FINAL ENVIRONMENTAL ASSESSMENT

COLLINSVILLE DAM PROJECT ON THE DEAD RIVER

MARQUETTE COUNTY CONSERVATION DISTRICT, MARQUETTE COUNTY, MICHIGAN

Prepared for
FEMA Region V
536 South Clark Street
Sixth Floor
Chicago, IL 60605
FEMA DR-1346-MI
HMGP Application A1346.38

September 29, 2003

URS Group, Inc.
200 Orchard Ridge Drive, Suite 101
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89-FEMA4138.00-100.38

Federal Emergency Management Agency
PUBLIC NOTICE
Notice of Availability of the Final Environmental Assessment (EA) and Finding of No Significant Impact (FONSI)
Collinsville Dam Removal
Marquette County Conservation District, Marquette County, Michigan

FEMA-DR-1346-MI, NEMIS ID #A1346.38

Interested persons are hereby notified that the Federal Emergency Management Agency (FEMA) is proposing to assist in funding the removal of an abandoned dam on the Dead River in Marquette County. In accordance with the National Environmental Policy Act (NEPA) of 1969, National Historic Preservation Act (NHPA), Executive Order 11988, Executive Order 11990, and the implementing regulations of FEMA, an EA was prepared to assess the potential impacts of the Proposed Action on the human and natural environment. The EA was released for public comment from September 5, 2003 to September 26, 2003. The Marquette Board of Light and Power submitted comments in a letter dated September 24, 2003 that were editorial in nature and did not affect the evaluations contained in the EA. Therefore, the EA has been finalized and a FONSI has been made. This also provides public notice for work within the regulated floodplain and wetlands, in accordance with Executive Orders 11988 and 11990 and 44 CFR Part 9.12.

The reasons for the decision not to prepare an Environmental Impact Statement (EIS) are as follows:

1. No significant adverse environmental impacts have been identified to existing land use, water resources (surface water, groundwater, waters of the United States, wetlands, and floodplains), air quality, noise, biological resources (vegetation, fish and wildlife, State-and Federally-listed threatened or endangered species and critical habitats), safety, hazardous materials and waste, or cultural resources; no disproportionately high or adverse effects on minority or low-income populations would occur, and;

2. The project is necessary to meet the needs of the citizens of the existing local community.

No further environmental review of this project is proposed to be conducted prior to the release of FEMA funds.

Copies of the final EA and FONSI can be obtained by contacting:

Carl Lindquist
Marquette County Conservation District
1030 Wright Street
Marquette, MI 49855

The final EA and FONSI are also available on the World Wide Web on the FEMA website at **http://www.fema.gov/ehp/docs.shtm.**

FINDING OF NO SIGNIFICANT IMPACT
Removal of the Collinsville Dam on the Dead River
Marquette County Conservation District
Marquette County, Michigan

FEMA-DR-1346-MI, NEMIS ID #A1346.38

The Marquette County Conservation District in Marquette County, Michigan, has applied for funding from the Federal Emergency Management Agency (FEMA) for assistance with the removal of the abandoned Collinsville Dam on the Dead River. The Collinsville Dam is located on the Dead River about two miles upstream of Lake Superior, inside the city limits of Marquette, MI. The City of Marquette itself is located in the central to western portion of the Upper Peninsula of Michigan, south of the confluence of the Dead River with Lake Superior. The Dead River is the largest tributary to Lake Superior in Marquette County. The proposed action would remove the abandoned Collinsville Dam that is already partially breached. The project will also include stream bank stabilization and wetland restoration in areas upstream and downstream of the dam. FEMA is proposing to provide assistance for this project through the Hazard Mitigation Grant Program (HMGP) under Presidential Disaster Declaration FEMA-DR-1346-MI.

In accordance with 44 Code of Federal Regulations (CFR) for FEMA, Subpart B – Agency Implementing Procedures, Part 10.9, an Environmental Assessment (EA) was prepared pursuant to Section 102 of the National Environmental Policy Act of 1969, as implemented by the regulations promulgated by the President's Council on Environmental Quality (40 CFR Parts 1500-1508). The purpose of the EA was to analyze the potential environmental impacts for the removal of the Collinsville Dam and to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

Based upon the conditions and information contained in the EA for the removal of the Collinsville Dam (September 2003) and in accordance with FEMA's regulations in 44 CFR Part 10 (Environmental Considerations) and Executive Orders 11988 (Floodplain Management), 11990 (Protection of Wetlands), and 12898 (Environmental Justice), FEMA the following is concluded:

A Finding of No Significant Impact. The proposed project, as described in the EA, will not result in any significant adverse impacts to existing land use, water resources (surface water, groundwater, wetlands, waters of the United States, and floodplains), air quality, noise, biological resources (vegetation, fish and wildlife, state-and federally listed threatened or endangered species and critical habitats), safety issues, hazardous materials and waste, and cultural resources, or result in disproportionately high or adverse effects on minority or low-income populations. Therefore, an Environmental Impact Statement will not be prepared.

APPROVAL

Date: 9/29/03

Ms. Jeanne Millin
Regional Environmental Officer
FEMA, Region V

SEP.29.2003 3:40PM FEMA NO.950 P.2

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APE	Area of Potential Effect
BMP	best management practice
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
cy	cubic yards
dB	decibels
DNL	Day-Night Average Sound Level
EA	Environmental Assessment
EDR	Environmental Data Resources
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FPPA	Farmland Protection Policy Act
FHBM	Flood Hazard Boundary Map
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
H&H	Hydraulics & Hydrology
HMGP	Hazard Mitigation Grant Program
MBLP	Marquette Board of Light and Power
MDEQ	Michigan Department of Environmental Quality
MDOT	Michigan Department of Transportation
MDNR	Michigan Department of Natural Resources
msl	mean sea level
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 dioxide
NRCS	Natural Resources Conservation Service

NREPA	Natural Resources and Environmental Protection Act
NRHP	National Register of Historic Places
O_3	ozone
ORV	off-road vehicle
OSHA	Occupational Safety and Health Administration
Pb	lead
PCB	polychlorinated biphenyl
PM_{10}	particulate matter (10 microns or less)
RCRA	Resource Conservation and Recovery Act
SHPO	State Historic Preservation Office
SO_2	sulfur dioxide
SWA	Solid Waste Act
TOC	total organic carbon
TSCA	Toxic Substances Control Act
URS	URS Group, Inc.
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

1.1 PROJECT AUTHORITY

The Federal Emergency Management Agency (FEMA) issued a federal disaster declaration (DR-1346-MI) on October 17, 2000, after severe storms and flooding inundated the State of Michigan on September 10 and 11, 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 Marquette County Conservation District in Marquette County, Michigan, applied for HMGP Section 404 funding under the Robert T. Stafford Disaster Relief and Emergency Assistance Act. FEMA grants funds under this program for disaster-related mitigation projects. In accordance with the National Environmental Policy Act (NEPA) of 1969, 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 to determine whether to prepare a Finding of No Significant Impact (FONSI) or an Environmental Impact Statement (EIS) for the proposed project.

1.2 PROJECT LOCATION AND SETTING

Marquette County is located in the central to western portion of the Upper Peninsula of Michigan, south of the confluence of the Dead River with Lake Superior (Figure 1). The Dead River is the largest tributary to Lake Superior in Marquette County; its watershed encompasses 164 square miles of Marquette County (CLSWP, 2002). Beginning in the late 1800s, the river was dammed for waterpower. The Dead River is currently impounded at six places along its 34-mile length. The specific location of the proposed project is the abandoned Collinsville Dam (also known as Dam #1) on the Dead River, located approximately 2 miles upstream of Lake Superior, inside the Marquette City limits (Figure 2).

Originally constructed in 1897 to power a sawmill, the Collinsville Dam was the first dam built on the Dead River (Appendix A, Photograph 1). It is now the second dam in a series of six impoundments from the mouth of the river to the headwaters. Five of the Dead River dams impound water to generate hydroelectricity used to supply power to both the City and County of Marquette. The Collinsville Dam was abandoned in the early 20th century and has deteriorated to the point that there is now a 20-foot wide breach in the middle of the structure (Appendix A, Photographs 2 and 3). The 300-foot long, concrete dam averages approximately 12 feet in height and impounds almost 5 acres of water (Appendix A, Photograph 4). In May 2003, an earthen dike for the Silver Lake Dam (the sixth and most upstream dam) collapsed when a fuse plug installed in the dike the previous year failed (Egan, 2003). The dike failure resulted in the release of an estimated 8 billion gallons of water impounded by the Silver Lake Dam (Marquette County, 2003). As a result of this release, the Tourist Park Dam (the first and most downstream dam) was dewatered when land lying immediately south of the dam's concrete structure was topped by the flood water and the underlying earthen material eroded (MBLP, 2003, Appendix E). The Collinsville Dam was reportedly not affected by these failures (Lindquist, pers. comm.).

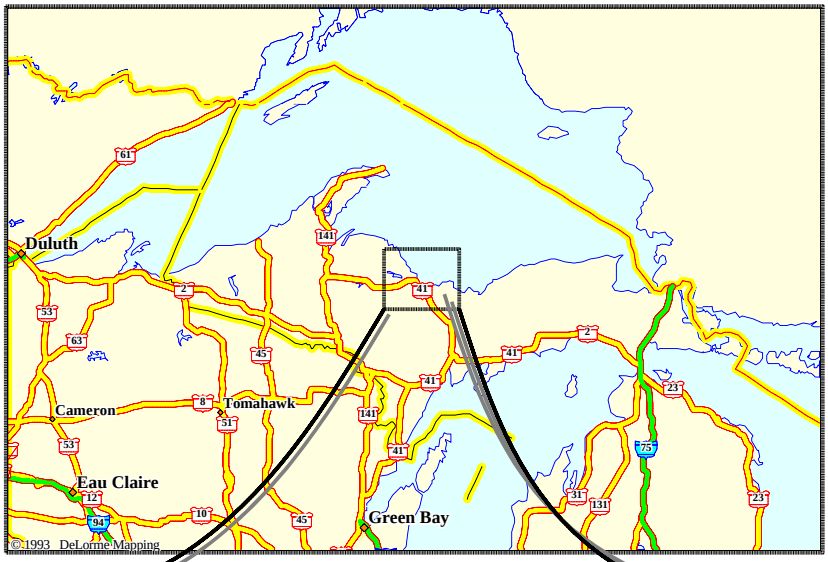
The Collinsville Dam is located roughly 4,200 feet upstream of the Tourist Park Dam and approximately 2,800 feet downstream of the Forestville Dam. Before the Tourist Park Dam was dewatered in May 2003, these adjacent dams together impounded water on approximately 100 acres of land and actively produced electricity for the City of Marquette under the authority of the Marquette Board of Light and Power (MBLP). A wooden penstock, a conduit that carries water from an impoundment to a downstream generator (Appendix A, Photograph 5), runs parallel to the Dead River from the Forestville Dam impoundment, past Collinsville Dam to a power generator (Powerhouse 2) approximately 2,400 feet downstream of the Collinsville Dam. Approximately 85 percent of the flow of the Dead River in the project area bypasses the Collinsville Dam and is carried within the penstock structure.

1.3 PURPOSE AND NEED

The objectives of FEMA's HMGP are to assist the community in recovering from damages caused by natural disasters. The City of Marquette has requested federal funding under the HMGP to demolish the abandoned Collinsville Dam, removing it from the bypassed section of the Dead River, and restore the river channel to its natural flow. The failure of the Silver Lake Dam and the dewatering of the Tourist Park Dam in May 2003 resulted in an estimated $102 million in damages to the reach of the Dead River from the Silver Lake Dam to the mouth of the river. Preliminary damage estimates included $3 million for roads and bridges, $4 million in environmental damage (including fisheries, soils and trees), $10.4 million of damage to utilities, $127,000 in emergency and public safety costs and a community economic impact of $84 million (Marquette County, 2003). Twenty homes and three businesses were damaged or destroyed and two key power plants were disabled. The damage to the Presque Isle Power plant at the mouth of the Dead River resulted in the shutdown of two mines for an extended period, idling 1,500 workers (Marquette County, 2003).

Currently, the Collinsville Dam has a large breach and under this project the dam would be removed in its entirety (Proposed Action) or the breach would be enlarged (Alternative 3). The purpose of the action alternatives presented in this EA is to mitigate the potential loss of life and property damage that could occur if the Collinsville Dam should fail. If the dam were to fail, especially in conjunction with a flood, a hydroelectric power generator and as many as four residences located downstream could be affected (Figure 3), with an estimated cost of damages and disrupted service of $2,118,545. The removal of the Collinsville Dam would also decrease health and safety risks for people recreating at downstream areas including Tourist Park, a city park immediately downstream of Collinsville Dam.

The CEQ has developed regulations for implementing NEPA. These federal regulations, set forth in 40 CFR Parts 1500-1508, require an evaluation of alternatives and a discussion of the potential environmental impacts of a proposed federal action as part of the EA process. The FEMA regulations, which establish FEMA's process for implementing NEPA, are set forth in 44 CFR, Subpart 10. This EA was prepared in accordance with FEMA regulations as required under NEPA. As part of this NEPA review, the requirements of other environmental laws and executive orders are also addressed.



