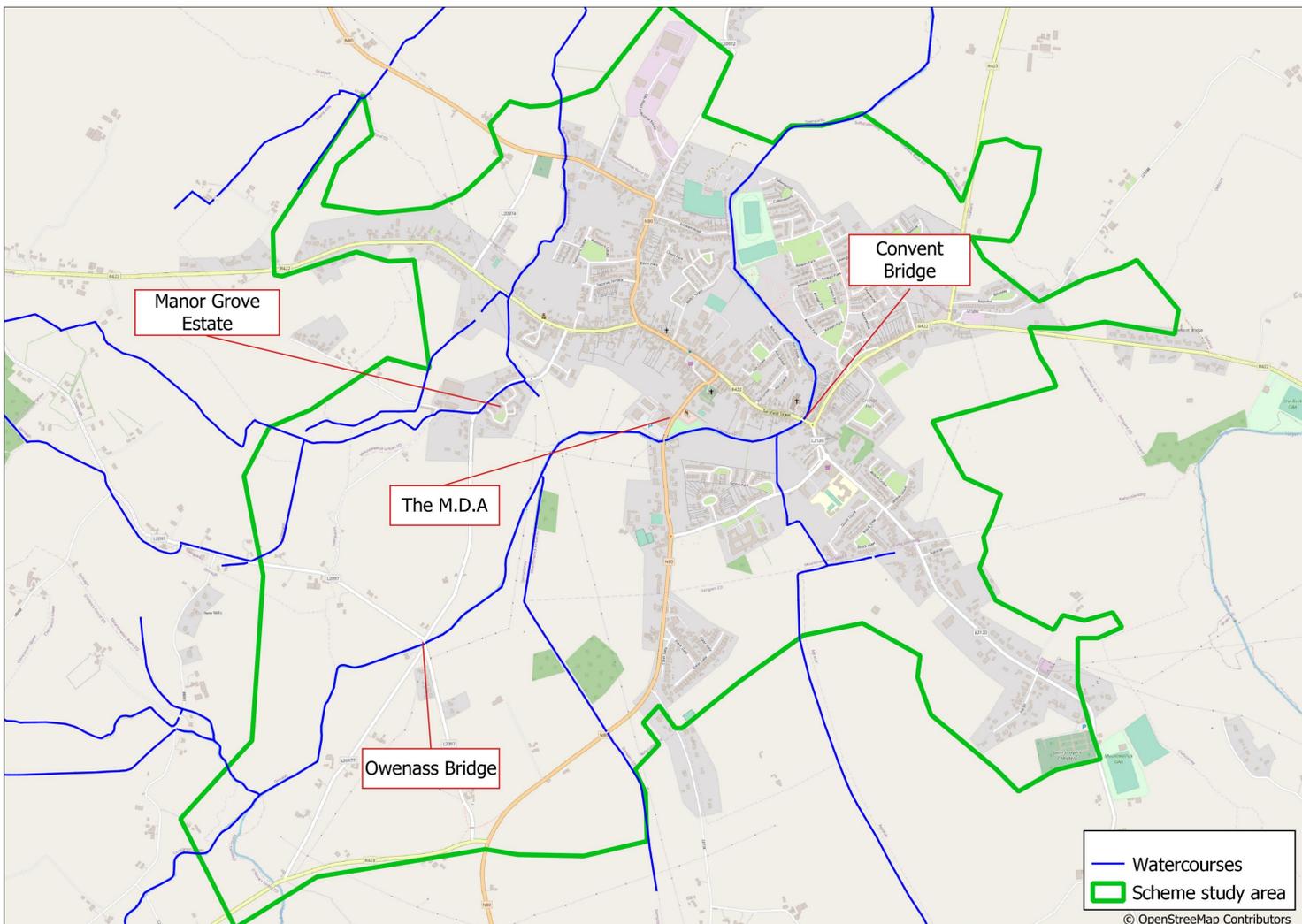




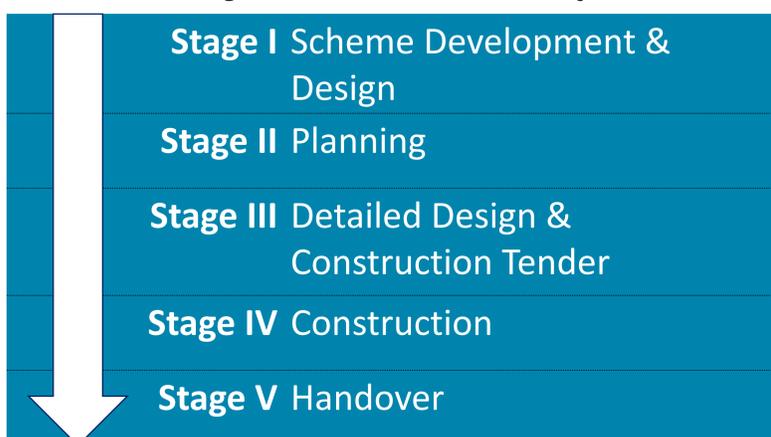
# Introduction

- Welcome to the Public Information Event for the Mountmellick Flood Relief Scheme. Since the last public consultation event, the project team has been working to identify & design a scheme to alleviate the risk of flooding for a 1% AEP (1 in 100-year return period) event within the catchment of the Owenass and the Pound Rivers.
- Today, we will present the measures which form the Preferred Option.
- In addition to the technical feasibility; the scheme must be socially, environmentally and economically acceptable.
- **We welcome your thoughts and feedback on the preferred option.**
- Feedback will be considered prior to the finalisation of the preferred option and subsequent submission of a planning application for the scheme in early 2024.



