



Draft Environmental Assessment

Flint River Flood Mitigation Alternatives

Saginaw County, Michigan

Flint River Erosion Control Board

FEMA-DR-1346-MI, HMGP Project No. A1346.53

April 2006



FEMA

U.S. Department of Homeland Security
FEMA Region V
536 South Clark Street, Sixth Floor
Chicago, IL 60605

This document was prepared by



URS Group, Inc.

200 Orchard Ridge Drive, Suite 101
Gaithersburg, MD 20878

Contract No. EMW-2000-CO-0246, Task Order No. 138.

Job No. 15292488.00100

TABLE OF CONTENTS

List of Acronyms	iii
Section 1	Introduction..... 1
1.1	Project Authority.....1
1.2	Project Location and Setting.....1
1.3	Purpose and Need2
Section 2	Alternative Analysis 3
2.1	Alternative 1 – No Action Alternative.....3
2.2	Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action).....3
2.2.1	Project Segment 14
2.2.2	Project Segment 24
2.2.3	Project Segment 34
2.2.4	Project Segment 45
2.2.5	Project Segment 55
2.2.6	Project Segment 65
2.2.7	Project Segment 76
2.3	Alternative 3 – Elevation, Relocation, or Acquisition of Flood- Prone Structures.....6
2.4	Alternatives Considered and Dismissed6
Section 3	Affected Environment and Environmental Consequences..... 8
3.1	Physical Environment8
3.1.1	Geology, Seismicity and Soils8
3.1.2	Water Resources and Water Quality10
3.1.3	Floodplain Management (Executive Order 11988)12
3.1.4	Air Quality14
3.2	Biological Environment15
3.2.1	Terrestrial and Aquatic Environment.....15
3.2.2	Wetlands (Executive Order 11990)17
3.2.3	Threatened and Endangered Species19
3.3	Hazardous Materials20
3.4	Socioeconomics21
3.4.1	Zoning and Land Use.....21
3.4.2	Visual Resources.....22
3.4.3	Noise23
3.4.4	Public Services and Utilities25
3.4.5	Traffic and Circulation.....26
3.4.6	Environmental Justice (Executive Order 12898).....26
3.4.7	Safety and Security28
3.5	Cultural Resources28
3.5.1	Historic Resources29
3.5.2	Archaeological Resources.....30

TABLE OF CONTENTS

3.5.3	Indian Religious Sites Investigation	32
3.6	Impact Summary Matrix	32
Section 4	Cumulative Impacts.....	37
Section 5	Public Participation	38
Section 6	Mitigation Measures and Permits.....	39
Section 7	Consultations and References	43
Section 8	List of Preparers	47
Appendices		
Appendix A	Figures	
Appendix B	Agency Correspondence	
Appendix C	“Flooded with Sewage,” from <i>The Flint Journal</i> , February 20, 2001	
Appendix D	EO 11988 Floodplain Management & EO 11990 Wetland Protection: Eight-Step Planning Process	
Appendix E	Public Involvement	
List of Tables		
Table 1	Heavy Equipment Noise Levels at 50 Feet.....	24
Table 2	Historic Resources Located within Spaulding and Taymouth Townships	29
Table 3	Summary of Archeological Phase I, II, and III Investigations	30
Table 4	Impact Summary Matrix	33
Table 5	Mitigation Measures	39
Table 6	Permit Requirements.....	42

List of Acronyms

APE	Area of Potential Effect
BMPs	Best Management Practices
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulations
CMP	corrugated metal pipe
CO	Carbon Monoxide
CSO	combined sewer overflow
CWA	Clean Water Act
CY	cubic yards
dB	decibels
dBA	A-weighted sound levels
EA	Environmental Assessment
EDR	Environmental Data Resources
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FRFCP	Flint River Flood Control Project
HMGP	Hazard Mitigation Grant Program
HUC	hydrologic unit code
LF	linear feet
L _p	sound pressure level
MDEQ	Michigan Department of Environmental Quality
MDNR	Michigan Department of Natural Resources
NAAQS	National Ambient Air Quality Standards
NCA	Noise Control Act
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NGVD	National Geodetic Vertical Datum
NHPA	National Historic Preservation Act
NO ₂	Nitrogen Dioxide
NRCS	Natural Resources Conservation Service
NREPA	Natural Resources and Environmental Protection Act
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
O ₃	Ozone
OSHA	Occupational Safety and Health Administration

List of Acronyms

Pb	Lead
P.L.	Public Law
PM-10	Particulate Matter with a diameter less than or equal to 10 microns
RCRA	Resource Conservation and Recovery Act
ROW	Right-of-Way
SHPO	State Historic Preservation Officer
SO ₂	Sulfur Dioxide
TMDL	Total Maximum Daily Load
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
V:H	Vertical:Horizontal
VOCs	Volatile Organic Compounds
WQS	Water Quality Standards

1.1 PROJECT AUTHORITY

Severe storms and flooding occurred on September 10 and 11, 2000 in the State of Michigan, leading the Federal Emergency Management Agency (FEMA) to issue a Federal disaster declaration, DR-1346-MI, on October 17, 2000. Under this declaration, Oakland and Wayne Counties became eligible for Individual Assistance, and all counties within the State became eligible for funding through the Hazard Mitigation Grant Program (HMGP).

The Flint River Erosion Control Board (Applicant) in Saginaw County, Michigan, applied for HMGP Section 404 funding under the Robert T. Stafford Disaster Relief and Emergency Assistance Act. Grant funds are provided by FEMA under this program for disaster-related mitigation projects. In accordance with the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality (CEQ) regulations implementing NEPA (Title 40 Code of Federal Regulations [CFR] Parts 1500 through 1508), and FEMA regulations for NEPA compliance (44 CFR Part 10), FEMA must fully understand and consider the environmental consequences of actions proposed for Federal funding. The purpose of this Environmental Assessment (EA) is to meet FEMA's responsibilities under NEPA and determine whether to prepare a Finding of No Significant Impact (FONSI) or an Environmental Impact Statement (EIS) for the proposed project. As part of this NEPA review, the requirements of other environmental laws and Executive Orders (EOs) are also addressed.

1.2 PROJECT LOCATION AND SETTING

The project area consists of seven sites along an 8-mile stretch of the Flint River located within the Townships of Albee, Spaulding, and Taymouth, in Saginaw County, Michigan (Figure 1, Appendix A). Saginaw County is located in the east central portion of Michigan. The portion of Saginaw County in which the project area is located is known as the Saginaw Valley, which is primarily an agricultural area that consists of 11,145 acres of highly productive and fertile farmland, 340 residences, and 6 commercial businesses.

The growth of urban areas within the upstream headwater areas of the Flint River watershed (e.g., the City of Flint, in Genesee County, Michigan) has increased impervious surfaces and reduced natural overflow areas along the Flint River. As a result, the volume and velocity of flow has also increased and subsequently led to an increase in the frequency and intensity of flood events within the downstream segment of the Flint River, including the project area. The project area was flooded more than 20 times since 1948 (HMGP Application, 2001).

As a temporary flood control measure, individual property owners created a patchwork of un-engineered earthen dikes along the river to prevent flooding of their crops and residences. However, these earthen dikes were prone to erosion, washouts, and overtopping. In an effort to create a more sustainable solution to reducing flood damage within the project area, the Applicant, in consultation with the Michigan Department of Environmental Quality (MDEQ), developed the Flint River Flood Control Project (FRFCP) for the Flint River Erosion Control Board District (the district corresponds to approximately the 100-year floodplain).

The FRFCP proposes engineered flood control measures for the entire 24-mile stretch of the Flint River in the project area. The FRFCP includes the reconstruction of existing un-engineered earthen dikes, the excavation of floodway shelves, and the construction of storage reservoirs.

The FRFCP was implemented in 1989, and dike reconstruction activities occurred in 1989, 1991, 2001, and 2002; these activities completed 52 percent of the FRFCP. The remainder of the construction is on hold due to lack of funding.

In compliance with Phase II of the National Pollutant Discharge Elimination System (NPDES) permit, Genesee County has recently prepared a stormwater management plan for the portions of the Flint River watershed that occur within its boundaries (GCDC, 2006). The goal of the stormwater management plan is to recognize and catalog the current conditions that impact the water quality of the Flint River and its tributaries, address actions that can be taken to resolve existing problems and prevent future degradation.

1.3 PURPOSE AND NEED

The purpose of the action alternatives presented in this EA is to prevent damages associated with the 10-year storm event along an eight-mile stretch of the Flint River in Albee, Spaulding, and Taymouth Townships in Saginaw County, Michigan. The action alternatives would reduce or prevent damages to the residences, agricultural land, roads, and infrastructure from overland flooding. The need for this project is to reduce the risk to human health and safety associated with flooding, and to minimize the economic loss and hardship to the community from the costs associated with repeated flood damages. In recent flood events, about 50 homes were affected by the flooding.

This EA discusses three alternatives for meeting the project's purpose and need as discussed in Section 1.3: Alternative 1 – No Action; Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action); and Alternative 3 – Elevation, Relocation, or Acquisition of Flood-prone Structures.

2.1 ALTERNATIVE 1 – NO ACTION ALTERNATIVE

Under the No Action Alternative, no additional improvements or flood mitigation measures would be implemented. Flooding would continue to occur along the unimproved portions of the dike system within the project area until the Applicant could obtain alternative funding to complete the Flint River Flood Control Project. Moreover, the full benefits of the work already completed (i.e., the portions of the dike system improved in 1989, 1991, 2001, and 2002) would not be realized due to the continued erosion, washouts and overtopping of the unimproved existing earthen dikes during flood events. Future flooding would continue to negatively affect agricultural crops, residences, and businesses.

2.2 ALTERNATIVE 2 – DIKE RECONSTRUCTION AND RESERVOIR CONSTRUCTION (PROPOSED ACTION)

The Proposed Action would complete the remaining 48 percent of the Flint River Flood Control Project within seven individual project sites, as described below and shown on Figure 2 in Appendix A. To complete this flood control project, the reconstruction of existing earthen dikes, construction of a floodway shelf, a storage reservoir, and two wetland areas are proposed. In addition, this alternative would require the relocation of one farm residence. The improvements would prevent floodwaters from overtopping dikes up to, and including, a 10-year storm event, and is expected to have a 50-year useful life.

Existing earthen dikes would be reconstructed and offset from current locations (Figures 3 and 4, Appendix A). The reconstructed dikes would be aligned with the previously improved dike sections within the project area and would be constructed to U.S. Army Corps of Engineers (USACE) standards. A total of 404,800 cubic yards of excavated material resulting from the construction of the floodway shelf and reservoir would be used to reconstruct 53,900 linear feet (LF) of earthen dike. The project dikes would be constructed as a trapezoidal shape with a 2:1 vertical: horizontal (V:H) side slope, and a top width of at least 12 feet. A minimum 10-foot wide floodway shelf would be constructed between the edge of the river and the toe-of-slope of the reconstructed dike. The dikes on the opposite sides of the river would be located at a minimum of 380 feet apart

Prior to construction, the excavated material that would be used for levee construction would be tested and certified as clean-fill. Should any of the excavated material tests positive for contaminants, that material would be disposed of at a facility permitted to receive such material. No contaminated sediments or soils would be used to construct the levees.

Additionally, though most of the material would come from on-site, when on-site material is inadequate, off-site material would be brought in. During construction, an inspector would be on-site to monitor materials and would halt construction if materials are not sufficient to meet the USACE standard. Soils would be compacted to 90 percent in 12-inch layers in accordance with the Standard Proctor Test.

Additional floodwater containment would be created from the construction of a 24-acre storage reservoir near levee segment five, and the creation of 7.2 acres of wetlands (refer to Figure 2, Appendix A). The floodway shelf would provide a place for sediment to drop out when flow returns to a normal base flow, and would increase the floodwater containment area and minimize bank erosion.

The reconstructed dikes would be located within existing easements through private properties that are within the Applicant's jurisdiction, or on expanded easements that would be acquired by the Applicant. Access to the project area would be obtained either via public road or from adjacent farmland properties. No work is proposed within the waterway of the Flint River.

The Applicant is developing an Operations and Maintenance (O&M) Plan for the flood control structures associated with this alternative. The O&M Plan must be adopted prior to final approval of the EA and signing of the FONSI by FEMA.

2.2.1 Project Segment 1

This proposed project segment would reconstruct a dike along an existing ditch within Spaulding Township, Section 15. The project would create 5,000 LF of dike from 15,000 cubic yards (CY) of on-site material along the south side of Evon Road (Section A) and along the eastern border of the Shiawassee National Wildlife Refuge. Construction activities would widen an existing ditch and reconstruct the existing earthen dike. The reconstructed dike would have a 0.000 percent grade and the top of dike elevation would be 590.0 feet above National Geodetic Vertical Datum (NGVD). The new dike would be aligned with an existing dike that was previously reconstructed in 1990. The estimated area to be impacted is 10 acres.

2.2.2 Project Segment 2

This proposed project segment would reconstruct a dike along the north side of an existing ditch within Spaulding Township, Sections 21, 22, and 28. The project would create 5,000 LF of dike from 20,000 CY of on-site material within the Shiawassee National Wildlife Refuge between Birch Run Creek and Spaulding Drain. Construction activities would widen the existing ditch and reconstruct the existing earthen dike. The reconstructed dike would have a 0.018 percent grade and the top of dike elevation would range from 592.0 feet above NGVD to 592.9 feet above NGVD. The new dike would be aligned with an existing dike along Spaulding Drain that was previously reconstructed in 1989. The estimated area to be impacted is 10 acres.

2.2.3 Project Segment 3

This proposed project segment would reconstruct a dike and floodway shelf on both sides the Flint River within Spaulding Township, Sections 32 and 33. This project would create 14,400 LF of dike from 43,200 CY of on-site material between the along the portion of Flint River known as Old Flint River (from the confluence of Flint River and Spaulding Drain, near the Curtis Road bridge, to the confluence of Flint River and Misteguay Creek). Both the reconstructed north and south dikes would have a 0.000 percent grade and the top of dike elevation would be 594.0 feet above NGVD. The proposed dike would be aligned with an existing dike near Curtis Road that was previously reconstructed in 1989. The estimated area to be impacted is 33 acres.

2.2.4 Project Segment 4

This proposed project segment would reconstruct a dike and floodway shelf on both sides the Flint River within Spaulding Township, Sections 35. This project would create 6,400 LF of dike from 64,000 CY of on-site material between Bueche Road and East Road (Michigan State Route 13). The proposed top of dike elevation of the north dike ranges from 597.5 feet above NGVD to 598.4 feet above NGVD, while the top of dike elevation of the south dike ranges from 598.4 feet above NGVD to 599.4 feet above NGVD. The proposed dikes would be aligned with existing dikes that were previously reconstructed in 1990, 1998, and 2002. The estimated area to be impacted is 28 acres.

2.2.5 Project Segment 5

This proposed project segment would reconstruct a dike and floodway shelf on both sides the Flint River within Albee Township, Section 1 and Spaulding Township, Section 36. This project would create 15,800 LF of dike from 189,600 CY of on-site material between East Road (Michigan State Route 13) and Sheridan Road. The proposed top of dike elevation of the north dike ranges from 600.1 feet above NGVD to 602.2 feet above NGVD, while the top of dike elevation of the south dike ranges from 600.0 feet above NGVD to 602.2 feet above NGVD. The proposed dikes would be aligned with an existing dike that was previously reconstructed in 1989. The estimated area to be impacted by dike and floodway shelf reconstruction is 55 acres.

In addition, the construction of a floodwater storage reservoir, two wetland areas are proposed within this project segment. The reservoir would be located within a 24-acre agricultural field located between a large river meander. Water would enter the reservoir through a 250 LF spillway on the east side of the reservoir and discharge on the west side of the reservoir through an 18-inch corrugated metal pipe (CMP). The existing agricultural property would be seeded to support permanent grass vegetation. Two wetland areas (2.9 acres and 4.3 acres, respectively) would be excavated to an elevation of 590.0 feet above NGVD along the edge of the Flint River. The wetland areas will be seeded with a wetland seed mix. The new floodway shelf would help to alleviate potential erosion damage.

To accommodate the improvements proposed within this project segment, one residence located within the floodplain, at property parcel 1001-000, Albee Township near Sheridan Road, would be acquired and demolished. In addition, three outbuildings (two sheds and one barn) would be removed from this property.

2.2.6 Project Segment 6

This proposed project segment would reconstruct a dike and floodway shelf on the south side of the Flint River within Taymouth Township, Section 7. This project would create 5,000 LF of dike from 50,000 CY of on-site material between Malone Road and Seymour Road. The reconstructed dike would have a 0.022 percent grade and the top of dike elevation would range from 603.40 feet above NGVD to 604.0 feet above NGVD. The proposed dike would be aligned with an existing dike that was previously reconstructed in 1989. The estimated area to be impacted by dike and floodway shelf reconstruction is 17 acres.

2.2.7 Project Segment 7

This proposed project segment would reconstruct a dike and floodway shelf on the north side of the Flint River within Taymouth Township, Section 8. This project would create 2,300 LF of dike from 23,000 CY of on-site material between the Central Michigan Railway and the eastern border of the Flint River Flood and Erosion Control District. The reconstructed dike would have a 0.022 percent grade and the top of dike elevation would range from 605.6 feet above NGVD to 606.0 feet above NGVD. The proposed dike would be aligned with an existing dike that was previously reconstructed in 2001. The estimated area to be impacted by dike and floodway shelf reconstruction is 8 acres.

2.3 ALTERNATIVE 3 – ELEVATION, RELOCATION, OR ACQUISITION OF FLOOD-PRONE STRUCTURES

Under Alternative 3, existing flood-prone structures within the 10-year floodplain would be elevated, relocated, or voluntarily acquired. As such, the costs associated with the damage, potential safety hazards, and disruption of life caused by repeated flooding of these structures would be reduced or eliminated.

Approximately 200 residences and six commercial structures are located within this flood hazard area. The flood-prone structures would be evaluated to determine the most suitable method of flood protection. Elevating the flood-prone structures to a height determined to be out of the flood hazard area is the preferred protection method, because this method would cause the least inconvenience to the property owner. If elevation is not feasible, relocating the flood-prone structures to other areas within same parcel, or to another parcel, that are located outside of the flood hazard area would be considered. If it is determined that the structure cannot be relocated, due to the integrity of the structure or because no suitable relocation areas are available, then the flood-prone structures would be purchased by FEMA in a voluntary acquisition program.

The FEMA-acquired structures would be demolished. Debris material from the demolished structures would be disposed of at a facility permitted to receive such material. The land vacated by relocated or demolished structures would be graded to the existing contours and seeded with a grass mix to stabilize the soils. Land use restrictions would prohibit the construction of new residential or commercial structures within the flood hazard area. Farmland adjacent to the protected flood-prone structures could continue to be cultivated.

2.4 ALTERNATIVES CONSIDERED AND DISMISSED

Both structural and non-structural alternatives for the FRFCP were provided for consideration by the USACE (USACE, 1982). A summary of these alternatives and the reason for their dismissal is provided in this section.

Nonstructural Alternative: NFIP Participation

Under this alternative, the project area would be covered under FEMA's existing National Flood Insurance Program (NFIP). The NFIP provides funding for reimbursement of structural damage losses and only includes coverage for buildings. However, flooding in the Flint River area of the Shiawassee Flats mainly affects agricultural land. Therefore, by only participating in the NFIP, agricultural lands would not be sufficiently protected. This alternative would not meet the

purpose and need of this project to prevent or reduce damages to agricultural lands and was dismissed.

Structural Alternative: Upstream Reservoirs

Potential reservoir sites were identified and evaluated for drainage area, pond area, reservoir storage, and the amount of runoff that could be stored for the catchment area. Very few reservoir sites qualified for further consideration. Ultimately it was determined that the reservoirs would not significantly reduce the flood problems within the Flint River area of the Shiawassee Flats. Therefore, this alternative did not meet the stated purpose and need for the project and was dismissed.

Structural Alternative: Levees to Protect Against 100-Year Event

This alternative would be similar to Alternative 2 with the exception of constructing the levees to protect against the 100-year event. However, this alternative would not meet MDEQ permitting requirements due to the potential for adverse effects to upstream and downstream communities. Since this alternative would not receive state permitting approval, it was dismissed.

SECTION THREE **Affected Environment and Environmental Consequences**

3.1 PHYSICAL ENVIRONMENT

3.1.1 Geology, Seismicity and Soils

3.1.1.1 *Geology*

The project area lies within the Michigan Basin, a large regional structure composed of a variety of strictly sedimentary rocks that were deposited in the Paleozoic Era, Cambrian through Pennsylvanian Periods, when the Basin was inundated six times by saltwater seas (Martin, 1957). Bedrock in Saginaw County is the Saginaw Formation, Pottsville Series and consists of sandstone, siltstone, shale, and limestone. According to the Michigan Department of Environmental Quality (MDEQ), Geological Survey Division, Jurassic Red Beds are also present in areas, particularly in the western portion of the county (1987). The depth to Precambrian granite is at least 5,000 feet (Martin, 1957).

Following an extensive period of erosion during the Mesozoic and most of the Cenozoic Eras, ice sheets advanced during the Pleistocene Epoch. Most of Saginaw County was covered in till, and then completely covered by ancestral Saginaw Bay as the glaciers retreated (Martin, 1957). Quaternary lacustrine sediments dominate the geology of the project area. The western half of the project area is covered in sediments of gray to dark reddish-brown lacustrine clay and silt of up to 32.8 feet (10 meters) in thickness. The eastern half of the project area is characterized by up to 98.4 feet (30 meters) of coarser, pale brown to pale reddish-brown lacustrine sand with lenses of gravel. These coarser sediments likely indicate former beaches and littoral deposits of glacial lakes (MDEQ, 1982). The topography of the Saginaw Valley region surrounding the project area is relatively flat.

3.1.1.2 *Seismicity*

Saginaw County lies in an area of low seismic activity. According to the United States Geological Survey (USGS) National Earthquake Information Center, no significant earthquakes (Modified Mercalli Intensity VII or more) have occurred in Michigan in the last 50 years. The last significant earthquake was of a magnitude 4.4 and occurred in 1947 (USGS, 2005a). The USGS National Seismic Hazard Mapping Project indicates that Saginaw County has a low probability of seismic activity (USGS, 2005b).

