

Project Background

Binnies UK and Nicolas O'Dwyer Joint Venture have been commissioned to develop the Portarlington Flood Relief Scheme working on behalf of Laois County Council and in partnership with Offaly County Council and the Office of Public Works.

Portarlington is at risk of fluvial flooding from the River Barrow and its tributaries with numerous properties and businesses currently at risk.

The Project Team has identified and designed a Scheme which will provide protection to a flood that has a 1% probability of happening in any year.

The Scheme has also been assessed in terms of sustainability and adaptation to climate change.

Project Progress

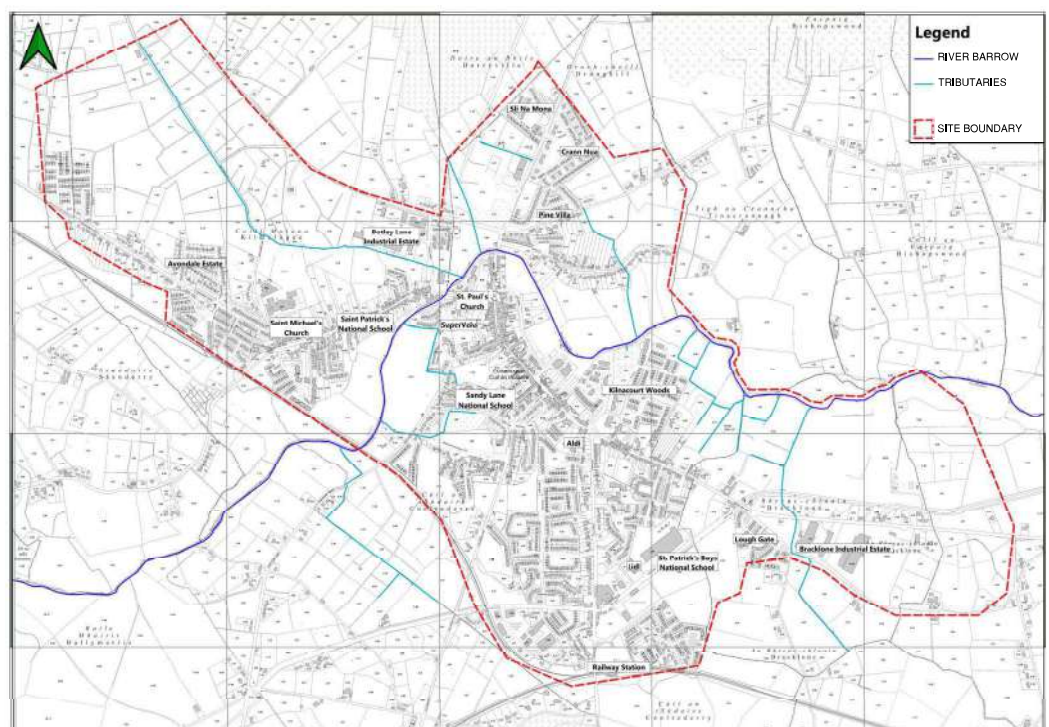


Project Objectives

The objective of this project is the identification, design and submission (for planning consent) of a Flood Relief Scheme, that is:

- Technically,
- Socially,
- Environmentally, and
- Economically

acceptable, to alleviate the risk of flooding to the Community of Portarlington to a determined Standard of Protection which is the 1% AEP (Annual Exceedance Probability).

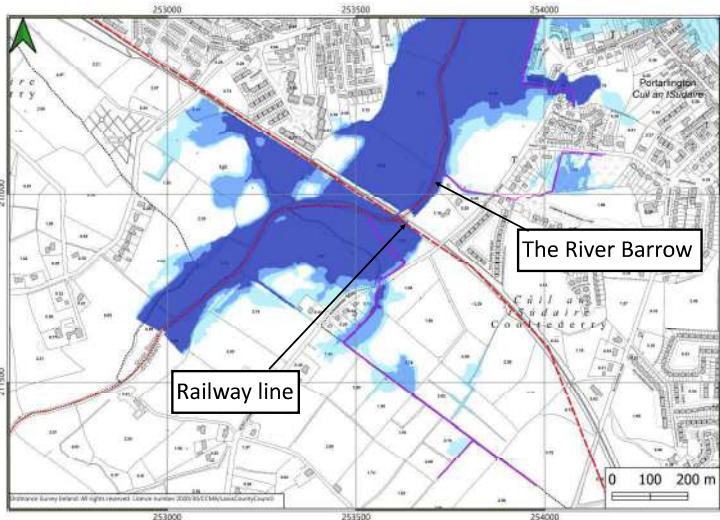


TIMELINE OF SCHEME PROGRAMME

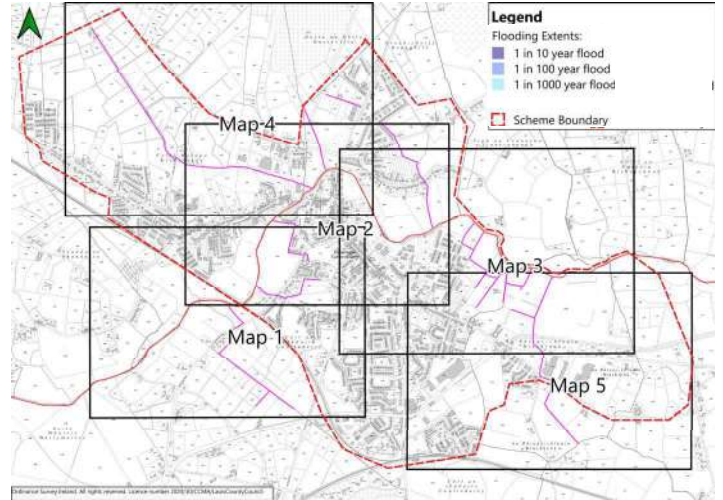
ACTIVITY	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Stage I - Scheme Development and Design										
Stage II - Planning Process										
Stage III - Detailed Construction Design and Tender										
Stage IV - Construction										
Stage V - Handover										

Flood Extent Mapping

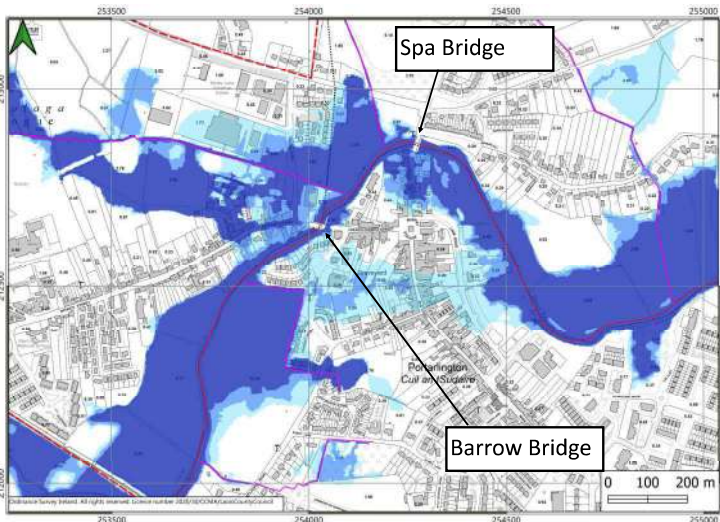
Flood Extent Map 1



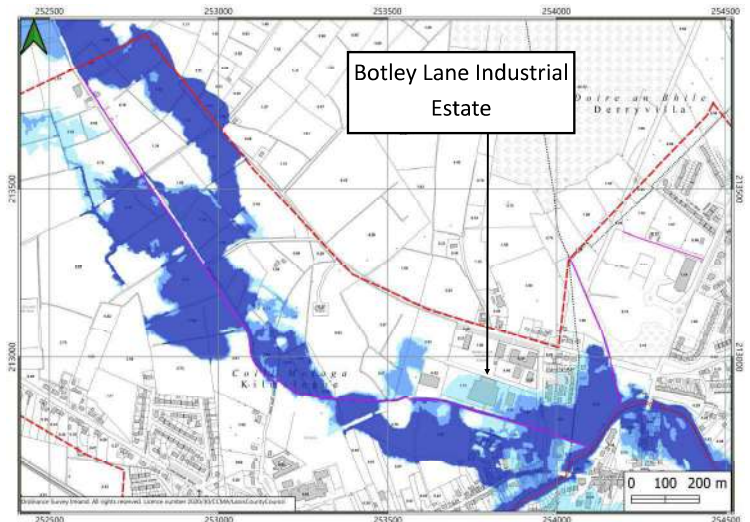
Key Map



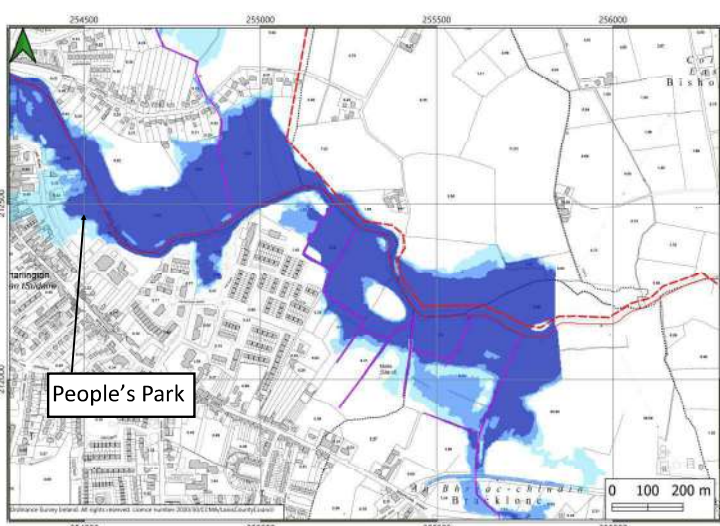
Flood Extent Map 2



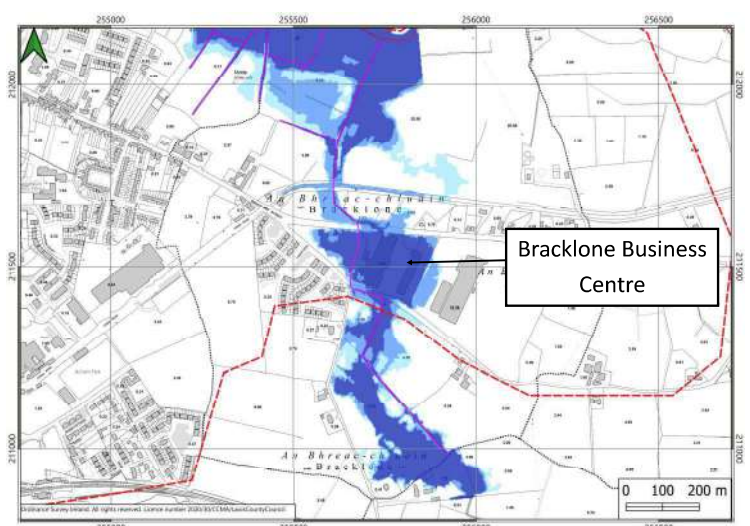
Flood Extent Map 4



Flood Extent Map 3



Flood Extent Map 5



Key locations at risk of flooding

Spa Street



- Patrick Street
- Barlows Lane
- Abhann Dubh
- Foxcroft Avenue
- Spa Street
- People's Park
- Botley Lane
- Bog Road
- Bracklone Industrial Estate