Flood Relief Scheme Study area

## Project Roadmap



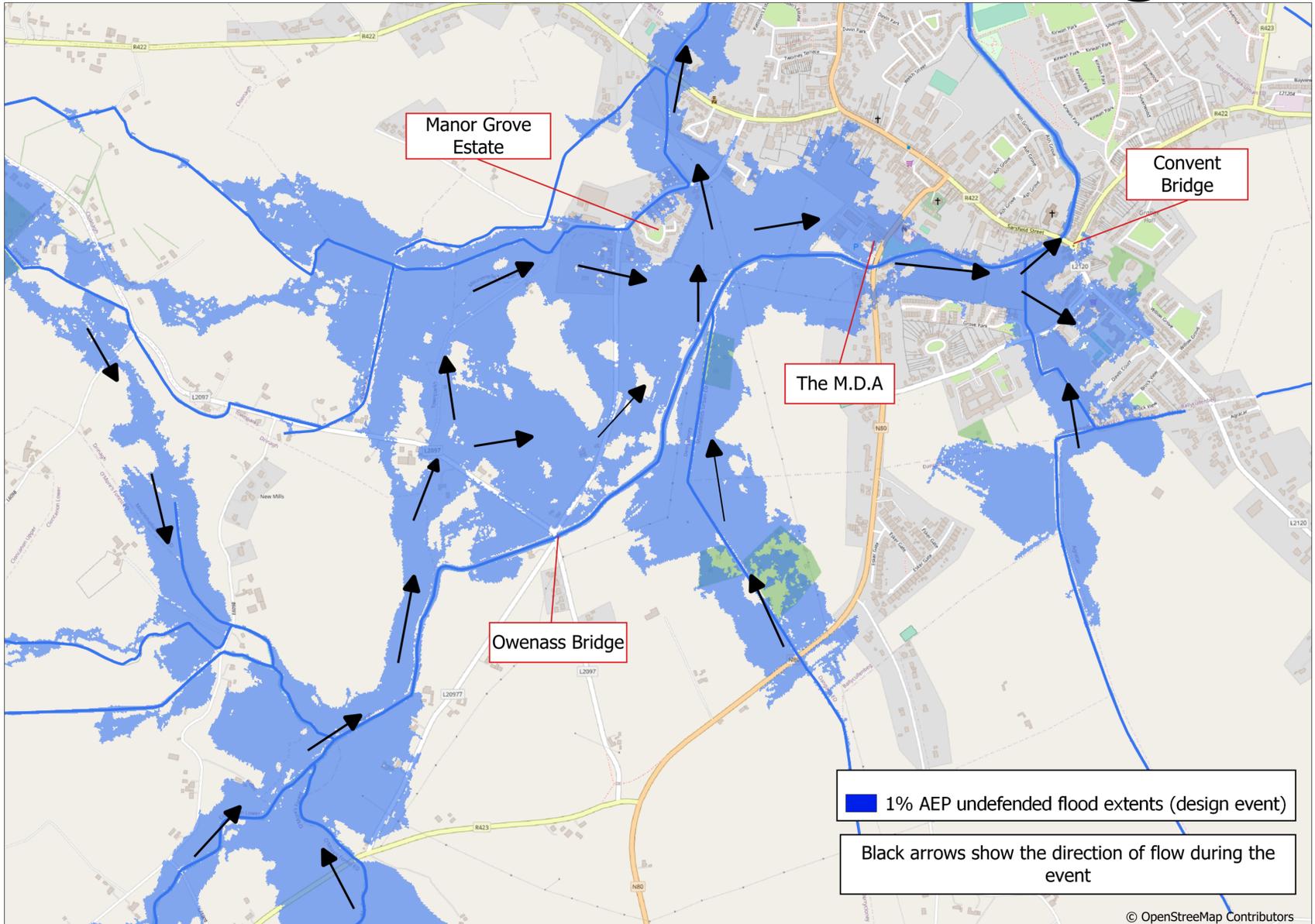
## Stage I activities

- ✓ Hydrological Analysis
- ✓ Hydraulic Modelling
- ✓ Site Surveys
- ✓ Ecology and Environmental Surveys
- ✓ Options Appraisal
- ✓ Preliminary Design
- ✓ Environmental Assessment
- ✓ Option Selection
- Public Consultation ← We are here





# Flood risk if we do nothing



Flood Extents for 1% AEP (1 in 100-year) for Existing Scenario



During the **1 in 100-year** flood event (a flood that has a 1% chance of happening in any year), parts of the following areas are at risk:

- Manor Road
- Wolfe Tone Street
- MDA Business Park
- Pearse Street
- Irishtown
- Connolly Street
- Davitt Road
- Davitt Court
- Brock View
- Lord Edward Street

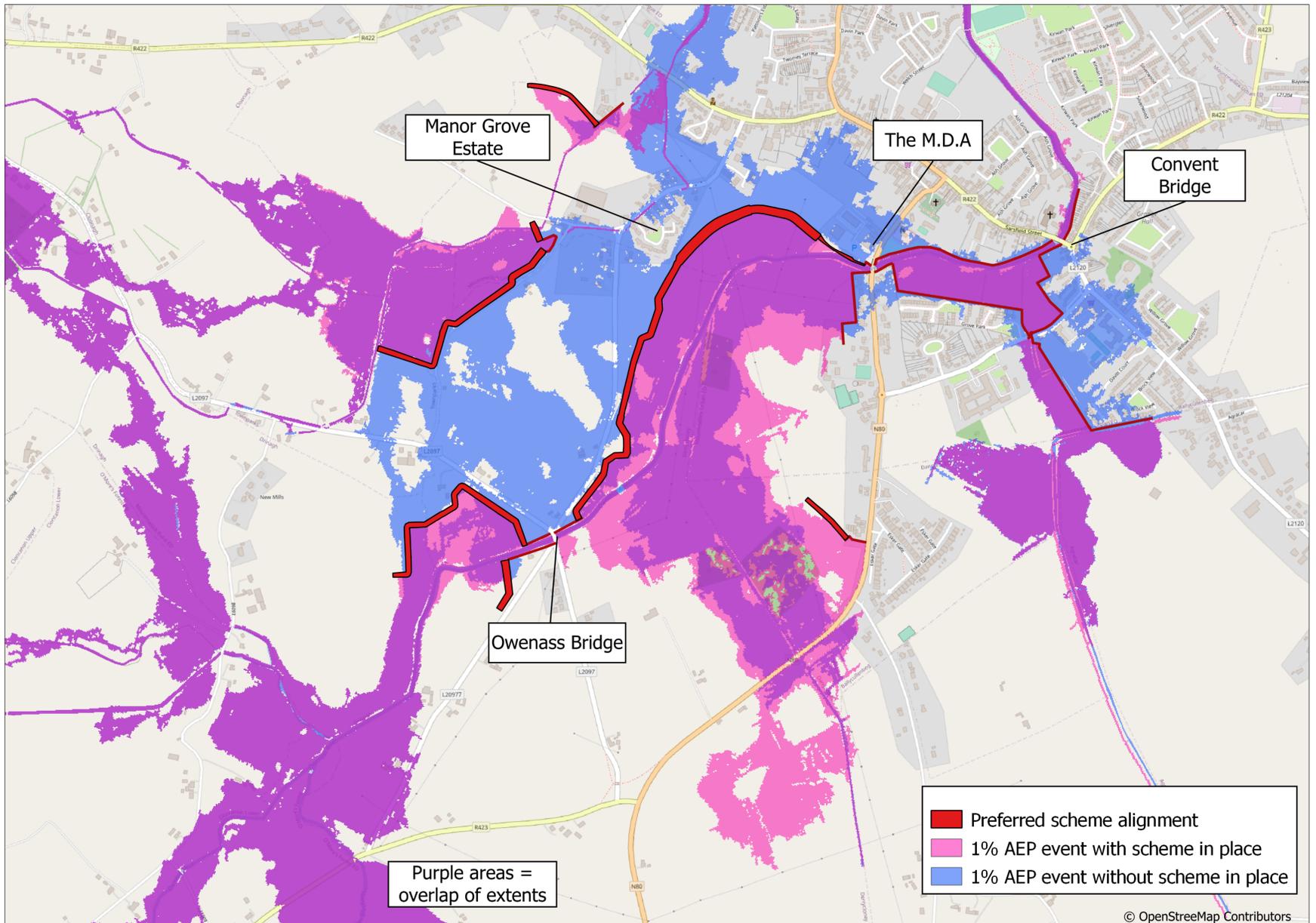
Flooding in the catchment is due to overtopping of riverbanks and flow constrictions along the watercourses formed by bridges and narrowing of the floodplain as it runs through the town. The issue is made worse by the interaction between a number of watercourses including the Owenass and the Pound Rivers.

Looking to the future and considering climate change we see the same areas are impacted but the depth and frequency of flooding increases.





# Flood risk with the scheme



Flood Extents for 1%AEP for Protected Scenario

The map above shows the impact the Flood Relief Scheme will have on the extent of flooding for the 1 in 100-year flood event (a flood that has a 1% chance of happening in any year).

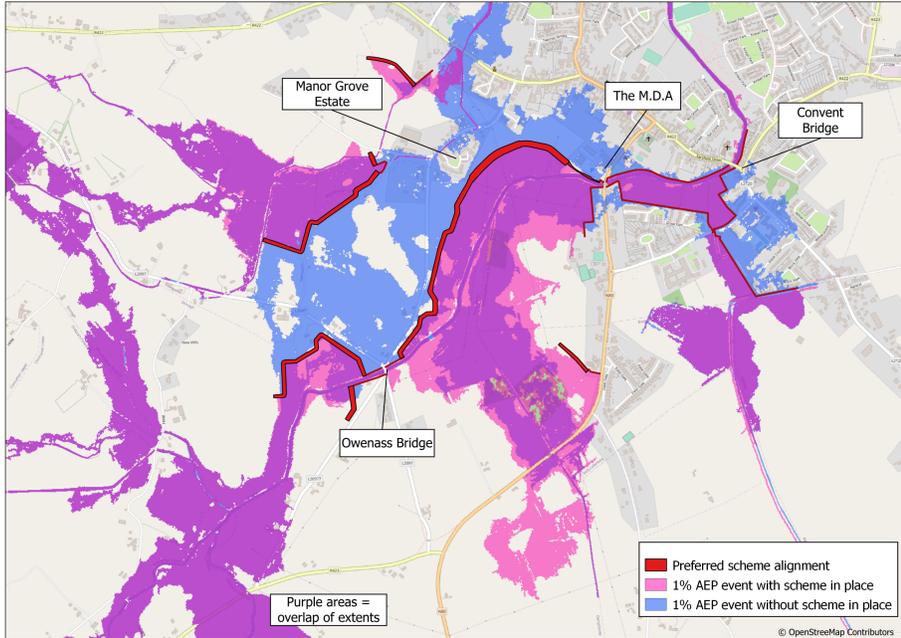
The scheme prevents the flows from the Owenass and Pound Rivers from combining and diverts the water to open fields rather than properties and businesses.

