

# LANGHOLM

## Flood Protection Scheme



### Introduction to Community Engagement Event

#### The aims of this event are:

- Outline the steps taken to date to develop the Flood Protection Scheme
- Provide details on the Preferred Option to be taken forward
- Outline the Flood Order Process and Next Steps
- Engage with the Community to assist with the development of a Preferred Scheme

Board 1: Introduction

Board 2: Summary and Feedback from Community Engagement

Board 3: Long List to Short List

Board 4: Option 1 – Direct Defences

Board 5: Option 2 – Direct Defences and Overflow Channel

Board 6: Option 3 – Direct Defences and Realigned Channel

Board 7: Overview of Preferred Option

Board 8: Construction Constraints

Board 9: Next Steps and Flood Order Process

Please feel free to view the boards and information on display and ask any questions of the Project Team.

There is a short questionnaire for attendees to complete which will enable us to include the comments and views of the local community in the development of the Scheme.

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### Summary and Feedback from Community Engagement

The first event was held in June 2019.

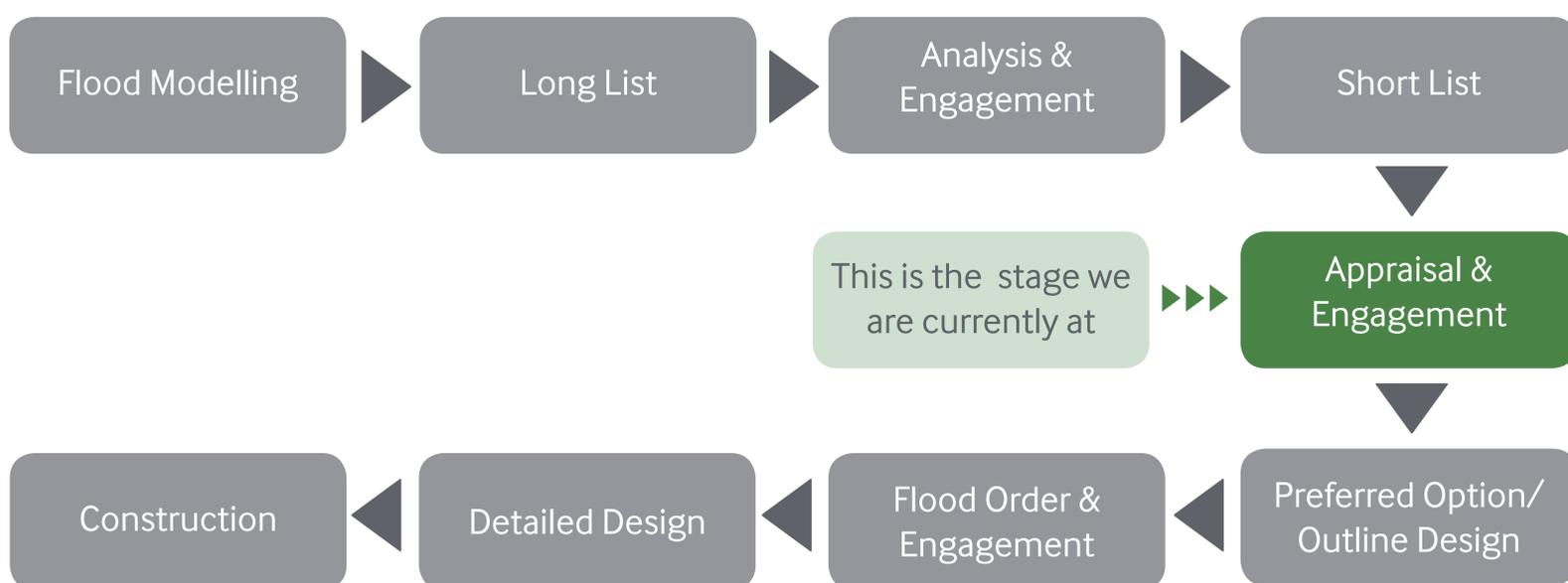


96 people attended the event over three days and 57 questionnaires were completed. The feedback was reviewed with the following main points:

- **95%** wanted to see a Flood Protection Scheme progressed
- **94%** agreed with the approach being taken to develop a Scheme
- **94%** agree all options to address the flooding had been included and considered.

