

August 2021

Understanding Historic Preservation Laws and Processes for Low-Head Dam Projects in Iowa



Lidtko Mill Dam
Howard County

IOWA
LOW-HEAD
DAM PROJECTS



Five-in-One Dam
Linn County



Audubon Waterworks Dam
Audubon County

Contents

What is Section 106 of the National Historic Preservation Act?.....	4
How Do I Develop A Project Plan?	5
When Does Section 106 Apply?	6
How is a Lead Federal Agency Determined?.....	9
What is an “Area of Potential Effect”?.....	9
What Information is Needed by Federal and State Agencies?.....	12
Can the Historic Property Be Avoided?	12
Project Requires Section 106 Compliance.	
How Does this Process Work?.....	13
Is an Archaeological Survey Required?	19
Are There Other Historic Preservation Regulations?	19
What if the Project is Not A Federal Undertaking?.....	21
Scenario #1: Impacts Can’t be Avoided and Mitigation Needed.....	22
Scenario #2: Altering a Dam during a Project Using Federal Money with No Adverse Effect	24
Scenario #3: Altering a Dam during a Bridge Replacement Project.....	25
Scenario #4: Minor Alteration to a Dam	27
Seeking Guidance from Federal and State Agencies.....	28
Additional Information.....	29

Iowa’s low-head dams are diminishing in number along Iowa’s rivers and streams. These dams once served industries like milling and hydroelectric power generation and were also built for community water supply, recreation, or water control. Many dams no longer serve their original purpose and municipal, county, and state governments are faced with either repairing, altering, or removing these structures. Low-head dams were instrumental in how Iowa developed agricultural and commercial industries and they are often a significant historic property, meaning that they are listed to or eligible for listing to the National Register of Historic Places.

In 2020–2021, the Iowa Department of Natural Resources undertook a historical study of low-head dams throughout Iowa to determine which dams were historically significant. This study looked at low-head dams collectively so that future work on these resources could proceed smoothly. As part of this project, the Iowa Department of Natural Resources hired the consulting firm, Impact7G, Inc. to develop a guide to assist project partners navigate the often-complex laws and regulations associated with historically significant dams.

The following document outlines the process necessary for work on historically significant low-head dams in Iowa. This guide provides information on laws regulating historic properties, how to develop purpose and need statements, details information required by federal and state agencies, and directs readers through the process of Section 106 of the National Historic Preservation Act. Additional information is provided on the processes of other laws and regulations like the National Environmental Policy Act and Department of Transportation Section 4(f).

What is Section 106 of the National Historic Preservation Act?

The National Historic Preservation Act of 1966 (with amendments) established a program for historic property preservation throughout the United States. Congress believed historic properties were the bedrock of our national fabric and that preserving and protecting our shared history was in the country's best interest.

The National Historic Preservation Act accomplished the following:

- Created the National Register of Historic Places.
- Established State Historic Preservation Officers.
- Directed federal agencies to consider affects to historic properties prior to expenditure of funds or permits¹.
- Created a Historic Preservation Fund.
- Charged federal agencies with identifying and managing historic properties under their ownership or control.
- Outlined the Certified Local Government system.
- Created the Advisory Council on Historic Preservation.
- Ensured collaboration with Indian tribes and other interested parties regarding historic properties.
- Established Tribal Historic Preservation Officers.

A small section of the National Historic Preservation Act turned out to be one of the most significant aspects of the law. Section 106 of the Act directs federal agencies to consider adverse effects to historic properties before they grant money or licenses (permits) to projects falling under their authority. This means that any action requiring involvement of a federal agency must consider how the project affects historic properties. Section 106 is brief, and it lacks information specifying how a federal agency goes about this process. To help with law implementation, the Advisory Council on Historic Preservation released an outline of how the process is to work. Known as 36 CFR Part 800, the guidance describes how the Section 106 process is initiated, how historic properties are identified, indicates how to assess adverse effects, and provides guidance on resolving adverse effects.

Furthermore, 36 CFR 800 defines exactly what a historic property is:

“any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior”

Not only does an agency need to consider properties listed to the National Register of Historic Places, but they also need to identify and consider those that are eligible for listing.

What does this mean for low-head dam projects?

If a person, organization, or government agency decides to undertake a project that might require federal monies or permits, then the appropriate federal agency must determine if a historic property will be affected, and if so, take measures to either preserve the property or devise a strategy limiting affects to the property. For a low-head dam, alterations to the stream, wetland, or other “waters of the U.S.” would need a federal permit because of effects to the waterway or endangered species surrounding the dam. As such, compliance with Section 106 of the National Historic Preservation Act would apply.



Lakehurst Dam
Jackson County

How Do I Develop a Project Plan?

All projects have a particular “purpose and need” that varies by project. Understanding why a project is necessary and what the project intends to accomplish is paramount to determining project scopes and how to deal with historic properties throughout the process. Many federal environmental and historic preservation laws require defining purpose and need, like projects involving the National Environmental Policy Act and Department of Transportation Section 4(f). The “need” is the problem or opportunity. For instance, it is determined that fish need to freely migrate upstream to spawn. In this case, the “need” might read:

This project is needed for fish passage up the Turkey River because a barrier on the river has decreased populations.

Need statements should be followed by enough information supporting why the need exists. After defining “need” and providing supporting information, it is necessary to outline a project’s “purpose”. The “purpose” is to improve conditions presented by the “need”. For the fish passage: the “purpose” would read:

The purpose of this project is to allow fish an unimpeded route upstream.

Nowhere does it state how the project will be completed. Ways a project can be completed are known as “alternatives”. The time to consider alternatives is after a problem has been identified (with supporting information) and by exploring project goals. Every project has multiple alternatives to address the purpose and need. For quick resolution of the Section 106 process, the best alternatives for a project that involves a historic property is one that does the least harm to the resource. It should be remembered that **doing nothing is always an alternative**, even if it is not the best option to pursue.



Marble Rock Dam
Floyd County

Examples of alternatives for a dam project include, but are not limited to:

- Doing nothing
- Removing a dam entirely
- Installing rock ramps on the downstream side
- Installing a fish ladder
- Introducing stepping on the downstream side
- Creating a bypass channel
- Notching the dam or lowering height

Devising and evaluating alternatives is project specific and the way alternatives are evaluated depends on local conditions. The Iowa Department of Natural Resources has produced a dam mitigation guide that can assist in determining mitigation strategies, which includes options for removal and alterationsⁱⁱ. Iowa Department of Natural Resources staff can assist in deciding the best strategy for a project’s purpose and need.

Applications for technical assistance are available at
<http://iowadnr.gov/things-to-do/canoeing-kayaking/low-head-dams>

Having a well-defined purpose and need assists with every step of the process.

When Does Section 106 Apply?

Compliance with Section 106 of the National Historic Preservation Act applies if federal agencies have project involvement.

A federal agency becomes involved with a project because:

- Project occurs on federal lands or is owned by a federal agency.
- Project is undertaken by the federal government.
- Project is funded in whole or in part by a federal agency.
- Project requires a permit from a federal agency.

On Iowa streams and rivers, a project is most likely to be either funded in some manner by a federal agency or the project requires federal environmental permitting.

Sometimes funding sources are not clear. For instance, portions of the Iowa Department of Natural Resources and Iowa Department of Transportation budgets are funded by federal dollars, and those state agencies sometimes must comply with Section 106 of the National Historic Preservation Act depending on how money is sourced and applied. The best way to learn if a funding source uses federal monies is to ask a representative from the state agency.

**If a federal agency is involved,
then Section 106 applies.**

Funding delivered through the Iowa Department of Natural Resources State Revolving Fund requires compliance with historic preservation laws. Likewise, Iowa Department of Transportation funding regularly requires compliance with historic preservation laws.

Certain counties, like Johnson County, have “sensitive area ordinances”. These local ordinances often make it necessary to consider historic properties during a project. These ordinances exist outside the federal Section 106 process. Project applicants should check with local city/county governments to determine if local ordinances apply to historic properties. Local and county historic preservation commissions are also a wealth of information concerning local ordinances.



Maynard Dam
Fayette County



Adel Island Park Dam
Dallas County

Role of the U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers has jurisdiction on navigable waterways of the United States. They are given this power by the Rivers and Harbors Act of 1899. In 1968, Congress granted the U.S. Army Corps of Engineers additional responsibilities such as concern for fish and wildlife, conservation, pollution, aesthetics, ecology, and general welfare. Passage of the Federal Water Pollution Control Act in 1972 (now called the Clean Water Act) mandated the U.S. Army Corps of Engineers regulate nonpoint source discharges of dredged or fill material into U.S. waters.

There are two principal permits applicable to dam-related projects:

- Section 10 of the Rivers and Harbors Act of 1899 permit
- Section 404 of the Clean Water Act permit

Alterations to waterways, including work on low-head dams, affects flow, erosion, and wetland resources. The U.S. Army Corps of Engineers oversees the permitting processes. All projects affecting a low-head dam in Iowa will require application for a joint permit from the U.S. Army Corps of Engineers.

Before starting a project, be sure to acquire necessary federal and state permits.

Role of the Iowa Department of Natural Resources

The Iowa Department of Natural Resources is tasked with conserving and protecting Iowa's water, recreational, and environmental resources and they seek to prevent damages from unwise floodplain development.

The Iowa Department of Natural Resources grants permits for:

- Construction of water-related structures.
- Permanent docks.
- Other projects related to water intake, water discharge/disposal, solid waste disposal, and air quality.
- Minimizing disturbances to state-listed threatened and endangered species.
- Ensuring projects on state-owned riverbeds have reduced impacts.

Obtaining necessary permits through the Iowa Department of Natural Resources begins with applying for a joint permit through the U.S. Army Corps of Engineers. It is the applicant's responsibility to obtain the necessary permits for projects that might affect a waterway.

After submitting information to the U.S. Army Corps of Engineers and the Iowa Department of Natural Resources, agency staff reviews the application and determines if a permit is required. If a permit is required by the U.S. Army Corps of Engineers, then compliance with Section 106 of the National Historic Preservation Act is required. Permit reviews can take between 90 and 120 days, so begin this process early. A permit number will be supplied that is needed on all documents moving forward. Failure to obtain necessary permits could result in legal proceedings and fines.

The joint permit application is available from the U.S. Army Corps of Engineers and/or the Iowa Department of Natural Resources at the following link: <http://mvr.usace.army.mil/Missions/Regulatory/Application-Forms-Instructions/>

Role of the Iowa Department of Transportation

The Iowa Department of Transportation is responsible for transportation routes. Some low-head dams are “stream fords” or dams attached to bridges. The Iowa Department of Transportation receives funding through state taxes as well as grants provided by the U.S. Department of Transportation. If a dam project involves a roadway, a bridge, is part of the Federal Recreational Trails Program, or if the project receives Iowa Transportation Alternatives Program (TAP) funding, the project could involve the Iowa Department of Transportation. Instances where Iowa Department of Transportation would not be involved include locally funded projects on roads/trails and bridges within a county or municipality, but even so, a federal permit from the U.S. Army Corps of Engineers would still be required.

If federal funds are used in a transportation-related project, then the Iowa Department of Transportation must comply with Section 106 of the National Historic Preservation Act as well as other laws. Iowa also has a program that swaps federal funds for state funds. Due to Iowa lawⁱⁱⁱ, these “SWAP” projects must consider how significant historic properties are affected by a project. Use of “SWAP” funding does not mean that permits granted by the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and the Iowa Department of Natural Resources are not required.

Other Agencies

Other federal agencies might be involved with a project. For instance, a project that involves disaster relief might rely on the Federal Emergency Management Agency. It is important for a project applicant to understand where funding is sourced and what types of federal permits are needed to complete a project.

Role of the U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service seeks to conserve endangered and threatened species through the Endangered Species Act of 1973. Dams (or work on them) affects waterways and other habitats threatened and endangered species use to survive. Under Section 7 of the Endangered Species Act, a federal agency like the U.S. Army Corps of Engineers consults with the U.S. Fish and Wildlife Service to determine if a project might affect threatened or endangered species. If the project might affect threatened or endangered species, a permit and/or consultation is required. As with all granting of federal permits, the U.S. Fish and Wildlife Service must conform to Section 106 of the National Historic Preservation Act.

The type of permit and/or consultation depends on the purpose of the project. If the intent of the project is to help a threatened or endangered species, then either a *Recovery Permit* or an *Enhancement of Survival Permit* is needed. If a project might adversely affect a threatened or endangered species, then an *Incidental Take Permit* is needed.