3.1.1.3 *Soils*

Two soil associates underlie the project area: the Sloan-Zilwaukee-Misteguay Association (Project segments 1, 2, 3, 4, and 5), and the Pipestone-Granby-Wixom Association (Project segments 6 and 7) (USDA, 1994). According to the Soil Survey of Saginaw County, Michigan (USDA, 1994), seven soil units are mapped within the project area. Project Segment 1 is mapped as Zilwaukee-Misteguay complex, frequently flooded (94) and Chesaning-Cohoctah complex, rarely flooded (96). Project Segment 2 is mapped as Zilwaukee-Misteguay complex, rarely flooded (59). Project Segments 3, 4, 5, 6, and 7 are primarily mapped as Sloan-Ceresco complex rarely flooded (95). Portions of Project Segment 3 are also mapped as Zilwaukee-Misteguay complex, rarely flooded (59) and Sloan silt loam, rarely flooded (69). Portions of Project Segment 6 are also mapped as Pipestone sand, loamy substratum, 0 to 3 percent slopes (31A). Portions of Project Segment 7 are also mapped as Pipestone sand, loamy substratum, 0 to 3

SECTION THREE **Affected Environment and Environmental Consequences**

percent slopes (26A). Figure 5 in Appendix A depicts the mapped soil units within the project area.

3.1.1.3.1 Prime and Unique Farmland

All of the mapped soils underlying the seven proposed project segments are classified as prime farmland soils (USDA, 1994). Prime farmland is defined as land best suited for the production of food, feed, forage, fiber, and oilseed crops (USDA, 1994). The Farmland Protection Policy Act (FPPA) was enacted in 1981 (Public Law [P.L.] 98-98) to minimize the unnecessary conversion of farmland to non-agricultural uses as a result of Federal actions. Programs administered by Federal agencies must be compatible with state and local farmland protection policies and programs. The Natural Resources Conservation Service (NRCS) is responsible for protecting significant agricultural lands from irreversible conversions that result in the loss of an essential food or environmental resource.

Alternative 1 – No Action Alternative

Impacts to geology and seismicity would not occur under this alternative, as no construction would occur. Soils within and adjacent to the project area, including prime farmland, would continue to be adversely impacted from erosion and inundation associated with 10-year storm events.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Implementation of the Proposed Action would have no impact on the existing geologic or seismologic conditions of the area. Under the Proposed Action, approximately 192 acres of soils, including prime farmland, would be directly impacted by activities associated with the reconstruction of existing earthen dikes, the excavation of a floodway shelf and the creation of a floodwater storage reservoir. A total of 404,800 cubic yards of excavated material resulting from the construction of the floodway shelf and reservoir would be used to reconstruct 53,900 LF of earthen dike. Prior to construction, these soils would be tested and certified as clean fill. Should any of the excavated material test positive for contaminants, that material would be disposed of at a facility permitted to receive such material.

All of the soils mapped for the project area have been classified by the U.S. Department of Agriculture (USDA) National Resources Conservation Service (NRCS) as having limitations for dike construction due to seepage, piping, or wetness. According to Wilcox Engineering, the existing on-site soils are adequate for construction of the Proposed Action (Niethammer, 2006). Moreover, the previously reconstructed dikes (improved in 1983, 1991, 200, and 2001) adjacent to the project area were designed using the same soils types as the soils proposed for use with the Proposed Action and these dikes have not shown evidence of deterioration associated with the USDA/NRCS identified soil limitations (Niethammer, 2006).

Potential adverse impacts include soil loss due to erosion associated with construction activities. Erosion would be minimized through the compliance of the sediment and erosion control Best Management Practices (BMPs) in the MDEQ permits issued for the Proposed Action. Sediment and erosion control BMPs include installing silt fences and hay bales at the limits-of-disturbance, seeding and mulching exposed soils shortly after disturbance, and placing erosion control fabric on the dikes. In addition, no more than 1,000 LF of the existing earthen dikes will be

SECTION THREE **Affected Environment and Environmental Consequences**

reconstructed at one time, which will minimize and control soil disturbance within a construction area.

Approximately 186 acres of land mapped as prime farmland soils would be impacted to accommodate the Proposed Action's structural flood control improvements. However, the majority of the soils within the project area have already been taken out of agricultural production to create the existing earthen dikes that the Proposed Action would reconstruct. The Proposed Action is consistent with FPPA and Michigan farmland protection objectives since it would ultimately protect thousands of acres of prime farmland soils that are actively cultivated from damages associated with storms up to and including the 10-year storm event. In their letter to the Applicant, dated April 20, 2001, the NRCS stated that they fully support the Proposed Action (Appendix B). The current project design has not been altered since the 2001 correspondence with NRCS, however, a request for an updated letter was sent to NRCS on April 4, 2006. NRCS indicated on April 18, 2006, that the updated response letter is currently being processed but to-date it has not been received. The EA will not be finalized and funding for the project will not be provided by FEMA until the NRCS consultation has been completed.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Impacts to geology and seismicity would not occur under this alternative. Soils within and adjacent to the project area would continue to be adversely impacted by erosion and inundation associated with 10-year storm events. This alternative would protect existing flood-prone structures by elevation, relocation, or acquisition. No existing prime farmlands would be removed from productive use. Ground disturbing activities associated with the demolition and relocation of homes in the floodplain could temporarily increase erosion of soils to nearby surface waters. Mitigation measures, as described in Section 6, would be implemented to minimize impacts to soils.

3.1.2 Water Resources and Water Quality

The Flint River and its connecting drainage systems run through several counties of east-central Michigan (hydrologic unit code [HUC] 04080204). The Flint River drainage system is one of several drainage areas that are part of the Shiawassee Flats area and Saginaw River Basin, which is a drainage area that encompasses approximately 6,260 square miles. The Saginaw River eventually discharges into Saginaw Bay, an arm of Lake Huron. The project area is within the downstream segment of the Flint River. The Mississippian aquifer, one of the most productive aquifers in the State, underlies the project area (USGS, 2005c). The project area obtains potable and irrigation water from groundwater wells.

Michigan has received authorization from the Federal government to administer Section 404 of the Clean Water Act in most areas of the state. Water resources in the state are regulated in accordance with Part 31, Water Resources Protection; Part 301, Inland Lakes and Streams, and Part 303, Wetland Protection, of the Natural Resources and Environmental Protection Act (NREPA), as amended.

To protect surface water quality, Michigan has developed Water Quality Standards (WQS) pursuant to Part 31, Water Resources Protection, of the NREPA, 1994 PA 451, as amended. Under NREPA, all surface waters of the state are protected for the following designated uses: agricultural, industrial, and municipal water supply, navigation, warm-water fishery, aquatic life

SECTION THREE **Affected Environment and Environmental Consequences**

and wildlife support, and partial body contact recreation. The protected designated uses for the Flint River also include total body contact recreation, which are any activities normally involving direct contact with water to the point of complete submergence, particularly immersion of the head, with considerable risk of ingesting water, including swimming.

Water Quality Standards are unmet for the segment of the Flint River that flows adjacent to the project area due to polychlorinated biphenyls (PCB) and mercury contamination in fish (MDEQ, 2004). This segment of the river is included on the Clean Water Act (CWA) Section 303(d) Water Quality Standards Nonattainment List for Water Bodies Requiring Total Maximum Daily Loads (TMDLs). Fish contaminant advisories are present for the entire Flint River downstream of the Hamilton Dam in Flint, Michigan. In addition, total body contact recreation is not recommended after any form of precipitation due to elevated bacteria counts.

Michigan implemented a Wellhead protection program to help reduce the potential for groundwater contamination by identifying and protecting areas that contribute water to municipal water supply. No wellhead protection areas are located within or adjacent to the project area (MDEQ, 2006a). No U.S. Environmental Protection Agency (EPA) designated sole source aquifers underlie the region (EPA, 2006a).

During past flood events, the project area has been contaminated with *E. coli* bacteria that resulted from the release of untreated sewage into the Flint River from combined sewer overflows (CSOs) and wastewater treatment plants located upstream of the project area (FRECB, 2001). A February 20, 2001 article from The Flint Journal describes such an event (Appendix C). In addition to contamination of agricultural land, several privately owned groundwater wells were contaminated and had to be sealed (FRECB, 2001). According to a letter from the State Department of Health supporting the project (Appendix B), *E. coli* contamination occurred from a Genesee County sewage treatment plant.

Wild and Scenic Rivers Act. The Wild and Scenic Rivers Act was established to preserve the free-flowing state of listed rivers or those under consideration for inclusion due to numerous values, such as scenic, recreational, geologic, or historic. The Flint River is not listed as a wild and scenic river (NPS, 2006). No further action is necessary under the Wild and Scenic Rivers Act.

Alternative 1 – No Action Alternative

Under the No Action Alternative, no construction would occur. Sedimentation from the ongoing erosion of the deteriorating earthen dikes may adversely affect downstream water quality. Land adjacent to the project area would continue to be contaminated by upstream releases of untreated sewage and other contaminants during flood events.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

The Proposed Action is not anticipated to adversely affect water resources or water quality. The Applicant obtained permits from MDEQ (Permit Numbers 01-73-0090-P and 04-73-0027-P) under Part 301, Inland Lakes and Streams, of NREPA, as amended (Appendix B). The proposed project would comply with all requirements set forth in the permits. Erosion and sedimentation that may occur during construction would be minimized through the compliance with the sediment and erosion control BMPs in the MDEQ permits issued for the Proposed Action.

SECTION THREE **Affected Environment and Environmental Consequences**

Reconstruction of the existing deteriorating dikes would have beneficial impacts on downstream water quality by eliminating a current source of downstream sedimentation. The hydraulic changes will primarily include a lowering of flood elevations along and downstream of the dike setback areas. The surface water elevation will be reduced as each portion of the dike system is reconstructed away from the river's edge. The proposed dikes would be set back 100 to 150 feet from the existing edge of the river, creating a wider conveyance area that would allow the same volume of water to flow through at reduced velocity and elevation. The new floodway shelf would, in effect, restore the natural function of the floodplain, and natural capture and filtration of contaminants would occur to some degree. In addition, as the dike system is moved back from the river, less chance exists for erosion of the dikes to occur. Decreased dike erosion would result in less sediment reaching the water. As with the hydraulic changes, as the balance of the system is reconstructed, the water quality will continue to improve.

The Proposed Action would reduce human exposure to untreated sewage and other contaminants carried by the Flint River by reducing the overflow of contaminated river water onto adjacent land in the project area. Floodwaters would be confined to the new floodway channel throughout the project area during 10-year storm events. The Proposed Action is not anticipated to affect groundwater resources due to the shallow excavations required for construction activities. The potential for residential wells to be contaminated by overflows of contaminated water from Flint River such as occurred in 2001 (see Appendix C) would be reduced.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under Alternative 3, existing flood-prone structures would be protected by elevation, relocation, or acquisition. The removal of homes would decrease the amount of impervious surfaces and increase in floodwater storage capacity in the floodplain, which may provide a beneficial impact to water quality. However, sedimentation from the ongoing erosion of the deteriorating earthen dikes would continue to adversely affect downstream water quality. Land adjacent to the project area would continue to be contaminated from upstream releases of untreated sewage and other contaminants during flood events. Removal of flood-prone structures may reduce the potential for human exposure to sewage-related pathogens.

3.1.3 Floodplain Management (Executive Order 11988)

Executive Order (EO) 11988 directs Federal agencies to take actions to minimize occupancy of and modifications to floodplains. Specifically, EO 11988 prohibits FEMA from funding construction in the 100-year floodplain unless there are no practicable alternatives. FEMA's regulations for complying with EO 11988 are promulgated in 44 CFR Part 9. FEMA applies the Eight-Step Planning Process, as required by regulation, to meet the requirements of EO 11988. This step-by-step analysis is included in Appendix D of this document.

Floodplains refer to the 100-year floodplains as set by FEMA and are shown on Flood Insurance Rate Maps (FIRMs) for all communities participating in the National Flood Insurance Program (NFIP). The 100-year floodplain designates the area inundated during a storm having a one-percent chance of occurring in any given year. FEMA also identifies the 500-year floodplain. The 500-year floodplain designates the area inundated during a storm having a 0.2 percent chance of occurring in any given year.

SECTION THREE **Affected Environment and Environmental Consequences**

The three townships that would be affected by the proposed project are registered in Michigan as communities participating in the NFIP. Spaulding Township joined in June 1979; Albee Township joined in August 1986; and Taymouth Township joined in December 1988. All three townships participate in and are in good standing with the Federal Insurance Administration, which administers the NFIP. The project area is located on FIRM Community Panel Numbers: 26145C0185D, 26145C0190D, 26145C0195D, 26145C0245D, and 26145C0250D. According to the FIRMs, the majority of project area has been mapped and identified as 100-year floodplain (Zone AE). Some portions of the existing dike system are designated as outside both the 100-year and 500-year floodplains (Zone X).

Alternative 1 – No Action Alternative

The No Action Alternative would have a negative long-term impact on residences and farms already located within the floodplain. Without additional flood control measures the Flint River would continue to overflow its banks within the project area. Flooding may worsen as the existing dikes continue to deteriorate. Residences and farms within the floodplain would experience continued damage and loss as a result of future flood events.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Under the Proposed Action, adverse impacts to the floodplain are not anticipated. Alternative 2 would complete the Flint River Flood Control Project. Once complete, the project improvements would prevent floodwaters up to and including a 10-year storm event from overtopping dikes and flooding the adjacent residences and farms. Moreover, the construction of the floodwater storage reservoir would provide additional flood protection for downstream communities from larger events. The 24-acre retention area would provide up to 30 minutes additional floodwater retention time (Niethammer, 2005).

The hydraulic analysis prepared by Wilcox Engineering concluded that the proposed project activities would not significantly impact the 100-year flood stage of the Flint River (FRECB, 2001). To confirm that no increases in the 100-year floodway water surface elevations would occur, the Applicant would be required to obtain a “no-rise certificate” and submit it to FEMA for concurrence prior to commencing construction.

Potential minor impacts to the floodplain would include vegetation removal and potential soil compaction as a result of equipment use. Use of heavy equipment on wet or damp soils can compact soils to the extent that infiltration rates within the floodplain could decrease, increasing runoff and erosion. To mitigate the effects of heavy equipment use and compaction, it is recommended that project activities occur during dry periods (precipitation limited to less than 1 inch in the week prior to equipment use). Soil compaction in the floodplain could temporarily affect its filtering ability (by decreasing infiltration rates), but the area of impact would be limited and any impacts would be short-term.

The MDEQ reviewed the Proposed Action under the State’s Floodplain Regulatory Authority, and issued permits (Permit Numbers 01-73-0090-P and 04-73-0027-P) under Part 31, Water Resources Protection, of NREPA), that allow construction within a federally identified flood hazard area (Appendix B). The proposed project would comply with all requirements set forth in the permit.

SECTION THREE **Affected Environment and Environmental Consequences**

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under Alternative 3, existing flood-prone structures would be protected by elevation, relocation, or acquisition. The removal of homes would decrease the amount of impervious surfaces and increase in floodwater storage capacity in the floodplain, which may provide a beneficial impact. However, sedimentation from the ongoing erosion of the deteriorating earthen dikes would continue to adversely affect the natural and beneficial functions of the downstream floodplain. The acquired land adjacent to the project area would continue to experience flooding. Removal of flood-prone structures would reduce the structural damages associated with these flooding events.

3.1.4 Air Quality

EPA regulates six criteria pollutants that could cause adverse health effects (EPA, 2006b). National Ambient Air Quality Standards (NAAQS) have been set for sulfur dioxide (SO₂), particulate matter with a diameter less than or equal to 10 microns (PM-10), ozone (O₃), nitrogen dioxide (NO₂), carbon monoxide (CO), and lead (Pb). NAAQS are typically established for a variety of averaging times, ranging from one hour to one year.

The Michigan Air Quality Monitoring Program, a division of the MDEQ, oversees and reports on results of federally mandated National Air Monitoring Stations and State and Local Air Monitoring Sites as well as the Special Purpose Monitoring Stations network in Michigan (MDEQ, 2006b). Air quality measurements from this network are used to demonstrate the attainment status with regard to NAAQS. Ambient air monitoring is also a requirement for State Implementation Plans.

Information from the Environmental Protection Agency (EPA), Region V, indicates that Saginaw County is in attainment for all six criteria pollutants used as indicators of air quality (EPA, 2006c).

Alternative 1 – No Action Alternative

No construction would occur under the No Action Alternative; therefore, there would be no impacts to air quality.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

There would be no discernable impacts to air quality under the Proposed Action. Some local and short-term increases in particulates and exhaust emissions could occur as a result of construction activities. Under the Proposed Action, mitigation measures would be required to reduce construction-related impacts to air quality. These measures are detailed in Section 6 of this document.

Implementation of the Proposed Action would involve limited use of heavy construction equipment such as backhoes, excavators, and bulldozers for the dike reconstruction. Proposed construction duration is approximately four months.

Heavy construction equipment is a source of fugitive dust emissions that may have a substantial temporary effect on local air quality. Emissions during construction can be associated with ground excavation, earth moving, and construction. Dust emissions can vary substantially from day to day depending on the level of activity, the specific operations, and weather. Emissions

SECTION THREE **Affected Environment and Environmental Consequences**

from fuel-burning internal combustion engines (heavy equipment and earthmoving machinery), could temporarily increase the levels of volatile organic compounds (VOCs) and some of the priority pollutants, including CO, NO₂, O₃, and particulate matter.

Potential impacts to air quality would be short-term and temporary in nature. To mitigate for fugitive dust and equipment emissions, vehicle engines would be turned off while not in use, construction roads would be watered when dusty conditions exist, and local residents would be advised to close windows during periods of heavy construction activity to prevent dust from infiltrating their homes.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under the Alternative 3, there would be no discernable impacts to air quality. Some local and short-term increases in particulates and exhaust emissions could occur from demolition of the acquired flood-prone residential and commercial structures. Mitigation measures, as described in Section 6, would be implemented to minimize impacts to air quality.

3.2 BIOLOGICAL ENVIRONMENT

3.2.1 Terrestrial and Aquatic Environment

Terrestrial Habitat

The east-central Michigan lies near the northern limits of the extensive Eastern Broadleaf forest that stretches south to the Appalachian Mountains in Pennsylvania and east through New England. The Saginaw Valley is predominantly agricultural with limited forested areas along the river corridors, and in hedgerows. The main crops raised in this area consist of sugar beet, corn, soybean, and grains.

In December 2005, URS biologists conducted a site visit of the project area. Each of the seven project segments was found to consist of agricultural fields adjacent to a forested riparian floodplain community. Dominant trees growing on and near the deteriorating dikes included: American elm (*Ulmus americana*); box elder (*Acer negundo*); cottonwood (*Populus deltoides*); basswood (*Tilia americana*); willow (*Salix sp.*); green ash (*Fraxinus pennsylvanica*); hackberry (*Celtis occidentalis*); hickory (*Carya sp.*); quaking aspen (*Populus tremuloides*); oaks (*Quercus spp.*); and maples (*Acer spp.*). Shrubs and woody vines observed included: honeysuckle (*Lonicera sp.*); multiflora rose (*Rosa multiflora*); grape (*Vitis sp.*). Herbaceous plant species observed included: reed canary grass (*Phalaris arundinacea*); goldenrod (*Solidago spp.*); teasel (*Dipsacus sylvestris*); bramble (*Rubus sp.*); knotweed (*Polygonum sp.*); primrose (*Oenothera sp.*); Queen Anne's lace (*Daucus carota*); asters (*Aster spp.*); common mullein (*Verbascum thapsus*); thistle (*Cirsium spp.*); curly dock (*Rumex crispus*); panic grass (*Panicum spp.*); ryegrass (*Lolium sp.*); common burdock (*Arctium minus*); giant ragweed (*Ambrosia trifida*); and wood nettle (*Laportea canadensis*).

Observations or signs of the following wildlife species were noted during the site reconnaissance eastern cottontail (*Sylvilagus floridanus*); gray squirrel (*Sciurus carolinensis*); woodchuck (*Marmota monax*); beaver (*Castor canadensis*); red fox (*Vulpes vulpes*); raccoon (*Procyon lotor*); and whitetail deer (*Odocoileus virginianus*). Other species expected would include: small rodents such as shrews (*Soricidae*); moles (*Talpidae*); voles and mice (*Cricetidae*); muskrat (*Ondatra zibethica*); opossum (*Didelphis marsupialis*); and skunk (*Mephitis mephitis*).

SECTION THREE **Affected Environment and Environmental Consequences**

site. Subsequent to construction, the reconstructed dikes would be routinely mowed and maintained to prevent woody vegetation from establishing. The new floodway shelves would be seeded with a mix of grasses, and would be allowed to naturally revert to a forested floodplain community. During construction activities, wildlife using the project area would be displaced. Once construction activities are concluded, however, displaced wildlife is anticipated to return. Mitigation for the loss of forested habitat would be compliant with all local, state, and Federal laws, regulations, and requirements.

Project Segment 1 and 2 are located in and/or adjacent to the Shiawassee National Wildlife Refuge. In their letter dated May 13, 2005, the U.S. Fish and Wildlife Service (USFWS) stated that activities associated with the Proposed Action should not be a concern to the refuge (Appendix B).

Aquatic Habitat

Under the Proposed Action, no adverse impacts to aquatic plants or wildlife species are anticipated. Effects to the aquatic habitat under the Proposed Action would be limited to the potential for erosion into the waters of the Flint River due to construction activities; no construction activities are proposed within the waterway of the Flint River. To mitigate against degradation of aquatic habitat due to erosion, the Applicant would comply with all BMPs set forth in the MDEQ permits issued for this project activity, such as silt fencing and hay bales, and seed exposed soils with grasses.

The Proposed Action would have a beneficial affect on the aquatic habitat for fish and macro-invertebrates by reducing water turbidity and increasing spawning habitat. Reconstruction of the dikes and floodway shelves would decrease the turbidity within the Flint River that is a result of the ongoing erosion of the deteriorating dikes.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under Alternative 3, future flooding would continue to affect the project area, as it has historically. Because floodplain vegetation, and its associated wildlife species are well adapted to flooding, no adverse effects to terrestrial or aquatic habitat, and or species, is anticipated. Sedimentation from the ongoing erosion of the deteriorating earthen dikes would continue to adversely affect aquatic habitat. The removal of flood-prone residences and commercial structures may provide an increase in terrestrial habitat, which would be a beneficial impact to wildlife.

3.2.2 Wetlands (Executive Order 11990)

The term wetland refers to areas that are inundated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, intrastate lakes, rivers, streams (including intermittent streams), mudflats, sloughs, and similar areas.

Under EO 11990, Federal agencies are required to minimize the destruction, loss, or degradation of wetlands and preserve and enhance their natural and beneficial values. If a Federal action has the potential to impact jurisdictional waters of the United States as defined by Section 404 of the CWA, the U.S. Army Corps of Engineers (USACE) would be contacted for appropriate

SECTION THREE **Affected Environment and Environmental Consequences**

Bird species observed within the project area included: American kestrel (*Falco sparverius*); red-winged blackbird (*Agelaius phoeniceus*); American crow (*Corvus brachyrhynchos*); mourning dove (*Zenaidura macroura*); brown-headed cowbird (*Molothrus ater*); junco (*Junco hyemalis*.); ring-billed gull (*Larus delawarensis*); Canadian geese (*Branta canadensis*); common flicker (*Colaptes auratus*); common grackle (*Quiscalus quiscula*); cardinal (*Cardinalis cardinalis*); starling (*Sturnus vulgaris*); blue-winged teal (*Anas discors*); black capped chickadee (*Parus atricapillus*); and belted kingfisher (*Megaceryle alcyon*).