A copy of the feedback document from the first event, which included comments, questions and responses, is available from the Project Team.

### The Flood Order Process



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### Long List to Short List

Below is a list of all the potential flood defence measures which were looked at. Those which were considered feasible for further analysis were taken forward to the short list.

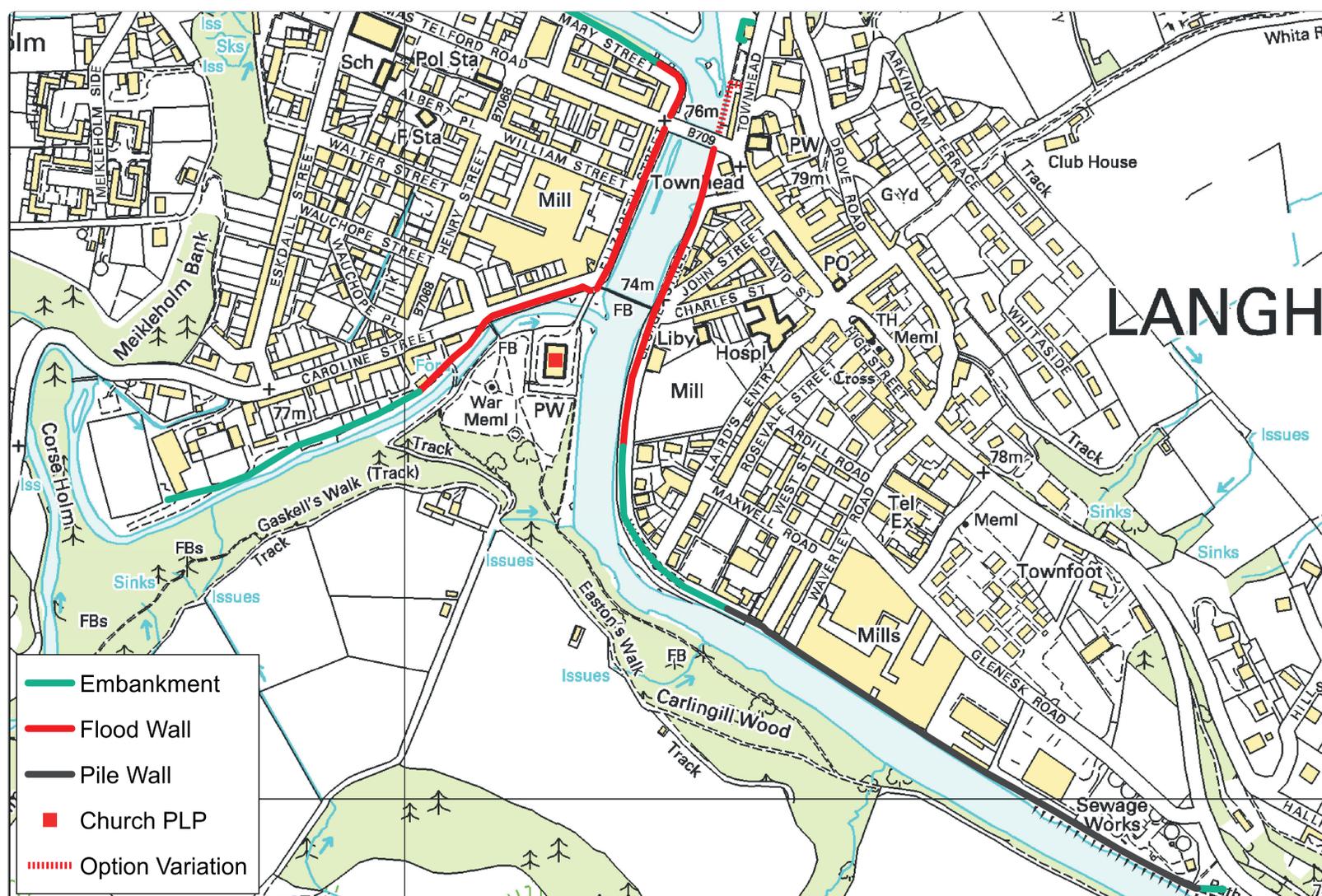
Action	Description	Feasibility
Upstream Storage	Storage areas reduce the peak flows and therefore flood risk.	Storage was ruled out as it was not economically viable.
Improve Conveyance	<b>Works to Alter the River Channel</b> Stretches of the river channel may be suitable for the addition of a two stage channel, an overflow channel or channel realignment.	Found to have the potential to lower flood levels in combination with other measures.
	<b>Sediment Management</b> Removal of built up sediment can increase the capacity of the channel.	Found not to be technically feasible as the volume of sediment is relatively small when compared to the volume of the watercourse.
Direct Defences	Flood walls and embankments could be used throughout the study area to reduce flood risk.	Technically and economically feasible.
Property Level Protection (PLP)	PLP can be used to provide protection where direct defences are not suitable. PLP will not be considered here as a standalone action, however it may be used in combination with other actions.	Technically and economically feasible but would only provide partial protection.
Natural Flood Management (NFM)	<b>Agricultural and Upland Drainage Modification</b> Blocking man-made drains in strategic locations and managed tree felling with consideration to flood risk.	Whilst NFM is not a suitable action in the short term, it is recommended that it is investigated further as a long term solution.
	<b>Catchment Woodlands</b> Studies have shown that woodlands can be effective in reducing runoff as they intercept precipitation via their tree canopy and increase infiltration into the ground through their root system.	
	<b>Floodplain</b> Woodland that is located within the floodplain of the river and acts as a barrier to the movement of water.	
	<b>Instream Structures</b> These have the potential to reduce flood flows by slowing the water down and forcing it out into the floodplain.	

