

# Option 2 - Walls and Embankments

## Option Overview

This option involves the provision of new walls and embankments along the Water of Ruchill, River Earn and River Lednock river corridors. The heights of the required defences are determined by predicted flood levels, local ground levels and calculated freeboard (an allowance for uncertainty / safety factor). The images in figure 9 and 10 show the typical construction of these types of defences.

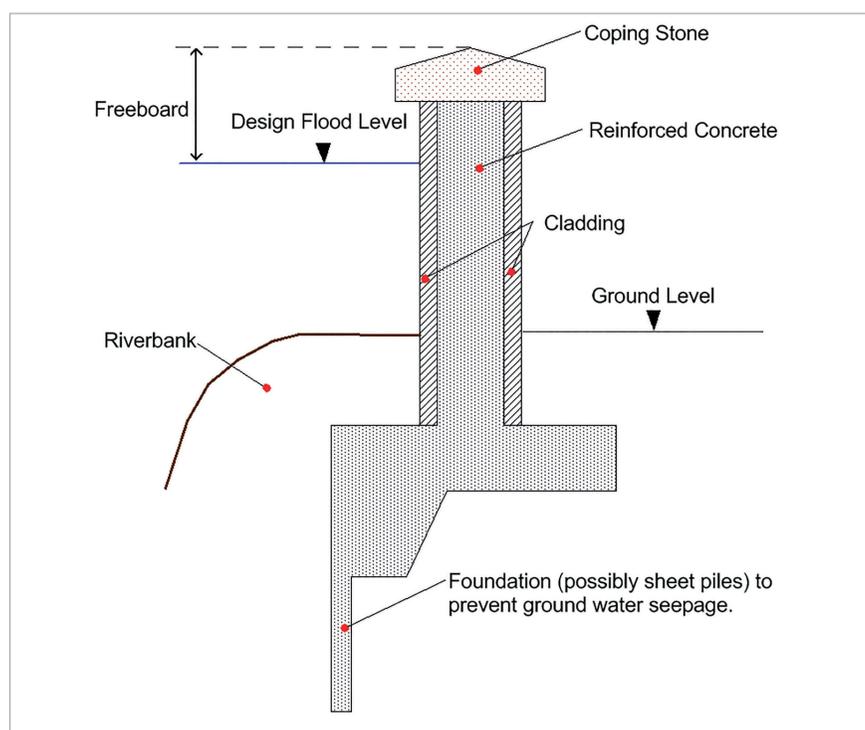


Figure 9: Typical Flood Wall Detail.

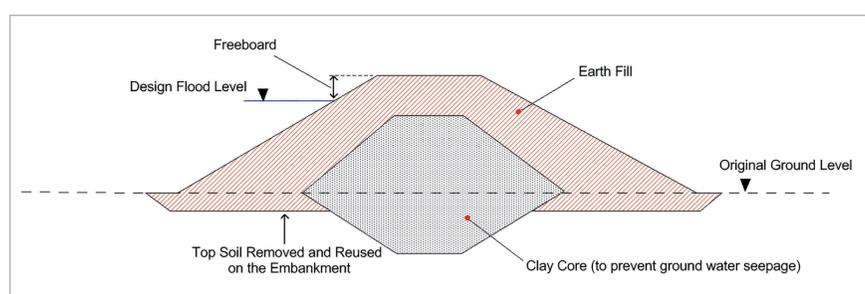


Figure 10: Typical Flood Embankment Detail.

## Option Assessment

A flood scheme built to a 1 in 200 years standard of protection would require walls and embankments varying in height from 0.25m to 1.5m, with a maximum of 2.2m in localised areas. Flood embankments and walls can be built to these heights and the construction and design methods are well understood. These types of defences are therefore technically viable.

## Option Cost and Benefits

The estimated cost of this option, which would include 1km of embankments and 3km of walls, built to the 1 in 200 year standard of protection is **£24.5 million**. The overall calculated benefit/cost ratio for this option is **2.0**.

The flood defences must also include flood gates so that access can be maintained. An initial plan of the proposed defences is shown in figure 11.

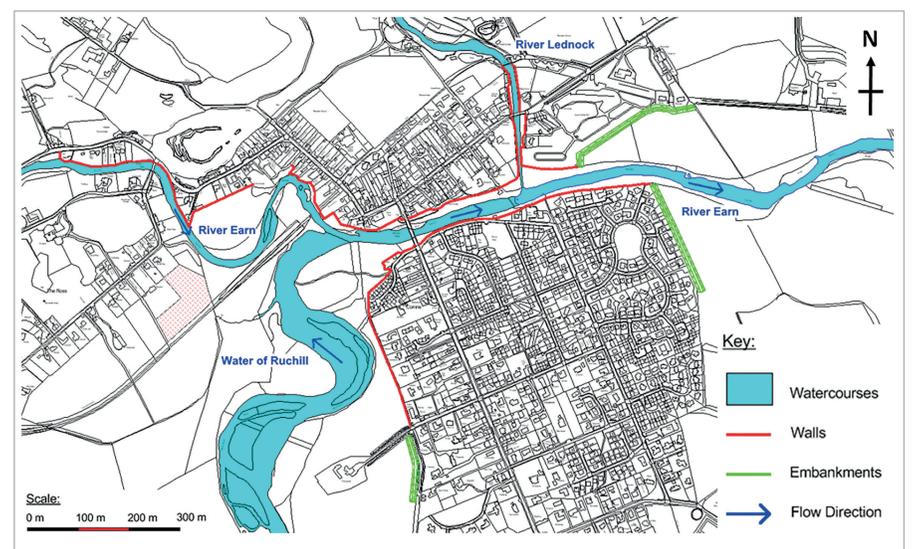


Figure 11: Indicative locations of flood walls and embankments.

### Advantages

- Simple and familiar forms of construction.
- Simple design.
- Provides a 1 in 200 year standard of flood protection.
- No potential hazard from new large storage areas located upstream.
- Environmental impacts will be much less when compared with other options.
- Has a benefit cost ratio greater than 1.0

### Disadvantages

- Possible negative visual impact to the village and residents in some locations, which would need to be mitigated.
- Extent of defences in the village could be significant.
- Access will have to be modified in some locations.

This option is therefore technically and economically viable and could provide an effective solution to manage the risk of flooding.