



Draft Environmental Assessment

Garfield and Walter's Subdivision Drainage Improvement Project

Bay County Drain Commissioner, Bay County, Michigan

FEMA DR-1346-MI, HMGP Application A1346.89

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Table 1	Impact Summary Matrix	
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ADT	Average daily traffic
APE	Area of Potential Effect
AST	Aboveground storage tank
ASTM	American Society for Testing and Materials
BCRC	Bay County Road Commission
BMP	Best management practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cfs	Cubic feet per second
CO	Carbon monoxide
CWA	Clean Water Act
dB	Decibels
dbh	Diameter at breast height
DNL	Day-night average sound level
DO	Dissolved oxygen
EA	Environmental Assessment
EDR	Environmental Data Resources, Inc.
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHBM	Flood Hazard Boundary Map
FINDS	Facility index system
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
H&H	Hydrology & hydraulics
HMGP	Hazard Mitigation Grant Program
LUST	Leaking underground storage tank
MDEQ	Michigan Department of Environmental Quality
MDNR	Michigan Department of Natural Resources
MDOT	Michigan Department of Transportation
MIOSHA	Michigan Occupational Safety and Health Administration
NAAQS	National Ambient Air Quality Standards

NCA	Noise Control Act
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NO ₂	Nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NREPA	Natural Resources and Environmental Protection Act
NRHP	National Register of Historic Places
O ₃	Ozone
OAQPS	Office of Air Quality Planning and Standards
OSHA	Occupational Safety and Health Administration
Pb	Lead
PCB	Polychlorinated biphenyl compound
P.L.	Public Law
PM	Particulate matter
RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery Information System
ROW	Right-of-way
SESC	Soil Erosion and Sedimentation Control
SHPO	State Historical Preservation Office
SHWS	State hazardous waste site
SO ₂	Sulfur dioxide
SWA	Solid Waste Act
TSCA	Toxic Substances Control Act
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground storage tank
VOC	Volatile organic compound
WCR	Wetland and Coastal Resources, Inc.

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 Bay County Drain Commission in the Dell Creek Drainage District of Bay County, Michigan, has 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 (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.

1.2 PURPOSE AND NEED

The objective of FEMA's HMGP is to assist the community in recovering from damage caused by natural disasters. The purpose of the action alternatives presented in this EA is to mitigate flood damage to residential property in the Garfield and Walter's subdivisions as well as the associated public infrastructure.

Dell Creek, which traverses the subdivisions and an associated existing detention basin, does not have adequate capacity to accommodate overland flow during major storm events. Extensive economic damage associated with flooding impacts private landowners in the subdivisions after significant storm events. Major flooding events occurred in September 1986 and June 1996. Records indicate that after the June 1996 storm, approximately 90 percent of the residents in the Walter's subdivision and 80 percent in the Garfield subdivision incurred flood damages. Seven basement collapses were recorded as part of the flooding damage during the September 1986 event. These two storm events caused over \$900,000 in damage to homes within the subdivisions of Walters, Garfield, and Country Estates. Storm events that cause Dell Creek and the existing detention basin to overtop their banks generally occur two to three times in a 10-year period. These storms create street and basement flooding within the subdivisions with estimated losses of \$12,960 per storm.

2.1 ALTERNATIVE 1 – NO ACTION ALTERNATIVE

Under the No Action Alternative, flood mitigation measures would not be implemented or developed for the Garfield and Walter's subdivisions. Flooding would continue to occur, negatively impacting roads, private residential property, and farmland.

2.2 ALTERNATIVE 2 – CONSTRUCTION OF A 26-ACRE DETENTION BASIN, IMPROVEMENTS TO DELL CREEK DRAIN, AND INSTALLATION OF CULVERTS (PROPOSED ACTION)

Alternative 2 includes implementation of various flood control measures for the portions of Dell Creek adjacent to and upstream of the Garfield and Walter's subdivisions.

The proposed project location is situated in the southwestern area of Bay County. Bay County is located in the east-central portion of the Lower Peninsula of Michigan and surrounds the Saginaw Bay on Lake Huron (Figure 1 in Appendix A). The proposed project is located in Williams Township approximately 100 miles north of Detroit. The specific project site is the Garfield and Walter's subdivisions bordered to the south by US-10, to the west by Eleven Mile Road, to the north by Midland Road, and to the east by Garfield Road (Figure 2 in Appendix A). Proposed flood mitigation control measures would be implemented in the portions of Dell Creek that are adjacent to and upstream of the subdivision.

The proposed flood control measures include constructing a detention basin, constructing berms along portions of Dell Creek, and increasing the capacity of Dell Creek downstream of the basin. The first phase of this alternative would be excavation of a 5-foot deep, 26-acre detention basin immediately downstream of US-10, between Eleven Mile Road and Garfield Road (Figures 2 and 3 and Photographs 1 and 2 in Appendix A). The total footprint for the basin including the area for the basin berms is approximately 30-acres. The detention basin would replace an existing 3.17 acre basin. The new basin would be designed to accommodate 100-year storm events; water stored during storm events would be released to Dell Creek at a controlled rate after the storm via a 15-inch diameter culvert with a flap gate. The applicant would develop a maintenance plan for the basin.

Alternative 2 would also include the relocation and construction of approximately 5,539 lineal feet of stream channel. The majority of Dell Creek and its tributary channels in the project area were previously channelized (Photographs 3 and 4 in Appendix A) and are part of the County drain system under the jurisdiction of the Bay County Drain Commissioner. The portion of the Dell Creek between Branch No. 4 and Branch No. 5 would be relocated along the southern and eastern perimeters of the proposed detention basin (Figures 2 and 3 in Appendix A). Branch No. 1 would be relocated from its existing location east of the proposed detention basin to flow west along the north side of U.S. 10 and intersect the relocated Dell Creek at the southeast corner of the detention basin. Branch No. 2 would be modified to intersect the realigned Dell Creek Drain at north of U.S. 10; the portion of the drain within the proposed detention basin footprint would be abandoned. The portion of Branch No. 6 that is located within the proposed detention basin footprint would be relocated to flow east along the north perimeter of the basin to an intersection with the relocated Dell Creek at the northeast corner of the basin.

It is anticipated that about five acres of brush and trees would be removed from the project area prior to excavating the detention basin. Some of the removed material from the basin excavation would be used to construct a berm around the perimeter of the detention basin. The berm would be seeded with native grasses to minimize soil erosion. The berm would be approximately 2 feet high, which would be a sufficient height to allow for 1 foot of freeboard during large storm events. Any remaining spoil material from the basin excavation would be stockpiled, leveled, and seeded on an upland parcel of land immediately west of the proposed detention basin that is owned by the Bay County Drain Commissioner. It is estimated that approximately 10 feet of spoil would be spread over approximately 17 acres upon completion of Alternative 2.

Capacity upgrades to portions of Dell Creek downstream of the proposed project site would be included in Alternative 2 to improve the flow capacity and accommodate additional stormwater flow that would be discharged from the proposed detention basin. Improvements consist of replacing the existing Dell Creek culverts under Midland Road, Monica Street, and North Union Road with 6-foot by 9-foot concrete box culverts.. The existing 48-inch diameter concrete pipe at Eddie Drive would be replaced with a 36-inch diameter concrete pipe. The existing elliptical pipe at Stanley Road and the 72-inch concrete pipe northwest of Eddie Drive would be replaced with 5-foot x 10-foot box culverts. The associated portions of Dell Creek in this area would also be cleared of brush and excavated to provide a cross-section consistent with Drain Commissioner Standards of 1 vertical to 2 horizontal (1:2) side slopes. The excavated areas would be reseeded with native grasses to minimize soil loss. Low areas along this portion of Dell Creek would be bermed and flap gates would be installed through the berm to prevent water from leaving the channel during high flow conditions.

Excavators and dump trucks would be the principal types of construction equipment used to excavate the basin, and the primary construction access route would be along Eleven Mile Road. Implementation of the Proposed Action would also involve limited use of heavy construction equipment such as bulldozers and scrapers with hopper buckets. Alternative 2 construction is expected to take six to seven months.

No right-of-way (ROW) acquisition is expected in order to implement this alternative, and it is not anticipated that private property in the subdivision would be required for access to the project site. Furthermore, public roads would be used to access the project area to perform maintenance activities. Maintenance of the detention basin, including mowing and brush clearing would be overseen by the Bay County Drain Commission and associated contractors.

2.3 ALTERNATIVE 3 – CONSTRUCTION OF A 55-ACRE DETENTION BASIN AND IMPROVEMENTS TO DELL CREEK DRAIN

Alternative 3 would provide flood reduction for Garfield and Walter's subdivisions by constructing a detention basin and constructing berms along a portion of Dell Creek. This alternative would include culvert and channel improvements for Dell Creek adjacent to and upstream of the subdivisions but would not include culvert replacements. The first phase of this alternative would be excavation of a 5-foot deep, 55-acre detention basin immediately downstream of US-10, between Eleven Mile Road and Garfield Road. The basin would accommodate flows from storms in excess of the 100-year storm event. The applicant would develop a maintenance plan for the basin. The 55-acre basin would be excavated in the same

proposed footprint as the 26-acre basin, with the additional acreage being supplied from private land located east of Eleven Mile Road and the land owned by the Bay County Drain Commission. The portion of Dell Creek between Branch No. 4 and Branch No. 5 would be rerouted and channelized within the proposed detention basin.

The second phase would involve constructing and improving wingwalls for the culverts associated with Eddie Drive, Stanley Road, Monica Road, Midland Road, and the Central Michigan Railroad. Additionally, it is proposed that Dell Creek and the existing culverts be cleared of excessive debris, brush, and sediment. A portion of the fill material from the basin excavation would be used to construct a berm approximately 2 feet high on both sides of Dell Creek adjacent to the Garfield subdivision from Midland Road to upstream of Eddie Drive. The berm would be seeded with native grasses to prevent soil erosion. Any remaining spoil material from the basin excavation would be deposited on parcels of land contiguous to the basin that would be acquired from private owners.

Excavators and dump trucks would be the principal types of construction equipment used to excavate the basin, and the primary construction access route would be along Eleven Mile Road. Implementation of Alternative 3 would also involve limited use of heavy construction equipment such as bulldozers and scrapers with hopper buckets. Alternative 3 construction is expected to take six to seven months.

No ROW acquisition is expected in order to implement this alternative, and it is not anticipated that private property in the subdivision would be required for access to the project site. Furthermore, public roads would be used to access the project area to perform maintenance activities. Maintenance of the detention basin, including mowing and brush clearing, would be overseen by the Bay County Drain Commission and associated contractors.

2.4 ALTERNATIVES CONSIDERED AND DISMISSED

Expansion of the Existing Detention Basin and In-line Storage

Under this alternative, the existing gravity basin located upstream of the Garfield subdivision would be expanded from 5 acres to 22 acres and in-line storage would be provided upstream of US-10. This alternative was dismissed because the amount of in-line storage needed could not effectively be acquired. Expanding the existing detention basin to accommodate 100-year storm events could not be done without acquiring the additional in-line storage. Therefore, this alternative was dismissed because it would not adequately meet the Purpose and Need of the project.