Project Segment 1 and 2 are located in and/or adjacent to the Shiawassee National Wildlife Refuge. This 9,200-acre refuge, established in 1953, was created to protect significant wetland habitat for migratory waterfowl. The Shiawassee National Wildlife Refuge has been designated as an Important Bird Area (IBA). Over 300 species of birds have been observed at the refuge.

Aquatic Habitat

Project Segments 3, 4, 5, 6, 7, and 8 are located adjacent to the Flint River, while Project Segments 1 and 2 are located adjacent to adjacent drainage ditches. The portion of the Flint River that flows adjacent to the project area has been classified by the Michigan Department of Natural Resources (MDNR), Fisheries Division, as second-quality warm water streams that have limited sport fish populations due to pollution, competition, inadequate reproduction, or lack of suitable habitat (MDNR, 2001). In 1997, MDNR conducted a fish survey in the lower Flint River, Bluntnose minnow (*Pimephales notatus*); green sunfish (*Lepomis cyanellus*); Johnny darter (*Etheostoma nigrum*); and rock bass (*Ambloplites rupestris*) were reported as the most commonly collected species, while game fish species were reported in very low occurrences (MDNR, 1997).

MDNR conducted a biological survey of the main stem of the Flint River and its tributaries from July through September 1998 (MDNR, 1998). One of the MDEQ sampling areas (Survey Location 1 – Sheridan Road at Flint River) was located within the project area (Project Segment 4). Based on the MDNR survey at Survey Location 1, the macro-invertebrate community was rated as “acceptable” and the in-stream habitat was rated as “good-slightly impaired.”

Alternative 1 - No Action Alternative

Under the No Action Alternative, no ground disturbing activities would occur. Future flooding would continue to affect the project area, as it has historically. Sedimentation from the ongoing erosion of the deteriorating earthen dikes would continue to adversely affect aquatic habitat. Because floodplain vegetation, and its associated wildlife species are well adapted to flooding, no adverse effects to terrestrial habitat, and or species, is anticipated.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Terrestrial Habitat

Under the Proposed Action, no adverse impacts to terrestrial plants or wildlife species are anticipated. Minor, short-term disturbance to the project area would occur to accommodate the construction of the structural floodplain improvements. Approximately 192 acres of agricultural fields and forested land would be cleared for the construction activities associated with the reconstruction of dikes and floodway shelves, and the construction of a floodwater storage reservoir and two new wetland areas. Cleared vegetation would be burned in pits and buried on-

SECTION THREE **Affected Environment and Environmental Consequences**

permitting requirements. Section 404 of the CWA authorizes the USACE to issue permits, after notice and opportunity for public hearings, for the discharge of dredged or fill material into waters of the United States at specified disposal sites. FEMA applies the Eight-Step Decision-Making Process, required by 44 CFR Part 9, to meet the requirements of EO 11990. This step-by-step analysis is included in Appendix D of this document.

Michigan has received authorization from the Federal government to administer Section 404 of the CWA in most areas of the state. Wetlands in the State are regulated in accordance with Part 303, Wetlands Protection, of the NREPA and MDEQ is the administering agency for these regulations.

According to the National Wetlands Inventory (NWI) map, prepared by the US Fish and Wildlife Service (USFWS), both vegetated and un-vegetated wetlands occur in or adjacent to the project area. The majority of the Flint River that flows adjacent to the project area is classified as a Riverine Lower Perennial Open Water Permanently Flooded (R2OWH) wetland. In December 2005, URS wetland scientists conducted a site reconnaissance of the project area. No wetlands are mapped or were observed in Project Segments 1, 6, or 7.

Project Segment 2 - Palustrine Forested Broad-leaved Deciduous, Temporarily Flooded (PFO1A) and Palustrine Scrub-shrub Palustrine Forested Broad-Leaved Deciduous/ Emergent Semi-permanently and Seasonally Flooded (PSS1/EMY) wetlands are mapped north of Project Segment 2, and are associated with the Shiawassee National Wildlife Refuge that manages wetland habitat for migratory waterfowl. No wetlands were observed within the project area during the site reconnaissance.

Project Segment 3 – Palustrine Emergent Temporarily Flooded (PEMA) wetlands are mapped at the northern most portion of the project site along the southern edge of the Flint River. The mapped PEMA wetlands were verified during the site reconnaissance, but were observed to be outside the limits of the project area.

Project Segment 4 – Palustrine Scrub-shrub Semi-permanently and Seasonally Flooded (PSSY) wetlands are mapped in the central portion of the project site along the northern edge of the Flint River. The mapped PSSY wetlands were verified during the site reconnaissance, and are located within the project area.

Project Segment 5 – Palustrine Scrub-shrub Unknown (PSSU) wetlands are mapped in the central portion of the project site along the southern edge of the Flint River. The mapped PSSU wetlands were verified during the site reconnaissance, and are located within the project area.

Alternative 1 – No Action Alternative

Under the No Action Alternative, no wetlands would be affected due to construction activities. No adverse impacts to wetlands are anticipated.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

The Proposed Action has the potential to affect both of the wetlands areas observed in Project Segments 4 and 5. The MDEQ has reviewed the Proposed Action under the State's Floodplain Regulatory Authority and has issued permits that allow construction within regulated wetlands (Permit Numbers 01-73-0090-P and 04-73-0027-P) under Part 31, Water Resources Protection; Part 301, Inland Lakes and Streams; and Part 303, Wetlands Protection, of NREPA. The

SECTION THREE **Affected Environment and Environmental Consequences**

proposed project would comply with all requirements set forth in the permits. No ground disturbing activities would occur within the wetlands located within Project Segment 4. These wetland areas have been designated as “low ground – do not disturb” on the project design drawings. In accordance with the MDEQ permit, 7.2 acres of wetlands would be constructed to offset 2.9 acres of wetland loss within Project Segment 5.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under Alternative 3, existing flood-prone structures would be protected by elevation, relocation, or acquisition. No wetlands within the project area would be directly impacted. The removal of homes would decrease the amount of impervious surfaces, and may provide a beneficial impact to the wetlands located in the vicinity of the project area.

3.2.3 Threatened and Endangered Species

The Endangered Species Act (ESA) of 1973 requires Federal agencies to determine the effects of their actions on threatened and endangered species of wildlife and plants, and their habitats, and to take steps to conserve and protect these species.

A request for the determination of presence or absence of listed or proposed to be listed, threatened or endangered species and critical habitat within the subject area was also submitted to the MDNR, Wildlife Division on November 18, 2005. In their letter, dated December 19, 2005, the MDNR reported the state and federally listed threatened bald eagle (*Haliaeetus leucocephalus*) is known to occur on or near the project area. In addition, the MDNR reported two State species of concern that may occur on or near the project area: Blanding’s turtle (*Emydoidea blandingii*) and the northern harrier (*Circus cyaneus*). Both species of special concern are known to have occurred within the Shiawassee National Wildlife Refuge. The MDNR deferred oversight of the bald eagle to the USFWS.

A request for the determination of presence or absence of listed or proposed to be listed, threatened or endangered species and critical habitat within the vicinity of the project area was submitted to the USFWS, East Lansing Field Office (USFWS) on November 18, 2005. In a letter dated December 16, 2005, the USFWS reported concerns regarding the potential presence of two threatened or endangered species or critical habitat near the project area. The USFWS indicated a bald eagle’s nest is present near the project area, and the project area is within the breeding range for Indiana bat (*Myotis sodalis*), both federally listed endangered species.

In subsequent correspondence, the USFWS determined that the bald eagle nests were located 3,960 feet or more away from the project area. As such, the project area was determined to be outside the USFWS’s tertiary zone (660 to 2,640 feet away from nests) for bald eagle management. Activities occurring outside of the tertiary zone are permitted by the USFWS without seasonal restrictions. In their email dated January 13, 2006, USFWS stated that activities within the project area would not negatively affect the bald eagle or its habitat, and no further Section 7 consultation regarding bald eagle is required (Appendix B).

The project area is located at the very northern extreme of the Indiana bat’s range in Michigan. Ideal Indiana bat habitat is considered to be mature forests near a water source with relatively open understories that provide suitable maternity roost trees (large diameter trees with significant areas of peeling bark, cracks, and/or crevices that receive at least partial sun exposure). As a result of their informal consultation with FEMA, USFWS stated that if activities within the

SECTION THREE **Affected Environment and Environmental Consequences**

project area would comply with project conditions regarding tree removal, then the project would not negatively affect Indiana bat or its habitat, and no further Section 7 consultation regarding Indiana bat is required.

If the applicant chooses to cut down trees in the project area, the following conditions apply:

- Dead, dying or trees with peeling or exfoliating bark larger than 6-inches in diameter may only be felled in the project area during the period of October 14 to March 15.
- No clear cutting is allowed.
- Trees may only be cut by hand; chain saws are permitted.
- No heavy machinery is allowed during the tree removal process.
- Trees may not be removed from the project site and must be left where they fall.

Verification of compliance with these conditions will be made part of the project approval process.

Alternative 1 - No Action Alternative

Under the No Action Alternative, no construction would occur, and no adverse effects to threatened or endangered species are anticipated.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Under the Proposed Action, no adverse effects to threatened or endangered species are anticipated. Section 7 consultation with the USFWS regarding bald eagle and Indiana bat have been concluded.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under Alternative 3, no adverse effects to threatened or endangered species are anticipated.

3.3 HAZARDOUS MATERIALS

Hazardous wastes, as defined by the Resource Conservation and Recovery Act (RCRA), are defined as “a solid waste, or combinations of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible illness or (2) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of or otherwise managed.” While the definition refers to “solids,” it has been interpreted to include semisolids, liquids, and contained gases as well. Hazardous materials and wastes are regulated in Michigan via a combination of federally mandated laws and state laws developed by the MDEQ. The hazardous waste statutes are contained as Sections 324.11101 – 324.11153 of the NREPA, as amended.

To determine the presence and approximate location of known hazardous materials in the vicinity of the proposed project, Environmental Data Resources (EDR), an independent information service, conducted a database search. The database search queries multiple Federal, state, and local records to identify former and current hazardous materials storage, leaks, brownfields, small and large quantity generators, and Superfund sites. No mapped hazardous

SECTION THREE **Affected Environment and Environmental Consequences**

materials sites were found in EDR's search within a 1-mile radius of each of the seven proposed project segments (EDR, 2006).

A reconnaissance level survey for hazardous materials and wastes in the project vicinity was conducted by URS on March 13, 2002. No obvious indicators for the presence of hazardous materials such as drums, tanks, stressed vegetation, or vent pipes were observed. No subsurface hazardous materials testing was conducted in the project area as a part of this EA. Conclusions are based only on the field reconnaissance, database search, and reported historical use of the properties.

Alternative 1 - No Action Alternative

Under the No Action Alternative, no flood mitigation activities would be undertaken using FEMA funds. If any hazardous wastes or materials occur in the project area, they would not be altered from their present condition.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Based upon the EDR database search, under the Proposed Action Alternative, no impacts to hazardous materials or wastes are anticipated.

Although subsurface hazardous materials are not anticipated to be present in the project area, excavation activities could expose or otherwise affect subsurface hazardous wastes or materials. Any hazardous materials discovered, generated, or used during implementation of the proposed project would be disposed of and handled in accordance with applicable local, State, and Federal regulations.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Based upon the EDR database search, under Alternative 3, no impacts to hazardous materials or wastes are anticipated. Any hazardous materials discovered, generated, or used during implementation of this alternative would be disposed of and handled in accordance with applicable local, State, and Federal regulations.

3.4 SOCIOECONOMICS

3.4.1 Zoning and Land Use

3.4.1.1 Zoning

The proposed dike construction is located within Spaulding, Albee, and Taymouth Townships. Each township has jurisdiction over zoning and ordinances. In all three townships, the proposed project sites are located within areas zoned agricultural. Permitted uses within agricultural districts include farms, single-family residences, farm-related housing, temporary structures, and accessory farm-related uses.

3.4.1.2 Land Use

Approximately 50 percent of the Flint River basin is under cropland management. The primary crops grown in the basin are; seed and feed corn, wheat, oats, soybeans, dry edible beans, sugar

SECTION THREE **Affected Environment and Environmental Consequences**

beets, melon, and sweet corn (MDNR, 2001). Approximately 15 percent of the land use is urban, 16 percent forested, and 15 percent non-forested. Low-density residential and small commercial businesses are located outside of the project area.

Alternative 1 – No Action Alternative

Under the No Action Alternative, there would be no direct impact to current land use and zoning. Flooding of businesses and residences would continue to be a frequent occurrence, however, and could adversely impact land use in the area.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Under this alternative, the Proposed Action would be consistent with current zoning and land uses and would preserve current land uses by reducing the negative impacts associated with frequent flooding. No impacts to zoning would occur because the proposed dike construction is permitted under the existing agricultural zoning district and therefore, would require no amendments or variances from existing bulk regulations. The Flint River Erosion Control Board would acquire all appropriate land variances and property easements.

Minor impacts to agricultural land use would occur. Although there may be some losses of tillable ground due to the dike reconstruction, this alternative ultimately protects more than 11,000 acres of productive farmland. The benefit realized by the protection of farmland greatly outweighs the loss of a small tillable area. This project has the support of the U.S. Department of Agriculture, Natural Resources Conservation Service (Appendix B).

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under this alternative, adverse impacts to land use would include the permanent elevation, relocation, or voluntary acquisition of flood-prone residences and small commercial businesses.

3.4.2 Visual Resources

Visual resources refer to the landscape character (i.e., what is seen), visual sensitivity (i.e., human preferences and values regarding what is seen), scenic integrity (i.e., degree of intactness and wholeness in landscape character), and landscape visibility (i.e., relative distances of seen areas) of a geographically defined viewshed.

The Flint River corridor is dominated by agricultural fields and rural landscape. The fields are occasionally punctuated by forested areas along the river. Single-family residential structures are found in the project vicinity. In addition, several roads, including State Highway M-13, Sheridan Road, and other rural roads cross the Flint River.

Alternative 1 – No Action Alternative

Under the No Action Alternative, there would be no direct impact to the visual quality of the project site and surrounding area. However, continued flooding could cause damage to area structures, which may decrease the visual quality of the area.

SECTION THREE **Affected Environment and Environmental Consequences**

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Visual resources would not be adversely impacted under this alternative. Since dikes are common feature throughout the project area, the completion of the Flint River Flood Control Project would alter the landscape minimally. Reconstruction of the dikes would not obstruct existing views of the river from the adjacent properties or bridges crossing the river. Heavy equipment and soil stockpiles would be seen in the project area during construction, but this would be short-term. These modifications would slightly alter the landscape, but would be a minimal change to visual resources.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under Alternative 3, no adverse impacts to the visual quality of the project site and surrounding area are anticipated. Some flood-prone residences and small commercial businesses would be permanently removed from the project area, while others would be relocated to other portions of the project area or elevated in place. Heavy equipment would be seen in the project area during demolition activities, but this would be short-term. The communities overall rural/forested view shed would be minimally altered.

3.4.3 Noise

Noise is generally defined as unwanted sound and can include any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying. Responses to noise by living organisms vary depending on the type and characteristics of the noise, distance between the noise source and receptor, receptor sensitivity, and time of day.

Sound pressure level (L_p) can vary over an extremely large range of amplitudes. The decibel (dB) is the accepted standard unit for measuring the amplitude of sound because it accounts for the large variations in amplitude and reflects the way people perceive changes in sound amplitude. Sound levels are easily measured, but the variability is subjective and physical response to sound complicates the analysis of its impact on people. People judge the relative magnitude of sound sensation by subjective terms such as “loudness” or “noisiness.”

Different sounds have different frequency contents. When describing sound and its effect on a human population, A-weighted sound levels (dBA) are typically used to account for the response of the human ear. The term “A-weighted” refers to a filtering of the noise signal, which emphasizes frequencies in the middle of the audible spectrum and de-emphasizes low and high frequencies in a manner corresponding to the way the human ear perceives sound. The dBA has been found to correlate well with people’s judgments of the noisiness of different sounds and has been used for many years as a measure of community noise. The Day-Night Average Sound Level (DNL) is an average measure of sound.

Noise, defined herein as unwanted or unwelcome sound, is federally regulated by the Noise Control Act of 1972 (NCA). Although the NCA gives the EPA authority to prepare guidelines for acceptable ambient noise levels, it only directs those Federal agencies that operate noise-producing facilities or equipment to implement noise standards. The EPA’s guidelines (and those of many Federal agencies) state that outdoor sound levels in excess of 55 dB DNL are “normally unacceptable” for noise-sensitive land uses such as residences, schools, and hospitals.

SECTION THREE **Affected Environment and Environmental Consequences**

Alternative 1 – No Action Alternative

Under the No Action Alternative, no construction would occur and no additional noise would be generated. Noise levels would be expected to remain at current levels.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Noise associated with the Proposed Action would be emitted by mechanical equipment used during construction. Equipment associated with the Proposed Action includes backhoes, excavators, and bulldozers. Table 1 shows the anticipated noise levels at a distance of about 50 feet from miscellaneous heavy equipment potentially associated with the Proposed Action. The use of heavy equipment would be a short-term, temporary activity that would be associated with the initial construction phase, and regular maintenance of the proposed project. The impact of noise would be greatest from zero to 50 feet of the project area. Noise levels decrease with distance, and the impact would therefore be attenuated as distance from the project area increased.

To minimize potential noise impacts, construction and maintenance activities would be limited to the hours of 7 a.m. and 7 p.m., from Monday through Saturday. Construction and maintenance activities are anticipated to be temporary; proposed construction is anticipated to last four months.

To mitigate for these potential noise impacts, the Applicant would be required to inform residents of the construction period and potential noise impacts, as well as suggested mitigation measures, such as closing windows during construction or planning daily errands around construction times.

Table 1: Heavy Equipment Noise Levels at 50 Feet

Equipment Type ^a	Number Used ^a	Generated Noise Levels L_p (dBA)^b
Bulldozer	1	88
Backhoe (rubber tire)	1	80
Front Loader (rubber tire)	1	80
Dump Truck	1	75
Flat-Bed Truck (18 wheel)	1	75
^a Estimated ^b Source: CERL, 1978		

Based on the intermittent use of the construction and maintenance equipment, no significant noise impacts are anticipated. Post-construction noise levels would return to current ambient levels. Noise impacts resulting from the long-term operation and maintenance of the levee system are not expected to be significant. No adverse impacts to the existing noise levels within the project area are anticipated.

SECTION THREE **Affected Environment and Environmental Consequences**

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Noise associated with the Alternative 3 would be emitted by mechanical equipment used during demolition activities. As the work would be conducted near some residences, residents of the area may be subjected to construction-related noise that could reach 80 dB during daytime periods. This noise would not be constant and would be temporary; construction would be limited to the hours of 7 a.m. and 7 p.m. Monday through Saturday, only during the four months of proposed construction. Post construction noise levels would return to current levels.

To mitigate for these potential noise impacts, the Applicant would be required to inform residents of the construction period and potential noise impacts, as well as suggested mitigation measures, such as closing windows during construction or planning daily errands around construction times.

3.4.4 Public Services and Utilities

3.4.4.1 Utility Services

Gas and Electric services in the project area are provided by Consumers Energy, public water is supplied by Saginaw City Water Works, and solid waste disposal services are provided by Mid-Michigan Waste Authority.

3.4.4.2 Fire Departments

Spaulding, Albee, and Taymouth Townships each have a Volunteer Fire Department consisting of 20 to 30 volunteer firefighters.

3.4.4.3 Police Departments

Spaulding Township has a permanent, full-time Police Department each consisting one Police Chief overseeing two officers. Albee Township does not have a police department, however through a contract with the Saginaw County Sheriff's Department one officer is allocated several hours per week to Albee Township. Taymouth Township has no police services and does not contract with Saginaw County.

3.4.4.4 Hospitals

The nearest hospital to the proposed project location is Saginaw Community Hospital, located on Hospital Road in the City of Saginaw.

Alternative 1 – No Action Alternative

No immediate impacts to public services and utilities are anticipated under the No Action Alternative. The risk of flooding would remain within the project area, and future flooding would continue to cause temporary road closures, affecting the ability of emergency personnel to access certain areas. The Townships (as well as private utilities) would continue to incur economic costs associated with the repair and maintenance of structures caused by floodwater damage. These effects would be temporary in duration, but recurring with each future flood event.

SECTION THREE **Affected Environment and Environmental Consequences**

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Under the Proposed Action, overbank flooding resulting from the 10-year or smaller storms would be prevented by the completion of the Flint River Control Project. Public streets and services would no longer be subjected to interruptions and damage. The Townships (as well as private utilities) would benefit from the elimination of costs associated with the emergency response services provided to flood victims, and the from future repair and maintenance flood-prone properties that would be protected by the Proposed Action.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under Alternative 3, no immediate impacts to public services and utilities are anticipated. The risk of flooding would remain within the project area, and future flooding would continue to cause temporary road closures, affecting the ability of emergency personnel to access certain areas. The Townships (as well as private utilities) would benefit from the elimination of costs associated with the emergency response services provided to flood victims, and the future repair and maintenance of properties that would be removed from the flood hazard area.

3.4.5 Traffic and Circulation

The project sites are accessed via M-13, a paved, north-south two-lane State Road, and smaller local roads. Interstates in the area include I-75, approximately five miles east of the project sites, and I-69, approximately 20 miles south of the project area.

Alternative 1 – No Action Alternative

Under the No Action Alternative, flooding would continue to cause road closures, and require detours to divert traffic.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Under the Proposed Action, no adverse impacts to traffic are anticipated. Access to the project area will be obtained either via public road or from adjacent farmland properties. No road closures or detours are anticipated as a result of construction activities. Roads would be protected from flooding associated with the 10-year and smaller storm events storm events, allowing the flow of traffic to pass unencumbered.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under Alternative 3, flooding would continue to cause road closures, and require detours to divert traffic. This alternative would reduce the number of residents and businesses in the flood hazard area, and may reduced amount of traffic on area roads.

3.4.6 Environmental Justice (Executive Order 12898)

EO 12898, entitled, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” directs Federal agencies to “make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States.” This section examines

SECTION THREE **Affected Environment and Environmental Consequences**

the impact of the proposed action and alternatives on minority and low-income populations and determines whether the proposed action would have a disproportionately high and adverse effect on the populations.