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### Option 1 - Direct Defences



#### Advantages

Provides a 0.5% AEP (1 in 200 year) standard of protection

Tried and tested flood defence solution

#### Disadvantages

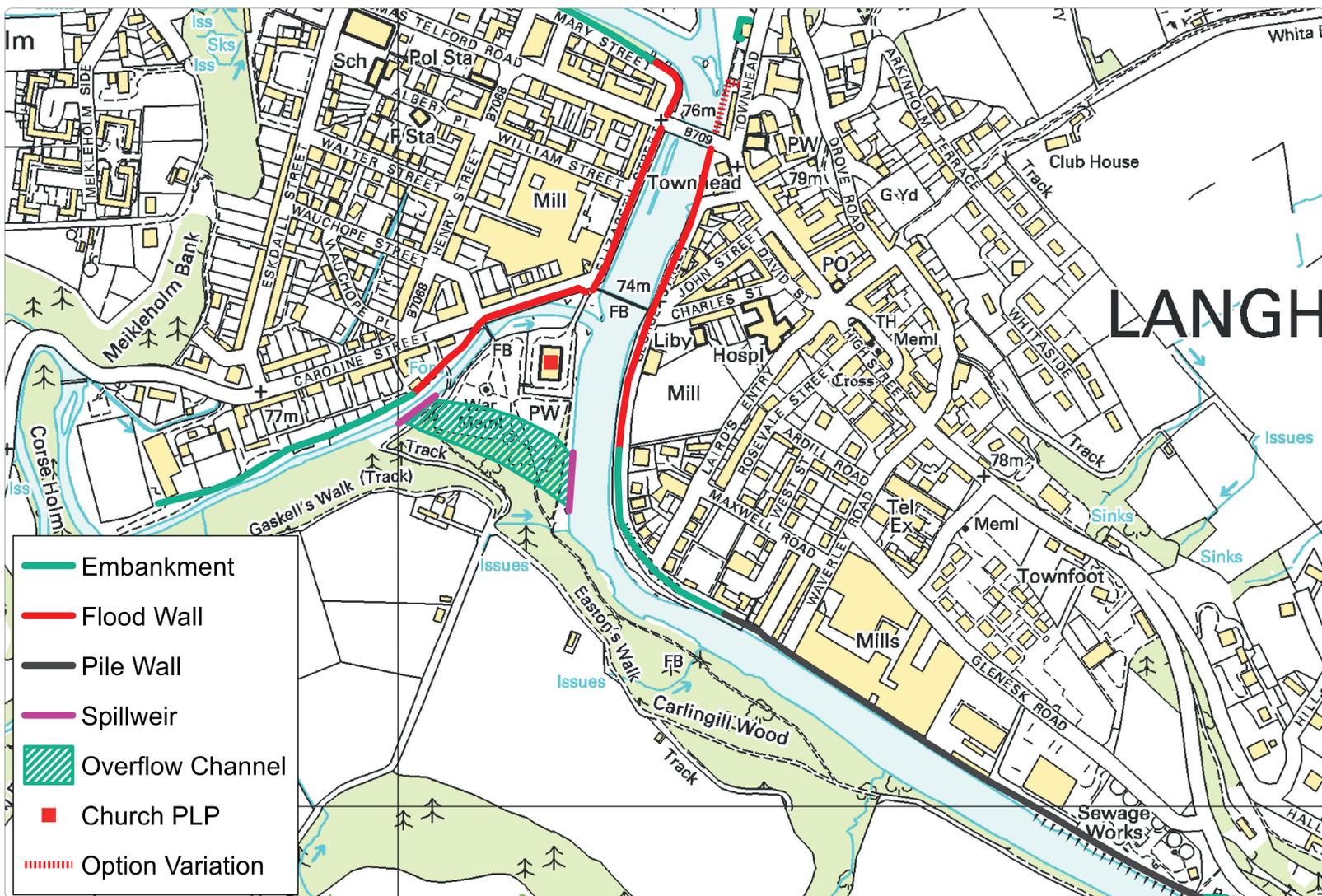
High wall heights in some locations

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### Option 2 - Direct Defences and Overflow Channel



Example of Overflow Channel

#### Advantages

- Provides a 0.5% AEP (1 in 200 year) standard of protection
- Reduction in wall heights when compared to direct defences alone
- Option can incorporate proposed community park near the Church of Scotland

