

# 5: Recommended Outline Design (1 of 2)

## Outline Design

Following an assessment and appraisal of various potential actions, the proposed flood scheme includes the provision of new flood walls and embankments, culvert improvements, a flood storage area and property resilience measures.

The Council's consulting engineers, RPS, have developed and recommended an outline design for the proposed flood scheme.

The proposed outline design consists of:

- Flood walls and embankments along the South Queich
- Upsizing of the Clash Burn culverts along Hopefield Place, Smith Street and Nan Walker Wynd
- Flood Storage upstream of Kinross Services
- A small flood bund at The Myre
- Property Flood Resilience Measures (PFR) along Loch Leven

The proposed outline design is illustrated in Figure 7 and the flood cells are described in more detail below.

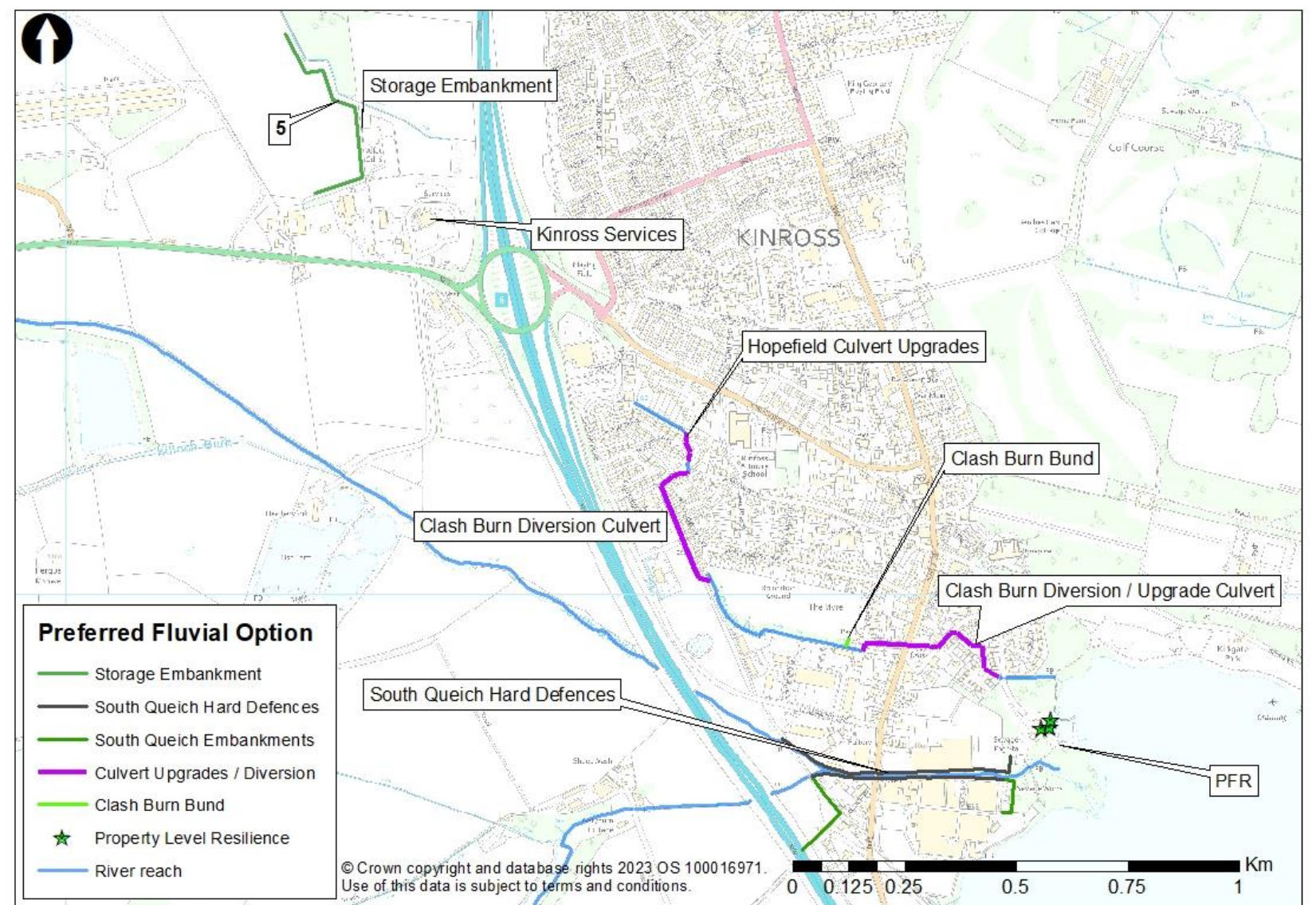


Figure 7 Recommended Outline Design

## Proposed Outline Design – Flood Defences on the South Queich (Flood Cell 1)

The proposed outline design for the South Queich includes new flood walls and embankments (see Figure 8). The layout has been carefully chosen to minimise disruption to the natural and built environment.

The heights of the flood defences have been minimised to reduce the visual impact of the scheme throughout the town, while also allowing for a minimum 1 in 200 year (0.5% AEP) standard of flood protection with a suitable allowance for uncertainty (freeboard). The flood wall foundations will be designed to allow them to be raised to adapt to future climate change.