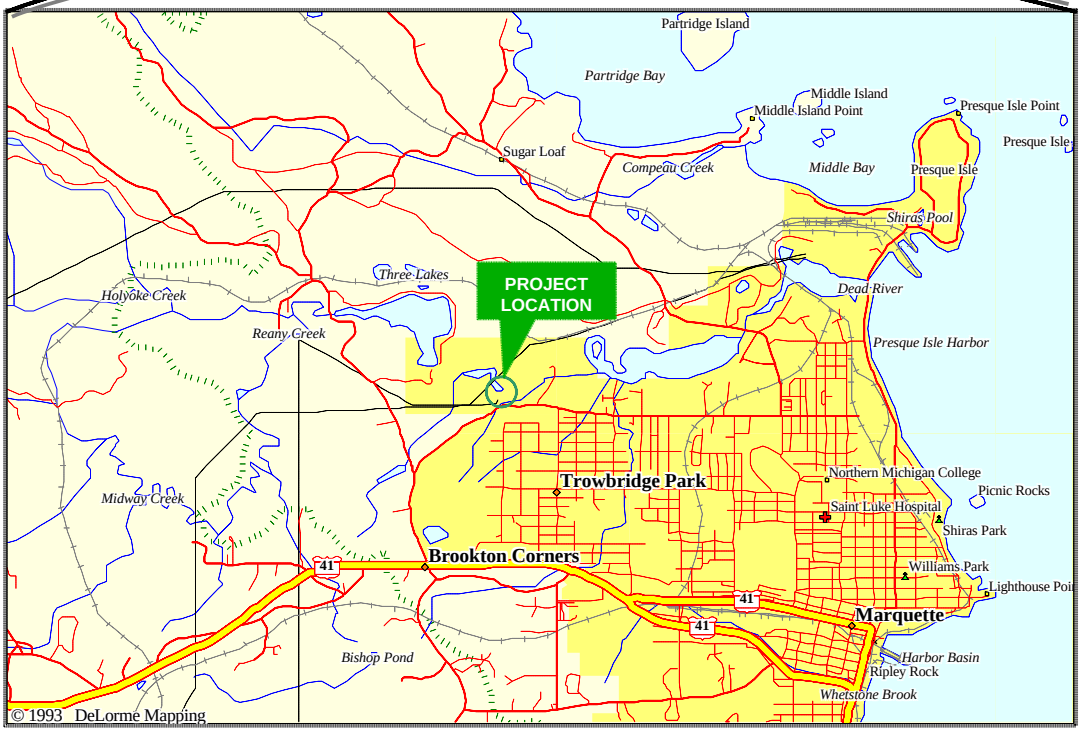


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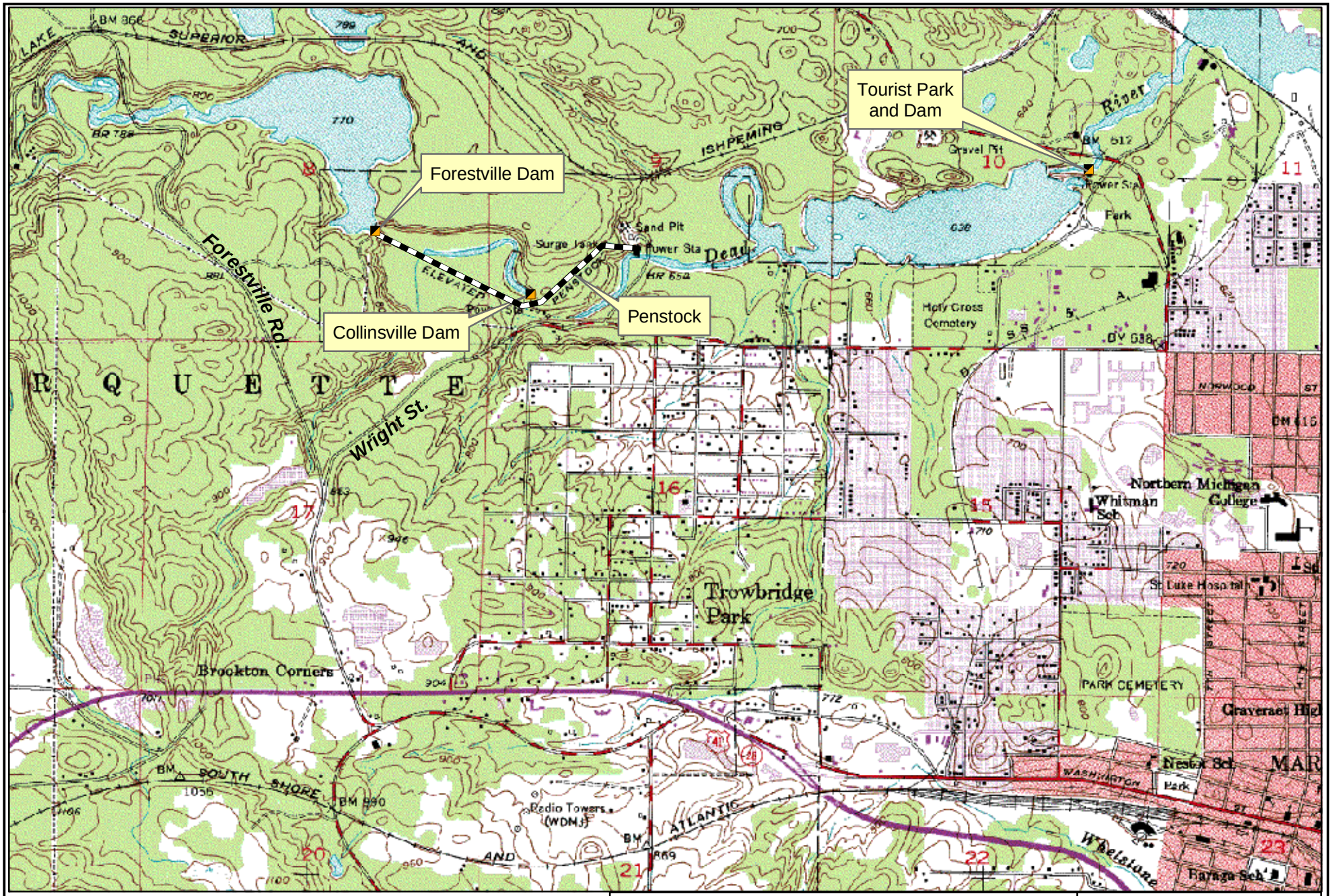
FIGURE 1



USGS 7.5 MINUTE QUADRANGLE
SOURCE: MARQUETTE, MI

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Legend

- **Dam Locations**
- **Penstock**

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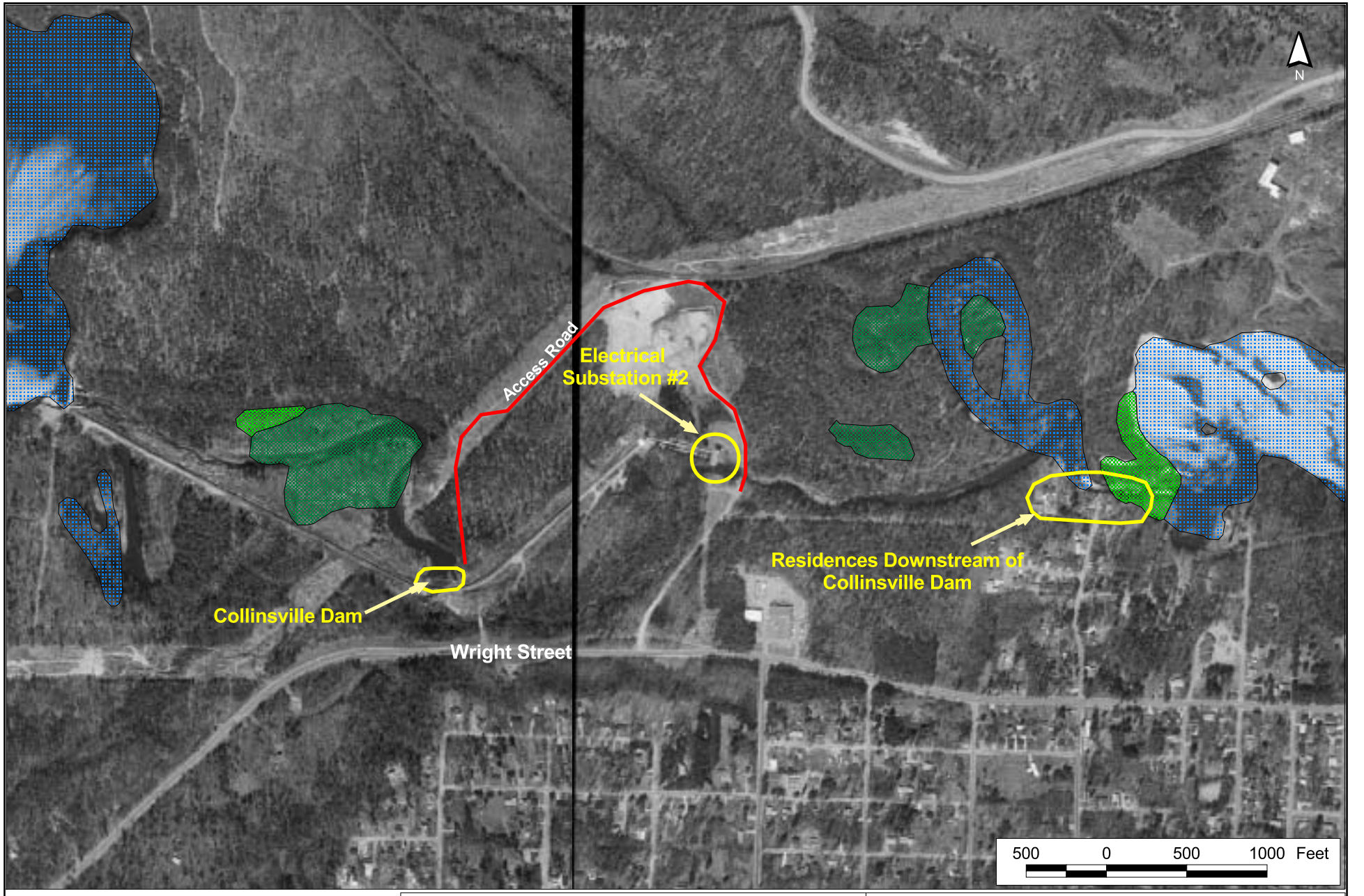

Wetlands
- Aquatic Bed
- Emergent
- Moss-Lichen
- Scrub-Shrub
- Forested
- Open Water/Unknown Bottom

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TITLE: **Project Location and Michigan DNR Wetland Mapping for the Project Area**

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FIGURE: 3

2.1 ALTERNATIVE 1 – NO ACTION ALTERNATIVE

Under the No Action Alternative, the Collinsville Dam would not be removed. The potential for dam failure would not be abated and the risk of damage to downstream residences and electrical utilities would remain. Health and safety risks for downstream recreational users would also remain.

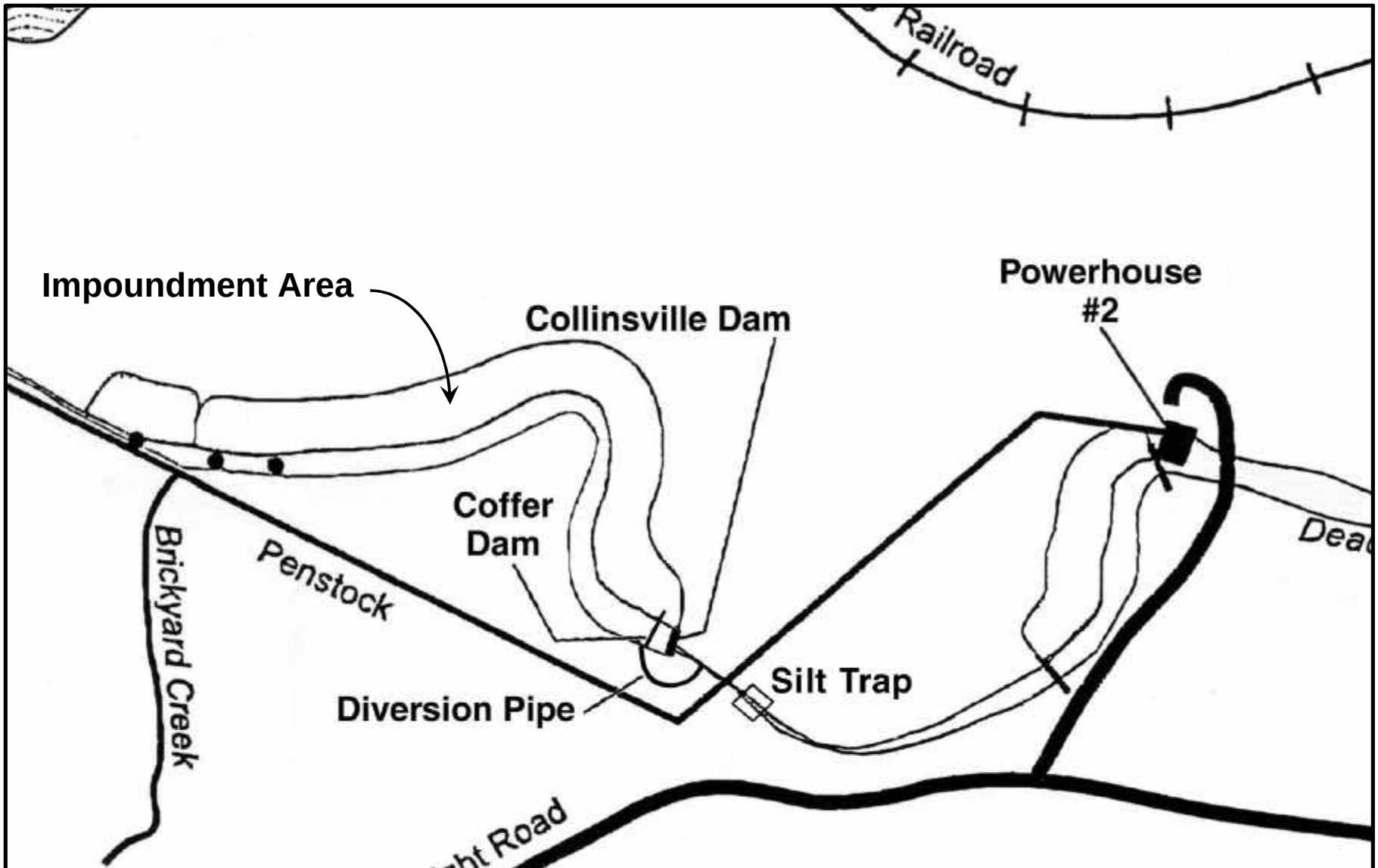
2.2 ALTERNATIVE 2 – REMOVAL OF THE COLLINSVILLE DAM (PROPOSED ACTION)

The Proposed Action involves removing the Collinsville Dam and restoring the natural channel and streambanks of the Dead River. To accomplish this, a coffer dam would be constructed immediately upstream of the abandoned dam and the dam would be de-watered. A temporary, 250-foot long, aboveground diversion pipe would be placed from the impoundment to an area below the abandoned dam to accommodate stream flow. A silt trap would be constructed downstream of the dam to collect sediments that would be discharged during project activities (Figure 4 and Appendix A, Photograph 6).

A portion of the streambank upstream of the project site would be stabilized using geotextile fabric anchored with 600 cubic yards (cy) of stones and boulders. Areas exposed by de-watering (approximately 4 acres) would be seeded with a native vegetation or wetland species, and mulched in accordance with Michigan Department of Environmental Quality (MDEQ) permits. Plans for restoration of aquatic habitat are also under consideration. To accomplish this, the Marquette County Conservation District would coordinate activities with the U.S. Fish and Wildlife Service (USFWS) and the Michigan Department of Natural Resources (MDNR) to develop a restoration plan for the proposed project site.

Machinery, such as heavy pneumatic hammers, large excavators equipped with buckets, front-end loaders, and dump trucks would be used to dismantle the dam and remove debris to a permanent, off-site location permitted to receive waste concrete. Following dam removal, the coffer dam and diversion pipe would be removed and the impoundment would gradually be de-watered. Regrading of the site would occur, and the current stream channel would be realigned back to its historic channel. Approximately 1,500 cy of sediments that have accumulated behind the impoundment would be subsequently exposed by de-watering and would be excavated and removed from the site.