Upstream of Barrow Bridge



Downstream of Spa Bridge



Botley Lane



River Barrow Walk



Public Consultation Day 1

- The event took place on the 30th September 2021. Due to Covid-19, an in-person event was not possible. Instead, a presentation was made available on the project website, along with advertisements on the Leinster Express, and Laois County Council's website. Information material was distributed in McLoughlin's SuperValu, the Post Office, Centra, the Portarlington Library, the Community Centre and the Leisure Centre.
- The main purpose of this event was to:
 - raise awareness of the project,
 - highlight points of local importance,
 - collate information of past flood events.
- Key highlights from this consultation were:
 - Feedback highlighted the importance of finding a solution to alleviate flood risk,
 - Members of the community were keen to be informed of the project progression.

Public Consultation Day 2

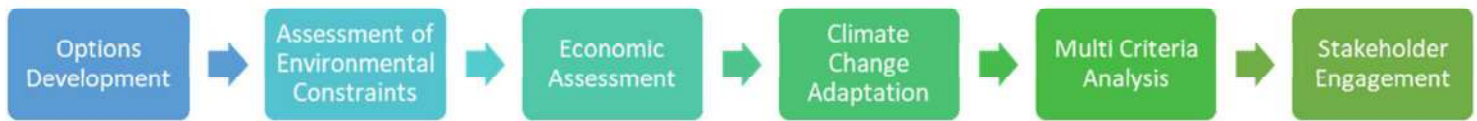
- The event took place on the 24th November, 2022. This was an in-person event held at the Portarlington Community Centre. Members of the Project Team were present to answer questions along with representatives from Laois County Council and the OPW. Adverts and leaflets were also disseminated to raise awareness of the event.
- The main purpose of the event was to present two draft options (known as Option A and Option D) for the preferred scheme.
- 23 members of the public attended the event and 9 questionnaires were received.
- The event successfully highlighted that the public were overall satisfied with the work undertaken to date, with many participants expressing their support to the project.
- Those who attended showed appreciation for considering the natural environment early on.

Public Consultation Day 3

- This in-person event displays the measures which form the preferred Scheme and gives the opportunity for members of the community and all other interested parties to provide feedback on the preferred Scheme.
- The final scheme will be taken to Stage II of the project, where it will be submitted for permission through a planning process.



How the preferred option was developed



Heritage and Landscape Considerations

The historic town of Portarlington is a heritage asset and the preferred Scheme aims to protect the town's archaeological significance.

In total there are 90 protected structures within the site boundary of which:

- 64 are historical buildings or structures including Barrow Bridge and Spa Bridge.
- 13 recorded monuments
- 3 heritage assets. Two of these are ring-forts and the other is the historic town of Portarlington.

These are all being considered in the design of the preferred Scheme.



Environmental Considerations

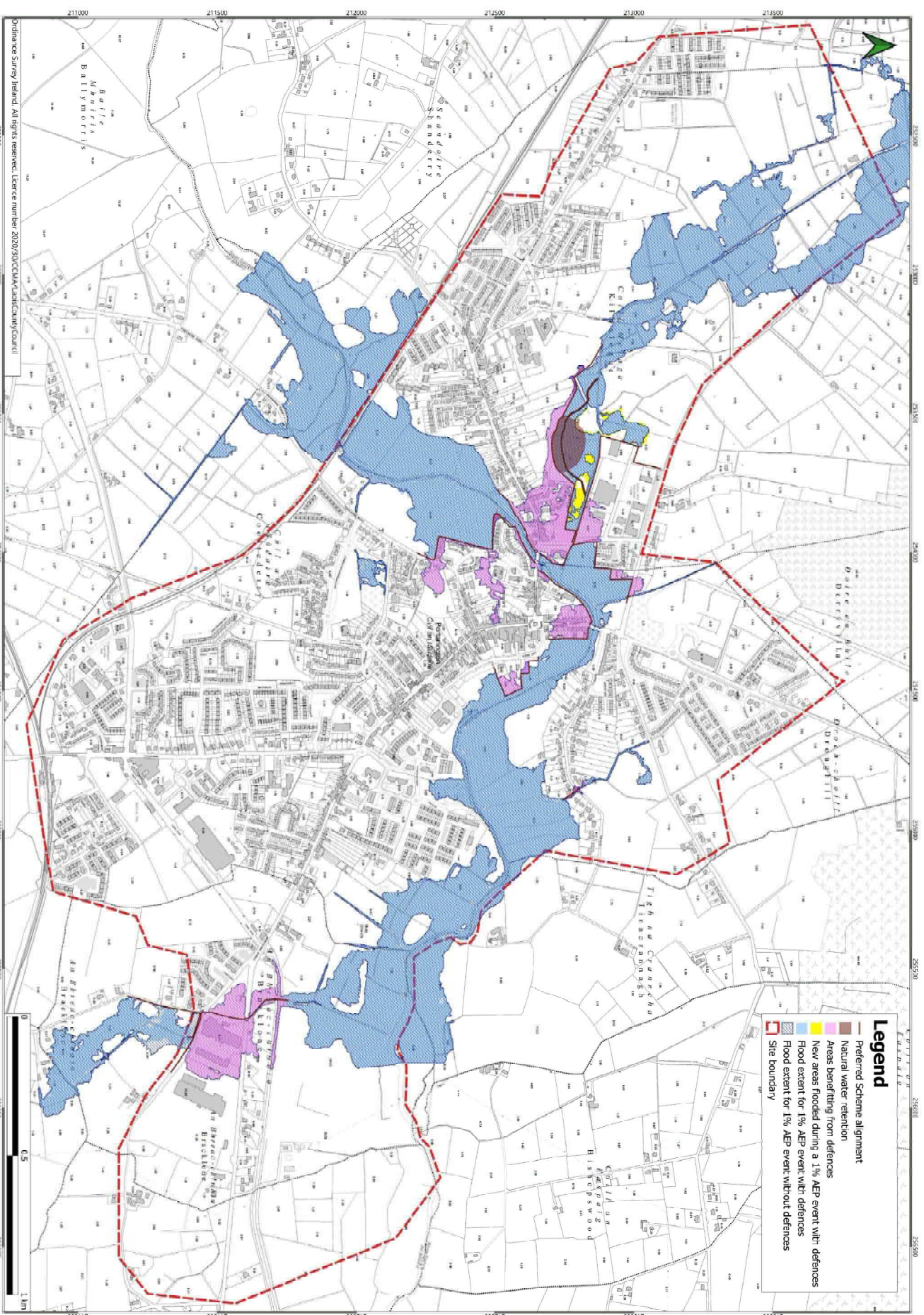
The River Barrow is classified as a Special Area of Conservation (SAC). Environmental and ecology surveys have been carried out throughout the project to inform the environmental constraints that are being considered in the design of the preferred Scheme.

Surveys included for:

- Aquatic Ecology
- Mammals
- Breeding Birds
- Bat roosting and activity
- Floating River Vegetation
- Snails
- Arboricultural features
- WFD & Geomorphology
- Soils & Geology
- Invasive species



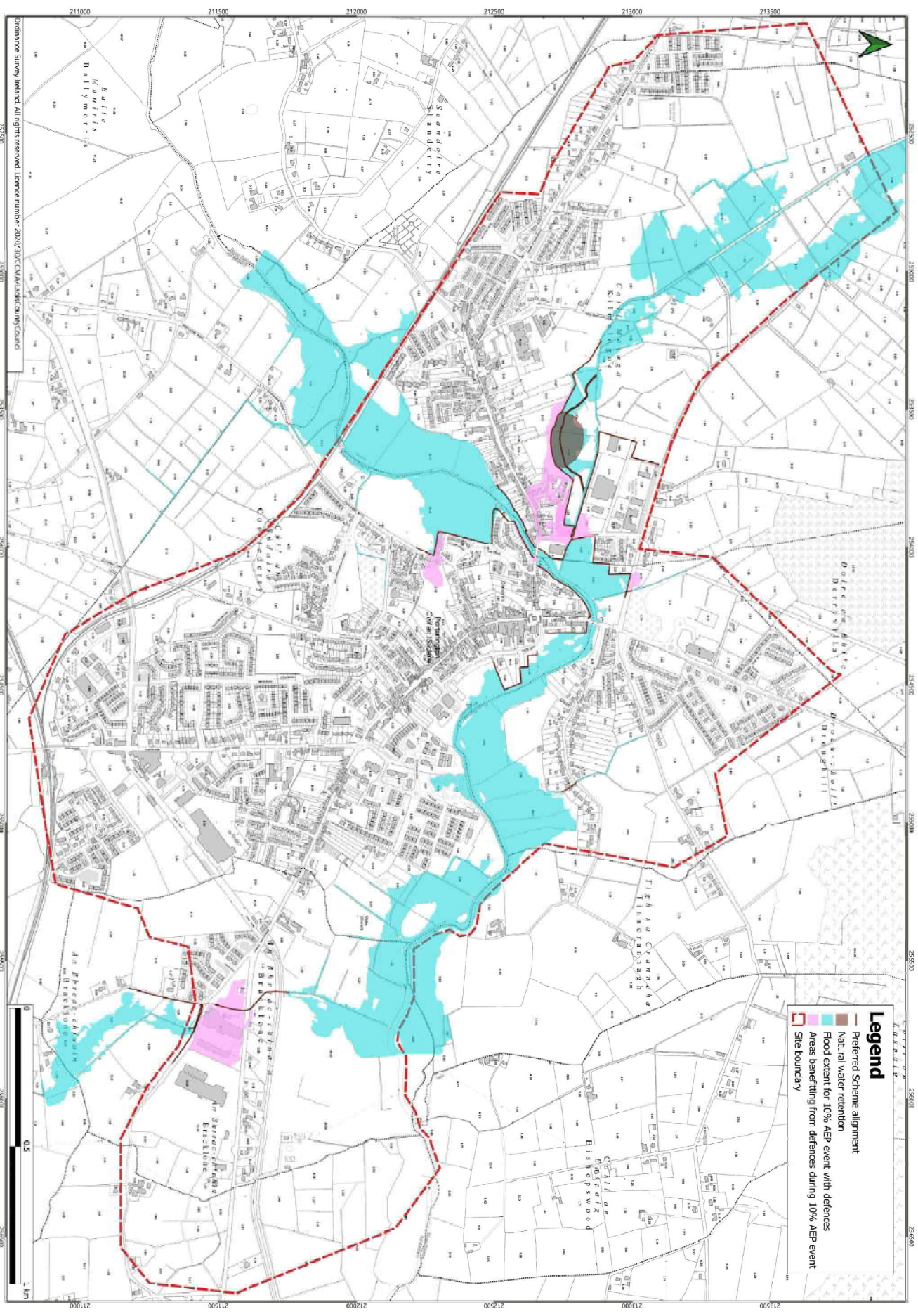
AREAS BENEFITTING FROM THE SCHEME FOR A FLOOD EVENT WITH 1% PROBABILITY TO HAPPEN IN ANY YEAR (1 IN 100-YEAR EVENT)