#### Disadvantages

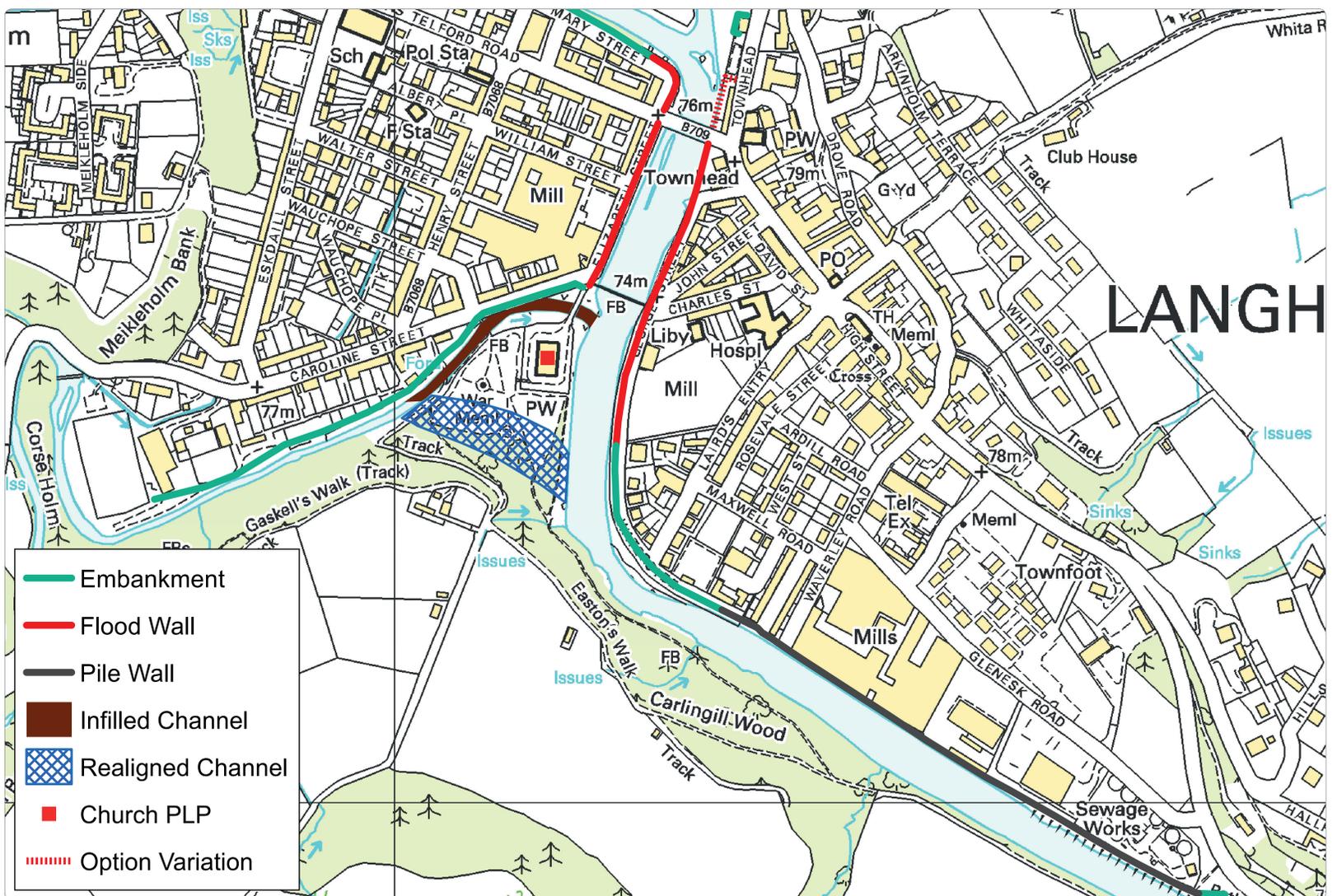
- During flood events water in channel will limit use of park
- Careful planning and coordination required to accommodate the community park
- Reduced flow in the Wauchope Water during flood events may alter the natural sediment processes

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### Option 3 - Direct Defence and Realigned Channel



#### Advantages

- Option can incorporate proposed community park in the infilled area
- Will alter the natural sediment processes which may reduce the sediment build up at the Wauchope Bridge
- Allows softer defences along Caroline Street (embankment instead of wall)