Access to the site would occur from Wright Street and existing, city-owned dirt roads connected to the site. The project is anticipated to require three months to complete. The work would occur in mid to late summer when peak flows are minimal and would be completed by October, when the Dead River is known to contain spawning fish.



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PROJ	Collinsville Dam Project on the Dead River			
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TITLE **REMOVAL OF THE COLLINSVILLE DAM - PROPOSED ACTION**

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FIGURE **4**

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2.3 ALTERNATIVE 3 – ENLARGE EXISTING BREACH OF THE COLLINSVILLE DAM

Under Alternative 3, the 20-foot wide breach in the Collinsville Dam would be enlarged. Expansion would consist of increasing the width of the breach by 20 feet (10 feet on both sides of the current breach) and increasing the current depth of the entire breach by 5 feet (for a total 10-foot depth).

No sediment would be removed from behind the dam; rather, the breach would be monitored and maintained to ensure that it does not become plugged with debris washed from upstream. To address erosion and sediment concerns associated with project activities, a silt trap would be constructed downstream of the dam to collect sediments that would be discharged.

A portion of the streambank upstream of the project site would be stabilized using geotextile fabric anchored with 600 cy of stones and boulders, as under the Proposed Action. However, no revegetation would occur because the impounded area would still exist, although it would be slightly reduced in size.

Heavy machinery, such as pneumatic hammers, large excavators equipped with buckets, front-end loaders, and dump trucks, would be used to further breach the dam and remove debris to a permanent, off-site location permitted to receive concrete. Access to the site would occur from Wright Street and existing, city-owned dirt roads connected to the site. It is anticipated that the project would require two months to complete. The work would occur in mid to late summer when peak flows are minimal and would be finished by October, when the Dead River is known to contain spawning fish.

Table 1: Impact Summary Matrix

A. Description of Alternative	No Action Alternative (Alternative 1)	Removal of the Collinsville Dam (Proposed Action)	Enlarge existing breach of the Collinsville Dam (Alternative 3)
	• FEMA funds would not be used for removal of the Collinsville Dam.	• Remove the Collinsville Dam on the Dead River. A coffer dam and a temporary 250-foot long, above-ground diversion pipe would be installed to divert stream flow during project activities. • Remove approximately 1,500 cy of non-contaminated silt from behind the dam. • Install 600 cy of fabric and rip-rap for upstream streambank stabilization • Restore the natural streambanks and channel of the Dead River • Plant reclaimed areas with native vegetation or wetland species in accordance with MDEQ permits. • Sediment that is removed during this project would be deposited in a location outside of the floodplain.	• Enlarge existing breach on Collinsville Dam by 20 feet (10 feet on each side). Increase depth by 5 feet along entire breach for a total depth of 10 feet. • Install 600 cy of fabric and rip-rap for upstream streambank stabilization. • Sediment that is removed during this project would be deposited in a location outside of the floodplain.
B. Potential Impacts	**No Action Alternative (Alternative 1)**	**Removal of the Collinsville Dam (Proposed Action)**	**Enlarge existing breach of the Collinsville Dam (Alternative 3)**
Geology, Seismicity, and Soils	• No impacts to geology, seismicity and soils.	• Temporary disturbance to soils; surface erosion may increase during construction. • The geologic framework of the area would not be affected. • No impacts to prime and unique farmland.	• Temporary disturbance to soils; surface erosion may increase during construction. • The geologic framework of the area would not be affected. • No impacts to prime and unique farmland.

B. Potential Impacts	No Action Alternative (Alternative 1)	Removal of the Collinsville Dam (Proposed Action)	Enlarge existing breach of the Collinsville Dam (Alternative 3)
Water Resources and Water Quality	• There would be no immediate impacts to water resources and water quality. • If dam failure were to occur, sediment would be released downstream, leading to a temporary increase in turbidity and fluctuation in water quality.	• Some sediment would be released downstream (although a majority would be removed off-site), leading to a temporary increase in turbidity. • Erosion may occur during project activities. • In the long term, natural sediment loads would be restored downstream of the dam and temperature stratification due to water impoundment would be eliminated.	• Some accumulated sediment from behind the dam would be flushed downstream, leading to a temporary increase in turbidity and slight fluctuation in water quality. • Erosion may occur during project activities.
Floodplain Management	• EO 11988 is not applicable to this alternative.	• Floodplain upstream of dam would be narrowed and channel velocities would increase. • Downstream channel velocities and flood stage levels would be unaffected. • Portion of floodplain would be reclaimed and restored to natural functions.	• Floodplain upstream of the dam would be slightly narrowed and channel velocities would increase. • Downstream channel velocities and flood stage levels would be unaffected.
Air Quality	• No impacts to air quality.	• 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.	• 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	• Would have little or no direct impact on terrestrial and aquatic habitat. • If dam failure were to occur, the net impact on the terrestrial and aquatic environment would be minimal in the long-term because of other nearby impoundments.	• Some riparian forest areas downstream of the dam would be removed or disturbed; however, terrestrial habitat would be created as a result of dewatering the impoundment. • The aquatic pool habitat would be lost, but there is pool habitat elsewhere on the river and the project would create restored aquatic habitat similar to that present in a natural river channel.	• A small amount of terrestrial habitat would be lost and a small amount would be created, resulting in a minimal net impact to the terrestrial environment. • In the long term, there would be a moderately adverse impact to the aquatic environment because the natural channel would not be restored.

B. Potential Impacts	No Action Alternative (Alternative 1)	Removal of the Collinsville Dam (Proposed Action)	Enlarge existing breach of the Collinsville Dam (Alternative 3)
		• There would be an adverse impact to aquatic life in the impoundment, but the long-term result would be the beneficial colonization of the river by native, cold-water fish. • There would be a temporary increase in sediment loads during construction. • Over time, the slight increase in sediment loads downstream resulting from removal of the dam would potentially have a beneficial impact on upstream and downstream aquatic habitat.	• There would be a temporary increase in sediment loads during construction. • Over time, the slight increase in sediment loads downstream resulting from removal of the dam, would potentially have a beneficial impact on upstream and downstream aquatic habitat.
Wetlands	• If the dam remains intact, no direct or indirect impact to wetlands or other jurisdictional waters in the project area are anticipated. • If the dam were to fail, permanent loss of upstream wetlands could result from a change in hydrology. Downstream wetlands could be impacted by sedimentation.	• Wetlands at the head of the impoundment could potentially be impacted by the altered hydrology. The impact would be minimal and offset by the restoration of the river channel riparian wetlands. • Riverine wetlands downstream of the dam could potentially be impacted by sedimentation during construction, but no significant impacts are anticipated. • A minimal and temporary impact to wetlands is anticipated during construction from heavy machinery. • Wetland losses would be mitigated in accordance with MDEQ permit.	• Some wetlands would be lost and some would be created in the vicinity of the impoundment perimeter as a result of altered hydrology. • Sedimentation to riverine wetlands downstream of the dam could potentially increase during construction, but no significant impacts are anticipated. • A minimal and temporary impact to wetlands is anticipated during construction from heavy machinery. • The impact to wetlands would be offset by the restoration of the river channel riparian wetlands.
Threatened and Endangered Species	• No impacts expected to proposed or listed threatened and endangered species.	• No impacts expected to proposed or listed threatened and endangered species.	• No impacts expected to proposed or listed threatened and endangered species.

B. Potential Impacts	No Action Alternative (Alternative 1)	Removal of the Collinsville Dam (Proposed Action)	Enlarge existing breach of the Collinsville Dam (Alternative 3)
Hazardous Materials and Wastes	• Based on results from a VISTA survey, no impacts to hazardous materials or wastes are anticipated.	• Based on results from a VISTA survey, no impacts to hazardous materials or wastes are anticipated.	• Based on results from a VISTA survey, no impacts to hazardous materials or wastes are anticipated
Zoning and Land Use	• If the dam were to fail, recreational use of the area could become dangerous and 4 residential structures downstream could become flooded and damaged.	• The project is consistent with current zoning. • Area would be closed to recreational users during project activities. • The impoundment would be reduced for recreational fishing, but the new channel could be used and other impoundments that maybe be used for fishing exist nearby.	• The project is consistent with current zoning. • Area would be closed to recreational users during project activities. • The potential for dam failure and the subsequent loss of the area to recreational users would still remain.
Visual Resources	• Abandoned dam structure would continue to constitute a negative aesthetic element along the Dead River.	• Removal of dam would be an aesthetic enhancement. • Temporary visual impacts to project area may occur during construction as a result of equipment and stockpiles. • Vegetative losses and plantings would minimally alter the landscape.	• Abandoned dam structure would continue to constitute a negative aesthetic element along the Dead River. • Temporary visual impacts to project area may occur during construction as a result of equipment and stockpiles. • Tree removal downstream of the dam would minimally impact visual resources.
Noise	• No additional noise would be generated.	• Temporary increase in the ambient noise levels due to equipment use would minimally disturb one residence at 700.	• Temporary increase in the ambient noise levels due to equipment use would minimally disturb one residence at 700 feet.
Public Services and Utilities	• There would be no immediate impact, but if the dam were to fail, Electric Substation #2 could incur costly damage.	• No anticipated adverse effects.	• No anticipated adverse effects; a reduced potential would exist for damage to Electric Substation #2 to occur.
Traffic and Circulation	• No impacts to traffic and circulation.	• No impacts to traffic and circulation would be anticipated.	• No impacts to traffic and circulation would be anticipated.

B. Potential Impacts	No Action Alternative (Alternative 1)	Removal of the Collinsville Dam (Proposed Action)	Enlarge existing breach of the Collinsville Dam (Alternative 3)
Environmental Justice	• Executive Order 12898 is not applicable to this alternative.	• Minority or low-income populations are not concentrated in project area, and therefore would not be affected by project activities.	• Minority or low-income populations are not concentrated in project area, and therefore would not be affected by project activities.
Safety and Security	• Residents of the four homes located downstream that are susceptible to flooding would be at a risk of injury or negative health impacts due to unsanitary conditions following flooding. • Flash flooding, further breaching, or dam failure could potentially lead to injury or loss of life of recreational users at the remnant dam, should they be present during these occurrences.	• All project activities would be performed using qualified personnel and conducted in accordance with standards specified in OSHA regulations. • Overall, project activities would remove risks to human health and safety associated with potential dam failure.	• All project activities would be performed using qualified personnel and conducted in accordance with the standards specified in OSHA regulations. • Overall, project activities would decrease, but not eliminate, risks to human health and safety associated with potential dam failure.
Cultural Resources	• No impacts to cultural resources would be anticipated.	• No anticipated adverse effects.	• No anticipated adverse effects.

3.1 PHYSICAL ENVIRONMENT

3.1.1 Geology, Seismicity, and Soils

Michigan is characterized by two geologically distinct geographic provinces, the Upper and Lower Peninsulas. Marquette County is located in the north-central portion of the Upper Peninsula along the shores of Lake Superior. Topography in the Upper Peninsula is variable and ranges from a mosaic of low rocky ridges interspersed with small lakes and swamps, to areas containing large, exposed ridges of granite or sandstone as much as 800 feet above mean sea level (msl). The elevation of the area surrounding the Collinsville Dam is approximately 700 feet above msl (USGS, 1975). The bedrock of the Upper Peninsula of Michigan consists of geologically complex Precambrian age igneous and metamorphic rocks in the western half and Cambrian to Jurassic age sedimentary rocks in the eastern half. Bedrock at the project area consists of Precambrian-Age metamorphosed sandstone locally termed the Ajibic Quartzite. Surficial deposits in the Upper Peninsula consist of unconsolidated, nonstratified clastic sediments deposited by continental glaciers (drift), and unconsolidated stratified gravels, sands, and clays deposited by glacial streams and in glacial lakes (glaciofluvial deposits) (MDEQ, 2003).

A site visit by URS Group, Inc. (URS) on November 18, 2002, revealed that the project area generally consists of very steep, rocky terrain to the east and a small, swampy, relatively level landform with bedrock outcropping to the west of the dam pool. Bedrock outcroppings are also present along the shoreline and all sides of the dam pool. Within the dam pool, bedrock is present with slopes under the water ranging from 12 to 25 percent (Van Neste Surveying, 2000). Areas to the south of the dam are also very rocky and steep.

The proposed project area overlays one soil series with three phases, the Rubicon sands (0 to 6 percent, 6 to 18 percent, and 35 to 70 percent slopes), and two soil complexes, the Evart-Pelkie Sturgeon and the Rosseau-Ocqueoc fine sands.

Rubicon sands, 0 to 6 percent slopes: This phase occurs on nearly level and undulating areas of outwashed plains, beach ridges, and stream terraces and has rapid permeability and very slow surface run-off. This series typically contains black and pinkish gray sandy surface soils and brown to strong brown sandy subsoils.

Rubicon sands, 6 to 18 percent slopes**:** This phase is usually associated with gently rolling areas on outwashed plains, beach ridges, and stream terraces and has rapidly permeable soils with slow surface runoff.

Rubicon sands, 35 to 70 percent slopes**:** This phase usually occurs on very steep areas of outwashed plains and stream terraces and has rapid permeability and moderate surface runoff. This series contains black and pinkish gray sandy surface soils underlain by brown and strong brown sandy subsoils.

Evart-Pelkie-Sturgeon, 0 to 4 percent slopes**:** This soil complex characteristically has moderate to rapid runoff and very slow surface runoff. Evarts soils are typically found in depressions and old stream channels and consist of very dark brown, mottled silt loam surface soils underlain by black, mottled, loamy fine sands. Pelkie soils usually occur along low knolls and ridges and contain very dark brown loamy fine sand surface soils and strong brown loamy fine sand

subsoils. Sturgeon soils are typically associated with low terraces and consist of dark brown, very fine sand surface soils and strong brown loamy fine sand subsoils.

Rousseau-Ocqueoc fine sands, 0 to 6 percent slopes: This soil complex typically occurs on nearly level and undulating areas on outwashed plains and till-floored lake plains and has rapid permeability and very slow surface runoff. Rousseau soils have black fine sand surface layers and brown fine sandy subsoils. Ocqueoc soils typically contain organic, very dark gray to pinkish gray fine sandy surfaces and reddish brown and yellowish red fine sandy subsoils (NRCS, 1996).

Prime and Unique Farmland: The Farmland Protection Policy Act (FPPA) (P.L. 97-98, Sec. 1539-1549; 7 U.S.C. 4201, et seq.) was enacted in 1981 (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 (USDA, 1989). This land is either used for food or fiber crops or is available for those crops, but is not urban, built-up land, or water areas. The NRCS has determined that the soils underlying the proposed project site are not classified as prime or unique farmland soils (LaPointe, pers. comm.). No further action is necessary under the FPPA.

Alternative 1 – No Action Alternative

Impacts to geology, seismicity, and soils would not occur under this alternative since no project activities are proposed.

Alternative 2 – Removal of the Collinsville Dam (Proposed Action)

Overall, it is not anticipated that dismantling the dam would result in permanent, negative impacts on the geology, seismicity, or soils at the proposed project site.