PORTARLINGTON FLOOD RELIEF SCHEME

AREAS BENEFITTING FROM THE SCHEME FOR A FLOOD EVENT WITH 10% PROBABILITY TO HAPPEN IN ANY YEAR (1 IN 10-YEAR EVENT)

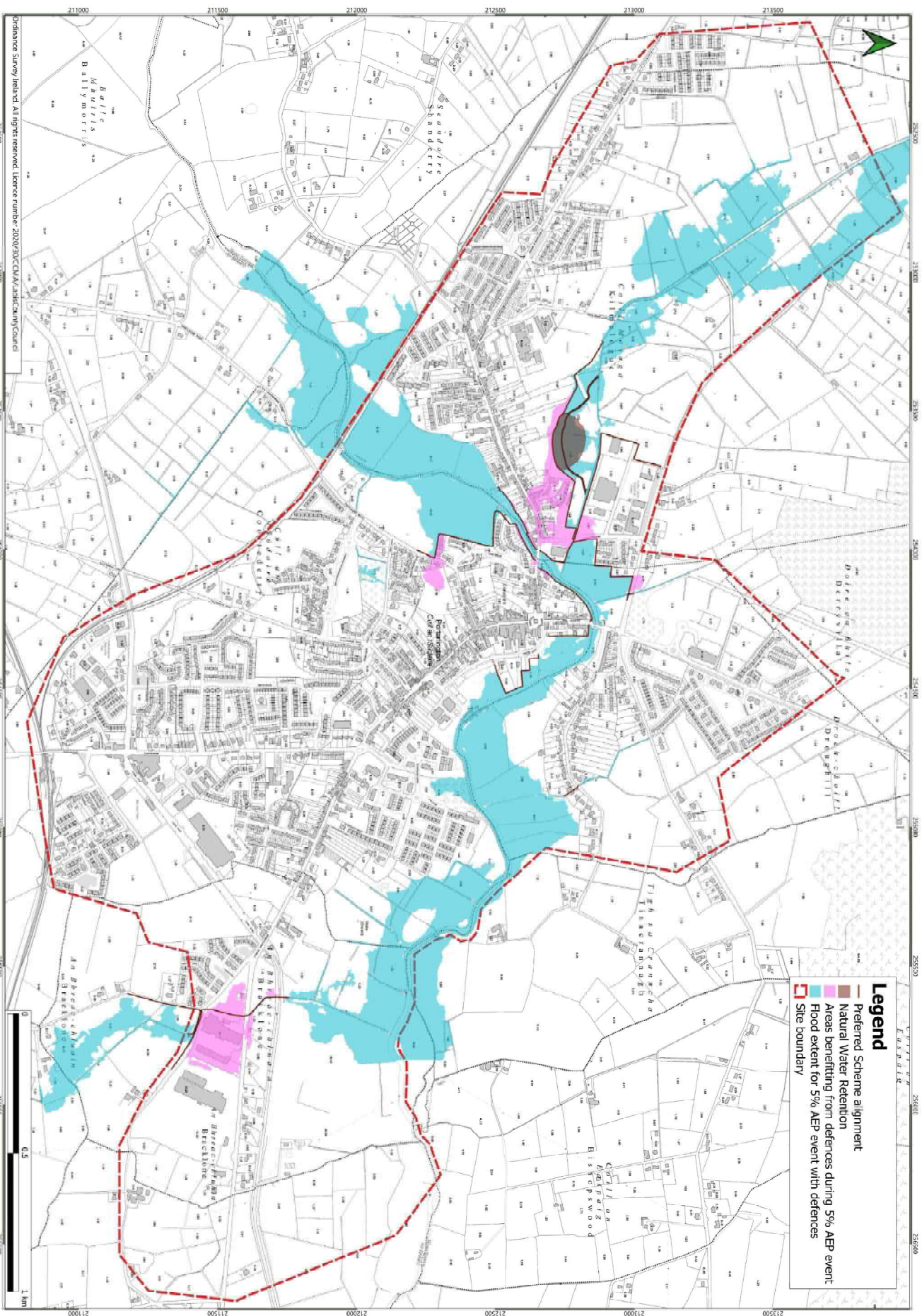




PORTARLINGTON
FLOOD RELIEF SCHEME

PORTARLINGTON FLOOD RELIEF SCHEME

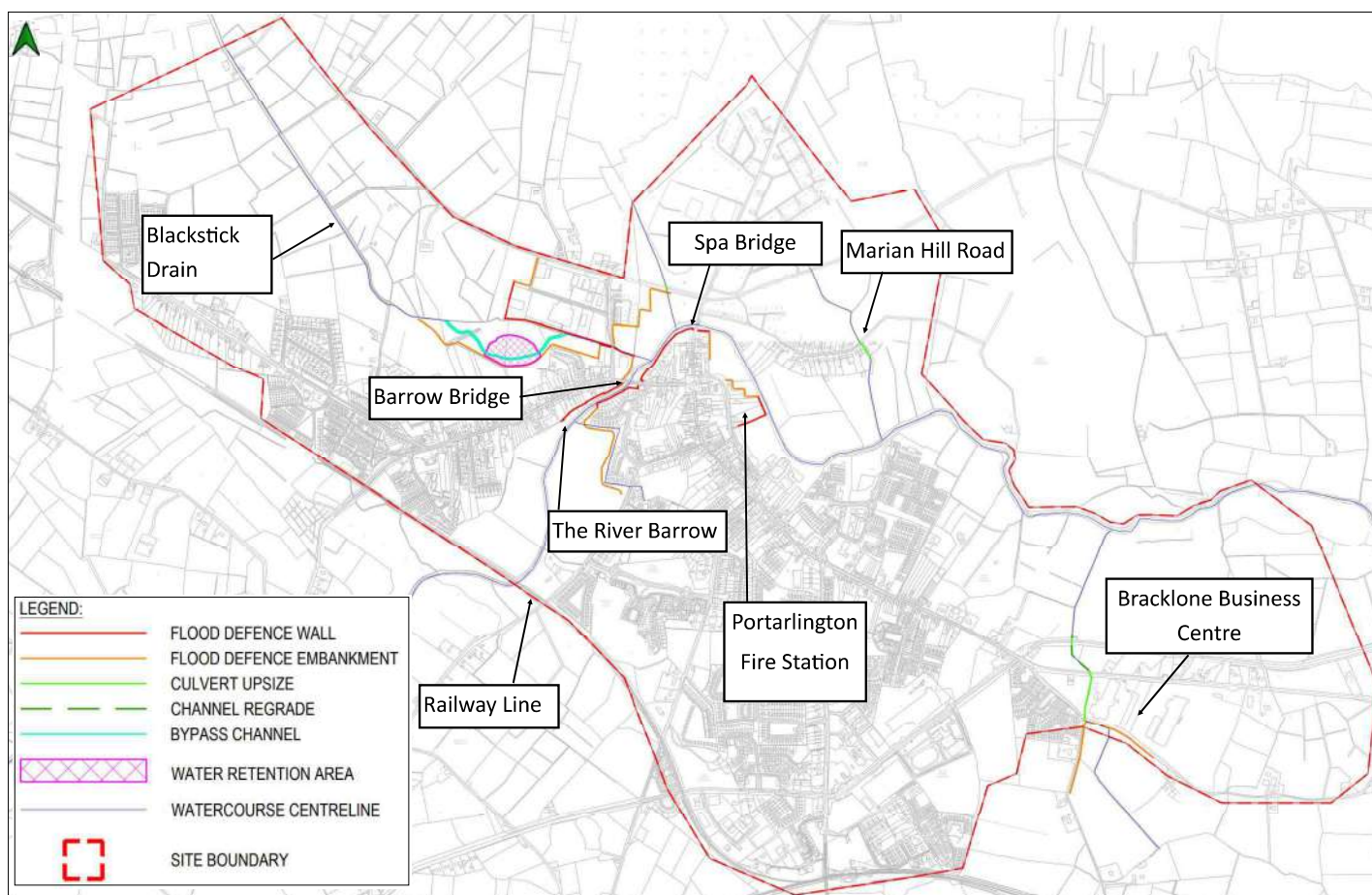
AREAS BENEFITTING FROM THE SCHEME FOR A FLOOD EVENT WITH 5% PROBABILITY TO HAPPEN IN ANY YEAR (1 IN 20-YEAR EVENT)