According to the 2000 Census, Saginaw County was the tenth most populated county in the state of Michigan, and had a total population of 210,039 individuals (U.S. Bureau of Census, 2000). The three townships that comprise the project area are overwhelmingly rural (92.9 percent), and account for less than five percent (4.5 percent) of the total county population. From 1990 to 2000, and again from 2000 to 2004, Saginaw County experienced a slight decline in total population (negative 0.9 and 0.5 percents, respectively). Similarly, the townships within the project area experienced a population decline from 1990 to 2000 (negative 2.4 percent), however experienced a slight increase from 2000 to 2004 (0.1 percent).

The population of the three townships within project area is overwhelmingly white (97.8 percent), and is well above the national average of 75.1 percent. The largest minority race is Black or African American with 4.1 percent of the population in the project area; this is well below the national average of 12.3 percent. Other minority groups include those of two or more races (2.2 percent), some other race (2.0 percent), American Indian and Alaska Native (0.6 percent), Asian (0.2 percent), and Native Hawaiian and Other Pacific Islanders (0.1 percent). Hispanics or Latinos in the area comprise 6.6 percent of the population, well below the national average of 12.5 percent. For 1999, the latest year for which income data are available, the median incomes per household for Albee, Spaulding, and Taymouth Townships were \$42,000, \$36,791, and \$46,581 respectively. With the exceptions of Spaulding Township, each was slightly above the national average of \$41,994. Although more than nine percent of individuals in the three townships live below the poverty level (9.1 percent), it is below the county, state, and national averages of 13.9, 10.5, and 12.4 percents respectively. As such, the community surrounding the project area is not considered a minority or low-income population.

Median single-family home costs in all three townships were on average well below, by one-third, the national average of \$119,600. In 2000, the average value of a single-family home in Albee Township was \$79,700, in Spaulding Township was \$61,900, and in Taymouth Township was \$96,500.

Alternative 1 – No Action Alternative

Under the No Action Alternative, all residents of the community would continue to be impacted damages associated with the continued flooding of the Flint River.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Under the Proposed Action, no minority or low-income populations would be adversely impacted. The project would benefit the entire community and the local economy by reducing the risks and costs associated with flooding.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under Alternative 3, no adverse disproportionate impacts to minority or low-income populations are anticipated. Any property located within the floodplain that would be flooded in a 10-year storm event would be purchased by FEMA in a voluntary acquisition program. Although single-family home values are less than the national average, a fair market value would be offered for

SECTION THREE **Affected Environment and Environmental Consequences**

each home. The project would benefit the local economy by reducing the risks and costs associated with flooding of FEMA acquired properties within the flood hazard area.

3.4.7 Safety and Security

Safety and security issues that have been considered in this analysis include the health and safety of the area residents, the public at-large, and the protection of personnel involved in construction activities. EO 13045, Protection of Children, requires Federal agencies to make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children.

Alternative 1 – No Action Alternative

Under the No Action Alternative, the potential for flooding to occur would remain. Without mitigating the flooding risk, the potential for adverse impacts to public safety would continue to be compromised by overbank flooding during the 10-year storm events.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Under the Proposed Action, excavation activities could present safety risks to persons performing the activities. To minimize risks to safety and human health, all project activities would be performed using qualified personnel trained in the proper use of the appropriate equipment, including all appropriate safety precautions. Additionally, all activities would be conducted in a safe manner in accordance with the standards specified in Occupational Safety and Health Administration (OSHA) regulations.

During construction activities, safety measures to mitigate potential impacts to the general public, including children, entail employing appropriate signage and safety fencing to warn the public of dangerous slopes and activities, and restrict access to those sites. Overall, the project activities would decrease risks to human health and safety associated with storms equal to or less than a 10-year storm event.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under Alternative 3, the potential for flooding to occur would remain. Public safety would continue to be compromised by overbank flooding during the 10-year storm events. However, the safety and security would increase for the residents and businesses relocated out of the flood hazard area.

3.5 CULTURAL RESOURCES

In addition to review under NEPA, consideration of impacts to cultural resources is mandated under Section 106 of the National Historic Preservation Act (NHPA), as amended, and implemented by 36 CFR Part 800. Requirements include identification of significant historic properties that may be affected by the Preferred Alternative. Historic properties are defined as archaeological sites, standing structures, or other historic resources listed in or eligible for listing in the National Register of Historic Places (NRHP; 36 CFR 60.4).

SECTION THREE Affected Environment and Environmental Consequences

As defined in 36 CFR Part 800.16(d), the Area of Potential Effect (APE) “is the geographical area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist.”

In addition to identifying historic properties that may exist in the undertaking’s APE, the Federal agency must also determine in consultation with the appropriate State Historic Preservation Officer (SHPO) what effect if any the proposed action would have to historic properties. If the proposed project would have an adverse effect to these properties, the Federal agency must consult with the SHPO on ways to avoid, minimize, or mitigate the adverse effect. A formal Section 106 consultation for the project area’s APE was initiated with the Michigan SHPO in November 2001.

3.5.1 Historic Resources

Section 106 of the NHPA of 1966, as amended, requires that Federal agencies take into account how each action could affect historic properties. For purposes of Section 106, any property listed on or eligible for listing on the National Register of Historic Places is considered historic and as such the impacts to these cultural resources must be identified.

URS conducted an on-line review of the Michigan State Register of Historic Places and the NRHP. This assessment identified four historic places within Spaulding Township and three within Taymouth Townships listed on the NRHP (Table 2). There are no listed historic places within Albee Township (Table 2). None of the identified properties are located within a one-mile radius of the project area; therefore no properties would be affected. Additionally, no historic properties were noted in the vicinity of the project area during a site reconnaissance conducted by URS historians on March 8 and 9, 2002, and again on November 8 and 9, 2005.

Table 2: Historic Resources Located within Spaulding and Taymouth Townships

Site	Location	Township	Listed Register(s)
Mower Road Bridge	Over Cole Drain	Spaulding	National
Schultz Site (20SA2) and Green Point Site (20SA1)	Not available - Address restricted	Spaulding	National
Morrisville Bridge (a.k.a. Burt Road Bridge)	Carries Burt Road across the Flint River, 0.45 miles east of Seymour Road	Taymouth	National and State
Hess School	1520 Houlihan Road, NW corner of Cole Road	Spaulding	State
Hodges Site (20SA130)	SW 1/4, NE 1/4, Section 35	Spaulding	State
Burt Opera House	E. Burt Road, between Dorwood and Nichols roads	Taymouth	State
Saint Paul’s Mission	Seymour Road, south of East Burt Road	Taymouth	State

SECTION THREE **Affected Environment and Environmental Consequences**

Alternative 1 – No Action Alternative

Under the No Action Alternative, no adverse impacts to historic properties would occur.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Under the Proposed Action, no adverse impacts to historic resources are anticipated. No historical sites of architectural significance within the project area or within a one-mile radius of the project area were identified as part of the historic records database search or during the site reconnaissance. This alternative would not have an impact upon historic architectural resources located at the project site and vicinity, and no mitigation would be required.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under Alternative 3, no changes or impacts to the existing historical sites of architectural significance would occur.

3.5.2 Archaeological Resources

Preliminary data searches conducted by URS showed the project area had extremely high probability for archaeological resources. Twenty-six known archaeological sites were identified within the APE. The SHPO required FEMA to conduct Phase I, Phase II, and Phase III Archaeological Investigations along the project corridor to evaluate site potential and to mitigate impacts to archaeological sites in the area.

Of the 26 archaeological sites identified during the Phase I investigation, 11 were determined by SHPO to require further Phase II evaluation. In 2004, URS (on behalf of FEMA) conducted Phase II archaeological excavations of the 11 sites. Based on this field work, URS prepared a Phase II report (dated February 2005) that contains recommendations to conduct additional Phase III excavations at 3 of the 11 sites (20SA367, 20SA369, and 20SA372), because these sites appeared to meet the criteria for listing in the NRHP. The report findings and recommendations were accepted by the Michigan SHPO in a letter dated March 14, 2005, (Appendix B). In August 2005, guidelines for Phase III excavations at the three sites eligible for listing on the NRHP were established in a Memorandum of Agreement (MOA) between the SHPO, FEMA, and the Applicant. Phase III excavations were conducted by URS in accordance with the MOA, and based on this field work, URS submitted a draft Phase III Technical Report to the SHPO. In a letter dated November 23, 2005, the SHPO stated, “excavation work could be considered complete, and that successful mitigation of the sites had been accomplished.” (Appendix B). That letter constitutes “written confirmation that the Office of the State Archaeologist and the SHPO consider the mitigation fieldwork to be complete.” A final Phase III Technical Report is expected to be submitted to the SHPO in April 2006. Copies of the reports can be obtained by contacting the Michigan SHPO via telephone at (517) 373-1630, via fax at (517) 335-0348, or via email at preservation@michigan.gov.

SECTION THREE Affected Environment and Environmental Consequences

Table 3: Summary of Archeological Phase I, II, and III Investigations

Phase	Dates	Number of Sites Identified for Further Review	Comments
I	2001 - 2004	26	SHPO concurred with URS determination that 11 of the 26 sites required further analysis.
II	2004 -2005	11	SHPO concurred with URS determination that 3 of the 11 sites may meet the criteria for listing in the NRHP, and would require further analysis.
III	2005 - 2006	3	Phase III field work was conducted in accordance with the MOA, and SHPO had considered mitigation complete. A Final Phase III technical report is pending.

Alternative 1 – No Action Alternative

No changes or impacts to the existing archaeological resources would occur under this alternative because soil excavation or ground-disturbing activities would not take place.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Under the Proposed Action, no adverse impacts to archaeological resources are anticipated. As a result of the Phase I investigations, Phase II evaluations, and Phase III excavations of archaeological resources along the project area, impacts to archaeological resources have been successfully mitigated. In a letter dated November 23, 2005, the Michigan SHPO provided conditional approval of the Proposed Action, pending completion of the mitigation work for three archaeological sites in the APE as specified in the Memorandum of Agreement (MOA; Appendix B).

The MOA establishes clear direction on unanticipated discoveries in the event that any archaeological materials (e.g., human remains, funerary objects, objects of cultural patrimony, etc.) may be discovered during project construction or staging of equipment. In the event of unanticipated discoveries during project implementation all activities on the site shall be halted immediately and FEMA, the Michigan State Police Emergency Management Division, and the SHPO or other appropriate office shall be consulted for further guidance.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under Alternative 3, no impacts to archaeological resources are anticipated. If any unanticipated discoveries in the event that any archaeological materials are discovered during activities associated with the elevation, relocation, or acquisition/demolition of any residential or commercial structures, all activities on the site shall be halted immediately and FEMA, the Michigan State Police Emergency Management Division, and the SHPO or other appropriate office shall be consulted for further guidance.

SECTION THREE **Affected Environment and Environmental Consequences**

3.5.3 Indian Religious Sites Investigation

Consultation letters were sent to several Indian Tribes that may attach religious or cultural importance to the project area. In a letter dated July 28, 2003, the Saginaw Chippewa Tribe requested to be notified using their Site Reference Form if there is an inadvertent discovery of human remains or burial objects found during site construction. These measures have been specified in the MOA and agreed to by the Saginaw Chippewa Tribe.

Alternative 1 – No Action Alternative

The No Action Alternative is not expected to negatively impact Indian Religious Sites. No soil excavation or ground-disturbing activities are proposed under this alternative. Continued erosion of area soils could lead to an inadvertent discovery of burial objects. While the discovery of such objects would be a beneficial effect, it is unknown whether they would be identified as religious objects and cared for as such. In this light, this alternative may lead to the accidental discovery and loss of Indian religious objects.

Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)

Under the Proposed Action, no adverse impacts to Indian Religious Sites are anticipated. Per the MOA, as agreed to by the Saginaw Chippewa Tribe of Michigan, avoidance and mitigation measures consist of immediate notification using the Site Reference Form if there is an inadvertent discovery of human remains or burial objects found during site construction. Should potentially significant archaeological materials be discovered during project construction or staging of equipment, all activities on the site shall be halted immediately and FEMA, the Michigan State Police Emergency Management Division, and the SHPO or other appropriate office shall be consulted for further guidance.

Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures

Under Alternative 3, no adverse impacts to Indian Religious Sites are anticipated. If Indian religious objects are discovered during activities associated with the elevation, relocation, or acquisition/demolition of any residential or commercial structures, all activities on the site shall be halted immediately and FEMA, the Michigan State Police Emergency Management Division, and the SHPO or other appropriate office shall be consulted for further guidance.

3.6 IMPACT SUMMARY MATRIX

A summary of potential impacts for each alternative is summarized in Table 4: Impact Summary Matrix.

Table 4: Impact Summary Matrix

A. Description of Alternative	NO ACTION ALTERNATIVE (Alternative 1)	DIKE RECONSTRUCTION AND RESERVOIR CONSTRUCTION (Alternative 2 – Proposed Action)	ELEVATION, RELOCATION, OR ACQUISITION OF FLOOD-PRONE STRUCTURES (Alternative 3)
	FEMA funds would not be used for flood mitigation activities within the project area.	Existing earthen dikes would be reconstructed and a floodwater storage reservoir would be constructed to reduce flooding in the project area.	200 residences and six commercial buildings would be elevated, relocated, or acquired by FEMA. Residential and commercial structures acquired by FEMA would be demolished and the acquired land would be maintained as open space.
B. Potential Impacts	NO ACTION ALTERNATIVE	DIKE RECONSTRUCTION AND RESERVOIR CONSTRUCTION (Alternative 2 – Proposed Action)	ELEVATION, RELOCATION, OR ACQUISITION OF FLOOD-PRONE STRUCTURES (Alternative 3)
Geology, Seismicity, and Soils	<ul style="list-style-type: none"> No impacts to geology or seismicity. Soils within the project area would continue to erode; prime farmland adjacent to the project area would continue to be inundated during flood events. 	<ul style="list-style-type: none"> No impacts to geology or seismicity. Direct impact to 192 acres of soils, including 186 acres of land mapped as prime farmland. Surface erosion may increase during project construction. Thousand of acres of prime farmland adjacent to project area would be protected from Flint River flooding for a 10-year storm event. 	<ul style="list-style-type: none"> No impacts to geology or seismicity. Temporary disturbance to soils associated with the demolition of residential and commercial structures.
Water Resources and Water Quality	<ul style="list-style-type: none"> The project area would continue to flood and would continue to experience contamination from upstream releases of untreated sewage during flood events. Erosion of the existing deteriorating dikes would degrade downstream water quality. 	<ul style="list-style-type: none"> The project areas would be protected from Flint River flooding for a 10-year storm event. Erosion may occur during construction. No anticipated effects to groundwater resources. The potential for adjacent properties and private wells to be contaminated by upstream releases of untreated sewage would be reduced. 	<ul style="list-style-type: none"> The project area would continue to flood and would continue to experience contamination from upstream releases of untreated sewage during flood events. Land restrictions within the acquired properties would reduce the effects from flooding in the project area. Erosion of the existing deteriorating dikes would degrade downstream water quality.

SECTION THREE

Affected Environment and Environmental Consequences

B. Potential Impacts	NO ACTION ALTERNATIVE	DIKE RECONSTRUCTION AND RESERVOIR CONSTRUCTION (Alternative 2 – Proposed Action)	ELEVATION, RELOCATION, OR ACQUISITION OF FLOOD-PRONE STRUCTURES (Alternative 3)
Floodplain Management	<ul style="list-style-type: none"> No impacts to the 100-year floodplain would be anticipated. 	<ul style="list-style-type: none"> No impacts to the 100-year floodplain would be anticipated. Storm events greater than the 10-year storm event would still impact the project area. 	<ul style="list-style-type: none"> No impacts to the 100-year floodplain would be anticipated. Land restrictions within the acquired properties would reduce the effects from flooding in the project area.
Air Quality	<ul style="list-style-type: none"> No impacts to air quality would be anticipated. 	<ul style="list-style-type: none"> Fugitive dust emissions due to heavy construction equipment may have a temporary impact on local air quality. 	<ul style="list-style-type: none"> Fugitive dust emissions due to demolition activities may have a temporary impact on local air quality.
Terrestrial and Aquatic Environment	<ul style="list-style-type: none"> No impacts to the terrestrial or aquatic environment would be anticipated. Downstream aquatic habitat would continue to be affected by erosion of the existing deteriorating dikes. 	<ul style="list-style-type: none"> Direct impacts to 192 acres of forested and agricultural land would temporarily displace terrestrial wildlife. The aquatic environment may be improved from the reduction of turbidity associated with the deteriorating dikes. 	<ul style="list-style-type: none"> No impacts to the terrestrial or aquatic environment would be anticipated. Downstream aquatic habitat would continue to be affected by erosion of the existing deteriorating dikes.
Wetlands	<ul style="list-style-type: none"> No impacts to wetlands would be anticipated. 	<ul style="list-style-type: none"> Reconstruction of the floodway shelf would directly impact 2.9 acres of wetlands. The creation of 7.2 acres of wetlands within the project area is proposed to offset unavoidable wetland loss. 	<ul style="list-style-type: none"> No impacts to wetlands would be anticipated.
Threatened and Endangered Species	<ul style="list-style-type: none"> No impacts to proposed or listed threatened and endangered species would be anticipated. 	<ul style="list-style-type: none"> No impacts to proposed or listed threatened and endangered species would be anticipated. 	<ul style="list-style-type: none"> No impacts to proposed or listed threatened and endangered species would be anticipated.
Hazardous Materials and Wastes	<ul style="list-style-type: none"> Based on results from an Environmental Data Resources, Inc. (EDR) database search, no impacts to hazardous materials or wastes are anticipated. 	<ul style="list-style-type: none"> Based on results from an EDR database search, no impacts to hazardous materials or wastes are anticipated. 	<ul style="list-style-type: none"> Based on results from an EDR database search, no impacts to hazardous materials or wastes are anticipated.

SECTION THREE

Affected Environment and Environmental Consequences

B. Potential Impacts	NO ACTION ALTERNATIVE	DIKE RECONSTRUCTION AND RESERVOIR CONSTRUCTION (Alternative 2 – Proposed Action)	ELEVATION, RELOCATION, OR ACQUISITION OF FLOOD-PRONE STRUCTURES (Alternative 3)
Zoning and Land Use	<ul style="list-style-type: none"> No direct impacts to land use and zoning would be anticipated. 	<ul style="list-style-type: none"> Additional easements would need to be acquired. To accommodate the proposed improvements, 192 acres of land would no longer be available for agricultural land use. 	<ul style="list-style-type: none"> Up to 200 residential and six commercial properties could be converted to open space.
Visual Resources	<ul style="list-style-type: none"> No immediate impacts would occur to existing visual resources. 	<ul style="list-style-type: none"> Temporary visual impacts to project area may occur during construction as a result of equipment and stockpiles. 	<ul style="list-style-type: none"> Temporary visual impacts to project area may occur during demolition activities.
Noise	<ul style="list-style-type: none"> No construction would occur and no additional noise would be generated. 	<ul style="list-style-type: none"> Temporary increase in the ambient noise levels due to equipment use during dike reconstruction activities. 	<ul style="list-style-type: none"> Temporary increase in the ambient noise levels due to equipment use during demolition activities.
Public Services and Utilities	<ul style="list-style-type: none"> There would be no impact to utilities but public services would continue to be impacted by road closures during severe storm events. 	<ul style="list-style-type: none"> Beneficial impacts to public services and utilities would occur from the reduction of damage associated with the 10-year storm. 	<ul style="list-style-type: none"> Beneficial impacts to public services and utilities would occur as the acquired properties would no longer require repair and maintenance for damage associated with the 10-year storm.
Traffic and Circulation	<ul style="list-style-type: none"> Flooding would continue to close State and local roads. 	<ul style="list-style-type: none"> State and local roads would be protected from flooding associated with the 10-year storm. 	<ul style="list-style-type: none"> Flooding would continue to close state and local roads.
Environmental Justice	<ul style="list-style-type: none"> Executive Order 12898 is not applicable to this alternative 	<ul style="list-style-type: none"> Minority or low-income populations are not concentrated in project area, and therefore would not be impacted by project activities. 	<ul style="list-style-type: none"> Minority or low-income populations are not concentrated in project area, and therefore would not be impacted by project activities.

SECTION THREE

Affected Environment and Environmental Consequences

B. Potential Impacts	NO ACTION ALTERNATIVE	DIKE RECONSTRUCTION AND RESERVOIR CONSTRUCTION (Alternative 2 – Proposed Action)	ELEVATION, RELOCATION, OR ACQUISITION OF FLOOD-PRONE STRUCTURES (Alternative 3)
Safety and Security	<ul style="list-style-type: none"> Potential safety risks to residents and businesses in the event of a flood would remain unchanged. 	<ul style="list-style-type: none"> All project activities would be performed using qualified personnel and conducted in accordance with the standards specified in Occupational Safety and Health Administration (OSHA) regulations. Overall, the project activities would decrease risks to human health and safety associated with the 10-year storm. 	<ul style="list-style-type: none"> All project activities would be performed using qualified personnel and conducted in accordance with the standards specified in OSHA regulations. Overall, the project activities would decrease risks to human health and safety associated with the 10-year storm.
Cultural Resources	<ul style="list-style-type: none"> There would be no construction, and therefore, no historic or archaeological resources would be disturbed. 	<ul style="list-style-type: none"> No impacts to historic or archaeological resources are anticipated. 	<ul style="list-style-type: none"> No impacts to historic or archaeological resources are anticipated.

Cumulative impacts are those effects on the environment that result from the incremental effect of the action when added to past, present, and reasonably foreseeable future actions regardless of what agency (Federal or nonfederal) or person undertakes such other actions. Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time.

For this EA, the related actions include the setback and reconstruction of the entire 8-mile flood-control dike system. This system is currently 52 percent complete, with continued work expected on the remaining dike system as funding becomes available. FEMA funding is expected to complete the remaining 48 percent of the dike system.

The primary cumulative impacts on this system relate to the hydraulic changes, water quality changes, and impacts to the vegetation and soils along the construction footprint of the dike system upgrades. The hydraulic changes will primarily include a lowering of flood elevations along and downstream of the dike setback areas. The surface water elevation will be reduced as each portion of the dike system is reconstructed away from the river's edge.

As discussed in the water quality section, the widening of the natural floodplain that will occur as the dikes are set back allows for the increased filtration of sediment from the river in the vegetative area between the river and the newly reconstructed dike. In addition, as the dike system is moved back from the river, less chance exists for erosion of the dikes to occur. Decreased dike erosion would result in less sediment reaching the water. As with the hydraulic changes, as the balance of the system is reconstructed, the water quality will continue to improve.

For soils and vegetation, immediate impacts will occur along the areas of construction as the dike system is reconstructed. The short-term loss of habitat and soil disturbance would be quickly recovered through mitigative replanting, with revegetation occurring quickly in those areas with setback dikes. The negative impacts of flooding on agricultural lands and ditches would be reduced increasingly as the dike system moves towards completion.