3.1 PHYSICAL ENVIRONMENT**3.1.1 Soils**

The proposed project area overlies five different soil series (USDA, 1980). Corunna-Tappan sandy loams complex (Map Unit 12) is typically found in nearly level, poorly drained soils such as broad flat depressions and drainageways. Consequently, this series experiences frequent ponding and experiences moderate permeability and slow run-off rates. Approximately 40 percent of the complex is comprised of Corunna soils; the remaining 60 percent consists of Tappan soils. Corunna soils usually contain very dark gray sandy loam surfaces and dark grayish brown friable sandy loam subsoils. Tappan loams (Map Unit 23) are usually found in broad, flat depressions and drainageways and are subject to frequent flooding. A typical soil profile of this series is as previously described for the Corunna-Tappan sandy loam complex. Londo loam, 0-1 percent slopes (Map Unit 43A), usually occurs on slightly convex uplands and low knolls and ridges. This series has moderately slow permeability and slow runoff rates. The Londo-Poseyville complex, 0 to 3 percent slopes (Map Unit 49A), is typically found on broad, slightly convex uplands and low knolls and ridges. This series is comprised of 40 to 60 percent Londo soils and 30 to 40 percent Poseyville soils. The Londo portion of this complex consists of physical characteristics as previously described. Poseyville soils experience rapid surface permeability and slow runoff.

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. Prime farmland is characterized as land with the best physical and chemical characteristics for the production of food, feed, forage, fiber, and oilseed crops. This land either is used for food or fiber crops or is available for those crops, and not urban, built-up land, or a water area. The soil qualities, growing season, and moisture supply are those needed for a well-managed soil to economically produce a sustained high yield of crops.

URS Group, Inc. (URS) initiated correspondence with the NRCS to determine the potential impacts of the proposed project on prime or unique farmland. Form AD-1006 (Farmland Conversion Impact Rating form) was completed to facilitate the NRCS in determining the impacts to farmland associated with the proposed project (Appendix B). A letter response from the NRCS dated September 25, 2003, stated that the project site does not contain any prime or unique farmland, and therefore, the FPPA does not apply. No further evaluation under the FPPA is required for any of the alternatives.

3.1.1a Alternative 1 – No Action Alternative

No impacts to geology or soils would occur under this alternative, since no construction activities would occur.

3.1.1b Alternative 2 – Construction of a 26-Acre Detention Basin, Improvements to Dell Creek Drain, and Installation of Culverts (Proposed Action)

In order to construct a 26-acre detention basin with a 5-foot depth, it is estimated that over 200,000 cubic yards of soil would need to be excavated. A portion of the soil would remain on the site to construct a berm around the basin. Soil used for the berm would be tested for suitability prior to use in berm construction. Only suitable material that meets American Society of Testing Materials (ASTM) standards and state requirements would be used. The berm would be reseeded with native grasses in order to decrease soil erosion potential. The remaining soil would be stockpiled, leveled, and seeded on an upland parcel of land owned by the Bay County Drain Commissioner. The applicant would obtain a Michigan Soil Erosion and Sedimentation Control (SESC) permit and would implement construction best management practices (BMPs) in accordance with the project's SESC permit to reduce the potential for soil erosion during project-related activities. Under the Proposed Action, nearly 30 acres of farmland would be converted to non-agricultural use.

No impacts to geology are expected as a result of the Proposed Action.

3.1.1c Alternative 3 – Construction of a 55-Acre Detention Basin and Improvements to Dell Creek Drain

Construction of Alternative 3 would require excavation of approximately 443,700 cubic yards of soil. As in the Proposed Action, a portion of the excavated material would be used to construct a berm along both sides of Dell Creek and around the proposed basin. Soil used for the berm would be tested for suitability prior to use in berm construction. Only suitable material that meets ASTM standards and state requirements would be used. The berms would be reseeded with native grasses to mitigate for potential soil erosion. The remaining soil would be deposited in upland areas directly west of the project site. The applicant would obtain a Michigan Soil Erosion and Sedimentation Control (SESC) permit and would implement construction best management practices (BMPs) in accordance with the project's SESC permit to reduce the potential for soil erosion during project-related activities. Under Alternative 3, about 55 acres of farmland would be converted to non-agricultural use.

No impacts to geology are expected as a result of Alternative 3.

3.1.2 Water Resources and Water Quality

The Saginaw Bay watershed encompasses 8,700 square miles, contains 7,000 miles of rivers and streams, 175 inland lakes, and drains 15 percent of the state of Michigan. Located on the northwestern side of Lake Huron, the watershed completely surrounds Saginaw Bay. The Bay has a surface area of approximately 1,100 square miles and is equally divided into a shallow inner bay (15 feet average depth) and a deeper outer bay (51 feet average depth). Several large tributaries such as the Saginaw River, Cass River, Flint River, Shiawasee River, and Tittabawasee River discharge fresh water into the Bay (EPA, 2002; EPA, 2002a; USFWS, 2002). The Saginaw Bay watershed contains the largest contiguous coastal freshwater system in America and provides habitat for a large population of waterfowl, birds, and fish (USFWS, 2002).

Dell Creek, the primary aquatic resource in the project area, is a tributary to the Kawkawlin River. The Kawkawlin River is currently in nonattainment status for exceeding PCB and DO water quality standards. Also, a “fish consumption advisory” is in effect in portions of the Kawkawlin River (MDEQ, 2002). No surface water quality data exist for Dell Creek (Walkington, pers. comm.)

Groundwater in the project vicinity generally moves in a northeast direction toward Saginaw Bay. Shallow groundwater movement is very limited due to the presence of heavy clay soils about 2 feet deep (Klann, pers. comm.) In December 2003, piezometers were installed in three locations within the project area by the Applicant’s consultant, Wade-Trim, Inc., to monitor groundwater levels. Results from the piezometer readings indicate that groundwater in the project area is shallow; measurements varied from 4.4 feet to 5.9 feet below the ground surface.

Michigan has received authorization from the federal government to administer Section 404 of the Clean Water Act (CWA) in most areas of the state. Water resources in the state are regulated in accordance with Part 301, Inland Lakes and Streams, of the Natural Resources and Environmental Protection Act (NREPA), as amended. MDEQ has also been delegated administration of the National Pollutant Discharge Elimination System (NPDES) Storm Water Program in Michigan. NPDES permits are issued in accordance with the CWA for regulated stormwater discharges to surface waters. MDEQ currently utilizes Permit by Rule for NPDES authorization. Construction activities disturbing more than an acre of land, with a point source discharge to waters of the state are required to submit a Notice of Coverage (NOC) to obtain coverage under Permit by Rule. Prior to submitting the NOC, a Soil Erosion and Sedimentation Control (SESC) Permit must be obtained from the local agency that administers the SESC program.

3.1.2a Alternative 1 – No Action Alternative

Dell Creek lacks adequate capacity to accommodate water during intense storm events. Under this alternative, flooding would continue to occur in Garfield and Walter’s subdivisions during periods of excessive snowmelt and precipitation.

3.1.2b Alternative 2 – Construction of a 26-Acre Detention Basin, Improvements to Dell Creek Drain, and Installation of Culverts (Proposed Action)

The Proposed Action would increase stormwater detention volume by constructing a 26-acre basin and improving the capacity of Dell Creek. The project would also include relocating and constructing approximately 5,734 lineal feet of streams. The relocated streams were all previously modified and are part of the County’s drainage channel system. The Bay County Drain Commissioner has obtained a permit from the MDEQ under Part 301 of the NREPA for construction of the basin and modifications to Dell Creek Drain.

The MDEQ permit (provided in Appendix B) requires the Bay County Drain Commissioner to implement specific mitigation measures to minimize erosion and siltation during construction. Temporary erosion would also be minimized by obtaining a SESC permit and implementing all sedimentation and erosion controls identified in the SESC permit. The project would also require coverage under the Michigan NPDES Permit by Rule for stormwater discharges associated with

construction activities. No significant long-term impacts to surface waters are anticipated as a result of the Proposed Action.

The applicant would develop a long-term maintenance plan for the basin. No significant impacts to groundwater resources from basin dewatering activities are anticipated.

3.1.2c Alternative 3 - Construction of a 55-Acre Detention Basin and Improvements to Dell Creek Drain

Alternative 3 would increase stormwater detention volume by excavating a 55-acre basin. This alternative would also include improvements to culverts along Dell Creek. The modifications to Dell Creek culverts would require review by and a permit from the MDEQ under Part 301 of the NREPA for any improvements that involve alterations below the high water mark. Temporary erosion may occur during construction; however, this would be minimized by obtaining a SESC permit and implementing all sedimentation and erosion controls identified in the permit. The project would also require coverage under the Michigan NPDES Permit by Rule for stormwater discharges associated with construction activities. No significant long-term impacts to surface waters are anticipated as a result of the Proposed Action.

The applicant would develop a long-term maintenance plan for the basin and dewatering pump. No significant impacts to groundwater resources from basin dewatering activities are anticipated.

3.1.3 Floodplain Management (Executive Order 11988)

Floodplains refer to the 100-year floodplains as defined by FEMA and are shown on Flood Insurance Rate Maps (FIRMs) or Flood Hazard Boundary Maps (FHBMs) 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.

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.

Williams Township currently participates in and is in good standing with the NFIP. The project area is located on FIRM Panel 26017C0160 D. This panel is not printed by FEMA because it contains no special flood hazard areas. Furthermore, in a letter dated April 27, 2004, the MDEQ stated that the project site is not within a federally identified flood hazard area. Documentation of the Eight-Step Planning Process for EO 11988 and EO 11990 is provided in Appendix C.

The State of Michigan's Floodplain Regulatory Authority, found in [Part 31](#), Water Resources Protection, of the Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451, as amended, requires that a permit be obtained prior to any alteration or occupation of the 100-year floodplain of a river, stream or drain. The purpose of Part 31 is to assure that the flow carrying capacity of a watercourse is not harmfully obstructed, and that the floodway portion of the floodplain is not used for residential construction.

3.1.3a Alternative 1 – No Action Alternative

Flooding would continue to occur during storm events, as no changes would be made to the existing drainage system.

3.1.3b Alternative 2 – Construction of a 26-Acre Detention Basin, Improvements to Dell Creek Drain, and Installation of Culverts (Proposed Action)

Based on an evaluation of the Applicant's H&H analyses, the proposed 26-acre detention basin would accommodate 100-year storm events. The Applicant received a permit from MDEQ for construction of the basin and modifications to Dell Creek Drain. The project did not require coverage under the State's Floodplain Regulatory Authority found in Part 31, Water Resources Protection, of the NREPA. The permit review process includes a review of the Applicant's hydrology and hydraulics (H&H) analyses to confirm that the project will cause any upstream or downstream impacts.

Under the Proposed Action, the portion of the Dell Creek between Branch No. 4 and Branch No. 5 would be relocated along the southern and eastern perimeters of the proposed detention basin (Figures 2 and 3 in Appendix A). Portions of Branch No. 1, Branch No. 2, and Branch No. 6 would be rerouted and combined with the relocated Dell Creek as one open channel. The capacity of the channel would be limited to 200 cubic feet per second (cfs) to prevent flooding in the subdivision areas located northeast of the detention basin. Flows above 200 cfs would be stored temporarily in the detention basin.

The existing flow of Dell Creek Drain from Eddie Drive to Monica Road is approximately 385 cubic feet per second (cfs) and increases to 480 cfs at North Union Road. The flow in Dell Creek Drain would be reduced to 200 cfs as a result of the proposed detention basin, and culvert improvements and capacity upgrades to the channel. Consequently, the existing drain would be capable of handling the stormwater flow and would convey the water along the channel without encroaching on private property. Flooding would be reduced in the surrounding area. No impacts to the upstream or downstream area of the drain should occur as a result of the proposed detention basin and culvert replacements.

Drainage improvements provided by the proposed detention basin, installation of culverts, and capacity upgrades to Dell Creek Drain would significantly reduce flooding of the subdivisions as well as the surrounding infrastructure and farmland. The Proposed Action is not located in an identified 100-year floodplain, but it is located in the natural Dell Creek floodplain. The Proposed Action would not be expected to encourage future development in the floodplain since all new development must comply with the Bay County Drain Commissioner Storm Water Management Plan and Design Standards. In accordance with the Standards, new development must not significantly alter storm water flows from existing conditions upstream or downstream from the property being developed. Therefore, new development would not be permitted that would increase storm water runoff into the proposed detention basin or Dell Creek Drain.