What the different colours mean:

- Blue** The area that will no longer flood for the design event
- Purple** Remains at flood risk
- Pink** New areas of flooding because of the scheme



## What will happen most of the time



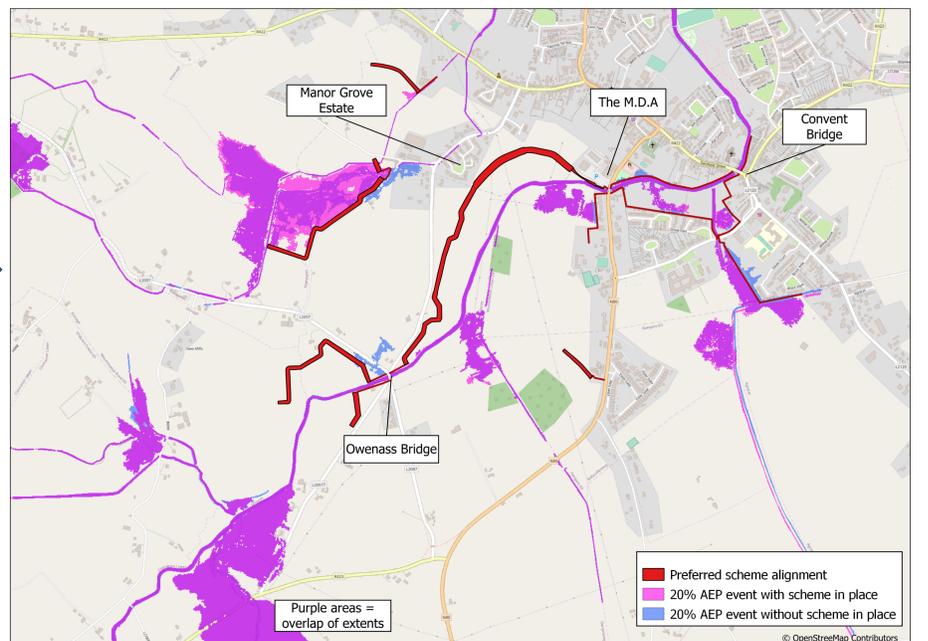
Flood Extents for 1% AEP (1 in 100-year) for Protected Scenario



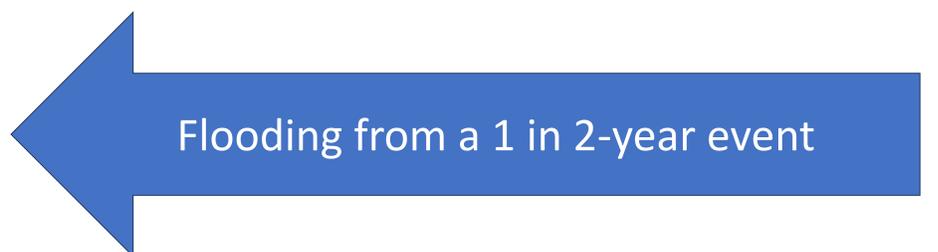
*'It has a 1% chance of happening in any year.'*



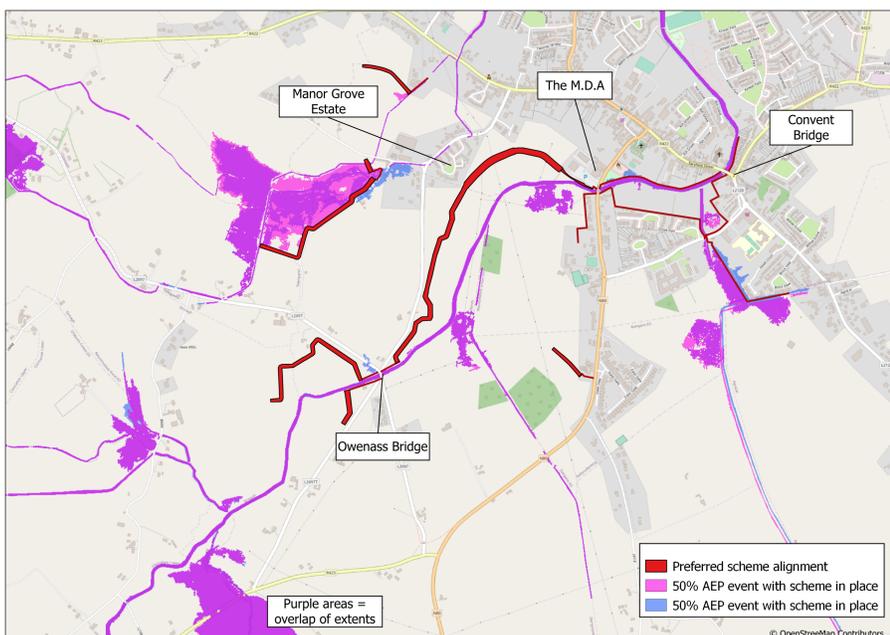
*'It has a 20% chance of happening in any year.'*



Flood Extents for 20% AEP (1 in 5-year) for Protected Scenario



*'It has a 50% chance of happening in any year.'*



Flood Extents for 50% AEP (1 in 2-year) for Protected Scenario

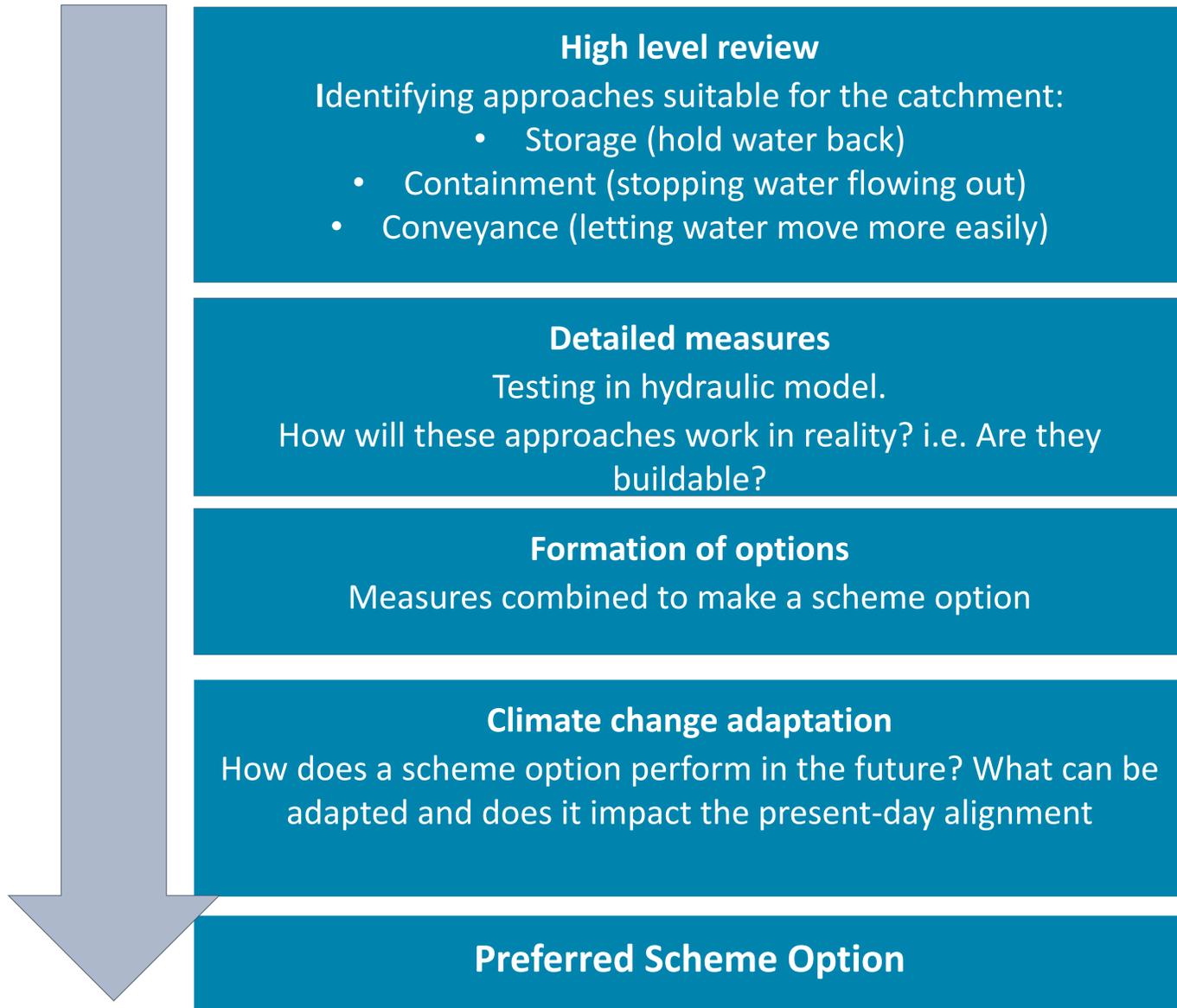
- Blue** The area that will no longer flood for the design event
- Purple** Remains at flood risk
- Pink** New areas of flooding because of the scheme





