

Option 1 – Defences around Mountmellick town

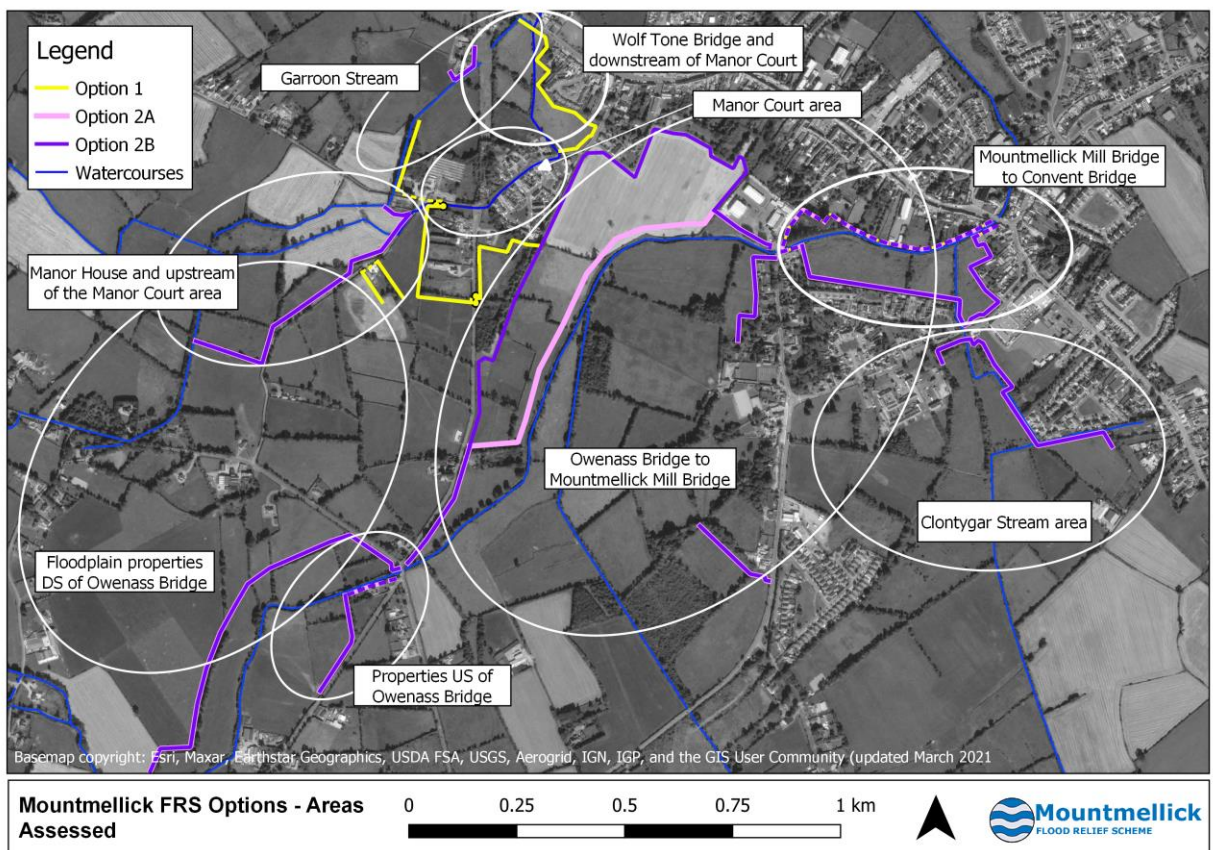


Mountmellick Flood Relief Scheme - Emerging option 1
March 2021

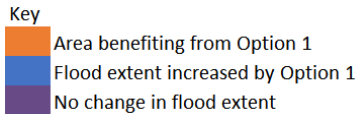


Option 1

- The images and descriptions in the following pages are based on a comparison between the current (undefended) scenario and Option 1. They are based on the 1% AEP flood event (or event that has a 1% chance of happening in any year, otherwise called the 1 in 100 year flood). The 1% AEP flood is also the level that the defences will be built to protect against. As well as the direct water level, the defences also have an element of freeboard, so are 300mm higher than the water level for walls and 500mm higher for embankments, where settlement can happen over time.
- The discussions on the following pages are geographically based, and cover the areas shown in the map below.
- You can use the interactive map near the end of the room to zoom into areas of interest more easily.
- In common with Option 2A and 2B, a line of defences will also be needed around the Bay Road Business Park (not shown on the map below), which is at risk from the River Barrow rather than the Owenass or Pound.