No impacts to the floodplain are anticipated, and this alternative is in compliance with EO 11988.

3.1.3c Alternative 3 – Construction of a 55-acre Detention Basin and Improvements to Dell Creek Drain

As in the Proposed Action, the 55-acre detention basin proposed in Alternative 3 would accommodate storm events in excess of the 100-year event. The existing flow of Dell Creek Drain from Eddie Drive to Monica Road is approximately 385 cfs and increases to 480 cfs at North Union Road. The flow in Dell Creek Drain would be reduced to 115 cfs as a result of the culvert wingwall improvements and channel clearing activities. Consequently, stormwater flow would be conveyed along the creek channel without encroaching on private property, and flooding would be reduced in the surrounding area. No impacts to the upstream or downstream area of Dell Creek are anticipated as a result of the proposed detention basin and culvert wingwall improvements.

Drainage improvements provided by the proposed detention basin, culvert wingwall improvements, and channel improvements to Dell Creek would significantly reduce flooding of the subdivisions as well as the surrounding infrastructure and farmland. Alternative 3 is not located in an identified 100-year floodplain, but it is located in the natural Dell Creek floodplain. Alternative 3 would not be expected to encourage future floodplain development. No impacts to the 100-year floodplain are anticipated, and this alternative is in compliance with EO 11988.

3.1.4 Air Quality

The Clean Air Act (CAA) of 1970, as amended, requires the EPA to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The CAA established two types of national air quality standards. Primary standards set limits to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, visibility, and damage to animals, crops, vegetation, and buildings.

The EPA Office of Air Quality Planning and Standards (OAQPS) has set NAAQS for six principal pollutants, which are called “criteria” pollutants. They include: sulfur dioxide (SO₂), nitrogen dioxide (NO₂), carbon monoxide (CO), lead (Pb), particulate matter (10 and 2.5 microns or less—PM₁₀, PM_{2.5}), and ozone (O₃).

The EPA has designated specific areas throughout Michigan as NAAQS attainment or non-attainment areas. Non-attainment areas are those that either do not meet, or contribute to ambient air quality in a nearby area that does not meet the national primary or secondary air quality standards for a pollutant. Attainment areas are those that meet, the primary or secondary ambient air quality standards for the pollutant. According to the EPA, Bay County was redesignated to attainment status on January 16, 2001, for all six criteria pollutants (EPA, 2002b).

3.1.4a Alternative 1 – No Action Alternative

Construction activities associated with the detention basin and Dell Creek capacity upgrades would not occur under this alternative; therefore, there would be no impacts to air quality.

3.1.4b Alternative 2 – Construction of a 26-Acre Detention Basin, Improvements to Dell Creek Drain, and Installation of Culverts (Proposed Action)

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. A large portion of the emissions results from equipment traffic during construction.

The quantity of dust emissions from construction operations is directly proportional to the area of land being worked, the level of construction activity, the silt content of the soil, and the speed and weight of the average vehicle. The quantity of dust emissions is inversely proportional to the soil moisture. Higher soil moisture results in lower dust emissions. Emissions 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 criteria pollutants, including CO, NO₂, O₃, and particulate matter.

To mitigate for potential air quality impacts from 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.

3.1.4c Alternative 3 – Construction of a 55-Acre Detention Basin and Improvements to Dell Creek Drain

The impacts and mitigation of Alternative 3 will be the same as those discussed for the Proposed Action.

3.2 BIOLOGICAL ENVIRONMENT**3.2.1 Terrestrial and Aquatic Environment*****Terrestrial Environment***

Historically, the flat lands between Midland and Bay City were part of the mixed deciduous/conifer province of central Michigan. Common species in this forest type included beech (*Fagus* sp.), maple (*Acer* sp.), oak (*Quercus* sp.), aspen (*Populus* sp.), pine (*Pinus* sp.), spruce (*Picea* sp.), and fir (*Pseudotsuga* sp.). Currently, this area is dominated by agriculture with minor urban and forest components.

Within the project site of both action alternatives are several isolated stands of trees. These vegetation communities contain predominantly white pine (*Pinus strobus*), gray dogwood (*Cornus foemina*), American elm (*Ulmus Americana*), wild black cherry (*Prunus serotina*), basswood (*Tilia Americana*) and box-elder (*Acer negundo*). There is also a small area containing nursery stock trees such as spruce (*Picea spp.*). Habitat along the Dell Creek Drain in the vicinity of the culvert replacements is similar to that found along the drain as it passes through the agricultural field. This habitat is dominated by regularly maintained grasses with small components of native vegetation, including willow (*Salix* sp.) and cattails (*Typha* sp.).

Wildlife at the project site likely includes songbirds, waterfowl, small mammals, and other species well adapted to open space and land converted to agricultural purposes. This would include species such as wild turkey (*Meleagris gallopavo*), white-tailed deer (*Odocoileus virginianus*), crow (*Corvus brachyrhynchos*), rabbit (*Sylvilagus* spp.), and meadow vole (*Microtus pennsylvanicus*). Eastern chipmunk (*Tamias striatus*) and eastern grey squirrel (*Sciurus carolinensis*) are also anticipated on the more forested lands. Raptor species such as owls and hawks may also utilize the project area for hunting.

Aquatic Environment

The Dell Creek Drain is the principle aquatic resource in the vicinity of the project area. In the project area, and for 2 miles downstream of the proposed detention basin, the drain is highly channelized, and is regularly mowed and maintained by the Bay County Drain Commission. Although some native vegetation such as willow and cattail populate the slopes and channel of the drain, the majority of vegetation in and adjacent to the drain consists of grasses. During a URS site visit on May 14, 2002, water in the drain was observed to be 3 to 4 inches deep and no aquatic organisms were observed within it. It is anticipated, however, that some animals such as insects, amphibians, and possibly fish utilize the drain at least periodically.

A detention basin constructed in 1988, approximately 3.17 acres in size, is located about halfway between Eleven Mile Road and Garfield Road, about 300 feet north of US-10. Portions of the basin have developed emergent and scrub-shrub wetlands dominated by cattail, softrush (*Juncus effusus*), reed canary grass (*Phalaris arundinacea*), giant reed grass (*Phragmites australis*), and bar willow (*Salix exigua*), and gray dogwood (WCR, 2006). It is not expected to contain permanent populations of resident aquatic organisms; however, a variety of wildlife may utilize this habitat. These would include songbirds; insects; amphibians such as frogs and toads, turtles, and snakes; small mammals; and waterfowl such as mallard (*Anas platyrhynchos*) and Canada goose (*Branta canadensis*).

3.2.1a Alternative 1 - No Action Alternative

The No Action Alternative does not involve ground disturbance or construction; therefore, impacts to the terrestrial and aquatic habitat would not occur.

3.2.1b Alternative 2 – Construction of a 26-Acre Detention Basin, Improvements to Dell Creek Drain, and Installation of Culverts (Proposed Action)

Terrestrial Environment

Construction of a 26-acre detention basin, improvements to the Dell Creek Drain, and the installation of five culverts would disturb approximately 47 acres of terrestrial and aquatic habitat. This habitat is predominantly agricultural field and is common in the vicinity of the project area.

Excavation of agricultural land and its conversion to a detention basin with established wetlands could result in a moderate beneficial effect. Although agricultural crops are commonly an

excellent food source for species like turkey and deer, diverse native vegetation is typically more valuable to a greater variety of wildlife.

Soil excavation and the permanent stockpiling of soils on land containing small stands of trees would result in short-term adverse effects. Approximately 5 acres of immature or moderately mature forest would be removed and replaced with native shrubs, grasses and forbs to facilitate construction of the proposed detention basin. The loss of this habitat is likely to result in the displacement of wildlife dependant on these forest areas for cover. However, this impact would be considered minor since the forest areas area relatively small isolated tree stands with low plant diversity and habitat value.

Some areas of sparsely populated forest and fallow agricultural field on the westernmost 17 acres of the project site would be impacted by stockpiling excavated soils from the detention basin. After soils are stockpiled they would be planted with native vegetation including trees and shrubs. After several growing seasons, it is anticipated that the habitat created would equal or exceed the quality and quantity of habitat that is currently found at this site. This represents a short-term loss, but has the potential for a greater long-term benefit. Adverse impacts would be temporary and attenuated over time as the newly created habitat matures.

Aquatic Environment

Realigning the highly altered channel of Dell Creek Drain and Branches 1, 2, and 6, would result in a temporary adverse effect to aquatic habitat. During construction, some aquatic insects or amphibians may be disturbed or displaced. Once construction activities are concluded, the realigned drains would be seeded with grasses and forbs and would provide the same aquatic functions that were provided by the abandoned drains. Considering the quality of habitat that is found in the drains and the limited number of organisms populating the drains, this temporary adverse effect is considered minor.

Soils would be temporarily disturbed during construction activities, which would increase the potential for siltation into nearby surface waters if not properly managed. Erosion would be minimized through the use of BMPs as identified in the required MDEQ, SESC and NPDES permits.

3.2.1c Alternative 3 – Construction of a 55-acre Detention Basin and Improvements to Dell Creek Drain

Impacts to the terrestrial and aquatic environment under this alternative would be similar to those described under the Proposed Action; however, under this alternative, an additional 25 acres of farmland would be converted to a detention basin seeded with native grasses and forbs. As with the Proposed Action, this could result in a moderate beneficial effect.

Temporary construction impacts and mitigation measures would be similar to the Proposed Action.

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 wet 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 Federal Clean Water Act (CWA), the U.S. Army Corps of Engineers (USACE) would be contacted for appropriate 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. 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, 1994 PA 451, as amended. FEMA applies the Eight-Step Decision-Making Process, required by 44 CFR Part 9, to meet the requirements of EO 11990.

Prior to conducting a site characterization, wetland data maintained by the Michigan Department of Natural Resources (MDNR) were reviewed for a preliminary identification of wetlands in the vicinity of the site. Based on this review, forested wetlands and emergent wetlands exist north of the project boundary. Scrub-shrub wetlands, a forested wetland, and an open body of water exist within the areas proposed for basin creation and spoil stockpiling (Figure 4). The open body of water is an existing detention basin on the north side of Dell Creek Drain that does not adequately handle stormwater overflow.

The wetland areas identified on the wetland map (Figure 4) were verified by URS during a field visit conducted on May 14, 2002; however, a formal delineation of wetlands and waters of the United States in the potential areas of impact was not performed as part of this EA. An on-site wetland determination was conducted by WCR in 2005 and 2006 and 30 wetland areas ranging in size from 0.002 acres to 3.045 acres were identified (WCR, 2006). The 6.096 total acres of wetlands include emergent, scrub-shrub (see Figure 1 in Appendix D), and forested wetlands; 5.86 acres of the wetlands are regulated by MDEQ. Twenty-one of the wetland areas are less than 0.1 acre; the largest wetland identified is a 3.045 scrub-shrub wetland. Descriptions of the individual wetland areas can be found in Appendix D.

3.2.2a Alternative 1 - No Action Alternative

Under the No Action Alternative, no construction activities would occur; therefore, Dell Creek would not be modified and wetlands would not be impacted.

3.2.2b Alternative 2 – Construction of a 26-Acre Detention Basin, Improvements to Dell Creek Drain, and Installation of Culverts (Proposed Action)

A correspondence letter from the MDEQ dated April 27, 2004, stated that a permit would be required from their office if the project includes any dredging, filling, or draining of regulated wetlands (Appendix B). The Bay County Drain Commissioner applied for and received a permit from MDEQ under Part 303, Wetlands Protection, of the NREPA. A copy of the permit (No. 05-09-0032P), which was issued August 17, 2006, is provided in Appendix B.