Soil disturbance as a result of the ingress and egress of construction equipment may result in a temporary increase in surface soil erosion. Erosion would be minimized through the use of soil erosion and stormwater best management practices (BMPs), such as silt fences and hay bales. Additionally, following dewatering activities, the exposed soils would be seeded with a native vegetation or wetland species, and mulched in accordance with MDEQ permits. In addition, compacted soils would be loosened by disking or raking.

Following dam removal, the installation of geotextile fabric and rip-rap along the stream channel upstream of the project site would decrease future soil erosion potential along this portion of the Dead River.

Alternative 3 – Enlarge Existing Breach of the Collinsville Dam

Overall, it is not anticipated that enlarging the existing dam breach would result in permanent, negative impacts on the geology and soils at the proposed project site.

Soil disturbance as a result of the ingress and egress of construction equipment may result in a temporary increase in surface soil erosion. Erosion would be minimized through the use of stormwater best management practices, such as silt fences and hay bales. Exposed soils would be seeded with a native vegetation or wetland species, and mulched in accordance with MDEQ permits. Compacted soils would be loosened by disking or raking.

Following project activities, the installation of geotextile fabric and rip-rap along the stream channel upstream of the project site would decrease future soil erosion potential along this portion of the Dead River.

3.1.2 Water Resources and Water Quality

The Dead River watershed covers approximately 164 square miles and lies entirely within Marquette County. Numerous tributaries and lakes are contained within the watershed. The Dead River flows through the north-central portion of Michigan's Upper Peninsula and it is the largest tributary to Lake Superior in Marquette County. The river flows in a southeasterly direction from its headwater origin in bog forests in the western portion of the county. After traversing the bogs, the Dead River flows though forested, steep terrain before entering the calm waters created by the Silver Lake Dam, the first of six impoundments on the Dead River. As the river continues to flow downstream, it is impounded, primarily for the purpose of generating hydroelectricity, (in this order) by the Hoist Dam, McClure Dam, Forestville Dam, the abandoned Collinsville Dam, and the Tourist Park Dam, which is less than a mile upstream of Lake Superior (FERC, 2002). The Silver Lake Dam failed and the Tourist Park Dam was dewatered in May 2003 resulting in substantial reductions to the size of the impoundments.

Average water flow in the bypassed reach of the Dead River at the Collinsville Dam has been estimated at 13 cubic feet per second (cfs), with summer flows at approximately 3 cfs (Hickey, pers. comm.). In comparison, the penstock, which conveys the waters bypassing the dam, has an estimated flow of 80 cfs (FERC, 2002).

As part of the Clean Water Act (CWA), each state is required to prepare a biennial report for the Environmental Protection Agency (EPA) on the quality of its water resources. States may measure water quality through a number of parameters, including examining fish and wildlife contaminants, water and sediment chemistry, biological integrity/physical habitat, and stream flow. According to Michigan's 2002 Water Quality Report, the Forestville Basin, from the Tourist Park Dam upstream to the Forestville Dam (including the project site), is listed as being in non-attainment of Michigan's water quality standards for fishable and swimmable waters due to elevated mercury levels (MDEQ, 2002). Widespread atmospheric mercury deposition has caused elevated mercury concentrations in inland lake sediments and fish tissues throughout the state. Elemental mercury is converted to the organic form, methylmercury (a highly toxic pollutant), through natural processes, particularly in inland lakes. As a result of elevated mercury concentrations, there is a generic, statewide, mercury-based fish consumption advisory that applies to all of Michigan's inland lakes (MDEQ, 2002). In addition, bank erosion and scouring of the Dead River.has severely increased due to the failure of the Silver Lake Dam and the dewatering of the Tourist Park Dam. Increased sedimentation and siltation has altered the bed and banks of the river, and potentially its water quality.

Lake Superior serves as the surface water source for the City of Marquette's drinking water. In general, the upper Great Lakes have excellent water quality, although a few impaired locations

can be found at shore zones near densely populated areas (MDEQ, 2002). According to Michigan's 2002 Water Quality Report, the lakeshore area surrounding the outlet of the Dead River was found to be in attainment of Michigan's water quality standards.

A surficial aquifer system, consisting primarily of material deposited from glacial advances, is the primary source of groundwater for the area. In Michigan, ice advances transported fragments of sandstone and crystalline rocks from the north further down south, forming extremely permeable and highly productive sand and gravel aquifers (USGS, 2002). The aquifers are exposed at the land surface and readily receive, store, transmit, and discharge water. Furthermore, they not only function as a reservoir for recharge from precipitation, but in most cases they recharge underlying bedrock aquifers (USGS, 2002). The surficial aquifer system is also hydraulically connected to streams due to its shallow depth, ease of recharge, and short groundwater flow systems, and can provide much of the base flow (fair-weather flow) of streams. This connection is affected by the degree of permeability of the deposits comprising the aquifer (USGS, 2002).

Wild and Scenic Rivers Act. The Wild and Scenic Rivers Act was established to preserve the free-flowing state of listed rivers or those under consideration for inclusion due to numerous values, such as scenic, recreational, geologic, or historic. The Dead River is not listed as a wild and scenic river (NPS, 2003). No further action is necessary under the Wild and Scenic Rivers Act.

Coastal Zone Management Act. The Coastal Zone Management Act requires activities that are conducted or supported by federal agencies to be consistent with enforceable policies of state coastal zone management programs. The coastal zone includes coastal waters extending to the outer limit of state submerged title and ownership, adjacent shorelines, and land extending inward to the extent necessary to control shorelines. According to MDEQ, the project site falls outside Michigan's coastal zone boundary (Houghton, pers. comm.). No further action is necessary under the Coastal Zone Management Act.

Alternative 1 – No Action Alternative

Under the No Action Alternative, no immediate impacts to water quality would occur. Should there be a large-scale dam failure, large amounts of sediment accumulated behind the dam would be released downstream. This release would likely cause a short-term increase in turbidity and water mixing and could temporarily affect aquatic habitat (see Section 3.2.1).

Alternative 2 – Removal of the Collinsville Dam (Proposed Action)

Removal of the dam would likely have a minor and temporary impact on water quality as a result of siltation caused by removal activities and the flushing downstream of sediment that has accumulated behind the dam (FERC, 2002). The Applicant would obtain a permit from the MDEQ for dam removal. This permit is required under Part 301, Inland Lakes and Streams, of the Natural Resources and Environmental Protection Act (NREPA) of 1994, as amended.

To address concerns regarding sediment flushing downstream, the Applicant would remove approximately 1,500 cy of non-contaminated silt from behind the dam prior to dam removal activities. As required by MDEQ permit under Part 301 of the NREPA, the Applicant would have to develop a site-specific sediment removal plan that would address the method of removal

and the location of the off-site area where the sediments would be deposited (Appendix B). In the long-term, removal of the dam would restore natural sediment loads to this portion of the river and could reduce some downstream erosion that may occur as a result of the water being "sediment-starved" due to blockage of sediment movement by the dam (American Rivers, 2002).

Temperature stratification that currently exists in the dam pool (where upper portions of the water in the impoundment are warm and lower portions of the water are cold) would be eliminated as a result of increased water mixing that occurs in moving versus still water (American Rivers, 2002). This may affect fish species composition at the project site (see Section 3.2.1).

URS conducted a hydraulics and hydrology (H&H) analysis using information provided by the Applicant. The analysis indicated that channel velocities upstream of the project site would increase as a result of the dam removal, but the shallow bedrock and the proposed wetland areas in the upstream areas are anticipated to mitigate the effects of erosion from the increased velocities. The hydraulic analysis showed no changes in water surface elevation or downstream channel velocities. Erosion of exposed soils may occur during project implementation; however, this would be minimized by using erosion prevention and stormwater BMPs, such as silt fencing, hay bales, and mulching recently seeded areas. The effects from construction would be temporary in nature.

Alternative 3 – Enlarge Existing Breach of the Collinsville Dam

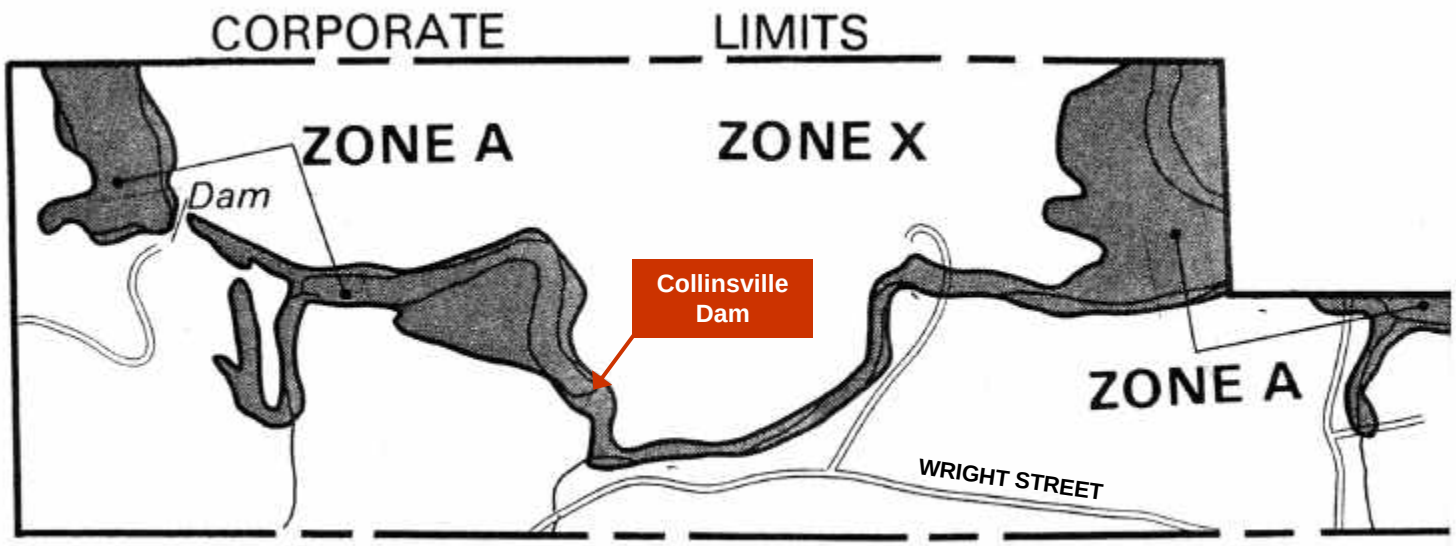
The creation of a larger breach in the Collinsville Dam would result in an initial increase in flushing of accumulated sediments from behind the dam. This would temporarily increase water turbidity and could potentially affect aquatic habitat (further discussed in Section 3.2.1). As described under Alternative 2, downstream erosion may be reduced slightly when normal sediment loads are restored. A slight increase in upstream channel velocity would occur under this alternative, but no changes in water surface elevations or downstream channel velocities are anticipated.

3.1.3 Floodplain Management (Executive Order 11988)

Floodplains refer to the 100-year floodplains as set by FEMA. They 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 flood that has a 1 percent chance of occurring in any given year. FEMA also identifies the 500-year floodplain, which designates the area inundated during a flood that has a 0.2 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 floodplain unless there are no practicable alternatives. FEMA's regulations for complying with EO 11988 are promulgated in 44 CFR Part 9. FEMA applies the Eight-Step Planning Process as required by regulation to meet the requirements of EO 11988. This step-by-step analysis is included in Appendix C of this document.



From the City of Marquette, MI FIRM, Community Panel No. 260716 0025 B, Revised December 2, 1994

CLIENT	FEMA			
PROJ	Collinsville Dam Project on the Dead River			
REVISION NO		DES BY		
SCALE	NOT TO SCALE	DR BY	BR	7/31/02
FILE	MAPS.PPT	CHK BY	LD	7/31/02

TITLE **FLOODPLAIN MAP FOR THE PROJECT AREA**

URS

PROJ NO 15292488.10038

FIGURE 5

The City of Marquette is a participant in good standing with the NFIP. According to the FIRM (Panel No. 260716 0025b, December 1994), the proposed project site falls within the 100-year floodplain (Zone A) of the Dead River (Figure 5).

Alternative 1 – No Action Alternative

Under this alternative, no occupancy or modifications to the floodplain would occur; therefore, EO 11988 is not applicable.

Alternative 2 – Removal of the Collinsville Dam (Proposed Action)

In letters dated August 28, 2001, and June 20, 2003, the MDEQ stated that the project is within a federally-identified flood hazard area and would require review under the state's Floodplain Regulatory Authority found in Part 31, Water Resources Protection, of the NREPA. The MDEQ response letters stated that they did not anticipate an increase in flood elevations or discharges would occur as a result of this project since there is another dam located downstream of the project site. However, since the downstream dam was breached in May 2003, URS contacted MDEQ to verify that their response is still valid. Mr. Bruce Menerey stated that he did not foresee a problem with the project and does not anticipate any increase in velocities or a significant hydrologic change (Menerey, pers. comm.).

An H&H analysis indicated that the Proposed Action would not result in increased water surface elevations or channel velocities downstream of the removed dam. The upstream floodplain would be narrowed and channel velocities would increase due to the reduced storage capacity of the impoundment. The natural waterfall and area topography would continue to act as controlling features and slow downstream velocities to current levels.

Dam removal activities and channel realignment would occur within the floodplain. Following the channel realignment, previously ponded areas and the abandoned channel, both within the floodplain, would be reclaimed and restored as wetland habitat. Wetland restoration activities that would occur within the floodplain would primarily consist of planting native hydrophytic species. These activities would have a beneficial effect on the floodplain, because once the vegetation becomes established, the plants would help reduce water velocities and the habitat could serve as a detention area, which would also help to reduce channel velocities. The Applicant should evaluate the use of temporary and permanent velocity dissipaters to mitigate the increase in upstream velocities.

In accordance with 44 CFR Part 9.5, any debris that is produced as a result of dam removal activities would not be disposed of within any floodplain zones. Debris would be hauled to a location permitted for that type of debris. This alternative would be in compliance with EO 11988.

Alternative 3 – Enlarge Existing Breach of the Collinsville Dam

According to the MDEQ, enlarging the breach on the Collinsville Dam would also require review under the state's Floodplain Regulatory Authority found in Part 31, Water Resources Protection, of the NREPA (Pawloski, pers. comm.).

No impacts to downstream floodplains or channel velocities are anticipated under this alternative. The upstream floodplain would be slightly narrowed under this alternative and upstream channel velocities would slightly increase due to the reduced storage capacity of the impoundment. Velocities would slow to current levels at the natural waterfall as a result of the topography of the area. The use of water velocity dissipaters should be evaluated by the Applicant to mitigate the velocity increase upstream.

Dam breaching activities would occur within the floodplain. No channel realignment work would be performed. Impoundment of water upstream of the dam would still occur, although the impoundment area would be reduced as a result of the larger breach size.

