



Athlone Pedestrian and Cycleway Bridge

Environmental Impact Statement

Volume 2 : Main Text | May 2017



smartertravel >>>

List of Volumes comprising this Environmental Impact Statement

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Non Technical Summary

Athlone Pedestrian and Cycleway Bridge

Volume 1

Non Technical Summary of the Environmental Impact Statement

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1.0 Introduction

This Environmental Impact Statement (EIS) is for the proposed Athlone Pedestrian and Cycleway Bridge.

The proposed bridge will provide a new link for pedestrians and cyclists across the river Shannon in the heart of Athlone town centre.

The EIS has been prepared by Roughan & O'Donovan – AECOM Alliance Consulting Engineers and a team of specialist sub consultants on behalf of Westmeath County Council and the National Roads Authority (NRA) (now known for operational purposes as Transport Infrastructure Ireland (TII)).

This EIS is presented in four Volumes; this Non-Technical Summary is Volume 1, Volume 2 contains the Main Text and detailed assessment of the environment and any impacts associated with the proposed development, Volume 3 contains the associated Figures at A3 size and Volume 4 contains the Appendices. Figure 1.1 in Volume 3 shows the location of the proposed development.

2.0 Background to the Proposed Development

The Irish Government is committed to developing cycling as one of the most desirable modes of travel. The National Cycle Policy Framework (NCPF) (2009-2020) sets out objectives to the year 2020 to achieve a vision of creating a strong cycling culture in Ireland. In 2009, the Minister for Transport, Tourism and Sport approved the commissioning of the NRA to undertake a Scoping Study on a National Cycle Network (NCN). The NRA worked with the National Trails Advisory Committee, comprising a number of agencies and bodies including Fáilte Ireland, Waterways Ireland and Coillte, and the Department of Transport, Tourism and Sport's National Sustainable Travel Office to publish the Scoping Study in August 2010.

The study identified thirteen potential route corridors between urban centres of a population of 10,000 and upwards that could make up a National Cycle Network. One of the corridors identified was the NCN02: Dublin to Clifden corridor. According to the Study, the Mullingar-Oranmore section of the NCN02 corridor includes the towns of Mullingar, Athlone, Ballinasloe and Oranmore. NCN02 also features in the European Cycle Route Network (EuroVelo) as EV2 '*The Capitals Route*' from Moscow to Galway.

The Scoping Study concluded by stating that the next step for the National Cycle Network project will be to carry out a detailed '*Route Feasibility and Delivery*' study on a selected corridor. Consequently, in 2012, the Minister for Transport, Tourism & Sport instructed the NRA to identify route options available for the development of a segment of the NCN02: Dublin to Clifden corridor comprising an off road cycle route between Galway and Maynooth. The Athlone Pedestrian and Cycleway Bridge over the River Shannon is a key component of this route as it ensures a segregated cycleway crossing that provides easy passage and, critically, safe access to the town of Athlone which is seen as a halfway point along the proposed Galway to Dublin Cycleway.

3.0 Outline of Alternatives Considered

Alternative crossing locations and bridge designs were considered and were subject to the selection process.

Bridge Location

The development of the bridge location was undertaken in the constraints study, the route selection study and during the design development. The alternatives considered as part of this project include the 'do-nothing' scenario and a number of alternative crossing points.

Nine potential bridge locations were examined during the assessment of alternative locations.

All potential bridge locations would require an assessment of potential ecological impacts due to their proximity to European designated sites.

Assessment criteria were established to inform the selection of the preferred route through the town, based on the assessment criteria outlined in the NRA's Project Management Guidelines (2010) and taking into account the desirable attributes for a cycle facility that are described in the National Cycle Manual (2010).

An independent bridge at the Luan Gallery scored highest in the matrix and was brought forward for the proposed development. This route is compliant with the objectives and policies outlined in the Athlone Town Development Plan 2014-2020 and rates highly in terms of safety.