Construction of the Proposed Action would impact 1.07 acres of regulated wetlands. This total includes:

- Approximately 0.41 acres of regulated emergent wetlands that would be impacted by relocation of the existing drains and construction of the detention basin berm
- Approximately 0.65 acres of emergent and scrub-shrub wetlands within the existing basin area
- Approximately 0.01 acres of a perched forested wetland area within the disposal area for dredge spoils

A detailed mitigation and monitoring plan was prepared to support the MDEQ permit application (see Appendix D). To mitigate for the loss of these wetlands, 22.26 acres of mitigation wetlands would be constructed resulting in a net gain of over 18 acres of wetlands. The mitigation wetlands would include 21.44 acres of emergent and scrub-shrub wetlands constructed within the proposed detention basin and 0.82 acres of emergent wetlands in the relocated drainage channels. Under the MDEQ wetland permit, 1.7 acres of the created wetlands within the detention basin are subject to the formal mitigation requirements under Part 303 of the NREPA and must be monitored in accordance with the permit conditions. These 1.7 acres would include an emergent/scrub-shrub wetland complex along the east end of the basin.

The Bay County Drainage Commissioner would place a protective conservation easement over the detention basin and mitigation wetlands (see Figure 3) and the wetlands would be monitored for long-term success in accordance with May 24, 2006 Wetland Mitigation Plan (Appendix D) and the MDEQ Permit (Appendix B).

The Proposed Action would result in the temporary loss of 1.06 acres wetlands and the permanent loss of 0.01 acre of wetland. This loss would be mitigated by the construction of 22.26 acres of wetlands within the detention basin and relocated drainage channels. The net gain of over 18 acres of emergent and scrub-shrub wetlands would significantly increase the wetland functions and values being provided in the project area. Therefore, no significant long-term wetland impacts are anticipated from the Proposed Action.

3.2.2c Alternative 3 – Construction of a 55-Acre Detention Basin and Improvements to Dell Creek Drain

A correspondence letter from the MDEQ dated April 27, 2004, stated that a permit would be required from their office if the project includes any dredging, filling, or draining of regulated wetlands (Appendix B). This permit would be required under Part 303, Wetlands Protection, of the NREPA, 1994 PA 451, as amended. As wetlands were identified on the property during the May 14, 2002, URS site visit and by WCR, the Applicant would be required to consult with MDEQ and obtain this permit. The modifications to Dell Creek Drain, a jurisdictional water of the United States, would also require review from MDEQ under Part 301, Inland Lakes and Streams, of the NREPA, 1994, as amended.

Although Alternative 3 proposes the construction of a larger detention basin, it is not anticipated that wetland impacts would be more significant than Alternative 2 provided a permit is obtained from MDEQ and appropriate mitigation measures are implemented in accordance with the permit.

3.2.3 Threatened and Endangered Species

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

FEMA requested that the Michigan MDNR review records for known occurrences of threatened, endangered, or otherwise significant plant and animal species, natural plant communities, and other natural features. In letters dated April 14, 2004, and March 3, 2006, the MDNR responded that there are no known occurrences of federal- or state-listed threatened, endangered, or otherwise significant species, natural plant communities, or natural features at the site (Appendix B).

The United States Department of the Interior, Fish and Wildlife Service (USFWS) was also contacted to review records for known occurrences of threatened and endangered species in the project area. In a consultation letter dated March 6, 2006, the USFWS indicated that the project is within the breeding range of the Federally-endangered Indiana bat (*Myotis sodalis*). 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).

3.2.3a Alternative 1 - No Action Alternative

The No Action Alternative does not involve ground disturbance or construction; therefore, there would be no impacts to threatened and endangered species.

3.2.3b Alternative 2 – Construction of a 26-Acre Detention Basin, Improvements to Dell Creek Drain, and Installation of Culverts (Proposed Action)

Under the Proposed Action, the placement of dredge spoils in upland areas and construction of the detention basin would require the removal of trees. Although the areas requiring tree removal are relatively small and immature isolated forest areas, some of the trees may be greater than 9 inches in diameter at breast height (dbh) and contain exfoliated bark. To prevent direct adverse impacts to any Indiana bats that may be using the area, trees would only be felled from November 1 to March 31, during the period when the bats are hibernating south of Michigan. As a result of their informal consultation with FEMA, USFWS stated in their March 6, 2006 letter that if activities within the 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.

3.2.3c Alternative 3 – Construction of a 55-Acre Detention Basin and Improvements to Dell Creek Drain

Under Alternative 3, about 5 acres of forest area would be removed that may contain trees larger than 9-inches dbh with exfoliating bark. To prevent direct adverse impacts to any Indiana bats that may be using the area, trees would only be felled from November 1 to March 31, during the period when the bats are hibernating south of Michigan.

[Did any consultation occur with FWS on the Fish & Wildlife Coordination Act?].

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 (Wentz, 1989).

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 in Sections 324.11101 – 324.11153 of the NREPA, 1994 PA 451, as amended. Federal regulations governing the assessment and disposal of hazardous wastes include RCRA, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Solid Waste Act (SWA), and the Toxic Substances Control Act (TSCA).

To determine the presence and approximate location of known hazardous materials in the vicinity of the proposed project, Environmental Data Resources, Inc. (EDR), an independent information service, conducted a database search. The database search queries multiple federal, state, and local hazardous materials and underground storage tank (UST) databases to identify sites within the distances required by the American Society for Testing and Materials (ASTM) Standard E 1527.

The EDR report listed three Resource Conservation and Recovery Information System (RCRIS) sites, two state hazardous waste (SHWS) sites, six leaking underground storage tank (LUST) sites, eight UST sites, and one aboveground storage tank (AST) site within a mile radius of the proposed project site. The proposed project site, however, was not listed in any of the databases searched by EDR. Because a majority of the sites listed by the EDR database are located to the east of Dell Creek and the proposed detention area, and are downgradient of the proposed project site, it is not anticipated that contamination from the majority of the sites will occur at the proposed project site. Movement of shallow groundwater is limited due to heavy clay subsoils, and it is unlikely that potential contaminants would be readily transferred through groundwater in the project vicinity (Klann, pers. comm.). However, part of the proposed detention area is located to the east of Dell Creek and is in proximity of one identified open LUST case associated with G & R Sales which is located on the east side of Garfield Road. Subsurface hazardous materials sampling was not conducted in the project area as a part of this EA. Conclusions are based only on the field reconnaissance, the database search, and reported historical use of the properties.

3.3a Alternative 1 - No Action Alternative

Under the No Action Alternative, no flood mitigation activities would be undertaken using FEMA funds. Hazardous wastes and materials likely to occur in the project area would not be altered from their present conditions.

3.3b Alternative 2 – Construction of a 26-Acre Detention Area, Improvements to Dell Creek Drain, and Installation of Culverts (Proposed Action)

Speedway, a gas station located on the west side of Garfield Road near the proposed detention area, appeared on the LUST database. According to the EDR report, the LUST was closed on July 24, 1998. Four USTs containing gasoline and one tank containing kerosene remain in use. USTs containing used oil and motor oil have been removed. Speedway is located 2,175 feet from the proposed target area used by the EDR search and approximately 330 feet from the proposed detention area edge. Another LUST site, G & R Sales, Inc., reported a release in 1999, and is located on the east side of Garfield Road near the northeast corner of the proposed detention basin. The LUST facility status at G & R Sales, Inc. remains open, but all of the USTs containing diesel, gasoline and used oil have been removed from the ground. The “open” status indicates that corrective actions have not been completed to meet the appropriate land use criteria. Reported information for this site did not indicate what type of material was released or if the release involved groundwater contamination. Due to the facility’s location on the opposite side of Garfield Road, it is not anticipated that contaminated soils from this site would be encountered during construction of the basin. If the material released contacted groundwater, the potential would exist for the contamination to be impacted by the Proposed Action if groundwater is encountered during construction. The MDEQ Environmental Response Division indicated that it is unlikely contamination would be encountered from the LUST sites due to the presence of clayey subsoils and limited shallow groundwater movement in the project area (Klann, pers. comm.) In addition, since shallow groundwater movement typically mimics topography, it is likely that groundwater movement at the G & R Sales site is towards the large, wet depressional area to the southeast of the property and away from the project site.

Should contamination be encountered during construction of the Proposed Action, MDEQ should be notified for assistance with the identification, removal, and disposal of contaminated materials. Contaminated materials should be contained and prevented from entering surface waters. Excavation activities could expose or otherwise affect other subsurface hazardous wastes or materials not yet identified. Any hazardous materials discovered, generated, or used during implementation of the proposed project would be disposed of and handled by the County in accordance with applicable local, state, and federal regulations.

3.3c Alternative 3 – Construction of a 55-Acre Detention Area and Improvements to Dell Creek Drain

Construction of Alternative 3 would be subject to the same concerns described under the Proposed Action. Should contamination be encountered during construction of Alternative 3, MDEQ should be notified for assistance with the identification, removal, and disposal of contaminated materials. Contaminated materials should be contained and prevented from entering surface waters. Excavation activities could expose or otherwise affect other subsurface hazardous wastes or materials not yet identified. Any hazardous materials discovered, generated, or used during implementation of the proposed project would be disposed of and handled by the County in accordance with applicable local, state, and federal regulations.

3.4 SOCIOECONOMICS**3.4.1 Noise**

Sound is most commonly measured in decibels (dB) on the A-weighted scale, which is the scale most similar to the range of sounds that the human ear can hear. The day-night average sound level (DNL) is an average measure of sound. The DNL takes into account the volume of each sound incident, the number of times each incident occurs, and the time of day each incident occurs (nighttime sound being weighted more heavily because it is assumed to be more annoying to the community). The DNL descriptor is accepted by federal agencies as a standard for estimating sound impacts and establishing guidelines for compatible land uses.

Noise, defined herein as unwanted or unwelcome sound, is regulated by the federal Noise Control Act of 1972 (NCA). Although the NCA gives the EPA authority to prepare guidelines for acceptable ambient noise levels, it only charges 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. Noise typically associated with construction equipment can measure as much as 80 dB within 50 feet from the source, attenuating at a rate of 6 dB per doubling of distance away from the source.

The proposed project must comply with the Bay County Noise Control Ordinance (Ordinance Number 22). Construction activities may only be performed on weekdays between the hours of 7 a.m. and 6 p.m. Furthermore, since the proposed project is located adjacent to a residential subdivision, a maximum decibel limit of 55 cannot be exceeded.

3.4.1a Alternative 1 – No Action Alternative

Under the No Action Alternative, FEMA-funded flood mitigation efforts would not be conducted and, therefore, would not generate noise. Noise levels would be expected to remain at current levels.

3.4.1b Alternative 2 – Construction of a 26-Acre Detention Basin, Improvements to Dell Creek Drain, and Installation of Culverts (Proposed Action)

Most noise associated with the Proposed Action would be emitted by mechanical equipment used during excavation of the basin, installation of culverts, and capacity upgrades to Dell Creek. Equipment associated with the Proposed Action includes bulldozers and scrapers with hopper buckets. As the work would be conducted within and adjacent to the Garfield and Walter's subdivisions, residents of the area may be subjected to construction-related noise up to 80 dB during daytime hours; however, this noise would not be constant and would occur during daylight hours only.

To mitigate for these potential noise impacts, Bay County 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.

No long-term negative effects associated with noise are anticipated under the Proposed Action.

3.4.1c Alternative 3 – Construction of a 55-Acre Detention Basin and Improvements to Dell Creek Drain

A majority of noise associated with Alternative 3 would be emitted by mechanical equipment used during excavation of the basin and capacity upgrades to Dell Creek. Construction equipment required to implement this alternative would be the same as described above for the Proposed Action. Since construction activities would be performed within and adjacent to the Garfield and Walter's subdivisions, residents of the area may be subjected to construction-related noise up to 80 db during daytime hours; however, this noise would not be constant and would occur during daylight hours only.