Consequently, the long-term cumulative impacts are generally favorable and relate primarily to the restoration of the natural and beneficial functions of a floodplain that has been restored to a more natural state. The previously existing portions (52 percent) of the flood-control system have proven effective. When high-water flow conditions occur, the new construction successfully retains the flow without erosion or breakthrough of the dikes. With the completion of the Proposed Action, the system would be complete, and the community would be able to enjoy maximum benefit of protection from the 10-year storm.

Several public meetings have been held to discuss issues associated with the Proposed Action.

On June 6, 2001, a meeting regarding the project and grant funding was held at the Albee Township Hall. Attendance lists (but no minutes) are available for that meeting through the State Hazard Mitigation Officer.

On June 29, 2005, a public meeting was held at the Spaulding Township Hall at 7:00 p.m. The meeting was held specifically to solicit public comments with regard to historic or environmental issues associated with the proposed project. Representatives from the State and Federal governments attended. A total of 34 people attended the meeting. See attached copy of the meeting notice and FEMA's minutes (Appendix E).

In addition, the Flint River Erosion Control Board holds monthly (or quarterly) meetings that are open to the public, and provide an opportunity for any public comment. Although these meetings are not specifically designed to discuss the project, it is regular agenda item.

Furthermore, all of the MDEQ permits that were issued for this project included a public notice process in which comments relating to the project were solicited from the public.

A public notice advertising the availability of the Draft EA for public review was published in the Saginaw News on April 26, 2006 (Appendix E). The public was provided the opportunity to review the EA and comment on the Proposed Action from April 26, 2006 to May 17, 2006. The EA was available at the Hoyt Main Library, 505 James Avenue, Saginaw, Michigan; the Bridgeport Public Library, 3399 Williamson Road, Saginaw, Michigan; or online at <http://www.fema.gov/plan/ehp/envdocuments/ea-region5.shtm>. The FEMA Region V office will collect and compile comments submitted by the public.

[Summary of comments received by FEMA to be provided here at the conclusion of the public comment period.]

Table 5 provides a brief summary of the anticipated mitigation measures, and Table 6 provides a list of anticipated permits required for the proposed project alternatives.

Table 5: Mitigation Measures

Alternatives	Mitigation Measures
<p>Alternative 1 – No Action Alternative</p>	<ul style="list-style-type: none"> • No mitigation measures required.
<p>Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)</p>	<ul style="list-style-type: none"> • The Applicant must follow all applicable local, state, and Federal laws, regulations, and requirements. They must obtain and comply with all required permits and conditions prior to initiating work on the project. • The Applicant must apply stormwater and water quality protection BMPs such as placing silt fences and hay bales, and seeding and mulching exposed soils shortly after disturbance. • Soils that would be stockpiled on-site should be covered to help prevent fugitive dust and soil erosion. • The applicant must develop an Operations and Maintenance (O&M) Plan for the project’s flood control structures. The O&M Plan must be adopted prior to final approval of the EA and signing of the FONSI by FEMA. All flood control structures must be maintained in accordance with the FEMA-approved plan. • If changes are made to the project designs that modify the dike locations, the Applicant must resubmit the designs to FEMA for review and concurrence. • If the applicant chooses to cut down trees in the project area, the following conditions apply: <ul style="list-style-type: none"> - Dead, dying or trees with peeling or exfoliating bark larger than 6-inches in diameter may only be felled in the project area during the period of October 14 through March 15. - No clear cutting is allowed. - Trees may only be cut by hand; chain saws are permitted. - No heavy machinery is allowed during the tree removal process. - Trees may not be removed from the project site and must be left where they fall. • Vehicle engines would be turned off while not in use,

Alternatives	Mitigation Measures
	<p>construction roads would be watered when dusty conditions exist, and local residents should be advised to close windows during periods of heavy construction activity. Project applicant is required to water down construction areas to reduce dust, when necessary.</p> <ul style="list-style-type: none"> • Any hazardous materials discovered, generated, or used during implementation of the proposed project must be disposed of and handled by the applicant in accordance with applicable local, state, and Federal regulations. • Construction should be limited to the hours of 7 a.m. and 7 p.m. Monday through Saturday. • The Applicant would be required to inform residents of the construction period and potential noise impacts, as well as suggested mitigation measures, such as closing windows during construction or planning daily errands around construction times. • All construction activities must be conducted by trained personnel in compliance with OSHA standards and regulations to protect worker safety. • Appropriate signage, detour routes, and safety fencing should be employed to warn the public of dangerous slopes and activities, and restrict access to those sites. • All construction personnel will receive training and certification in the methods of early identification of Indian artifacts, so that if artifacts are present, equipment operators would know when to stop. Intermittent monitoring by the State should be built into the construction schedule and a compliance report issued that will be part of the close-out process. Should potentially historic, archeological, or Indian significant materials be discovered during project construction or staging of equipment, all activities on the site shall be halted immediately and the Applicant would consult with FEMA and the SHPO or other appropriate agencies for further guidance. • To ensure the 50-year useful life is achieved, the Applicant must develop and formally adopt a maintenance plan for the flood control structures. Measures should include the routine mowing along the dikes to ensure woody vegetation does not become established, which could compromise the integrity of the dikes.

Alternatives	Mitigation Measures
<p>Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures</p>	<ul style="list-style-type: none"> • The project applicant would cover stockpiled soils to help prevent fugitive dust and soil erosion. • The applicant must apply stormwater and water quality protection BMPs such as placing silt fences and hay bales, and seeding and mulching exposed soils shortly after disturbance. In addition to the berm, the detention ponds would be revegetated after completion to prevent future erosion. • The applicant must follow all applicable local, state, and Federal laws, regulations, and requirements. • Vehicle engines would be turned off while not in use, construction roads should be watered when dusty conditions exist, and local residents would be advised to close windows during periods of heavy construction activity. • Any hazardous materials discovered, generated, or used during implementation of the proposed project must be disposed of and handled by the applicant in accordance with applicable local, state, and Federal regulations. • Construction would be limited to the hours of 7 a.m. and 7 p.m. Monday through Saturday. • The Applicant would be required to inform residents of the construction period and potential noise impacts. • Appropriate signage and safety fencing would be employed to warn the public of dangerous slopes and activities, and restrict access to those sites. • All construction personnel will receive training and certification in the methods of early identification of Indian artifacts, so that if artifacts are present, equipment operators would know when to stop. Intermittent monitoring by the State would be built into the construction schedule and a compliance report issued would be part of the close-out process. Should potentially historic, archeological, or Indian significant materials be discovered during project construction or staging of equipment, all activities on the site shall be halted immediately and the Applicant would consult with FEMA and the SHPO or other appropriate agencies for further guidance.

Table 6: Permit Requirements

Alternatives	Permit Requirements
Alternative 1 – No Action Alternative	<ul style="list-style-type: none"> No permits are required.
Alternative 2 – Dike Reconstruction and Reservoir Construction (Proposed Action)	<ul style="list-style-type: none"> The applicant must obtain and comply with all permits required from MDEQ and other applicable State and Federal agencies prior to initiating work on the project. The project has been reviewed by MDEQ and the applicant has obtained all necessary permits under Part 301, Inland Lakes and Streams, Part 31, Water Resources Protection, and Part 303, Wetlands Protection, of the NREPA. All conditions stated in the above-mentioned permits would be complied with throughout the planning and construction periods. The Applicant must submit a no-rise certification to FEMA before commencing construction.
Alternative 3 – Elevation, Relocation, or Acquisition of Flood-Prone Structures	<ul style="list-style-type: none"> No permits are required.

Agency Consultation

The following agencies were consulted during preparation of this EA:

Federal Agencies Consulted

Federal Emergency Management Agency (FEMA)

U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS)

U.S. Department of the Interior, Fish and Wildlife Service (USFWS)

State, City, and Local Agencies Consulted

Michigan Department of Environmental Quality (MDEQ)

Michigan Department of Natural Resources (MDNR)

Michigan State Historic Preservation Office (SHPO)

Hannahville Indian Community

Keweenaw Bay Indian Community

Lac Vieux Desert Band of Lake Superior Chippewa

Sault Ste. Marie Tribe of Chippewa Indians

Pokagon Band, Potawatomi Indian Nation, Inc.

Albee Township Offices

Spaulding Township Offices

Taymouth Township Offices

Distribution

Jeanne Millin, FEMA Region V

Vincent Parisi, FEMA Region V

Christine Stack, FEMA Region V

Bruce Menerey, Michigan Department of Environmental Quality

Matt Schnepf, Michigan Department of State Police, Emergency Management Division

John Spero, Flint River Erosion Control Board

References

- Albee Township, Michigan. Zoning Ordinance & Map.
- Construction Engineering Research Laboratory (CERL). 1978. United States Department of the Army. *MicroBNOISE, A User's Manual*. Technical Report N-86/12.
- Environmental Data Resources, Inc. The EDR Radius Map with GeoCheck. January 17 and 23, 2006. www.edrnet.com.
- Federal Emergency Management Agency (FEMA). 2006. Communities Participating in the National Flood Program. Federal Insurance Administration. <http://www.fema.gov/cis/MI.pdf>. Visited 11/17/05.
- FEMA. 2005. State of Michigan Flint River Flood Control. http://www.fema.gov/regions/v/newsletter/news_n15.htm. Visited 11/17/2005.
- FEMA. 1997. Flood Insurance Rate Map: Saginaw County, Michigan. Community Panel Numbers: 26145C0185D, 26145C0190D, 26145C0195D, 26145C0245D, and 26145C0250D.
- FEMA. 1996. National Environmental Policy Act: FEMA Desk Reference. Version III.
- Flint River Erosion Control Board (FRECB). 2001. Application for HMGP Section 404 funding.
- Genesee County Drain Commission. 2006. Surface Water Management: NPDES Phase II. http://www.gcdcwws.com/SWM/Phase%20II/npdes_phase_ii_main.htm. Visited 03/08/06.
- Martin, Helen M. 1957. Outline of the Geologic History of Saginaw County, Michigan. Michigan Department of Conservation: Geological Survey Division.
- Michigan Department of Environmental Quality (MDEQ). 2006a. Water web page. <http://www.michigan.gov/deq/0,1607,7-135-3313---,00.html>. Visited 02/10/06.
- MDEQ. 2006b. Air Monitoring web page. http://www.michigan.gov/deq/0,1607,7-135-3310_4195---,00.html. Visited 02/10/06.
- MDEQ. 2004. Water Quality and Pollution Control in Michigan (2004 Sections 303(d) and 305(b) Integrated Report). http://www.michigan.gov/deq/0,1607,7-135-3313_3686_3728-12711--,00.html. Visited 02/10/06.
- MDEQ. 1998. A Biological Survey of the Mainstem Flint River and Its Tributaries, Genesee, Lapeer, Saginaw and Shiawassee Counties, Michigan July, August, September 1998. Surface Water Quality Division.
- MDEQ. 1987. Bedrock Geology of Southern Michigan. 1:500,000 map. Milstein, Randall L. Geological Survey Division.
- MDEQ. 1982. Quaternary Geology of Southern Michigan. 1:500,000 map. Farrand, W.R. and D.L. Bell. Geological Survey Division.
- Michigan Department of Natural Resources (MDNR). 1997. Flint River Community Assessment, A Collection of Individual Fisheries Assessments of the Flint River and Selected Tributaries. Fisheries Division – District 11.
- MDNR. 2001. Flint River Assessment. Fisheries Division. Special Report 27. July 2001.

- Michigan Department of Transportation. State Road Map. Scale: 1 inch=14.5 miles.
- Michigan State Historic Preservation Office listing of National and State Registers of Historic Places. Michigan's Historic Sites Online <http://www.mcgi.state.mi.us/hso/>. Visited 11/28/05.
- National Register of Historic Places, National Register Information System database. <http://www.cr.nps.gov/nr/research/nris.htm>. Visited 11/28/05.
- National Wetland Inventory Maps. Bridgeport, Michigan and Alicia, Michigan 1:24,000 maps.
- RC Engineering, Inc., Undated. Saginaw River, Michigan and Tributaries: Flood Control and Fish and Wildlife Management Project at Shiawassee Flats: Reevaluation Report. Pages 15-17.
- Shiawassee National Wildlife Refuge Bird Checklist.
- Spaulding Township, Michigan. Zoning Ordinance & Map.
- Taymouth Township, Michigan. Zoning Ordinance & Map.
- United States Army Corps of Engineers (USACE), Flood Control and Fish & Wildlife Management at Shiawassee Flats, Final EIS, 1982.
- United States Bureau of the Census. 2000. Population, Ethnicity, and Income data.
- United States Department of Agriculture (USDA). 2005. Threatened and Endangered Plant Species. Natural Resource Conservation Service. <http://plants.usda.gov/threat.html>. Visited 11/28/05.
- USDA. 1994. Soil Survey of Saginaw County, Michigan. Soil Conservation Service in cooperation with Michigan Agricultural Experiment Station, Michigan Cooperative Extension Service, and Michigan Technological University.
- United States Environmental Protection Agency (EPA). 2006a. Designated Sole Source Aquifers in EPA Region V web page. <http://www.epa.gov/safewater/swp/ssa/reg5.html>. Visited 2/10/06.
- EPA. 2006b. National Ambient Air Quality Standards (NAAQS) web page. <http://www.epa.gov/ttn/naaqs/>. Visited 2/10/06.
- EPA. 2006c. Designated Nonattainment Areas for All Criteria Pollutants web page. <http://www.epa.gov/oar/oaqps/greenbk/anc13.html>. Visited 2/10/06.
- United States Geological Survey (USGS). 2006a. Earthquake Hazards Program: National Earthquake Information Center. Seismicity of the United States, 1568-present – East United States web page. <http://geohazards.cr.usgs.gov/usqk/east.html>. Visited 2/10/06.
- USGS. 2006b. Earthquake Hazards Program: National Seismic Hazard Mapping Project web page. <http://eqint.cr.usgs.gov/eq/html/zipcode.shtml>. Visited 2/10/06.
- USGS. 2006c. Ground Water Atlas of The United States: Iowa, Michigan, Minnesota, Wisconsin web page. http://capp.water.usgs.gov/gwa/ch_j/. Visited 2/10/06.
- USGS. 2006d. Water web page. <http://water.usgs.gov>. Visited 2/10/06.
- USGS. 2006e. NWIS Web Data for the Nation web page. <http://waterdata.usgs.gov/nwis>. Visited 2/10/06.

USGS. Alicia and Bridgeport, MI 7.5 Minute Topographic Quadrangles.

Personal Communication

Niethammer, Gary, P.E. 2005 and 2006. Wilcox (engineering firm). Personal Communication with Charlie Benton, URS. December, January, and February.

URS Group, Inc.
200 Orchard Ridge Drive, Suite 101
Gaithersburg, MD 20878

Don Glondys, Task Order Coordinator
Erica Zamensky, Independent Technical Peer Review
Laura Cherney, Technical Writer
Molly Notestine, Technical Writer
Kristine Sinkez, Technical Writer
Charles Benton, Technical Writer

Appendix A
Figures

Figures:

Figure 1: Site Location Map

Figure 2: Project Location – Proposed Action Components

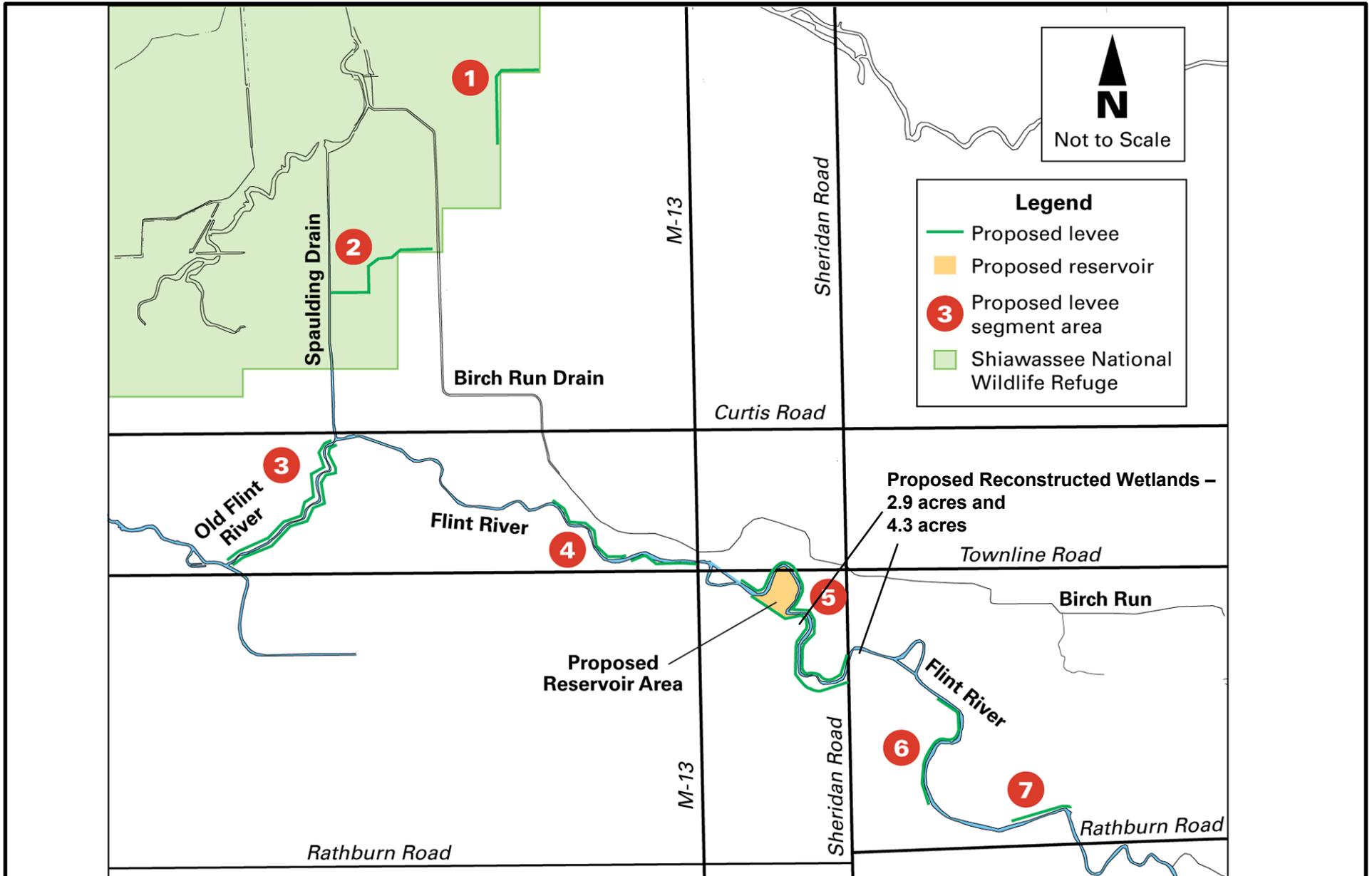
Figure 3: Typical Flood Control Setback Detail Plan and Profile

Figure 4: Typical Cross-Section Detail Plan and Profile

Figure 5: Soils Mapped within the Project Area

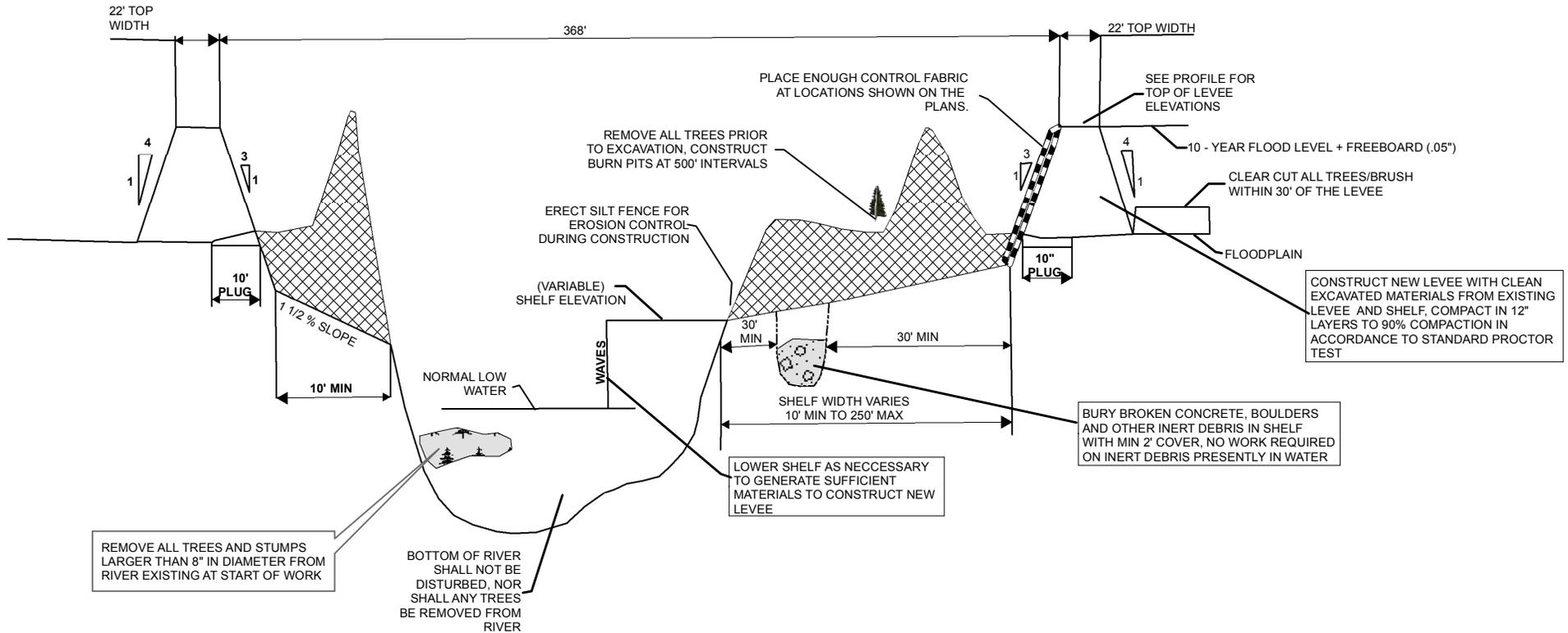


CLIENT FEMA				TITLE Site Location Map						
PROJ Flint River Flood Control Project				 200 Orchard Ridge Drive Gaithersburg, MD 20878						
REVISION NO	0	DES BY	VAL					02/16/06	PROJ NO	15292488
SCALE	1:5 miles	DR BY	VAL					02/16/06	FIGURE	1
G:\FlintRiver_MI\Site_Location.mxd		CHK BY	EDZ					00/00/00		



