. Kansas Avenue
Topeka, KS 66612

Dear Mr. LeDoux:

This is to inform you that the Tulsa District has been requested by the City of Augusta, Kansas, to study the feasibility of a local flood protection project to provide additional flood protection from the Whitewater and Walnut Rivers. We previously addressed this problem in an Environmental Assessment in May 2004. However, the City of Augusta has requested that approximately 2,800 feet at the upper end of the levee be constructed in a different location. As a result, we are beginning the process of preparing an Environmental Assessment to address the effect of the new alignment. The study is being conducted under authority of Section 205 of the Flood Control Act of 1948, as amended.

The city currently is afforded some protection by a levee that was constructed by the Works Projects Administration in the 1930's. However, significant flooding occurred in the city in 1965 and in 1998 when water either overtopped or got behind the levee on the western edge of town. Alternatives include extending the length and raising the height of the existing levee to provide additional protection.

We are preparing documentation for compliance with the National Environmental Policy Act of 1969 and would appreciate comments from your agency concerning this proposed action.

If you have any questions or require additional information, please contact Mr. Jerry Sturdy at 918-669-4397.

Sincerely,

A handwritten signature in black ink, appearing to read "Stephen L. Nolen", is written over a light blue horizontal line.

Stephen L. Nolen
Chief, Environmental Analysis
and Compliance Branch



DEPARTMENT OF ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

February 16, 2006

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. Harold L. Klaege
State Conservationist
Natural Resource Conservation Service
760 South Broadway
Salina, KS 67401

Dear Mr. Klaege:

This is to inform you that the Tulsa District has been requested by the City of Augusta, Kansas, to study the feasibility of a local flood protection project to provide additional flood protection from the Whitewater and Walnut Rivers. We previously addressed this problem in an Environmental Assessment in May 2004. However, the City of Augusta has requested that approximately 2,800 feet at the upper end of the levee be constructed in a different location. As a result, we are beginning the process of preparing an Environmental Assessment to address the effect of the new alignment. The study is being conducted under authority of Section 205 of the Flood Control Act of 1948, as amended.

The city currently is afforded some protection by a levee that was constructed by the Works Projects Administration in the 1930's. However, significant flooding occurred in the city in 1965 and in 1998 when water either overtopped or got behind the levee on the western edge of town. Alternatives include extending the length and raising the height of the existing levee to provide additional protection.

We are preparing documentation for compliance with the National Environmental Policy Act of 1969 and would appreciate comments from your agency concerning this proposed action.

If you have any questions or require additional information, please contact Mr. Jerry Sturdy at 918-669-4397.

Sincerely,

A handwritten signature in black ink, appearing to read "Stephen L. Nolen".

Stephen L. Nolen
Chief, Environmental Analysis
and Compliance Branch



United States Department of Agriculture
Natural Resources Conservation Service
2917 West Highway 50
Emporia, Kansas 66801-5140

"A Partner in Conservation Since 1935"

Phone: 620-343-7276
FAX: 620-343-7871
www.ks.nrcs.usda.gov

February 27, 2006

Stephen Nolen, Chief
Environmental Analysis and Compliance Branch
Corps of Engineers, Tulsa District
1645 South 101st. East Avenue
Tulsa, Oklahoma 74128-4609

Dear Mr. Nolen:

Thank you for the opportunity to review the proposed environmental impacts for levee modification to provide additional flood protection from the Whitewater and Walnut Rivers within the City of Augusta, Kansas. This project is located in Butler County.

Since the proposed project is located on land within the city, this project is not affected by the Farmland Protection Policy Act and therefore, an AD-1006 form is not required.

I see no other adverse environmental effects for which the Natural Resources Conservation Service (NRCS) is responsible for evaluating.

We wish you well with your project and if our local NRCS office in El Dorado can be of any assistance, don't hesitate to call.

If I can be of further assistance, please let me know.

Sincerely,

WILLIAM M. GILLIAM
Assistant State Conservationist

cc:

Justin P. Kneisel, District Conservationist, NRCS, EL Dorado, Kansas
Lynn E. Thurlow, Soil Conservationist, NRCS, Salina, Kansas

The Natural Resources Conservation Service provides leadership in a partnership effort to help people conserve, maintain, and improve our natural resources and environment.

An Equal Opportunity Provider and Employer



DEPARTMENT OF THE ARMY
U.S. ARMY, CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

2 May 2002

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. James B. Gulliford
Regional Administrator
U.S. Environmental Protection Agency
726 Minnesota Avenue
Kansas City, KS 66101

Dear Mr. Gulliford:

This is to inform you that the Tulsa District has been requested by the City of Augusta, Kansas to study the feasibility of a flood control project to provide additional flood protection from the Whitewater and Walnut Rivers. We are beginning the process of preparing an Environmental Assessment addressing the affect of various alternatives that would provide additional flood protection for the city. The study is being conducted under authority of Section 205 of the 1948 Flood Control Act, as amended.

The city currently is afforded some protection by a levee that was constructed by the Works Projects Administration in the 1930's. However, significant flooding occurred in the city in 1965 and in 1998 when water either overtopped or got behind the levee on the western edge of town. Alternatives include extending the length and raising the height of the existing levee to provide additional protection.

We are preparing documentation for compliance with the National Environmental Policy Act of 1969 and would appreciate comments from your agency concerning this proposed action.

If you have any questions or require additional information, please contact Mr. Jerry Sturdy at 918-669-4397.

Sincerely,


For Larry D. Hogue, P.E.
Chief, Planning, Environmental and
Regulatory Division



DEPARTMENT OF THE ARMY
U.S. ARMY, CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

May 2, 2002

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. William Gill
U.S. Fish and Wildlife Service
315 Houston, Suite E
Manhattan, KS 66502-6172

Dear Mr. Gill:

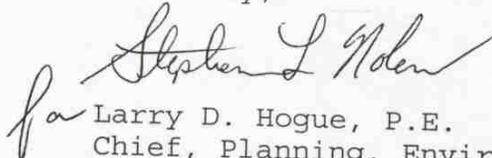
This is to inform you that the Tulsa District has been requested by the City of Augusta, Kansas to study the feasibility of a flood control project to provide additional flood protection from the Whitewater and Walnut Rivers. We are beginning the process of preparing an Environmental Assessment addressing the affect of various alternatives that would provide additional flood protection for the city. The study is being conducted under authority of Section 205 of the 1948 Flood Control Act, as amended.

The city currently is afforded some protection by a levee that was constructed by the Works Projects Administration in the 1930's. However, significant flooding occurred in the city in 1965 and in 1998 when water either overtopped or got behind the levee on the western edge of town. Alternatives include extending the length and raising the height of the existing levee to provide additional protection.

We are preparing documentation for compliance with the National Environmental Policy Act of 1969 and would appreciate comments from your agency concerning this proposed action.

Your comments are requested in accordance with the Fish and Wildlife Coordination Act and the Endangered Species Act. If you have any questions or require additional information, please contact Mr. Jerry Sturdy at 918-669-4397.

Sincerely,


for Larry D. Hogue, P.E.

Chief, Planning, Environmental and
Regulatory Division



DEPARTMENT OF THE ARMY
U.S. ARMY, CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

May 2, 2002

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. Clyde D. Graeber, Secretary
Kansas Department of Health and Environment
Charles Curtis State Office Building
1000 SW Jackson
Topeka, KS 66612

Dear Mr. Graeber:

This is to inform you that the Tulsa District has been requested by the City of Augusta, Kansas to study the feasibility of a flood control project to provide additional flood protection from the Whitewater and Walnut Rivers. We are beginning the process of preparing an Environmental Assessment addressing the affect of various alternatives that would provide additional flood protection for the city. The study is being conducted under authority of Section 205 of the 1948 Flood Control Act, as amended.