#### Disadvantages

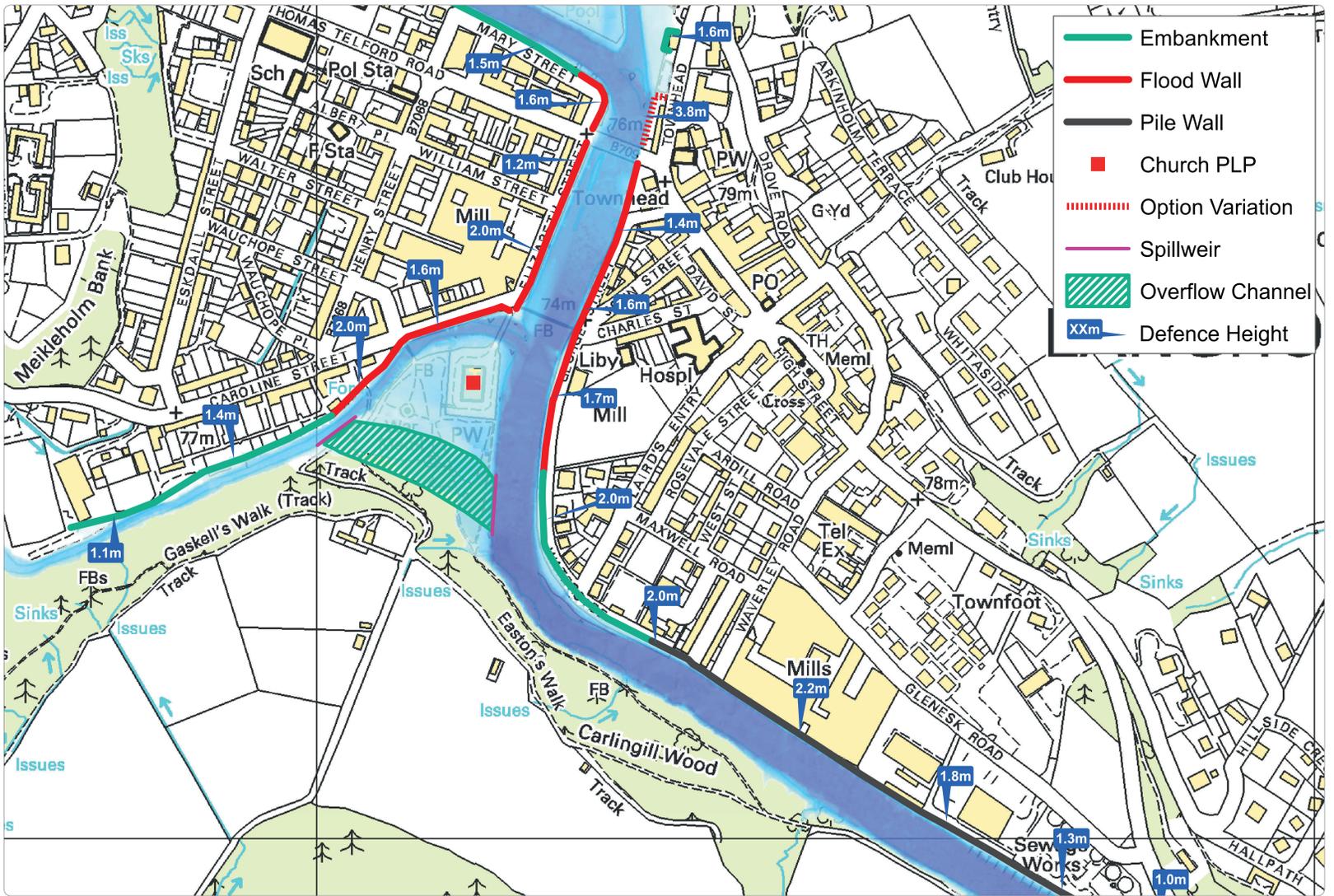
- Design will need to be sympathetic to the Wauchope Bridge
- Permission to divert the original river channel difficult to obtain
- Change to hydromorphology may cause negative environmental impacts

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### Overview of Preferred Option