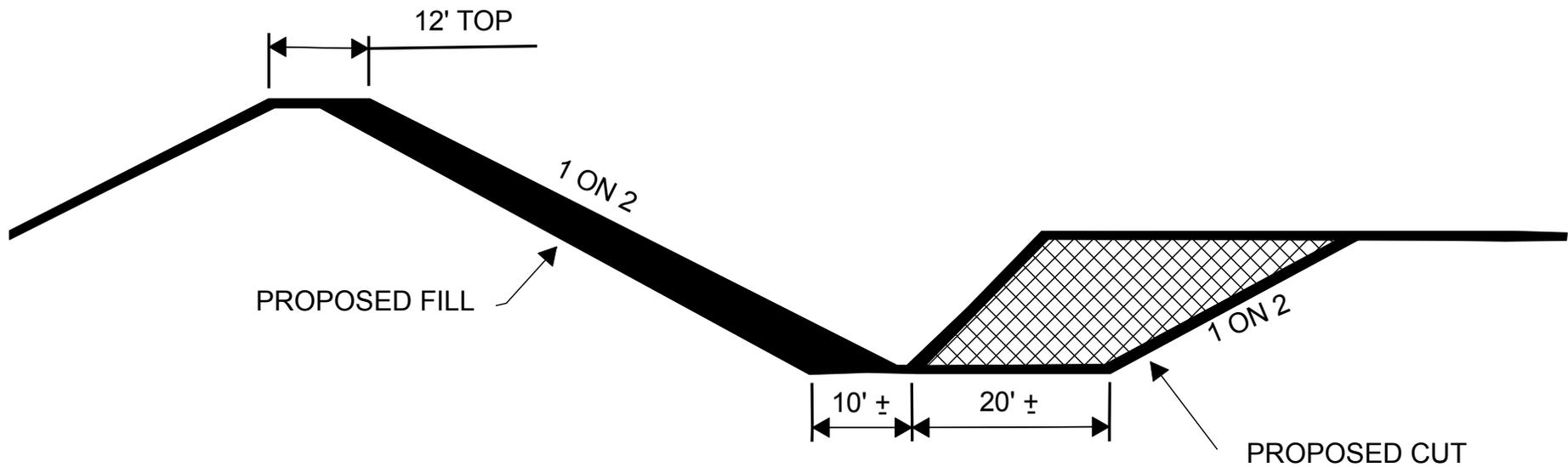
CLIENT	FEMA				
PROJ	Flint River Flood Control Project				
REVISION NO	DES BY	X		X	
SCALE	NOT TO SCALE	DR BY	BR	11/18/05	
FILE	P:/GTB/89-FEMA4138/Rpts/Draft/Figures/Prop Levee 1-7S.PPT	CHK BY	LC	11/18/05	

TITLE	PROJECT LOCATION – PROPOSED ACTION COMPONENTS	
URS	PROJ NO	89-FEMA4138
	FIGURE	2



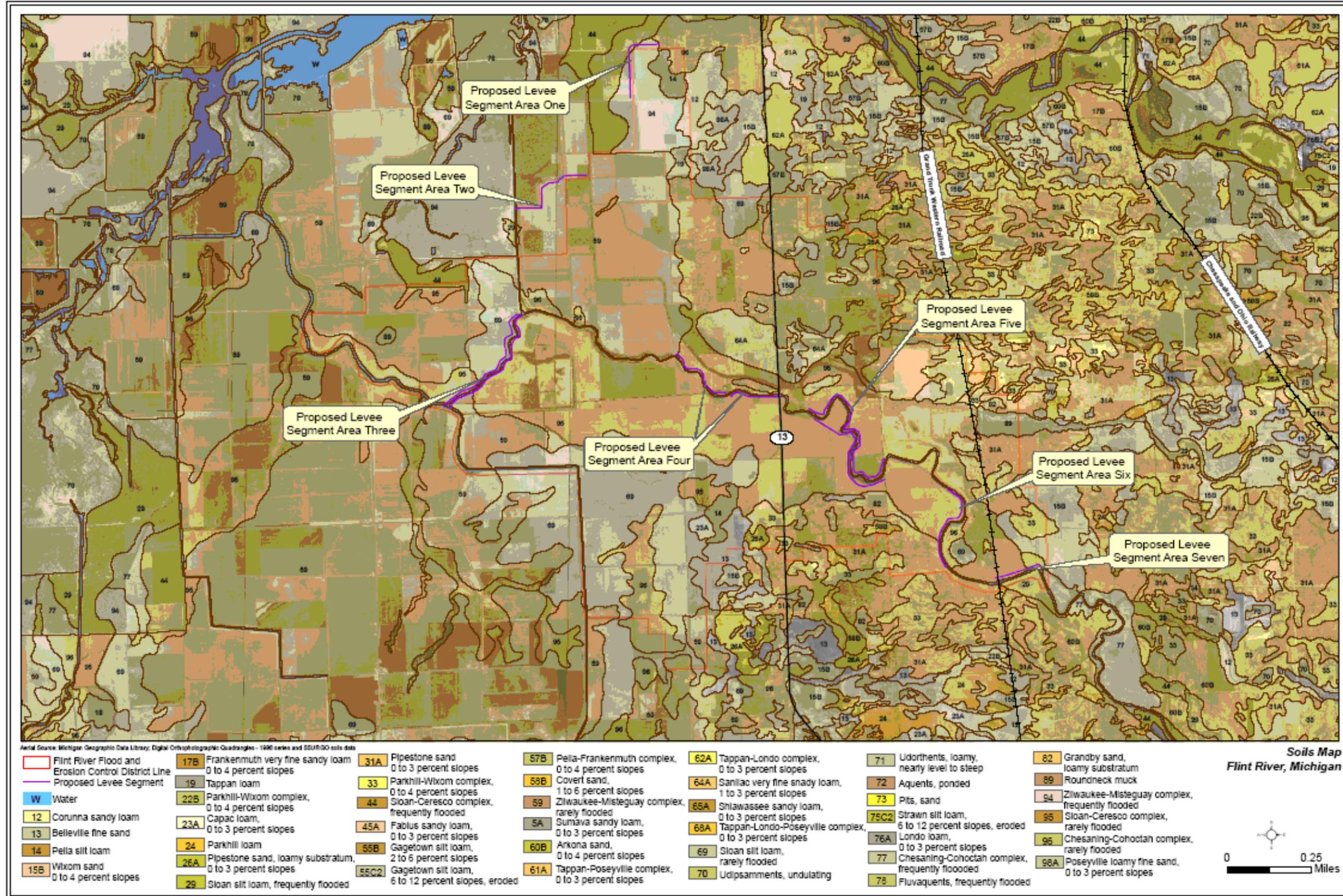
Source: Wilcox Professional Services, Cadillac, Michigan

CLIENT FEMA					TITLE Typical Flood Control Setback Detail Plan and Profile		
PROJ FLINT RIVER FLOOD CONTROL PROJECT							
REVISION NO	0	DES BY	VAL		PROJ NO 15292488		
SCALE	NOT TO SCALE	DR BY	VAL		FIGURE 3		
G:\FlintRiver_MI\Figure3.mxd		CHK BY	EDZ		 200 Orchard Ridge Drive Gaithersburg, MD 20878		



Source: Wilcox Professional Services, Cadillac, Michigan

CLIENT				FEMA				TITLE Typical Cross-Section Detail Plan and Profile					
PROJ				FLINT RIVER FLOOD CONTROL PROJECT									
REVISION NO		0		DES BY		VAL		02/17/06		PROJ NO		15292488	
SCALE		NOT TO SCALE		DR BY		VAL		02/17/06		FIGURE		4	
G:\FlintRiver_MI\Figure4.mxd				CHK BY		EDZ		00/00/00		 200 Orchard Ridge Drive Gaithersburg, MD 20878			



CLIENT	FEMA			
PROJ	Flint River Flood Control Project			
REVISION NO	0	DES BY	xxx	00/00/00
SCALE		DR BY	xxx	00/00/00
G:\FlintRiver_MI\Figures_11x17.mxd		CHK BY	xxx	00/00/00

TITLE	Soils Mapped within the Project Area		
 200 Orchard Ridge Drive Gaithersburg, MD 20878	PROJ NO	152988197	
	FIGURE	5	

Appendix B
Agency Correspondence



STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING



JENNIFER M. GRANHOLM
GOVERNOR

STEVEN E. CHESTER
DIRECTOR

December 19, 2005

Ms. Laura J. Cherney
URS Group, Inc.
200 Orchard Ridge Drive, Suite 101
Gaithersburg, Maryland 20878

Dear Ms. Cherney:

SUBJECT: Environmental Review for 1346-DR-MI Hazard Mitigation Grant Program
Project A 1346.53 – Flint River Erosion Control Board
Albee, Spaulding, and Taymouth Townships, Saginaw County

This is in follow-up to your November 18, 2005 letter requesting an updated review of the above referenced project.

The comments noted in my October 18, 2001 letter to Mr. Matt Schnepf of the Emergency Management Division of the Michigan Department of State Police, and my October 14, 2004 letter to Ms. Laurie Lemieux of URS Corporation are still appropriate.

The applicant has obtained the necessary permits from the Michigan Department of Environmental Quality (MDEQ) for the proposed flood control improvements along the Flint River, the Old Flint River, the Spaulding Drain, and the Shiawassee Flats Floodplain Storage area. The permits included reviews under the State's Floodplain Regulatory Authority found in Part 31, Water Resources Protection; Part 301, Inland Lakes and Streams; and Part 303, Wetlands Protection, all of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). MDEQ Permit 01-73-0090-P has an expiration date of April 30, 2007, and MDEQ Permit 04-73-0027-P has an expiration date of December 31, 2007.

MDEQ Permit 01-73-0090-P has been extended the maximum number of times allowed by statute. If the permit expires before the project is completed, the applicant will be required to reapply to the MDEQ for a new permit.

If there are any questions on the permits that have been issued or the review process that was involved, please contact Mr. Doug Morse in our Saginaw Bay District Office at 989-686-8025, extension 8362. Should you have any other questions or require additional information, feel free to contact me.

Sincerely,

Bruce E. Menerey, P.E.
Hydrologic Studies Unit
Land and Water Management Division
517-335-3181

cc: Ms. Jeanne Millin, FEMA, Region V, Regional Environmental Officer
Mr. Matt Schnepf, Michigan Department of State Police, EMD, Lansing



United States Department of the Interior

FISH AND WILDLIFE SERVICE
East Lansing Field Office (ES)
2651 Coolidge Road, Suite 101
East Lansing, Michigan 48823-6316

IN REPLY REFER TO:

December 16, 2005

Ms. Laura J. Cherney
URS Group, Inc.
200 Orchard Ridge Drive, Ste. 101
Gaithersburg, MD 20878

Re: Endangered Species List Request, Proposed Flint River Emergency Floodway Project, FEMA Hazard Mitigation Grant Program (HMGP), Application #A1346.53, DR-1346-MI, Saginaw County, Michigan

Dear Ms. Cherney:

Thank you for your November 18, 2005 request for information regarding federally listed and proposed threatened and endangered species, candidate species, or critical habitat near your proposed project. Your request and this response are made pursuant to section 7 of the Endangered Species Act of 1973, as amended (Act). Under this FEMA HMGP project, the Flint River Erosion Control Board proposes to reconstruct earthen dikes (or levees), excavate a floodway shelf and construct a retention basin as part of its flood control project along an eight-mile portion of the Flint River in Spaulding, Albee and Taymouth Townships.

Our records indicate the threatened bald eagle (*Haliaeetus leucocephalus*) nests near the northern portion of your project. Because bald eagles nest in close proximity to your proposed project, we recommend that project proponents assess potential effects to the eagles. Bald eagle habitat typically consists of forested areas with tall trees, low human disturbance, and is nearly always associated with fishable waters. Nests are generally constructed at the tops of the tallest trees in the area. Enclosed is information concerning the important estimated nesting dates for bald eagles in Michigan and a synopsis of site-specific management zones, including the nesting chronology, critical periods and aerial surveys dates.

This project is also within the breeding range of the endangered Indiana bat (*Myotis sodalis*). Although there are no documented records of Indiana bats in the vicinity of the proposed project, survey information for this species is lacking and it is likely that maternity colonies within their breeding range are yet to be discovered. Thus, for projects within the species breeding range where potential habitat is present, we recommend that project proponents assess potential effects to Indiana bats.

The summer range of Indiana bats in Michigan includes the southern half and most of the western coastal counties of the Lower Peninsula. Suitable habitat typically consists of highly variable forested landscapes in riparian, bottomland and upland areas composed of roosting trees. In Michigan, Indiana bats area often found in palustrine forested wetlands with an open understory. Roost trees generally are large (greater than 9 inches in diameter), dead, dying, or live trees with peeling or exfoliating bark, which allows the bat to roost between the bark and bole of the tree. Favored roost trees are usually exposed to the sun. Female Indiana bats typically form colonies that use several alternate roost trees in addition to primary roost trees. Individual bats are known to travel up to 7.8 kilometers (4.8 miles) between roosts in a single night and at least 2 to 4 kilometers from roost trees while foraging. We have enclosed additional information concerning the distribution, life history, and habitat requirements of the Indiana bat.

Pursuant to section 7 of the Act, the FEMA should assess the proposed action and determine if there may be effects, positive or negative, to the listed species. If the FEMA determines that the proposed action will have "no effect" on the Indiana bat, please supply a copy of the determination to this office. If the FEMA determines that the proposed action "may affect" these species, a written request for section 7 consultation must be submitted. With the request, the FEMA should provide this office with a copy of the biological assessment and any other relevant information used to reach a determination. Additional information regarding requirements for federal agencies under section 7 can be found in enclosure A (attached). Although the FEMA may designate a non-federal representative to conduct an informal consultation or prepare a biological assessment, the ultimate responsibility for compliance with section 7 of the Act remains with the FEMA.

For the FEMA or its designee to address ESA section 7 obligations described above, we suggest a survey of the proposed project area. If suitable habitat is present, and direct effects are possible, an approved survey for the presence of the species by a qualified, permitted specialist should be conducted and the results incorporated as appropriate in the determination of effects.

Since endangered species data changes continuously, we recommend you contact this office for an updated species list if more than six months have passed prior to commencement of proposed activities. In addition, if the project requires modifications or new information becomes available that indicates the presence of listed species or species proposed for listing, or their critical habitat, you should consult with this office.

The Michigan Department of Natural Resources (MDNR) protects endangered and threatened species through Part 365, Endangered Species Protection, of the Natural Resources and Environmental Protection Act, 1994, P.A. 451. For a preliminary check of your project area for any State protected species, please refer to the MDNR Endangered Species Assessment website located at www.michigan.gov. Click on Online Services, scroll down to Business Online Services and select Endangered Species Assessment. Upon completing the website search, contact Ms. Lori Sargent, of the MDNR at 517/373-1263 for information regarding the protection of threatened and endangered species under State law. State law requires a permit in advance of any work that could potentially damage, destroy, or displace State-listed species.

The opportunity to provide comments is appreciated. Any questions can be directed to Tameka Dandridge of this office at Tameka_Dandridge@fws.gov or 517/351-8315.

Sincerely,


 Craig A. Czarnecki
Field Supervisor

Enclosures

cc: MDNR, Wildlife Division, Lansing, MI (Attn: Lori Sargent)
FEMA, RegionV Regional Environmental Officer (Attn: Jeanne Millin)



STATE OF MICHIGAN

JENNIFER GRANHOLM
GOVERNOR

DEPARTMENT OF HISTORY, ARTS AND LIBRARIES
LANSING

DR. WILLIAM ANDERSON
DIRECTOR

November 23, 2005

MS. JEANNE MILLIN
US DEPT OF HOMELAND SECURITY
REGION V
536 SOUTH CLARK STREET FLOOR 6
CHICAGO IL 60605

RE: ER-97- 416.02.1346.53 Flint River Flood Control Project, MOA Site Mitigation Requirements Fulfilled,
Saginaw County (FEMA)

Dear Ms. Millin:

In the Memorandum of Agreement (MOA) executed for the above-cited project, it was agreed that archaeological excavations would be conducted at sites 20SA367, 20SA369, and 20SA372 in order to mitigate the adverse effect the project will have on the sites (Stipulation II). During September and October, Commonwealth Cultural Resources Group (CCRG) performed mitigation excavations at the three sites. As excavation work was concluded at each site, either Dr. Dean Anderson or Dr. John Halsey of the Office of the State Archaeologist (OSA) went to the site and met with Dr. Michael Hambacher of CCRG and members of the Flint River Dike Board. These meetings were intended to expedite the mitigation process by allowing the OSA to review the work in the field, and determine whether the mitigation was complete, or whether further work was needed.

At each site, Dr. Halsey or Dr. Anderson agreed that excavation work could be considered complete, and that successful mitigation of the sites had been accomplished. With this letter, we are providing written confirmation that the OSA and the State Historic Preservation Officer (SHPO) consider the mitigation fieldwork to be complete (Stipulation II, F). As the MOA specifies, the remaining Stipulations must be carried out.

We look forward to reviewing the draft report on the mitigation work.

If you have any questions, please contact Brian Grennell, Environmental Review Specialist, at (517) 335-2721 or by email at ER@michigan.gov. **Please reference our project number in all communication with this office regarding this undertaking.** Thank you for this opportunity to review and comment, and for your cooperation.

Sincerely,

Brian D. Conway
State Historic Preservation Officer

BDC:DLA

Copy: Dr. Emlen Myers, URS Group, Inc.
Mr. Gary Niethammer, Wilcox Associates
Mr. John Spero, Flint River Dike Board



JENNIFER GRANHOLM
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF HISTORY, ARTS AND LIBRARIES
LANSING

DR. WILLIAM ANDERSON
DIRECTOR

June 25, 2004

MR DOUGLAS G SPENCER
SHIAWASSEE NATIONAL WILDLIFE REFUGE
FISH AND WILDLIFE SERVICE
6975 MOWER ROAD
SAGINAW MI 48601

RE: ER97-416.02.1346.53 Flint River Flood Control, Wilcox No. 21644 (50492.00001)
Hazard Mitigation Project #1346.53, Saginaw County (FEMA)

Dear Mr. Spencer:

I have been asked by Gary Niethammer of Wilcox Professional Services to respond to your letter of May 15 concerning the presence of archaeological resources in the area of the proposed new dike construction of refuge property. At this time we are unaware of any sites in that area, specifically the right-of-way shown on Sheet 04 appended to MDEQ Public Notice 04-73-0027-P (May 5, 2004).

Please contact State Archaeologist John R. Halsey at (517) 373-6358 should you require any additional information. Thank you for your cooperation.

Sincerely,

A handwritten signature in cursive script that reads "John R. Halsey".

John R. Halsey
State Archaeologist

JRH:bgg

Copy: Gary Niethammer, Wilcox Professional Services, LLC



STATE OF MICHIGAN

JENNIFER M. GRANHOLM
GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
LANSING

REBECCA A. HUMPHRIES
DIRECTOR

December 19, 2005

Ms. Laura J. Cherney
URS Group, Inc.
200 Orchard Ridge Drive, Suite 101
Gaithersburg, MD 20878

RE: Proposed Flint River Emergency Floodway Project – App. No. A1346.53, DR-1346-MI

Dear Ms. Cherney:

The location of the proposed project was checked against known localities for rare species and unique natural features, which are recorded in a statewide database. This continuously updated database is a comprehensive source of information on Michigan's endangered, threatened and special concern species, exemplary natural communities and other unique natural features. Records in the database indicate that a qualified observer has documented the presence of special natural features at a site. The absence of records may mean that a site has not been surveyed. Records may not always be up-to-date. In some cases, the only way to obtain a definitive statement on the presence of rare species is to have a competent biologist perform a field survey. Projects that are submitted to the Department of Environmental Quality (DEQ) are routinely checked for such features regardless if they are on public or private land.

Under Act 451 of 1994, the Natural Resources and Environmental Protection Act, Part 365, Endangered Species Protection, "a person shall not take, possess, transport, ... fish, plants, and wildlife indigenous to the state and determined to be endangered or threatened," unless first receiving an Endangered Species Permit from the Department of Natural Resources, Wildlife Division. *Responsibility to protect endangered and threatened species is not limited to the list below. Other species may be present that have not been recorded in the database.*

The presence of threatened or endangered species does not preclude activities or development, but may require alterations in the project plan. Special concern species are not protected under endangered species legislation, but recommendations regarding their protection may be provided. Protection of special concern species will help prevent them from declining to the point of being listed as threatened or endangered in the future.

If the project is located on or adjacent to wetlands, lakes, streams, or other regulated resources, additional permits may be required. To obtain more information regarding permits in these areas, please visit the DEQ's website at <http://www.michigan.gov/deq>. Or you may contact the Michigan Department of Environmental Quality, Land and Water Management Division at 517-241-1515.

The following is a summary of the results for the project in Saginaw County, Sections 15, 21, 22, 32, 33, 35; Section 1, T10N R4E; Sections 7, 8, T10N R5E

The following list includes unique features that are known to occur on or near the site(s) and may be impacted by the project. Federally threatened or endangered species are marked with an asterisk (*). Please contact the U.S. Fish and Wildlife Service, 2651 Coolidge Road, Suite 101, East Lansing, MI, 48823 or (517) 351-2555 for information on federal regulations that apply to these species.

<u>common name</u>	<u>status</u>	<u>scientific name</u>
Bald eagle*	state/federally threatened	<i>Haliaeetus leucocephalus</i>

NATURAL RESOURCES COMMISSION
Keith J. Charters, Chair • Mary Brown • Darnell Earley • Bob Garner • Gerald Hall • John Madigan • Frank Wheatlake

STEVENS T. MASON BUILDING • P.O. BOX 30028 • LANSING, MICHIGAN 48909-7528
www.michigan.gov/dnr • (517) 373-2329

Northern harrier
Blanding's turtle

special concern
special concern

Circus cyaneus
Emys blandingii

The bald eagle has been observed nesting in the area. Nest sites are usually within a ½ mile of water and at the top of tall, established trees. Bald eagles prefer forested habitats adjacent to the shorelines of lakes, large rivers, floodings, and other bodies of water where prey is available throughout the breeding season. Live trees are generally favored over dead ones. In Michigan, eagles arrive at their nesting territories between mid-February and mid-March. Nesting pairs are usually faithful to previous nesting sites. Individual eagles pair for life, but replacement of lost mates occurs between seasons as well as within the same season. By October and November, immature bald eagles and most adults move southward, with many remaining in Michigan throughout the winter.