# Strategic approach to managing flood risk

How did we arrive at the preferred option?



Flood extents for 1% AEP (1 in 100-year) for unprotected scenario - Mountmellick Town Centre

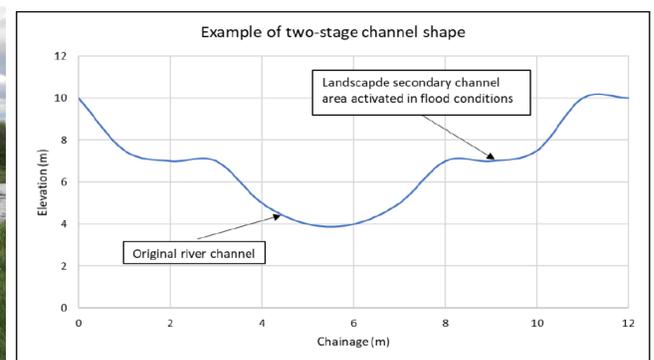


# Strategic approach to managing flood risk

## Measures tested – Storage, Containment and Conveyance

### Storage measures

- Storage – hold water back to reduce peak flows and levels
- Options considered include:
  - Change in land management (forestry)
  - Re-meandering of rivers
  - Increasing the size of the rivers by creating a two-stage channel
- Storage alone does not achieve the Standard of Protection, even with all potential areas used

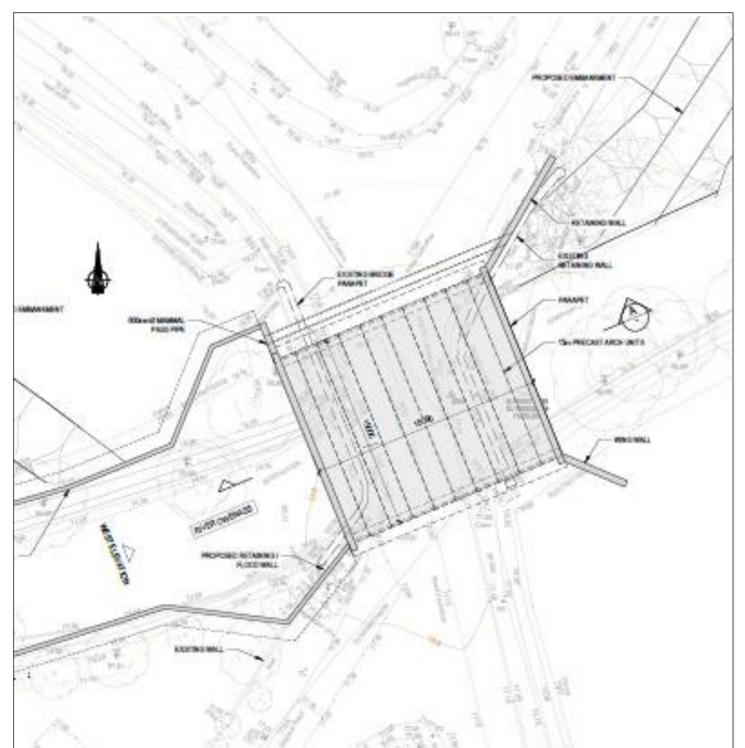


### Containment and conveyance measures

- Containment – prevent water from spilling out of bank.
- Conveyance – remove restrictions to flow and let water move more easily.
- Both types of measures tested and required to have a workable scheme.
- Conveyance under Owenass Bridge is integral for the scheme.
- Works preventing flow from the Owenass meeting the Pound is also a key element of the scheme



Example of containment - retaining water on the Pound River system



Example of conveyance – upgrade of Owenass Bridge



# Strategic approach to managing flood risk

## Climate change adaptation

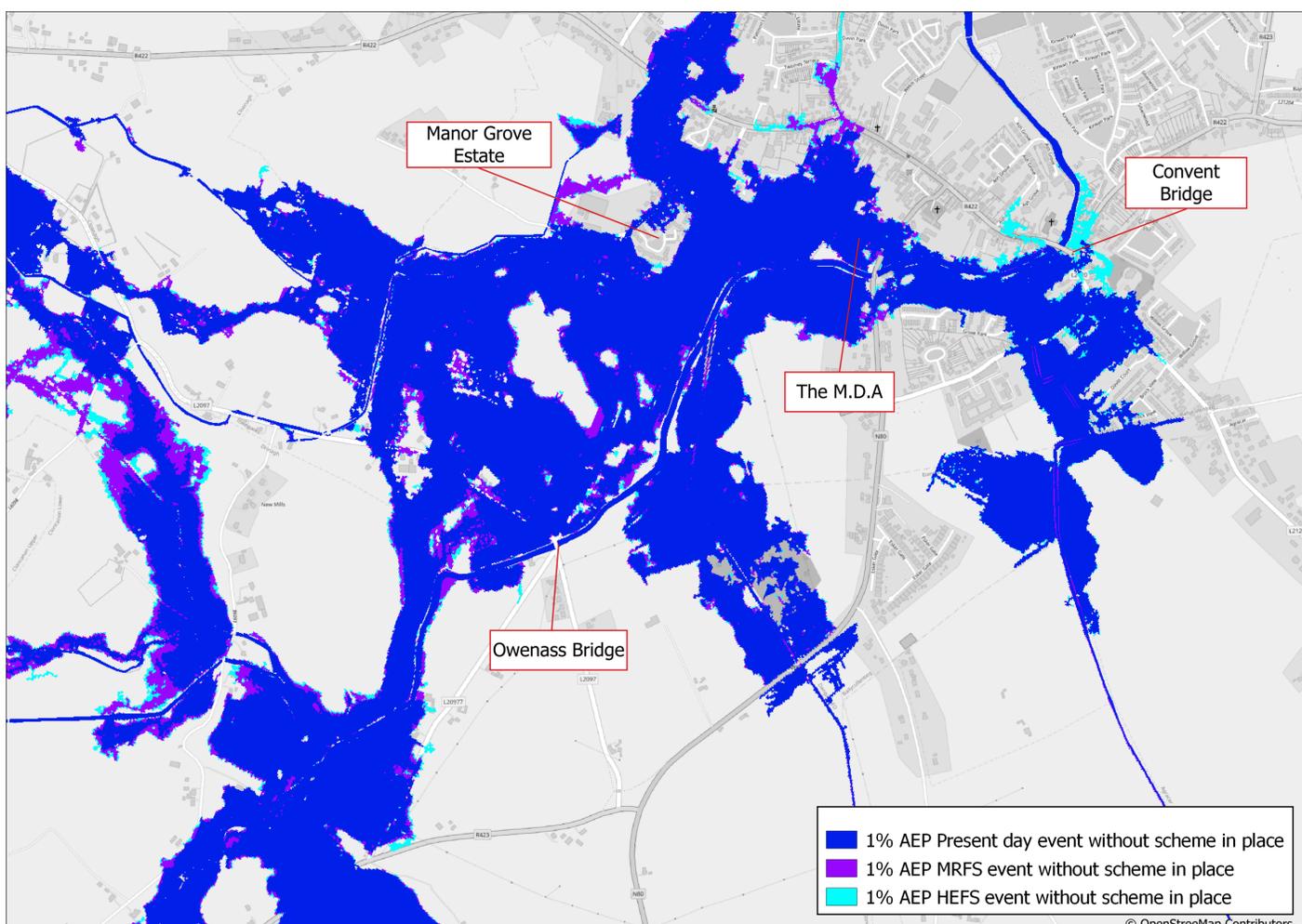
### The Present Day – this scheme

- Key measures were identified for the scheme to develop the preferred Option:
  - Defences separating the Owenass and Pound Rivers
  - Defences containing flow on the Pound River system
  - Replacement of Owenass Bridge
  - Defences containing flow on the Owenass River throughout Mountmellick Town
  - Defences containing flow on the Clontygar Stream
- **Without these measures, the Standard of Protection (1 in 100 year) cannot be achieved.**

