Arklow Flood Relief Scheme

Emerging Preferred Option - Public Consultation

Introduction

The Office of Public Works (OPW) and Wicklow County Council have commissioned Byrne Looby PH McCarthy (BLP) and Arup to undertake engineering and environmental studies respectively to assess and develop a viable, cost effective and sustainable Flood Relief Scheme for the Avoca River, Arklow.

The process of identifying a preferred scheme to address fluvial and coastal flooding in Arklow includes a detailed assessment of a range of flood risk management measures to determine their technical, economic, social and environmental viability.

Following a detailed scheme options assessment process, the series of measures that will make up the emerging preferred flood relief scheme for the Avoca River, Arklow have now been identified. Following the confirmation of the preferred flood relief scheme an Environmental Impact Statement will be prepared.

Why is a Flood Relief Scheme needed in Arklow?

Arklow has suffered from significant flood events in 1986, 1989, 2000, 2002, 2004, 2005 and 2010, resulting in widespread damage to public and private property, primarily in Lower Main Street, South Quay and Ferrybank. The objective of the proposed flood relief scheme at Arklow will be to protect the low lying areas of the town that are impacted during flood events from the Avoca River and the sea.

The flood scheme will be designed to withstand a 1 in 100 year flood event from the Avoca River as well as 1 in 200 year tidal flooding. The flood defences will also be designed to withstand severe tidal events induced by severe weather conditions.

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Work to Date - Environmental Constraints Study and Detailed Options Assessment

Development of the flood relief scheme for Arklow has being ongoing for some time. To date an Environmental Constraints Study has been undertaken which identified existing features within the study area, which are likely to affect the design and location of the proposed scheme.

Following the environmental constraints study, an options assessment process was carried out. This process involved the consideration of a number of potentially suitable flood relief measures/combination of measures for the proposed Arklow Flood Relief Scheme.

Some of these measures were discounted following consideration, and the remaining measures were combined into four potential flood relief options.

Finally, following a detailed, multi-criteria analysis of the four options (each made up of a number of measures), one preferred option has been put forward by the design team for detailed environmental assessment - **Option 4**

Consideration of a number of potentially suitable flood relief measures/combination of measures

Flood Relief Measures Considered

- Catchment Management
- Upstream Storage-Single Location
- Upstream Storage- Multiple Locations
- Flood Storage at Arklow Marsh
- Flood Relief channel/bypass channel through Arklow Town- Option a
- Flood Relief channel/bypass channel through Arklow Town- Option b
- Flood Relief channel/bypass channel upstream of Arklow Town-Option a
- Flood Relief channel/bypass channel upstream of Arklow Town-Option b
- Channel and bank maintenance
- Channel deepening through Arklow (dredging)
- Downstream widening on South Quay
- Debris trap
- Removal and replacement of Arklow Bridge
- Minor improvements to Arklow Bridge
- Flood containment with flood defence walls and embankments
- Tidal barrage- Option a
- Tidal barrage- Option b
- River barrage
- Sluice valves, non-return valves and pumping
- Lowering floor of Arklow Bridge by 0.6m
- Lowering floor of Arklow Bridge by 1.0m
- Lowering floor of Arklow Bridge by 1.5m
- Lowering floor of Arklow Bridge by 1m and local upstream dredging
- Lowering floor by 1m, and downstream widening at contraction location
- Lowering floor of Arklow Bridge by 1m, downstream widening and upstream and downstream extensive dredging
- Lowering floor of Arklow Bridge by 1.5m, downstream widening and upstream and downstream extensive dredging

Some of these measures were discounted following consideration, and the flood relief measures listed below were brought forward for further consideration

Flood Relief Measures Further Considered

- Catchment Management
- Channel and bank maintenance
- Debris trap
- Minor improvements to Arklow Bridge
- Flood containment with flood defence walls and embankments
- Sluice valves, non-return valves and pumping
- Lowering floor of Arklow Bridge by 1.0m
- Extensive upstream and downstream dredging
- Downstream widening on South Quay

These were then combined to form 4 potential flood relief options

Option 1

- Catchment Management
- Channel and bank maintenance
- Minor modifiations to Arklow bridge
- Sluice valves, non-return valves and pumping
- Flood defence walls and embankments

Option 2

- Catchment management
- Channel and bank maintenance
- Minor modifications to Arklow bridge
- Sluice valves, non-return valves and pumping
- Flood defence walls and embankments
- Debris trap

Option 3

- Catchment management
- Channel and bank maintenance
- Minor modifications to Arklow bridge
- Sluice valves, non-return valves and pumping
- Flood defence walls and embankments
- Lowering of floor of Arklow Bridge by 1m,
- Downstream widening on South Quay
- Upstream and downstream extensive dredging

Option 4

- Catchment management
- Channel and bank maintenance
- Minor modifications to Arklow bridge
- Sluice valves, non-return valves and pumping
- Flood defence walls and embankments
- Lowering of floor of Arklow Bridge by 1m,
- Downstream widening on South Quay
- Upstream and downstream extensive dredging
- Debris trap