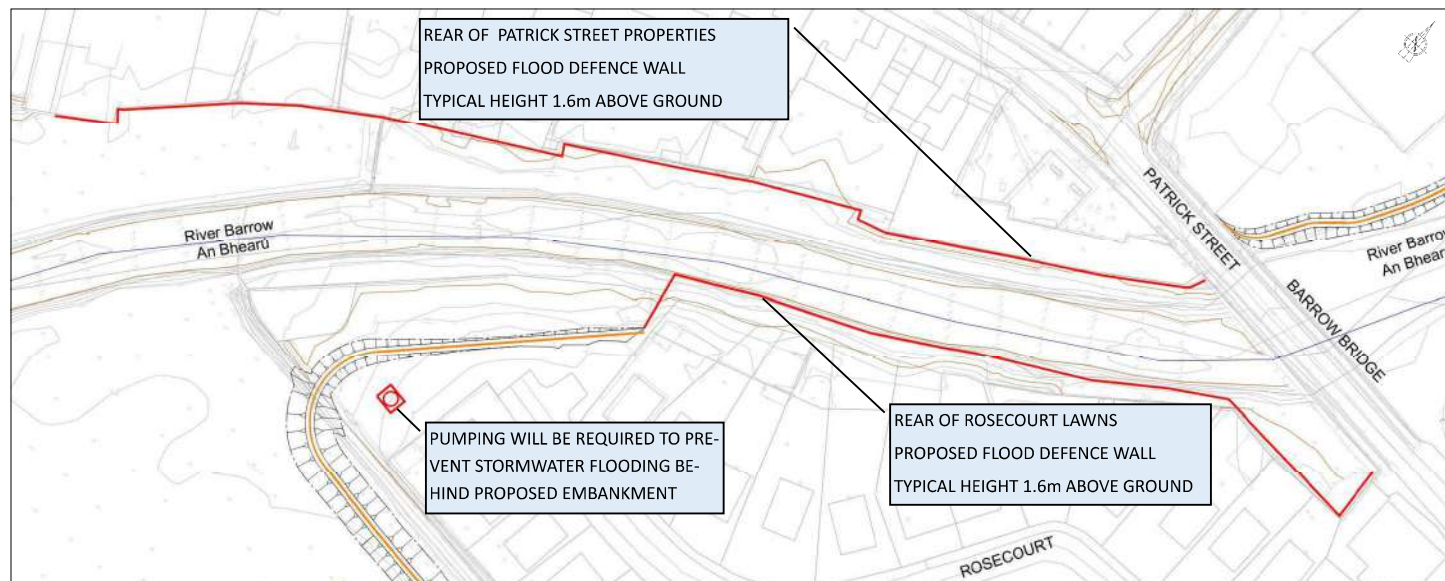
Description of the Preferred Scheme

Area	Flood Defence Description	Average Heights	Total Lengths
Upstream of Barrow Bridge	Embankments and walls on the right bank of the River Barrow.	1.6 m—2m	780 m
Bridge	Wall on the left bank of the River Barrow.	1.6 m	310 m
Barrow Bridge to Spa Street	Embankment on the left bank of the River Barrow.	1—1.2 m	520 m
	Wall on the River Barrow right bank.	1.5 m	300 m
Downstream of Spa Bridge	Embankments and walls situated on the right bank directly downstream of Spa Bridge.	1.2 m	145 m
Portarlington Fire Station	Embankments and walls on the right bank protecting the Portarlington Fire Station and the properties at Link Road.	1.2 m—1.5 m	345 m
Bracklone Business Centre	Embankment along the southern end of the Bracklone Business Centre.	0.8 m	550 m
	New culvert along the existing crossing Bracklone Business Centre.	N/A	350 m
Blackstick Drain	Creation of a formalised floodplain to the south of the Blackstick Drain. Diversion of 500 m length of the existing drain through the proposed floodplain. Bridge removal and replacement to accommodate existing access.	N/A	1800 m2 (Area)
	Embankments on the south of Blackstick Drain floodplain.	0.7m -1 m	950 m
	Wall and embankment along Botley Lane Industrial Estate .	1.5 m	540 m
	Removal and replacement of existing culvert crossing Botley Lane.	N/A	15 m
Bog Road	Removal and replacement of existing culvert crossing Bog Road.	N/A	20 m
Marian Hill Road	Removal and replacement of existing culvert crossing Marian Hill Road.	N/A	15 m