Mountmellick Mill Bridge to Convent Bridge



Description: The playground is flooded in the current scenario and continues to be flooded when Option 1 is in place with defence line to the rear of the playground.

There is only minor spill on the north bank downstream of the playground in the current scenario but defences are included along this area as flooding is worsened for the rear of Sarsfield Street when upstream defences are modelled. The defences along the north bank are around 0.6 – 0.9m (2' to 3' high). Flood levels increase by 10cm in the playground and by approximately 25cm in Healions Field in Option 1 compared to the current scenario.

Benefits: In Option 1 properties previously flooded in this area are defended. As a result of the additional defences, no additional key risk receptors are impacted.

Constraints: Properties along Sarsfield Street will need a defence wall built along the riverside boundary but access to the river will be facilitated in line with current usage as far as possible.

This boundary is also the edge of the Archaeological Zone of Notification.

The defences do not protect the playground area or the public walkway along the right bank.

There will be some loss of mature trees in the playground; the impact on the trees and bat habitat will need to be mitigated. The defences bisect the SAC boundary along the north side of Grove Park and consultation with NPWS will be needed about this.

Monitoring to confirm the presence of otters will be carried out, and may require mitigation to avoid damage to holts and impairing access to feeding sites.

Clontygar Stream and Davitt Road

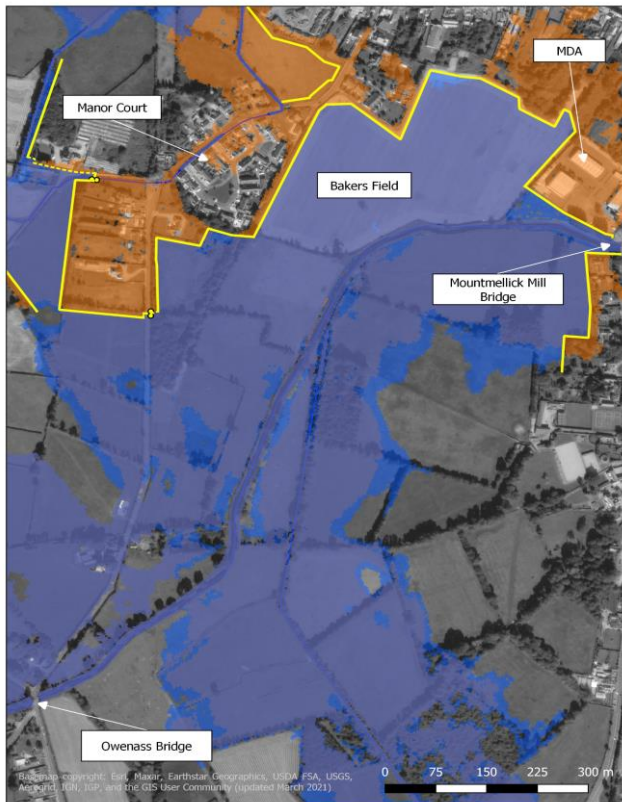
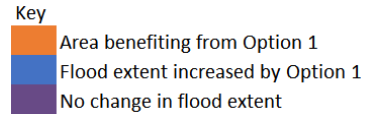


Description: Flooding along the Clontygar Stream is largely as a result of the Owenass backing up into Healion's field and up the stream channel. This also causes the drains and pipes which flow into the Clontygar to back up. In Option 1, the defence line provides protection to the surrounding properties from this flooding. It also ensures that Irishtown road – a key access route – is not flooded. The presence of the Option 1 defences does increase water levels along the Clontygar as flood waters are contained and there is also an increase in flood extents in greenfield areas. Levels in Option 1 along the Clontygar increase by approximately 0.25m compared to the current scenario.