Flood walls (see Figure 9) provide a barrier to floodwater where space is restricted as is the case for much of the site. Walls will be formed of steel sheet piles to ensure stability and prevent groundwater seepage, depending on ground conditions. The visible section of the flood wall will be finished in a variety of different materials e.g., steel, a concrete finish or brick cladding, depending on the location.

Flood embankments (see Figure 10) are a cost effective form of defence where there is sufficient space to construct them. They are usually constructed from earth with a clay core which extends underground to prevent flood water seeping through, or underneath them. The finished embankments are covered in topsoil and are vegetated to give them a natural appearance and complement their surroundings.

A secondary flood assessment has been undertaken to consider surface water flood risk. The construction of the flood defences will restrict surface water flow paths returning to the watercourse. This assessment found a minor increase in surface water ponding that can predominantly be alleviated via back of flood wall drainage. However within the vicinity of the Koronka site, the surface water impact was greater and requires the construction of a pumping station to mitigate surface water flood risk.

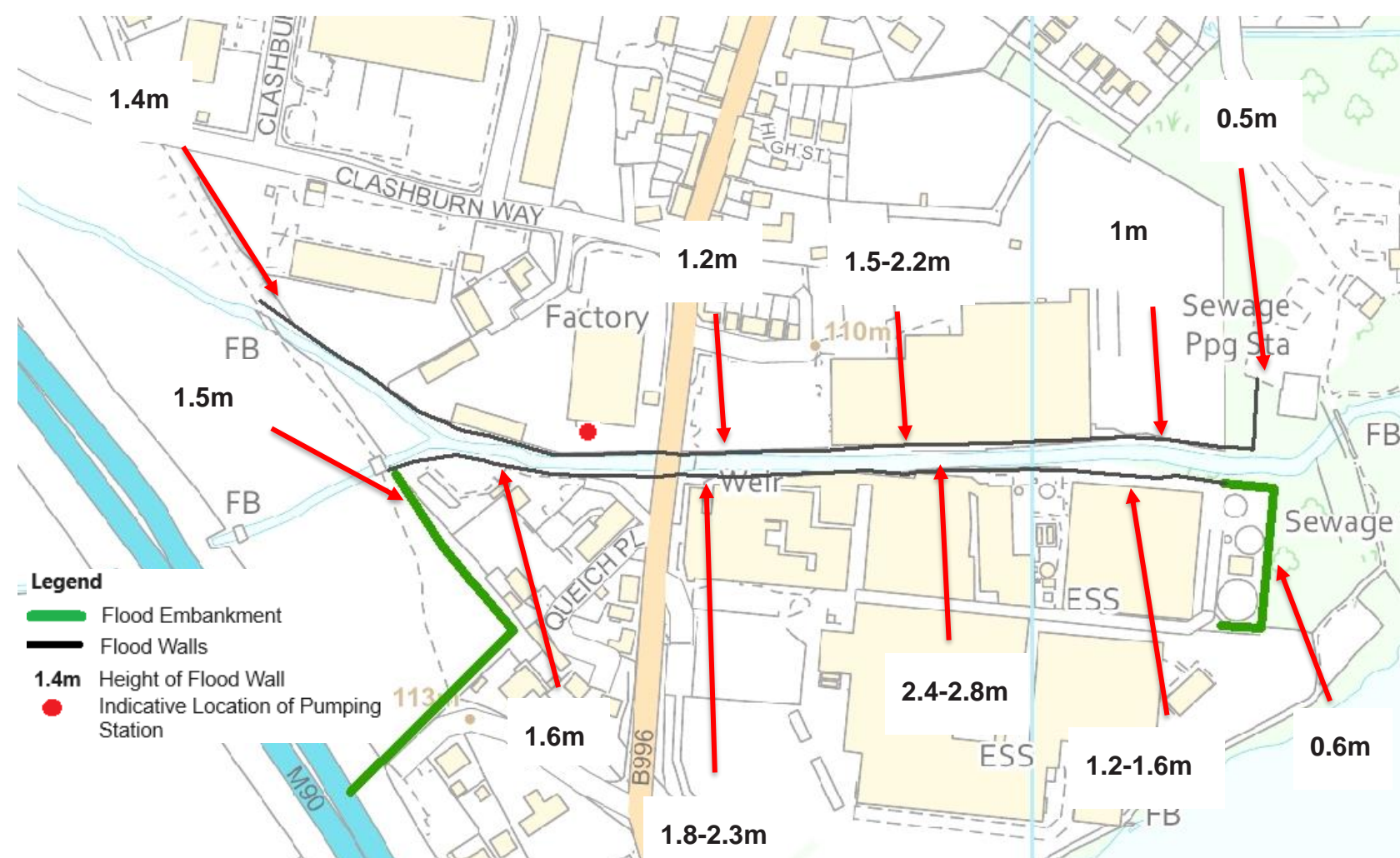


Figure 8 Flood Defence Arrangement on the South Queich with Approximate Heights



Figure 9 Example of a Flood Wall



Figure 10 Example of a Flood Embankment