To mitigate for these potential noise impacts, Bay County 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.

No long-term negative effects associated with noise are anticipated under Alternative 3.

3.4.2 Environmental Justice (Executive Order 12898)

EO 12898 requires federal agencies to make achieving environmental justice part of their mission. Agencies are required to identify and correct programs, policies, and activities that have disproportionately high and adverse human health or environmental effects on minority and low-income populations. EO 12898 also tasks federal agencies with ensuring that public notifications regarding environmental issues are concise, understandable, and readily accessible.

Socioeconomic and demographic data were studied to determine if a disproportionate number (greater than 50 percent) of minority or low-income persons have the potential to be adversely affected by the alternatives.

Bay County supports a population of 110,157 individuals and is 94.9 percent white, 1.3 percent black, 0.5 percent American Indian/Alaskan Native, and 0.5 percent Asian. Approximately 3.9 percent of the residents classified themselves as being of Hispanic origin (U.S. Census Bureau, 2000). Median household income for the county is \$38,646, just slightly lower than the state's average of \$38,883. Approximately 6.7 percent of the population is considered below poverty level, which is lower than the state's 11.5 percent average (U.S. Census Bureau, 2000).

The proposed project area is located within Williams Township, which has a total population of 4,492 individuals and is 97.6 percent white, 0.2 percent black, 0.3 percent American Indian/Alaskan Native, 0.2 percent Asian, and 0.6 percent some other race. Approximately 1.9 percent of the residents classified themselves as being of Hispanic origin. Median household income for the township is \$54,766, which is significantly higher than the state's average of \$38,883. Approximately 2.9 percent of the population is considered below the poverty level, considerably less than the state's 11.5 percent average (U.S. Census Bureau, 2000).

Based upon a review of the U.S. Census information, the No Action, Proposed Action, and Alternative 3 are not deemed to have a disproportionately high and adverse impact on minority or low-income populations. Additionally, the proposed flood mitigation measures would benefit all populations residing within or adjacent to the project area.

3.4.3 Safety and Security

Safety and security issues that have been considered in this analysis include the health and safety of the area residents, the residents of the Garfield and Walter's subdivisions, and the protection of personnel involved in activities related to the implementation of the action alternatives. All safety and security standards as established by the Michigan Occupational Safety and Health Administration (MIOSHA) and the Occupational Safety and Health Administration (OSHA) would be implemented and followed for the duration of the construction.

Dam safety in Michigan is regulated by MDEQ under Part 315, Dam Safety, of the NREPA. Dams, as defined under part 315, include structures that will impound water to a height of 6 feet or more. The proposed detention basin under Alternatives 2 and 3 would impound water to a height of 5 feet. MDEQ determined during their permitting review that the proposed detention basin does not require a permit under Part 315 of the NREPA.

3.4.3a Alternative 1 – No Action Alternative

Under the No Action Alternative, the potential for flooding to occur would remain. Without mitigating the flood risk, the potential for adverse impacts on public safety due to future flood events in the proposed project area would be greater than either the Proposed Action or Alternative 3.

As the No Action Alternative does not involve the employment of personnel to perform construction activities, there would be no potential risks to the personal safety of those who would otherwise be performing construction activities.

3.4.3b Alternative 2 – Construction of a 26-Acre Detention Basin, Improvements to Dell Creek Drain, and Installation of Culverts (Proposed Action)

Under the Proposed Action, construction 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 MIOSHA and OSHA regulations. To protect the health and safety of area residents, the Applicant should evaluate the appropriateness of installing a fence around the perimeter of the basin, particularly if groundwater infiltration results in the basin retaining water for long periods. Overall, the project activities would decrease risks to human health and safety associated with some flood events.

3.4.3c Alternative 3 – Construction of a 55-Acre Detention Basin and Improvements to Dell Creek Drain

As previously described for the Proposed Action, construction may 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 MIOSHA and OSHA regulations. To protect the health and safety of area residents, the Applicant should evaluate the appropriateness of installing a fence around the perimeter of the basin. Overall, the

project activities would decrease risks to human health and safety associated with some flood events.

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 impacted by the proposed project. 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).

As defined in 36 CFR Part 800.16(d), the Area of Potential Effect (APE) “is the geographic 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 proposed project’s APE, FEMA must also determine, in consultation with the appropriate State Historic Preservation Officer (SHPO), what effect, if any, the action would have on historic properties. Moreover, if the project would have an adverse effect on these properties, FEMA must consult with the SHPO on ways to avoid, minimize, or mitigate the adverse effect.

In a March 5, 2002, letter, the Michigan SHPO stated that no historic properties would be affected with the APE of the proposed project (Appendix B). The Michigan SHPO was contacted on May 19, 2004 and confirmed that the opinion provided in their March 5, 2002, letter was still valid (Raven, pers. comm.). Based on this information, FEMA has concluded that the proposed project would not impact archaeological or historic resources. A determination letter was sent by FEMA to the SHPO on October 18, 2004 (Appendix B).

Tribal Consultation

Requests for evaluation of the presence or absence of known archaeological and Indian Religious sites within the proposed project area were submitted to the following federally recognized tribal groups in Michigan: Saginaw Chippewa Indian Tribe, Lac Vieux Desert Band of Lake Superior Chippewa, and the Hannahville Indian Community. The Ziibiwing Cultural Society of the Saginaw Chippewa Indian Tribe responded that they do not have any information concerning the presence of any Indian Traditional Cultural Properties, Sacred Sites or Significant Properties at the proposed site. The Lac Vieux Desert Band of Lake Superior Chippewa Tribal Government responded that the project area is located beyond their boundaries. The Hannahville Indian Community indicated that the project does not affect an Indian religious site or burial ground or their community, but they would appreciate being contacted if any potential burial sites or religious artifacts are encountered. Copies of the tribal response letters are included in Appendix B.

3.5a Alternative 1 – No Action Alternative

Construction of a detention basin, installation of culverts and capacity upgrades to portions of Dell Creek would not occur under the No Action Alternative. Because no ground disturbing

construction activities would take place under this alternative, there would be no impacts to historic or archaeological resources.

3.5b Alternative 2 – Construction of a 26-Acre Detention Basin, Improvements to Dell Creek Drain, and Installation of Culverts (Proposed Action)

It is not anticipated that any historic or cultural resources within the project area would be impacted if the proposed flood mitigation measures are implemented; however, if artifacts or human remains are encountered during construction, work in the vicinity would be discontinued, and the Applicant would immediately notify FEMA, the SHPO, and the county coroner, if necessary.

3.5c Alternative 3 – Construction of a 55-Acre Detention Basin and Improvements to Dell Creek Drain

Alternative 3 would implement the same type of flood mitigation measure, except that the proposed detention basin would be 25 acres larger. It is not anticipated that any historic or cultural resources within the project area would be impacted; however, if artifacts or human remains are encountered during construction, work in the vicinity would be discontinued, and the Applicant would immediately notify FEMA, the SHPO, and the county coroner, if necessary.

3.6 IMPACT SUMMARY

A summary of anticipated environmental impacts is presented in Table 1 for each of the alternatives.

Table 1: Impact Summary Matrix

A. Description of Alternative	No Action Alternative (Alternative 1)	Construction of a 26-acre detention basin, improvements to Dell Creek Drain, and installation of culverts (Alternative 2 – Proposed Action)	Construction of a 55-acre detention basin and improvements to Dell Creek Drain (Alternative 3)
	<ul style="list-style-type: none"> Under the No Action Alternative, flood mitigation measures would not be implemented or developed for Williams Township. Flooding of roads, private property, and farmland would continue to occur. 	<ul style="list-style-type: none"> Alternative 2 proposes to construct a 5-foot deep, 26-acre detention basin north of Highway 10 between Garfield Road and Eleven Mile Road. Dell Creek Drain would be rerouted and channelized within the proposed detention basin. Existing culverts under various roads in the subdivisions would be improved or replaced. 	<ul style="list-style-type: none"> Alternative 3 proposes to construct a 5-foot deep, 55-acre detention basin north of Highway 10 between Garfield Road and Eleven Mile Road. Dell Creek Drain would be rerouted and channelized within the proposed detention basin. Wingwalls for certain culverts associated with subdivision roads would be upgraded.
B. Potential Impacts	No Action Alternative	Construction of a 26-acre detention basin, improvements to Dell Creek Drain, and installation of culverts (Alternative 2 – Proposed Action)	Construction of a 55-acre detention basin and improvements to Dell Creek Drain (Alternative 3)
Geology, Seismicity, and Soils	<ul style="list-style-type: none"> No impacts to soils and prime farmland. The geologic framework of the area would not be impacted. 	<ul style="list-style-type: none"> Removal of 225,867 cubic yards of soil during the basin excavation. Approximately 25 acres of farm field and 5 acres of trees would be converted to non-agricultural purposes for basin construction. No impact to prime or unique farmland. Potential for soil erosion during construction. The geologic framework of the project area would not be impacted. 	<ul style="list-style-type: none"> Removal of 443,700 cubic yards of soil during the basin excavation. Approximately 50 acres of farm field and 5 acres of trees would be converted to non-agricultural purposes for basin construction. No impact to prime or unique farmland. Potential for soil erosion during construction. The geologic framework of the project area would not be impacted.

B. Potential Impacts	No Action Alternative	Construction of a 26-acre detention basin, improvements to Dell Creek Drain, and installation of culverts (Alternative 2 – Proposed Action)	Construction of a 55-acre detention basin and improvements to Dell Creek Drain (Alternative 3)
Water Resources and Water Quality	<ul style="list-style-type: none"> No impacts to water resources and water quality. 	<ul style="list-style-type: none"> Erosion and sedimentation may occur during construction but would be mitigated by using stormwater best management practices. No anticipated effects to groundwater resources. Long-term adverse impacts to water resources and water quality are not anticipated. 	<ul style="list-style-type: none"> Erosion may occur during construction but would be mitigated by using stormwater best management practices. No anticipated effects to groundwater resources. Long-term adverse impacts to water resources and water quality are not anticipated.
Floodplain Management	<ul style="list-style-type: none"> No impacts to the floodplain would be anticipated. 	<ul style="list-style-type: none"> The detention basin would accommodate 100-year storm events. Discharge in Dell Creek Drain would be reduced and there would be no impacts upstream or downstream. Flooding from Dell Creek Drain would be significantly reduced. 	<ul style="list-style-type: none"> The detention basin would accommodate greater than 100-year storm events. Discharge in Dell Creek Drain would be reduced and there would be no impacts upstream or downstream. Flooding from Dell Creek Drain would be significantly reduced.
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. Mechanical vehicles have the potential to temporarily increase criteria air pollutants of concern. 	<ul style="list-style-type: none"> Fugitive dust emissions due to heavy construction equipment may have a temporary impact on local air quality. Mechanical vehicles have the potential to temporarily increase criteria air pollutants of concern.
Terrestrial and Aquatic Environment	<ul style="list-style-type: none"> There would be no impact to the terrestrial or aquatic environment. 	<ul style="list-style-type: none"> Basin construction would require the replacement of approximately 5 acres of immature to moderately mature trees and 25 acres of farm field with native grasses and forbs and wetland vegetation. Soil disposal would impact approximately 5 acres of sparsely populated forest and 12 acres of farm field. 	<ul style="list-style-type: none"> Basin construction would require the replacement of approximately 5 acres of immature to moderately mature trees and 50 acres of farm field with native grasses and forbs and wetland vegetation. Soil disposal would impact approximately 5 acres of sparsely populated forest and 12