For more information, visit <https://fws.gov/midwest/lacrossefisheries>.



St. Ansgar Mill Dam
Mitchell County

How is a Lead Federal Agency Determined?

Multiple federal agencies are commonly involved in an undertaking. An example of this would be a project that involves a dam that is part of a bridge. The project might involve the Federal Highway Administration because it is a bridge, the U.S. Army Corps of Engineers because the project could affect a navigable waterway, and the U.S. Fish and Wildlife Service because of endangered species concerns. Often, a single federal agency will oversee compliance with Section 106. This is known as the “lead federal agency”. The lead federal agency is determined by the agencies involved. Typically, the agency that has the bigger responsibility (either through funding or permitting) or availability is selected as lead. In the above instance where the dam is part of a bridge that would involve Federal Highway Administration funding, the lead agency would likely be the Federal Highway Administration, whose oversight is managed by the Iowa Department of Transportation.

If federal agencies do not determine a lead agency, then all the federal agencies individually assume responsibility for compliance with Section 106.



Independence Mill Dam
Buchanan County

What is an “Area of Potential Effect”?

“Area of potential effect” or “APE” is a common phrase in Section 106 compliance work. The area of potential effect means:

The geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.^{iv}

A “project area” is different from an area of potential effect. A project area is typically where an applicant seeks to physically do work, while an area of potential effect includes areas where inadvertent adverse effects might occur, like visual effects posed by the project to a neighboring historic resource. Federal agencies determine an area of potential effect, but a project applicant and the State Historic Preservation Office participates in this process. Supplying detailed project plans to federal partners and thinking about proposed actions surrounding a dam will assist in determining where and how plans can affect a historically significant property.



**Poorly-Drawn Area
of Potential Effect**

There is a possibility the project could affect a neighboring building, a foundation, or an archaeological site not related to the dam. For instance, there could be an archaeological site located along the riverbank and removing the dam and altering the stream might affect this non-dam resource.

Things to consider when drawing an area of potential effect or project area include work at the dam itself as well as:

- How will equipment access the dam?
- Does the project require removal of trees and vegetation?
- How might areas upstream and downstream be affected?
- Is there something other than the dam that could be affected, like an old foundation or river walls?

All these types of things need considered when drawing an area of potential effect. How might this apply to a real-world project? Let us say that a county engineer wishes to remove a dam. The engineer needs to get equipment to the site, remove the dam, stabilize the streambank, and remove some trees in the process. The example on the previous page shows a poorly drawn area of potential effect for such a project. This area of potential effect does not consider how equipment will get to the dam, how the streambanks might be affected, nor does it consider the effect to areas adjoining the dam.

A well-defined area of potential effect includes how the site will be accessed, where bank protection might be placed, and where tree grubbing will occur, like in the example to the right.

Accounting for all actions and knowing where construction activities will occur assists in finding and avoiding historic properties. When a historic property is missed or not considered, it becomes an “unanticipated discovery”. Unanticipated discoveries are a problem for project schedules and budgets because an unevaluated historic property must be looked at by a professional before work can continue.



Well-Drawn Area of Potential Effect

Be sure to account for ALL activities when estimating an Area of Potential Effect



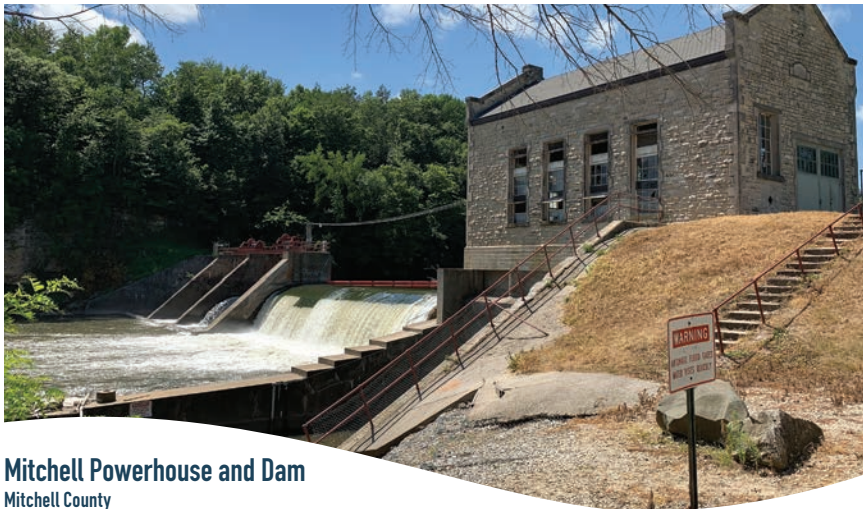
Iowa Electric Dam
Hardin County

What Information is Needed by Federal and State Agencies?

There are a few things needed when submitting a project to a federal and state agency for Section 106 review. In addition to information required by the permit, the agencies need to know:

- What is the full scope of the project?
- If communicating with the Iowa State Historic Preservation Office, who is the lead federal agency?
- Are there any plans available that can be reviewed?
- What activities outside the immediate dam area might occur?
- Are there maps showing the project location? Agencies need to orient themselves to the physical location of a project, so having a United States Geological Survey topographic map and an aerial photograph with the project boundaries is necessary.
- Are there any other forms required by the federal or state agency?

A checklist is available at the end of this guide!



Mitchell Powerhouse and Dam
Mitchell County

Can the Historic Property Be Avoided?



Ottumwa Hydro Plant and Dam
Wapello County

Often, the most cost-effective means of dealing with a historic property is to avoid it. Avoiding a property leads to less paperwork and the benefit of preserving something historic for future generations. Before deciding to alter or destroy a historic property, consider if avoiding the property is reasonable. If the purpose and need is fulfilled without need to adversely affect a historic property, then that would be the ideal solution for Section 106 compliance.

As an example, a municipal government desires to make a river safer for public recreation and allow easier access for fish passage, but there is a low-head dam crossing the river. The city council proposes dam removal. But the purpose and need of the community is to make it safer for small boats to move up and down the river and to allow fish passage. Instead of removal, a potential prudent alternative would be to create rapids off the crest of the dam which would minimally impact the structure while still allowing safe and easier passage for humans and migrating fish.

Not all projects can avoid adverse effects to historic properties and the Section 106 process is designed to help move projects toward completion even when a significant resource is affected.

Project Requires Section 106 Compliance

How Does this Process Work?

If the dam-related project receives funding or permitting by a federal agency, compliance with Section 106 of the National Historic Preservation Act is required. The Iowa Department of Natural Resources often includes language about historic preservation concerns in project management scopes of work (see end of this document for an example), the process of which can be slightly different than a typical Section 106 process. Typically, the process for dam projects is as follows:

1 Defining the Project

The first step is to decide what type of project is to be completed, that is defining the purpose and need. A project applicant might employ the services of an engineering firm or other planner to help define the project and produce preliminary project plans. It is imperative to gather as much information about the project as possible. During this stage of the process, the Iowa Department of Natural Resources is likely to ask that the project applicant (or their engineer/planner) review existing plans and information as well as conduct preliminary engineering survey work of the project. When determining purpose and need, also consider three project alternatives as well as a “do nothing” option. These alternatives will be needed during the early permitting process. One useful source for information as it concerns historic preservation is this guide. At the end of this document is a list of dams in Iowa with their associated National Register of Historic Places eligibility statuses. *If a dam is not on the list, it has never been evaluated for historic significance.* If not on the list, the dam will likely need to be evaluated for National Register eligibility. While historic properties can require reevaluation over time (properties can change as well as their historical significance), identifying the National Register status of the dam early can alert project applicants and

regulatory staff to potential historic preservation concerns surrounding the undertaking. This is not the “historic property identification” stage, which will occur later in the process. Another avenue to pursue is contacting the Iowa Department of Natural Resources for technical assistance with planning. Applications for technical assistance are available on the Iowa Department of Natural Resources website at <http://iowadnr.gov/Things-to-Do/Canoeing-Kayaking/Low-Head-Dams>.

2 Early Permitting Reviews

After deciding on a project’s preliminary scope, a project applicant (or engineer/planner) should reach out to the Iowa Department of Natural Resources and the U.S. Army Corps of Engineers for a preliminary project review. Such coordination will include preparing a Joint Application so that the project can receive project numbers (also submit three possible project alternatives and a “do nothing” alternative). The Iowa Department of Natural Resources and the U.S. Army Corps of Engineers will assist in determining the next steps for needed data collection. Such additional information is likely to include flood modeling, sediment characterization studies, public/partner meetings, mussel reconnaissance reports, and Phase I historic property reviews. The project applicant (or engineer/planner) is often asked to contact the Iowa State Historic Preservation Office to informally notify them that a potential Section 106 project associated with a dam is underway and invite them to comment on the project if they would like to participate (<http://iowaculture.gov/history/preservation/review-compliance>). The Iowa State Historic Preservation Office might not wish to participate in these early steps. But allowing all potential agencies and partners the option of coordinating early could lead to a smoother, quicker Section 106 process.

Project applicants (or engineers/planners) should anticipate needing multiple alternatives for a project (usually three alternatives). Thinking about alternatives early will assist with the next step (defining a project area) and will also help with alternatives analysis in later planning stages.

3 Defining a Project Area

A project area differs from an “area of potential effect”. The project area includes locations for multiple alternatives whereas the area of potential effect will be the final area where work will be conducted as well as areas that might be affected by implementation of the final design. Project areas should include locations of potential wetland or stream mitigation activities. Marking out a project area is needed to assist data collection. Data collection for future survey and environmental work should include locations of all project alternatives. Take care in deciding a project area boundary. If not all locations for the alternatives are included, or components like property access are not addressed, the project might be slowed, or costs might increase by having environmental and historic preservation consultants returning to survey locations because they were not initially included in a project area. Also be aware that some surveys, like wetland delineations or archaeological investigations can only be conducted during certain seasons.



Rutland Dam
Humboldt County

4 Data Collecting and Meetings

After identifying potential alternatives and considering where activities could occur, it is time to collect data in the project area. The Iowa Department of Natural Resources, the U.S. Army Corps of Engineers, and the U.S. Fish and Wildlife Service all need baseline information about an area before issuing permits, and this information also corresponds to continuous National Environmental Policy Act (NEPA) documentation that is ongoing throughout planning stages. Surveys/data collection possibly required during this step includes, but is not limited to:

- 1) Sediment characterization studies
- 2) Mussel reconnaissance surveys
- 3) Wetland delineations
- 4) Threatened and endangered species surveys
- 5) Phase I cultural resources (historic property) reviews

Of interest to this guide is the “Phase I Cultural Resources Review”. To conduct reviews, project applicants (or engineers) typically hire a professional architectural historian, archaeologist, and/or historian to inventory all potential historic properties in a project area. Consultants should meet the Secretary of Interior’s qualification standards for their discipline”. The Iowa State Historic Preservation Office can direct applicants (or engineers/planners) to consultant lists to find the best person or company for a given project.

The historic preservation consultant will document all historic properties in the project area and make recommendations on National Register of Historic Places eligibility for each property. For dams already reviewed (see the table at the end of this guide), identification of dams has already been completed but the National Register of Historic Places eligibility recommendations could change as dams become older or new contexts are identified. Additional documentation might be needed if project

plans will affect a historic property (Phase II investigation), something other than the dam might be affected, or if there is archaeological site potential. The historic preservation consultant will complete a report and submit findings to the project applicant (or engineer/planner). Work with the hired historical consultant to better define scheduling requirements for historic property documentation.

Concurrently with data collection, project applicants (or engineer/planner) will be charged with public and agency partner meetings to discuss the undertaking. Public meetings are a terrific opportunity to involve interested community members in the Section 106 process. Every interested community member needs a chance to learn about potential options and give input about their own goals via meetings, surveys, or focus groups. Engineers/planners focusing on these types of projects need to be involved to present feasible alternatives.

Provide consultants with information about the project and area needing evaluation.



Rock Glen Dam
Cerro Gordo County

5 Analysis, Conceptual Designs, Area of Potential Effect Review

Data collection provides design team members significant baseline information about the surrounding environment and historic properties. The Iowa Department of Natural Resources will require analysis of collected data to determine the best means of addressing dam-related projects. For dams, results of the data collection stage will provide project applicants (or engineers/planners) information on whether a National Register of Historic Places eligible property might be affected. Project designers should consider avoiding a significant historic property if possible. Avoidance is often the quickest means of Section 106 process resolution. But avoidance is not always feasible.