Benefits: The proposed defence line protects many and a key access route. The area where flooding is increased is green space which has no key risk receptors. While levels do increase in Option 1 along the Clontygar there is potential for further work and assessment to reduce this by adding a flap valve on the Irishtown road culvert to prevent backwater from the Owenass river. Levels increase by 5cm in Option 1 when a flap valve is put in place compared to the current level.

Constraints: The Davitt Road area is known to have sewer capacity and flooding issues, including backing up of systems/surcharge and flooding resulting from pluvial sources. Some of the most vulnerable properties have had individual property protection measures installed to prevent recurrence of the 2015/2016 & 2017 flood events. Additional flood water being stored or the addition of flap valves to discharges will require further detailed assessments and the development of a solution as required in conjunction with Irish Water

Owenass Bridge to Mountmellick Mill Bridge



Description: The defence line is tight to the line of urban development and follows the northern boundary of the Baker's field and perimeter of the MDA lands. The west bank of the Owenass is flooded in the undefended scenario and continues to be flooded when Option 1 is in place as water levels in the Baker's field increase by 0.45m in Option 1 compared to the undefended scenario.

Benefits: Option 1 protects the properties along Parnell Street, the MDA and Manor Court.

Closing off the connection between the Owenass and Pound reduces flood risk on the Pound downstream of Manor Court as there is a reduction of flow passing through that part of the system.

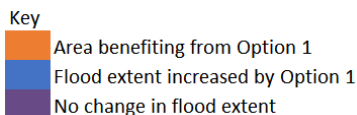
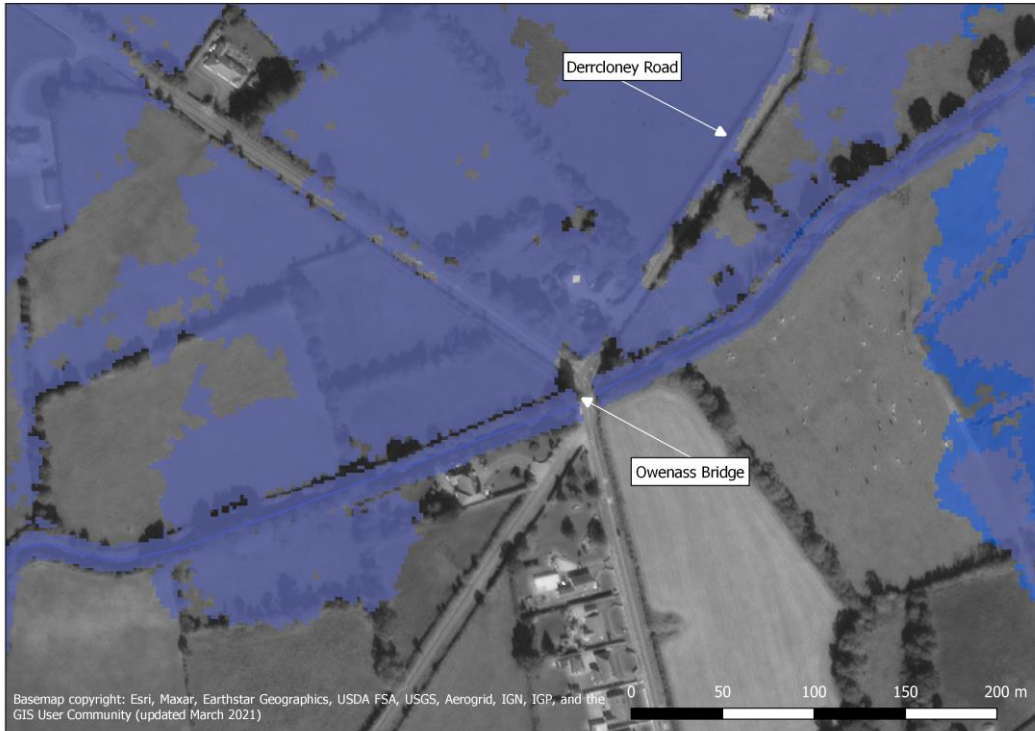
Coupled with works around the pumping station (which could be moved inside the defences), there are opportunities to form a pocket park in this under-utilised corner. Embankment lends itself to an extension to the riverside walkway.