SECTION THREE

Affected Environment & Environmental Consequences

B. Potential Impacts	No Action Alternative	Construction of a 26-acre detention basin, improvements to Dell Creek Drain, and installation of culverts (Alternative 2 – Proposed Action)	Construction of a 55-acre detention basin and improvements to Dell Creek Drain (Alternative 3)
		<p>Impact would be mitigated by replanting 17 acres with native trees, shrubs and grasses.</p> <ul style="list-style-type: none"> Increased potential for erosion in the aquatic environment during construction would be mitigated by using construction BMPs. 	<p>acres of farm field. Impact would be mitigated by replanting 17 acres with native trees, shrubs and grasses.</p> <ul style="list-style-type: none"> Increased potential for erosion in the aquatic environment during construction would be mitigated by using construction BMPs.
Wetlands	<ul style="list-style-type: none"> No impacts to wetlands.. 	<ul style="list-style-type: none"> Impact to wetlands would be mitigated by complying with permit from MDEQ obtained under Part 303 of the NREPA and adhering to all mitigation and compensation requirements. 	<ul style="list-style-type: none"> Impact to wetlands would be mitigated by obtaining a permit from MDEQ under Part 303 of the NREPA and adhering to all mitigation and compensation requirements.
Threatened and Endangered Species	<ul style="list-style-type: none"> No impacts to threatened and endangered species would be expected. 	<ul style="list-style-type: none"> No impacts to proposed or listed threatened and endangered species would be expected. Direct adverse impacts to the Federally-endangered Indiana bat would be avoided by felling trees only during the period November 1 to March 31, when the bats are hibernating south of Michigan. 	<ul style="list-style-type: none"> No impacts to proposed or listed threatened and endangered species would be expected. Direct adverse impacts to the Federally-endangered Indiana bat would be avoided by felling trees only during the period November 1 to March 31, when the bats are hibernating south of Michigan.
Hazardous Materials and Wastes	<ul style="list-style-type: none"> No impacts to hazardous materials or wastes are anticipated. 	<ul style="list-style-type: none"> No impacts to hazardous materials or wastes are anticipated. 	<ul style="list-style-type: none"> No impacts to hazardous materials or wastes are anticipated.
Zoning and Land Use	<ul style="list-style-type: none"> No direct impacts to land use and zoning would occur. 	<ul style="list-style-type: none"> No impact to current zoning. Approximately 30 acres of farmland would be converted to a detention basin. 	<ul style="list-style-type: none"> No impact to current zoning. Approximately 55 acres of farmland would be converted to a detention basin.
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 construction as a result of equipment and stockpiles.

SECTION THREE

Affected Environment & Environmental Consequences

B. Potential Impacts	No Action Alternative	Construction of a 26-acre detention basin, improvements to Dell Creek Drain, and installation of culverts (Alternative 2 – Proposed Action)	Construction of a 55-acre detention basin and improvements to Dell Creek Drain (Alternative 3)
		<ul style="list-style-type: none"> The project would slightly alter the landscape but would not adversely impact the visual resources of the area. 	<ul style="list-style-type: none"> The project would slightly alter the landscape but would not adversely impact the visual resources of the area.
Noise	<ul style="list-style-type: none"> No additional noise would be generated. 	<ul style="list-style-type: none"> Temporary increase in the ambient noise levels due to equipment use. 	<ul style="list-style-type: none"> Temporary increase in the ambient noise levels due to equipment use
Public Services and Utilities	<ul style="list-style-type: none"> No immediate impact, but future flooding could cause temporary road closures, affecting the ability of emergency personnel to access certain areas. 	<ul style="list-style-type: none"> No anticipated adverse effects on public services and utilities are anticipated under this alternative. 	<ul style="list-style-type: none"> No anticipated adverse effects on public services and utilities are anticipated under this alternative.
Traffic and Circulation	<ul style="list-style-type: none"> There would be no immediate impact to traffic circulation. Future flooding may result in road closures and degradation. 	<ul style="list-style-type: none"> No impact to traffic and circulation. 	<ul style="list-style-type: none"> No impact to traffic and circulation.
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.
Safety and Security	<ul style="list-style-type: none"> Potential safety risks to residents in the event of a flood would remain. 	<ul style="list-style-type: none"> Overall, the project activities would decrease risks to human health and safety associated with some flood events. 	<ul style="list-style-type: none"> Overall, the project activities would decrease risks to human health and safety associated with some flood events.
Cultural Resources	<ul style="list-style-type: none"> 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 non-federal) or person undertakes such other actions. Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time.

No cumulative impacts are anticipated as a result of the proposed project. Country Estate subdivision is located immediately west of the Dell Creek Drain and the Garfield and Walter's subdivisions. Like the Garfield and Walter's subdivisions, Country Estates floods when Dell Creek overflows. Consequently, a .33-acre basin designed to handle 100-year storm events was constructed as a flood mitigation measure for the subdivision a few hundred feet north of the proposed project location. Approximately .33 acre of farmland was converted to non-agricultural use as a result of the construction of the Country Estates detention basin. The construction of the proposed detention basin coupled with the nearby Country Estates detention basin produces a cumulative net loss of farmland. As the Country Estates detention basin has already been constructed, no adverse cumulative impacts to farmland are expected.

The Bay County Drain Commissioner issued Storm Water Management Plan and Design Standards that apply to all commercial, industrial, subdivision, condominium, and manufactured home development within the County. New development must comply with the standards and must demonstrate that the proposed development will not significantly alter storm water flows from existing conditions upstream or downstream from the property being developed. Therefore, new development would not be permitted that would increase storm water runoff into the proposed detention basin or Dell Creek Drain and cumulative impacts to the floodplain and the drainage capacity of Dell Creek Drain associated with future development are not expected.

In May 2005 and January 2006, the Bay County Drain Commissioner issued letters to residents in the Dell Creek Drain area informing them of the proposed project and offering the opportunity to comment on the project. Copies of the letters and the mail list are provided in Appendix E.

A public notice advertising the availability of the draft EA for public review was published in the Bay City Times on June 24, 2007 and the draft EA was available for review at the Williams Charter Township Hall and the Auburn Area Library Branch. The draft EA was also available online at the FEMA website: <http://www.fema.gov/plan/ehp/envdocuments/ea-region5.shtm>. A copy of the notice is provided in Appendix E. The public was provided the opportunity to review the EA from June 25, 2007 to July 25, 2007 and comment on the Proposed Action. The FEMA Region V office collected and compiled comments submitted by the public.

At the conclusion of the public review period, a summary of comments received will be provided in this section and copies of the comments will be included in Appendix E.

The following permits would be required for the implementation of the Proposed Action:

1. A permit issued through the MDEQ would be required for construction activities in the proposed project area, as mandated under Public Act 451 and the NREPA Part 301 – Inland Lakes and Streams, Part 303 – Wetlands Protection. This permit was issued by MDEQ for the Proposed Action on August 17, 2006.
2. Bay County requires the Applicant to obtain a Soil Erosion and Sedimentation Control (SESC) permit.
3. After the SESC permit has been obtained, a Notice of Coverage must be submitted to MDEQ for coverage under the Permit-by-Rule for stormwater discharges from construction activities.

The Applicant must follow all applicable local, state, and federal laws, regulations and requirements and must obtain and comply with all required permits prior to initiating work on the project. No staging of equipment or project activities shall begin until all permits are obtained. If any permit conditions change the scope of work of the project, the applicant would resubmit the project to FEMA for additional review.

The following mitigation measures would be required for the implementation of the Proposed Action or Alternative 3:

1. Soil to be used for berm construction should be tested for suitability prior to use in berm construction. Only suitable material that meets ASTM standards and state requirements should be used.
2. Use native vegetation to revegetate the proposed berms and detention basin, thus reducing soil erosion potential.
3. Use construction BMPs defined by MDEQ and specified in the SESC permit to minimize soil erosion during construction.
4. Develop a long-term maintenance plan for the detention basin. Maintain mitigation wetland areas in accordance with the MDEQ permit and May 24, 2006 the project's Wetland Mitigation Plan.
5. To prevent impacts to Indiana bats, trees shall be felled only during the period November 1 through March 31.
6. To mitigate for potential air quality impacts from 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.
7. Should contamination be encountered during construction, MDEQ should be notified for assistance with the identification, removal, and disposal of contaminated materials. Contaminated materials should be contained and prevented from entering surface waters.
8. Any hazardous materials discovered, generated, or used during implementation of the proposed project would be disposed of and handled by the County in accordance with applicable local, state, and federal regulations.

9. To mitigate for potential noise impacts, Bay County 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. Construction activities would occur between 7:00 am and 6:00 pm on weekdays only.
10. 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 MIOSHA and OSHA regulations.
11. If cultural artifacts or human remains are encountered during construction, work in the vicinity would be discontinued, and the Applicant would immediately notify FEMA, the SHPO, and the county coroner, if necessary.

The following agencies were consulted during preparation of this EA:

Federal Agencies Consulted

U.S. Department of Agriculture, Natural Resources & Conservation Service

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

State, City, and Local Agencies Consulted

Williams Township Clerk's Office

Bay County Drain Commission

Michigan Department of Environmental Quality

Michigan Department of Natural Resources

Michigan State Historic Preservation Office

Tribal Agencies Consulted

Hannahville Indian Community

Lac Vieux Desert Band of Lake Superior Chippewa Tribal Government

The Saginaw Chippewa Indian Tribe, Ziibiwing Cultural Society

Distribution

Amanda Ratliff, Regional Environmental Officer, FEMA Region V

Bruce Menerey, Michigan Department of Environmental Quality

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

References

Environmental Protection Agency (EPA). 2002. <http://yosemite.epa.gov/water/surfnote.nsf>. Site visited July 25, 2002.

EPA. 2002a. <http://epa.gov/ecoplaces/part2/region5/site12/html>. Site visited July 25, 2002.

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International Joint Commission. 2002. <http://www.ijc.org/comm.bio.htm/>. Site visited July 24, 2002.

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- Wetland and Coastal Resources, Inc. (WCR). 2006. Wetland Mitigation Plan prepared for Bay County Drain Commissioner and Wade Trim. May 24, 2006.
- Personal Communication***
- Charney, Amy. 2002. Williams Township Clerks Office. Personal communication with Andrea Farley, URS Environmental Scientist, July 8, 2002.
- Klann, Rhonda. 2002 MDEQ Environmental Response Division. Personal communication with Andrea Farley, August 22, 2002
- Raven, Alexandra. 2004. State Historic Preservation Office, Michigan Historical Center. Personal communications with Janet Frey, May 3 and May 19, 2004.
- Walsh, Sara. 2002. MDEQ, Surface Water Quality Division, Personal communication with Andrea Farley, URS Environmental Scientist August 2, 2002.
- Walkington, Terry. 2002. MDEQ, Saginaw Bay District, Surface Water Quality Division, Personal communication with Andrea Farley, URS Environmental Scientist August 19, 2002.

Andrea Farley, Senior Environmental Scientist and Kim Collini, Environmental Planner.

Technical researchers and co-authors of sections on Geology, Seismicity, and Soils; Water Resources and Water Quality; Floodplain Management; Air Quality; Threatened and Endangered Species; Hazardous Materials; Zoning and Land Use; Noise; Public Services and Utilities; Traffic and Circulation; Environmental Justice; Safety and Security; and Cumulative Impacts.

Tom Hay, Environmental Scientist. Technical researcher. Author of sections on Wetlands; Terrestrial and Aquatic Environments; and Visual Resources.