The design team will likely need to develop design alternatives for the project (three design alternatives are common). Additionally, the “take no action” alternative must be considered and addressed. The project applicant (or engineer/planner) submits these alternatives to state and federal partners for review and they propose “areas of potential effect” for each alternative. The lead federal agency determines the area of potential effect with the help of project engineer/planner and the Iowa State Historic Preservation Office.

6 Determination of Effect

Applicants (or engineers/planners) submit the historic preservation consultant’s report to the federal agency. The agency will determine if significant historic properties will be affected, and the agency submits this determination to the Iowa State Historic Preservation Office (and other interested parties) for review and comment. If everyone concurs that no historic properties are affected, then Section 106 consultation ends, and the project can move forward. If a historic property is affected, then the Section 106 process continues.

Open and honest communication with federal and state agencies helps streamline these steps.

7 Coordination After a Finding of “Adverse Effect”

After a historic property has been identified, the applicant should consider avoiding the property based on purpose and need. If the property cannot be avoided, and the project will result in an adverse effect, then the federal agency notifies the Advisory Council on Historic Preservation. The federal agency, the Advisory Council on Historic Preservation (if participating), the Iowa State Historic Preservation Office, the applicant, and other interested parties/members of the public determine the best means of documenting and/or “mitigating” adverse effects to the resource prior to any construction activities. Mitigation is the process by which adverse effects to a historic property are resolved in some manner that consulting parties agree result in a public benefit. There are many ways to mitigate adverse effects to a historic property and people can be creative in devising approaches to reduce adverse effects. While additional documentation has been regularly used for this purpose, project applicants might pursue something different, like helping to restore a mill adjacent to the dam or providing on-site educational displays showcasing an area’s history. A detailed mitigation plan is needed for consulting parties to enter into preservation agreements, so it is important to have ideas on how to best resolve adverse effects if avoidance is not feasible. If the property is listed to or eligible for the National Register of Historic Places, all parties will enter into a Memorandum of Agreement that outlines everyone’s role in the process, the plan to mitigate adverse effects, and the agreement details other contractual items deemed necessary.

8 Adverse Effect Mitigation

Once a Memorandum of Agreement is signed and implemented, then mitigation activities can occur. Applicable mitigation measures depend on what activities are planned at a dam and how all the consulting parties decide to resolve adverse effects. Mitigation measures are often completed by historic preservation consultants or the project applicant, depending upon circumstances and requirements. Upon completion of mitigation, documentation of the work (either completed by the hired

historic preservation consultant or the project applicant) should be submitted to the federal agency and/or appropriate parties identified in the Memorandum of Agreement.

9 Completion of Section 106 Process

The signers of the Memorandum of Agreement will consult to determine if mitigation has been completed in accordance with the agreed upon terms. If all parties that signed the Memorandum of Agreement concur that the necessary steps have been taken to mitigate adverse effects, then consultation ends.

10 Finalizing Applications for Permits

The project applicant needs to finalize applications for federal permits or monies. All information collected in previous steps should be submitted to appropriate state and federal agencies. Staff at the agencies will review the project and supporting documentation to determine if a permit can be issued. After issuance of permits, the project can proceed to final design stages and construction.

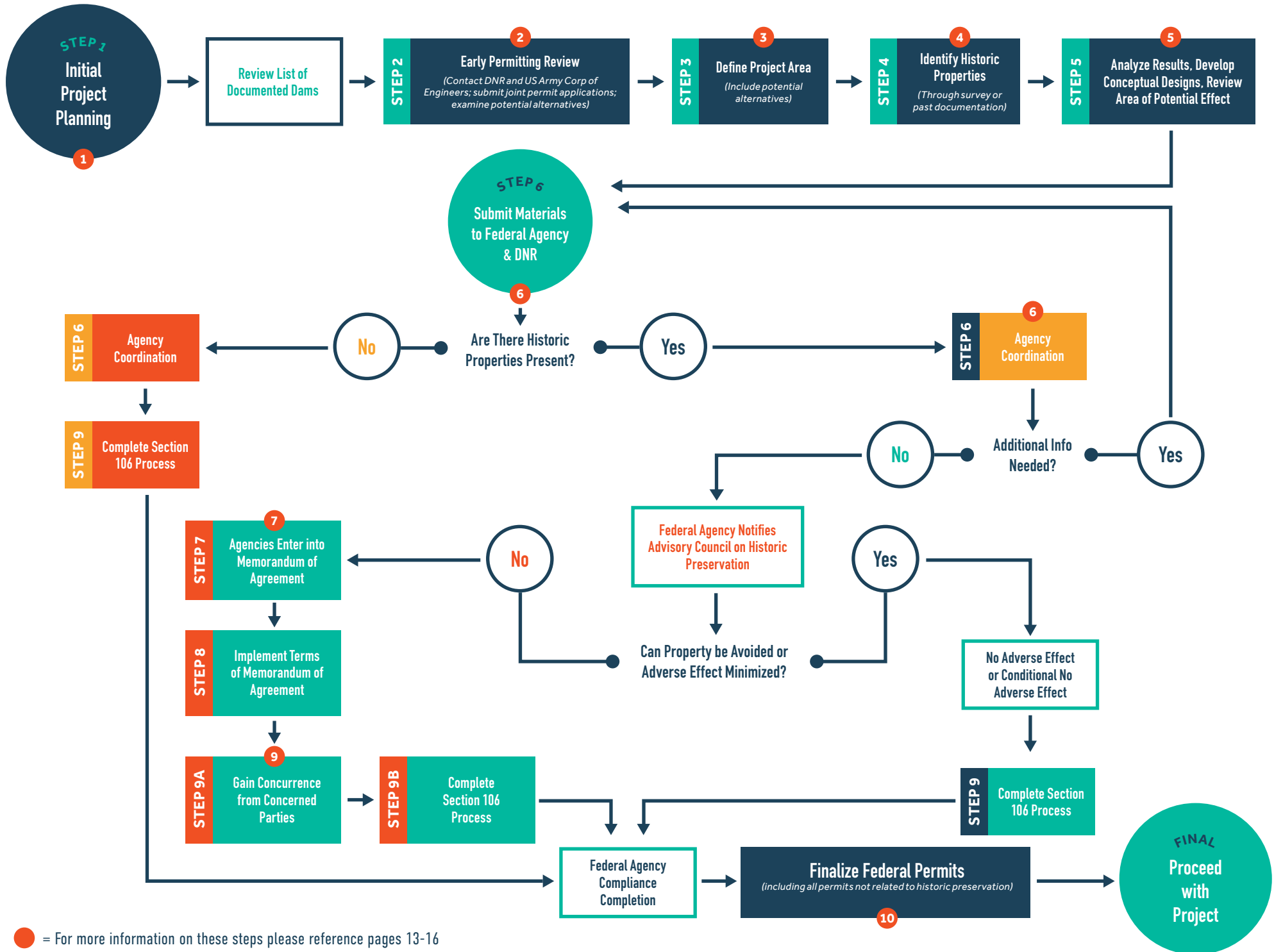


Alden Dam
Hardin County



Pine Creek Grist Mill Dam

Muscataine County



● = For more information on these steps please reference pages 13-16

Is an Archaeological Survey Required?

Historical survey of low-head dams focused on the dams themselves. Archaeological sites were not considered as part of the documentation. It is possible that archaeological sites can occur within the area of potential effect. Federal agencies might require an archaeological survey prior to implementation of any dam-related projects.



Mosquito Creek Flume
Harrison County

The Association of Iowa Archaeologists maintains a list of archaeological consultants working in Iowa.

Is an Archaeological Survey Required?

Are There Other Historic Preservation Regulations?

National Environmental Policy Act

The National Environmental Policy Act of 1970, also known as "NEPA", is an umbrella environmental law requiring federal agencies to consider environmental effects of a proposed project before making decisions. This Act involves not only projects undertaken by the federal government for their own purposes, but it also encompasses projects that the federal government funds or permits.

Compliance with the National Environmental Policy Act requires looking at multiple factors. If environmental impacts are substantial enough to warrant documentation, the results are usually summarized in an Environmental Assessment or an Environmental Impact Statement.

Federal agencies are responsible for ensuring compliance with the National Environmental Policy Act, but often environmental consultants are hired by project applicants to produce information for review. One consideration is a project's affect to historic properties. Some activities, because of their scope or nature, will not affect a historic property and these activities are dealt with using a "categorical exclusion". For instance, if a person wants to do something small like mow a road right-of-way, there will not be an affect to a historic property and the activity will be a "categorical exclusion". Other projects might affect historic properties, like removal or alteration to a dam. In these instances, the requirements concerning historic properties in the National Environmental Policy Act are usually managed through the Section 106 process.

Section 4(f)

DOT Section 4(f) is a regulation that limits the Iowa Department of Transportation's ability to use land from publicly owned parks, recreation areas, wildlife and waterfowl refuges, and public/private historic properties (known as "Section 4(f) properties) unless there is no feasible and prudent alternative. The project applicant must also consider all possible planning to minimize harm to a Section 4(f) property. This regulation is only applicable to projects with Department of Transportation involvement, which is typically administered through the Iowa Department of Transportation. Navigating Section 4(f) can be complex due to the amount of documentation required, and it is often necessary to seek guidance from the Iowa Department of Transportation.

For a project to proceed under Section 4(f):

1. The project must require approval from the Federal Highway Administration to proceed.
2. The project must be a transportation project.
3. The project must require use of land from a property protected by Section 4(f).
4. None of the regulatory applicability rules or exceptions apply.

Only dams that are eligible for or listed to the National Register of Historic Places would be considered a protected property under Section 4(f).

There are three ways the Federal Highway Administration will approve use of a Section 4(f) property:

- Prepare a *de minimis* impact determination, meaning that a historic property received a No Adverse Effect determination during the Section 106 process.
- Apply a programmatic Section 4(f) evaluation, meaning that a historic property will be affected but it falls within a class of projects that are common to transportation, such as using historic bridges or projects that have a net benefit.
- Prepare an individual Section 4(f) evaluation, meaning a historic property will be affected but the type of project undertaken does not fit within a typical project scenario covered by a programmatic Section 4(f) evaluation.



Five-in-One Dam
Linn County

The Federal Highway Administration has a policy to avoid Section 4(f) properties unless it is not feasible or prudent. Deciding if it is feasible or prudent to avoid a property is determined by the project "purpose and need" and a review of alternatives, which must include taking "No Action".

An alternative is considered "not feasible"^{vi} if:

- It compromises the project to a degree that is unreasonable to proceed in light of the project's stated purpose and need.
- It results in unacceptable safety or operational problems.
- After reasonable mitigation, it still causes severe social, economic, or environmental impacts, severe disruption to established communities, severe or disproportionate impacts to minority or low-income populations, or severe impacts to environmental resources protected under other federal statutes.
- It results in additional construction, maintenance, or operational costs of an extraordinary magnitude.
- It causes other unique problems or unusual factors.
- It involves multiple factors as outlined above, that while individually minor, cumulatively cause unique problems or impacts of an extraordinary magnitude.

A Section 4(f) property can be used if there is no feasible or prudent alternative. The Federal Highway Administration will select the viable alternative that causes the least overall harm to the Section 4(f) property.

Many low-head dams occur at parks or at other locations considered Section 4(f) properties. Project plans will need to consider how other types of Section 4(f) properties might be affected and limit those affects as well.



Nashua Low Head Dam
Chicasaw County

What if the Project Is Not A Federal Undertaking?

Alteration to dams on Iowa's rivers and streams is ALWAYS a federal undertaking and project applicants must submit a joint application to the U.S. Army Corps of Engineers and the Iowa Department of Natural Resources. Alterations or removal of dams affects waterways which fall under the jurisdiction of these agencies. It is up to the federal agency to determine if historic properties need to be considered as part of an undertaking.

There are few state laws that require consideration of historic properties. Instances where state laws might require consideration of historic properties are projects involving the Iowa Department of Transportation. The Iowa Department of Transportation is charged with ensuring that projects they fund or oversee do not needlessly destroy historical objects.^{vii} Additionally, the Iowa Department of Transportation tries to preserve and protect the historic heritage of Iowa and avoid archaeological sites whenever practicable.^{viii}

Do not assume a project will not be a federal undertaking. Instead, rely on federal and state agencies to determine required government involvement

If seeking Iowa Department of Transportation SWAP funding (a program that swaps federal monies for state monies), the Iowa Department of Transportation still requires historic properties be considered in the planning, design, and construction process. Even SWAP funding requires U.S. Army Corps of Engineers or U.S. Fish and Wildlife Service permits.

