Bundesanstalt für Wasserbau
Federal Waterways Engineering and Research Institute

BAW Geotechnik

www.baw.de

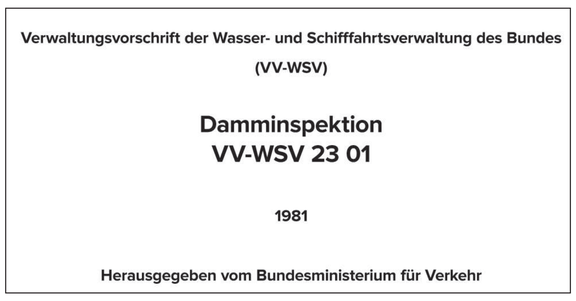
Embankment dam stability

Many regulated rivers and canals among the federal waterways in Germany are confined by embankment dams. In these cases, the water level of the rivers and canals is often significantly higher than the surrounding ground surface. Due to the large water volume which would be set free in case of dam failure, embankment dams always pose a threat to the surrounding terrain. Therefore, it must be ensured that these embankment dams, which are permanently subject to water loads, will not fail. For this purpose, dam stability has to be verified considering the specific conditions of each case. Frequent controls as well as repair and maintenance work ensure permanent embankment dam stability.

Lateral embankment in the area of a water impoundment at the Upper Rhine

Regulations

For federal waterways, two fundamental regulations on embankment dam stability exist.


Verwaltungsvorschrift der Wasser- und Schifffahrtsverwaltung des Bundes
(VV-WSV)

Damminspektion
VV-WSV 23 01

1981

Herausgegeben vom Bundesministerium für Verkehr

For embankment dam control:
This administrative regulation (embankment inspection) regulates the execution of embankment control with the objective to recognize damages early and perform necessary measures in time.


Bundesanstalt für Wasserbau
Kompetenz für die Wasserstraßen

Merkblatt
Standsicherheit von
Dämmen
an Bundeswasserstraßen
(MSD)

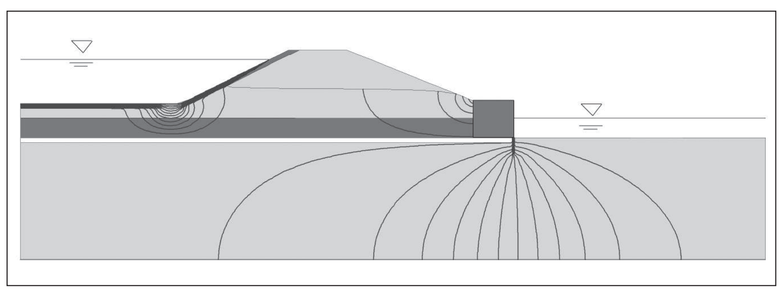
Ausgabe 2011

For embankment dam stability:
This code of practice (embankment dam stability of German inland waterways) regulates the performance of embankment dam stability verification particularly considering percolation through the embankment. It is a supplement to the relevant DIN standards and other general technical codes.

Verification of the safty against piping according to MSD

For the assessment of the piping risk at structures integrated in waterway embankments, the MSD suggests a special procedure which particularly considers the geometrical and geohydraulical conditions of the area around the structure.

The procedure is based on the numerical calculation of the flow through the embankment and through the soil in the area around the structure under unfavourable geohydraulical conditions.



Bank stability is verified if, under these unfavourable geohydraulical conditions,

- safety against hydraulic heave and uplift as well as against slope failure and
- internal erosion safety of the soil are sufficient.

Training

The BAW Federal Waterways Engineering and Research Institute) regularly offers training on embankment inspection and embankment stability for the WSV (Federal Waterways and Shipping Administration).

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