### Options in the future

- In the future flows, and rainfall are to increase putting more pressure on the system.
- The scheme is adaptable. This means that it protects now and can be modified to protect in the future.
- Key adaptations of Present-Day scheme for the Medium Range and High-End Scenarios are:
  - Raising of all defences.
  - Extension of some defences

| Future Scenario | Flow/ rainfall increase |
|-----------------|-------------------------|
| Medium Range    | +20%                    |
| High End        | +30%                    |



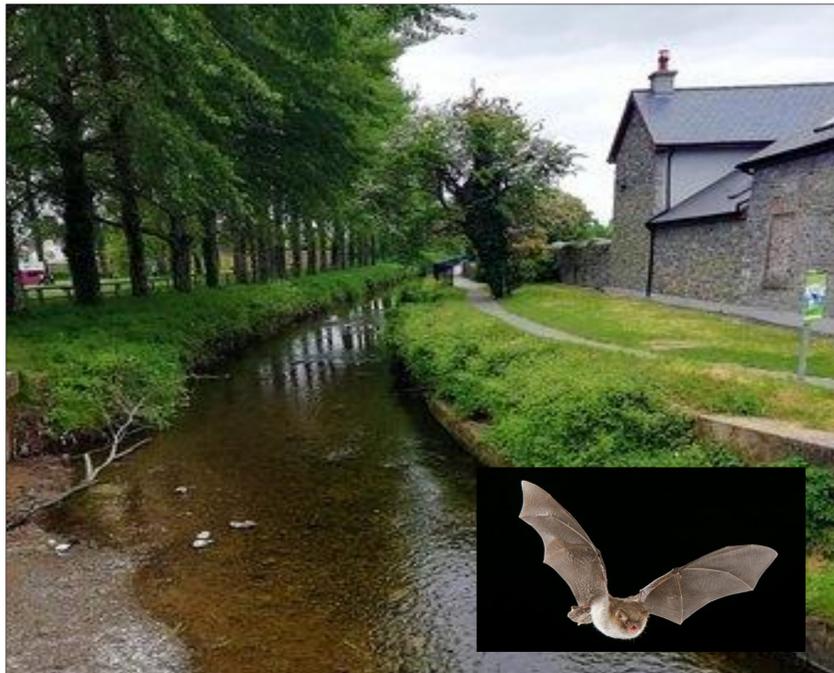
Flood Extents for 1% AEP (1 in 100-year) for Existing Scenario now and into the future



## Environmental aspects

All environmental aspects identified for the Constraints Study were considered during Options Selection and influenced the design and placement of particular measures.

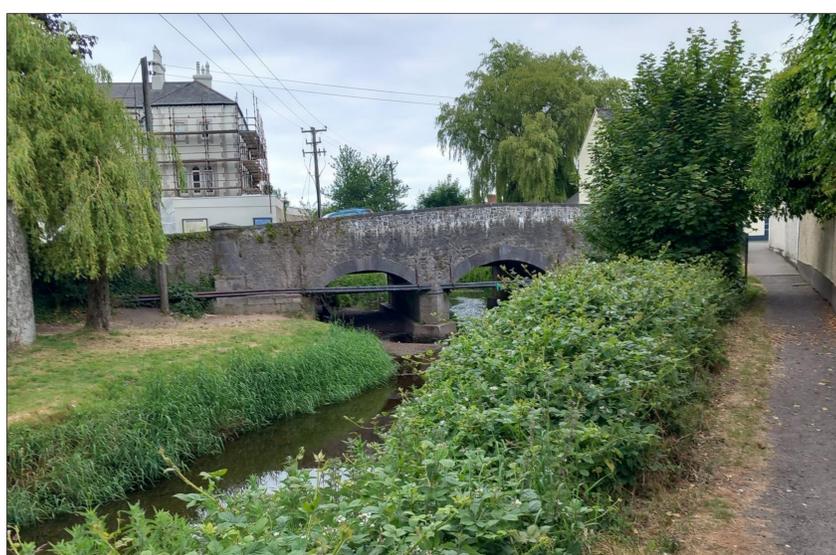
The Preferred Option will be subject to Environmental Assessment at the planning stage. This will include Environmental Impact Assessment Screening and Appropriate Assessment.



**Biodiversity** Daubenton's bats were recorded foraging adjacent to the Owenass bridge. Bat species are reluctant to cross open ground, they follow linear features such as hedgerows, lanes, fence-lines, watercourses and woodland edges



**Access** Pedestrian access along the bank of the Owenass from Mill Bridge to Convent Bridge will be closed during construction to allow the removal of the existing wall allowing the construction of an enhanced footpath and cycle path.



**Cultural Heritage** A number of designated heritage sites will be impacted by the scheme including Convent Bridge. We will look to enhance the appearance of the bridge by re-routing the telecoms ducts fixed to the face of the bridge.



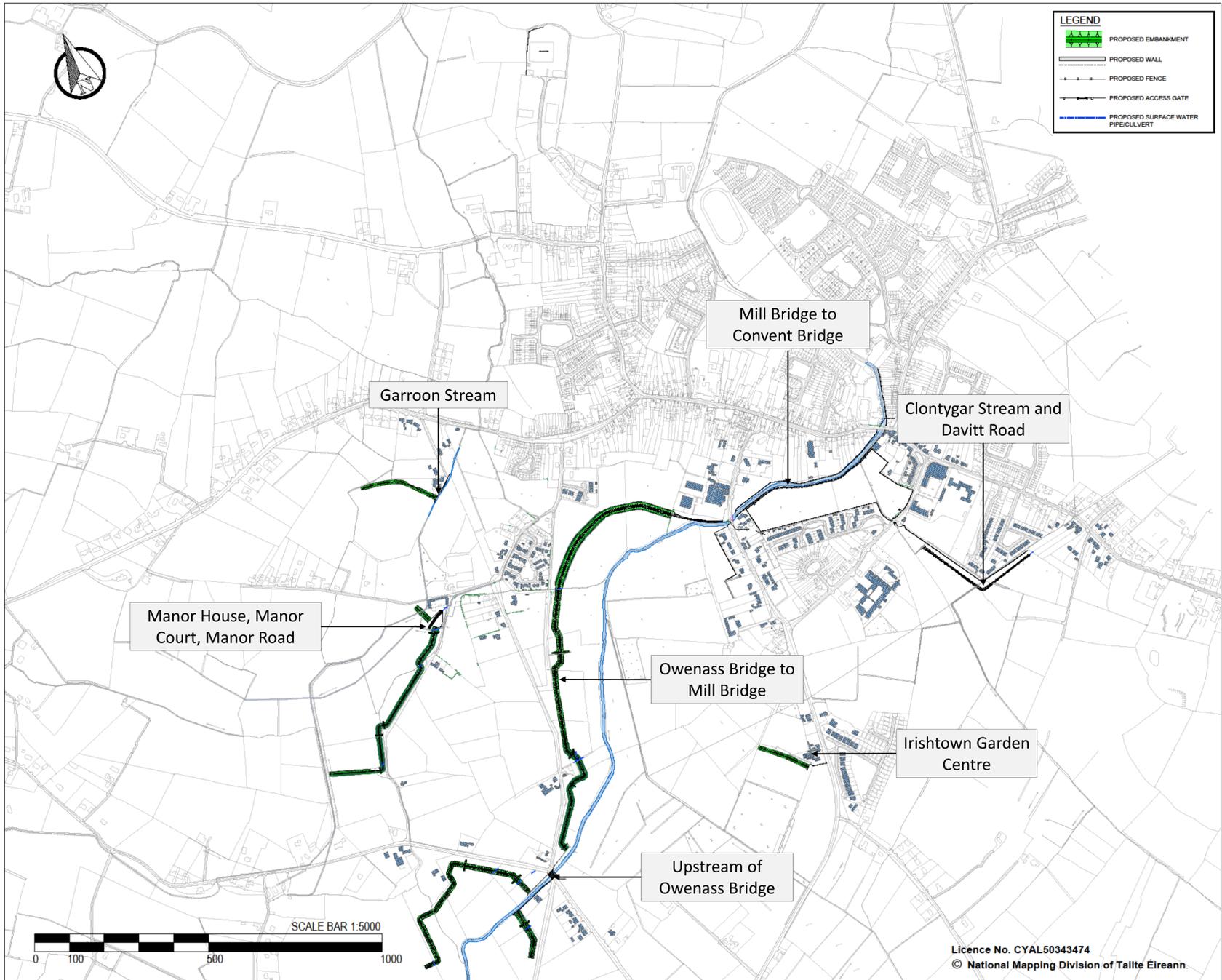
**Biodiversity** Mammal surveys (include camera traps used to take this photo) have been carried as part of ecological studies to locate these features and where possible avoid as part of the proposed scheme. Where this is not possible, the design has been developed to support wildlife e.g. a mammal pass has been included in the new Owenass Bridge.