The city currently is afforded some protection by a levee that was constructed by the Works Projects Administration in the 1930's. However, significant flooding occurred in the city in 1965 and in 1998 when water either overtopped or got behind the levee on the western edge of town. Alternatives include extending the length and raising the height of the existing levee to provide additional protection.

We are preparing documentation for compliance with the National Environmental Policy Act of 1969 and would appreciate comments from your agency concerning this proposed action.

If you have any questions or require additional information, please contact Mr. Jerry Sturdy at 918-669-4397.

Sincerely,


for Larry D. Hogue, P.E.
Chief, Planning, Environmental and
Regulatory Division



DEPARTMENT OF THE ARMY
U.S. ARMY, CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

May 2, 2002

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. J. Michael Hayden,
Secretary
Kansas Department of Wildlife and Parks
900 SW Jackson St., Suite 502
Topeka, KS 66612

Dear Mr. Hayden:

This is to inform you that the Tulsa District has been requested by the City of Augusta, Kansas to study the feasibility of a flood control project to provide additional flood protection from the Whitewater and Walnut Rivers. We are beginning the process of preparing an Environmental Assessment addressing the affect of various alternatives that would provide additional flood protection for the city. The study is being conducted under authority of Section 205 of the 1948 Flood Control Act, as amended.

The city currently is afforded some protection by a levee that was constructed by the Works Projects Administration in the 1930's. However, significant flooding occurred in the city in 1965 and in 1998 when water either overtopped or got behind the levee on the western edge of town. Alternatives include extending the length and raising the height of the existing levee to provide additional protection.

We are preparing documentation for compliance with the National Environmental Policy Act of 1969 and would appreciate comments from your agency concerning fish and wildlife species of concern that might occur in the project area.

If you have any questions or require additional information, please contact Mr. Jerry Sturdy at 918-669-4397.

Sincerely,

for 
Larry D. Hogue, P.E.
Chief, Planning, Environmental and
Regulatory Division



DEPARTMENT OF THE ARMY
U.S. ARMY, CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

May 2, 2002

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. Al LeDoux, Director
Kansas Water Office
901 S. Kansas Avenue
Topeka, KS 66612

Dear Mr. LeDoux:

This is to inform you that the Tulsa District has been requested by the City of Augusta, Kansas to study the feasibility of a flood control project to provide additional flood protection from the Whitewater and Walnut Rivers. We are beginning the process of preparing an Environmental Assessment addressing the affect of various alternatives that would provide additional flood protection for the city. The study is being conducted under authority of Section 205 of the 1948 Flood Control Act, as amended.

The city currently is afforded some protection by a levee that was constructed by the Works Projects Administration in the 1930's. However, significant flooding occurred in the city in 1965 and in 1998 when water either overtopped or got behind the levee on the western edge of town. Alternatives include extending the length and raising the height of the existing levee to provide additional protection.

We are preparing documentation for compliance with the National Environmental Policy Act of 1969 and would appreciate comments from your agency concerning this proposed action.

If you have any questions or require additional information, please contact Mr. Jerry Sturdy at 918-669-4397.

Sincerely,


for Larry D. Hogue, P.E.
Chief, Planning, Environmental and
Regulatory Division



DEPARTMENT OF THE ARMY
U.S. ARMY, CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

May 2, 2002

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. Harold L. Klaege
State Conservationist
Natural Resource Conservation Service
760 South Broadway
Salina, KS 67401

Dear Mr. Klaege:

This is to inform you that the Tulsa District has been requested by the City of Augusta, Kansas to study the feasibility of a flood control project to provide additional flood protection from the Whitewater and Walnut Rivers. We are beginning the process of preparing an Environmental Assessment addressing the affect of various alternatives that would provide additional flood protection for the city. The study is being conducted under authority of Section 205 of the 1948 Flood Control Act, as amended.

The city currently is afforded some protection by a levee that was constructed by the Works Projects Administration in the 1930's. However, significant flooding occurred in the city in 1965 and in 1998 when water either overtopped or got behind the levee on the western edge of town. Alternatives include extending the length and raising the height of the existing levee to provide additional protection.

We are preparing documentation for compliance with the National Environmental Policy Act of 1969 and would appreciate comments from your agency concerning this proposed action.

If you have any questions or require additional information, please contact Mr. Jerry Sturdy at 918-669-4397.

Sincerely,


for Larry D. Hogue, P.E.
Chief, Planning, Environmental and
Regulatory Division



STATE OF KANSAS
DEPARTMENT OF WILDLIFE & PARKS

Operations Office
512 SE 25th Ave.
Pratt, KS 67124-8174
Phone: (620) 672-5911 FAX: (620) 672-6020



14 June 2002

Mr. Larry D. Hogue, P.E., Chief
U.S. Army Corps of Engineers, Tulsa District
Planning, Environmental and Regulatory Division
1645 South 101st East Avenue
Tulsa, OK 74128-4609

Ref: D1.0500
Butler
Track: 20020335

Dear Mr. Hogue:

We reviewed your request regarding the feasibility study for a flood control project for the City of Augusta. The study involves preparing an environmental assessment to consider alternatives that would provide additional flood protection to the city from the Whitewater and Walnut rivers. As part of NEPA compliance policy, you requested information regarding fish and wildlife species of concern that might occur in the project area.

Please find enclosed a list of threatened and endangered species that are likely or known to occur in Butler County and a list of their state-designated critical habitats. The state and federally-threatened Bald Eagle and the state-threatened and federally-endangered Topeka shiner are the two species in Butler County with state-designated critical habitats. The Topeka shiner likely would not occur within the project area, whereas the Bald Eagle occurs as a winter resident along the Walnut River. The state-threatened eastern spotted skunk could occur in suitable habitats within the project area.

If you have any questions or need more information, please E-mail me at chrish@wp.state.ks.us or call me at extension 198. Thank you for the opportunity to respond to this initial request.

Sincerely,

Chris Hase, Aquatic Ecologist
Environmental Services Section

Enclosures

xc: KDWP Reg. 4 F&W Sup., Swan
USFWS, Gill
EPA, Mulder
KDHE, Mueldener

APPENDIX B

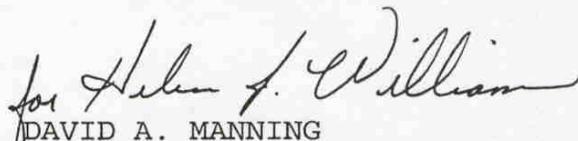
SECTION 404 PERMIT

16 May 2003

MEMORANDUM FOR CESWT-PE-P (R. Thomas)

SUBJECT: Review of Whitewater & Walnut Rivers Section 205 Study

1. Reference the Engineering and Design Quality Control Plan for the above mentioned study.
2. The study is located in the area of Augusta, Butler County, Kansas.
3. The provided information does not indicate that a placement of dredged or fill material will be required, permanently or temporarily, into any "waters of the United States," including jurisdictional wetlands. Therefore, this proposal is not subject to regulation pursuant to Section 404 of the Clean Water Act. Should the scope of work change from the information reviewed, a second review will be needed.
4. This project has been assigned Identification Number 11093. If you have any questions, contact Helen J. Williams at 918-669-7009.