The U.S. Fish and Wildlife Service completed the bald eagle recovery plan for the Northern States in 1983. Management guidelines for bald eagle breeding areas are as follows: Eagle tolerance of human presence is highly variable, both seasonally and among different individuals or pairs of eagles. All nesting eagles are disturbed more easily at some times of the nesting season than at others. Prior to egg laying bald eagles engage in courtship activities and nest building. During this and the incubation periods they are most intolerant of external disturbances and may readily abandon the area. The most critical period is defined as one month prior to egg laying to four weeks after hatching. For Michigan this is described as January 1 to June 1 in the Lower Peninsula and from January 10 to June 10 in the Upper Peninsula. **Activity is prohibited during the nesting season within ¼ mile from the nest.**

The northern harrier has been known to occur in the area. Northern harriers are a bird of open landscape: meadows, inland and coastal marshes, cultivated and uncultivated fields, moorlands, and prairies are all suitable habitats. Wet meadows are preferred nesting habitat, though prairies and uncultivated fields may also be used. Nests are constructed on the ground in association with shrubs. This species usually arrives in March and eggs are laid in early May. Fall migration occurs throughout the autumn months. The majority of the northern harrier's prey species are small mammals (i.e. meadow voles and white-footed mice). As noted in *The Atlas of Breeding Birds of Michigan*, the northern harrier is on the endangered species list in Ohio, Indiana and Illinois but is currently a species of special concern in Michigan. Harriers spend approximately 57% of their foraging time on perches, which should be explored as a possible management technique. These perches are low to the ground and include fence posts, grass hummocks, large stones and small shrubs. Since uncultivated fields, grasslands, and hayfields are usually devoid of perches, the placement of posts could increase the quality of the habitat, helping to preserve this beneficial and majestic bird of Michigan.

The Blanding's turtle has been known to occur in the area. Primary threats to the Blanding's turtles include loss or altering of wetland habitats and destruction on roads. Blanding's turtles inhabit shallow bodies of water with some aquatic plant growth and a muddy bottom, such as marshes, ponds, swamps, lake inlets and coves, and river backwaters. They are most often seen wandering overland in spring and fall. Females seeking nest sites may travel considerable distances. Most feeding occurs underwater and includes crayfish, insects, worms, leeches, snails, small fish, tadpoles, frogs, and some plants. Nesting occurs in June where eggs are buried in a sandy, sunny location. Hatchlings emerge in August or September. Blanding's turtles hibernate underwater (more rarely under debris close to water) from late October or early November until early April.

In summary, the project site may include suitable habitat for the above listed species. Potential impacts might include direct destruction of species and disturbance of critical habitat. Responses and correspondence can be sent to:

Michigan Department of Natural Resources
Wildlife Division – Natural Heritage Program
PO Box 30180
Lansing, MI 48909

Thank you for your advance coordination in addressing the protection of Michigan's natural resource heritage. If you have further questions, please call me at 517-373-1263 or e-mail at SargenL2@michigan.gov.

Sincerely,



Lori G. Sargent
Endangered Species Specialist
Wildlife Division

cc: Matt Schnepf, Department of State Police, Emergency Management Division

**MEMORANDUM OF AGREEMENT
BETWEEN THE FEDERAL EMERGENCY MANAGEMENT AGENCY AND
THE MICHIGAN STATE HISTORIC PRESERVATION OFFICER**

**REGARDING
THE FLINT RIVER FLOOD CONTROL SYSTEM
RECONSTRUCTION PROJECT (FEMA DR-1346-MI)
SAGINAW COUNTY, MICHIGAN
SUBMITTED TO THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
PURSUANT TO 36 CFR PART 800.6(b)(1)**

WHEREAS, the Federal Emergency Management Agency (FEMA) issued federal disaster declaration DR-1346-MI on October 17, 2000 and as a result of this declaration all counties in Michigan became eligible for Hazard Mitigation Grant Program (HMGP) funding under the Robert T. Stafford Disaster Relief and Emergency Assistance Act (P.L. 100-07, as amended), made available through the Michigan State Police Emergency Management Division (MSP/EMD); and

WHEREAS, the Flint River Erosion Control Board (Board) in Birch Run, Saginaw County, Michigan applied for HMGP Section 404 funding to minimize flood hazards along the Flint River and reduce the need for financial assistance for post-disaster recovery; and

WHEREAS, the Board proposes to construct new earthen dikes along an eight mile stretch of the Flint River extending through Albee, Bridgeport, Spaulding and Taymouth Townships in Saginaw County, to be placed 100 to 150 feet from the current edge of the Flint River (Undertaking); and

WHEREAS, FEMA has determined that the Undertaking will have an adverse effect on three archaeological sites within the Area of Potential Effects for the Undertaking. Archaeological sites 20SA367, 20SA369, and 20SA372 appear to meet the criteria for listing in the National Register of Historic Places; and

WHEREAS, FEMA has consulted with the Michigan State Historic Preservation Officer (SHPO) pursuant to 36 CFR Part 800 regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470f); and

WHEREAS, the MSP/EMD and the Board have participated in the consultation and have been invited to concur in this Memorandum of Agreement (MOA); and

WHEREAS, FEMA has consulted with Indian Tribes that may attach religious or cultural importance to the affected properties and no Tribes have raised objection to the work proposed; and

WHEREAS, FEMA has invited the Saginaw Chippewa Indian Tribe of Michigan (Tribe) to participate in the consultation and they have requested to be notified if human remains or burial objects are found using its Site Reference Form; and

WHEREAS, FEMA notified the Advisory Council on Historic Preservation (ACHP) of the finding of adverse effect and received no response; and

NOW THEREFORE, FEMA and the SHPO agree that the Undertaking shall be implemented in accordance with the following Stipulations in order to take into account the effects on the Undertaking on historic properties.

STIPULATIONS

FEMA shall ensure that the following measures are carried out:

I. CULTURAL RESOURCE PROFESSIONAL QUALIFICATIONS AND PROJECT GUIDELINES

A. Professional Qualifications

FEMA, MSP/EMD, and the Board will ensure that in completing the necessary provisions of this MOA that it will employ or contract with appropriate qualified professionals who meet *The Secretary of Interior's Professional Qualification Standards* (48 FR 44716, Sept. 1983).

B. Standards and Guidelines

FEMA and MSP/EMD will ensure that all cultural resource work, including the recovery of significant information, carried out pursuant to this MOA will be carried out in accordance with the following standards and guidelines, as applicable:

- 1) *Archeological Resources Protection Act of 1979*, as amended (16 USC 470aa-470ll);
- 2) *Curation of Federally-Owned and Administered Archeological Collections* (36 CFR Part 79);
- 3) *National Historic Preservation Act of 1966*, as amended (16 USC 470 et seq.);
- 4) *Native American Graves Protection and Repatriation Act of 1990* (25 USC 3001 et. seq);
- 5) *Protection of Historic Properties* (36 CFR Part 800);
- 6) ACHP: "Recommended Approach for Consultation on the Recovery of Significant Information from Archeological Sites" (1999);
- 7) ACHP: *Treatment of Human Remains and Grave Goods* (December 1, 1988);

- 8) Advisory Council on Historic Preservation: *Treatment of Archeological Properties: A Handbook* (1980);
- 9) National Park Service: National Register Bulletin 15- *Guidelines for Applying the National Register Criteria for Evaluation*;
- 10) The Secretary of the Interior: *Standards and Guidelines for Archeology and Historic Preservation* (1983) (48 FR 44716-44742);
- 11) The Secretary of the Interior: *Standards and Guidelines for Curation* (36 CFR Part 79); and
- 12) The Secretary of the Interior: *Standards for the Treatment of Historic Properties* (36 CFR Part 68).

C. Curation

FEMA will ensure that all archeological materials resulting from actions carried out under this MOA, including appropriate field and research notes, maps, drawing and photographic records and excepting human skeletal remains, are curated in accordance with 36 CFR Part 79. All materials will be cared for in a repository approved by the Michigan SHPO and will be made available to educational institutions and individual scholars for appropriate exhibit and/or research under the operating policies of the selected repository. Consideration will be given to exhibiting some or all of the archeological materials at the Saginaw County Historical Society.

D. Distribution of Reports

FEMA will ensure that the Board prepares sufficient copies of all reports completed pursuant to this MOA for dissemination to the Michigan SHPO and appropriate public libraries, educational institutions, and other repositories.

II. PHASE III ARCHEOLOGICAL DATA RECOVERY PLAN

- A. FEMA and MSP/EMD will ensure that an Archeological Data Recovery Plan (DRP) is developed by the Board in consultation with the Michigan SHPO for sites 20SA367, 20SA369, and 20SA372.
- B. The DRP shall consider the following geographic and areas of research interest:
 - 20SA367 will focus on excavation of Features 1 and 2, and on excavation of the buried paleosol deposits in the immediate area around these features.
 - 20SA369 will focus on the excavation of Features 2, 4, and 5, and on the excavation of associated deposits adjacent to those features.

- 20SA372 will focus on excavation of the complex of Late Woodland features designated 2a, 2b, and 2c, and on excavation of adjacent paleosol deposits associated with the feature.

C. The DRP will be consistent with the terms of this MOA and will specify, at a minimum:

- 1) The sites where data recovery is to be carried out;
- 2) The research questions to be addressed through data recovery, with an explanation of their relevance and importance;
- 3) The research and field methods to be used, with an explanation of their relevance to the research questions;
- 4) The methods to be used in analysis, data management, and data dissemination;
- 5) The disposition of recovered archeological data, materials and records; and
- 6) Proposed methods for involving the interested public in the data recovery process, as well as methods for disseminating the results of the work to the interested public.

D. FEMA and MSP/EMD will ensure that both the Michigan SHPO and the Saginaw Chippewa Indian Tribe of Michigan are afforded an opportunity to review and comment on the DRP, not to exceed thirty (30) calendar days. If no response ^{is} received within *SHPO/EDC* thirty (30) calendar days of confirmed receipt, concurrence may be assumed.

✓ E. FEMA, MSP/EMD, and the Board's archeological consultant will communicate with the Michigan SHPO and the affiliated Michigan Office of the State Archeologist (OSA) during Phase III mitigation excavation, and meet in the field on a periodic basis if warranted, to review project fieldwork, and/or discuss any issues that may arise, including questions whether to suspend excavation in a given area due to sparse or sterile deposits.

F. When fieldwork is completed, FEMA will provide written notification within three (3) calendar days to the Michigan SHPO and Michigan OSA. At this point, the Michigan SHPO and the Michigan OSA will discuss the fieldwork and its results with FEMA, MSP/EMD, the Board, and its archeological consultants. This discussion will take place within five (5) calendar days of receipt of notification. If all parties agree, the Michigan SHPO will prepare a consent letter for the project, with the understanding that the remaining stipulations specified in the MOA must be carried out. This consent letter will be transmitted within three (3) calendar days of the above-referenced discussion. Receipt by FEMA and MSP/EMD of this consent letter will signify that project funds may be released to the Board, and the project may proceed.

G. Upon completion of project fieldwork, a draft report will be prepared describing all items included in Stipulation II.C. above, including suggestions for future research. The draft report will be completed six (6) months from the end of fieldwork.

H. The draft report will be submitted to the Michigan SHPO for review. The Michigan SHPO will complete review of the report in thirty (30) calendar days. Taking the Michigan SHPO's comments into account, a final report will be prepared. The final report will be completed sixty (60) days after receiving the Michigan SHPO's comments. The final report will be distributed according to guidance included in Stipulation ~~IX~~ D. SHPO/EDC

III. DISCOVERY

A. During the course of this undertaking, FEMA and MSD/EMD will ensure that the Michigan SHPO is informed of unanticipated finds within the Undertaking's Area of Potential Effects (APE) during construction activities. Potential historic properties are herein considered any building, structure, object, or archaeological site to which the National Register Criteria for Evaluation (36 CFR Part 60.4) has not already been applied. FEMA and MSP/EMD will not take any actions that would adversely affect such properties until such time as it has taken the following actions and resolved or mitigated all Section 106 responsibilities regarding such unanticipated finds:

1) Upon notification of an unanticipated find within the Undertaking's APE, FEMA and MSP/EMD will undertake the following steps outlined in 36 CFR 800.13(b-d) in order to ensure compliance with Section 106 of NHPA:

- x
unant find
- a) In the event that unanticipated finds are discovered within the APE, FEMA, MSP/EMD, and the Board will immediately halt all construction work involving subsurface disturbance in the area of the resource and in the surrounding area where further subsurface resources can reasonably be expected to occur and immediately notify the Michigan SHPO of the discovery.
 - b) FEMA and MSP/EMD, or an archaeologist approved by them, will immediately inspect the work site and determine the area and nature of the affected archaeological resource. Construction work may then continue in the area outside the archaeological resource as defined by FEMA, MSP/EMD, and the Michigan SHPO, or their designated representative.
 - c) Within five (5) working days of the original notification of discovery, FEMA and MSP/EMD, in consultation with the Michigan SHPO, the Board, and the Saginaw Chippewa Tribe of Michigan, will determine the National Register eligibility of the resource.
 - d) If the unanticipated find is determined eligible for listing in the National Register, the Board will prepare a plan for its avoidance, protection, or recovery of information. FEMA, MSP/EMD, the Michigan SHPO, and

the Saginaw Chippewa Tribe of Michigan will approve such plan, prior to implementation.

- e) Work in the affected area will not proceed until either:
 - 1) The development and implementation of appropriate data recovery or other recommended mitigation procedures; or
 - 2) The determination is made that the unanticipated find is not eligible for inclusion in the National Register. Any disputes over the evaluation or treatment of previously unanticipated finds will be resolved as provided in the Stipulation VI of this MOA.

B. In accordance with 36 CFR 800.13(b), the identification of unanticipated finds during the implementation of the undertaking does not require FEMA, MSP/EMD, and the Board to stop work on the overall undertaking, but to make reasonable efforts to avoid or minimize harm to the resource until the requirements of 36 CFR Part 800.13 are met.

C. Any disputes over the evaluation or treatment of unanticipated finds will be resolved as provided in Stipulation VI of this MOA.

IV. HUMAN REMAINS

A. In the event that human remains are discovered, FEMA and the MSP/EMD will ensure that all work stops, and that the area is secured. FEMA, or FEMA's designee, will contact the local police authority and the Michigan Office of the State Archeologist (OSA), in accordance with the Michigan Attorney General's Opinion No. 6585 of 1989. If disinterment is necessary, a permit to disinter will be obtained from the County medical examiner. Human remains will be treated respectfully, and any disinterment will be accomplished according to proper archeological methods, as provided for in the Advisory Council's Policy Interpretation Memorandum 89-1, entitled *Treatment of Human Remains and Grave Goods*. Disinterred human remains will be examined and recorded by a qualified physical anthropologist. If the evidence indicates that the remains are Native American, the Saginaw Tribe of Chippewa Indians will be notified. FEMA, the OSA, the landowner, the Tribe and the police will resolve the disposition of human remains and any associated artifacts.

V. MONITORING AND REPORTING

A. Any party to this MOA may review any activities carried out pursuant to this MOA, and the ACHP may similarly review any activities if requested. FEMA, MSP/EMD, and the Board will cooperate with the requesting party, should they request to review project files or visit the project site to view activities at specific project locations.

B. FEMA, MSP/EMD, and the Board will provide the Michigan SHPO with a progress report that summarizes activities carried out under the terms of this MOA every six (6) months beginning from the date of the MOA's execution. Progress reports will include

information regarding preservation activities, information on any public objections and their status, any other activities undertaken pursuant to this MOA, and information on construction activities.

VI. DISPUTE RESOLUTION

- A. Should the SHPO object in writing within thirty (30) days to any plans and documents required pursuant to the terms of this MOA, FEMA will consult with the SHPO to resolve the objection. If FEMA determines that the objection cannot be resolved pursuant to 36 CFR Part 800.7(b), FEMA will forward all documentation relevant to the dispute to the ACHP. Within 30 days after receipt of pertinent documentation, the ACHP will either:
- 1) Provide FEMA with recommendations, which FEMA will take into account in reaching a final decision regarding the dispute (36 CFR Part 800.7 (b)); or
 - 2) Notify FEMA that it will comment pursuant to 36 CFR Part 800.7(c), and proceed to comment. Any ACHP comment provided in response to such a request will be taken into account by FEMA in accordance with 36 CFR § 800. 7(c)(4) with reference to the subject of the dispute.
 - 3) Any recommendations or comment provided by the ACHP will be understood to pertain only to the subject of the dispute; FEMA responsibility to carry out all actions under this MOA that are not the subject of the dispute will remain unchanged.

VII. REVIEW OF PUBLIC OBJECTIONS

- A. At any time during implementation of the measures stipulated in this MOA, should any objection to any such measure or its manner of implementation be raised by a member of the public, FEMA will take the objection into account, notify the SHPO of the objection, and consult as needed with the objecting party and the SHPO to resolve the objection. If the objection cannot be resolved, FEMA will follow the steps outlined in Stipulation ~~VII~~ ^{SHPO Doc VI} A above to obtain ACHP comment.

VIII. RECORD KEEPING

- A. FEMA and MSP/EMD will maintain records of all activities undertaken pursuant to this MOA which will become part of the Environmental Review Record for the project including:
- 1) All records related to the selection of Professionals who perform the work stipulated in the provisions of this MOA, which clearly documents adherence to the *Secretary of the Interior's Professional Qualification Standards*;
 - 2) All records of correspondence and finding letters provided by the Michigan SHPO to FEMA and to MSP/EMD;

- 3) All records indicating all mitigation measures taken in accordance with the provisions of this MOA;
- 4) All records related to consultations FEMA and MSP/EMD has with the Saginaw Chippewa Indian Tribe, the Michigan SHPO, and/or the ACHP following the execution of this MOA;
- 5) All records of public comments received during public hearings and written or telephonic comments received from the public at all other times;
- 6) All of the above records will be maintained for a minimum of three (3) years after completion of the project and will be made available to the general public and additional parties with a demonstrated interest in the undertaking upon request during this time frame.

IX. AMENDMENTS

- A. FEMA or the SHPO may propose to the other parties that this MOA be amended, whereupon the parties will consult in accordance with 36 CFR Part 800.6(c)(7) to consider such an amendment.
- B. Any resulting amendments or addenda will be developed and executed among the signatory and concurring parties in the same manner as the original MOA.

X. TERMINATION

- A. If FEMA determines that it cannot implement the terms of this MOA, or if the SHPO determines that the MOA is not being properly implemented, FEMA or SHPO may propose to the other parties to this MOA that it be terminated.
- B. The party proposing to terminate this MOA shall so notify the other parties to this MOA, explaining the reasons for termination and affording them at least sixty (60) days to consult and seek alternatives to termination. The parties shall then consult.
- C. Should such consultation fail, FEMA or the SHPO may terminate this MOA by so notifying all parties.
- D. Should this MOA be terminated, FEMA shall either:
 - 1) Consult in accordance with 36 CFR Part 800.6 to develop a new MOA; or
 - 2) Request the comments of the Council pursuant to 36 CFR Part 800.7.

- E. Termination will include the submission of a technical report by FEMA on any work done up to and including the date of termination.

XI. ANTICIPATORY ACTIONS

- A. FEMA will not grant assistance to the applicant who, with intent to avoid the requirements of this MOA or Section 106 of the NHPA, has significantly adversely affected the historic properties to which the assistance would relate, or having legal power to prevent it, allowed such significant adverse effect to occur. After consultation with the ACHP, FEMA may determine that circumstances justify granting such assistance despite an adverse effect created by the applicant, and will complete consultation for the undertaking.

XII. SUNSET

- A. This MOA will be null and void if its terms are not carried out within two (2) years from the date of its execution and the Undertaking will be terminated unless FEMA and the SHPO agree in writing to an extension for carrying out its terms.

Execution of this Memorandum of Agreement by FEMA, the Michigan SHPO, the Michigan State Police, Emergency Management Division, and the Flint River Erosion Control Board, with the concurrence of the Saginaw Chippewa Indian Tribe of Michigan, and implementation of its terms, evidence that FEMA has afforded the ACHP an opportunity to comment on the undertaking and its effects on historic properties, and that FEMA has taken into account the effects of the undertaking on historic properties.

SIGNATORY:

FEDERAL EMERGENCY MANAGEMENT AGENCY, REGION V

By: Jeanne Millin Date: July 26, 2005
Jeanne Millin
Regional Environmental Officer, Region V

Execution of this Memorandum of Agreement by FEMA, the Michigan SHPO, the Michigan State Police, Emergency Management Division, and the Flint River Erosion Control Board, with the concurrence of the Saginaw Chippewa Indian Tribe of Michigan, and implementation of its terms, evidence that FEMA has afforded the ACHP an opportunity to comment on the undertaking and its effects on historic properties, and that FEMA has taken into account the effects of the undertaking on historic properties.

SIGNATORY:

MICHIGAN STATE HISTORIC PRESERVATION OFFICER

By: BD Conway
Brian D. Conway, State Historic Preservation Officer

Date: 8/19/05

Execution of this Memorandum of Agreement by FEMA, the Michigan SHPO, the Michigan State Police, Emergency Management Division, and the Flint River Erosion Control Board, with the concurrence of the Saginaw Chippewa Indian Tribe of Michigan, and implementation of its terms, evidence that FEMA has afforded the ACHP an opportunity to comment on the undertaking and its effects on historic properties, and that FEMA has taken into account the effects of the undertaking on historic properties.

CONCUR:

MICHIGAN STATE POLICE, EMERGENCY MANAGEMENT DIVISION

By: Capt. Kriste Etue Date: 7/29/05
Captain Kriste Etue
Governor's Authorized Representative

Execution of this Memorandum of Agreement by FEMA, the Michigan SHPO, the Michigan State Police, Emergency Management Division, and the Flint River Erosion Control Board, with the concurrence of the Saginaw Chippewa Indian Tribe of Michigan, and implementation of its terms, evidence that FEMA has afforded the ACHP an opportunity to comment on the undertaking and its effects on historic properties, and that FEMA has taken into account the effects of the undertaking on historic properties.

CONCUR:

FLINT RIVER EROSION CONTROL BOARD

By: John Spero Date: 7-28-05
John Spero
Chairman

Execution of this Memorandum of Agreement by FEMA, the Michigan SHPO, the Michigan State Police, Emergency Management Division, and the Flint River Erosion Control Board, with the concurrence of the Saginaw Chippewa Indian Tribe of Michigan, and implementation of its terms, evidence that FEMA has afforded the ACHP an opportunity to comment on the undertaking and its effects on historic properties, and that FEMA has taken into account the effects of the undertaking on historic properties.

CONCURRING PARTY:

THE SAGINAW CHIPPEWA INDIAN TRIBE OF MICHIGAN

By: _____ Date: _____
Maynard Kahgegab, Jr., Chief



SAGINAW COUNTY DEPARTMENT OF PUBLIC HEALTH

John D. Niederhauser, M.P.H.
Health Officer

1600 North Michigan Avenue
Saginaw, MI 48602-5395
FAX (517) 758-3750
TDD (517) 758-3725

May 22, 2001

John Spero, Chairman
Flint River Erosion Control Board
7125 Sheridan Road
Birch Run, MI 48415

RE: Dike Reconstruction Project

Dear Mr. Spero:

On behalf of the Saginaw County Department of Public Health, please accept this letter of support for a reconstruction project of the Flint River dike.