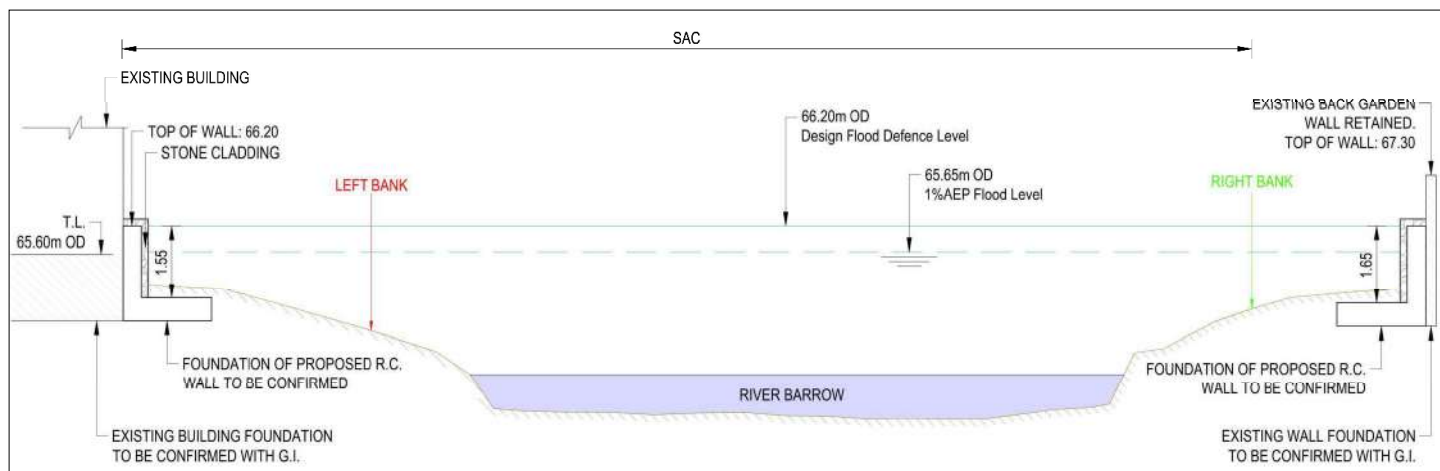
Map of Preferred Scheme



PLANVIEW

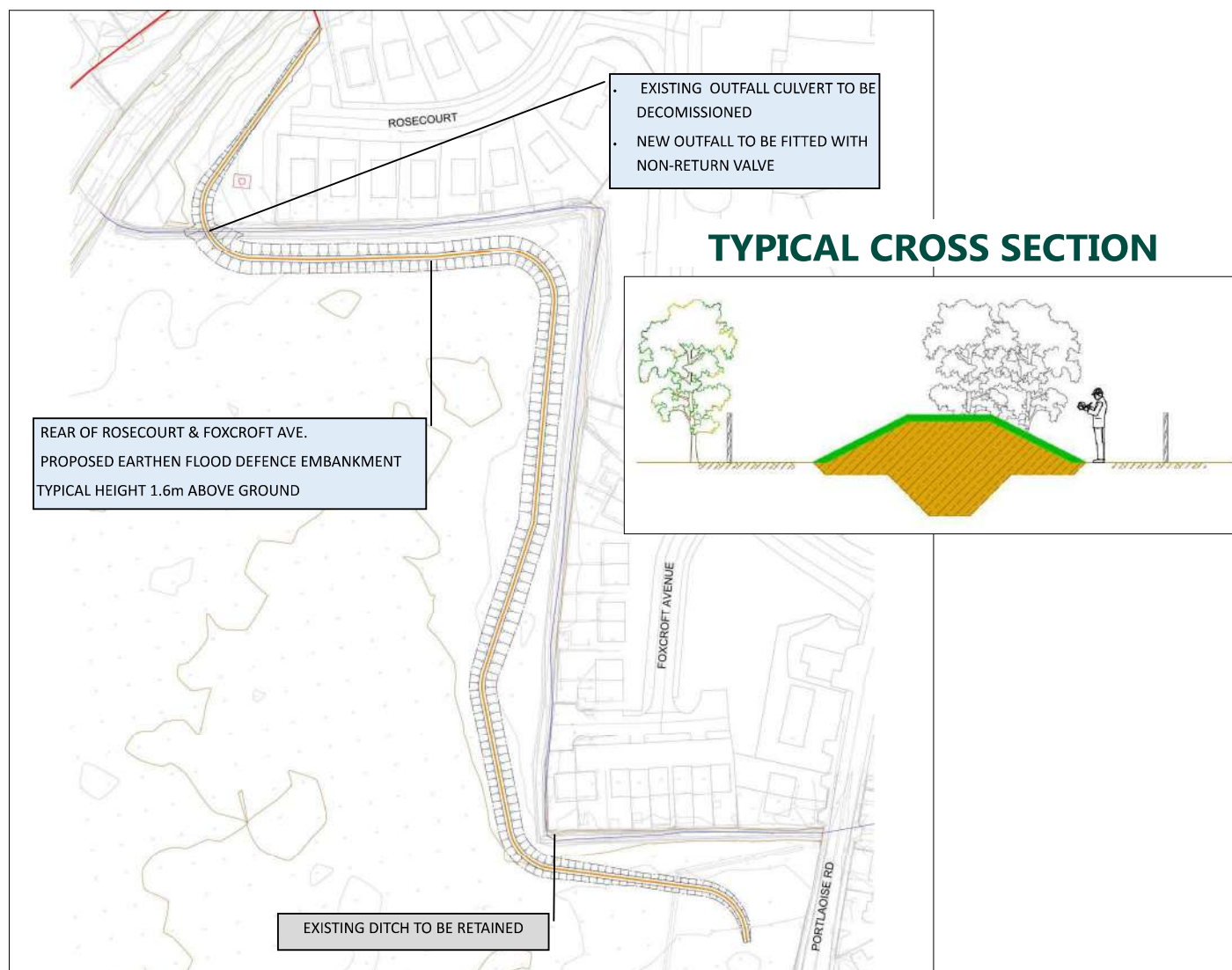


CROSS SECTION



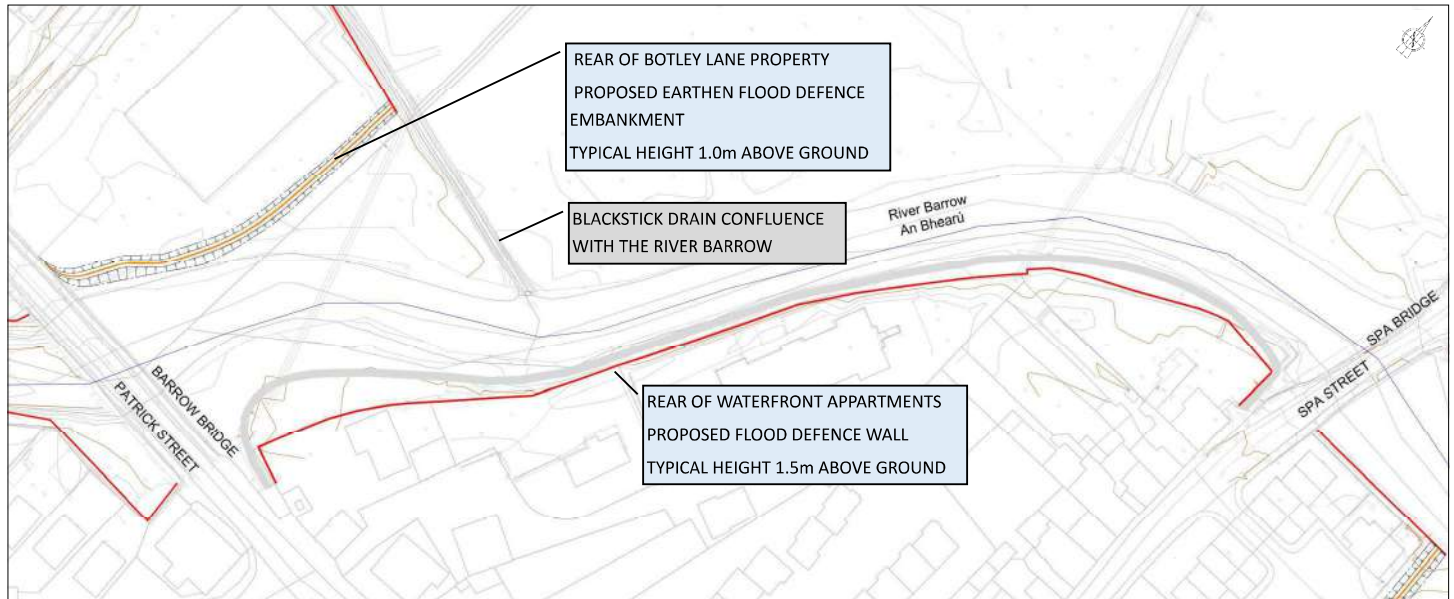
Existing Situation	Proposed Measures	Constraints
<ul style="list-style-type: none"> Flooding at this location is caused by the River Barrow exceeding its capacity and occupying its natural floodplain. The flood extent is exacerbated due to out of bank flows from the Blackstick Drain and the River Barrow which results in many properties around Patrick Street being impacted by the 1% AEP flood extents. The Barrow Bridge capacity appears to be exceeded for the 1% AEP. 	<ul style="list-style-type: none"> The construction of new flood defence walls extending from the upstream face of the Barrow Bridge to the rear of Saint Patrick's National School. The measures will contain the flood and prevent water from spilling out of bank. 	<ul style="list-style-type: none"> Encroachment onto the SAC. Works are adjacent to existing properties and will require removal and replacement of some of the existing boundary walls. Overhead cables may require diversion to accommodate the construction works.

PLANVIEW

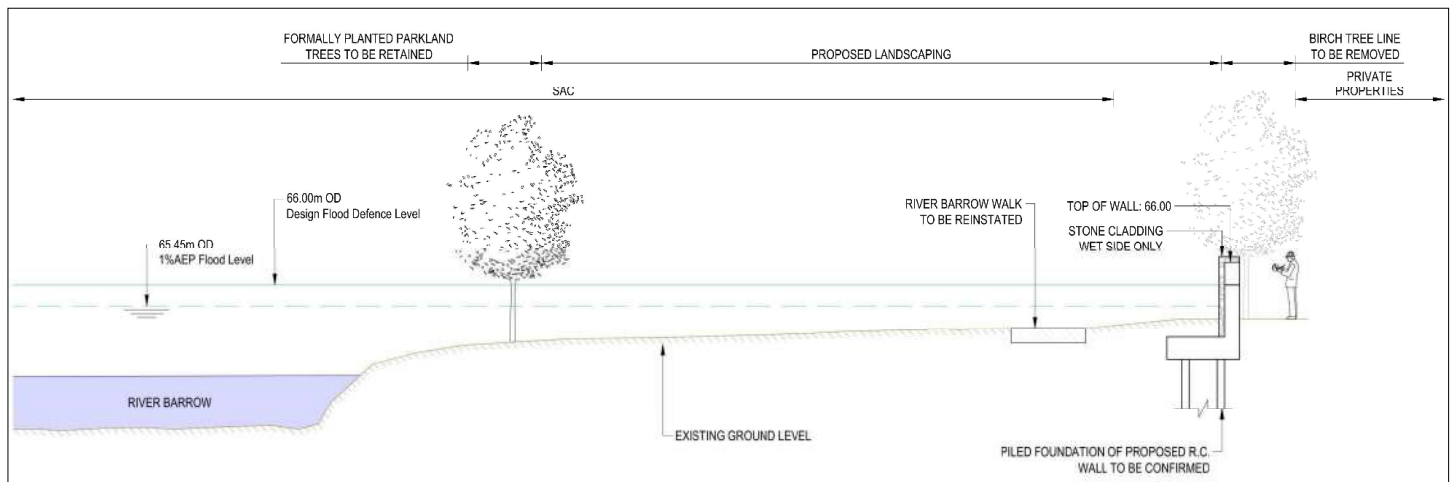


Existing Situation	Proposed Measures	Constraints
<ul style="list-style-type: none"> The flooding at this location is caused by the River Barrow backing up to the existing drainage ditch, exceeding its capacity and expanding over the existing floodplain. Portlaoise Road is impacted along with many properties . 	<ul style="list-style-type: none"> The construction of new flood defence embankment spanning along the rear of the Foxcroft Avenue and Rosecourt properties. Existing outfall culvert to be decommissioned. New outfall to be fitted with non-return valve or similar approved. 	<ul style="list-style-type: none"> Encroachment onto the SAC. Existence of historic town walls along the drainage ditch. Construction may cause temporary traffic disruptions and would have to be carried out within a constrained corridor. Access for construction, operation and maintenance should be provided. Residents of Rosecourt and Foxcroft Avenue will experience a visual impact from the proposed embankment of an approximately 2m height above ground. The embankment may hinder the views towards the open space beyond the right bank of River Barrow. Access for fishermen should be maintained.