DAVID A. MANNING
Chief, Regulatory Branch

APPENDIX C

FISH AND WILDLIFE

COORDINATION ACT REPORT



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Kansas Field Office
2609 Anderson Avenue
Manhattan, Kansas 66502-6172

May 4, 2006

Mr. Stephen Nolen
Chief, Environmental Analysis and Compliance Branch
U.S. Army Corps of Engineers - Tulsa District
1645 South 101st East Avenue
Tulsa, OK 74128-4609

Dear Mr. Nolen:

The U.S. Fish and Wildlife Service submits this supplemental letter (letter) to the Final Fish and Wildlife Coordination Act Report (FFWCAR) dated March 2004 as requested by your office in a letter dated February 16, 2006. This letter has been developed in cooperation with the Kansas Department of Wildlife and Parks. It is provided pursuant to the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.) and the Fiscal Year 2003 Scope-of-Work Agreement for the Augusta Local Flood Protection Project (205 Study), Augusta, Butler County, Kansas between the U.S. Fish and Wildlife Service (Service) and the Tulsa District, Corps of Engineers. This supplemental report is designed to accompany, and is to be incorporated, into the Corps revised Environmental Assessment (EA) for the proposed project modification.

The Final Environmental Assessment Whitewater and Walnut Rivers Local Flood Protection Project Augusta, Kansas (FEA) was completed in May 2004 with a Finding of No Significant Impact (FONSI). The City of Augusta is now wishing to change the alignment of a portion of the levee extension. Susan Blackford, of my staff, met on site with Jerry Sturdy, COE, on March 14, 2006 to view the proposed levee extension alignment change.

Description of Previous Preferred Alternative

The original preferred alternative consisted of extending the northwest end of the existing levee approximately 2,466 feet and at a height to protect against future 500-year event floods, and raising the existing portion of the levee to a height to ensure the entire levee would consistently protect the city from future 500-year event floods. The modification evaluated in this letter only effects the northward extension portion of the project.

The previous preferred northward extension began at the end of the existing levee near Kelly Avenue and Money Street, approximate station 199+47. The crown width would have been 10 feet and the side slopes would be one vertical to three horizontal. The levee extension would

have extended north crossing Highland Drive and terminated on the south side of the Garvin Park road running along the south end of the park (Figure 1). There would have been one drainage structure passing through this section with concrete headwalls and a flap gate. Two borrow areas, one south of Highway 54 and one north of Highway 54, were to provide material for the levee. Each would have been approximately 10 acres in size with a depth of six feet and side slopes on one vertical to four horizontal. The two borrow sites would have been developed as mitigation areas and developed with native grass, forb, shrub, and tree species to compensate for lost wildlife habitat as described in Section 6.0 of the FEA. The new proposed levee extension alignment will eliminate the need for the north, ten acre, borrow area described in the FEA.

Description of the New Proposed Levee Extension Area

The new extension alignment will extend northward at approximate station 187+00, just east of the intersection of West Kelley Ave. and Dike Road, curve northwest at approximate station 180+00 to Dyke Road, turn northward at approximate station 191+50 to run parallel with the east side of Dyke Road to approximate station 196+00 where it would intersect the southerly side of Elm Creek and run along the southeasterly side of Elm Creek terminating on the south side of Garvin Park Road at the same point as the previous alignment (Figure 1).

The new extension proposal will result in a reduced need for fill from a borrow area. The existing levee east of the intersection with the new proposed extension will be removed and that material will be used to build the proposed extension levee. The remainder of the levee material would be taken from a new proposed borrow area located inside and adjacent to the proposed levee extension approximately from Station 201+00 to Station 202+00. The new proposed borrow area will be approximately five acres in size. It will be used for mitigation. The inner three acres will consist of a permanent pond. The outer two acres will be maintained for interior runoff storage and will be planted to a native grass/forb mix with two groups of sandhill plum shrubs. The north ten acre borrow area described in the FEA would be eliminated.

The proposed levee extension and borrow area will be created primarily in cropland area and will approach, but not extend into the banks of Elm Creek. The levee and borrow area will effect some treed areas, primarily a linear swale which has trees growing in it and may require the removal of some trees along the top of the streambank. The acreage and/or individual number of trees that will be effected has not been determined. The loss of the trees is proposed to be mitigated in the new borrow area.

Terrestrial, Aquatic, and Wildlife Resources

Terrestrial, aquatic and wildlife resources are as described in the FWFCAR. The soils in the area are of the Verdigris-Brewer-Norge-Association. Soils in the proposed extension area are specifically Verdigris silt loam, Brewer silty clay loam, and Norge silt loam with 1 to 3 percent slope. A small area of Vanoos silt loam with 1 to 3 percent slopes may also be within the proposed extension area. These soil types are typically bottomland soils, well suited for agricultural crops, grasses, and trees.

Elm Creek is a perennial stream with its upper end impounded by Augusta Lake. It is moderately entrenched with a narrow riparian area composed of trees and understory growth.

Land use surrounding the proposed extension area is primarily cropland, with some urban, parkland, and FEMA buyout areas which consist of remnant streets and yard type grasses. A tree-lined linear swale exists in the project site and will be impacted. GAP maps also indicate that areas of Ash, Elm, Hackberry Floodplain Forest and Low or Wet Prairie exist in the project area and may be impacted

RECOMMENDATIONS

1. As recommended in the FFWCAR, woody planting clearing should be minimized, and any vegetation removed should be replaced, acre for acre, with similar native species composition, to that which is lost.
2. Wildlife habitat in the permanent pond created in the borrow area could be enhanced by constructing the pond with 40% of the area as shallow water no deeper than 1 meter, gently sloping sides, an irregular shoreline, and signification vegetation in the shallow areas (1500 stems/m²). Impoundments with these characteristics are favored by waterfowl and shorebirds over other impoundments. Habitat for amphibians and fish would be improved by creating microdepressions of various depths and sizes throughout the bottom of the pond.
3. In a few areas the levee extension encroaches upon the top of the streambank of Elm Creek. It would improve the functioning of the riparian area to filter sediments and contaminants out of surface water runoff, stabilize the streambanks, and prevent erosion if the toe of the levee could be kept at least 100 feet from the top of the streambank.
4. Invasive species are a concern in the area. Zebra mussels (*Dreissena polymorpha*) have become established in the Walnut River. Invasive vegetation such as purple loosestrife (*Lythrum salicaria*), Johnson grass (*Sorghum halepense*), and reed canary grass (*Phalaris arundinacea*) is also of concern and may be present in the construction area. Invasive species have been identified as a major factor in the decline of native flora and fauna and their ecosystems. Executive order 13112 Section 2 (3) directs Federal agencies to not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere and to ensure that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions. Proactive measures to prevent the inadvertent spread of exotic and invasive species would appear to satisfy this directive. Therefore, we recommend that the following BMP be utilized during construction of the levee modifications.

All equipment brought on site will be thoroughly washed to remove dirt, seeds and plant parts. Any equipment that has been in any body of water within the past 30 days will be thoroughly cleaned with hot water (hotter than 40° C or 104° F) and dried for a minimum of five days before being used at this project site. In addition, before transporting equipment from the project site all visible mud, plants, and fish/animals will be removed,

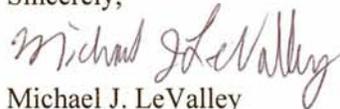
all water will be eliminated, and the equipment will be thoroughly cleaned. Anything that came in contact with the water will be cleaned and dried following the above procedure.

Migratory Bird Treaty Act

Under the Migratory Bird Treaty Act, construction activities in prairies, wetlands, stream and woodland habitats, including the removal of upland borrow, and those that occur on bridges (e.g., which may affect swallow nests on bridge girders) that would otherwise result in the taking of migratory birds, eggs, young, and/or active nests should be avoided. Although the provisions of MBTA are applicable year-round, most migratory bird nesting activity in Kansas occurs during the period of April 1 to July 15, although some migratory birds are known to nest outside this period. If the proposed construction project may result in the take of nesting migratory birds, the Service recommends a field survey during the nesting season of the affected habitats and structures to determine the presence of active nests. Our office should be contacted immediately for further guidance if a field survey identifies the existence of one or more active bird nests that cannot be avoided temporally or spatially by the planned construction activities. Adherence to these guidelines will help avoid the take of migratory birds and the possible need for law enforcement action.