In accordance with 44 CFR Part 9.5, any debris produced as a result of dam breaching activities would not be disposed of within any floodplain zones of the project site. Debris would be hauled to a location permitted for that type of debris. This alternative would be in compliance with EO 11988.

3.1.4 Air Quality

The Clean Air Act 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 Clean Air Act established two types of national air quality standards: primary and secondary. 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 has set NAAQS for six principal pollutants, which are called "criteria" pollutants: sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), lead (Pb), particulate matter of 10 microns or less (PM_{10}), and ozone (O_3).

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, Marquette County is in attainment for all six priority pollutants (EPA, 2002).

Alternative 1 – No Action Alternative

No construction activities would occur under this alternative; therefore, there would be no impact to air quality.

Alternative 2 – Removal of the Collinsville Dam (Proposed Action)

Implementation of the Proposed Action would involve limited use of heavy construction equipment, such as pneumatic hammers, large excavators equipped with buckets, dump trucks, and front-end loaders, to dismantle the dam and remove accumulated sediments from behind the dam. The duration of the proposed project activities is approximately three months.

Heavy construction equipment is a source of fugitive dust emissions that may have a substantial temporary effect on local air quality. Emissions occurring during the removal of the dam would be associated with earth moving (silt removal) and destruction of the dam. 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 would result from equipment traffic during project implementation.

The quantity of dust emissions from construction operations is directly proportional to the area of land being worked, the level of 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 priority pollutants, including CO, NO_2, O_3, and PM_{10}.

To mitigate for potential air quality impacts from fugitive dust and equipment emissions, vehicle engines would be maintained in good working order and turned off while not in use, and project access roads would be watered when dusty conditions exist.

Alternative 3 – Enlarge Existing Breach of the Collinsville Dam

Air quality impacts under Alternative 3 would be similar to the Proposed Action, but shorter in duration.

Implementation of Alternative 3 would involve limited use of heavy construction equipment, such as pneumatic hammers, large excavators equipped with buckets, dump trucks, and front-end loaders, to enlarge the dam breach and remove debris. The duration of the proposed project activities is approximately two months.

Heavy construction equipment is a source of fugitive dust emissions that may have a substantial temporary effect on local air quality. Emissions occurring during the removal of the dam would be associated with earth moving (silt removal) and destruction of the dam. 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 would result from equipment traffic during project implementation.

The quantity of dust emissions from construction operations is directly proportional to the area of land being worked, the level of 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 VOCs and some of the priority pollutants, including CO, NO_2, O_3, and PM_{10}.

To mitigate for potential air quality impacts from fugitive dust and equipment emissions, vehicle engines would be maintained in good working order and turned off while not in use, and project access roads would be watered when dusty conditions exist.

3.2 BIOLOGICAL ENVIRONMENT

3.2.1 Terrestrial and Aquatic Environment

Terrestrial Environment

The proposed project site is limited to the area immediately downstream of the dam, the aquatic environment of the Dead River, the impoundment behind the dam, and existing access roads leading to the project site.

URS biologists performed a site visit on May 15, 2002. The area immediately downstream of the dam was observed to be a young riparian forest colonizing very shallow soils with abundant rock outcrops. Regular disturbance from excess dam flow is evident from significant deposits of woody debris and the broken stems of resident vegetation. As a result, the forest below the dam is only moderately dense, comprised of yellow-birch (*Betula alleghaniensis*), paper birch (*Betula papyrifera*), alder (*Alnus rugosa*), and red maple (*Acer rubrum*). A few specimens of Jack pine (*Pinus banksiana*) were also observed colonizing rock outcrops behind the dam. Understory species composition is predominantly overstory regeneration, with small patches of raspberry (*Rubrus* sp.) observed. No herbaceous layer was observed under the woody debris or colonizing the exposed bedrock.

A relatively mature forest surrounds the impoundment contained by the dam and is composed predominantly of red pine (*Pinus resinosa*), with some Jack pine and white pine (*Pinus strobus*). Small paper birch and red maple are more common closer to the water's edge. In this stand, eastern hemlock (*Tsuga canadensis*) is predominant in the understory. No herbaceous layer was observed through the pine leaf litter on the forest floor.

Wildlife likely to use the project site include mammals such as white-tailed deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), and fox (*Vulpes vulpes*); reptiles, such as snakes and turtles; amphibians, such as spring peeper (*Pseudacris crucifer*); and birds such as blue jay (*Cyanocitta cristata*), black-capped chickadee (*Poecile atricapillus*), and nuthatch (*Sitta* sp.).

Aquatic Environment

The Dead River is heavily influenced by human activity and is predominantly characterized by large impoundments separated by bypassed or natural stream reaches. The first impoundment, Tourist Park Dam, is less than 1 mile upstream of Lake Superior, and it is the limiting structure for spawning fish species such as Chinook (*Oncorhynchus tschawytscha*), coho (*Oncorhynchus kisutch*), and steelhead salmon *(Oncorhynchus mykiss*), and rock bass (*Ambloplites rupestris*) (Mistak, pers. comm.). The failure of the Silver Lake Dam and the dewtering of the Tourist Park Dam in May 2003 damaged fisheries and altered the river habitat along a 25-mile reach of the Dead River. The extent of the damage and a course of action to mitigate the impacts are currently being determined by federal and state agencies and the Upper Peninsula Power Company.

The project area includes two distinct aquatic habitats: the stream channel of the Dead River below the breached dam and the impoundment created by the dam. Both of these habitats are highly influenced by varying stream flow as a result of operating hydroelectric facilities immediately upstream. Average flow of waters in the bypassed reach of the Dead River at the abandoned Collinsville Dam has been estimated at 13 cfs, with summer flows at approximately

3 cfs (Hickey, pers. comm.). In comparison, the penstock that contains the waters bypassing the abandoned dam has an estimated flow of 80 cfs (FERC, 2002).

Downstream of the dam, the Dead River flows in a narrow channel approximately 30 feet wide, bordered by steep slopes. Riverbed substrate consists of cobbles and boulders. The river downstream of the abandoned dam contains excellent fish habitat structures, such as shallows and deep pools, and is well shaded (FERC, 2002). Within the impoundment, the pool habitat has gradually sloping banks and a substrate of muck, detritus, boulders, cobble, and bedrock. Shading is variable; cover is extensive in the narrow channel in the upper half of the impoundment, but sparse in the broader pools of the lower reach near the dam (FERC, 2002).

In 1997, MBLP surveyed most of the Dead River for fish species. The segment containing the abandoned dam was noted for supporting species such as brook trout (*Salvelinus fontinalis)*, fathead minnow (*Pimephales promelas*), longnose dace (*Rhinichthys cataractae*), brook stickleback (*Culaea inconstans*), and Iowa darter (*Etheostoma exile)* (MBLP, 1997). The brook trout ranged in size from 3 to 10 inches, indicating the presence of multiple age classes, harvestable size classes, and natural reproduction (FERC, 2002). Because of different habitat conditions and probable differences in water temperatures above and below the dam, the fish communities are distinctly different upstream and downstream of the dam. For example, all brook sticklebacks, Iowa darters, and nearly all fathead minnows and brook trout were collected upstream of the breached dam. In contrast, all longnose dace, johnny darters (*Etheostoma nigrum*), and logperch (*Percina caprodes*) were collected downstream of the dam (FERC, 2002).

Waterfowl, including wood duck (*Aix sponsa*), mallard (*Anas platyrhynchos*), heron (*Butorides* sp.), and Canada goose (*Branta canadensis*) are also more likely to use the impoundment created by the dam than the Dead River segment immediately downstream of the dam.

During the May 15, 2002 site visit, stream flow and channel size in the project area appeared adequate to support fish communities. No severe erosion or sediment loads were observed, and the stream was well shaded by riparian vegetation. No indications of pollution, such as foaming or oily sheens or deposits were observed. These conditions may have been altered as a result of the May 2003 dam failures.

Alternative 1 - No Action Alternative

Terrestrial Environment

Under the No Action Alternative, no changes to the existing terrestrial environment would occur.

If the dam were to fail, riparian habitat downstream could be flooded and terrestrial habitat around the impoundment would increase as a result of dewatering. Accumulated sediments behind the dam would be released and would likely be deposited in shoreline areas. If vegetation mortality were to result from the flooding, the effects on the larger terrestrial environment would be temporary and minimal. The dewatering of the impoundment after dam failure would result in more exposed soils. It is anticipated that vegetation would colonize these soils within the first several growing seasons, resulting in increased terrestrial habitat.

Aquatic Environment

No changes to the dam would occur under the No Action Alternative, and the aquatic environment would not be affected.

If the dam were to fail, aquatic habitat upstream of the dam would be permanently affected by the loss of available waters and changes in water temperature. This would result in the loss of fish and perhaps some fish species altogether, a minimal adverse impact given the availability of similar nearby impoundments.

Habitat downstream would be temporarily affected by the flushing of accumulated sediments from behind the dam. Fisheries could also be impacted as they were when the Silver Lake Dam failed and the Tourist Park Dam was dewatered in May 2003. A failure could damage existing spawning grounds and available food quality (American Rivers, 2002). Unless failure was sudden and severe, the effects would be minimal and temporary. Over time, the increase in sediment load within this stretch of the river could result in a greater variety of sediment sizes moving downstream and the creation of a more diverse array of habitats for feeding, spawning, and breeding for fish and aquatic macroinvertebrates. Upstream of the site, gravel or cobble may be re-exposed as more sediment is washed downstream, creating habitat that could be colonized by aquatic macroinvertebrates or used for fish spawning (American Rivers, 2002).

Alternative 2 – Removal of the Collinsville Dam (Proposed Action)

Terrestrial Environment

Under the Proposed Action, the dam would be removed and the impoundment dewatered and vegetated. The effects of the Proposed Action on the terrestrial habitat would include temporary disturbances to terrestrial habitat during project implementation due to the operation of heavy machinery. Additional terrestrial habitat would be created in the footprint of the former impoundment area.

Access to the site from Wright Street would be accomplished through pre-existing roads and old logging access routes. No effects to the terrestrial environment are anticipated. Once on-site, heavy equipment would be operated in the immediate vicinity of the dam. Part of the young, riparian forest immediately below the dam would be removed or disturbed. After project activities were concluded, these areas would be seeded with a native vegetation or wetland species, and mulched in accordance with MDEQ permits. Soils compacted by machinery would be loosened by methods such as disking or raking. Impacts to terrestrial environment would be considered minimal given available habitat adjacent to the project site. Effects to the terrestrial environment would be temporary until vegetation becomes reestablished. No incidental take of wildlife is anticipated.

Aquatic Environment

Dewatering the impoundment and restoring the historic channel of the Dead River would permanently remove the open water habitat upstream of the dam. However, there is similar available habitat in impoundments elsewhere on the river. Additionally, the Collinsville Dam impoundment is considered a detriment to the overall aquatic habitat of the river by the USFWS and MDNR (FERC, 2002). Overall, the loss of this habitat is considered a minimal adverse effect in comparison to the net benefit of restoring the river to a more natural flow dynamic.

Along with the loss of habitat, resident fish in the impoundment would be displaced or killed. Although some species may find other suitable habitat upstream or downstream, it is anticipated that many of the fish in the impoundment would not recover from this disturbance. Some populations of species that prefer pools to streams may not reestablish in the restored channel of

the Dead River. The loss of resident fish and altering of species composition in this stretch of the river would have little effect in the context of the river as a whole. Replacement of displaced species with native, cold-water, riverine species is considered by many to be a long-term benefit to the aquatic habitat (American Rivers, 2002; FERC, 2002). Therefore, adverse effects to the aquatic habitat would be temporary until native, cold-water species are able to colonize the newly established river channel.

The removal of 1,500 cy of accumulated sediment and the placement of sediment traps downstream of the abandoned dam would reduce the impact that initial increases in sediment loads could have on downstream aquatic habitat. It is likely, however, that a minor increase in turbidity and sediment load would still occur during project activities, but this increase would be unlikely to seriously affect aquatic habitat. To mitigate against potential increases in sediment loads, the Applicant would complete project activities during the late summer when there is less rain and install erosion controls measures, such as silt fencing and hay bales. An instream sediment trap installed below the dam would minimize transport of any sediment downstream. As a result, impacts to the aquatic habitat would be temporary and minimal.

Alternative 3 – Enlarge Existing Breach of the Collinsville Dam

Terrestrial Environment

Under this alternative, disturbances to terrestrial habitat would occur during project implementation, due to the operation of heavy machinery in the immediate vicinity of the dam. Although the removal of some vegetation and compaction of soils would have an impact on this area, the adverse effects would be temporary until new vegetation could mature. Loosening the compacted soils by methods such as disking or raking would mitigate the effects of soil compaction. Partially breaching the Collinsville Dam would also result in the partial dewatering of the impoundment. After vegetation becomes established on the newly exposed soils additional terrestrial habitat would be created.

Aquatic Environment

Partial dewatering of the impoundment would result in the loss of some aquatic habitat. However, since much of the dam would remain intact, it is anticipated that some open water habitat, and some of the fish using that habitat, would be preserved. The upstream barrier would remain in the Dead River and the natural channel would not be restored. The adverse effect of not restoring the channel would outweigh any beneficial effect of leaving the open water habitat partially intact (Mistak, pers. comm.).

Accumulated sediment would not be removed from behind the dam; therefore, sediment loads and associated water turbidity would increase following the breach enlargement. These effects would be temporary as the river adjusts to the increased sediment loads, and they would have a temporarily negative impact on downstream aquatic habitat. Over time, the increase in sediment load within this stretch of the river could result in a greater variety of sediment sizes moving downstream and could create a more diverse array of habitats for feeding, spawning, and breeding of fish and aquatic macroinvertebrates. Upstream of the site, gravel or cobble may be re-exposed as more sediment is washed downstream, creating habitat that could be colonized by aquatic macroinvertebrates or used for fish spawning (American Rivers, 2002).

3.2.2 Wetlands (Executive Order 11990)

The term wetland refers to areas 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, and similar areas.

Under EO 11990, federal agencies are required to minimize the destruction, loss, or degradation of wetlands and preserve and enhance their natural and beneficial values. If a federal action has the potential to impact jurisdictional waters of the United States as defined by Section 404 of the federal Clean Water Act (CWA), the U.S. Army Corp of Engineers (USACE) is 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. FEMA applies the Eight-Step Decision-Making Process, required by 44 CFR Part 9, to meet EO 11990 requirements (Appendix C). Michigan has received authorization from the USACE 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.