# Mountmellick

## FLOOD RELIEF SCHEME

### Preferred Option



| Location                             | Proposed Works |                  |               |                                      |
|--------------------------------------|----------------|------------------|---------------|--------------------------------------|
|                                      | Flood Wall     | Flood Embankment | Realign River | Other                                |
| Mill Bridge to Convent Bridge        | ✓              |                  |               | Improved footpath                    |
| Clontygar Stream and Davitt Road     | ✓              |                  | ✓             | Pumping station                      |
| Owenass Bridge to Mill Bridge        | ✓              | ✓                |               |                                      |
| Upstream of Owenass Bridge           | ✓              | ✓                |               | Bridge to be replaced                |
| Manor House, Manor Court, Manor Road | ✓              | ✓                |               | Flow control culvert to be installed |
| Garroon Stream                       | ✓              | ✓                |               |                                      |
| Irishtown Garden Centre              | ✓              | ✓                |               |                                      |





# Mill Bridge to Convent Bridge



## Current Situation

- Flooding occurs within the park, the MDA, the Fire Station, properties at Grove Park, Sarsfield Street, Connolly Street, Pearse Street, Davitt Road and near Convent Bridge.

## Proposals

- The proposed flood protection measures includes:
  - The creation of a formalised flood plain to the south of the Owenass River. New flood defence walls will be installed on the boundaries of these lands.
  - Construction of new flood defence walls along the north bank of the Owenass River.
  - Removal of the existing stone wall boundary along the south side of the Owenass River to allow the flood flows to easily enter and leave the flood storage area.
  - The existing footpath path will be suitably graded to an elevation which will remove the need to have flood gates along the route. The flood defence works will allow not inhibit development of any future active travel route.
  - The trees adjoining the children's playing park will be removed to ensure the park is protected.

## Constraints

- Work will require access to private gardens along the northern bank of the Owenass River.
- Works are required within the children's playing park.
- Working adjacent to existing properties and boundary walls and Convent Bridge.





# Clontygar Stream and Davitt Road



### Current Situation

- Flooding from both the Owenass River (North) and the Clontygar stream (South) impacts this area.
- Flooding occurs surrounding the supermarket, St Joseph's Girls National School, the Primary Care Centre, properties on Davitt Road, Connolly Street, Davitt Court and Brook View.

### Proposals

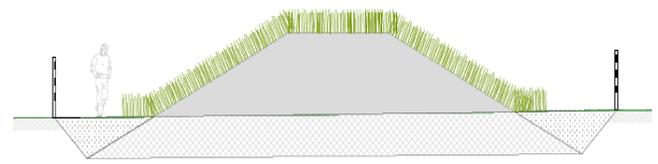
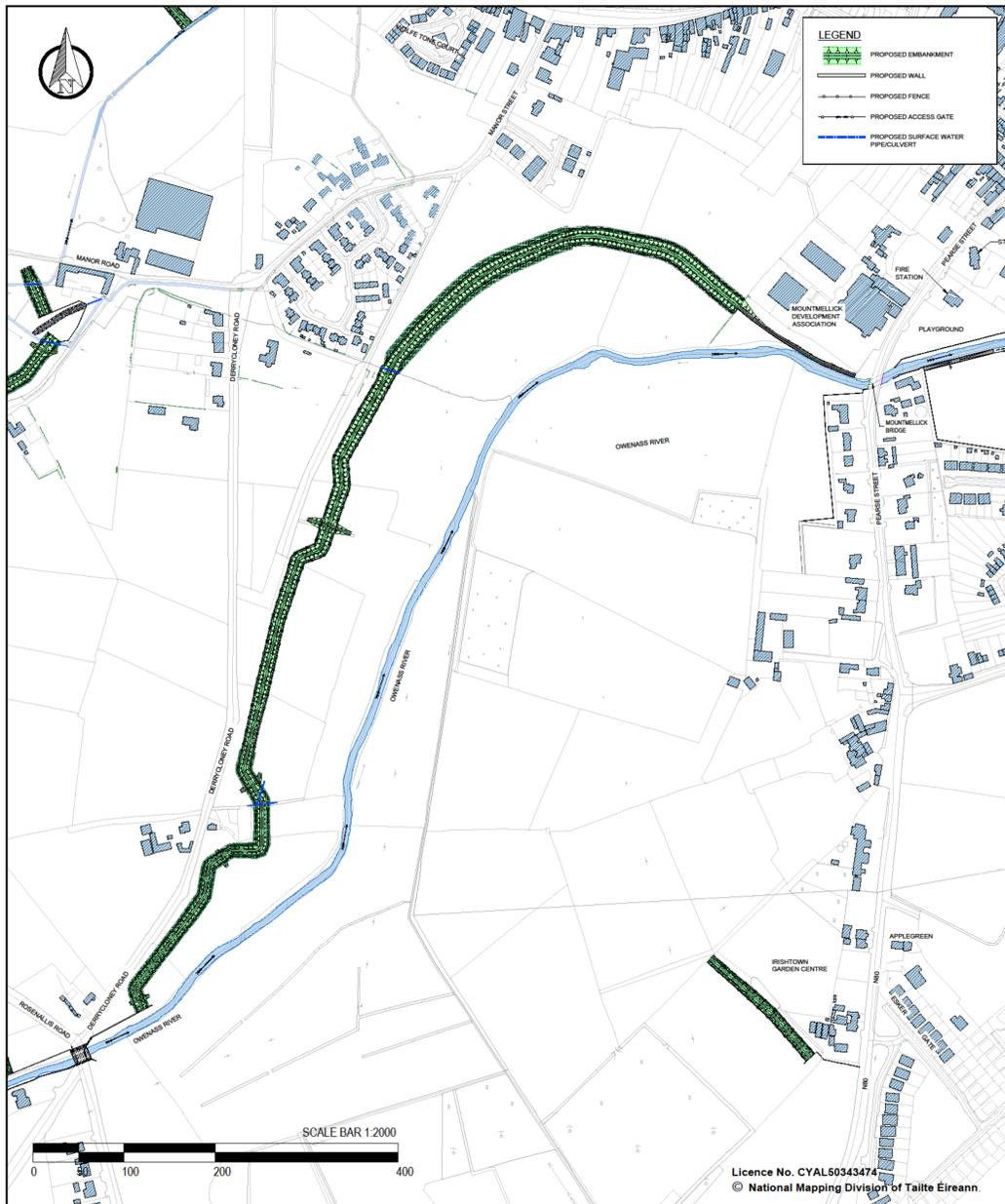
- The proposed flood protection measures include:
  - The construction of flood defence walls extending from Brock View and Davitt Road to the existing culvert running under Irishtown road.
  - The flood defence works will include the diversion of part of the Clontygar Stream to allow suitable space to construct the new works.