Thank you for the opportunity to comment on this project. If you have any questions, please contact me or Susan Blackford, of my staff, at (785) 539-3474.

Sincerely,



Michael J. LeValley
Field Supervisor

cc: Kansas Department of Wildlife & Parks Environmental Services Section, Pratt, KS Attn:
Jim Hays
U.S.F.W.S., Federal Activities, Denver, CO Attn: Bob Dach



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Kansas Field Office
315 Houston Street, Suite E
Manhattan, Kansas 66502-6172

March 4, 2004

Mr. Larry D. Hogue
Chief, Planning, Environmental and Regulatory Division
U.S. Army Corps of Engineers- Tulsa District
Attn: CESWT-PE-E (Sturdy)
1645 South 101st East Ave.
Tulsa, Oklahoma 74128-4609

Dear Mr. Hogue:

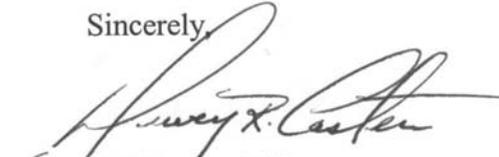
This Final Fish and Wildlife Coordination Act Report (FFWCAR) is provided pursuant to the Fiscal Year 2003 Scope-of-work Agreement for the Augusta Local Flood Protection Project (205 Study), Augusta, Butler County, Kansas between the U.S. Fish and Wildlife Service (Service) and the Tulsa District, Corps of Engineers. Your agency and the city of Augusta have indicated this kind of information would be useful in project planning and in avoiding environmentally sensitive areas during project development. This FFWCAR was prepared in accordance with provisions of the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.), and is the report of the Secretary of the Interior on the project within the meaning of Section 2 (b) of this Act.

Cooperation and information utilized in preparation of this report was obtained from the Kansas Department of Wildlife and Parks (Department) and the Corps.

We appreciate the opportunity to discuss impacts to fish and wildlife anticipated by

implementation of this project. If we can be of any assistance please call Mr. Dewey Caster, of my staff, at 785 539-3474 ext. 108.

Sincerely,


For: William H. Gill
Field Supervisor

WHG\drc

**FINAL
FISH AND WILDLIFE
COORDINATION ACT REPORT
FOR THE
AUGUSTA FLOOD DAMAGE REDUCTION PROJECT
AUGUSTA, KANSAS**

**PREPARED FOR THE
UNITED STATES ARMY, CORPS OF ENGINEERS,
TULSA DISTRICT
TULSA, OKLAHOMA**



**BY THE
UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
KANSAS FIELD OFFICE
MANHATTAN, KANSAS**

March, 2004

TABLE OF CONTENTS

EXECUTIVE SUMMARY 1

RECOMMENDATIONS 1

LIST OF FIGURES 2

INTRODUCTION 3

DESCRIPTION OF THE STUDY AREA 3

Terrestrial Resources 5

Aquatic Resources 6

Threatened and Endangered Species 6

DESCRIPTION OF THE PROJECT 7

TERRESTRIAL AND AQUATIC RESOURCE IMPACT ANALYSIS 7

Aquatic Resources 7

Terrestrial Resources 9

MITIGATION DISCUSSION 9

RECOMMENDATIONS 10

LITERATURE CITED 10

EXECUTIVE SUMMARY

The Tulsa District, Corps of Engineers, is in the process of developing a feasibility study for flood damage reduction measures for the city of Augusta, Butler County, Kansas. This Final Fish and Wildlife Coordination Act Report describes the study area, identifies important aquatic and terrestrial resources, evaluates impacts of flood damage reduction measures, and describes mitigation measures.

The project area is highly urbanized inside the existing levee system. The primary impact from a fish and wildlife perspective for the proposed project is the loss of shelter belt (woody plantings) established by man in the area of proposed levee improvements. Therefore, the Fish and Wildlife Service recommends the following:

RECOMMENDATIONS

1. Minimize tree removal within construction easements and permanent rights-of-way where feasible.
2. Reestablish suitable trees and shrubs acre for acre, with similar native species composition to that which is lost.

LIST OF FIGURES

Figure 1	Augusta study area
Figure 2	Augusta Project Features

INTRODUCTION

This Final Fish and Wildlife Coordination Act Report (Report) is submitted pursuant to the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.), and the fiscal year 2003 Scope-of-Work Agreement between the U.S. Fish and Wildlife Service (Service) and the U.S. Army Corps of Engineers, Tulsa District (Corps) for the Whitewater and Walnut Rivers Section 205, Local Flood Protection Feasibility Study. This report is designed to accompany and is to be incorporated into the Corps' feasibility report on the proposed project. The purpose of the feasibility study is to determine if there is a practicable alternative for reducing flood damages along the Whitewater and Walnut rivers in the vicinity of Augusta, Butler County, Kansas.

This study was authorized under authority of Section 205 of the Flood Control Act of 1948, as amended.

The Augusta study area is the City of Augusta, Butler County Kansas located at the confluence of the Whitewater and Walnut Rivers. (Figure 1). The city of Augusta lies 12 miles east of Wichita, Kansas, and has a population of approximately 8,449 (2000 census). The Whitewater River flows south along the west side of Augusta and drains 473 square miles of watershed upstream of Augusta. The Walnut River flows southwesterly along the east side of Augusta and drains 221 square miles of watershed downstream of El Dorado Dam and upstream of Augusta. These two rivers form a confluence with one another just south of Augusta. The Walnut and Whitewater flooded frequently in the past causing extensive damage. Floods from the Walnut River have occurred in 1998, 1979, 1976, 1965, 1952, 1944, 1928, and in 1923. Whitewater floods have occurred in 1998, 1985, 1965, 1953, 1951, 1944, and 1923. These floods occurred despite the construction of a levee by the Kansas Works Progress Administration in 1938 along the west, south, and east edges of the city.

The project includes a levee with several flap gate structures to provide drainage during normal river flows and a pumping station to provide interior drainage during high river flows. The levee is approximately 4.24 miles long and includes a reinforced, concrete floodwall approximately 1,013 feet long. The Corps rehabilitated the floodwall around 1976 under Public Law 84-99.

DESCRIPTION OF THE STUDY AREA

Physiographically the study area is located in the Flint Hills, which were formed by the erosion of gently westward-dipping strata. The rock structure is permian-age limestone containing banks of chert or flint. The topography of the Flint Hills is gently rolling to steep hills, characterized by limestone outcrops and shallow soils in the hilly areas, and deeper soils in the bottom areas (Self 1978).