The reconstruction of the aging erosion control dike for the Flint River is critical to the citizens of the Flint River and Saginaw River watersheds. The control of high river water and the containment of these waters within the river systems is a quality of life principle that is necessary to protect the property against biological impairments from poor river water quality. More importantly, containment of river water within the river protects the health and welfare of our citizens.

As you know, the February, 2001 flood which washed out a portion of the dike was contaminated with elevated levels of E. coli bacteria from a Genesee County sewage treatment plant. E. coli bacteria is a disease causing organism that poses a health risk to persons who may be exposed to it. Exposure to this bacteria frequently occurs from flood water. Unfortunately, this was not the first time that elevated levels of this bacteria flowed through the Flint River. For this reason, the pursuit of funds to improve and enhance an erosion control and containment project that can reduce or control flooding of the Flint River is critical in order to maintain, improve, and preserve the well being of the community.

If I can be of further assistance to you in your stewardship of the Flint River watershed, please contact me at (989) 758-3829.

Sincerely,

For John D. Niederhauser, M.P.H.
Health Officer

Kevin W. Datte, M.S.A., R.S.
Environmental Health Services Director

KWD:pmr

Bennie T. Woodard, Jr. Public Health Center



United States
Department of
Agriculture

Natural
Resources
Conservation
Service

Michigan State Office
3001 Coolidge Road, Suite 250
East Lansing, MI 48823-6350
517-324-5270 (t); 517-324-5171 (f)

August 20, 2001

Flint River Flood and Erosion Control Board
c/o John Spero
7125 Sheridan Road
Birch Run, Michigan 48415

Dear Mr. Spero:

On behalf of the United States Department of Agriculture - Natural Resources Conservation Service in Michigan, I fully support your efforts to secure funding for the completion of the reconstruction of the Flint River dikes. As you are well aware, on two occasions, NRCS has assisted the communities along the dikes with emergency recovery measures under the authority of our Emergency Watershed Protection Program. Although, very effective in meeting the immediate flooding concerns, repairing the dikes as they fail is not the best course of action from an economic standpoint, but more importantly, from a safety standpoint. The severely eroding and aging dikes will remain a threat to adjacent communities until they are properly reconstructed.

Your plan to reconstruct and move the dikes back from the river is commendable. I fully support this design concept. Creating a setback or buffer will help conserve natural resources and, at the same time, improve wildlife habitat, and create valuable wetland and flood retention areas. This will alleviate to some extent, the increased discharge that has resulted from development in the headwaters of the watershed.

I wish you the best of luck in securing funds to complete your project so that the residents of southern Saginaw County will be protected from future flood events.

Sincerely,

RONALD C. WILLIAMS
State Conservationist

cc:

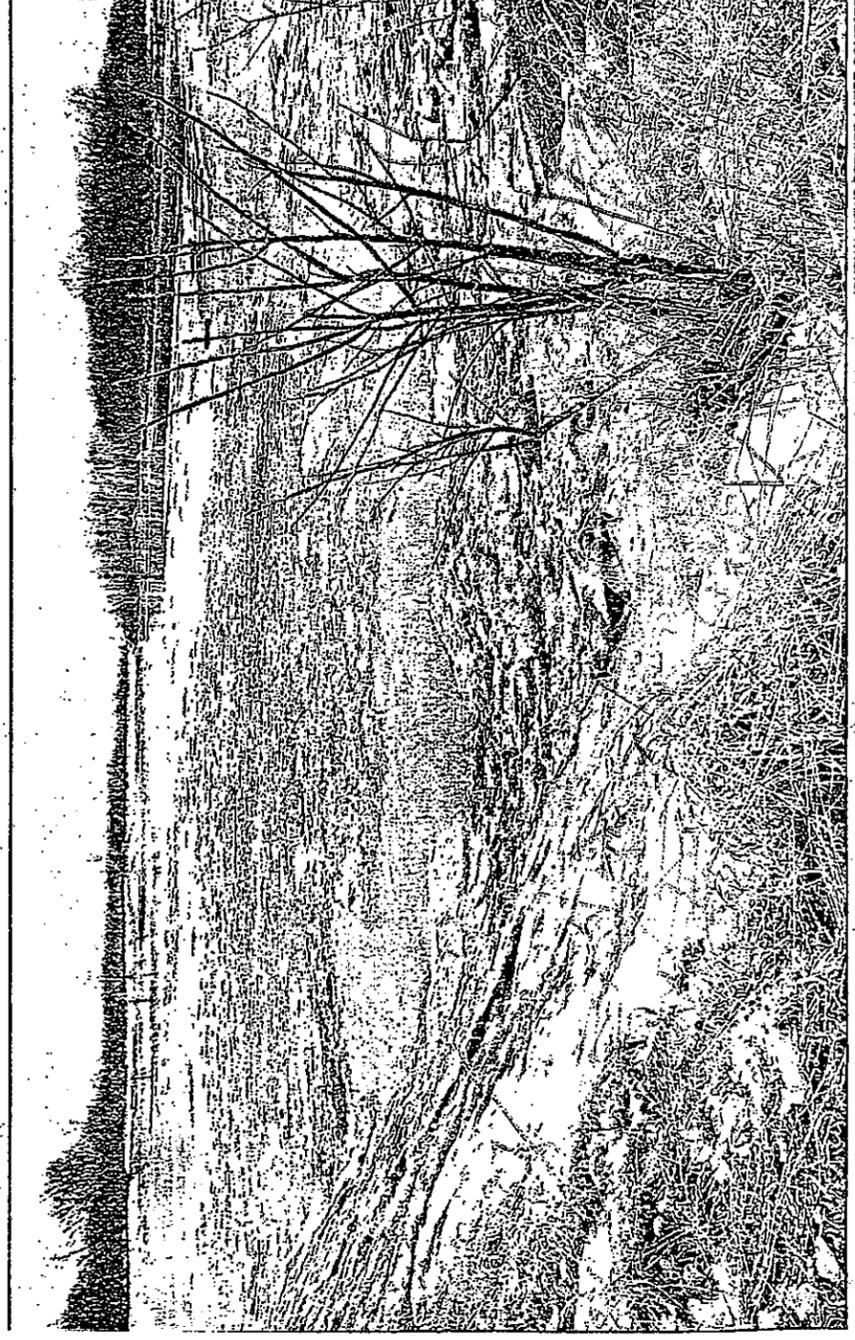
Albert Jones, Asst. STC - Field Operations, NRCS, East Lansing, Michigan
Alan Herceg, Asst. STC - Programs, NRCS, East Lansing, Michigan

Appendix C

Flooded with Sewage

The Flint Journal, February 20, 2001

Flooded with sewage



JOURNAL NEWS SERVICE / JEFF SCHRIER

Untreated Genesee County sewage floats in a farm field adjacent to the Flint River in Saginaw County's TAYMOUTH Township. Heavy rain and snowmelt have resulted in more than 50 million gallons of untreated wastewater spilling into the river in the last month.

Contaminated Flint River spills over in Saginaw County

By Ron Fonger
JOURNAL STAFF WRITER

SAGINAW COUNTY — About a mile north of a broken dike designed to hold back the Flint River, TAYMOUTH Township residents such as Chris A. Pegley have grown tired of waiting for fixes to Genesee County's sanitary sewer problems.

This month's sewer spills — more than 50 million gallons in one of 10 separate overflows — flooded this rural part of Saginaw County known as Fosters, leaving clouds of untreated sewage frozen in fields and surrounding some houses.

"Out here, you feel helpless," said Pegley, a Delphi Automotive Systems retiree. "The city of Flint flushes their toilet, and we get it."

"How would you personally feel if I pumped my septic tank out, put it on a truck, took it to Flint and dumped it? That's how it seems here."

There always have been floods in this area, an unincorporated community just a few miles north of the Genesee County line. The Army Corps of Engineers built up earthen dams about 10 years ago in an ef-

fort to keep the Flint River from overflowing its banks during heavy rains and periods when snow melts quickly.

But more often, now, raw sewage from Genesee County has been part of the mix.

Some in the township are so frustrated they have begun talking to attorneys, said Supervisor Douglas E. James.

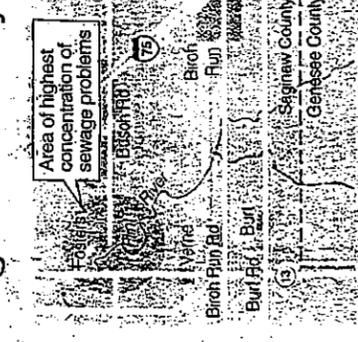
"Somewhere down the line," James said, "maybe there has to be a class-action lawsuit" to force Genesee County to stop the overflows.

"There is a good possibility. We've had too much of this," James said. "People are very upset. This is a very unhealthy situation for people in the township."

Jeff Wright, Genesee County drain commissioner, said Monday that he's been in contact with Saginaw County officials about the overflows, the worst of which were caused by pump station flooding Feb. 9.

Wright, who was elected in November, already has promised to step up efforts to stop stormwater from flooding sanitary sewers.

But a solution will take time, and sever-



Please see SEWAGE, A2

al communities around Michigan have the same problem: aging, leaking storm and sanitary systems and illegal connections that are causing spills during heavy rains.

Sen. Ken Sikken, R-Grandville, has proposed a series of measures to help fix the sewer infrastructure problems. The

Shooti suspei

SEWAGE

Continued from A1

low estimate is \$2.7 billion over the next two decades. The high estimate is twice as much.

Wright has said the heavy rain and snow melt from earlier this month proved the county's sanitary sewer system is not sealed to keep rainwater out.

He has said illegal connections,

leaks and lack of countywide oversight of new developments contribute to the problem. As recently as last week, he promised changes are coming.

Wright is meeting with Genesee County township, city and village officials this week and said Monday he plans to discuss illegal stormwater connections and the need to increase sewer tap-in fees.

"I understand their frustration, but they have to look at all the different degradations of the watershed," said

Wright.

Health officials have said animal waste also may contribute to consistently high E.coli levels in the Flint River.

Pegley said he wants to see real progress. He had hoped to sell his house later this year and move to northern Michigan.

He only recently finished cleaning an inch of water infested with E. coli from a barn filled with woodworking equipment.

Saginaw County officials have estimated that repairing the 175-foot hole in the embankment will cost about \$25,000. The work requires reconstructing the dike and filling in a large breach that the flood water created when it surged through the embankment.

Ron Fonger covers Genesee County government and transportation. He can be reached at (810) 766-8317 or rfonger@flintjournal.com.



Peacock

at-1, 200
es, hair color
dark to
least one
ar.

: fake
ine City,
arden City,
\$1,000 is

Appendix D
EO 11988 – Floodplain Management & EO 11990 – Wetland Protection
Eight-Step Planning Process

Executive Order 11988 Floodplain Management
Executive Order 11990 Wetland Protection
Eight-Step Planning Process

Step	Project Analysis
Step 1: Determine whether the Proposed Action is located in a wetland and/or the 100-year floodplain, or whether it has the potential to affect or be affected by a floodplain or wetland.	According to the FIRMs for Saginaw County, the Proposed Action is located in the 100-year floodplain, and would thereby impact the floodplain and potential wetland areas.
Step 2: Notify public at earliest possible time of the intent to carry out an action in a floodplain or wetland, and involve the affected and interested public in the decision-making.	Initial public notice for DR-1346-MI was provided by FEMA on October 20, 2000 in the <i>Detroit Free Press</i> .
Step 3: Identify and evaluate practicable alternatives to locating the Proposed Action in a floodplain or wetland.	The following alternatives were evaluated: Alternative 1: No Action Alternative Alternative 2: Dike Reconstruction and Reservoir Construction (Proposed Action) Alternative 3: Elevation, Relocation, or Acquisition of Flood-prone Structures
Step 4: Identify the full range of potential direct or indirect impacts associated with the occupancy or modification of floodplains and wetlands and the potential direct and indirect support of floodplain and wetland development that could result from the Proposed Action.	Over time, the No Action Alternative (Alt. 1) would cause the floodplain to be inundated by the Flint River on a more frequent basis. The existing dikes would fail more often as they continue to erode. This alternative would have no impact to wetlands. Under Alternative 2, the Proposed Action, the Flint River would less frequently inundate the floodplain. Approximately 11,000 acres of tillable land and over 300 residential and commercial structures located in or near the floodplain would be less likely to be damaged by flooding. According to HEC-2 analyses prepared in support of MDEQ permit issuance, the Proposed Action is not anticipated to change the 100-year flood stage of the Flint River. To accommodate the proposed improvements 2.9 acres of wetlands would be directly impacted. However, this impact would

Appendix D
EO 11988 & 11990 Eight-Step Planning Process

	<p>be temporary, as the wetland would be reconstructed in the same location. The Proposed Action would result in an overall increase of 4.4 acres of wetlands in the project area, and would diversify existing wetland habitats. As such, this alternative would result in an overall positive impact to wetlands.</p> <p>Alternative 3 would provide very little change from the current situation. Therefore, floodplain and wetland impacts would be essentially non-existent.</p>
<p>Step 5: Minimize the potential adverse impacts to work within floodplains and wetlands to be identified under Step 4, restore, and preserve the natural and beneficial values served by floodplains, and preserve and enhance the natural beneficial values served by wetlands.</p>	<p>Modifications to the floodplain and wetlands detailed under Step 4 would reduce potential adverse impacts to floodplains and wetlands.</p>
<p>Step 6: Reevaluate the Proposed Action to determine (1) if it is still practicable in light of its exposure to flood hazards; (2) the extent to which it will aggravate the hazards to others; and (3) its potential to disrupt floodplain and wetland values.</p>	<p>The Proposed Action remains practicable based on the project objectives of flood control and water quality improvement.</p>
<p>Step 7: If the agency decides to take an action in a floodplain or wetland, prepare and provide the public with a finding and public explanation of any final decision that the floodplain or wetland is the only practicable alternative, and any relevant factors considered in decision-making.</p>	<p>A public notice will be made indicating the decision to proceed with the Proposed Action. At a minimum, this notice shall state a reason for locating the Proposed Action in the floodplain; a description of all significant facts considered in making the determination; a list of the alternatives considered; a statement indicating whether the action conforms to state and local floodplain protection standards; and a statement indicating how the action affects the floodplain and how mitigation is achieved.</p>
<p>Step 8: Review the implementation and post-implementation phases of the Proposed Action to ensure that the requirements of the EOs are fully implemented. Oversight responsibility shall be integrated into existing processes.</p>	<p>This step is integrated into the NEPA process, and the FEMA project management and oversight functions.</p>

Appendix E
Public Involvement

**Federal Emergency Management Agency
PUBLIC NOTICE**

**Notice of Availability of the Draft Environmental Assessment
for Flint River Flood Mitigation Alternatives, Saginaw County, Michigan**

FEMA DR-1346-MI

Interested persons are hereby notified that the Federal Emergency Management Agency (FEMA) is proposing to assist in the funding of flood mitigation measures along the Flint River in Saginaw County, Michigan. In accordance with the National Environmental Policy Act (NEPA) of 1969 and the implementing regulations of FEMA, an Environmental Assessment (EA) is being prepared to assess the potential impacts of the proposed action on the human and natural environment. This also provides public notice to invite public comments on the proposed project in accordance with Executive Order 11988, Floodplain Management, and Executive Order 11990, Protection of Wetlands. In addition, this notice and the draft EA provide information to the public on potential impacts to historic and cultural resources from the proposed undertaking, as outlined in the National Historic Preservation Act of 1966.

The alternatives to be evaluated include (1) No Action; (2) Dike Reconstruction and Reservoir Construction, which would involve flood mitigation measures at seven individual locations along Flint River and would include the reconstruction of existing earthen dikes and construction of a floodway shelf, a storage reservoir, and two wetland areas; (3) Elevation, Relocation or Acquisition of Flood-Prone Structures, in which 200 residences and six commercial buildings would be elevated, relocated, or acquired by FEMA. Residential and commercial structures acquired by FEMA would be demolished and the acquired land would be maintained as open space.

The draft EA is available for review from April 26, 2006 to May 17, 2006, at the Hoyt Main Library, 505 James Avenue, Saginaw, Michigan and the Bridgeport Public Library, 3399 Williamson Road, Saginaw, Michigan, during normal business hours. The draft EA is also available for review at the FEMA website: <http://www.fema.gov/plan/ehp/envdocuments/ea-region5.shtm>.

Written comments regarding this environmental action should be received no later than 5 p.m. on May 17, 2006, by Jeanne Millin, Regional Environmental Officer, 536 Clark Street, 6th Floor, Chicago, IL 60605-1521, or at Jeanne.Millin@fema.gov.

If no comments are received by the above deadline, the draft EA and Finding of No Significant Impact will be considered final.

NOTICE OF PUBLIC MEETING

Flint River Dike & Erosion Control Board

A public meeting will be held at the Spaulding Township Hall, 5825 Cole Road, Spaulding Township, Michigan on:

Date: Wednesday, June 29, 2005

Time: 7:00 p.m. Michigan Time

The purpose of this meeting is to review and take public comment on the adverse impact to historic and environmental resources which will occur in connection with the proposed Flint River Dike Control System Reconstruction Project, which is being funded in coordination with the Federal Emergency Management Administration. (Project Grant No. A1346.53)

This public meeting is being held in compliance with 44 C.F.R. Part 10.9 (C) The public is invited to attend and make comment on the adverse historic and environmental impact.

Dated June 19, 2005.

Flint River Dike & Erosion Control Board

The hearing was called to order by Chairman John Spero at 7:09 P.M.
John Spero introduced the dignitaries and guests.

Atty. Dave Meyer gave a brief description of the purpose of the hearing. He stated the purpose of the meeting was to look at environmental aspects of the project. One requirement of this grant is to have public participation for environmental assessment. This district has conducted eight assessment hearings since 1986. The main issue for this meeting is the historical impact by the project.

Eng. Gary Niethammer gave a report on the scope of the project. This project has been an ongoing involvement with engineering and reconstruction for 18 years. The community has assessed each landowner a \$4.20 per acre fee, and home assessment of \$42.00 fee to keep their property from flooding. They have renewed the assessment four times. They are doing what they can locally to protect themselves. The flood control project protects 340 homes, numerous businesses, roads, bridges not to mention the protection from contaminated water which flows down the river in a flood event.

\$4 million has been spent on reconstruction to this date and an additional \$2+ million is needed for completion.

In 1989 a \$1 million HUD grant was obtained for the reconstruction of dikes.

In 1991 an additional \$1 million was used (750,000.00 for dikes / \$250,000.00 for a bridge). There have been other repairs made to the system through emergency grants.

A big plus in this project has been the replacement of the Sheridan and Curtis Road bridges.

A reservoir near the village of Fosters was developed in 2001 with funds of \$350,000.00 from Ducks Unlimited and Wetland Reserve Programs.

The highlights of the last eighteen years are meaningless, until we have full completion of the flood control project to protect the community.

PUBLIC COMMENTS

Comment: Beverly Schramke: Spaulding Township, "What will the money do?"

A: The scope of the work is to reconstruct and setback 150 feet the dikes similar to work already completed. There are three historical sites remaining and have possible significance and need further investigation. The study is a requirement for the release of the grant funds.

Comment: Peggy Malone: Taymouth Township, "The flood concerns of 1980 were actually the driving force to form the committee which became the board. So this board has been working for solutions to the flooding problem for 25 years. The impact and loss is not just historical material but is a great economic, safety and health issue. The Malone Family has resided in the area 170 years." This area will not experience the full protection until this project is complete.

Comment: Beverly Schramke: "Spaulding Township, She and her husband have lived in the area 45 years. Problems over the years have increased due to the development in Genesee County. Where are the historical investigations? Can we go ahead where there are not historical sites? Their family is experienced in historical and environmental issues. They have not found any significant artifacts on their property to date."

Answer: There are three sites, one in each township, and probably total 3,000 feet.

Matt Schnepf: "Federal funds are being used for this grant. Due to laws and regulations imposed this project cannot be segmented. The project is considered as one whole project."

Comment: Dianne Spero, Bridgeport Township: "During the past reconstruction, we did not disturb the historical area. Can we build over the sites and leave them undisturbed?"

Answer: Gary Niethammer, Wilcox Professional Services: In the past reconstruction areas, there have not been any historical sites. The proposed reconstruction areas contain historical sites. These sites would not only be underneath the reconstructed dikes, but extend into the shelf or borrow area.

Comment: Don Albosta, Albee Township, never thought this project could be completed without the Army Corp. of Engineers. The flood control structures have done a lot of good, and are a very worthwhile project. It has protected homes and valuable farm land and must be completed.

Comment: Leon Turnwald, Supervisor, Albee Township, "This is a very important project. Everyone worked together. They have been persistent and forged ahead. The problems are not started here, but for the fact our townships are a conduit for Flint and surrounding developing areas." Their progress is affecting our way of life. Our area does not add water to the Flint River. The dike assessment district taxes themselves to help the community; they have invested in this community. The benefits of this project have extended far beyond this local community. Our main roads are closed with flood waters that impact communities on both sides of the flood district. Evaluation on homes and properties are negatively impacted. Hospitals and businesses suffer from lack of support staff and material that travel this area. It has been a long fight to get this far and we cannot act soon enough to finish this project.

Comment: Loren Popp, Albee Township: I can appreciate the concerns with history of the past, but I'm not happy with historical investigations while we are sitting on a keg of dynamite, when dikes are in a critical condition now. To put history ahead of present day survival is not right. Stopping the dike break May 2004 was nothing short of a miracle.

Comment: John Spero, Bridgeport Township: Every major rain event upstream makes an affect on our community.

Comment: Peggy Malone, Taymouth Township: "These flood events affect wildlife, livestock and the discharge of sewage effects the health of the 4 townships involved. The impact is huge to this community."

Comment: Gary Niethammer, I have not heard any comments on the adverse impacts on historical sites, only support for the project and its completion.

Comment: Leon Turnwald, Albee Township, "Couldn't these sites be handled at the time of construction? Wouldn't that allow reconstructing to take place sooner?"

Answer: Matt Schnepf, "While I can't argue with logic there are laws and regulations in place that state all review must take place before construction."

Comment: Leon Turnwald, Albee Township, "Let's cooperate with the dike board. FEMA doesn't live with it every day."

John Spero gave a schedule for the project's completion by September 2006 at which time the grass seeding will take place. John Spero asked Susan Cosier if that sounded reasonable.

Estimated Time schedule

September-October 2005	Environmental reviews incl. Phase III digs, Environment species, Noise erosion, Air quality, etc.
October-November 2005	Construction bidding
January- February 2006	Complete financing and let contracts
March 2006	Start construction
September 2006	Final seeding of grass for project

Susan Cosier replied, "we will do what we can."

John Spero, "No more surprises, it is a doable project."

Susan Cosier, "Federal projects and time taking regulations are not meant to be barriers."

NO OTHER COMMENTS.

The meeting adjourned at 8:00 P.M.

John A. Illikman
Secretary

Assisted by;
Dianne Spero
Peggy Malone

Minutll.doc