Constraints: Option 1 includes defences along Sandy Lane in front of the Manor House, and across Manor Road which will require either road raising or a flood gate or barrier and will involve road closure during times of predicted flooding. The space available for road raising is limited and the flood barrier would need a warning system and deployment plan. The embankment also passes close to the boundary walls at Manor Grove and Manor Court so consideration will have to be given to an appropriate offset distance to minimise overlooking into gardens from the embankment.

The historic wall behind the pumping station upstream of Mountmellick Mill Bridge will be partially removed to facilitate the defence and pedestrian access.

The embankment bisects the River Barrow and River Nore SAC boundary at the MDA and consultation will be needed with NPWS in relation to the status of the SAC and required mitigation works.

Properties upstream of Owenass Bridge

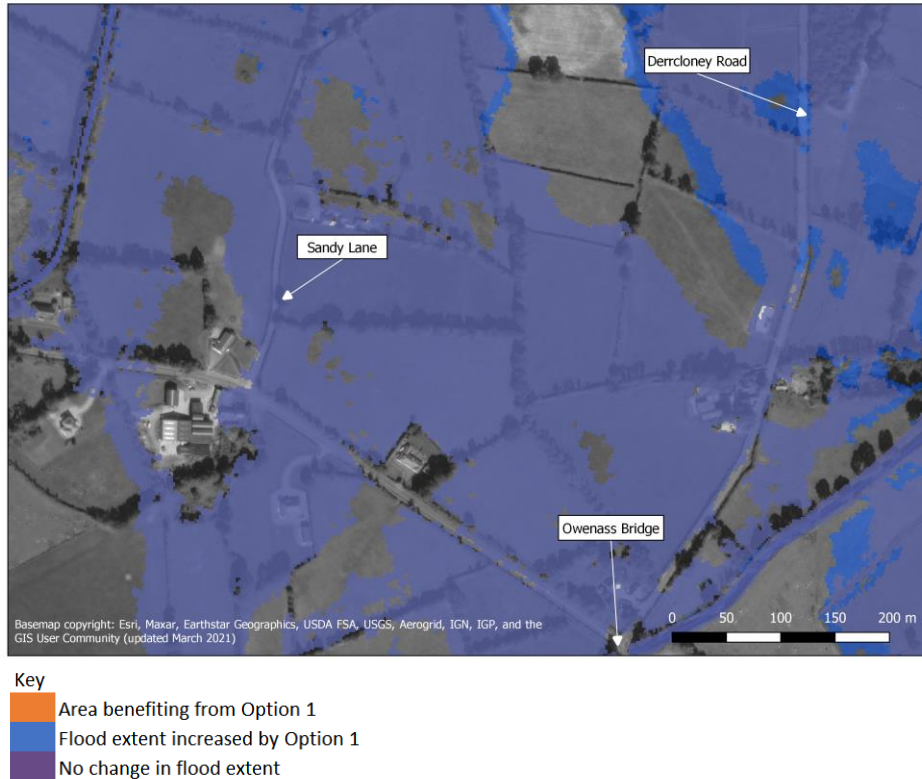


Description: Option 1 focuses on the town of Mountmellick and no defences are proposed in the upstream floodplain area around Owenass Bridge. Buildings in this area are not flooded in the current scenario and not protected or impacted in Option 1.