Prior to conducting a site characterization, wetland data maintained by the MDNR was reviewed for a preliminary identification of wetlands in the vicinity of the project site. Based on this review, forested and scrub-shrub wetlands are located in and adjacent to the upper reaches of the impoundment, approximately 700 feet or more upstream from the dam (Figure 3). During a URS site visit on May 13, 2002, additional wetlands were identified in the project area adjacent to the abandoned dam, and along the perimeter of the dam pool and the Dead River below the dam. Adjacent to the dam on the downstream side, wetland vegetation colonizes shallow soils with prominent bedrock outcrops. This wetland is comprised predominantly of willow (*Salix discolor*) and alder (*Alnus sp.)*, and is regularly disturbed by excess water flows as evidenced by accumulated woody debris and broken stems.

In shallow open water areas and on the perimeter of the impoundment, open water and emergent wetlands were observed. These wetlands range from 1 to 5 feet wide and can be found around the perimeter of the impoundment. In most places, the banks of the impoundment contained grasses and appeared to be irregularly maintained. However, some specimens of red maple and willow were observed occupying the embankment at the water's edge. Based on the site visit, it is estimated that the 5-acre impoundment contains less than 1 acre of these perimeter wetlands.

Alternative 1 - No Action Alternative

Under the No Action Alternative, the dam would remain intact and the operation of heavy machinery in the vicinity of the dam would not occur. No wetlands would be affected. If, however, the dam were to fail, the impoundment would be drained, potentially altering the source of hydrology to wetlands in the vicinity of the impoundment, which could result in the loss of wetlands.

Riparian wetlands downstream of the abandoned dam may also be affected if dam failure should occur. Depending on the type and severity of the failure, sediments contained in the impoundment (approximately 1,500 cy) could be transported downstream and deposited into

wetlands. Adverse effects to some wetlands could be severe, but would be limited to the one-time occurrence of the dam failure.

Alternative 2 – Removal of the Collinsville Dam (Proposed Action)

Dam removal would cause the impoundment to drain, potentially altering the hydrologic source for existing wetlands in the vicinity of the project site. In addition, during silt removal, some wetlands would be removed. These effects could potentially cause permanent direct or indirect impacts to wetlands adjacent to, and in the vicinity of, the impoundment. The project would be reviewed by MDEQ under Part 303, Wetlands Protection, of the NREPA. The Applicant, prior to initiating project activities, would obtain the required permit, and dam removal activities would comply with all permit conditions. Over time, wetlands would be expected to establish along the restored river channel. To facilitate reestablishment of wetland vegetation the Applicant would revegetate the perimeter of the newly established river with wetland plants. Reestablishing these wetlands to a more natural riverine floodplain function and form is considered a beneficial effect to the health of the river and the riparian zone; therefore, it is not anticipated that the Applicant would be required by MDEQ to create additional wetlands for mitigation beyond the planting of vegetation along the riparian zone (Zebiciak, pers. comm.). If wetland mitigation is required by MDEQ, impacted wetlands would be mitigated at a ratio of 2 acres created for every 1 acre disturbed of forested wetlands (Zebiciak, pers. comm.).

During impoundment dewatering and silt removal operations, exposed soils and sediments have the potential to be eroded and released downstream. Wetlands downstream of the dam could potentially be impacted by sediment deposition. To mitigate potential effects from erosion and sedimentation, the Applicant would implement erosion control measures in accordance with MDEQ permits and local regulations. An instream sediment trap would be installed below the dam to minimize transport of sediment to downstream wetlands.

During project activities to remove the dam, access to the dam would require operation of heavy machinery in the small, disturbed wetland directly below the dam. This would require the removal of some wetland vegetation and compaction of soils in order for the dam to be accessed and be used as a staging area for construction equipment. As previously discussed, this wetland is regularly disturbed and is comprised of willow and alder trees occupying very rocky soils with prominent bedrock outcrops. The potential for soil compaction at this site is minimal given the prominence of bedrock. After project activities are concluded, native wetland vegetation would be reestablished at the site. The disturbance to this wetland would be temporary and, after stream bank restoration measures were in place, minimal.

Alternative 3 – Enlarge Existing Breach of the Collinsville Dam

Alternative 3 would permanently impact some existing wetlands, but would also result in the creation of new wetlands. Impoundment drainage, wetland excavation, and operating machinery in wetlands would be required. A permit review would be conducted by MDEQ under Part 303, Wetlands Protection, of the NREPA. Prior to initiating project activities, the Applicant would obtain the required permit and dam removal activities would comply with all permit conditions.

Partial breaching of the dam would result in partial dewatering of the impoundment. Hydrology that supports forested, scrub-shrub, emergent wetlands, and open water areas would be altered,

resulting in the loss of some wetlands. The Applicant would mitigate wetland impacts by preserving existing wetlands when possible and by revegetating exposed impacted areas with wetland plants. It is not anticipated that wetland creation would be required as a condition of the MDEQ permit because of the relatively minor impact to wetlands.

Wetlands downstream of the dam may potentially be affected by sediment deposition. To mitigate the potential effects from erosion and sedimentation, the Applicant would implement erosion control measures in accordance with MDEQ permits and local regulations. An instream sediment trap would be installed below the dam to minimize the transport of sediment to downstream wetlands.

3.2.3 Threatened and Endangered Species

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

MDNR was contacted for information regarding known occurrences of threatened, endangered, or otherwise significant plant and animal species, natural plant communities, and other natural features. In letters dated September 4, 2001, and June 10, 2003, the MDNR concluded that the project would have no impact on rare or unique natural features if the project proceeded according to the plans provided with the consultation letter (Appendix B).

The USFWS was also requested to review records for known occurrences of threatened and endangered species in the project area. In letters dated August 6, 2001, and May 16, 2003, USFWS concluded that no federally listed endangered, threatened, proposed, or candidate species, or critical habitats, presently occur within the proposed project area (Appendix B). No further action is required under Section 7 of the Endangered Species Act.

Based on these consultations, no further consideration is required for the No Action Alternative, Alternative 2 (Proposed Action), or Alternative 3 with regard to impacts to threatened or endangered species.

3.3 HAZARDOUS MATERIALS

The Resource Conservation and Recovery Act (RCRA) defines hazardous wastes 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 also been interpreted to include semisolids, liquids, and contained gases (Wentz, 1989).

Hazardous materials and wastes are regulated in Michigan through a combination of federally mandated laws and state laws developed by the MDEQ. The hazardous waste statues are contained in Sections 324.11101 – 324.11153 of the NREPA. 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 (EDR), an independent information service, conducted a database search. The database search queried multiple federal, state, and local hazardous materials and underground storage tank (UST) databases to identify sites within the distances required by ASTM Standard E 1527. No hazardous materials sites were identified at or near the proposed project site. No subsurface hazardous materials testing was conducted in the project area as a part of this EA. Conclusions are based only on the field reconnaissance, database search, and reported historical uses of the property.

To ensure that the sediments proposed to be removed from the project site were uncontaminated, representative cores of silt were collected and analyzed (MBLP, 1997). The analyses included general chemical parameters including oil and grease, total organic carbon, polychlorinated biphenyls (PCBs), and total phosphorous as well as the presence of metals (chromium, lead, arsenic, cadmium, copper, mercury, silver, and zinc). The samples were determined to be non-contaminated based on the results of the sediment analyses (Pyle, pers. comm.).

Alternative 1 - No Action Alternative

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

Alternative 2 – Removal of the Collinsville Dam (Proposed Action)

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

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

Alternative 3 – Enlarge Existing Breach of the Collinsville Dam

No impacts to hazardous material or wastes are anticipated under Alternative 3.

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

3.4 SOCIOECONOMICS

3.4.1 Zoning and Land Use

The Upper Peninsula was divided into six counties after the Ojibwas ceded their land rights in 1843. Encompassing roughly 1,870 square miles, Marquette County, which was not formally organized until 1848, became the largest of Michigan's 83 counties (Marquette County, 2002). Large iron ore deposits were discovered in the rocky mountain range in the northern area of the county during a survey of the area in 1844. These iron ore deposits hastened the settlement of the area.

The proposed project is located within the City of Marquette, at the County's northwest border. Marquette was founded as a shipping port for iron ore and a vital supply portal for the County's growing population (Marquette County, 2002). Today, Marquette is the largest urban area in the Upper Peninsula with a population of nearly 20,000 (U.S. Census Bureau, 2000). While the population in this area has declined in recent years due to the closing of K.I. Sawyer Air Force Base in 1995, it is anticipated that the area's population will remain relatively stable in the future. Outside the City, the remainder of Marquette County is primarily rural and consists of small, scattered communities of 1,000 people or less (FERC, 2002).

Land within the project site is owned by the MBLP. It is currently zoned as conservation and recreation land. Allowable uses include agriculture, land, water and wildlife conservation, and educational purposes (Stachewicz, pers. comm.). Land immediately surrounding the Collinsville Dam is primarily forested and undeveloped, with the nearest residence located approximately 700 feet from the site.

The dam serves as an undeveloped recreation site for anglers and off-road vehicle (ORV) users, with access provided by a short trail and vehicle bridge (FERC, 2002). A hiking and biking trail that runs along the Dead River is located near the project site. The Tourist Park reservoir, located downstream of the project area, consists of 40 acres of recreational facilities and residences along the shoreline. Local residents use this site for boating, fishing, and other recreational activities (FERC, 2002).

Within the City of Marquette, residential development accounts for the most significant land use (51 percent); followed by conservation and recreation lands (26 percent); business, commercial, and industrial (17 percent); and deferred development (6 percent) (Stachewicz, pers. comm.).

Alternative 1 – No Action Alternative

Under the No Action Alternative, there would be no changes to current land use and zoning. Should the dam fail, flooding along downstream areas would possibly displace residents of four homes and cause damage to an electrical substation. The Applicant has estimated the potential cost of damages to the residences and damages and disruption of services to the electrical substation would be approximately $2,118,545. In addition to potential property destruction, recreational use of the area could be affected if further breaching of the dam occurred.

Alternative 2 – Removal of the Collinsville Dam (Proposed Action)

Removal of the Collinsville Dam is permissible under the current zoning, as it will restore the area to its natural state and still serve the conservation and recreational purposes of the land (Stachewicz, pers. comm.). During the removal period, the area would be temporarily closed to recreation; however, the city has alternative recreational areas that would still be available for use. After the dam is removed, the dam pool would no longer exist and a smaller area would be available for fishing. However, as noted above, ample fishing and recreational lands would still be available for use. Recreational use at the site would no longer be subject to the potential negative effects that could be caused by failure of the dam.

Alternative 3 – Enlarge Existing Breach of the Collinsville Dam

Breaching of the dam would be permissible, as the activity would strive to return a portion of the natural flow to the Dead River. During the project activities, the area would be temporarily closed to recreation; however, the city has alternative recreational areas that would still be available for use. Enlarging the breach would reduce the dam pool, but it could still be used for fishing. However, the potential for dam failure would still exist and downstream areas would be at risk of damages should the dam completely fail.

3.4.2 Visual Resources

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

The general character of the Dead River basin is consistent with outdoor recreational activities. The river itself provides numerous recreational opportunities, including swimming, boating, and fishing. The Dead River Basin Trail, which extends alongside the river, provides hiking and bicycling opportunities year-round. In addition to the forested landscape and river feature, numerous waterfalls are located along the river. The Collinsville Dam is sited atop a natural waterfall. A 25-mile reach of the Dead River from the Silver Lake Dam to the mouth of the river was altered by erosion and the deposition of debris and sediment when the Silver Lake Dam failed and the Tourist Park Dam was dewatered May 2003. Although these areas have been reopened for recreational use, the effects of the dam failures will be visible until the areas are restored.

The integrity of the Dead River as a natural system is compromised by the presence of six dams along its course. At the project location, the integrity of the natural landscape is affected by the presence of the abandoned and decaying Collinsville Dam structure, which in its current state has a negative effect on the scenic integrity of this stretch of the river.

Topography and vegetation limit the visibility of the site to the public. From the project site, natural features and man-made features are visible within a distance of about 1,000 feet. Natural features include the river and the surrounding forested hillsides. The prominent man-made features visible from the project area include a wooden penstock structure that extends just south of the dam, overhead utility lines associated with the Wright Street corridor, and the abandoned

dam structure itself. No residential housing or other development exists within the project location.

Alternative 1 – No Action Alternative

Under the No Action Alternative, no flood mitigation activities would be undertaken and visual resources would not be affected. The abandoned dam structure, however, would continue to constitute a negative aesthetic element within the context of the natural character of the Dead River.

Alternative 2 – Removal of the Collinsville Dam (Proposed Action)

The abandoned and decaying dam structure constitutes a negative aesthetic element. Its removal and the subsequent restoration of the river to a more natural state would be an aesthetic enhancement. Heavy equipment would be seen in the project area during dam removal, but this would be a short term impact.

Destruction of the dam would require the removal of trees growing along the downstream portion of the dam. These are primarily young trees (Appendix A, Photographs 7 and 8) and the overall impact of the loss of these trees on the scenic integrity of the site would be minimal. Additionally, the areas previously impounded would be mulched and replanted. Growth of this vegetation and the replanting of the reclaimed dam pool would eventually restore the natural character and scenic value of the project area.

Overall, visual resources would be enhanced under this alternative.

Alternative 3 – Enlarge Existing Breach of the Collinsville Dam

Under this alternative, the abandoned dam structure would remain and continue to constitute a negative aesthetic element that is inconsistent with the natural character of the Dead River. While the dam breach would be widened, the existing visual landscape would not be extensively altered. Heavy equipment would be seen in the project area during dam removal, but this would be a short term impact.

Enlarging the breach would require the removal of trees growing on the downstream side of the dam in the 20-foot enlargement area. These are primarily young trees (Photographs 7 and 8) and the overall effect the loss of these trees would have on the scenic integrity of the site would be minimal.

3.4.3 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 is 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 EPA the 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. EPA 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.

Under the Nuisance Ordinance for the City of Marquette, construction, repair, or demolition activities are permissible from 7 AM to 6 PM, Monday through Friday (Stachewicz, pers. comm.). State regulations exist only for worker safety and hearing protection.

Alternative 1 – No Action Alternative

Under the No Action Alternative, flood mitigation activities would not be conducted and noise levels would be expected to remain at current levels.

Alternative 2 – Removal of the Collinsville Dam (Proposed Action)

Most noise associated with the Proposed Action would be emitted by mechanical equipment used in the demolition of the dam and streambank repair. Equipment to be used in implementing the Proposed Action would include a pneumatic drill, a large excavator with an opposing thumb, dump trucks, and front-end loaders (Lindquist, pers. comm.). Noise typically associated with this type of construction equipment can measure as much as 80 dB within 50 feet of the source, attenuating at a rate of 6 dB per doubling of distance away from the source.

Project-related noise may minimally disturb one nearby residence located roughly 700 feet from the project site. However, the forest cover at the site would serve as a noise buffer and further reduce noise levels. Recreational users in the vicinity of the project site may experience noise disturbance; however, this noise would not be constant and would be temporary, occurring during the approximately three months of proposed dam removal. Additionally, other areas would be available for recreational use during the project timeframe.

