



Iowa Department of Natural Resources
Flood Plain Management Program

FPID# _____

Determining if a Flood Plain Permit is Required – Earth Embankment Dams

This form has been developed to help you determine if a flood plain permit will be required from the Iowa DNR. You must also obtain approval from the Iowa DNR Sovereign Lands Program (515) 725-8464, the U.S. Army Corps of Engineers (309) 794-5371, and your local flood plain manager (if applicable) before beginning construction. You are legally responsible if you proceed with a project without obtaining all required permits.

When is a DNR Flood Plain Permit Required?

The thresholds for when a Flood Plain Permit from this department is required are outlined in Iowa Administrative Code 567-71.3 and are listed below. The thresholds are primarily based on both dam height and water storage volumes. The height of a dam is defined as the vertical distance from the top of the dam to the lowest elevation at the downstream toe of the dam, typically the streambed.

In rural areas:

- a. Any dam designed to provide a sum of permanent and temporary storage exceeding 50 acre-feet at the top of dam elevation, or 25 acre-feet if the dam does not have an emergency spillway, and which has a height of 5 feet or more.
- b. Any dam designed to provide permanent storage in excess of 18 acre-feet and which has a height of 5 feet or more.
- c. Any dam across a stream draining more than 10 square miles.
- d. Any dam located within 1 mile of an incorporated municipality, if the dam has a height of 10 feet or more, stores 10 acre-feet or more at the top of dam elevation, and is situated such that the discharge from the dam will flow through the incorporated area.

In urban areas:

Any dam which exceeds the thresholds in 71.3(1) "a," "b" or "d."

Low head dams:

Any low head dam on a stream draining 2 or more square miles in an urban area, or 10 or more square miles in a rural area. For additional information see low head dam guidance documents.

Modifications to existing dams:

Modification or alteration of any dam or appurtenant structure beyond the scope of ordinary maintenance or repair, or any change in operating procedures, if the dimensions or effects of the dam exceed the applicable thresholds in this rule. Changes in the spillway height or dimensions of the dam or spillway are examples of modifications for which approval is required.

Maintenance of preexisting dams:

Approval shall be required to maintain a preexisting dam as described in 567—Chapter 73 only if the department determines that the dam poses a significant threat to the well-being of the public or environment and should therefore be removed or repaired and safely maintained. Preexisting dams are subject to the Iowa DNR dam safety inspection program as set forth in 567—Chapter 73.

Please note that public road embankments with culverts which impound water only in temporary storage are exempt from the requirements of this rule. However, the road and culvert may need to be reviewed under Department rules IAC 567-71.1 (Bridges and Culverts).

The following information must be completed to make the determination:

Location (in Quarter-Section-Tier-Range format):	Qtr.	Sec.	T	N	R
County:	Stream(s):				
Located within a corporate limit? <input type="checkbox"/> Yes <input type="checkbox"/> No					
If Yes, provide street address:					

As noted above, the two key items that are needed to determine if a flood plain permit is required for an earth embankment dam are the potential water storage volumes and height of the earth embankment dam. Topographic mapping of the pond area is required to accurately determine the water storage volume. Short of obtaining topographic mapping, the water storage volume can be calculated with the equation shown below by estimating the surface area of the pond and the maximum depth of the water at the principal spillway crest, the emergency spillway crest, and the top of dam.

$$\text{Water storage volume (acre-feet)} = \text{maximum depth (feet)} \times \text{surface area (acres)} \times 0.4$$