State agencies are also tasked with considering historic properties that they own, manage, or administer^{ix}. Agencies, like the Iowa Department of Natural Resources, consult with the Iowa State Historic Preservation Office during their planning activities through “28E Agreements”. The State Revolving Fund, Floodplain Management, Dam Safety, and River Programs sometimes require 28E Agreements for certain projects. It is best to coordinate with the Iowa Department of Natural Resources prior to undertaking a project to determine if consideration of historic properties under 28E Agreements are required.

Before altering a dam, be sure to:

- Discuss the project with the Iowa Department of Natural Resources and U.S. Army Corps of Engineers.
- Apply for necessary permits issued by the U.S. Army Corps of Engineers and/or the U.S. Fish and Wildlife Service.
- Determine if there are any federal or state funds expended toward the project.



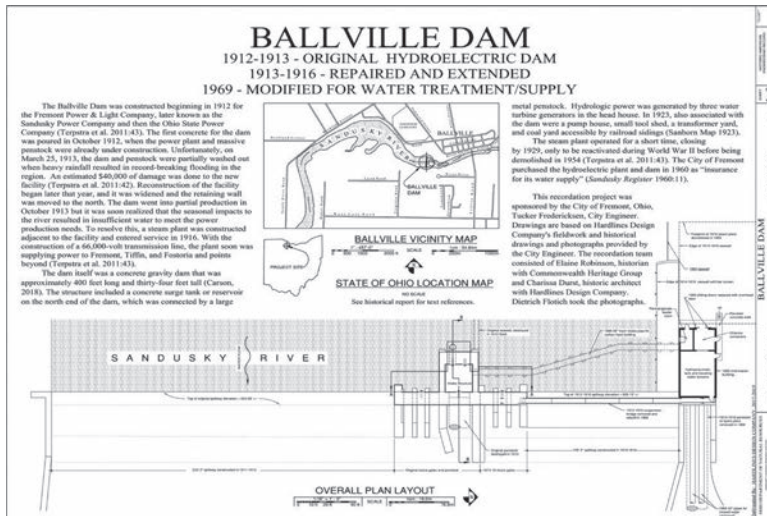
Endangered Sheepnose Mussel
Borrowed from U.S. Fish and Wildlife Service

Scenario #1: *Impacts Can't Be Avoided and Mitigation Needed*

After defining the “purpose and need”, it becomes clear a stream project might require dam removal (Step 1). Necessary project information was collected and submitted to the U.S. Army Corps of Engineers and the Iowa Department of Natural Resources (Steps 2–3). After review, it is determined that the project will affect the stream and the endangered Sheepnose Mussel also occurs in these waters. Given affects to the mussel, U.S. Fish and Wildlife becomes the lead federal agency. Additional environmental information is needed to grant permits, including identification of historic properties that could be affected (Step 4).

A review of inventoried low-head dams and historic property investigations (Step 4) indicate the structure is a significant historic property. Unfortunately, avoidance or minimization of adverse effects is not feasible due to analysis and consideration of alternatives (Step 5). Because the dam is already inventoried, the U.S. Fish and Wildlife Service, who is the lead federal agency, consults with the Iowa State Historic Preservation Office and other federal and state partnering agencies, and all entities agree that the project will adversely affect the dam (Steps 6–7). The U.S. Fish and Wildlife Service produces a Memorandum of Agreement outlining the nature of the project, the ways in which adverse effects will be resolved through mitigation, and outlines other contractual obligations (Step 7). The lead federal agency reaches out to other interested parties, and successfully enters into an agreement with the Iowa State Historic Preservation Office, other federal and state agency partners, and the Advisory Council on Historic Preservation.

The path forward is through *mitigation*, and the lead federal agency decides the best means of mitigating adverse effects to the dam is with Historic American Engineering Record documentation (Step 8). The U.S. Fish and Wildlife Service indicates that this documentation must be completed before permits are granted and directs the applicant to complete the required project.



The project applicant or engineer hires a historic preservation consultant to complete documentation (Step 8). Measured drawings are produced for the structure, a series of photographs are taken, and a history is written that is summarized in a detailed report. The consultant delivers the report to the project applicant or the engineer/planner. The project applicant or engineer/planner then sends the report to the U.S. Fish and Wildlife Service, who passes it along to other federal partners at the U.S. Army Corps of Engineers, the Iowa Department of Natural Resources, and the Iowa State Historic Preservation Office. Everyone agrees that the documentation is adequate, and it meets requirements of the Memorandum of Agreement (Step 9). The terms of the agreement are fulfilled, and the necessary federal permits are granted. With permits in hand, the project applicant is now able to remove the dam and complete the project (Step 10).

THE PROCESS WORKED AS FOLLOWS:

Developed Project Idea and Initial Plans



Submitted Information to Appropriate Agencies for Preliminary Review



Collected Data and Alternatives Analysis



Historic Property is Affected



An Agreement is Reached by Agencies



Terms of Agreement are Implemented



Permits are Granted and Project Proceeds

Scenario #2:

Altering a Dam During a Project Using Federal Money with No Adverse Effect

After sustaining damage from a recent flood, a defined purpose and need indicates that a dam is unsafe, and it is necessary to make alterations to the dam (Step 1). The Federal Emergency Management Agency thinks this is a wonderful project and would like to fund the work as an alternative project under its Public Assistance Program (Steps 2–3). After submitting necessary documentation to the Federal Emergency Management Agency, the agency begins a process to comply with the National Environmental Policy Act and they require completion of several environmental studies and obtaining permits from various federal offices (like the U.S. Army Corps of Engineers and U.S. Fish and Wildlife) before providing the grant money (Steps 2 and 4). The Federal Emergency Management Agency, because they are funding the project, are the lead federal agency.

After reviewing the list of inventoried dams, it is determined the dam is not a significant historic property. But they also determine that a portion of the bank will be affected and require an archaeological survey prior to granting money for the project (Step 4). The project applicant hires an archaeological consultant, and no significant properties are found. The Federal Emergency Management Agency submits their findings to their federal and state partners, including the Iowa State Historic Preservation Office and the Iowa Department of Natural Resources, and everyone agrees that no historic properties are affected (Steps 6–7). Because no historic property is affected, there is no additional requirements for historical documentation of the dam (Step 9). After meeting needs of other National Environmental Policy Act concerns, the Federal Emergency Management Agency grants funding and the dam alteration project proceeds (Step 10).

THE PROCESS WORKED AS FOLLOWS:

Developed Project Idea and Initial Plans



Submitted Information to
Appropriate Agencies for Preliminary Review



Collected Data and
Alternatives Analysis



Agencies Requested Additional Information on
Historic Properties. Additional information might
involve more details of project plans or historic
property studies in the area of potential effect.



Agencies Coordinate



A Historic Property is Not Affected



Permits are Granted and
Project Proceeds

Scenario #3:

Altering a Dam During A Bridge Replacement Project

A county engineer finds an unsafe rural bridge during their annual inspection process and the bridge needs to be replaced because tractors might cause structure failure (Step 1). A small dam is integrated into the substructure of the bridge. The Iowa Department of Transportation will be funding much of the project through their grant program, which includes money derived from the Federal Highway Administration (Step 2). Because there are federal funds involved, the Iowa Department of Transportation follows their process for National Environmental Policy Act compliance, which requires compliance with Section 106 of the National Historic Preservation Act, and becomes the lead agency. The bridge is already inventoried as not historically significant, but the dam connected to the bridge has never been evaluated for the National Register of Historic Places. Furthermore, the bridge replacement project requires acquisition of land outside of the bridge itself (Step 3). To identify significant historic properties, the Iowa Department of Transportation requests a survey for historic properties (along with other environmental studies) within the project area (Step 4).

The hired historic preservation consultant recommends the dam as eligible for listing to the National Register of Historic Places, and the Iowa Department of Transportation agrees. Not only will a historic property be adversely affected for Section 106 purposes, but the dam represents a protected Section 4(f) property. The Iowa Department of Transportation coordinates with other partners in federal and state agencies and everyone agrees that the project might affect a historic property.

The Iowa Department of Transportation asks for additional information about project alternatives because the Federal Highway Administration cannot use a Section 4(f) property if there is a feasible and prudent alternative that can avoid the significant resource (Step 5). Unfortunately, there are no reasonable alternatives except for removal and replacement of the bridge and dam. Furthermore, a grade control structure that would allow fish passage also needs installed to prevent erosion. The project meets the requirements for Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges.

Through consultation with state and federal agency partners, the Iowa Department of Transportation determines mitigation is the best path forward and seeks mitigation through documentation of dam removal, that is, a consultant would document the structure while demolition work is undertaken. The Iowa Department of Transportation drafts a Memorandum of Agreement and all the parties agree to the terms and sign the agreement (Steps 6–7).

The Iowa Department of Transportation directs the project applicant to hire a historical preservation consultant to document deconstruction of the dam. The hired consultant monitors dam removal by taking notes and photographing the process (Step 8). A report is produced and delivered to the project applicant. The project applicant then sends the report to the Iowa Department of Transportation, who provides copies to federal and state agency partners. Everyone agrees that the documentation project met the terms of the agreement (Step 9). Furthermore, Section 4(f) requirements have been met by successful completion of the Section 106 process. After obtaining other necessary permits, the project can proceed (Step 10).

This scenario was a little more complex, but it worked according to the flow chart on the next page.

THE
PROCESS
WORKED AS
FOLLOWS:

Developed Project Idea and Initial Plans



Submitted Information to Iowa Department of Transportation



Iowa Department of Transportation Requested Additional Information



Historic Resource Study Conducted



A Historic Property/Section 4(f) Property is Present



Iowa Department of Transportation Consulted with Other Agencies



Iowa Department of Transportation Requested
Additional Information and Evaluation of Alternatives



No Prudent and Feasible Alternatives were Identified



Agreement Reached between Agencies



Terms of Agreement Implemented



Ashton Dam
Osceola County

Scenario #4:

Minor Alteration to a Dam

An applicant wishes to place a notch in the center of a dam (Step 1). The applicant submits preliminary information to the Iowa Department of Natural Resources and the U.S. Army Corps of Engineers for review (Step 2). A project area is defined that includes areas where activities might occur (Step 3).

The list of inventoried dams indicates that the low-head structure is a **significant historic property** (Step 4). The U.S. Army Corps of Engineers, the Iowa Department of Natural Resources and the Iowa State Historic Preservation Office review project plans and decide the project will be so minor that it **will not affect historic integrity** of the dam (Steps 6–7). But the agencies want some assurances that the project will only involve a notch at the center of the dam. What might occur is known as a **“Conditional No Adverse Effect”** determination.

In a Conditional No Adverse Effect determination, the agencies will agree that there is no adverse effect **if certain conditions are met** (Steps 7–8). It is possible that an agreement is necessary to ensure conditions are implemented. If the conditions can be met, and permits are granted, the project proceeds as planned (Steps 9 and 10).



Miles Mann Flume
Harrison County

THE PROCESS WORKED AS FOLLOWS:



Seeking Guidance From Federal and State Agencies

Open, good-faith communication with regulatory staff at the state and federal level and interested members of the public will ensure a successful project. Preparation of materials and timely submission to these agencies will lead to faster completion of projects and prevent unnecessary fines and legal actions. At a minimum, all projects related to low-head dams in Iowa need to be reviewed by the Iowa Department of Natural Resources. The Iowa Department of Natural Resources will direct an applicant to any other agencies that might also require a permit. Federal and state employees are always willing to assist. Federal and state agency staff can be reached at:

Iowa Department of Natural Resources

Flood Plain and Sovereign Lands Sections
502 East 9th Street
Des Moines, Iowa 50319-0034
Telephone: (866) 849-0321
Email: watertrails@dnr.iowa.gov
Website: <https://iowadnr.gov/Things-to-Do/Canoeing-Kayaking/Low-Head-Dams>

Iowa Department of Transportation

Location and Environment Bureau
800 Lincoln Way
Ames, Iowa 50010
Telephone: (515) 239-1225
Email: <https://iowadot.gov/aboutus#ContactUs>
Website: <https://iowadot.gov/ole>

Iowa State Historic Preservation Office

600 East Locust Street
Des Moines, Iowa 50319
Telephone: (515) 281-5111
Email: shpo106@iowa.gov
Website: <https://iowaculture.gov/history/preservation/review-compliance>

U.S. Army Corps of Engineers, Rock Island District

US Army Engineer District
Rock Island Corps of Engineers
Clock Tower Building
PO Box 2004
Rock Island, Illinois 61204-2004
Telephone: (309) 794-5376
Email: iowaregulatory@usace.army.mil
Website: <https://www.mvr.usace.army.mil/Missions/Regulatory/>

U.S. Fish and Wildlife Service

La Crosse Fish and Wildlife Conservation Office
555 Lester Avenue
Onalaska, Wisconsin 54650
Telephone: (608) 783-8415
Email: louise_mauldin@fws.gov
Website: <https://fws.gov/midwest/lacrossefisheries>

Additional Information

These sources provide additional information on historic preservation laws and processes:

Advisory Council on Historic Preservation:

<http://achp.gov>

“Controlling Water: Exploring Low-Head Dams and Minor Water Control Structures throughout the State of Iowa,” 2021.