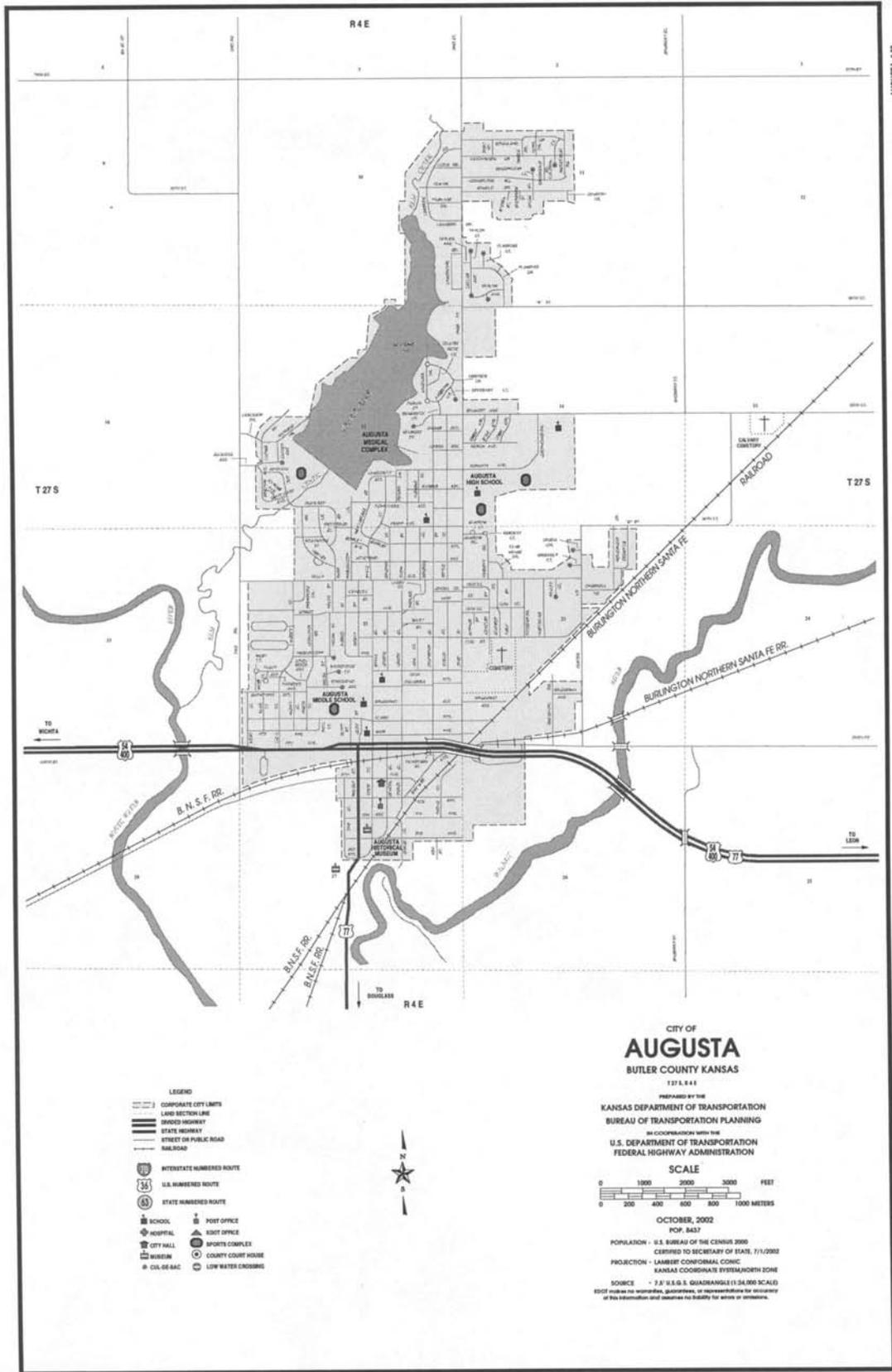


Figure 1. Augusta Study Area

The soils of the study area are of the Verdigris-Brewer-Norge-Association, specifically, Verdigris silt loam, and Brewer silty clay loam. These are typically bottomland soils, well suited for agricultural crops, grasses, and trees (Penner et. Al. 1975).

The climate of the Whitewater and Walnut River Basins is characterized by large seasonal changes in temperature, humidity, and rainfall (Self, 1978). The summer temperatures average 75 to 82 degrees Fahrenheit and winter temperatures fluctuate due to intrusions of cold continental air. Average annual rainfall varies between 31 and 33 inches, with 71 percent of rainfall occurring during the growing season (April through September).

Land use of the study area is primarily urban and industrial, due to the majority of the study area being the city of Augusta. The areas outside the levee system and subject to periodic flooding are devoted to agricultural uses in the form of row crops and livestock grazing. The industrial land uses include the old Mobile Oil Refinery, railroads and other miscellaneous industrial entities.

Terrestrial Resources

The major terrestrial habitat types which may be impacted by the proposed project include cropland, riparian woodland, grassland, old fields, pasture, and woody plantings (shelter belts).

Cropland is predominately found in the floodplain lowlands outside the Augusta levee. Most of the crops grown are for cash crop or livestock feed. Cropland is generally poor wildlife habitat by itself, however it becomes more beneficial when it is interspersed with other habitat types.

The riparian woodlands along the Whitewater and Walnut Rivers exist as continuous bands of well established timber, with a diverse understory of young trees, shrubs, vines, and grasses. Dominant tree species include green ash, cottonwood, box elder, silver maple, black walnut, willow, and mulberry.

Riparian woodland represents the highest quality terrestrial habitat in the project area. The meandering of the two rivers and riparian zones, in conjunction with the interspersed habitat types, provides high quality feeding, resting, and reproductive areas, along with travel or migration corridors for many game and non-game animals. Some of the wildlife species associated with, and dependent upon, these riparian woodlands include wild turkey, fox squirrel, white-tailed deer, racoon, coyote, beaver, bobcat, bobwhite quail, woodpeckers, barred owl, and many other non-game bird species. Relatively large numbers of deer and turkey are harvested each year in Butler County.

Grasslands in the study area consist of tall-grass prairie that is hayed annually. Grasslands provide good wildlife habitat due to a plant diversity that provides a variety of cover, forage, seed, and insect food. Dominant plant species include big bluestem, switchgrass, Indiangrass, purpletop,, sideoats grama, Baldwin ironweed, daisy fleabane, sunflowers, and milkweed.

Some of the terrestrial species which would use grasslands in the study area include meadowlark, grasshopper sparrow, upland sandpiper, Greater prairie chicken, ring-necked pheasant, coyote, badger, and plains pocket gopher.

Old field habitat type is generally a grass/forb association with varying percentages of invading trees. Some dominant species include annual bromes, purpletop, Johnson grass, Baldwin ironweed, Illinois bundleflower, and compass plant; with elm, hackberry, mulberry, and Osage orange representing the invading tree species. Old field can be important for eastern cottontail, bobwhite quail, coyote, morning dove, pheasant, and white-tailed deer.

Woody plantings (shelterbelts) are usually composed of a variety of even-aged deciduous and/or coniferous trees. Those to be impacted by the proposed project are dominated by red cedar, cottonwood, green ash, and elm. Shelterbelts provide important nesting, feeding and resting cover for many wildlife species. They are also important as travel or migration links across otherwise treeless areas. Some species that use this habitat type include morning dove, bobwhite quail, pheasant, eastern cottontail, white-tailed deer, coyote, and numerous non-game species.

The pasture habitat type to be impacted generally includes only the grasses planted on the old levee and right-of-way. The pasture composed of bromes and/or fescue, is frequently mowed or hayed. For this reason, pasture provides poor habitat for most species. Some species that may use this habitat type include eastern cottontail, bobwhite quail, meadowlark, and several raptors.

Aquatic Resources

Within the Augusta area, the Whitewater and the Walnut rivers provide a diversity of habitat, due to their numerous pool-riffle-run complexes. In addition there are two lowhead dams on the Walnut River within the study area, which provide pooled water, enhanced waterflows, and good angling. The Kansas Department of Wildlife and Parks (Department) has evaluated the Whitewater and the Walnut Rivers, and has deemed both to be high-priority fisheries (Moss and Brunson 1981). Primary species inhabiting both rivers are Largemouth bass, channel catfish, flathead catfish, White crappie, Green sunfish, common carp and smallmouth buffalo.

Angler utilization for the Walnut River is approximately 37,235 angler-days per year. The Walnut River receives 4,000 angler-days per year in utilization. When combined, both rivers provide approximately 125 miles of anglable stream, resulting in over 41,000 angler-days of fishing pressure each year (Jones 1977).