Benefits: This area does not need protecting and the defences downstream do not increase risk to these properties.

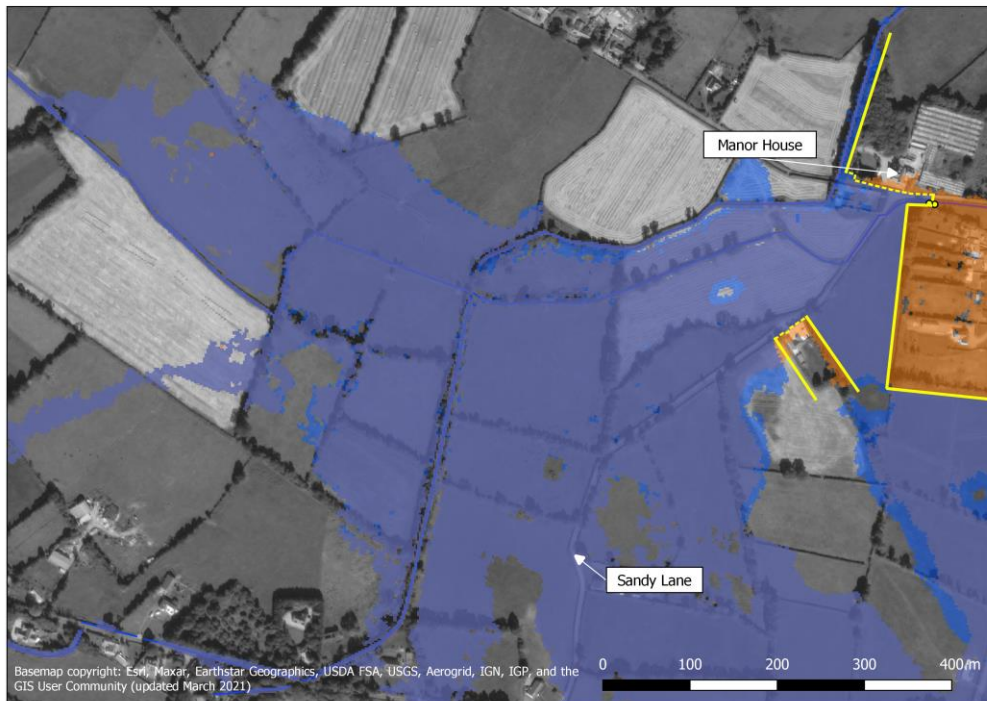
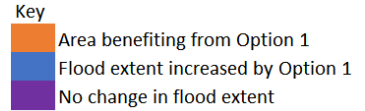
Constraints: there are no significant constraints in this location.

Floodplain between the Owenass and Pound rivers



- **Description:** Option 1 focuses on the town of Mountmellick and no defences are proposed in the upstream floodplain area where cross flow occurs. Five properties are at risk of flooding in the area between the Owenass and Pound upstream of Mountmellick under the current scenario.
- **Benefits:** Modelled levels at properties and across lands shown at risk in the current scenario are not made worse in Option 1.
- **Constraints:** Outside the scheme, and in the longer term, individual property protection or minor works solutions by LCC will have to be considered for the properties upstream from Mountmellick which flood in current scenario and are not defended by the scheme.