PLANVIEW

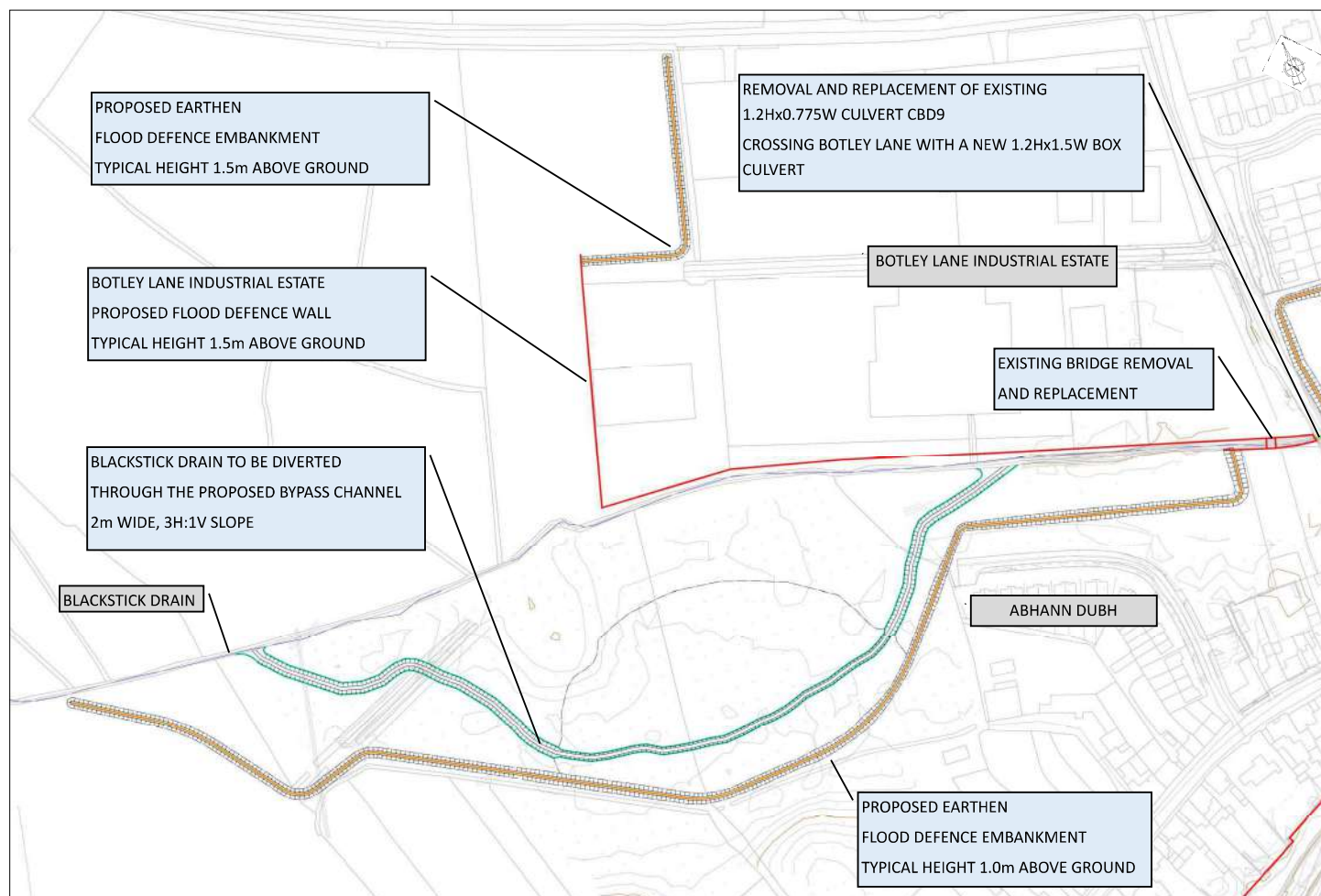


CROSS SECTION



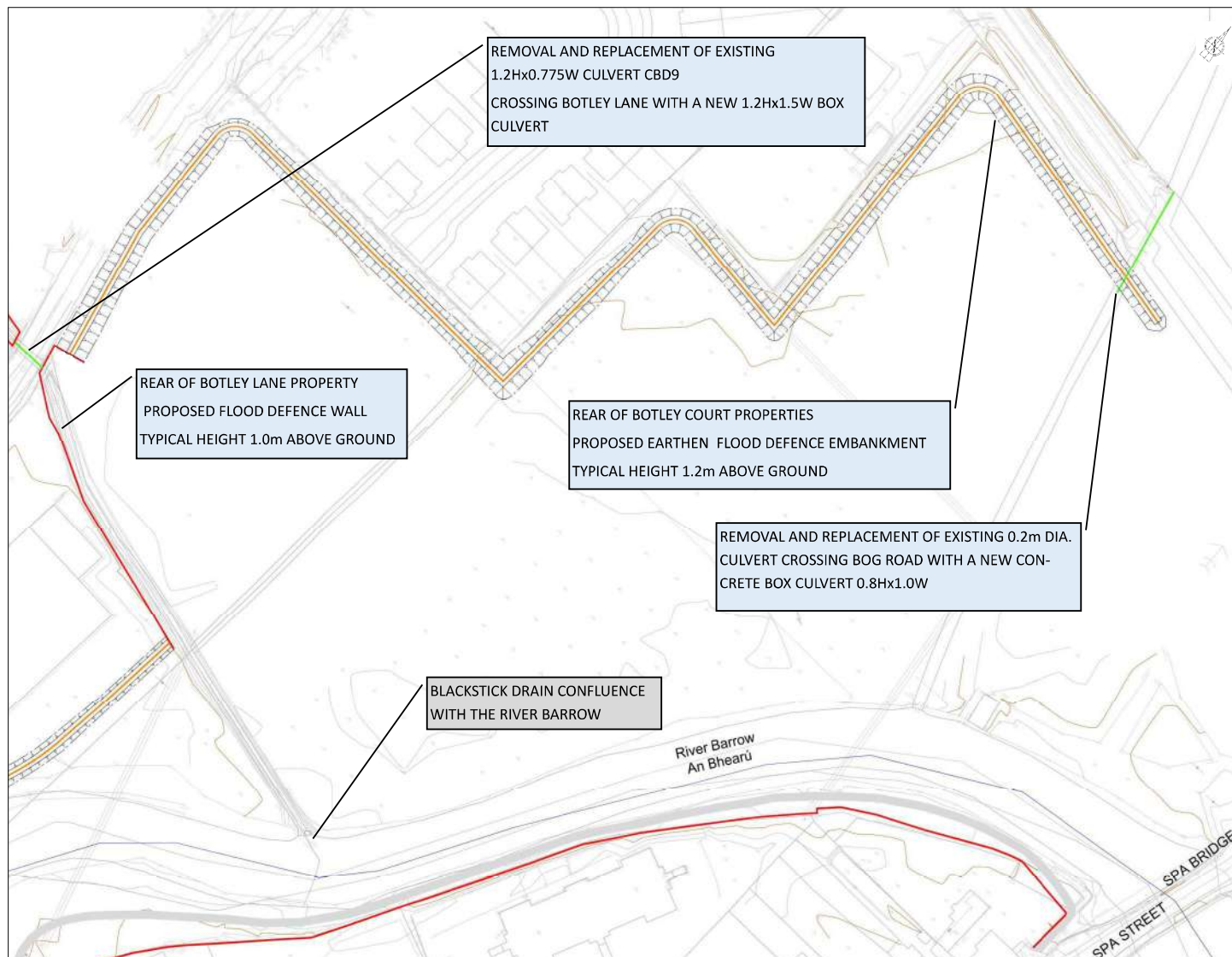
Existing Situation	Proposed Measures	Constraints
<ul style="list-style-type: none"> The flooding at this location is caused by the River Barrow exceeding its capacity and occupying its natural floodplain. Here, the River Barrow backs up to the Blackstick Drain which exceeds its capacity. 	<ul style="list-style-type: none"> Removal of the existing boundary wall at the rear of Waterfront Apartments will be required. The construction of new flood defence walls along the right bank extending from the downstream face of the Barrow Bridge to the upstream of Spa Bridge. A section of these walls will be sheet piled. The River Barrow Walk will be reinstated. Landscaping of the area and regrading of the River Barrow Walk will remove the requirement for flood gates at the entrance and exit. 	<ul style="list-style-type: none"> Encroachment onto the SAC. Construction may cause temporary traffic disruptions and would have to be carried out within a constrained corridor. Access for construction, operation and maintenance should be provided. Residents of the Waterfront Apartments will experience visual impacts from the tree loss. The works should ensure that privacy is maintained for all properties in the vicinity of the works.

PLANVIEW



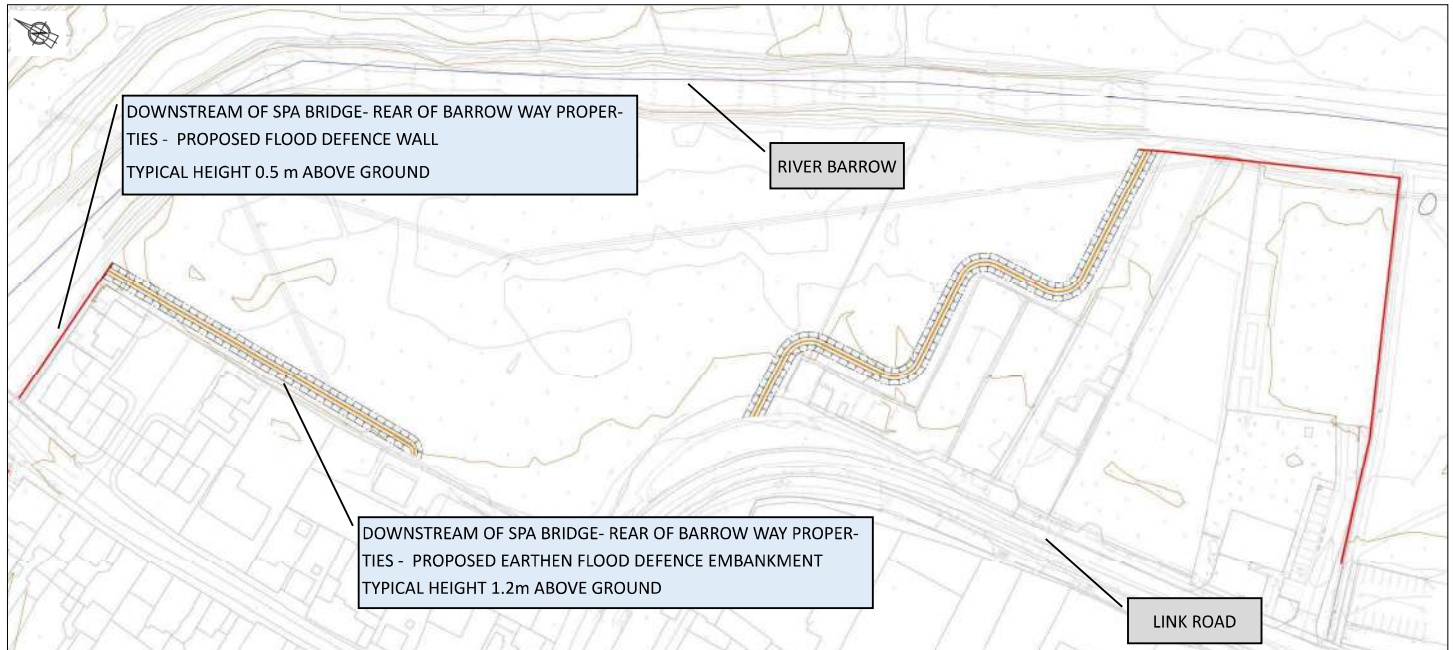
Existing Situation	Proposed Measures	Constraints
<ul style="list-style-type: none"> The flooding at this location is caused by high water levels in the Blackstick Drain which occupies its natural floodplain. 	<ul style="list-style-type: none"> The creation of a formalised floodplain to the south of the Blackstick Drain with the construction of a new flood defence embankment. Diversion of the Blackstick Drain through a proposed bypass channel. Construction of a flood defence wall at the rear of Botley Lane Industrial Estate. Access to private property through Botley Lane to be maintained. Removal and replacement of existing access bridge will be required. 	<ul style="list-style-type: none"> Working within a heavily vegetated area. Maintain existing access to properties and fields. Incorporate existing drainage ditches and allow for non-return valves on existing pipe outlets. Access for construction, operation and maintenance should be provided. Works will take place adjacent to private properties.

