



Iowa Department of Natural Resources
Flood Plain Management Program
Channel Changes Guidance Document

The term “**channel changes**” means either altering the location of a stream or a substantial change of the size, slope of the bank, or how fast the stream flows.

This document is meant to assist you in preparing to apply for a permit and also to guide you through the application process. The first step in the permitting process should be to screen your project in the PERMT portal. Our system will screen your site to see if an application is in fact needed. If it is required, then proceed with collecting the information needed for applying as described below.

For more information or assistance, visit our [website](#) or contact our Floodplains Helpline at 515-725-8415 & floodplain-help@dnr.iowa.gov.

What form of documentation should I upload when applying in PERMT?

Applications should be filled out through [PERMT](#). While completing the application, please provide documentation with enough information for an engineer to review the project and make a reasonable determination on it. During Step 4 of the application, you must upload supporting documentation as follows:

Option 1 if being completed by a landowner for small projects:

- Location of proposed channel change(s) on a recent aerial map
- Cross sections of floodplain that include stream, streambank and surrounding floodplain around proposed channel change location(s)
- Completed Summary of Engineering Data (2nd page of this document)
- Spreadsheet of adjoining landowners including the names and addresses of landowners located immediately upstream, downstream and across the stream from the project site. (Iowa Code requires adjacent landowners to be notified of a channel change. They have 30 days upon receipt of notification to submit comments. DNR permits cannot be issued until the comment period has closed.)

OR

Option 2 if being completed by an engineer for large projects:

- Engineering plans, calculations and analysis for the project that are prepared and certified by a professional engineer licensed in the State of Iowa. Submittal should include:
- Documentation: should include data inputs, assumptions, summary of results, and references
- Modeling: hydrologic and hydraulic models that show the effects and impacts of the proposed project. You can submit different types of models depending on the project, but the preferred models are the Iowa Bridge Backwater Program (IBH) or HEC-RAS.
- Spreadsheet of adjoining landowners including the names and addresses of landowners located immediately upstream, downstream and across the stream from the project site. (Iowa Code requires adjacent landowners to be notified of a channel change. They have 30 days upon receipt of notification to submit comments. DNR permits cannot be issued until the comment period has closed.)

What does my supporting documentation need to demonstrate?

- *Protected Streams:* Ensure that the project is not located in a protected stream. No channel changes are allowed along protected streams, and spoil material shall not be placed in the floodway. (*List of protected streams can be found in Iowa Code 567-72.50(455B)*).
- *Wildlife protection:* The channel change shall not have a significant adverse effect on fish and wildlife habitat or public rights to use of the stream. Conservation easements may be required to mitigate potential damages to the quality of water, fish and wildlife habitat, recreational facilities, and other public rights.

- *Small watersheds*: Streams with a drainage area under 100 square miles cannot have a reduction in length of over 25% through a contiguous land parcel.
- *Large watersheds*: Streams with a drainage area of over 100 square miles cannot have a reduction in length of over 10% through a contiguous land parcel.
- *Capacity*: The excavated channel shall have a discharge capacity equal to or greater than the existing channel. Excessive channel excavation will not be permitted.
- *Alignments*: The alignments and dimensions of the excavated channel must provide a smooth transition between the existing and the excavated channel.
- *Velocities*: Velocities in the excavated channel shall not cause excessive erosion of the channel or banks. Energy dissipation structures, channel and bank protection or other engineering measures may be required to eliminate excessive erosion of the channel or banks.
- *Erosion*: The tillage of land along the reach of a straightened stream shall be prohibited or modified when necessary to hold soil erosion to reasonable limits.
- *AFO Encroachment*: The minimum separation between a non-major water source and a confinement feeding operation is 500 feet. This distance increases to 1000 feet for major water sources. Changes cannot be made of a water source channel to make it closer than the above distances.

Summary of Engineering Data - Channel Changes

This sheet is designed to provide an opportunity to detail important information needed to obtain a floodplain permit. Fill out as much as you can based on your own measurements or survey data accessible to you. All measurements should be done in feet unless otherwise specified.

	Preconstruction		Proposed	
Channel length:	_____	ft	_____	ft
Channel Slope:	_____	ft/ft	_____	ft/ft
Channel Depth:	_____	ft	_____	ft
Bottom Width:	_____	ft	_____	ft
Channel Side Slope:	_____	H:V	_____	H:V
Bankfull Channel Area*:	_____	sq ft	_____	sq ft
Bankfull Channel Velocity*:	_____	ft/sec	_____	ft/sec
Bankfull Discharge*:	_____	cfs	_____	cfs

*If there are variations in channel dimensions, calculate all values using the smallest dimensions

Definition of "bankfull": vertical measured distance from bottom of channel to top of bank.