Available through the Iowa Department of Natural Resources.

Iowa Department of Natural Resources Low-Head Dams:

<http://iowadnr.gov/things-to-do/canoeing-kayaking/low-head-dams>

Iowa State Historic Preservation Office:

<http://iowaculture.gov/history/preservation>

Iowa Department of Transportation Office of Location and Environment:

<http://iowadot.gov/ole>

U.S. Army Corps of Engineers Regulatory Branch, Rock Island:

<http://mvr.usace.army.mil/Missions/Regulatory/>

U.S. Fish and Wildlife Service Illinois-Iowa Ecological Services Office:

<http://fws.gov/midwest/RockIsland/>

ⁱ Section 106 of the National Historic Preservation Act

ⁱⁱ “Solving Dam Problems: Iowa’s 2010 Plan for Dam Mitigation”, Iowa Department of Natural Resources, 2010.

ⁱⁱⁱ Iowa Codes 263B.5 and 314.24

^{iv} 36 CFR 800.16(d)

^v Secretary of Interior Professional Qualification Standards are published as 36 CFR Part 61 and can be found at https://www.nps.gov/history/local-law/arch_stnds_9.htm#.

^{vi} 23 CFR 774.17

^{vii} Iowa Code 263B.5

^{viii} Iowa Code 314.24

^{ix} Iowa Code Section 303.2(2)a, Chapter 28E

^x 36 CFR 800.5(b)

Historical Significance of Iowa Low-Head Dams



Center Street Dam
Polk County

COUNTY	DNR ID	SHPO INVENTORY #	NAME	TOWNSHIP	RANGE	SECTION	HISTORICAL SIGNIFICANCE
Adair	Ada-1	N/A	8302-02 (04-8-F and 05-23)	75N	33W	22	Not 45 years old, reevaluate in 2055
Adair	Ada-2	N/A	03-10-F	75N	33W	10	Not 45 years old, reevaluate in 2050
Adams	Adm-1	N/A	04-10-F and 05-24	72N	33W	24	Not 45 years old, reevaluate in 2052
Appanoose	App-1	N/A	Rathbun Dam	70N	18W	25, 35, and 36	Unevaluated
Audubon	Aud-2	05-00657	Audubon Waterworks Dam	80N	35W	23	Not significant
Audubon	Aud-3	N/A	322-01	81N	34W	31	Not 45 years old, reevaluate in 2039
Black Hawk	Bla-1	07-13617	Cedar Falls Dam	89N	14W	12	Significant
Black Hawk	Bla-2	07-13618	Clay Hole	89N	14W	12	Not significant
Black Hawk	Bla-3	07-11035	Cedar River Dam	89N	13W	26	Not significant, reevaluate in 2054
Black Hawk	Bla-4	07-13619	Sixth St. Dam	89N	13W	25	Significant
Black Hawk	Bla-5	N/A	Heritage Farm Crossing	88N	14W	32	Not 45 years old, reevaluate in 2025
Black Hawk	Bla-6	07-13620	Moser's Ford	88N	14W	27	Not significant
Black Hawk	Bla-7	07-13621	Pioneer Park Structure/Water Line	89N	13W	25	Not significant
Boone	Boo-1	08-01977	Fraser Dam	85N	27W	34	Significant
Boone	Boo-3	N/A	Don Williams Lake Dam	84N	27W	5	Unevaluated
Bremer	Bre-1	09-01962	Frederika Dam	93N	12W	7	Significant
Bremer	Bre-2	09-00619	Waverly Municipal Hydroelectric Powerhouse and Dam	91N	14W	2	Not significant, reevaluate in 2056
Bremer	Bre-3	N/A	Denver Dam	91N	13W	26	Unevaluated
Bremer	Bre-5	N/A	Sweet Marsh Dam	93N	12W	35	Unevaluated
Bremer	Bre-6	N/A	Janesville Rock Dams	91N	14W	35	Unevaluated
Buchanan	Buc-1	10-00666	Fairbank Dam	90N	10W	5	Not significant, reevaluate in 2034
Buchanan	Buc-3	10-00667	Independence Beauty Dams	88N	9W	4	Significant
Buchanan	Buc-4	10-00668	Independence Mill Dam	89N	9W	34	Significant
Buchanan	Buc-6	10-00669	Fontana Lake Dam	90N	9W	16	Significant
Buena Vista	Bue-1	11-00421	Linn Grove Dam	93N	37W	5	Not significant
Butler	But-1	12-00162	Greene Milldam	93N	17W	1	Significant
Butler	But-2	N/A	Camp Comfort Rock Dam	93N	16W	29	Unevaluated
Butler	But-3	12-00375	Heery Woods Park Dam	92N	15W	19	Significant
Butler	But-4	12-00376	Shell Rock Mill Dam	91N	15W	11	Not significant
Butler	But-5	12-00377	Beaver Meadows Dam	90N	16W	30	Significant
Butler	But-7	N/A	Big Marsh Diversion Dam	91N	17W	22	Unevaluated

COUNTY	DNR ID	SHPO INVENTORY #	NAME	TOWNSHIP	RANGE	SECTION	HISTORICAL SIGNIFICANCE
Calhoun	Cal-1	N/A	Lake Creek Rock Dam	86N	33W	5	Unevaluated
Carroll	Car-1	N/A	Lanesboro Rock Dam	85N	33W	21	Unevaluated
Carroll	Car-2	N/A	Merritt Access Rock Dam	85N	33W	34	Unevaluated
Carroll	Car-3	N/A	Bennett Access Rock Dam	84N	33W	12	Unevaluated
Carroll	Car-4	N/A	Pasture Rock Dam	82N	33W	27	Unevaluated
Carroll	Car-5	N/A	Riverside Park Rock Dam	82N	33W	27	Unevaluated
Carroll	Car-7	N/A	05-3-F	84N	35W	25	Not 45 years old, reevaluate in 2051
Carroll	Car-8	N/A	97-20	82N	34W	7	Not 45 years old, reevaluate in 2044
Carroll	Car-9	N/A	05-4-F	84N	34W	30	Not 45 years old, reevaluate in 2051
Carroll	Car-10	N/A	13-4	82N	36W	31	Not 45 years old, reevaluate in 2058
Carroll	Car-11	N/A	347-23	82N	34W	36	Not 45 years old, reevaluate in 2040
Carroll	Car-12	N/A	05-2-F	82N	34W	16	Not 45 years old, reevaluate in 2051
Cass	Cas-1	N/A	Atlantic Waterworks Dam	76N	36W	4	Unevaluated
Cass	Cas-2	N/A	04-25 (327-65)	76N	36W	22	Not 45 years old, reevaluate in 2050
Cass	Cas-3	N/A	327-77	74N	36W	19 and 20	Not 45 years old, reevaluate in 2042
Cass	Cas-4	N/A	327-88	74N	36W	5	Not 45 years old, reevaluate in 2041
Cass	Cas-5	N/A	8327-13 (327-79)	73N	36W	5 and 6	Not 45 years old, reevaluate in 2054
Cass	Cas-6	N/A	8237-12 (327-78)	74N	36W	31	Not 45 years old, reevaluate in 2055
Cass	Cas-7	N/A	8327-11 (8327-14)	74N	36W	29	Not 45 years old, reevaluate in 2054
Cass	Cas-8	N/A	327-76	74N	36W	17 and 18	Not 45 years old, reevaluate in 2042
Cass	Cas-9	N/A	DOT	74N	36W	7	Unevaluated
Cass	Cas-10	N/A	04-26 (00-11)	76N	36W	32	Not 45 years old, reevaluate in 2050
Cass	Cas-11	N/A	County	76N	36W	27	Unevaluated
Cass	Cas-12	N/A	7327-03 (327-64)	76N	36W	14	Not 45 years old, reevaluate in 2041
Cass	Cas-13	N/A	00-10	76N	35W	7	Not 45 years old, reevaluate in 2046
Cass	Cas-14	N/A	8327-06	76N	35W	9	Not 45 years old, reevaluate in 2054
Cass	Cas-15	N/A	8327-10	76N	35W	4	Not 45 years old, reevaluate in 2044
Cass	Cas-16	N/A	01-15	77N	35W	30	Not 45 years old, reevaluate in 2047
Cass	Cas-17	N/A	8327-15 (8327-02)	77N	35W	21	Not 45 years old, reevaluate in 2055
Cass	Cas-18	N/A	327-48 (8327-03?)	77N	35W	16	Not 45 years old, reevaluate in 2041
Cass	Cas-19	N/A	327-43	77N	35W	10	Not 45 years old, reevaluate in 2041
Cass	Cas-20	N/A	01-16	74N	35W	31	Not 45 years old, reevaluate in 2047
Cass	Cas-21	N/A	01-18	74N	35W	11 and 14	Not 45 years old, reevaluate in 2047
Cass	Cas-22	N/A	327-70	75N	37W	8	Not 45 years old, reevaluate in 2041

COUNTY	DNR ID	SHPO INVENTORY #	NAME	TOWNSHIP	RANGE	SECTION	HISTORICAL SIGNIFICANCE
Cerro Gordo	Cer-4	17-01558	East Park Dam	96N	20W	3	Not significant
Cerro Gordo	Cer-8	17-01559	Rock Glen Dam	96N	20W	10	Significant
Cerro Gordo	Cer-9	17-01560	Pennsylvania Avenue Dam	96N	20W	10	Significant
Cerro Gordo	Cer-10	17-01553	Linn Grove Park Dam	94N	20W	10	Not significant
Cerro Gordo	Cer-11	17-01554	12th Street Dam	96N	20W	3	Not significant
Cerro Gordo	Cer-12	N/A	Wheelerwood Mill Dam	97N	21W	15	Unevaluated
Cerro Gordo	Cer-14	17-01555	Lehigh Cement Dam	97N	20W	33	Significant
Cerro Gordo	Cer-17	N/A	Monroe Avenue Rock Dam	96N	20W	9	Unevaluated
Cerro Gordo	Cer-18	17-01556	Jackson Avenue Dam	96N	20W	9	Not significant
Cerro Gordo	Cer-19	17-01557	Pierce Avenue Dam	96N	20W	5	Significant
Cerro Gordo	Cer-20	N/A	Limestone Cut Rapids	96N	20W	4	Unevaluated
Chickasaw	Chi-1	19-00402	Buckley Rock Dam Ford	94N	13W	36	Not significant
Chickasaw	Chi-2	19-00058	Nashua Low Head Dam and Powerhouse	94N	14W	18	Not significant, reevaluate in 2034
Chickasaw	Chi-3	19-00403	Chickasaw Mill Dam	95N	14W	21	Not significant
Chickasaw	Chi-5	N/A	Saude Park Rock Dam	97N	11W	29	Unevaluated
Clay	Cla-1	N/A	West Spencer Rock Dam	96N	37W	13	Unevaluated
Clay	Cla-3	N/A	Leach Park Dam	96N	36W	18	Unevaluated
Clayton	Cly-1	22-01386	Elkader Mill Dam	93N	5W	23	Significant
Clayton	Cly-3	22-02335	Volga City Dam	92N	6W	3	Significant
Crawford	Cra-1	24-00357	Denison Dam	83N	39W	11	Significant
Crawford	Cra-2	N/A	69-6114-1-06	85N	38W	12	Not 45 years old, reevaluate in 2047
Crawford	Cra-3	N/A	98-1	83N	39W	10	Not 45 years old, reevaluate in 2043
Crawford	Cra-4	N/A	99-14	83N	39W	11	Not 45 years old, reevaluate in 2039
Crawford	Cra-5	N/A	311-19	84N	38W	36	Not 45 years old, reevaluate in 2039
Crawford	Cra-6	N/A	311-13	84N	37W	30	Not 45 years old, reevaluate in 2039
Crawford	Cra-7	N/A	7311-02	82N	38W	26	Not 45 years old, reevaluate in 2054
Crawford	Cra-8	24-00358	Manilla Dam	82N	27W	26	Not significant
Crawford	Cra-9	N/A	311-35	84N	41W	22	Not 45 years old, reevaluate in 2039
Crawford	Cra-10	N/A	311-40(1)	84N	41W	28	Not 45 years old, reevaluate in 2040
Crawford	Cra-11	N/A	City of Charter Oak	84N	41W	22	Not 45 years old, reevaluate in 2039
Crawford	Cra-12	N/A	311-40(2)	84N	41W	28	Not 45 years old, reevaluate in 2040
Dallas	Dal-1	25-01798	Redfield Dam	78N	29W	4	Significant
Dallas	Dal-3	25-01799	Adel Island Park Dam	79N	27W	29	Significant
Delaware	Del-1	28-00149	Backbone Lake Dams	90N	6W	15	Significant