PLANVIEW

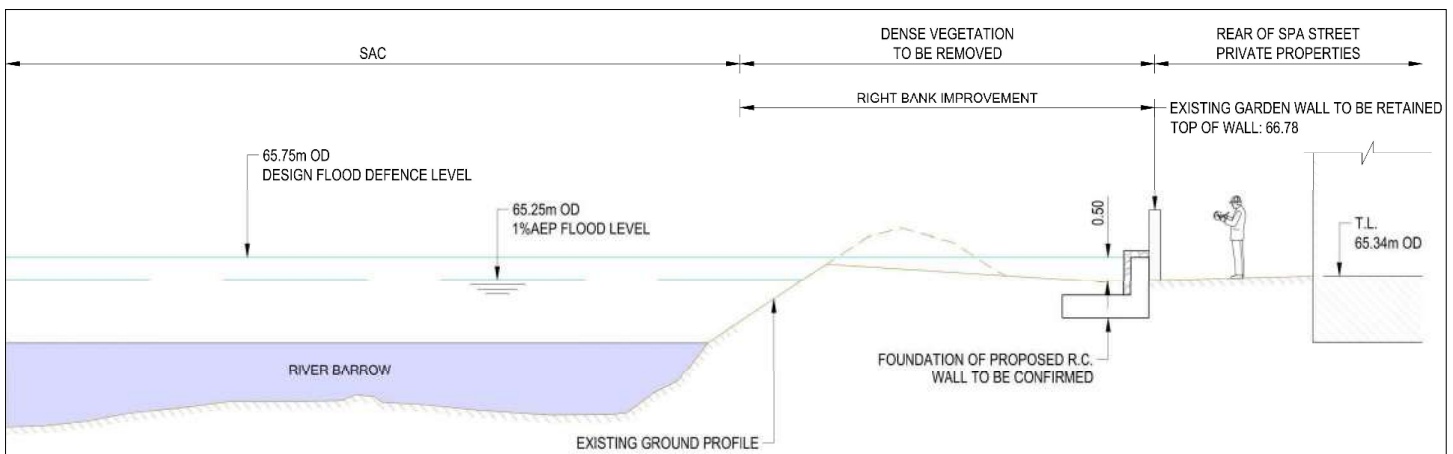


Existing Situation	Proposed Measures	Constraints
<ul style="list-style-type: none"> The flooding at this location is caused by high water levels in the River Barrow which occupies its natural floodplain. 	<ul style="list-style-type: none"> The construction of a new flood defence embankment extending along the rear of Botley Court private properties. Removal and replacement of two culverts, the one crossing Botley Lane and the second crossing Bog Road for conveyance improvements. 	<ul style="list-style-type: none"> Works will take place adjacent to private properties. Temporary traffic disruptions are anticipated during construction works. Maintain existing access to properties and fields. Incorporate existing drainage ditches and allow for non-return valves on existing pipe outlets.

PLANVIEW

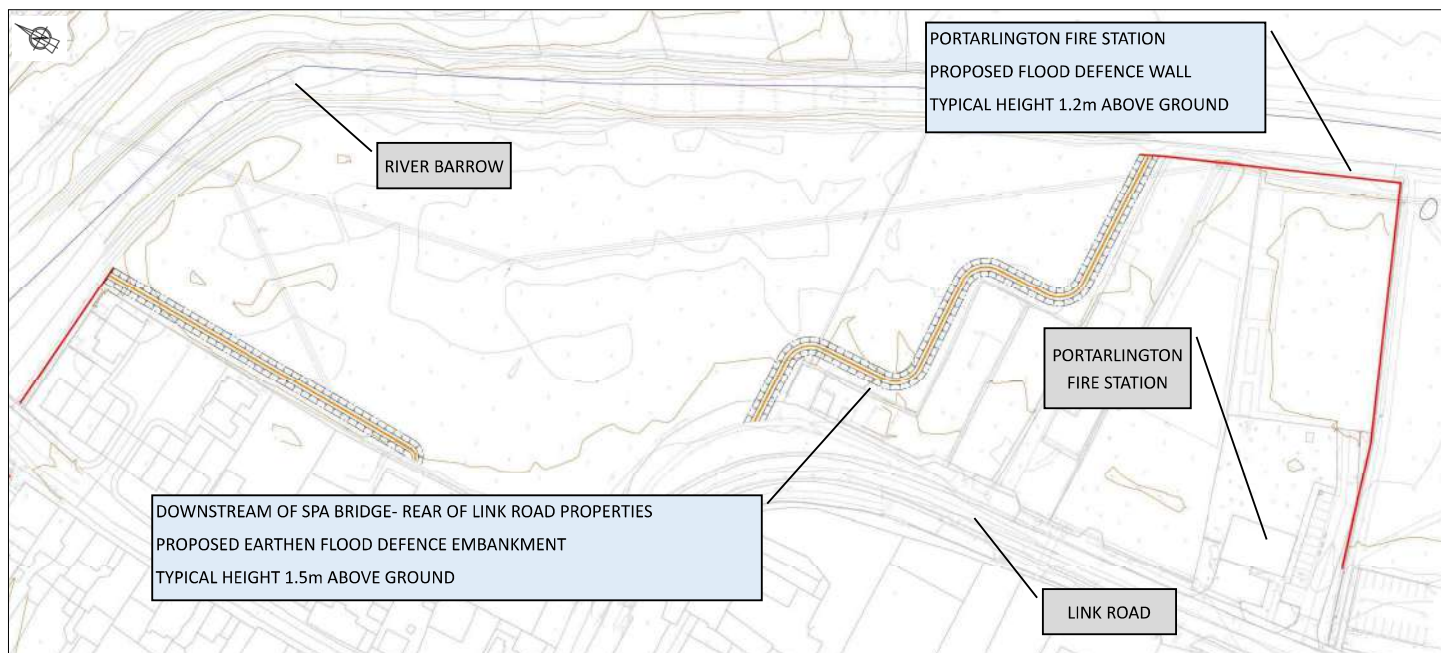


CROSS SECTION

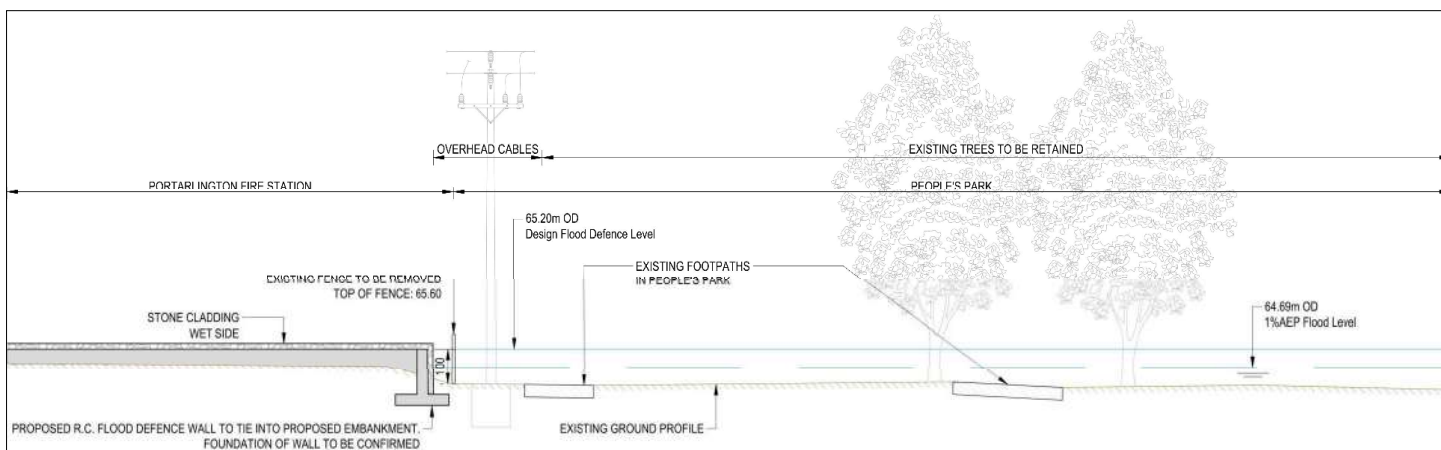


Existing Situation	Proposed Measures	Constraints
<ul style="list-style-type: none"> The flooding at this location is caused by the River Barrow exceeding its capacity and occupying its natural floodplain. The majority of the properties impacted by the 1% AEP flood extent are close to the Spa Bridge. This area is flooded from flows coming from upstream of the Spa Bridge and out of bank flows along the River Barrow's right bank. 	<ul style="list-style-type: none"> The construction of new flood defence embankment spanning along the rear of the Barrow Way properties. The right bank of the Barrow is heavily vegetated. Removal of vegetation during the appropriate season will take place to accommodate construction works. 	<ul style="list-style-type: none"> Works will take place adjacent to private properties. Access for fishermen should be maintained. Construction to be carried out within a constrained corridor.