Emerging Preferred Scheme

Option 4

- Catchment management
- Channel and bank maintenance
- Minor modifications to Arklow bridge
- Sluice valves, non-return valves and pumping
- Flood defence walls and embankments
- Lowering of floor of Arklow Bridge by 1m,
- Downstream widening on South Quay
- Upstream and downstream extensive dredging
- Debris trap

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OPW The Office of Public Works Oifig na nOibreacha Poiblí

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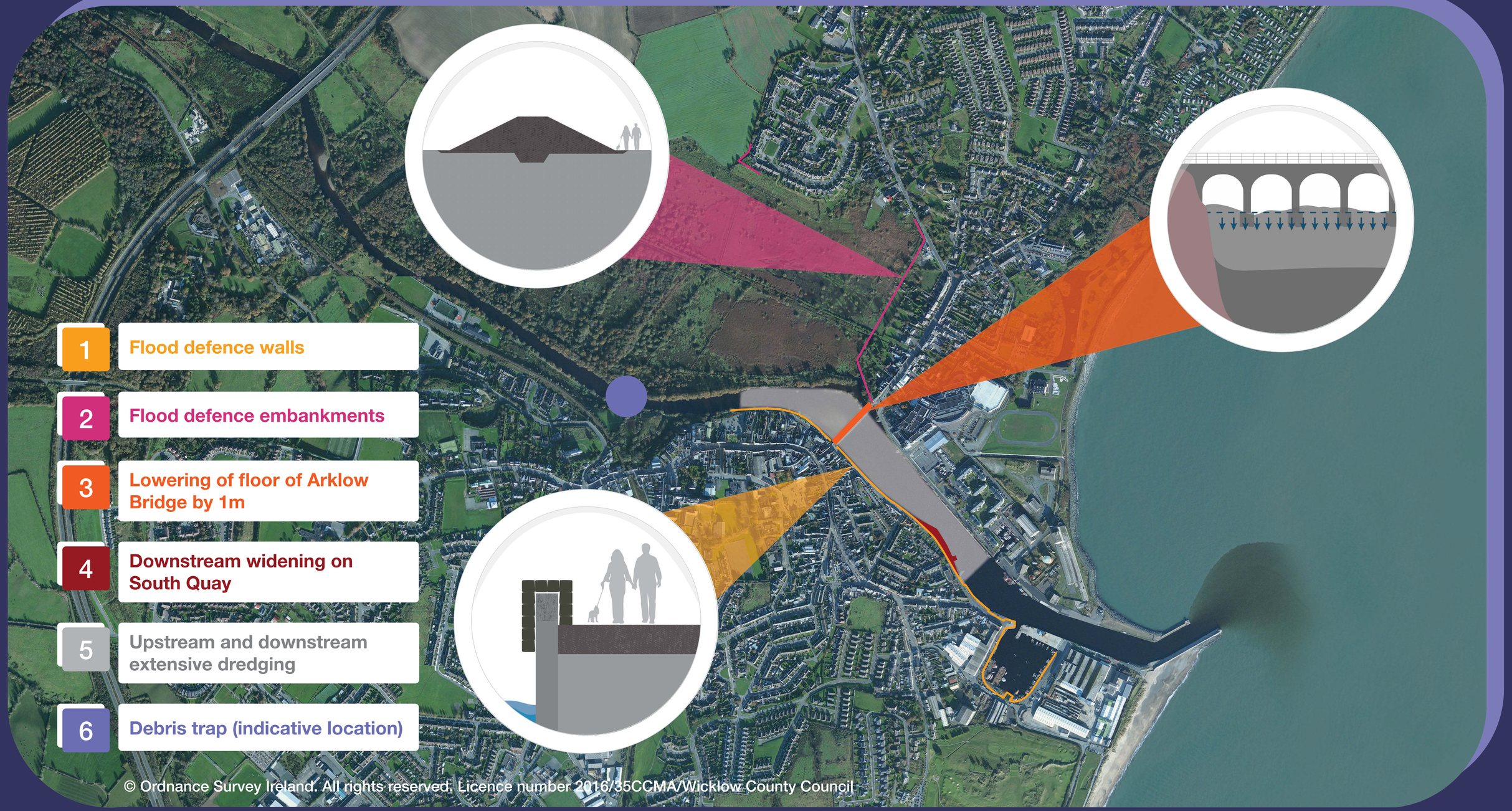
Emerging Preferred Scheme - Overview



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Emerging Preferred Scheme

The emerging preferred Arklow Flood Relief Scheme is made up of a combination of flood relief measures consisting of:

- Catchment management
- Channel and bank maintenance
- Minor modifications to Arklow bridge
- Sluice valves, non-return valves and pumping
- Flood defence walls and embankments
- Lowering of floor of Arklow Bridge by 1m,
- Downstream widening on South Quay
- Upstream and downstream extensive dredging
- Debris trap

1 Flood defence walls

Tidal and Fluvial flood defence walls are required upstream and downstream of the Arklow bridge in the locations indicated on the scheme drawing. The flood defence walls will extend along the right (south) bank of the river from the existing slipway by the carpark upstream of Arklow Bridge, to the Dock downstream of the bridge.