Manor House and upstream of Manor Court

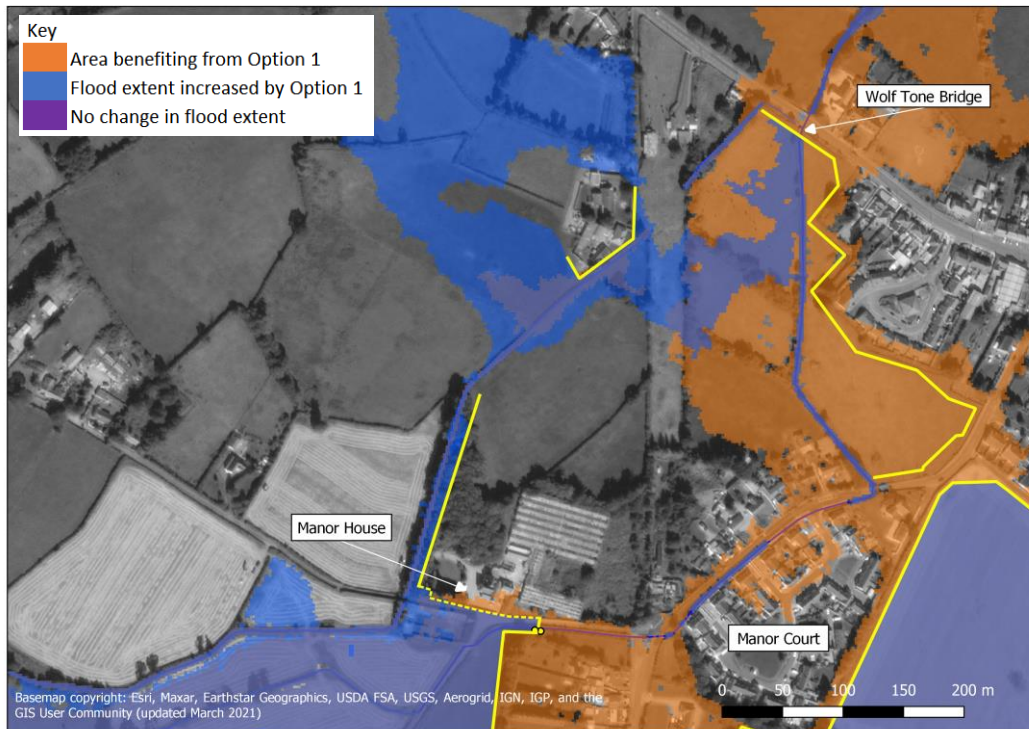


Description: This area is flooded in both the current scenario and under Option 1. Flooding results from a combination of flow from the Avoley and Carroon watercourses (upstream tributaries of the Pound) and cross floodplain flow from the Owenass overwhelming the Pound. In Option 1 flood waters are stored on agricultural land upstream of Manor Road. A throttle (sluice) on the Pound next to the Manor House restricts flow so it remains in channel past Manor Court. Flood depths are greater in Option 1 compared to the current scenario. There is however only a minimal increase in area of land impacted in Option 1 compared to the undefended scenario.

Benefits: The storage of the flood waters combined with the throttle reduces flood risk downstream and avoids the need for further work downstream on the Pound. Localised embankments ensure that no key risk receptors are flooded. While water levels do increase, the area flooded is already impacted in the current scenario and there is minimal increase in flood extents.

Constraints: By adding a throttle (sluice) and defences increases in level and extent upstream in the mill pond area and surrounding lands are observed although no properties or critical risk receptors are affected. The increase in flood depth due to the defence and throttle ranges from 0.05m - 0.15m in the upstream area and around Manor house. There is also an impact on other watercourses that needs to be taken into consideration (throttle results in increased flooding on the Garroon refer to later section of this document). Removal of mature trees alongside the Garroon may be needed to accommodate an embankment. The route and capacity of historic (infilled) mill races in this area is unknown.