Threatened and Endangered Species

Section 7(c) of the Endangered Species Act (87 Stat. 884, as amended), requires Federal Agencies to ask the Secretary of the Interior, acting through the Service, whether any listed or proposed endangered or threatened species may be present within an area proposed for construction. The bald eagle (*Haliaeetus leucocephalus*), threatened, may be expected to occur

along any river or at any reservoir in Kansas during winter. Eagles utilize areas where large trees provide perch sites in proximity to open water, where they feed on fish and waterfowl. A first nest was documented in Kansas in 1989, increasing to 15 successfully active nests by 2003, with numbers fluctuating annually. If the proposed project does not intrude on the existing riparian habitat of either the Whitewater or the Walnut Rivers there should be no adverse impact to this threatened species.

DESCRIPTION OF THE PROJECT

The current flood protection measures being studied by the Corps, include raising and extending the existing levee originally built in 1938. Levee modifications are those that would raise the levee height to protect the city from future 100 year, 200 year or 500 year flood event. All three alternatives include extending the northwest end of the levee by approximately 600 feet and at a height to protect against a future 100, 200 or 500 year event. Most of the levee work would be accomplished on the south and west side of Augusta. Borrow areas for levee fill has been identified as the NW1/4, NW1/4, Section 28, and NE1/4 Section 28, Township 27 South, Range 4 East, an existing row crop area adjacent to the Whitewater River. (Figure 2)

Levee height could be increased 1.5 or 3 feet maximum with a corresponding widening of the levee base to accommodate the increase in height. With a 2 foot height increase the base would widen by 12 feet. For every mile of 2 foot levee height improvement, approximately, 1.5 acres of land on the landward side or river side of the levee would be incorporated into the levee system. If the land side has no room for expansion, the levee may be "capped" or a toe wall installed, depending on local conditions. The base would then be widened by less than 12 feet, if at all. Increasing the height of 1,013 feet of floodwall would simply entail adding concrete to the top of the existing wall.

We did not evaluate an alternative for channelization of either the Whitewater or the Walnut River as these options appeared economically and environmentally prohibitive. We did not evaluate the alternative of upstream detention structures as the cost of such structures would be prohibitive.

TERRESTRIAL AND AQUATIC RESOURCE IMPACT ANALYSIS

Aquatic Resources

Current proposals or alternatives do not entail encroachment on either the Whitewater or Walnut Rivers or disturbance of the either streams riparian woodland border.

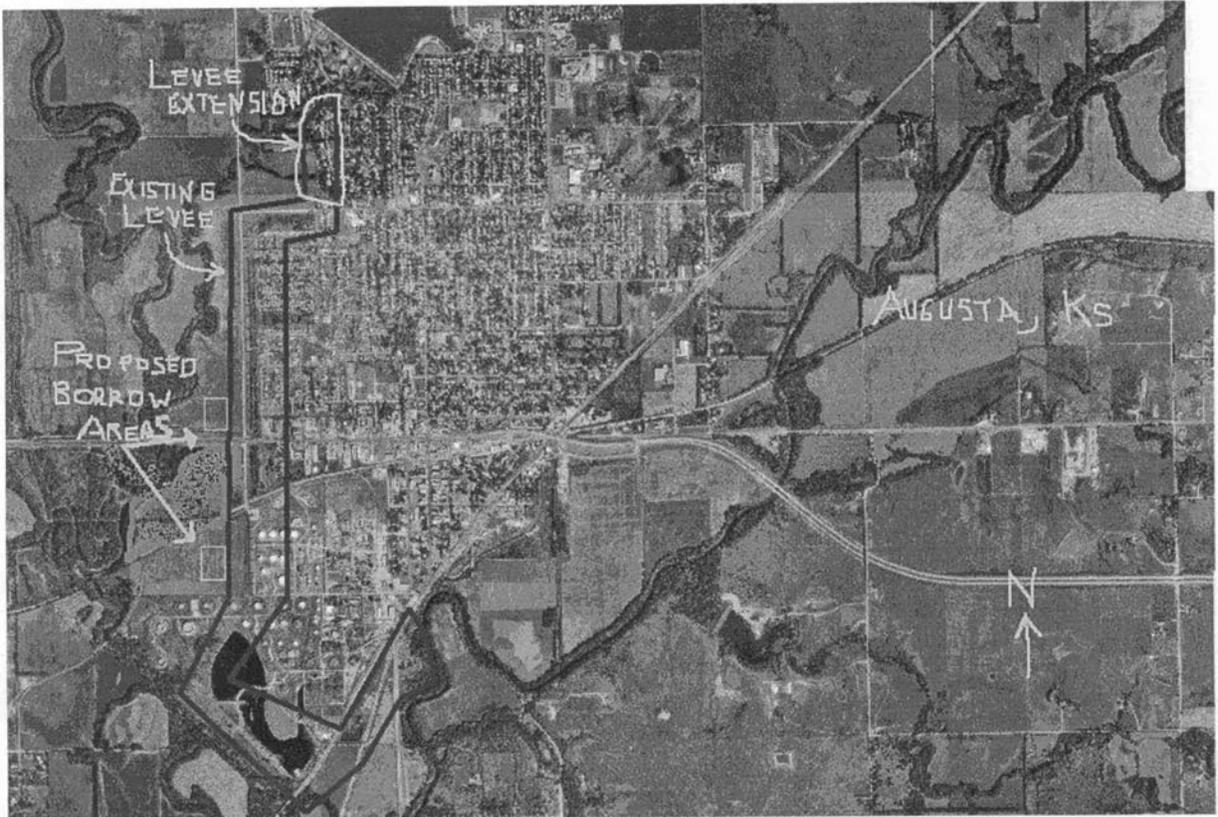


Figure 2. Augusta Project Features

Terrestrial Resources

On the west side of Augusta, a long 4 row shelter belt thrives along the inside base of the existing levee system. The shelter belt is approximately one mile long and 100 feet wide. The mature shelter belt screens the local residents view of the levee and power line, improves aesthetics and provides wildlife habitat. We assume the levee will be expanded riverward (work on the outside face of the levee) through this area thereby preserving the shelter belt and eliminating the need to re-locate the power line.

Impacts to terrestrial and aquatic resources, which are expected to occur as a result of implementing the proposed flood protection plan, would be minimal. The greatest loss in terms of acreage would be a temporary loss of levee vegetive cover (pasture) or brome grasses as the levee is being built higher and wider. An additional 0.8 acres of cropland and 0.01 acres of woody plantings (shelterbelts) would be lost to the 600 foot levee extension.

The loss of levee brome grasses during heightening of the existing levee system will be a short term loss. Re-seeding the levee to reduce erosion and to insure the integrity of the levee system will be a priority of project implementation.

The loss of 0.8 acres of cropland to levee extension is not considered significant due to the proliferation of this habitat type and its' low value to wildlife.

The potential loss of 7.8 acres trees within the shelterbelts (woody plantings) along the remainder of the levee is minor in terms of acres affected but wooded areas in Kansas are important habitats for many species of wildlife. Numerous species of migratory birds use these woodlands for nesting, feeding, and as travel corridors.

MITIGATION DISCUSSION

To date, a formal habitat evaluation has not been conducted on habitats within the project area and none is deemed necessary.

Woody plantings (shelterbelts) are the only habitat resource (approximately 7.8 acres) anticipated to be impacted by proposed flood control work at Augusta, Kansas. If the trees within the shelterbelt are replaced with the same acreage and similar species composition within the same general area, the project in its entirety will have minimal impact to fish and wildlife resources.

Replanting the 10 acre borrow area in the NE1/4 of Section 28, T27S, R4E to native trees and shrubs would adequately mitigate habitat losses due to project implementation.

