

Categorical Permission Alteration Description – 14. Horizontal Directional Drilling

The categorical permission covers the installation of pipes installed via HDD. In general, the entry and exit points of the HDD pipe should be located no less than 300 feet from the landside toe of the levee. The pipeline should pass no less than 50 feet beneath the levee's landside toe. If the top of the pipe is less than 50 feet beneath the current channel invert, a scour analysis is required. This analysis must show that the maximum scour depth will not expose the buried pipe. The total area of disturbance must not exceed 5 acres.

Detailed subsurface investigations should be performed along the proposed directional drilling alignment to determine soil stratigraphy. Pertinent information may also be obtained from the design documents of the flood risk management project.

Other information necessary for USACE review include:

- Pipe material (e.g., concrete, steel), length, diameter, wall thickness
- Proposed method for monitoring drilling fluids
- Proposed method for monitoring ground surface movement (settlement or heave) caused by the drilling operation

The pumping rate, pressure at the drill rig, pressure in the annular space behind the drill bit and viscosity of drilling fluid must be monitored during drilling. In addition, as appropriate, density during the pilot bore, back reaming, and/or pipe installation stages must be monitored. Drilling mud pressure in the borehole should not exceed levels that can be supported by the levee foundation soils to prevent heaving or hydraulic fracturing of the soil.

Positive closure devices must be included on pipes that carry liquids and gasses and also penetrate the foundation of the levee.

A contingency plan must be submitted with the permit application and, at a minimum, include instructions for the following:

- How to contain, clean up, and repair areas subject to spills of drilling or hydraulic fluids.
- How, when, and to whom to forward evidence of impending danger to the flood risk management project.
- Who is responsible for monitoring the river stage.
- Whom to contact for all other levee-related emergency notifications.

The requester is responsible for the restoration of a levee damaged by hydrofracture or any other aspect of the directional drilling operation. Plans for restoration or repair work must be approved before the work begins.

If a drill hole beneath a levee must be abandoned, the hole should be backfilled in accordance with all appropriate technical guidance.

Categorical Permission Alteration Checklist – 14. Horizontal Directional Drilling

Please note, the following checklist is intended for planning purposes only and reflects information that USACE reviewers will look for when considering a Section 408 request for agriculture and landscaping under the Categorical Permission. To be reviewed under the Categorical Permission, the proposed project must adhere to all requirements of the Categorical Permission, including the full alteration description (see previous page). The plans and narrative project description should reflect this information.

If the top of the pipe is less than 50 feet beneath the current channel invert, a scour analysis showing that the maximum scour depth will not expose the buried pipe, has been submitted:

Maximum total area of disturbance is 5 acres:

The following information is included in the application:

Pipe material (e.g., concrete, steel), length, diameter, wall thickness:

Proposed method for monitoring drilling fluids:

Proposed method for monitoring ground surface movement (settlement or heave) caused by the drilling operation:

The pumping rate, pressure at the drill rig, pressure in the annular space behind the drill bit and viscosity of drilling fluid will be monitored during drilling:

The density during the pilot bore, back reaming, and/or pipe installation stages will be monitored, as appropriate:

Will pipes penetrate the levee foundation? Yes No

If yes, positive closure devices will be included on the pipes:

Contingency plan (including the following information) submitted:

How to contain, clean up, and repair areas subject to spills of drilling/hydraulic fluids:

How, when, and to whom to forward evidence of impending danger to the flood risk management project:

Who is responsible for monitoring the river stage:

Whom to contact for all other levee-related emergency notifications:

Any work occurring beneath the levee embankment? Yes No

Any work ≤50 feet beneath the channel invert? Yes No