Amy Siegel. Document Quality Control

Angela Chaisson, CWB, Senior Ecologist. Document Peer Reviewer

Janet Frey, PG, CFM, Project Scientist. Document cCoordinator and Peer Reviewer

Don Glondys, Task Order Manager

Appendix A
Figures & Photographs

Figures:

Figure 1: Regional Map

Figure 2: Proposed Action Site Plan

Figure 3: Proposed Action, Detention Basin Detail

Figure 4: MDNR Wetland Map

Photographs:

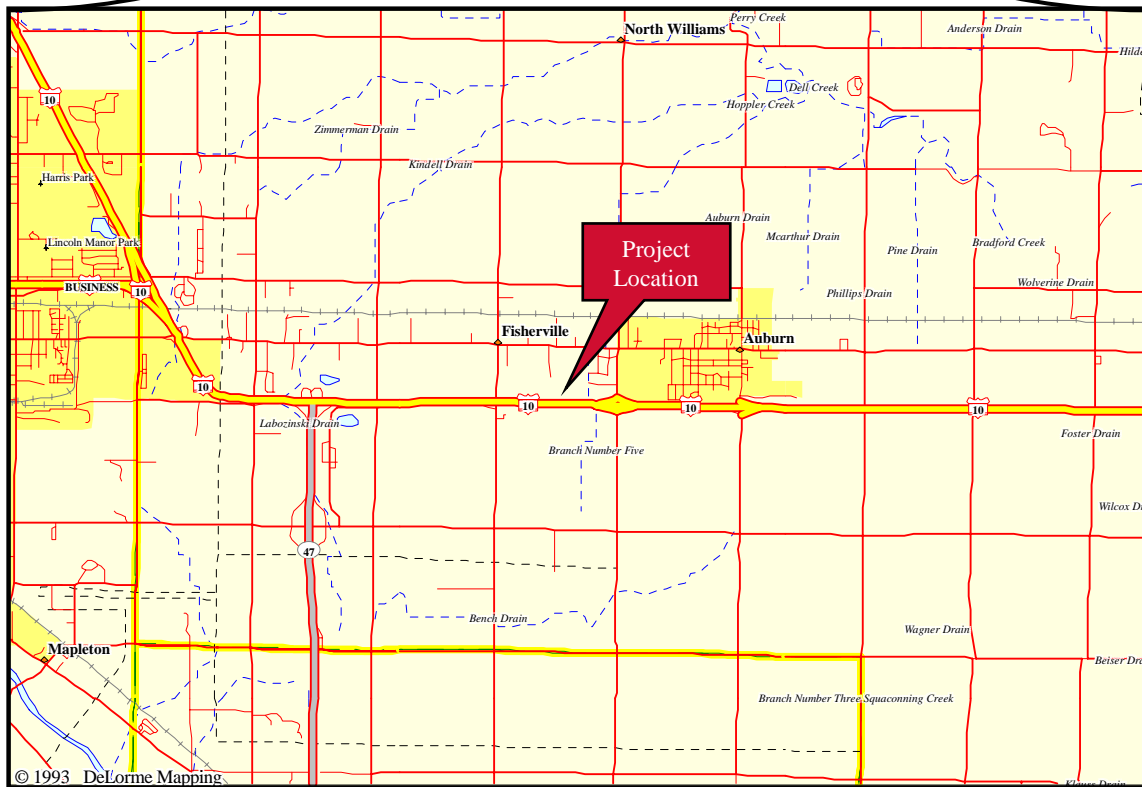
Photo 1: View of the proposed detention basin location taken from Garfield Road.


Photo 2: View of the proposed detention basin location taken from Garfield Road.

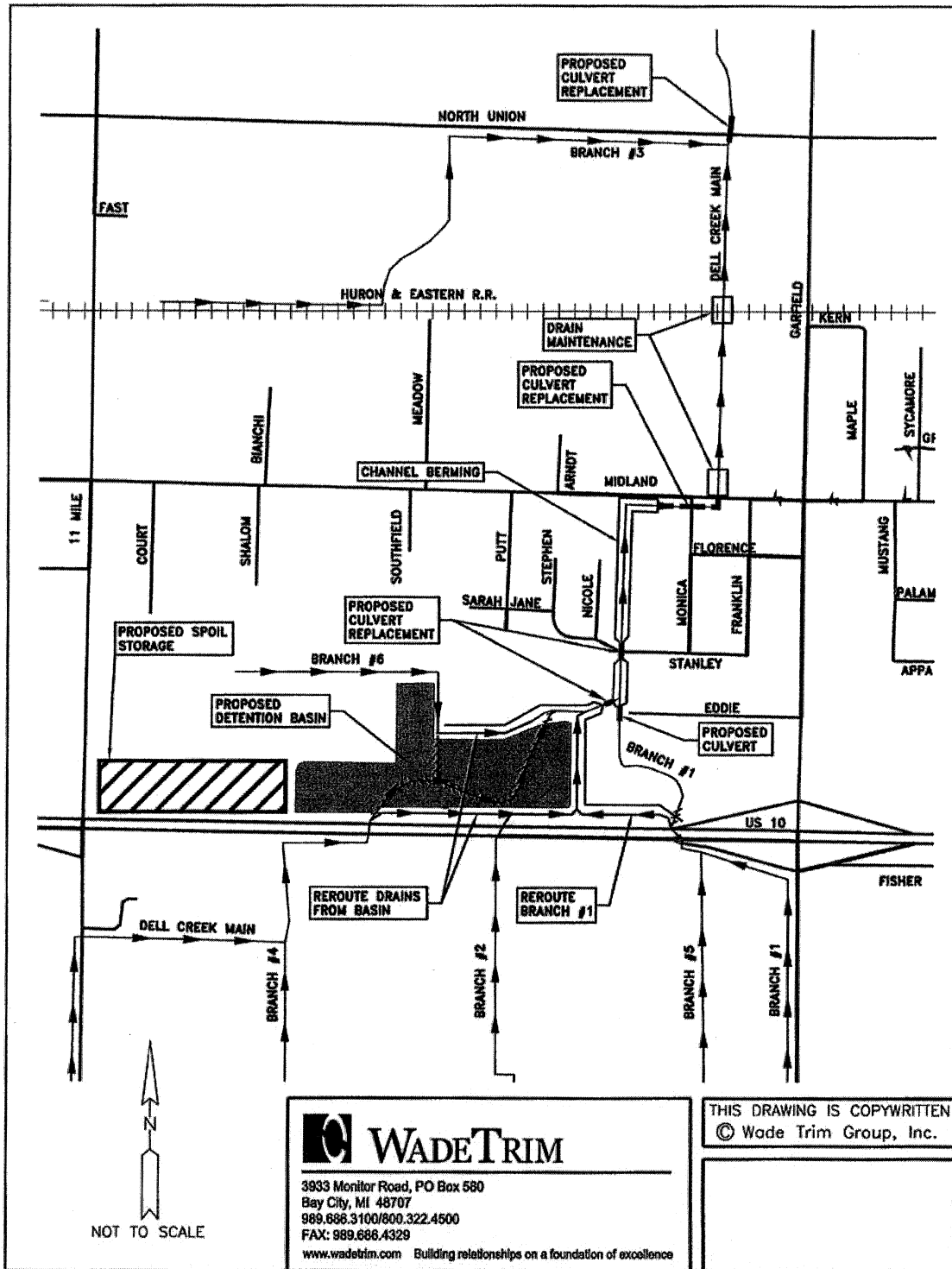
Photo 3: View of Dell Creek.

Photo 4: View of Dell Creek.

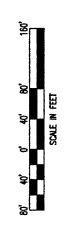
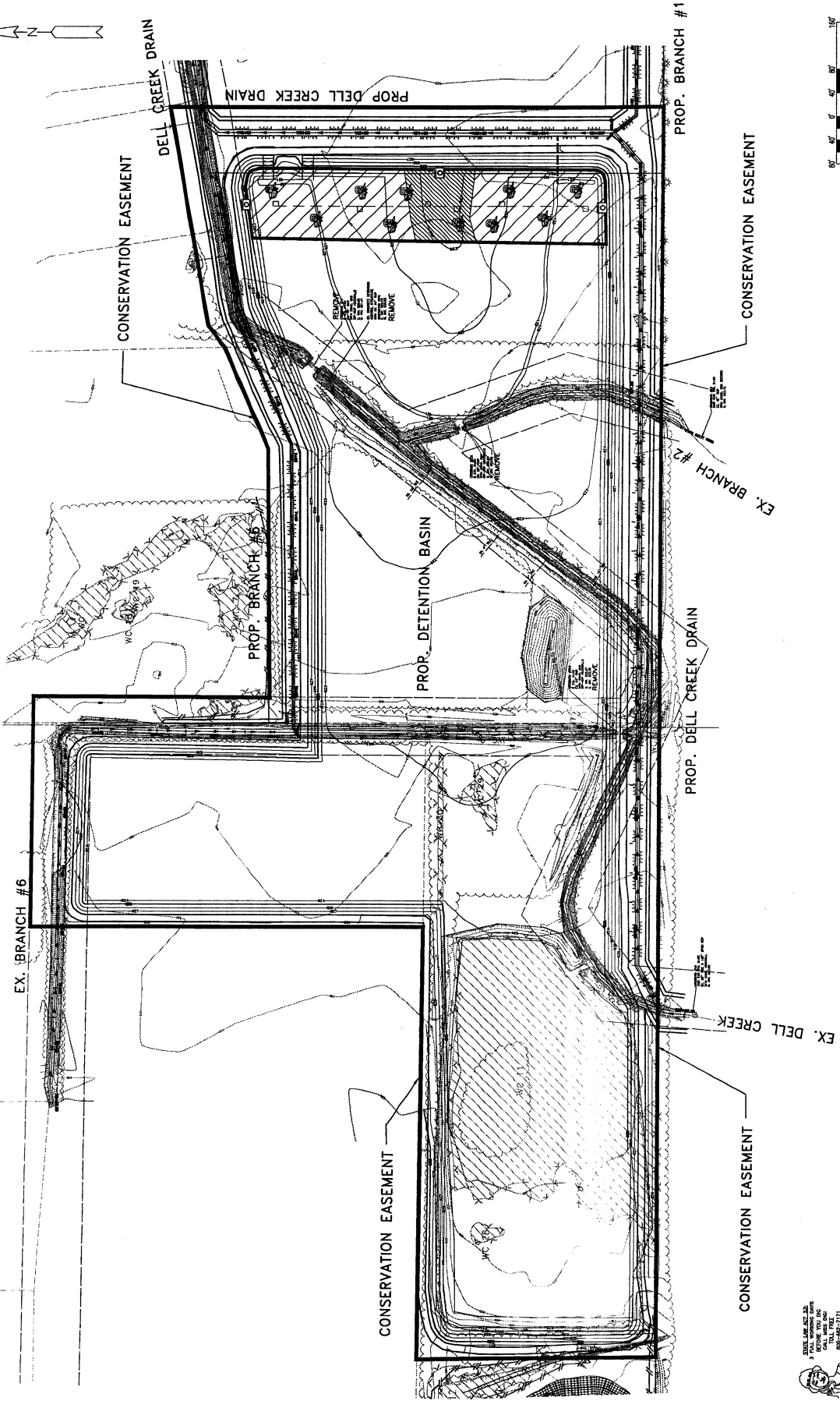
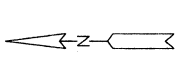
Figures



CLIENT FEMA				TITLE REGIONAL MAP	
PROJ Bay County, Drain Commission Detention Pond					
REVISION NO	DES BY		PROJ NO 15292488		
SCALE NOT TO SCALE	DR BY DK	8-27-02	FIGURE 1		
FILE Regional Map.ppt	CHK BY TH	8-27-02			