PLANVIEW

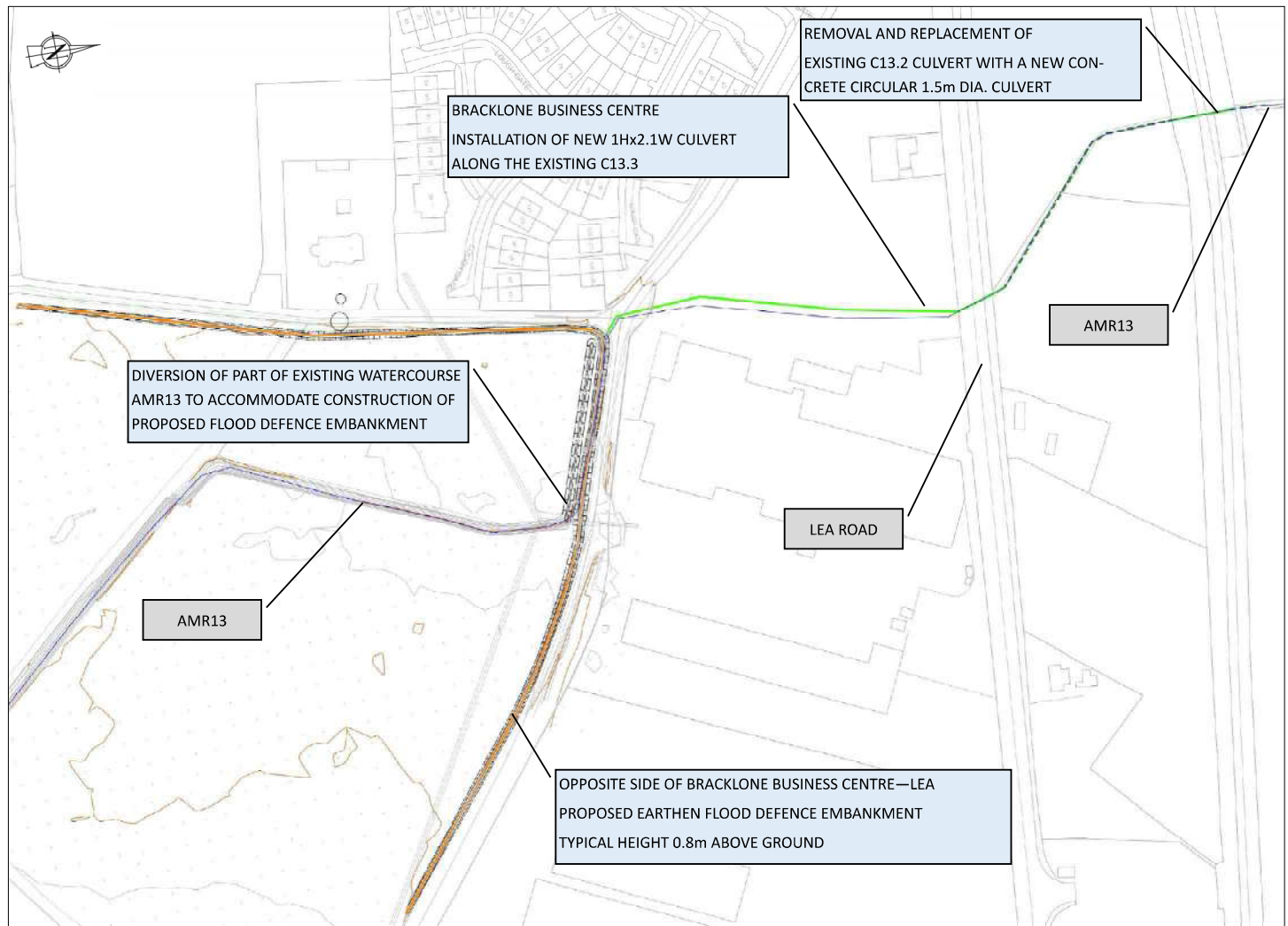


CROSS SECTION



Existing Situation	Proposed Measures	Constraints
<ul style="list-style-type: none"> Few additional properties (one residential building, one industrial building and the Fire Station) which lie in the River Barrow's natural floodplain are within the 1%AEP flood extents further downstream while on the left side of the floodplain few properties are in proximity of the flooding extent but not impacted. 	<ul style="list-style-type: none"> The construction of new flood defence wall around the Portarlington Fire Station, existing fences will be replaced. The construction of new flood defence embankment spanning along the rear of the Link Road properties. 	<ul style="list-style-type: none"> Construction works may temporarily impact the visitors of People's Park. Existing access for fishermen should be maintained.

PLANVIEW



Existing Situation	Proposed Measures	Constraints
<ul style="list-style-type: none"> • Flooding at this location is caused by the capacity being exceeded for two existing culverts, i.e., the one running through the Bracklone Industrial Estate (C13.2) and the smaller culvert approximately 140m downstream of the crossing with Lea Road (C13.3). • The flooding of the smaller culvert generates localised flooding while the flooding resulting from the culvert running through the Bracklone Industrial Estate results in extensive flooding to most of the industrial buildings and partially to the main road. 	<ul style="list-style-type: none"> • Installation of a new culvert along the existing culvert crossing the Bracklone Business Centre-C13.3. • Removal and replacement of existing culvert for conveyance improvement-C13.2. • Channel regrading will be required between the new culverts. • The construction of new flood defence embankment along with partial diversion of the existing AMR13 watercourse . 	<ul style="list-style-type: none"> • Soil quality is expected to be poor based on existing records. • Construction works should be programmed in order to cause minimum disruption to the Blacklone Business Centre Construction. • Temporary traffic disruptions are anticipated during construction works.

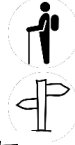
ATTENUATION AREA



Opportunity for wet woodland and marginal and aquatic planting to provide new marsh habitat for nationally vulnerable Marsh Whorl Snail (*Vertigo antvertigo*) species



Recreational and educational opportunity—potential links to the Derrynounce Walkway



FLOOD EMBANKMENTS



Planted with an appropriate species rich mix

FLOOD DEFENCE WALLS



Stone clad flood walls in local stone



HARD DEFENCE NATIVE PLANTING

Native aquatic planting cages along edge of wall



LANDSCAPE & ECOLOGICAL
AREAS OF OPPORTUNITY

HABITAT ENHANCEMENT

Opportunity to enhance existing suitable habitat for Marsh Fritillary (*Euphydryas aurinia*) butterfly

Devil's-Bit Scabious (*Succisa pratensis*)



NATURAL CAPITAL

Habitat creation Restoration Mitigation

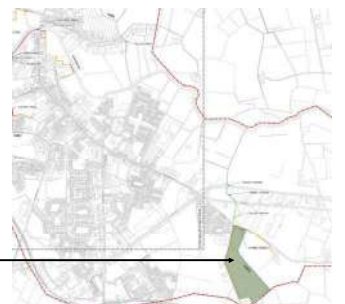
SOCIAL CAPITAL

Education Recreation Health



TREE PLANTING

Areas providing opportunity for tree and scrub planting to promote foraging and navigation for bats



FURTHER OPPORTUNITY
FOR WETLAND MEADOW



PORTARLINGTON
FLOOD RELIEF SCHEME

PORTARLINGTON FLOOD RELIEF SCHEME

WATER ATTENUATION AREAS—LANDSCAPE OPPORTUNITY

17

WETLAND AREA



Opportunity for aquatic planting including marginals and wet woodland species to improve and create habitats



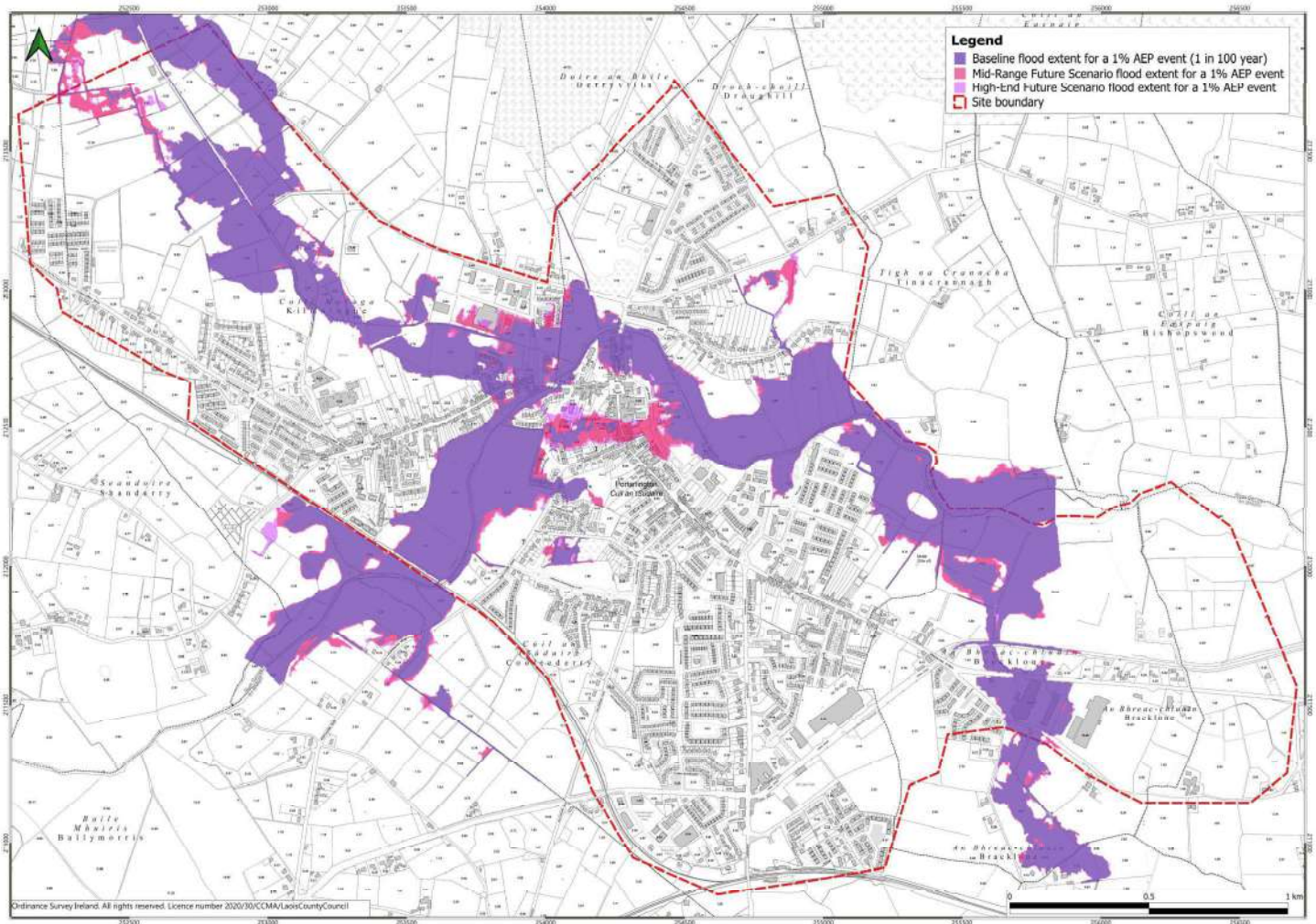
POTENTIAL LINK TO DERRYOUNCE WALKWAY



Potential for public access including circular walks, boardwalks for dipping, bird hides and woodland walks. Further opportunities include meadows and log piles/bug habitats



Climate Change Flood Extents-Do Nothing Scenario (without a Scheme)



The Preferred Scheme is Adaptable

Scheme Measures	Design for the Future
Walls	Walls may need to be extended and increased in height to account for increases in flood extent and depth.
Embankments	The lengths and height of embankments will need to be increased in some locations due to the increased flow in the River Barrow and its tributaries increasing in flood extents and depths.
Natural Water Retention	<p>Natural Water Retention increases water storage, creates wetland habitats and improves water quality. It provides habitat resilience during dry summer months by retaining water and maintaining soil health.</p> <p>Natural Water Retention measures will need to be monitored with future changes in hydrological flows.</p>