To mitigate for any potential noise impacts, the city would inform residents and recreational users of the time and duration of project activities. Appropriate protective gear would be required to ensure the hearing protection of project workers.

Alternative 3 – Enlarge Existing Breach of the Collinsville Dam

Implementation of Alternative 3 would require the same equipment as the Proposed Action and therefore would have similar noise impacts, lasting for approximately two months.

To mitigate for any potential noise impacts, the city would inform residents and recreational users of the time and duration of project activities. Appropriate protective gear would be required to ensure the hearing protection of project workers.

3.4.4 Public Services and Utilities

Public services provided to all residents of the City of Marquette include police and fire protection, as well as medical and recreational services. The City also provides public utilities, such as water, sewerage, and solid waste collection.

The City of Marquette's Water and Sewer Department obtains drinking water from Lake Superior, which is then treated at its water filtration plant. The city operates two separate sewer collection systems, one for sanitary sewage and another for stormwater runoff. The Public Works Department maintains both systems (City of Marquette, 2002).

The MBLP is an elected body established by the city charter that it is responsible for light and power operations in the city. The Forestville and Tourist Park Dams are owned and operated by the MBLP and serve as hydroelectric producers that provide electricity specifically for the City of Marquette (CLSWP, 2002). The Upper Peninsula Power Company owns and operates the the Silver Lake, Hoist, and McClure dams. The flooding caused by the failure of the Silver Park Dam in May 2003 resulted in the closure of the Presque Isle Power Plant, severely impacting the region's electrical supply and forcing the closure of two mines for an extended period.

Alternative 1 – No Action Alternative

No immediate impacts to public services and utilities are anticipated under the No Action Alternative. However, should flooding occur as a result of dam failure, the transformer and switchgear at Electric Substation #2, located one-quarter mile downstream of the project site could be damaged or destroyed (Reynolds, pers. comm.). According to the Marquette County Conservation District, damage to the substation would result in a loss of service to 1,820 residences. The cost of repairs and 2 days of lost service is estimated to be $1,608,000. Additionally, if there is another dam failure like the one that occurred in May 2003, there is the potential for the Presque Isle Power Plant, if it has been restored, to temporarily stop its services, as the water intakes of the hydroelectric power plant may become blocked with silt.

Alternative 2 – Removal of the Collinsville Dam (Proposed Action)

Under the Proposed Action, adverse effects to public services are not anticipated. Coffer dams and diversion pipes would be installed prior to implementation of the proposed project to ensure that catastrophic flooding did not occur during the dam removal phase. Removal of the dam would help prevent potential future damage that could occur to Electric Substation #2 as a result of dam failure.

Alternative 3 – Enlarge Existing Breach of the Collinsville Dam

Adverse impacts to public services and utilities are not anticipated under the implementation of Alternative 3. Increasing the breach of the dam would substantially reduce, but not eliminate, the possibility of future catastrophic flooding. Damage to the Electric Substation #2 could still occur under this alternative, resulting in temporary loss of service to city residents.

3.4.5 Traffic and Circulation

No roads traverse the project site; however, a city street, Wright Street, is less than one-quarter mile south of the project site. This street provides access to downtown Marquette and Lake Shore Boulevard, which runs along the periphery of Lake Superior. U.S. Highway 41, the closest major highway, is located about 1 mile south of the project site and runs parallel to Wright Street.

The City of Marquette's Department of Public Works is responsible for the maintenance of 87 miles of roads within the City and construction of new city streets or alleyways (Marquette County, 2002). The Michigan Department of Transportation (MDOT) is responsible for the maintenance of state, national, and interstate highways.

Information from traffic counts conducted in 2001 by the Marquette County Road Commission was available for the western portion of Wright Street, near the intersection with Forestville Drive (Figure 2). The annual average daily traffic count recorded for this road segment was 6,014 vehicles (Taavola, pers. comm.). The MDOT's 2000 Average Daily Traffic Count recorded 18,500 to 30,900 vehicles along U.S. Highway 41 (MDOT, 2000).

Alternative 1 – No Action Alternative

Under the No Action Alternative, there would be no effects to traffic since dam removal would not occur.

Alternative 2 – Removal of the Collinsville Dam (Proposed Action)

Under the Proposed Action, Wright Street and various unnamed, city-owned streets near the project site would be used for site access and equipment transport. Staging of equipment would occur near the project site, away from any major roads. These equipment and staging activities are not anticipated to disrupt traffic or require any road closures (Lindquist, pers. comm.). U.S. Highway 41 would also be unaffected and would serve as an alternate route to the downtown area and Lake Shore Boulevard if unanticipated delays were to occur.

During project activities, appropriate signage would be posted to inform drivers of work zones and equipment transport routes.

Alternative 3 – Enlarge Existing Breach of the Collinsville Dam

Implementation of Alternative 3 would require the same equipment transport routes and staging areas as the Proposed Action. These equipment and staging activities are not anticipated to disrupt traffic or require any road closures (Lindquist, pers. comm.). U.S. Highway 41 would be unaffected and would serve as an alternate route to the downtown area and Lake Shore Boulevard if unanticipated delays were to occur.

During project activities, appropriate signage would be posted to inform drivers of work zones and equipment transport routes.

3.4.6 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 people have the potential to be adversely affected by the alternatives.

Marquette County supports a population of 64,634, of which 95.1 percent is white, 1.3 percent is African American, 1.5 percent is American Indian/Alaskan Native, and 0.5 percent is Asian. Approximately 0.7 percent of the residents classified themselves as being of Hispanic origin (U.S. Census Bureau, 2000). Median household income for the County is $35,548, which is 0.1 percent lower than the state average of $38,883. Approximately 6 percent of the population is considered below poverty level, which is lower than the state average of 11.5 percent (U.S. Census Bureau, 2000).

The proposed project area is located within Marquette City, which has a total population of 19,661, of which 95.0 percent is white, 0.8 percent is African American, 1.7 percent is American Indian/Alaskan Native, 0.8 percent is Asian, and 0.2 percent is some other race. Approximately 0.8 percent of the residents classified themselves as Hispanic or Latino (people in this category can be of any race). Median household income for the township is $29,918, which is 30 percent lower than the state average of $38,883. Approximately 7.2 percent of the population is considered below the poverty level, which is lower than the state average of 11.5 percent (U.S. Census Bureau, 2000).

Based upon a review of U.S. Census information, the No Action, Proposed Action, and Alternative 3 are not considered to have a disproportionate effect on minority or low-income populations. Additionally, Alternatives 2 and 3 would reduce the potential for future flooding associated with a dam failure and would benefit all of the people residing within or adjacent to the project area. Therefore, the project is in compliance with EO 12898.

3.4.7 Safety and Security

Safety and security issues considered in this analysis include the health and safety of the area residents, the public at-large, and the protection of personnel involved in activities related to the implementation of the project alternatives.

Alternative 1 – No Action Alternative

Under the No Action Alternative, the potential for future flooding and catastrophic dam failure to occur would remain. Residents of the four homes located downstream that are susceptible to flooding would be at a risk of injury or negative health impacts due to unsanitary conditions following flooding.

Flash flooding, further breaching, or dam failure could potentially lead to injury or loss of life for recreational users in the vicinity of the remnant dam, if they were present during these occurrences.

Since the No Action Alternative does not involve the employment of personnel to perform the project activities, there would be no potential risks to the personal safety of project workers.

Alternative 2 – Removal of the Collinsville Dam (Proposed Action)

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

Recreational access to the project site would be prohibited during dam removal to reduce the risk of injury or loss of life. The use of a coffer dam and diversion pipe would prevent any water flow surges that would occur as a result of dam removal. Following dam removal, the area likely would be safer for those participating in recreational activities in the area, as the potential for a catastrophic dam failure to occur would be eliminated.

Alternative 3 – Enlarge Existing Breach of the Collinsville Dam

Under the Proposed Action, dam removal activities could present safety risks to individuals 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 OSHA regulations.

Recreational access to the project site would be prohibited during breaching activities to reduce the risk of injury or loss of life. Safety risks to recreational users and downstream residents would be reduced, but not eliminated, as the opening could become plugged with debris or a dam failure could occur, causing flooding and water surges.

3.5 CULTURAL RESOURCES

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

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 impact on these properties, FEMA must consult with the SHPO on ways to avoid, minimize, or mitigate the adverse effect.

As the first dam on the Dead River, the Collinsville Dam was originally constructed in 1897 to provide power for a sawmill. The wooden penstock that carries approximately 85 percent of the flow of the Dead River past Collinsville Dam was originally constructed in the early 1900s, but was entirely replaced in 1984 and placed on new supports (Hickey, pers. comm.).

Correspondence from the Michigan SHPO, dated August 30, 2001, stated that the project should have no effect on above-ground cultural resources, but that there could be a potential impact to archeological resources and a survey would be required. Midwest Archeological Consulting performed a survey in 1998 on a portion of the Dead River for the Marquette Hydroelectric Project that included the project area, and six archaeological sites were found adjacent to and in several instances, partially submerged by impoundments. Although none of the six sites is in the project vicinity, SHPO had concerns that dewaterment of the impoundment and silt removal could adversely impact potential archeological resources. Within the past 15 years, other similar impoundment projects in the Upper Peninsula, and particularly Marquette County, have uncovered and damaged significant artifacts and archeological features.

A Phase 1A Archeological Survey was conducted by URS on November 18, 2002, to assess the suitability of the project area for settlement, including a comparison of the area to prehistoric and historic settlement patterns in the region. The survey included the collection of auger samples to analyze soil characteristics and test for the presence of artifacts. The survey found no cultural resources within the project area and the Phase IA report concluded that there would be little to no potential for the recovery of archeological resources during dam removal. Specifically, the report concluded that because of the extreme slopes, bedrock outcrops, poorly drained soils, and fast moving water source, the project area was not likely attractive for prehistoric or historic occupation.

The Phase IA report was submitted to the Michigan SHPO on February 21, 2003. In a letter dated June 6, 2003, the SHPO concurred that no historic properties would be affected by the proposed project. After reviewing the Phase 1A Archeological Survey and in compliance with Section 106 of the NHPA and 36 CFR Part 800, FEMA determined in a letter dated June 16, 2003, that the proposed project would have no adverse effect on any historic properties.

Alternative 1 – No Action Alternative

Under the No Action Alternative, there would be no effects to cultural resources because dam removal would not occur.

Alternative 2 – Removal of the Collinsville Dam (Proposed Action)

Based on research and the archeological survey, it is not anticipated that any historic or cultural resources exist within the APE for the Proposed Action; however, if artifacts or human remains are encountered during construction, work in the vicinity would be discontinued, and the Applicant would immediately notify FEMA and the SHPO.

Alternative 3 – Enlarge Existing Breach of the Collinsville Dam

Based on research and the archeological survey, it is not anticipated that any historic or cultural resources exist within the APE for Alternative 3; however, if artifacts or human remains are encountered during construction, work in the vicinity would be discontinued, and the Applicant would immediately notify FEMA and the SHPO.

3.5.1 Tribal Coordination

Requests for evaluation of the presence or absence of known archaeological and Indian Religious sites within the proposed project areas were submitted to all of the federally recognized tribal groups in Michigan on July 16, 2002, in accordance with the Native American Grave Protection and Repatriation Act. The Ziibiwing Cultural Society of the Saginaw Chippewa Indian Tribe responded that they do not have any information concerning the presence of Indian properties at the proposed site and suggested that the Hannahville Potowatomi Indian Community would be the appropriate tribe to contact for the project area. A response received from the Hannahville Indian Community indicated that no known significant Indian properties for their community are anticipated to occur within the project area, but they would appreciate being contacted if any potential burial sites or religious artifacts are encountered. The Lac Vieux Desert Band of Lake Superior Chippewa Tribal Government responded that the project area is located beyond their boundaries. Copies of the tribal response letters are included in Appendix B.

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.

The multiple impoundments that exist on the Dead River reduce the level of impact that the removal of the Collinsville Dam would have on restoring natural flow and sediment transport to the Dead River. While removal of the dam would return this portion of the river to a more free-flowing state, it would not have a substantial impact on the river system as whole. Fish passage and sediment deposition to the Lake Superior shoreline would remain unchanged because of the dams located upstream and downstream of the project site.

A public notice advertising the availability of the draft EA for public review was published in the Marquette Mining Journal on September 5 and 7, 2003 and was available for review online at the FEMA website: http://www.fema.gov/ehp/docs.shtm. (Appendix D). The public was provided the opportunity to review the EA from September 5, 2003 to September 26, 2003 and comment on the Proposed Action.

The Marquette Board of Light and Power submitted comments in a letter dated September 24, 2003. The comments primarily provided clarification regarding the Silver Lake dam failure in May 2003 and the resulting flooding. The comments were incorporated into this Final EA. A copy of the letter is provided in Appendix E.

This table provides a brief summary of the anticipated permitting and mitigation requirements for the proposed project alternatives.

Alternatives	Permit/Mitigation Requirements
Alternative 1 – No Action Alternative	• No permits are required.
Alternative 2 – Removal of the Collinsville Dam (Proposed Action)	• The Applicant must follow all applicable local, state, and federal laws, regulations, and requirements and must obtain and comply with all required permits from MDEQ prior to initiating work on the project. No staging of equipment or project activities shall begin until all permits are obtained. • The Applicant shall apply best management practices (such as silt fences and hay bales) for soil erosion, prevention, and containment during staging of equipment and project activities. • An instream sediment trap shall be installed to further mitigate against potential erosion and sedimentation from the project site. • Areas exposed by de-watering (approximately 4 acres) would be seeded with a native vegetation or wetland species, and mulched in accordance with Michigan Department of Environmental Quality (MDEQ) permits. • Soils compacted by construction activities shall be deconsolidated as necessary to ensure the establishment of vegetation. • Portions of the streambank above the proposed project site shall be stabilized using geofabric and rip-rap, as necessary, to reduce potential future erosion. • Sediment from behind the Collinsville Dam shall be removed and stabilized, as required by MDEQ, to prevent the flushing of sediments that have accumulated behind the dam. • Heavy machinery shall be staged in existing developed or previously disturbed areas, and, if feasible, existing paved areas. • Debris produced as a result of dam removal activities shall be disposed outside of the floodplain.