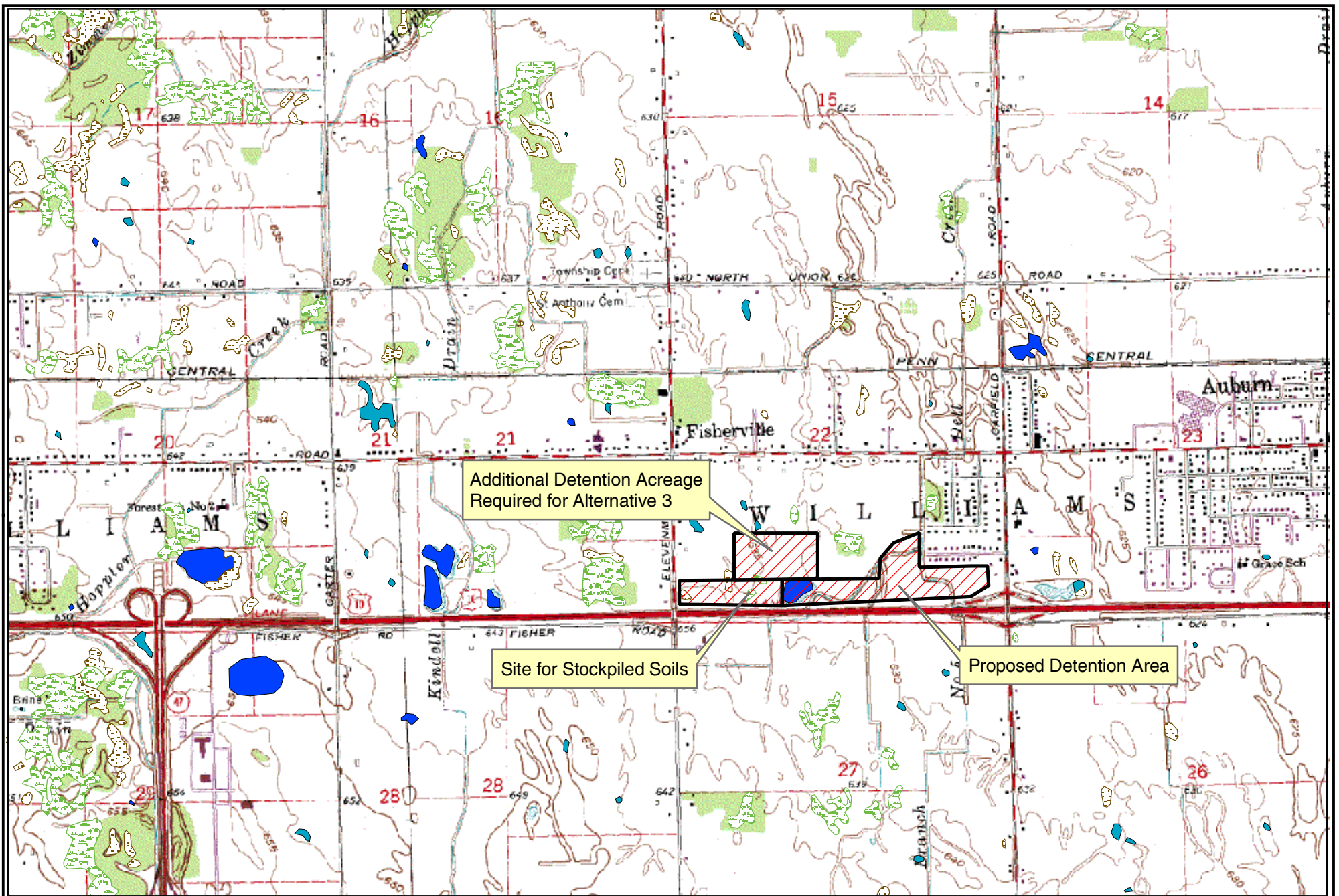


CLIENT FEMA			TITLE		
PROJ Bay County, Drain Commission			PROPOSED ACTION SITE PLAN		
REVISION NO	DES BY		URS	PROJ NO	15292488
SCALE	DR BY			FIGURE	2
FILE	CHK BY	T			



CLIENT	FEMA	TITLE	PROPOSED ACTION, DETENTION BASIN DETAIL		
PROJ	Bay Co. Drain Commissioner	PROJ NO	15292488	FIGURE	3
REVISION NO	NOT TO SCALE	DES BY			
SCALE		DR BY			
FILE		CHK BY			

Source; WadeTrim drawing :
 BDC2045078\CST-PLTS-PLAN.DWG



USGS 7.5 MINUTE QUADRANGLE
SOURCE: Auburn, MI

Wetlands	
	Open Water/Unknown Bottom
	Rocky Shore
	Aquatic Bed
	Beach/Bar
	Emergent
	Flat
	Forested
	Streambed
	Scrub-Shrub
	Unconsolidated Bottom
	Unconsolidated Shore



CLIENT: FEMA		TITLE: Wetlands	
PROJ: Bay County, Drain Commission Detention Pond			
REV NO:			
SCALE: 1 inch equals 2,000 feet		DES	NG
FILE: G:/15292488/PROJECTS/AUBURN_NWI.MXD		CHK	HG



FIGURE:
5

Photographs

Client Name:

Federal Emergency Management Agency
(FEMA)

Site Location:

Bay County, Michigan

**Photograph
No.1**

Date:
5/14/02

**Direction Photograph
Taken:**
West

Description:

View of the proposed
detention basin location
taken from Garfield
Road.



**Photograph
No. 2**

Date:
5/14/02

**Direction Photograph
Taken:**
West

Description:

View of the proposed
detention basin location
taken from Garfield
Road.



Client Name:
Federal Emergency Management Agency
(FEMA)

Site Location:
Bay County, Michigan

Photograph No. 3 **Date:**
5/14/02

Direction Photograph Taken:
South

Description:
View of Dell Creek Drain.



Photograph No. 4 **Date:**
5/14/02

Direction Photograph Taken:
North

Description:
View of Dell Creek Drain.



Appendix B
Agency Correspondence

U.S. Department of Agriculture
Natural Resources Conservation Services
3001 Coolidge Road, Suite 250
East Lansing, MI 48823

Michigan Department of Environmental Quality
P.O. Box 30437
Lansing, MI 48909

Michigan Department of Natural Resources
Stevens T Mason Building, P.O. Box 30028
Lansing, MI 48909

U.S. Fish and Wildlife Service
2651 Coolidge Road, Suite 101
East Lansing, MI 48823

Michigan Historic Preservation Office
717 West Allegan Street
Lansing, MI 48918

Tribal Consultations
Hannahville Potawatomi Indian Community
N14911 Hannahville B1 RD
Wilson, MI 49896

Tribal Consultations
Lac Vieux Desert Band of Lake Superior Chippewa Tribe
P.O. Box 249, Choate Road
Watersmeet, MI 49969

Tribal Consultations
Saginaw Chippewa Indian Tribe
6870 E. Broadway
MT. Pleasant, MI 48858

Appendix C
E.O. 11988 and E.O. 11990
Eight-Step Planning Process

<p>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.</p>	<p>Project Analysis: Williams Township currently participates in and is in good standing with the NFIP. The project area is located on FIRM Panel 26017C0160 D. This panel is not printed by FEMA because it contains no special flood hazard areas. In a letter dated April 27, 2004, the Michigan Department of Environmental Quality (MDEQ) stated that the project is not within a federally identified flood hazard area. However, the project is located next to Dell Creek Drain and is in the natural floodplain of the creek.</p> <p>Emergent, scrub-shrub, and forested wetlands, and an open body of water exist within the area proposed for detention basin creation and spoil stockpiling.</p>
<p>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 process.</p>	<p>Project Analysis Initial notification was provided by FEMA in the <i>Detroit Free Press</i> on October 29, 2000.</p> <p>The Draft EA will be made available for public review for a period of 30 days.</p>
<p>Step 3: Identify and evaluate practicable alternatives to locating the Proposed Action in a floodplain or wetland.</p>	<p>Project Analysis: The proposed project involves constructing a detention basin and modifying Dell Creek Drain to reduce flooding of the residential areas, roads, and farmland in the project area. The proposed project area is not located within a FEMA-identified floodplain. No practicable alternatives were identified that did not involve construction in wetlands.</p>
<p>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.</p>	<p>Project Analysis:</p> <p>Based on an evaluation of the Applicant's H&H analyses, no impacts to the upstream or downstream area of the drain should occur as a result of the proposed detention basin and culverts replacements.</p> <p>The Proposed Action would 1.07 acres of regulated wetlands. Approximately 0.41 acres of emergent wetlands would be impacted by relocation of the existing drains and construction of the detention basin berm. Approximately 0.65 acres of emergent and scrub-shrub wetlands within the existing basin area would be impacted. Approximately 0.01 acres of a perched forested wetland area within the disposal area for dredge spoils would be impacted.</p> <p>The proposed improvements are intended to mitigate flooding impacts on existing developed areas and would not support development in the natural floodplain of Dell Creek or adjacent wetlands.</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 wetlands.</p>	<p>Project Analysis: The Bay County Drain Commissioner obtained a permit for the Proposed Action from the Michigan Department of Environmental Quality (MDEQ) under Part 31, Water Resources Protection, Part 301, Inland Lakes and Streams, Part 303, Wetlands Protection, of the NREPA.). During the permitting process, project modifications were made to avoid some wetland areas and minimize impacts to others. To mitigate for the 1.07 acres of wetland impacts, a wetland mitigation plan was prepared that includes the construction of 22.26 acres of wetlands: 21.44 acres of emergent and scrub-shrub wetlands constructed within the proposed detention basin and 0.82 acres of emergent wetlands in the relocated drainage channels.</p> <p>By adhering to all MDEQ permit conditions, no significant adverse effects to wetlands are anticipated.</p> <p>The proposed project area is not located within a FEMA-identified floodplain and contains no special flood hazard areas.</p>
<p>Step 6: Re-evaluate 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>Project Analysis: The Proposed Action remains practicable based on the flood reduction objective. The action is not anticipated to increase flood elevations or velocities upstream or downstream of the project area. No significant long-term adverse impacts to floodplains or wetlands are expected.</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 explanation of any final decision that the floodplain or wetland is the only practicable alternative. The explanation should include any relevant factors considered in the decision-making process.</p>	<p>Project Analysis: Public notice will be made available at the time of the release of this draft Environmental Assessment (EA). Public comment would be incorporated into the Final EA.</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>Project Analysis: This step is integrated into the NEPA process and FEMA project management and oversight functions.</p>

Appendix D
Wetland Mitigation Plan

Appendix E
Public Notice and Public Notification Letters

**Federal Emergency Management Agency
PUBLIC NOTICE**

**Notice of Availability of the Draft Environmental Assessment for a Drainage Improvement
Project to Mitigate for Flooding in Walter's and Garfield Subdivisions, Williams
Township, Bay County, Michigan**

FEMA-DR-1346-MI, HMGP Project A1346.89

Interested persons are hereby notified that the Federal Emergency Management Agency (FEMA) is proposing to assist in the funding of drainage channel improvements in Williams Township. 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 EA evaluates alternatives that provide for compliance with applicable environmental laws. The alternatives to be evaluated include (1) No Action; (2) The Proposed Action, which would construct a 26-acre detention basin, improve the capacity of Dell Creek Drain, and upgrade or replace culverts under various roads in Garfield and Walter's Subdivisions, and (3) Alternative 3, which would construct a 55-acre detention basin and improve the capacity of Dell Creek Drain.

The draft Environmental Assessment is available for review at the following locations during normal business hours:

Williams Charter Township Hall
1080 W. Midland Road
Auburn, MI 48611
Phone 989.662.4408

Auburn Area Library Branch
235 W. Midland Road
Auburn, MI 48611
Phone 989.662.2381

The draft Environmental Assessment is also available for review online 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 July 25, 2007, by Amanda Ratliff, Regional Environmental Officer, 536 South Clark, 6th Floor, Chicago, IL 60605-1521, or at Amanda.Ratliff@dhs.gov. If no comments are received by the above deadline, the draft EA will be considered final and a Finding of No Significant Impact will be published by FEMA.

The public may request a copy of the final environmental documents from Amanda Ratliff, Regional Environmental Officer, 536 South Clark, 6th Floor, Chicago, IL 60605-1521.

Public Notification Letters

Appendix F
Public Comments

To be completed at the conclusion of the 30-day public comment period