COUNTY	DNR ID	SHPO INVENTORY #	NAME	TOWNSHIP	RANGE	SECTION	HISTORICAL SIGNIFICANCE
Delaware	Del-4	28-00713	Pin Oak Park Dam	88N	5W	9	Not significant
Delaware	Del-5	28-00601	Lake Delhi Dam	88N	4W	29 and 30	Significant
Delaware	Del-7	N/A	Hopkinton Dam – Side Channel	87N	4W	13	Unevaluated
Dickinson	Dic-3	N/A	Spirit Lake Outlet	100N	36W	28	Unevaluated
Dickinson	Dic-4	N/A	Okoboji Lake Outlet (Outlet Creek)	98N	36W	6	Unevaluated
Dubuque	Dub-1	N/A	Sundown Rock Dam	89N	1E	15	Unevaluated
Dubuque	Dub-2	31-06502	Cascade Falls Dam	87N	1W	31	Not significant, reevaluate in 2024
Dubuque	Dub-5	N/A	Second Street Rock Dam	89N	2W	30	Unevaluated
Emmet	Emm-2	N/A	Swinging Bridge Rock Dam	99N	34W	10	Unevaluated
Emmet	Emm-3	32-00172	South Riverside Park Dam	99N	34W	15	Not significant
Fayette	Fay-2	33-00843	Maynard Dam	92N	9W	15	Significant
Fayette	Fay-3	N/A	Langeman's Ford	93N	8W	27	Unevaluated
Fayette	Fay-4	33-00844	Clermont Dam	95N	7W	34	Not significant
Fayette	Fay-5	N/A	Red Gate Park Rock Dam	91N	9W	20	Unevaluated
Fayette	Fay-6	N/A	Johnson's Mill Dam	95N	10W	32	Unevaluated
Fayette	Fay-7	N/A	Lake Oelwein Dam	91N	9W	33	Not 45 years old, reevaluate in 2045
Fayette	Fay-8	33-00845	Low Flow Bridge	91N	9W	33	Not significant
Fayette	Fay-9	33-00846	Waucoma Mill Dam	95N	10W	9	Not significant, reevaluate in 2022
Floyd	Flo-1	34-00537	Main Street Dam	95N	16W	12	Significant
Floyd	Flo-3	34-00840	Nora Springs Dam	96N	18W	7	Not significant
Floyd	Flo-5	34-00380	Marble Rock Dam	94N	17W	8	Significant
Floyd	Flo-6	34-00841	Rock Creek Ford	97N	17W	22	Not significant
Floyd	Flo-7	N/A	Charles City Gaging Dam	95N	16W	12	Unevaluated
Franklin	Fra-1	35-00174	Beed's Lake Dam	92N	20W	20	Significant
Franklin	Fra-2	35-00404	Harriman Park Dam	92N	20W	21 and 28	Significant
Franklin	Fra-3	35-00405	Robinson Park Dam	92N	20W	15	Not significant
Greene	Gre-1	N/A	Squirrel Hollow Rock Dam	83N	30W	36	Not 45 years old, reevaluate in 2023
Greene	Gre-2	N/A	Hyde Park Rock Dam	84N	32W	4	Unevaluated
Greene	Gre-3	N/A	McMahon Access Rock Dam	83N	31W	5	Unevaluated
Greene	Gre-4	N/A	Henderson Park Rock Dam	83N	30W	20	Unevaluated
Grundy	Gru-1	N/A	Morrison Rock Dam	87N	16W	14	Unevaluated
Grundy	Gru-2	N/A	Reinbeck Rock Dam	87N	15W	21	Unevaluated
Grundy	Gru-3	N/A	Grundy Center Rubble Dam	87N	16W	7	Unevaluated
Grundy	Gru-5	N/A	Lower North Fork Rock Dams	88N	15W	9	Unevaluated

COUNTY	DNR ID	SHPO INVENTORY #	NAME	TOWNSHIP	RANGE	SECTION	HISTORICAL SIGNIFICANCE
Grundy	Gru-6	N/A	Rubble Dam 1	88N	15W	9	Unevaluated
Grundy	Gru-7	N/A	Rubble Dam 2	88N	15W	9	Unevaluated
Grundy	Gru-8	N/A	Rubble Dam 3	88N	15W	9	Unevaluated
Grundy	Gru-9	N/A	Rubble Dam 4	88N	15W	9	Unevaluated
Grundy	Gru-10	N/A	Rubble Dam 5	88N	15W	9	Unevaluated
Grundy	Gru-11	N/A	Rubble Dam 6	88N	15W	11	Unevaluated
Guthrie	Gut-1	39-00503	Lenon Mill Dam	79N	30W	5	Significant
Guthrie	Gut-2	39-00509	Guthrie County Pipeline Dam 1	80N	32W	28	Not significant
Guthrie	Gut-3	39-00510	Guthrie County Pipeline Dam 2	80N	32W	29	Not significant
Guthrie	Gut-4	39-00129	Springbrook Park Rock Dam	80N	31W	4	Significant
Guthrie	Gut-5	N/A	357-20	80N	32W	5	Not 45 years old, reevaluate in 2041
Guthrie	Gut-6	N/A	Lake Panorama Dam	80N	30W	31	Unevaluated
Guthrie	Gut-7	39-00511	Guthrie County Pipeline Dam 3	80N	32W	14	Not significant
Guthrie	Gut-8	39-00512	Guthrie County Pipeline Dam 4	80N	32W	14	Not significant
Hamilton	Ham-3	N/A	Webster City Dam	89N	25W	32	Not 45 years old, reevaluate in 2045
Hamilton	Ham-5	40-00484	Briggs Woods Gaging Dam	88N	25W	18	Not significant
Hamilton	Ham-7	40-00485	Kendall Young Park Ford	89N	25W	33	Not significant
Hamilton	Ham-9	N/A	Jewell Dam	87N	24W	34	Unevaluated
Hardin	Har-1	42-02728	Alden Dam	89N	21W	18	Significant
Hardin	Har-2	42-00551	Iowa Electric Dam & Generator	89N	20W	18	Significant
Hardin	Har-3	42-02721	Steamboat Rock Dam	88N	19W	28	Significant
Hardin	Har-4	N/A	Eldora Dam	87N	19W	8	Unevaluated
Hardin	Har-5	N/A	Woolen Mill Diversion Dam	89N	20W	18	Unevaluated
Hardin	Har-6	N/A	Wastewater Plant Rock Dam	89N	20W	18	Unevaluated
Harrison	Has-1	43-01114	Sill #4	81N	44W	5	Not significant, reevaluate in 2030
Harrison	Has-2	43-01115	Seward Avenue Flume	78N	42W	33	Not significant, reevaluate in 2024
Harrison	Has-3	43-01116	Mosquito Creek Flume	78N	41W	16	Not significant, reevaluate in 2023
Harrison	Has-4	43-01117	Burkholder Flume	80N	43W	23	Not significant
Harrison	Has-5	43-01118	Miles Mann Flume	81N	42W	20	Not significant
Harrison	Has-6	N/A	8320-02	81N	42W	9	Not 45 years old, reevaluate in 2055
Harrison	Has-7	N/A	7320-02	81N	42W	29	Not 45 years old, reevaluate in 2055
Harrison	Has-8	N/A	05-5-F	78N	41W	20	Not 45 years old, reevaluate in 2051
Harrison	Has-9	N/A	Little Sioux Sill Dam	81N	45W	22 and 27	Unevaluated
Harrison	Has-10	N/A	Little Sioux Sill Dam	81N	45W	22	Unevaluated

COUNTY	DNR ID	SHPO INVENTORY #	NAME	TOWNSHIP	RANGE	SECTION	HISTORICAL SIGNIFICANCE
Harrison	Has-11	N/A	Little Sioux Sill Dam	81N	45W	27	Unevaluated
Harrison	Has-12	N/A	Unnamed loose rock riffle	81N	45W	14	Unevaluated
Henry	Hen-1	44-02230	Oakland Mills Dam	71N	7W	24	Significant
Howard	How-2	45-00263	Lylah's Marsh Dam	98N	14W	23	Not significant
Howard	How-3	45-00264	Lidtke Mill Dam	100N	12W	20	Significant
Howard	How-4	45-00265	King's Road Ford	98N	11W	2	Not significant
Howard	How-6	45-00266	Saratoga Dam	99N	13W	29	Not significant
Humboldt	Hum-1	46-00069	Rutland Dam	92N	29W	29	Significant
Humboldt	Hum-2	46-00168	Reasoner Dam	91N	29W	2	Significant
Humboldt	Hum-3	N/A	Water Plant Rock Dam	91N	29W	1	Unevaluated
Humboldt	Hum-4	N/A	Humboldt Lower Rock Dam	91N	29W	12	Unevaluated
Ida	Ida-1	47-00205	Ida County Dam 1	97N	40W	12	Not significant
Ida	Ida-2	N/A	14-1	86N	40W	31	Unevaluated
Iowa	Iow-1	48-00855	West Amana Dam	81N	10W	27	Significant
Jackson	Jac-1	49-00048	Lakehurst Dam	84N	2E	23	Significant
Jackson	Jac-2	49-01727	Prairie Creek Ford	84N	3E	30	Not significant
Jackson	Jac-3	49-01728	Lytle Creek Ford	86N	2E	17	Not significant
Jasper	Jas-1	50-00473	Lynnville Mill and Dam	78N	17W	11	Significant
Jasper	Jas-2	N/A	Rock Creek Lake Dam	80N	17W	17	Unevaluated
Johnson	Joh-1	52-04420	Coralville Dam	79N	6W	5	Significant
Johnson	Joh-2	N/A	Burlington Street Dam	79N	6W	9 and 10	Unevaluated
Johnson	Joh-3	52-05515	Rapid Creek Gaging Dam	80N	6W	36	Not significant
Johnson	Joh-6	N/A	Lake MacBride Dam	81N	6W	29	Unevaluated
Johnson	Joh-7	N/A	Coralville Dam	80N	6W	22	Unevaluated
Jones	Jon-1	53-00949	Anamosa Dam	84N	4W	10	Significant
Jones	Jon-2	53-00950	Oxford Mills Dam	83N	1W	28	Not significant
Jones	Jon-3	53-00900	Mon-Maq Dam	86N	3W	22	Significant
Kossuth	Kos-1	N/A	Plum Creek Dam	96N	29W	25	Unevaluated
Kossuth	Kos-2	N/A	Seneca Access Rock Dam	98N	30W	9	Unevaluated
Kossuth	Kos-4	N/A	Algona Rock Dam	95N	29W	2	Unevaluated
Kossuth	Kos-5	N/A	Highway 169 Rock Dam	95N	29W	36	Unevaluated
Kossuth	Kos-6	N/A	Devine Wildlife Area Rock Dam	94N	29W	23	Unevaluated
Kossuth	Kos-7	N/A	Unnamed	98N	29W	26	Unevaluated
Kossuth	Kos-8	N/A	Unnamed rock rapids	97N	28W	8	Unevaluated