### Constraints

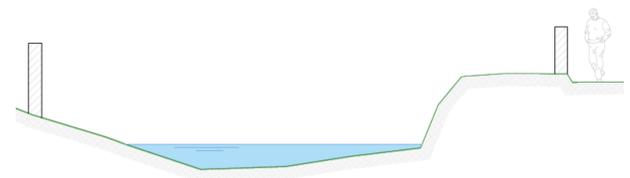
- The existing alignment of the Clontygar Stream adjoins the property boundaries of Brock View and Davitt Road.
- The existing sports field in the grounds of St Joseph's Girls National School is an important resource & is protected by the works.



# Owenass Bridge to Mill Bridge



Typical Embankment Detail



Typical Flood Defence Wall Detail

### Current Situation

- As water levels rise within the Owenass River during an event, out of bank flow spills onto the adjacent land creating a risk of flooding to individual properties. Where this flooding merges with flood waters from the Pound Stream it puts properties on Manor Street, Manor Court, Manor Road and Manor Grove at risk of flooding. The Mountmellick Development Association (MDA) and the properties along Pearse Street are also at risk of flooding.

### Proposals

- The proposed flood protection measures include:
  - The construction of a new flood defence embankment extending from the Owenass Bridge to the Mill Bridge.
  - To the north adjoining the MDA, the form of flood defence measures changes from an embankment to a flood defence wall.
  - On the southern side of the Owenass River, a new flood defence wall will be constructed from the Mill Street Bridge (Northern Extent) to the rear of the properties on Pearse Street (Southern Extent).
  - The purpose of these protection measures is to fully contain the flooding from the Owenass River at this location.

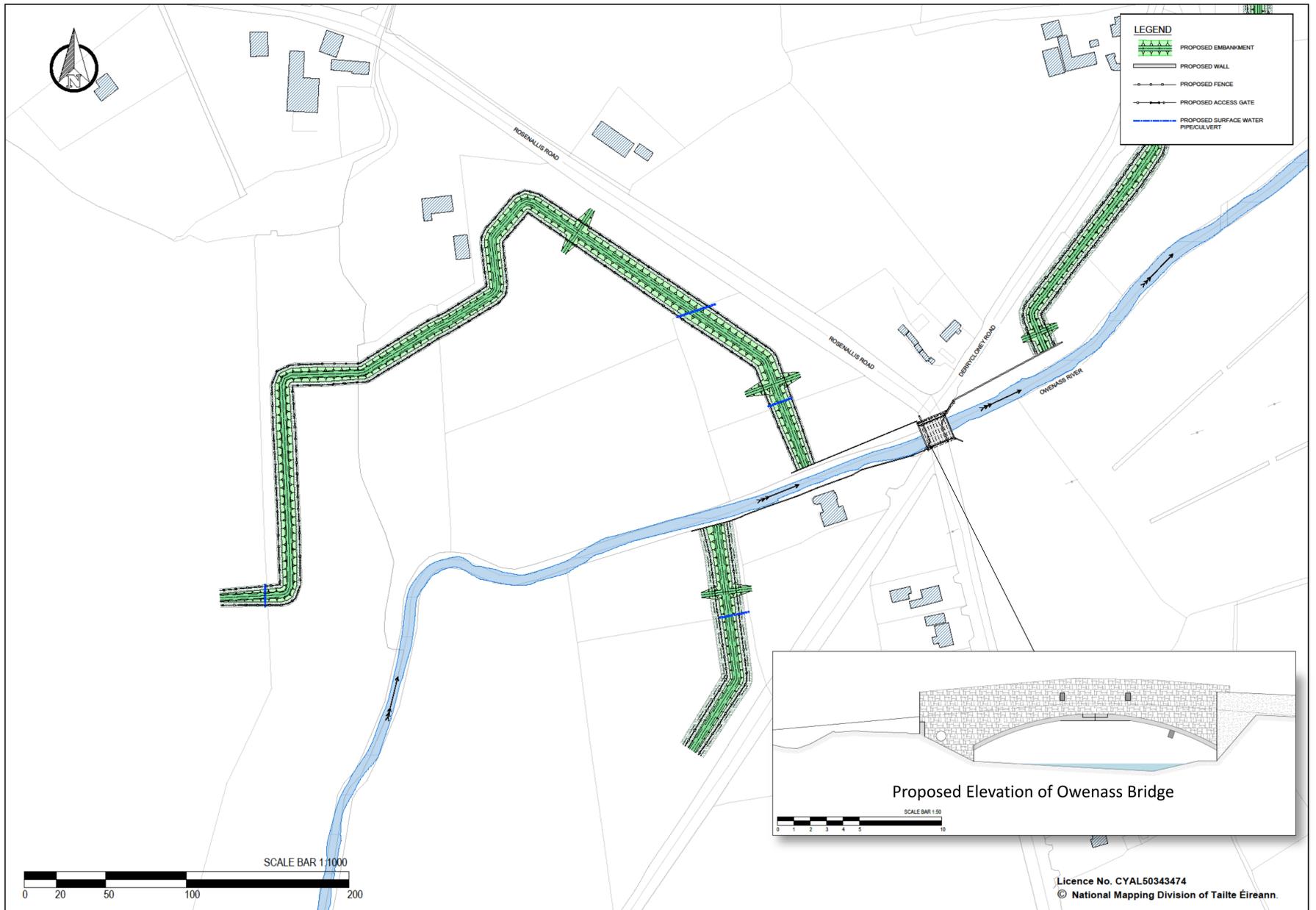
### Constraints

- Maintaining access to all areas of land either side of the protection works.
- Ensuring privacy is maintained for properties adjoining the works.





# Upstream of Owenass Bridge



### Current Situation

- At this location, flood waters from the Owenass River spill out of bank around the sharp bend. The flood flows travel to the north flooding a large areas of fields and several individual properties. It then combines with the Pound flood waters putting properties on Manor Street, Manor Court, Manor Road and Manor Grove at risk of flooding as well as properties adjacent to Owenass Bridge.