These walls will defend the low lying areas along the south bank of the river from the 1 in 100 year flood event from the river upstream of Arklow Bridge and the 1 in 200 year coastal flood event downstream of the bridge. The walls will be of reinforced concrete construction. Stone cladding may be used where compatible with existing structures.

2 Flood defence embankments

Flooding events have affected properties in Ferrybank when flows were conveyed through the marsh. To prevent this from occurring, earth embankments will be constructed to ensure that all properties below the predicted design flood levels are protected.

3 Lowering of floor of Arklow Bridge by 1m

Lowering the floor of Arklow Bridge will require the all of the piers of the bridge to be extended downwards by approximately 2m. The existing river bed will then be lowered by 1.5m. A new 250mm thick concrete slab will be placed on the new river bed of the river, extending upstream and downstream of the bridge in order to prevent scour of the new bed and the piers. 250mm of gravel will be placed over the concrete to restore the natural appearance of the river bed. The net reduction in the bridge floor level will be 1m. At present, Arklow Bridge is a significant restriction to flood flows. Lowering the floor of the bridge by 1m, together with upstream and downstream dredging, will reduce flood levels by up to 540mm immediately upstream of the bridge.

4 Downstream widening on South Quay

It is proposed to remove a local narrowing of the channel on the south bank. This will involve removing a tapering section of bank of up to 10m, over a length of 160m. This will result in less sedimentation and thus a lower maintenance dredging requirement.

5 Upstream and downstream extensive dredging

It is proposed to dredge the bed of the river by approximately 300m upstream of Arklow Bridge and 500m downstream. The depth of dredging will be up to 1m. This will increase the capacity of the channel to cater for river floods and together with the lowering of the floor of the bridge will reduce flood levels by up to 540mm for the 1 in 100 year flood event.

6 Debris trap

A debris trap is proposed to collect large items of debris such as tree branches etc. and prevent them from blocking the arches of Arklow Bridge. It will be constructed from vertical pillars. The location of the debris trap shown on the adjacent plan is indicative. This will allow floods to flow through the marsh in the event that the debris trap becomes partially blocked. Access to clear the debris trap is envisaged to be from the south bank.

General Scheme Measures

Catchment management

This includes measures such as surface water retention, water treatment and rainwater harvesting. These will reduce the impact of surface water run-off from new developments on the Avoca River, improve the quality of the water being discharged to the river and reduce the overall potable water demand in the area.

Channel and bank maintenance

This involves the removal of unwanted vegetation and deposited material from the Avoca River channel and its banks downstream of the M11 Bridge as far as Arklow Bridge to maintain the design channel and bank roughness coefficients.

Minor modifications to Arklow bridge

This involves the re-pointing of the bridge pier mortar joints in order to guard against damage from internal erosion and extending the existing scour apron across the full width of the river upstream of the bridge.

Sluice valves, non-return valves and pumping

The aim of this measure is to prevent flooding caused by rising river levels backing up through sewers and drains that discharge into the river.

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Your Feedback is Important

The OPW and Wicklow County Council wish to consider all viewpoints relating to the emerging preferred option for the proposed Arklow Flood Relief Scheme.

Please complete the Questionnaire and place it in the box provided. Or, alternatively you can write to:

District Administrator, Arklow Municipal District, Castle Park, Arklow, Co. Wicklow

Email address: lmcdonal@wicklowcoco.ie

Related Ongoing Project: The Proposed Arklow Wastewater Treatment Plant

At present, untreated wastewater from homes and businesses in Arklow is discharged into the Avoca River that runs directly through Arklow Town. This practice of discharging untreated wastewater to the river is no longer acceptable and Irish Water intends to fix this problem in partnership with Wicklow County Council by developing this project which will include:

- A new Wastewater Treatment Plant (WwTP) which will treat an estimated 36,000 PE (population equivalent) that will best meet the current needs of Arklow, and to allow for future expansion of the town. The preferred site for this plant is the Old Wallboard Factory, North Quay, Ferrybank;
- Sewer pipelines to bring untreated wastewater to the WwTP;
- A marine outfall pipe to safely discharge the treated wastewater to the Irish Sea.

Irish Water, the OPW and Wicklow County Council are working together to minimise any potential environmental impacts and inconvenience to the people of Arklow while delivering these critical infrastructure projects. Environmental Impact Statements (EIS) will be prepared for both projects and each EIS will consider the potential for cumulative impact from the delivery of both projects.

For more information on the wastewater treatment plant project, please visit www.water.ie/arklowtp