RECOMMENDATIONS

In the interest of protecting fish and wildlife resources in the vicinity of Augusta, Kansas, the following recommendation is provided.

1. Woody planting clearing should be minimized , and any vegetation removed should be replaced, acre for acre, with similar native species composition, to that which is lost.

LITERATURE CITED

- Jones, L. 1977, Walnut River Basin, Kansas preliminary stream survey.
Kansas Fish and Game Commission. D-J Project F- 15-R-12, Study 010., Job .010. 54pp.
- Moss, R.E. and K. Brunson. 1981. Kansas stream and river fishery resource evaluation. Kansas Fish and Game Commission. 71pp.
- Penner, C.R., S.C. Ekart, D.A. Ewing, G. Shmidt, and J. Smith. 1975. Soil Survey of Butler County, Kansas, USDA, SCS. 60pp.
- Self, H. 1978. Environment and Man in Kansas; A Geographical Analysis, Regents Press of Kansas, Lawrence, KS. 288pp.

APPENDIX D

CULTURAL RESOURCES COORDINATION



DEPARTMENT OF ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

March 10, 2003

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Ms. Mary R. Allman
State Historic Preservation Officer
Historic Preservation Office
Kansas State Historical Society
6425 SW 6th Avenue
Topeka, KS 66615-1099

Dear Ms. Allman:

The purpose of this letter is to initiate consultation under Section 106 of the National Historic Preservation Act of 1966 (as amended) concerning a proposed flood control project for the City of Augusta in Butler County, Kansas.

The City of Augusta as requested the assistance of the U.S. Army Corps of Engineers (USACE), Tulsa District, to control flooding from the Whitewater and Walnut Rivers, and from Elm Creek, a tributary of the Whitewater. Under Section 205 of the Flood Control Act of 1948, USACE has the authority to assist in the development and construction of local flood control projects. As the result of a reconnaissance phase study of the Whitewater and Walnut Rivers flood problem, recommendations have been developed that will be further explored during the preparation of a feasibility report on the proposed project.

As presently defined, the proposed flood control work in the vicinity of Augusta (Sec. 15, 16, 21, 22, 27, and 28, T27S, R4E) consists of levee improvement, including an increase in height, levee extension, channel improvements, and construction of interior detention areas, drainage structures, access roads, and borrow sites (see enclosed map). We are consulting with you at this time to seek your recommendations on how best to proceed with this undertaking for the purposes of identifying cultural resources within the project areas. Specifically, we are interested in what cultural resources are known to exist within the proposed project area and its vicinity, and for your recommendations regarding the conduct of cultural resources inventory work in this area.

-2-

Thank you for your assistance. If you have any questions, please contact Ken Shingleton, Archaeologist, at 918-669-7661.

Sincerely,

Louis E. Vogele, Jr.
for Larry D. Hogue, P.E.
Chief, Planning, Environmental,
and Regulatory Division

Enclosure



DEPARTMENT OF ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

March 10, 2003

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. Gary McAdams, President
Wichita and Affiliated Tribes
P.O. Box 729
Anadarko, OK 73005

Dear President McAdams:

The purpose of this letter is to initiate consultation under Section 106 of the National Historic Preservation Act of 1966 (as amended), regarding a flood control project under study for Augusta, Kansas.

The City of Augusta has requested the assistance of the U.S. Army Corps of Engineers (USACE), Tulsa District, to control flooding from the Whitewater and Walnut Rivers, and from Elm Creek, a tributary of the Whitewater. Under Section 205 of the Flood Control Act of 1948, USACE has the authority to assist in the development and construction of local flood control projects. As the result of a reconnaissance phase study of the Whitewater and Walnut Rivers flood problem, recommendations have been developed that will be further explored during the preparation of a feasibility report on the proposed project.

As presently defined, the proposed flood control work in the vicinity of Augusta (Sec. 15, 16, 21, 22, 27, and 28, T27S, R4E) consists of levee improvement, including an increase in height, levee extension, channel improvements, and construction of interior detention areas, drainage structures, access roads, and borrow sites (see enclosed map). In accordance with Section 106, the Tulsa District will be conducting archaeological investigations of potentially affected areas. If historic properties are identified, they will be evaluated for eligibility to the National Register of Historic Places.

Please review these areas surrounding Augusta, Kansas for information that you may be willing to share with us on archaeological sites, historic properties, sacred sites, or traditional cultural properties that may be significant to the Wichita and Affiliated Tribes. Information you may be able to provide will assist us in assessing the effects of the proposed project on cultural resources.

-2-

Any information or comments you are able to provide will be appreciated. Tulsa District is committed to ensuring your proper involvement in the Section 106 consultation process. If you have any questions, please contact Ken Shingleton at 918-669-7661.

Sincerely,

Louis E. Vogele, Jr.

for Larry D. Hogue, P.E.
Chief, Planning, Environmental,
and Regulatory Division

Enclosure



**KANSAS
STATE
HISTORICAL
SOCIETY**

**Cultural Resources
Division**

6425 S.W. 6th Avenue
Topeka, Kansas
66615-1099
PHONE# (785) 272-8681
FAX# (785) 272-8682
TTY# (785) 272-8683

**KANSAS HISTORY
CENTER**

Administration
Center for Historical Research
Cultural Resources
Education / Outreach
Historic Sites
Kansas Museum of History
Library & Archives

HISTORIC SITES

Adair Cabin
Constitution Hall
Cottonwood Ranch
First Territorial Capitol
Fort Hays
Goodnow House
Grinter Place
Hollenberg Station
Kaw Mission
Marais des Cygnes Massacre
Mine Creek Battlefield
Native American Heritage
Museum
Pawnee Indian Village
Pawnee Rock
Shawnee Indian Mission

KSR&C No. 03-03-05

March 17, 2003

Larry D. Hogue
Planning, Environmental, and Regulatory Division
Corps of Engineers, Tulsa District
1645 South 101st East Avenue
Tulsa, Oklahoma 74128-4609

RE: City of Augusta Flood Control Project

Dear Mr. Hogue:

The Kansas State Historic Preservation Office has received your letter dated March 10, 2003, concerning the above referenced project. The project area identified as the Levee Extension should be surveyed by a professional archeologist prior to beginning construction, as it is an area of high and/or moderate archeological potential that has never undergone an archeological survey. Two copies of the report documenting the survey, its results, and recommendations for mitigating the effects of construction on archeological sites, if any, should be sent to this office.

Also, the proposed borrow area contains a recorded archeological site (14BU304). Your agency will need to evaluate whether or not 14BU304 is an historic property and ask our office to comment on your finding. The eligibility evaluation of 14BU304 and the results of the levee extension archeological survey can be presented in a single report.

If you have questions or need additional information regarding these comments, please contact Will Banks 785-272-8681 (ext. 214) or Jennifer Epperson (ext. 225).

Sincerely,

Mary R. Allman
State Historic Preservation Officer


Richard Pankratz, Director
Cultural Resources Division

web



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

January 27, 2004

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Ms. Mary R. Allman
State Historic Preservation Officer
Historic Preservation Office
Kansas State Historical Society
6425 SW 6th Avenue
Topeka, KS 66615-1099

Dear Ms. Allman:

The purpose of this letter is to continue consultation under Section 106 of the National Historic Preservation Act of 1966 (as amended) concerning a proposed flood control project for the City of Augusta in Butler County, Kansas. In accordance with Section 106, Tulsa District conducted archaeological reconnaissance investigations of the project area, including the levee footprint and proposed borrow areas. The report of these investigations, which were performed by 4G Consulting, is enclosed for your review. Borrow Area 1, in which two previously identified archaeological sites and one newly recorded archaeological site were identified, will not be utilized for levee fill material or any other project purpose. Two other potential sources of fill material, Borrow Areas 2 and 3, were investigated, and no archaeological sites or standing structures were identified. We propose to utilize Borrow Areas 2 and 3 to provide fill material for the improvement of the levee.