COUNTY	DNR ID	SHPO INVENTORY #	NAME	TOWNSHIP	RANGE	SECTION	HISTORICAL SIGNIFICANCE
Kossuth	Kos-9	N/A	Patterson Rec Area Rock Dam	97N	28W	29	Unevaluated
Kossuth	Kos-10	N/A	Unnamed rock dam	97N	28W	31	Unevaluated
Linn	Lin-2	57-11541	C Street Roller Dam	82N	7W	2	Significant
Linn	Lin-3	57-10526	Five-in-One Dam	83N	7W	21	Not significant, reevaluate in 2023
Linn	Lin-4	57-10917	Palisades-Kepler Dam	82N	6W	23	Significant
Linn	Lin-6	57-11384	Pinicon Ridge Park Dam	85N	6W	3	Not Significant
Lyon	Lyo-1	60-00447	Rock Rapids Dam	100N	45W	33	Significant
Lyon	Lyo-2	60-00448	City Park East Channel Diversion Dam	100N	45W	33	Not significant
Lyon	Lyo-4	N/A	Blood Run Dam	100N	48W	21	Unevaluated
Lyon	Lyo-5	N/A	Canton Dam	98N	49W	26	Unevaluated
Lyon	Lyo-6	60-00449	City Park Big Ford	100N	45W	33	Not significant
Madison	Mad-2	61-00840	Pammel Park Ford	75N	28W	16	Not 45 years old, reevaluate in 2040
Marion	Mri-1	63-01774	Red Rock Reservoir Dam	76N	18W	19	Unevaluated
Marshall	Mar-2?	N/A	Minerva Creek Rock Dam	85N	20W	9	Unevaluated
Marshall	Mar-2?	N/A	Riverview Park Rock Dam	84N	18W	24	Unevaluated
Mills	Mil-1	65-00373	Railroad Dam	72N	41W	30	Not significant
Mills	Mil-2	65-00374	City of Glenwood Dam	72N	43W	12	Not significant
Mills	Mil-3	N/A	08-2 (409-520)	73N	40W	14	Not 45 years old, reevaluate in 2058
Mills	Mil-4	N/A	(08-2(06-8-F(339-111))) 7309-04	73N	40W	1	Not 45 years old, reevaluate in 2055
Mitchell	Mit-1	66-00279	Stacyville Dam	100N	16W	31	Significant
Mitchell	Mit-2	66-00278	Otranto Mill Dam	100N	18W	28	Not significant
Mitchell	Mit-3	66-00281	St. Ansgar Mill Dam	99N	18W	23	Not significant
Mitchell	Mit-4	66-00042	Mitchell Powerhouse and Dam	98N	17W	8	Significant
Mitchell	Mit-5	66-00282	Interstate Power Dam	99N	18W	14	Not significant
Mitchell	Mit-6	N/A	Spring Park Beauty Dam	98N	17W	28	Unevaluated
Mitchell	Mit-7	66-00283	Rock Creek Village Ford	97N	18W	12	Not significant
Mitchell	Mit-8	66-00284	Rock Creek Village Dam	97N	18W	12	Not significant
Mitchell	Mit-9	N/A	Quarry Rock Dam	97N	17W	17	Unevaluated
Mitchell	Mit-10	66-00280	Jersey Avenue Weir	97N	17W	15	Not significant
Mitchell	Mit-11	N/A	Little Cedar Rock Dam	99N	16W	15	Unevaluated
Mitchell	Mit-12	N/A	Brownsville Rock Dam	98N	16W	1	Unevaluated
Monona	Mon-1	N/A	COE	85N	45W	9	Unevaluated
Monona	Mon-2	67-00762	Monona County COE Dam 1	85N	45W	15	Not significant
Monona	Mon-3	67-00763	Monona County COE Dam 2	85N	45W	26	Not significant

COUNTY	DNR ID	SHPO INVENTORY #	NAME	TOWNSHIP	RANGE	SECTION	HISTORICAL SIGNIFICANCE
Monona	Mon-4	N/A	COE	84N	45W	12	Not 45 years old, reevaluate in 2035
Monona	Mon-5	N/A	COE	84N	45W	2	Unevaluated
Monona	Mon-6	N/A	COE	82N	44W	20	Unevaluated
Monona	Mon-7	N/A	COE	82N	44W	5	Unevaluated
Monona	Mon-8	N/A	COE	83N	44W	20	Unevaluated
Monona	Mon-9	N/A	COE	83N	44W	8	Unevaluated
Monona	Mon-10	N/A	DOT	83N	44W	6	Unevaluated
Monona	Mon-11	N/A	COE	84N	45W	36	Unevaluated
Monona	Mon-12	N/A	COE	84N	45W	24	Unevaluated
Monona	Mon-13	N/A	COE	84N	45W	25	Unevaluated
Montgomery	Mot-2	N/A	Stanton Dam	71N	37W	4	Not 45 years old, reevaluate in 2060
Montgomery	Mot-3	N/A	05-9-F (69-6114-9-6) – 901	73N	38W	8 and 9	Not 45 years old, reevaluate in 2051
Montgomery	Mot-4	N/A	14-4 (06-1 (00-5 (301-59))) – 2007	73N	38W	19	Not 45 years old, reevaluate in 2059
Montgomery	Mot-5	N/A	(01-8)8301-18 – 3307 Garfield (Flying "A")	72N	39W	33	Not 45 years old, reevaluate in 2051
Montgomery	Mot-6	N/A	05-9-F (00-5(4) (301-45-45/68)) – 805 West (Kookeys)	71N	39W	8	Not 45 years old, reevaluate in 2051
Montgomery	Mot-7	N/A	8301-10 (301-61 – 2007 ¾ Bergulinds)	71N	37W	20	Not 45 years old, reevaluate in 2055
Montgomery	Mot-8	N/A	7301-03 (03-2-F and 05-19)	71N	39W	8	Not 45 years old, reevaluate in 2055
Montgomery	Mot-9	N/A	Railroad	72N	39W	27	Unevaluated
Montgomery	Mot-10	N/A	8301-19 (05-9-F (69-6114-0-9))	72N	39W	1	Not 45 years old, reevaluate in 2051
Montgomery	Mot-11	N/A	(05-9-F (00-5 (301-60))) 7301-06	73N	38W	31	Not 45 years old, reevaluate in 2051
Montgomery	Mot-12	N/A	(05-9-F (69-6114-9-5)) 7301-11	73N	38W	4	Not 45 years old, reevaluate in 2051
Montgomery	Mot-13	N/A	01-11-F	71N	37W	32	Not 45 years old, reevaluate in 2063
Montgomery	Mot-14	N/A	05-16 (1) (301-28)	73N	36W	29	Not 45 years old, reevaluate in 2052
Montgomery	Mot-15	N/A	05-16 (2)	73N	36W	29	Not 45 years old, reevaluate in 2063
Muscatine	Mus-1	70-01769	Pine Creek Grist Mill Dam	77N	1E	17	Significant
Muscatine	Mus-2	N/A	Wilton Junction Ford	78N	1W	7	Unevaluated
O'Brien	Obr-1	71-02339	Sheldon Waterworks Dam	97N	42W	30	Not significant
Osceola	Osc-1	72-00280	Aston Dam	98N	42W	15	Significant
Page	Pag-1	73-00365	Clarinda Dam	69N	36W	32	Not significant
Page	Pag-2	N/A	8315-20/#39	70N	37W	7	Not 45 years old, reevaluate in 2044
Page	Pag-3	N/A	315-10	68N	38W	16	Not 45 years old, reevaluate in 2040
Page	Pag-4	N/A	7315-05 (315-03)	68N	39W	27	Not 45 years old, reevaluate in 2040

COUNTY	DNR ID	SHPO INVENTORY #	NAME	TOWNSHIP	RANGE	SECTION	HISTORICAL SIGNIFICANCE
Page	Pag-5	N/A	15-6 (69-6114-4-15)	67N	39W	4	Not 45 years old, reevaluate in 2062
Page	Pag-6	N/A	73-88	67N	39W	16 and 17	Not 45 years old, reevaluate in 2040
Page	Pag-7	N/A	7315-29 (315-48) 7315-29 (315-48)	70N	38W	24	Not 45 years old, reevaluate in 2041
Page	Pag-8	73-00366	County Low-Water Crossing	68N	38W	9 and 10	Not significant
Page	Pag-9	N/A	7315-02 (69-6114-9-8)	67N	39W	29 and 30	Not 45 years old, reevaluate in 2055
Page	Pag-10	N/A	7315-03 (315-05)	67N	39W	29	Not 45 years old, reevaluate in 2040
Page	Pag-11	N/A	Wabash Trace Rock Dam	68N	39W	14	Unevaluated
Page	Pag-12	N/A	69-6114-9-7	68N	39W	14	Not 45 years old, reevaluate in 2045
Page	Pag-14	N/A	73/315-102	67N	38W	20	Not 45 years old, reevaluate in 2041
Page	Pag-15	N/A	8315-08 (69-6114-7-15 and 97-1)	67N	38W	5	Not 45 years old, reevaluate in 2054
Page	Pag-16	N/A	(02-9-F) 8315-05	38N	38W	32	Not 45 years old, reevaluate in 2049
Page	Pag-17	N/A	7315-25 (315-12)	69N	38W	23	Not 45 years old, reevaluate in 2040
Page	Pag-18	N/A	(00-24) 7315-26	69N	38W	11	Not 45 years old, reevaluate in 2047
Palo Alto	Pal-1	N/A	Rock Rapids 3	94N	31W	17	Unevaluated
Plymouth	Ply-1	N/A	Le Mars Rock Dam	92N	45W	4	Unevaluated
Polk	Pol-1	77-05793	Center Street Dam	78N	24W	4	Significant
Polk	Pol-2	77-07483	Scott Avenue Bridge and Dam	78N	24W	10	Significant
Polk	Pol-5	77-11842	Des Moines Waterworks Dam	78N	24W	8	Significant
Polk	Pol-6	N/A	Waterworks Park Rock Dam	78N	24W	18	Unevaluated
Polk	Pol-7	N/A	Big Creek Terminal Dam	81N	25W	34	Unevaluated
Polk	Pol-8	N/A	Saylorville Dam	80N	24W	30	Unevaluated
Pottawattamie	Pot-4	78-03069	Council Bluffs Dam	74N	43W	7	Significant
Pottawattamie	Pot-6	N/A	Unnamed loose rock riffle	77N	42W	25	Unevaluated
Pottawattamie	Pot-7	N/A	03-8-F	76N	41W	7	Not 45 years old, reevaluate in 2049
Pottawattamie	Pot-8	N/A	69-6114-4-12	76N	42W	36	Not 45 years old, reevaluate in 2041
Pottawattamie	Pot-9	N/A	339-22	74N	41W	3	Not 45 years old, reevaluate in 2041
Pottawattamie	Pot-10	N/A	8339-02 (339-02A)	76N	42W	25	Not 45 years old, reevaluate in 2054
Pottawattamie	Pot-11	N/A	7339-06 (339-02B)	76N	42W	25	Not 45 years old, reevaluate in 2054
Pottawattamie	Pot-12	78-03068	ISU Experimental Flume	75N	42W	1	Not significant, reevaluate in 2027
Pottawattamie	Pot-13	N/A	9339-04	75N	42W	2	Not 45 years old, reevaluate in 2045
Pottawattamie	Pot-14	N/A	7339-06 (339--02B)	76N	42W	25	Not 45 years old, reevaluate in 2054
Pottawattamie	Pot-15	N/A	339-23	75N	41W	26	Not 45 years old, reevaluate in 2041
Pottawattamie	Pot-16	N/A	8339-26	76N	40W	31	Not 45 years old, reevaluate in 2044
Pottawattamie	Pot-17	N/A	99-10	76N	40W	30	Not 45 years old, reevaluate in 2045