Alternatives	Permit/Mitigation Requirements
	• Running time of fuel-burning equipment shall be minimized and engines shall be properly maintained to reduce emission of criteria pollutants. • Project Applicant shall be required to water down project areas to reduce dust, when necessary. • Applicant shall complete project activities during the late summer and prior to October 1st. • Applicant shall preserve existing wetlands when possible and implement all wetland protection measures specified by MDEQ. • Any hazardous materials discovered, generated, or used during implementation of the proposed project must be disposed of and handled by the Applicant in accordance with applicable local, state, and federal regulations. • Applicant shall close the project area to recreational users during project implementation. • Project activities shall occur during normal business hours (7 AM to 6 PM). • Applicant shall inform city residents and recreational users of the time and duration of project activities. • Appropriate protective gear shall be worn to ensure the hearing protection of project workers. • Applicant shall install a coffer dam and diversion pipe to ensure that catastrophic flooding does not occur during the dam removal phase. • Appropriate signage shall be posted during project activities to inform drivers of work zones and equipment transport routes. • All project activities shall be conducted by trained personnel in compliance with OSHA standards and regulations to protect worker safety. • If any potentially historic or archeological significant materials are discovered during project activities or staging of equipment, all activities on the site shall be halted immediately and the City shall consult with FEMA, the SHPO, and other appropriate agencies for further guidance.

Alternatives	Permit/Mitigation Requirements
Alternative 3 – Enlarge Existing Breach of the Collinsville Dam	• The Applicant must follow all applicable local, state, and federal laws, regulations, and requirements and must obtain and comply with all required permits from MDEQ prior to initiating work on the project. No staging of equipment or project activities shall begin until all permits are obtained. • The Applicant shall apply best management practices (such as silt fences and hay bales) for soil erosion, prevention, and containment during staging of equipment and project activities. • An instream sediment trap shall be installed to further mitigate against potential erosion and sedimentation from the project site. • Soils compacted by construction activities shall be deconsolidated as necessary to ensure the establishment of vegetation. • Portions of the streambank above the proposed project site shall be stabilized using geofabric and rip-rap, as necessary, to reduce potential future erosion. • Heavy machinery shall be staged in existing developed or previously disturbed areas, and, if feasible, existing paved areas. • Debris produced as a result of dam removal activities shall be disposed outside of the floodplain. • Running time of fuel-burning equipment shall be minimized and engines shall be properly maintained to reduce emission of criteria pollutants. • Project Applicant shall be required to water down project areas to reduce dust, when necessary. • Applicant shall preserve existing wetlands when possible and implement all wetland protection measures specified by MDEQ. • Any hazardous materials discovered, generated, or used during implementation of the proposed project must be disposed of and handled by the Applicant in accordance with applicable local, state, and federal regulations. • Applicant shall close the project area to recreational users during project implementation.

Alternatives	Permit/Mitigation Requirements
	• Project activities shall occur during normal business hours (7 AM to 6 PM). • Applicant shall inform city residents and recreational users of the time and duration of project activities. • Appropriate protective gear shall be worn to ensure the hearing protection of project workers. • Appropriate signage shall be posted during project activities to inform drivers of work zones and equipment transport routes. • All project activities shall be conducted by trained personnel in compliance with OSHA standards and regulations to protect worker safety. • If any potentially historic or archeological significant materials are discovered during project activities or staging of equipment, all activities on the site shall be halted immediately and the City shall consult with FEMA, the SHPO, and other appropriate agencies for further guidance.

The following agencies were consulted during preparation of this EA:

Federal Agencies

Federal Emergency Management Agency

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

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

State, Tribal, County, and Local Agencies

Michigan Department of Environmental Quality

Michigan Department of Natural Resources

Michigan Historic Preservation Office

Hannahville Indian Community

Lac Vieux Desert Band of Lake Superior Chippewa Tribal Government

The Saginaw Chippewa Indian Tribe, Ziibiwing Cultural Society

Marquette County Road Commission

Marquette County Conservation District

City of Marquette Police Department

City of Marquette Board of Light and Power

City of Marquette Planning Department

DISTRIBUTION

Brent Paul, FEMA Headquarters, Environmental Officer

Bruce Menerey, Michigan Department of Environmental Quality

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

Jeanne Millin, RV, Environmental Officer

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Andrea Farley, Environmental Scientist –Technical researcher. Author of sections on Purpose and Need, Alternatives, Geology, Seismicity, and Soils, Air Quality, and Environmental Justice.

Tom Hay, Environmental Scientist- Field assessment. Author of sections on Terrestrial and Aquatic Environment and Wetlands.

Laura Dunleavy, Environmental Scientist – Technical researcher. Author of sections on Water Resources, Floodplain Management, Zoning and Land Use, Noise, Public Service and Utilities, Traffic and Circulation, and Safety and Security.

Mike Petrakis, Telecommunications Study Manager – Field assessment. Author of sections on Visual Resources and Cultural Resources.

Amy Siegel – Document Quality Control

Angela Chaisson, NEPA Group Leader/Senior Ecologist – Document Peer Reviewer

Don Glondys, Certified Floodplain Manager – Project Manager.

Janet Frey, Project Scientist – URS Task Order Coordinator.

Appendix A

Photographs

List of Photographs

Photograph 1 Abandoned dam (Collinsville Dam) on the Dead River

Photograph 2 Looking upstream at the current breach in the Collinsville Dam

Photograph 3 Looking upstream at the current breach in the Collinsville Dam

Photograph 4 Impoundment area (approximately 5 acres) created by Collinsville Dam

Photograph 5 Penstock located south of the Collinsville Dam

Photograph 6 Channel downstream of the Collinsville Dam

Photograph 7 Vegetation to be removed along the downstream side of the dam

Photograph 8 Vegetation to be removed along the downstream side of the dam

Project A1346.38 – Collinsville Dam Project on the Dead River, City of Marquette, Marquette County, MI

Photograph 1: Abandoned dam (Collinsville Dam) on the Dead River

Photograph 2: Looking upstream at the current breach in the Collinsville Dam

Photograph 3: Looking upstream at current breach in Collinsville Dam

Project A1346.38 – Collinsville Dam Project on the Dead River, City of Marquette, Marquette County, MI

Photograph 4: Impoundment area (approximately 5 acres) created by Collinsville Dam

Photograph 5: Penstock located south of the Collinsville Dam

Photograph 6: Channel downstream of Collinsville Dam

Project A1346.38 – Collinsville Dam Project on the Dead River, City of Marquette, Marquette County, MI

Photograph 7: Vegetation to be removed along the downstream side of the dam

Photograph 8: Vegetation to be removed along the downstream side of the dam

Appendix B

Agency Correspondence

CORRESPONDENCE WITH:

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 Wild Life Services
2651 Coolidge Road, Suite 101
East Lansing, MI 48823

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

Tribal Consultations
Hannahville Potwatomi 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

To obtain copies of the agency correspondence, please contact:

Janet Frey
URS Group, Inc.
200 Orchard Ridge Drive, Suite 101
Gaithersburg, MD 20878
phone: 301-258-9780
email: janet_frey@urscorp.com

Appendix C

EO 11988 – Floodplain Management & EO 11990 – Wetland Protection

Eight-Step Planning Process

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.	**Project Analysis**: The City of Marquette is a participant in good standing with the NFIP. According to the FIRM for the project area (Community Panel No. 260716 0025B, December 2, 1994), the proposed project is located the 100-year floodplain (Zone A) of the Dead River. According to data maintained by the Michigan Department of Natural Resources (MDNR), forested and scrub-shrub wetlands are located in and adjacent to the upper reaches of the impoundment. During a site visit URS conducted on May 13, 2002, additional wetlands were identified in the project area adjacent to the abandoned dam and to the impoundment created by the dam, and along the banks of the Dead River below the dam.
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.	**Project Analysis:** Initial notification was provided by FEMA in the *Detroit Free Press* on October 29, 2000. A notice announcing the availability of the Draft EA for public review and comment was published in the Marquette Mining Journal on September 5 and September 7, 2003. The public was provided the opportunity to review the Draft EA from September 5 to September 26, 2003.
Step 3: Identify and evaluate practicable alternatives to locating the Proposed Action in a floodplain or wetland.	**Project Analysis:** The Collinsville Dam is located within the 100-year floodplain of the Dead River. Other than the No Action Alternative, there are no practicable alternatives for removing the dam that would not involve work in the floodplain. The following three alternatives were evaluated in the environmental assessment: *Alternative 1:* No Action. *Alternative 2: Proposed Action.* Dismantle Collinsville Dam, a 300-ft. long, 12-ft. high dam that impounds roughly 5 acres of water on the Dead River. During project activities a coffer dam and diversion pipe would be installed to redirect water flow. Approximately 1,500 cy of silt would be removed from behind the dam and transported off-site. *Alternative 3:* Enlarge current 20-foot wide breach in the Collinsville Dam. Expansion would consist of increasing the width of the breach by 20 feet (10 feet on both sides of the current breach) and increasing the current depth of the entire breach by 5 feet (for a total 10-foot depth).

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.	**Project Analysis:** Under the Proposed Action, the floodplain upstream would be narrowed and channel velocities would increase. An H&H analysis indicated that this would not cause changes in water elevation or velocity downstream of the Collinsville Dam. Under the Proposed Action, draining the impoundment behind the Collinsville Dam would alter the hydrology associated with the impoundment, potentially affecting existing wetlands at the head of the impoundment. Open water wetlands found in the shallows of the impoundment adjacent to the banks would be excavated as silt is removed from the bed of the impoundment. A small wetland adjacent to the abandoned dam would be impacted during construction. Downstream wetlands could be temporarily impacted during construction by sediment deposition.
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.	**Project Analysis**: The Applicant will obtain a permit from the MDEQ for dam removal. This permit is required under Part 301, Inland Lakes and Streams and Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act (NREPA), 1994, as amended. Wetland losses will be mitigated in accordance with the MDEQ permit. If determined by MDEQ, mitigation at a ratio of 2:1 would be required for the loss of forested wetlands. MDEQ will also review the project under the State's Floodplain Regulatory Authority found in Part 31, Water Resources Protection, of NREPA. MDEQ has noted that they do not foresee permitting problems and do not anticipate the project causing an increase flood elevations or discharges. An H&H analysis concurs with this statement. With proper planning, this project would meet the requirements under Part 31 of NEPRA. The Applicant must follow all applicable local, state, and federal laws, regulations, and requirements and obtain and comply with all required permits and approvals, including any permits required from the MDEQ, prior to initiating work on this project. No staging of equipment or project activities shall begin until all permits are obtained. The Applicant must apply best management practices for soil erosion prevention and containment during staging of equipment and project activities. Should project activities be delayed for 1 year or more after the date of this Environmental Assessment, coordination and

	project review by the appropriate regulating agencies must be re-initiated.
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.	**Project Analysis:** The Proposed Action remains practicable based on the dam removal and Dead River restoration objectives. The action is not anticipated to increase flood elevations or velocities downstream. No long-term adverse impacts to floodplains are expected. Most impacts to wetlands would be temporary. Permanent impacts to wetlands would be addressed during the Part 303 permitting.
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.	**Project Analysis:** A public notice will be made indicating FEMA's decision to proceed with the Proposed Action. At a minimum, this notice shall indicate the rationale for locating the Proposed Action in the floodplain and/or for wetland impacts, a description of all significant facts considered in making the determination; a list of the alternatives considered; a statement indicating whether the action conforms to state and local floodplain protection standards; and a statement indicting how the action affects the floodplain and wetlands and how mitigation is achieved.
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.	**Project Analysis:** This step is integrated into the NEPA process and FEMA project management and oversight functions.

Appendix D

Public Notice

Federal Emergency Management Agency
PUBLIC NOTICE

Notice of Availability of the Draft Environmental Assessment

for the Removal of the Collinsville Dam on the Dead River, Marquette County, MI

Environmental Assessment for Removal of the Collinsville Dam on the Dead River, City of Marquette, Marquette County, Michigan. FEMA-DR-1346-MI.

Interested persons are hereby notified that the Federal Emergency Management Agency (FEMA) is proposing to assist in the funding of the removal of an abandoned dam (the Collinsville Dam) on the Dead River in the City of Marquette. 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 consist of the removal of the abandoned Collinsville Dam on the Dead River, off-site disposal of approximately 1,500 cy of non-contaminated silt that has accumulated behind the dam, and streambank stabilization and wetland restoration activities; and (3) Enlarging the existing 20-foot breach of the Collinsville Dam by 10 feet on both sides and 5 feet in depth.

The draft Environmental Assessment is available for review between September 5 and 26, 2003 at Peter White Public Library, 217 N Front ST, (906) 228-9510, during normal hours of operation. The draft Environmental Assessment is also available for review online at the FEMA website http://www.fema.gov/ehp/docs.shtm.

Written comments regarding this environmental action should be received no later than 5 PM on September 26, by Jeanne Millin, Regional Environmental Officer, at 536 South Clark, 6th Floor, Chicago IL 60605-1521, or at Jeanne.Millin@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 Jeanne Millin, Regional Environmental Officer, 536 South Clark, 6th Floor, Chicago IL 60605-1521, or at Jeanne.Millin@dhs.gov.

Appendix E

Public Comments

BOARD OF LIGHT AND POWER

CITY OF MARQUETTE
2200 WRIGHT STREET
MARQUETTE, MI 49855-1398

DAVID E. HICKEY
EXECUTIVE DIRECTOR

PHONE 906-228-0320
FAX 906-228-0329
PLANT FAX 906-228-0359

September 24, 2003

Federal Energy Management Agency
Attn: Jeanne Millin
536 S. Clark
Sixth Floor
Chicago, IL 60605-1521

RE: FEMA DR13246-M

Dear Ms. Millin:

Thank you for the opportunity to comment on the Draft Environmental Assessment for the Collinsville Dam Project on the Dead River (FEMA DR13246-M). Our comments will be limited to four (4) areas of the report.

The first is in Section 1.1 - Project Authority. The Draft Assessment lists the City of Marquette as the applicant for HMGP Section 404 funding. The Marquette County Conservation District is the applying governmental entity.

In Section 1.2 - Project Location and Setting and throughout the text of the Environmental Assessment, the Tourist Park Dam is statused as failed. The Tourist Park Dam concrete structure did not fail. Land lying immediately south of the dam's concrete structure was topped by the flood water and the underlying earthen material was eroded away creating a channel by which the impoundment dewatered.

The third and last comments are under Section 3.4.4 - Public Service and Utility. The Marquette Board of Light and Power is identified as the owner and operator of several dams along the Dead River including the Silver Lake, Hoist, McClure, Forestville and Tourist Park dams. The Marquette Board of Light and Power owns and operates the two (2) most downstream facilities, namely the Forestville and Tourist Park dams. The Upper Peninsula Power Company owns and operates the three (3) upstream facilities, namely Silver Lake, Hoist and McClure dams. Our last comment is regarding the severity of impact on the MBLP's electrical supply resources. The flood event had minimal impact on the total electrical resources of the City of Marquette. Less than one (1) percent of our resources were severely impacted by the flood event. The regional electrical supply, however, was severely impacted with the loss of We Energies' Presque Isle Power Plant, which provides the bulk of the region's power supply.

Collinsville Dam Draft Environmental Assessment Comments (continued)

Again, thank you for the opportunity to comment on the Draft Environmental Assessment. If you have any questions regarding these comments, please call me at (906) 228-0322.

Very truly yours,

David E. Hickey,
Executive Director