Cultural resources investigations were also conducted within the levee footprint. Two Works Progress Administration (WPA) monuments were identified, one on each end of the levee. These monuments commemorate the construction of the levee, which was completed in 1937. While the levee is considered a part of a recognized historic context for Kansas, New Deal-era Resources, we do not believe it is eligible for the National Register. We will ensure that, prior to construction of levee improvements, adequate measures are undertaken to preserve the two WPA monuments, including identification of the reported jar of pennies addressed in the cultural resources report. The National Youth Administration/H.E. Woolery Park facilities addressed in the report of cultural resources investigations are not within the project area and will not be affected by construction or related activities.

-2-

In sum, we did not identify historic properties in the course of archaeological investigations of Borrow Areas 2 and 3, or within the levee footprint itself. We therefore request your comment on the enclosed report, and on our determination of "no historic properties affected." Again, proposed Borrow Area 1 will be deleted from consideration.

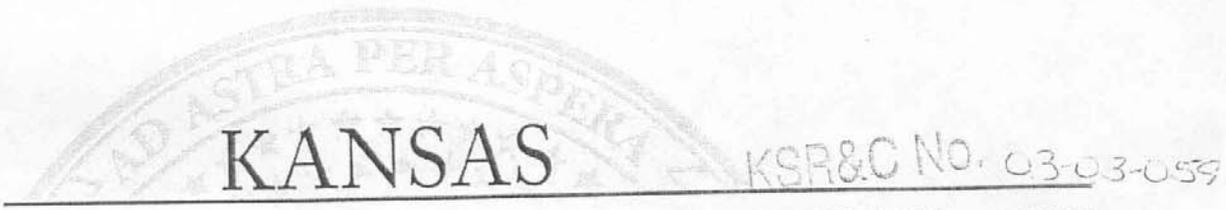
Thank you for your assistance. If you have any questions, please contact Ken Shingleton, Archaeologist, at 918-669-7661.

Sincerely,

Larry D. Hogue

Larry D. Hogue, P.E.
Chief, Planning, Environmental
and Regulatory Division

Enclosure



Kansas State Historical Society
Cultural Resources Division

KATHLEEN SEBELIUS, GOVERNOR

January 29, 2004

Larry D. Hogue
Planning, Environmental
And Regulatory Division
Corps of Engineers, Tulsa District
1645 South 101st East Avenue
Tulsa, OK 74128-4609

RE: City of Augusta Flood Control Project
Butler County

Dear Mr. Hogue:

The Kansas State Historic Preservation Office has received and reviewed the draft report by 4G Consulting entitled *Cultural Resources Inventory for a Flood Control Project, Augusta, Kansas*. We concur with your determination that the WPA constructed levee is not eligible for listing on the National Register, and your plan to preserve the two WPA monuments is appropriate. Since Borrow Area 1 will not be used for levee construction, we concur with your finding of "no historic properties affected". If additional areas, which have not been evaluated for the presence of archeological sites, are needed for borrow during the the project, we ask that our office be contacted so that we can adequately advise you on the necessary course of action.

Sincerely,

Mary R. Allman-Koernig
State Historic Preservation Officer

Richard Pankratz, Director
Historic Preservation Office

6425 SW Sixth Avenue • Topeka, KS 66615-1099
Phone 785-272-8681 Ext. 214 • Fax 785-272-8682 • Email wbanks@kshs.org • TTY 785-272-8683
www.ksks.org



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

February 22, 2006

Planning and Environmental Division
Environmental Analysis and Compliance Branch

Ms. Jennie Chinn
State Historic Preservation Officer
Historic Preservation Office
Kansas State Historical Society
6425 SW 6th Avenue
Topeka, KS 66615-1099

Dear Ms. Chinn:

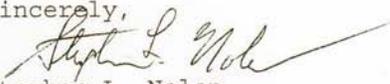
The purpose of this letter is to continue consultation under Section 106 of the National Historic Preservation Act of 1966 (as amended) concerning a proposed flood control project for the City of Augusta in Butler County, Kansas. In accordance with Section 106, in 2003 Tulsa District conducted archaeological reconnaissance investigations of the project area, including the levee footprint and proposed borrow areas. The report of these investigations, which were performed by 4G Consulting, is enclosed as background information. Also enclosed are copies of previous project correspondence.

A recent modification to the levee design on its north end required Section 106 to be re-addressed for this project. Enclosed is a map illustrating that the extension of new levee will be constructed along the banks of Elm Creek in the north-west portion of Augusta. Borrow material for the new levee construction will be removed from an adjacent field.

Archaeological reconnaissance investigations of this new project area were conducted in January 2006 by engineering-environmental Management, Inc (e²M). The report of their investigations is enclosed for your review. No prehistoric or historic archaeological sites were identified. However, two historic structures, both deteriorating dam structures, were identified in the Elm Creek channel. e²M did not recommend either dam structure as eligible for listing on the National Register of Historic Places (NRHP).

We agree with e²M's recommendation that the two identified historic dam structures are not eligible for listing on the NRHP under any criteria because of loss of integrity. We request your comment on the enclosed e²M report, on our determination of eligibility for the two structures, and on our subsequent determination of "no historic properties affected" for this project. Thank you for your assistance. If you have any questions, please contact Mr. Ken Shingleton at 918-669-7661.

Sincerely,


Stephen L. Nolen
Chief, Environmental Analysis
and Compliance Branch

Enclosures

KANSAS

GR&C No. 03-03-059

Kansas State Historical Society
Jennie Chinn, *Executive Director*

KATHLEEN SEBELIUS, GOVERNOR

March 6, 2006

Stephen L. Nolan
Chief, Environmental Analysis and Compliance Branch
Corps of Engineers, Tulsa District
1645 South 101st East Avenue
Tulsa, Oklahoma 74128-4609

RE: Flood Control Levee Modification
City of Augusta
Butler County

Dear Mr. Nolan:

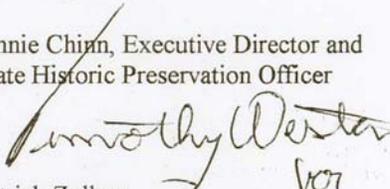
In accordance with 36 CFR 800, the Kansas State Historic Preservation Office has reviewed the report entitled *Cultural Resources Inventory of a Modification to the Existing Flood Control Project, August, Kansas*, by Jeffrey H. Hokanson. We find the report to be acceptable and concur with the conclusion that the proposed modification to the flood control levee project will have no effect on historic properties as defined in 36 CFR 800. This office has no objection to the project.

Any changes to the project, which include additional ground disturbing activities, will need to be reviewed by this office prior to beginning construction. If construction work uncovers buried archeological materials, work should cease in the area of the discovery and this office should be notified immediately.

This information is provided at your request to assist you in identifying historic properties, as specified in 36 CFR 800 for Section 106 consultation procedures. If you have questions or need additional information regarding these comments, please contact Tim Weston at 785-272-8681 (ext. 214).

Sincerely,

Jennie Chinn, Executive Director and
State Historic Preservation Officer


Patrick Zollner
Deputy SHPO

6425 SW Sixth Avenue • Topeka, KS 66615-1099
Phone 785-272-8681 Ext. 205 • Fax 785-272-8682 • Email jchinn@kshs.org • TTY 785-272-8683
www.kshs.org

APPENDIX E

PUBLIC COMMENTS

APPENDIX F

NEWSPAPER PUBLIC NOTICE