### Proposals

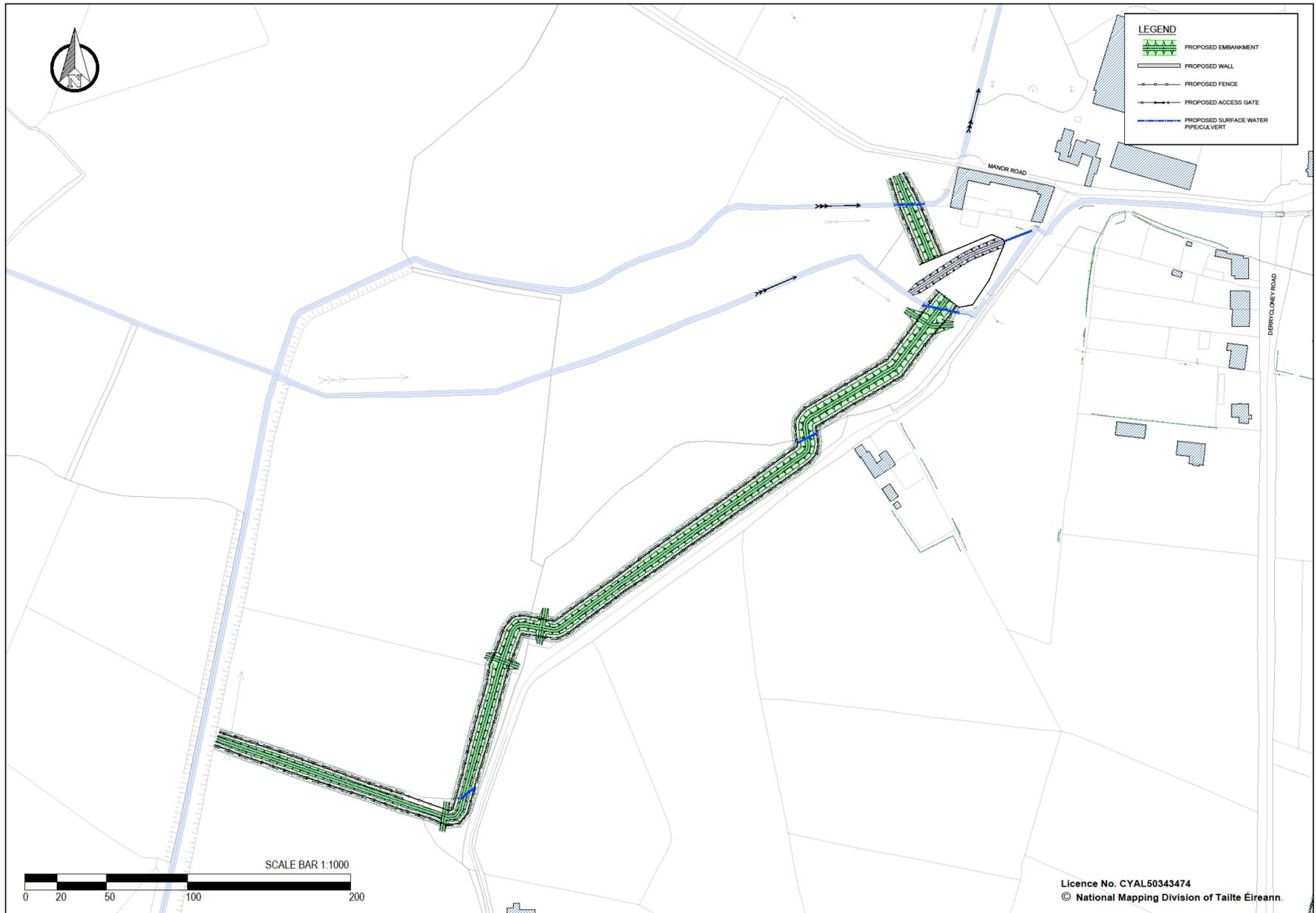
- The proposed flood protection measures include:
  - The construction of a flood defence embankment and walls to the north & south of the Owenass River. The measures will contain flooding, provide property protection, prevent flooding from merging with the Pound Stream and will channel flow through Owenass Bridge.
  - To safely increase conveyance of the existing Owenass Bridge, the existing structure will be replaced with a new larger span arch structure.

### Constraints

- Temporary traffic disruption to facilitate the construction of the Bridge.
- Working adjacent to properties at Owenass Bridge.
- Environmental constraints relating to the bridge structure.



# Manor House, Manor Court, Manor Road



### Current Situation

- Flooding from the Pound Stream puts properties on Manor Road, Manor Street and Manor Grove at risk.
- Flooding from the Pound Stream merges with flood waters from the Owenass River to increase the extent of flooding in the town and along the Pound River.

### Proposals

- The proposed flood protection measures include:
  - The construction of a flood defence embankment with flow control structure to contain flooding from the Pound Stream spilling into the areas listed above.
  - The flow control structure will reduce the rate of flow allowed to enter the Pound Stream during the design event and the embankment will retain the flooding upstream. As the event dissipates the attenuated water volume will be released into the Pound Stream with lands returning to their pre-event condition.

### Constraints

- Incorporate local drainage features and ditches including the need for non-return valves on some of the ditches.
- Access to the fields needs to be maintained – achieved by included access ramps over the embankment.



### Garroon Stream



#### Current Situation

- Flooding from the Garroon Stream puts properties adjoining Wolfe Tone Street at risk.

#### Proposals

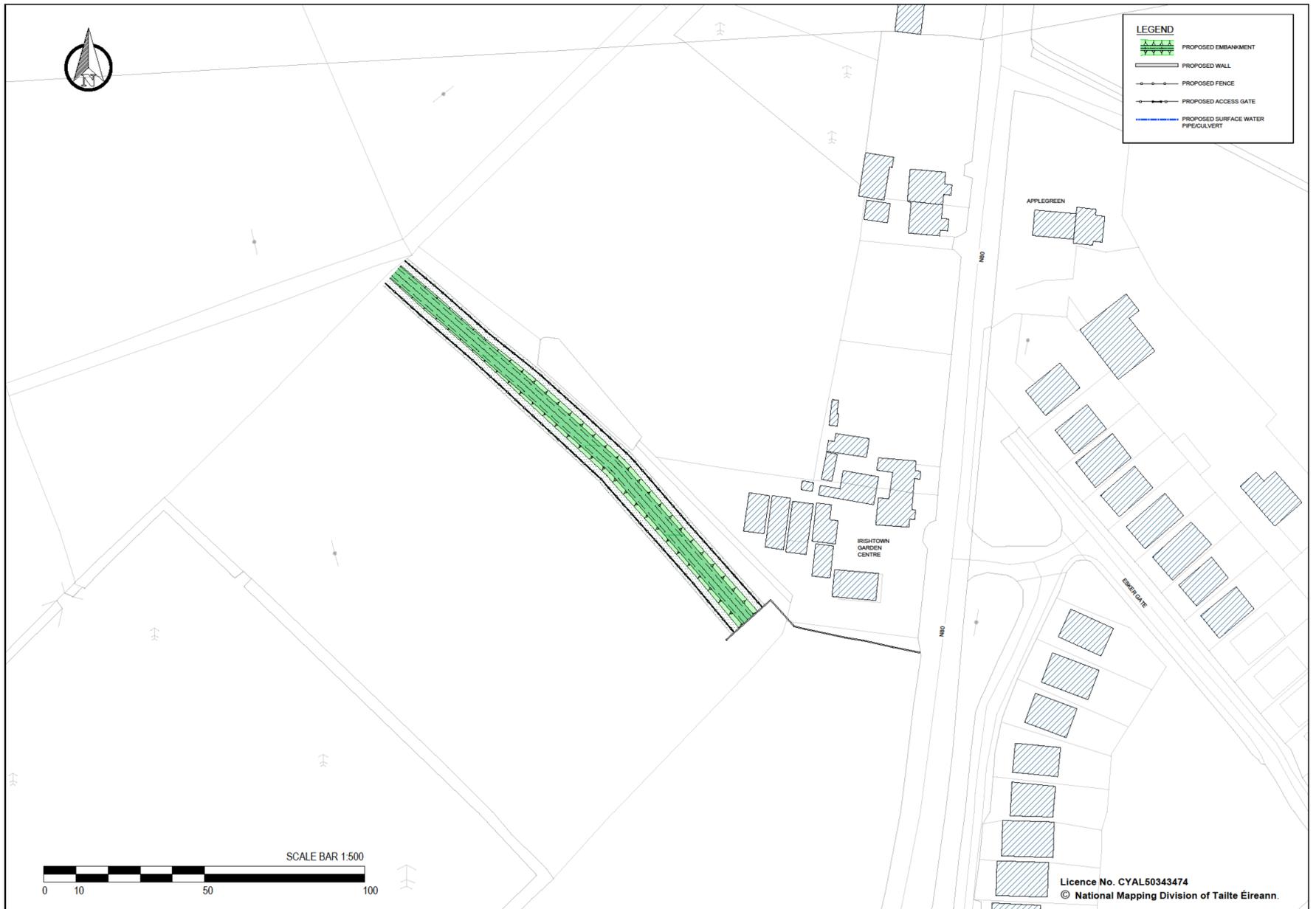
- The proposed flood protection measures include:
  - The construction a flood defence wall and embankment adjoining the existing properties.
  - The flood defence wall will include suitable access points to the adjoining lands.

#### Constraints

- Providing access to the properties



# Irishtown Garden Centre



### Current Situation

- Without the scheme in place, this area is not at risk of flooding from the 1 in 100-year flood event.
- With the scheme in place, flooding will extend towards the Irishtown Garden Centre

### Proposals

- To remove risk of flooding to the properties in this area, a new flood defence wall and embankment will be constructed to the south of the garden centre.

### Constraints

- Working within an existing wooded area.