Garroon Stream

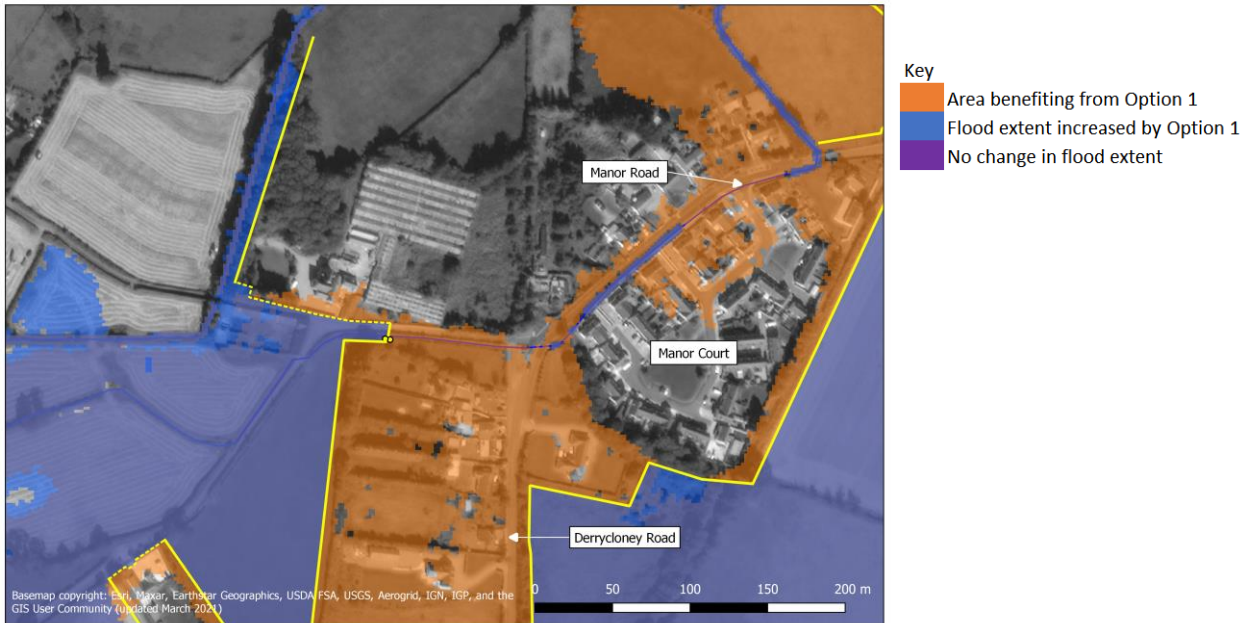


Description: Historically, the Garroon stream was realigned to power a former mill. It sits at a higher elevation than the neighbouring watercourses (Carroon and Avoley) but there is a flow connection between the Carroon and Garroon via an old flow control structure in the former mill pond area. The Garroon flows into the Pound upstream of Wolfe Tone bridge. Flooding occurs along the Garroon in the current scenario due to backwater effect from the Pound and the old railway culvert being under capacity. Increased flooding is also observed in Option 1 due to the culvert constriction and increased flow from upstream.

Benefits: The Garroon provides a route for flows which have been restricted by the throttle on the Pound, reducing water levels upstream.

Constraints: The extra flows down the Garroon results in increased flooding of land and causes risk to one property. This may be mitigated by either defences around the property will be required (flood depths are around 40cm so defence would be approximately 90cm) or upsizing the culvert below the railway.

Manor Road and Manor Court

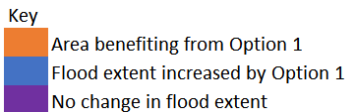


Description: In Option 1, Manor Road and Manor Court is protected by defences at the upstream around Manor House and the defences around the Baker's field combined with the throttle on the Pound next to the Manor House.

Benefits: The Option 1 defences and throttle combination remove flood risk to a critical area of residential properties and removes the need for any further work along this portion of the system in relation to channel efficiency improvements.

Constraints: Installing a throttle (sluice) increases levels and extents behind the defences upstream on the Pound and downstream on the Garroon.

Wolfe Tone Bridge and downstream of Manor Road



Description: Although there is an overall reduction in flow down the Pound as a result of the upstream defences low level embankments are needed around the perimeter of the field. Depending on the approach to managing risk on the Garroon it may be necessary to continue the defence parallel to the road as well.

Benefits: Decreases in flow at this point due to the Option 1 measures means that there is less pressure on the bridge and flows downstream.

Constraints: Bar accommodations for local access there are no constraints in this location.