Example of Floodwall at Elizabeth Street



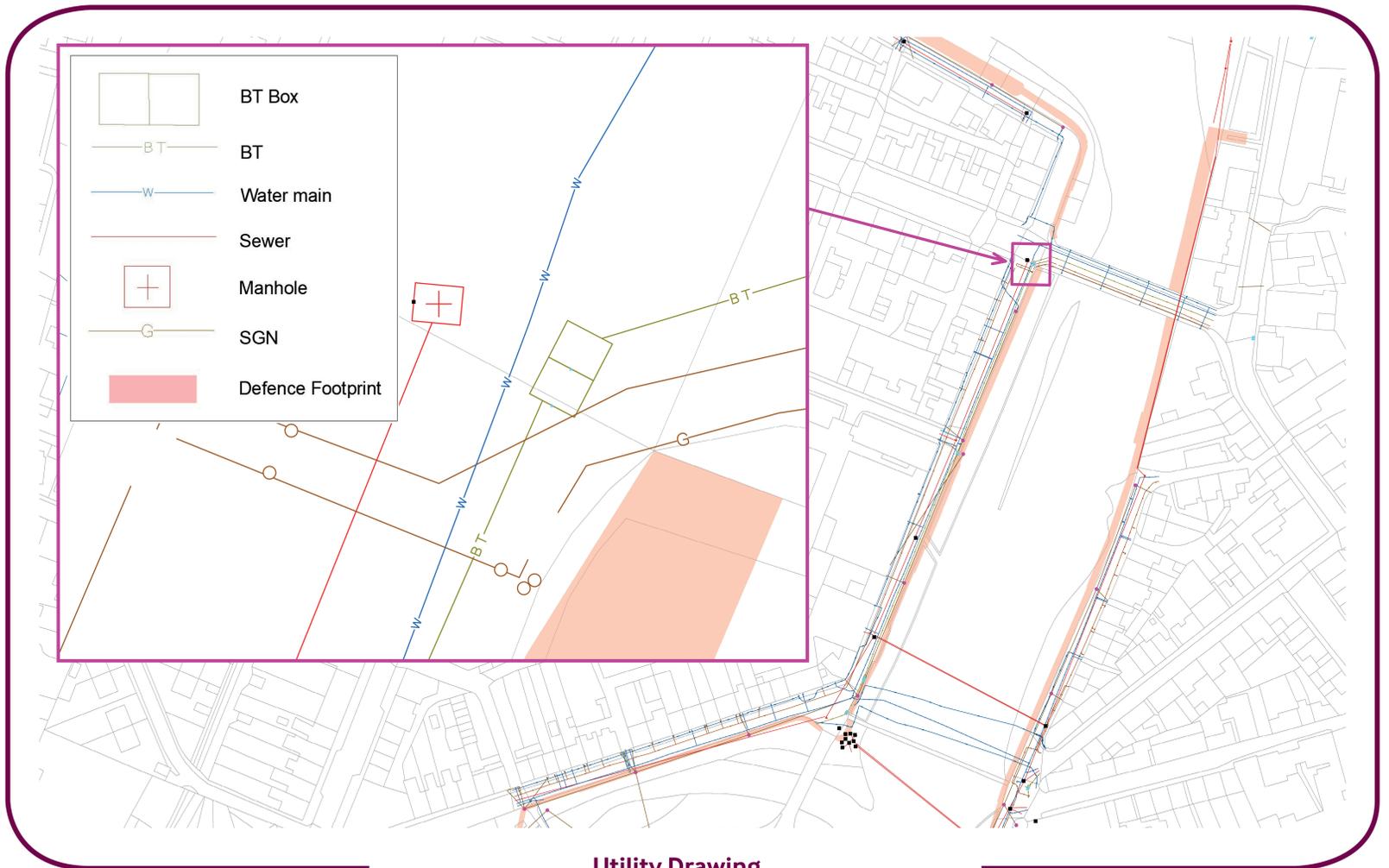
Example of Floodwall at Waverley Road

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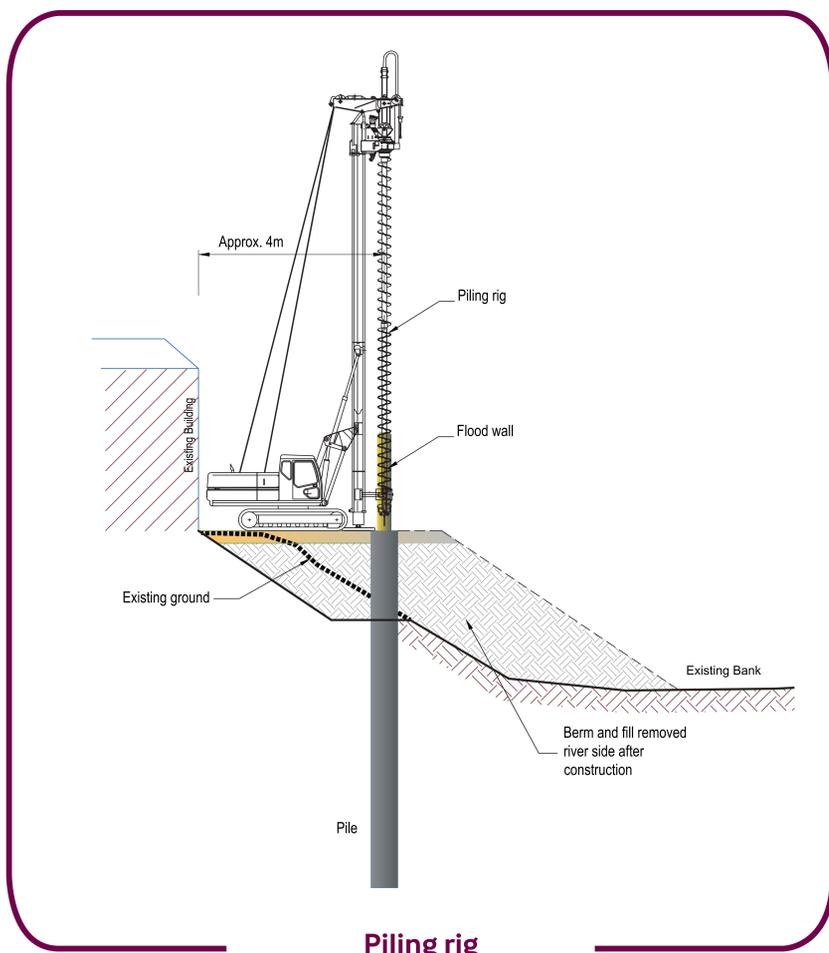
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### Construction Constraints



The construction of the Scheme will be complicated by the existing services close to the river. Services may need additional protection or diversion.



Due to the proximity of buildings relative to the river, the construction of the flood scheme will be technically complex. An example of this is the stretch of floodwall along the River Esk to the south of the Mill area.

The construction of this wall will require piling due to the limited space between the buildings and the channel. This requires a temporary construction berm to be built in order to allow safe access to the piling rig.

The arrangement of this technique is shown on the left.

### Next Steps and Flood Order Process

#### 2020

**March - September:** Complete Outline Design and Flood Order Documents

**October:** Communities Committee (for approval to publish Flood Order)

**November:** Flood Order\*

**December - February 2021:** 3 month post Flood Order work

#### 2021

**March:** Notification to Scottish Government

**May:** Detailed Design and Tender

#### 2022/23/24

Construction

#### \*Flood Order Process

Planning Permission is not required for a Flood Protection Scheme but a similar process is followed under the Flood Risk Management (Scotland) Act 2009.

Plans and documents are published for a 28 day period and any party is able to make representation in writing on the proposed scheme. These representations are then considered with further engagement/discussion carried out to see if concerns can be resolved. (It is possible a Public Local Inquiry or Public Hearing will be necessary dependent on the number or extent of objection).

At the end of the process the Council will make a decision whether to confirm, modify or reject the scheme. The decision and documentation is then submitted to Scottish Ministers for consideration.

#### Thank you

Thank you for attending this event today and we hope you have found it useful. It would be of great assistance to the Project Team if you could complete the questionnaire and leave any comments you may have.