COUNTY	DNR ID	SHPO INVENTORY #	NAME	TOWNSHIP	RANGE	SECTION	HISTORICAL SIGNIFICANCE
Pottawattamie	Pot-18	N/A	339-108	76N	40W	16	Not 45 years old, reevaluate in 2041
Pottawattamie	Pot-19	N/A	7339-07 (339-109)	76N	40W	20	Not 45 years old, reevaluate in 2054
Pottawattamie	Pot-20	N/A	8339-04 (339-105)	75N	38W	22	Not 45 years old, reevaluate in 2056
Pottawattamie	Pot-21	N/A	69-6114-2-1 (6)	75N	38W	9	Not 45 years old, reevaluate in 2039
Ringgold	Rin-1	N/A	DOT (likely transferred to county???)	69N	30W	6	Not 45 years old, reevaluate in 2037
Sac	Sac-1	N/A	Sac City Rock Dam	88N	36W	24	Unevaluated
Pottawattamie	Pot-14	N/A	7339-06 (339--02B)	76N	42W	25	Not 45 years old, reevaluate in 2054
Pottawattamie	Pot-15	N/A	339-23	75N	41W	26	Not 45 years old, reevaluate in 2041
Pottawattamie	Pot-16	N/A	8339-26	76N	40W	31	Not 45 years old, reevaluate in 2044
Pottawattamie	Pot-17	N/A	99-10	76N	40W	30	Not 45 years old, reevaluate in 2045
Pottawattamie	Pot-18	N/A	339-108	76N	40W	16	Not 45 years old, reevaluate in 2041
Pottawattamie	Pot-19	N/A	7339-07 (339-109)	76N	40W	20	Not 45 years old, reevaluate in 2054
Pottawattamie	Pot-20	N/A	8339-04 (339-105)	75N	38W	22	Not 45 years old, reevaluate in 2056
Pottawattamie	Pot-21	N/A	69-6114-2-1 (6)	75N	38W	9	Not 45 years old, reevaluate in 2039
Ringgold	Rin-1	N/A	DOT (likely transferred to county???)	69N	30W	6	Not 45 years old, reevaluate in 2037
Sac	Sac-1	N/A	Sac City Rock Dam	88N	36W	24	Unevaluated
Sac	Sac-2	N/A	Hagge Park Rock Dam	87N	36W	1	Unevaluated
Sac	Sac-3	N/A	Grant Park Rock Dam	86N	35W	14	Unevaluated
Sac	Sac-4	N/A	Sac City Access Rock Dam	88N	36W	25	Unevaluated
Sac	Sac-5	N/A	Whitehorse Access Rock Dam	87N	35W	34	Unevaluated
Shelby	She-1	N/A	Harlan Waterworks Dam	79N	38W	19	Unevaluated
Shelby	She-2	N/A	DOT (321-27)	79N	40W	16	Unevaluated
Shelby	She-3	N/A	8321-08	79N	40W	9	Not 45 years old, reevaluate in 2043
Shelby	She-4	N/A	321-10(1)	79N	40W	3	Not 45 years old, reevaluate in 2041
Shelby	She-5	N/A	321-10(2)	79N	40W	3	Not 45 years old, reevaluate in 2041
Shelby	She-6	N/A	02-2-F	79N	40W	29	Not 45 years old, reevaluate in 2047
Shelby	She-7	N/A	03-1-F	80N	40W	35	Not 45 years old, reevaluate in 2048
Shelby	She-8	N/A	98-14	79N	40W	31	Not 45 years old, reevaluate in 2044
Shelby	She-9	N/A	69-6114-0-7	78N	40W	34	Not 45 years old, reevaluate in 2045
Sioux	Sio-1	N/A	Hospers Dam	95N	43W	3	Unevaluated
Sioux	Sio-2	N/A	Alton Dam	94N	44W	2	Unevaluated
Sioux	Sio-3	N/A	Hawarden Mill Dam	95N	48W	34	Unevaluated
Sioux	Sio-4	84-00519	460th Street Ford	94N	45W	5 and 8	Not significant
Sioux	Sio-5	84-00520	COE Dam	94N	48W	2	Not significant

COUNTY	DNR ID	SHPO INVENTORY #	NAME	TOWNSHIP	RANGE	SECTION	HISTORICAL SIGNIFICANCE
Story	Sto-3	85-04736	Sleepy Hollow/Hannum's Mill	84N	24W	23	Not significant
Story	Sto-7	85-04737	Veenker Golf Course Ford	84N	24W	33	Not significant
Story	Sto-8	N/A	Soper's Mill Rock Dam	84N	23W	7	Unevaluated
Tama	Tam-4	N/A	Tama Hydraulic Diversion Dam	83N	15W	30	Unevaluated
Taylor	Tay-1	87-00562	Bedford Waterworks Dam	68N	34W	26	Significant
Taylor	Tay-2	87-00563	Fairgrounds Dam	68N	34W	35	Not significant, reevaluate in 2025
Taylor	Tay-3	N/A	98-24	69N	35W	36	Not 45 years old, reevaluate in 2049
Taylor	Tay-4	N/A	12-7 (306-116)	68N	35W	27	Not 45 years old, reevaluate in 2057
Taylor	Tay-5	N/A	05-18	69N	35W	13	Not 45 years old, reevaluate in 2053
Taylor	Tay-6	N/A	7306-09 (306-109)	70N	34W	32	Not 45 years old, reevaluate in 2055
Van Buren	Van-1	89-00641	Bonaparte Lock & Dam	68N	8W	8 and 17	Significant
Wapello	Wap-1	90-09175	Ottumwa Hydro Plant and Dam	72N	14W	25	Significant
Webster	Web-3	N/A	Lehigh Rock Dam	87N	28W	12	Unevaluated
Webster	Web-4	94-02523	Clare Gaging Dam	89N	30W	11	Not significant
Webster	Web-6	94-02524	Trestle Weir	89N	28W	29	Not significant
Webster	Web-7	94-02525	Snell-Crawford Park Fords	89N	28W	17	Not significant
Webster	Web-8	94-02526	Williams Drive Dam	89N	28W	17	Not significant
Webster	Web-9	N/A	Seventh Street Dam	89N	28W	19	Unevaluated
Webster	Web-10	94-02522	Armstrong Park Dam	89N	28W	19	Not significant
Webster	Web-11	N/A	Brushy Creek Dam	88N	27W	34	Not 45 years old, reevaluate in 2043
Winnebago	Wib-1	95-00212	Forest City Dam	98N	7W	2	Not significant
Winneshiek	Win-1	96-00785	Lower Dam	98N	7W	2	Significant
Winneshiek	Win-2	94-00786	Upper Dam	98N	7W	8	Significant
Winneshiek	Win-3	96-00787	Wiest Mill Dam	96N	7W	5	Significant
Winneshiek	Win-4	N/A	Kendallville Dam	100N	10W	33	Unevaluated
Winneshiek	Win-5	N/A	Spillville Mill Dam	97N	9W	19	Unevaluated
Woodbury	Woo-1	N/A	6318-34	89N	46W	35	Not 45 years old, reevaluate in 2043
Woodbury	Woo-2	97-06016	6th Street Dam	89N	47W	27	Not significant
Woodbury	Woo-3	97-06017	4th Street Dam	89N	47W	27	Not significant
Woodbury	Woo-4	97-06018	11th Street Dam	89N	47W	27	Not significant
Woodbury	Woo-5	97-06019	Dace Avenue Dam	89N	47W	33	Not significant
Woodbury	Woo-6	N/A	Dam at the Mouth	89N	47W	30	Unevaluated
Woodbury	Woo-7	N/A	06-19-F (6318-05)	87N	45W	29 and 30	Not 45 years old, reevaluate in 2052
Woodbury	Woo-8	N/A	09-4	89N	45W	6	Not 45 years old, reevaluate in 2056

COUNTY	DNR ID	SHPO INVENTORY #	NAME	TOWNSHIP	RANGE	SECTION	HISTORICAL SIGNIFICANCE
Woodbury	Woo-9	N/A	69-6114-5-2(1)	89N	44W	29	Not 45 years old, reevaluate in 2043
Woodbury	Woo-10	N/A	69-6114-5-2(2)	89N	44W	30	Not 45 years old, reevaluate in 2043
Woodbury	Woo-11	N/A	6318-10	89N	44W	29 and 30	Not 45 years old, reevaluate in 2043
Woodbury	Woo-12	N/A	DOT	88N	46W	6	Unevaluated
Woodbury	Woo-13	N/A	318-40	88N	46W	29	Not 45 years old, reevaluate in 2041
Woodbury	Woo-14	N/A	OA-97-0052-02-24	87N	44W	19	Not 45 years old, reevaluate in 2043
Worth	Wor-1	98-00024	Fertile Mill Dam	98N	22W	34	Significant
Worth	Wor-2	98-00258	Northwood Dam	100N	20W	32	Not significant
Worth	Wor-3	N/A	Elk Creek Game Mgmt Dam 1	99N	22W	11	Unevaluated
Wright	Wri-2	N/A	240th Street Rock Dam	91N	26W	18	Unevaluated
Wright	Wri-3	N/A	Sportsman Area Rock Dam	90N	26W	9	Unevaluated
Wright	Wri-5	N/A	Main Street Dam (Belmond)	93N	24W	25	Unevaluated
Wright	Wri-7	N/A	Three Rivers Trail Dam	91N	26W	19	Unevaluated
Wright	Wri-8	N/A	West Branch Rock Dams	93N	24W	12	Unevaluated

Minimum Materials Needed to Submit for Agency Project Review	
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	Description of why project is needed and its purpose
	Project specifications outlining proposed work
	Identification of all areas that might be affected (staging areas, bank lines, access points, etc.)
	Topographic map showing project location
	Aerial photograph at an appropriate scale that has proposed project boundaries marked
	Project drawings and plans if available
	Application for permits
	Affected dam name, inventory numbers (DNR ID and SHPO Inventory Number if available), and legal location information as well as known historic significance status (if the dam is not on the above list, the status is "unevaluated")
	Any other materials requested by Federal and State agencies

Taking time to organize information and providing all required materials to agencies will make the consultation process easier to navigate.

Example of an Iowa Department of Natural Resources Dam Mitigation Scope of Work (Cultural Resource Work Highlighted) *

Item #	Item	Process Step in this Guide
Phase 1: Exploratory Phase		
1	Gather existing plans, prior listening reports, infrastructure/utility locations, develop project base map, and review process recommendations and options in Chapter 10, Dam Mitigation, or Iowa's River Restoration Toolbox.	1
2	Conduct land and bathymetry survey of project vicinity, including entire impoundment to free-flowing area upstream.	1
3	Produce upstream sediment characterization of removal scenario and identify upstream channel restoration needs for steady state sediment transport using Chapter 10, Dam Mitigation, of Iowa's River Restoration Toolbox and Chapter 5, geomorphic channel design.	1
4	Apply for Joint Permit and conduct application review with U.S. Army Corps of Engineers and Iowa DNR Floodplains, environmental review with Iowa DNR Sovereign Lands. Provide three potential project alternatives in addition to a "do nothing" alternative.	2
5	Develop project area for most adverse scenario.	3
5	Conduct wetland as well as threatened and endangered species assessments.	4
6	Conduct partner meetings. Kick-off meeting, plus three additional face-to-face meetings, and four conference calls.	4
7	Conduct two public input meetings.	4
8	Prepare a mussel reconnaissance report for potential footprint area.	4
9	Deliver to Iowa DNR and U.S. Army Corps of Engineers preliminary Phase I cultural review report by qualified architectural historian and archaeologist team to determine NRHP eligibility of potentially affected dam and other potentially significant properties that might be adversely affected.	4
10	Prepare an analysis report that identifies decision issues, including but not limited to, existing cultural conditions and NRHP eligibility, aquatic life considerations, physical conditions, land ownership, infrastructure purposes of dams, flood issues, material availability and costs, constraints identified, navigation, safety, regulatory implications, and community values and goals for the river in the project vicinity.	5
11	Initiate a National Environmental Policy Act (NEPA) review. Determine lead federal agency for NEPA and Section 106 process, submit analysis and cultural reporting to agency staff and project partners.	5
12	Develop up to two conceptual design renderings, with costs estimated to within +/- 25%, and develop a table rating effectiveness of each option at addressing goals and constraints identified in analysis report.	5
13	Facilitate decision process. Present rendering and decision table that ranks effectiveness of alternatives from various goals with groups of stakeholders (regulators, local historic preservation commission, local interested public, angling groups, nearby landowners, paddlers, campers, business interests, agency partners, conservation board members, etc.) via online survey. Report overall results and results within interest groups.	5
Phase 2: Preliminary Design through Construction Drawings		
1	Deliver 30% design plans. Refine the preferred alternative selected by Dam Owner in consultation with project partners. Develop conceptual streambank restoration and water recreation treatments.	5
2	Create flood model, refine for zero rise.	5

Example of an Iowa Department of Natural Resources Dam Mitigation Scope of Work (Cultural Resource Work Highlighted) *		
Item #	Item	Process Step in this Guide
3	Develop APE including excavation and fill areas for selected project and develop scope Phase II review by qualified architectural historian.	6
4	Complete Phase II cultural review report assessing adverse effects, identify possible avoidance measures, and/or potential mitigation alternatives. OR, complete cultural resource mitigation.	6-8
5	Deliver 70 % design plans.	9
6	Complete NEPA certifications with Section 106 and SHPO concurrence and no rise certification, if needed.	9
7	Finalize Joint Permit application and include drawings, cultural reports, and clearances, zero rise certification, and mussel reports to Iowa DNR Floodplains, Iowa DNR Sovereign Lands, and US Army Corps of Engineers Section 404 regulatory group, etc. Communicate with regulators. Adjust plans as needed.	10
8	Finalize signed construction drawings, specifications, engineer's opinion of probable cost, and bid documents developed according to county procedures.	10
9	Conduct mussel relocation.	10



This is only an example of a dam mitigation scope of work. Each project is different, and it is likely that items on this list might not be applicable to a given project or a project might require additional items not present on this example. This example intends to alert users to potential project management steps necessary for successful dam mitigation projects.