

Two-stage ditch

Two-stage ditches are ditches that have flood plains surrounding the main channel. The structure mimics the features of a natural stream and is therefore more sustainable. With two-stage ditches, natural processes reducing nutrient loads from the water are also possible.

Two-stage ditches reduce erosion and flooding. It consists of a main channel, where water flows when water volume is low, and of floodplains where water has more room to flow in times of increased water volume.

Vegetation in floodplains prevents erosion and removes nutrients from the water.

Application

Two-stage ditch is more space demanding than common agricultural ditches, which reduces the size of cultivated field. However, usually the additional space needed is comparable to usage of buffer zones. Increase in biodiversity in the area is a benefit from the flood plains surrounding the ditch.

Maintenance

- Less maintenance than in common ditches

Economics

- More expensive to construct than common ditches but the maintenance costs are lower

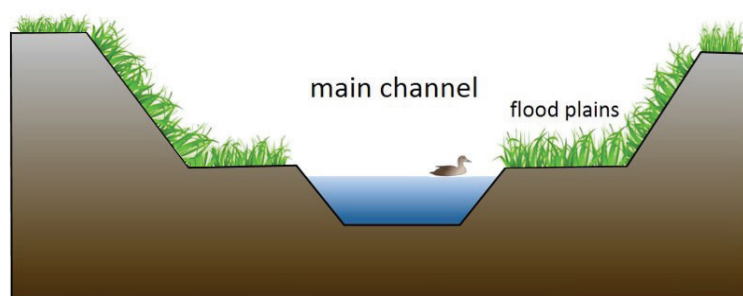


Illustration: Heidi Nurminen, TUAS

Further information:

[Two-stage channel design](#)

[Baltic Deal - Two stage drainage ditch](#)

Sources: 1) Kulmala, A. 2012. Balticdeal, two stage drainage ditch. Searched 3/2018 ([Link](#))

2) USDA. 2007. Stream Restoration Design National Engineering Handbook. Searched 3/2018 ([Link](#))