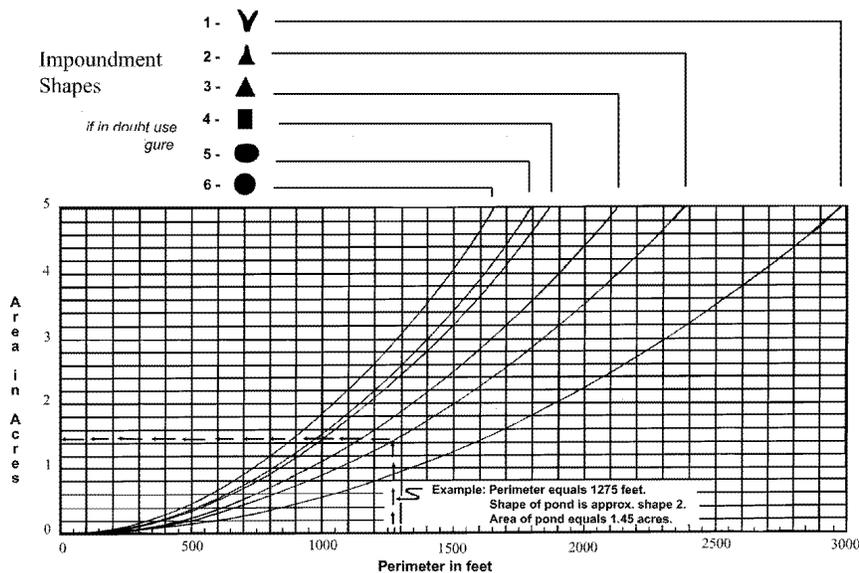
The surface area can be estimated using the technique shown below.

Estimate Farm Pond Area

Using the listed procedure, this chart can give you a quick estimate of approximately how many acres a pond would cover.

- Stake out the approximate edge of the pond by following the contour at the planned water surface.
- Measure the perimeter of the pond or walk around the perimeter of your pond, counting the number of paces. Considering that one pace is approximately 3 feet, calculate the total number of feet in the perimeter of the pond.
- Find the shape on the graph that most resembles the shape of your pond. If you are unsure, use the larger numbered shape. Follow the dotted line from the shape of your pond to the solid line on the graph.
- Find the spot on the solid line that corresponds to your measured perimeter. Cross reference and read the "Area in Acres" axis to determine your pond's area.

Pond Area Estimator



In order to check all approval thresholds, use the table below to determine the water storage volumes at the level of the principal spillway, at the level of the emergency spillway, and at the top of dam.

Pool Level	Surface Area in acres (a)	Max. Depth in feet (b)	Calculated Water Storage (acre-feet) (a) x (b) x 0.4
Principal Spillway			
Emergency Spillway			
Top of Dam			

Using the calculated water storage volumes in the table and the estimated maximum height of the earth embankment dam, does the earth embankment dam exceed any of the previously listed approval thresholds?

Yes No

If you answered no, then a Flood Plain Permit from this Department will not be required.

If you answered yes, then a Flood Plain Permit from this Department will be required.

Note: If it is unclear as to whether your project will require a flood plain permit from this Department, please call Jon Garton with the Iowa DNR at (515) 725-8360 to discuss your project. It will be necessary to have the following information available during the phone call.

- Project location in section - township - range format.
- An estimate of the proposed pond area in acres. The pond area estimator can be used to estimate the surface area of the pond.
- An estimate of the maximum or average depth of the proposed pond.

Submitting the information:

- If you answered “No” to the question “Is a DNR Flood Plain permit needed?” AND you wish to have written confirmation from this Department that a DNR Flood Plain Permit is not required, you must submit copies of a completed and signed Joint Application Form (Form #36 - *Protecting Iowa Waters*) to the DNR Flood Plain Management Program, to the DNR Sovereign Lands Program, and to the U.S. Army Corps of Engineers, according to the instructions for the Joint Application Form (can be found at <http://floodplain.iowadnr.gov/>).
 - For the Flood Plain Management Program, the required submittals (in addition to the Joint Application Form) are this form and a project location map.
 - Please note that the DNR Sovereign Lands Program and the U.S. Army Corps of Engineers may require additional information to determine if their permits are required.
 - Your project may also need a permit from your local (city or county) permit authority. The local permit may require technical concurrence from the DNR Flood Plain Management Program.
- If you answered “Yes” to the question “Is a DNR Flood Plain permit needed?” you will be required to secure a flood plain permit from the DNR Flood Plain Management Program prior to constructing the project. To apply for a flood plain permit, please reference form 542-1015 titled “Applying for a Flood Plain Permit – Earth Embankment Dams” (can be found at <http://floodplain.iowadnr.gov/>) and follow all directions contained within. All required information in the referenced document must be submitted along with the completed Joint Application Form at the time of application. **Applications submitted without this information will be considered incomplete.**