Bridge Design

Four alternative bridge design options were considered. The evaluation comprised an assessment matrix which assessed the bridge options under the headings Health and Safety, Environmental, Conservation, Technical, Economics and Aesthetics. A two span beam option emerged from this assessment matrix as the most attractive option. Merits of this design option include:

- The steel beam configuration sits well in a heritage context with both upstream and downstream bridges. The choice of a simple clean form avoids competition with heritage forms while providing contemporary elements in clean, smooth finishes and engineered slenderness consistent with themes in the Luan Gallery;
- The choice of painted steel maximises the potential for slenderness in the finalised design;
- The form is sufficiently contemporary and unique to provide a landmark structure for those arriving in Athlone;
- The provision of elevated landings at both ends of the bridge and multiple access configurations maximise the amenity potential for the bridge;
- The provision of a widened ramp to the east and soft gradients accommodate the amenity of both cyclists and pedestrians;
- Provision of access under the eastern landing offers enhanced promenade facilities along the river in the vicinity of the bridge;
- The provision of the eastern ramp tight against the Radisson carpark wall serves to minimise the visual impact of the design on the location; and

- The embedded ramp incorporating an extension of the existing Luan configuration to the west significantly mitigates the impact of the bridge on the Luan Gallery, the church and the river bank.



Indicative Photomontage of the proposed bridge

4.0 Description of the Proposed Development

4.1 Location

The location of the proposed bridge for the pedestrian and cycleway in Athlone Town is approximately 75 metres (measured at mid-channel) north of the existing Custume Bridge. The setting is urban with the site of the proposed development surrounded by a mix of historic buildings and structures, tourism sites and commercial properties. The Church of St Peter and St Paul and the Luan Gallery are located immediately to the west. The Radisson Hotel and Marina are located to the east. Athlone Castle is located immediately southwest of Custume Bridge and will be connected to the new bridge via a new cycleway and ramp structure at the Luan Gallery service area on the western bank of the River Shannon. The castle will mark a midway point for cyclists using the Galway to Dublin Cycleway and will be a main focal point for touring cyclists arriving in Athlone town.

Proposed Scheme

The proposed bridge structure comprises a two span bridge with a pier in the middle of the river and end supports on the river banks. The overall length of the main bridge is approximately 104m.

The main crossing spans are straight on plan and are aligned approximately perpendicular to the existing eastern river wall. This is in steel construction. The soffits of the spans are primarily flat, with gradients implemented at the ends of the bridge where geometric constraints dictate.



Wide Angle Photomontage of the Proposed Development

The main crossing spans are proposed to be supported on a reinforced concrete pier located approximately in the centre of the river. Its position is selected to accommodate navigation and the protection of the existing mooring facilities to the maximum degree.

5.0 Traffic, Cyclist and Pedestrian Integration

A review of the existing transport network, including the use of that network by pedestrians and cyclists in the vicinity of the proposed bridge crossing area, was completed as part of this assessment. The potential for impact on traffic and transport was considered at all stages of the proposed project's implementation: site preparation, construction, and maintenance. Some potential impacts were identified including temporary inconvenience to road users when machinery is delivered or where road traffic restrictions, closures and diversions are required, however it is concluded that with the proposed mitigation measures implemented and the relevant public road traffic management issues are fully considered over the lifespan of the proposed development implementation, traffic and transport will not be significantly impacted upon as a result of this project.

It is noted that details of public road traffic management, closures and diversions at the time of the River Shannon Crossing construction will need to be discussed further at the appropriate time between Westmeath County Council and the Roads Department of Westmeath County Council.

6.0 Flora and Fauna

The flora and habitats of the site were assessed by means of a desk study and by a field survey of the site. The site of the proposed development was surveyed extensively and surrounding habitats were assessed by a suitably qualified ecologist.

The designated sites that are closest to the site and have the potential for habitat or surface water connectivity are the River Shannon Callows SAC/pNHA (Site Code: 000216) which is located approximately 670m south of the proposed development and the Middle Shannon Callows SPA (Site Code: 004096), which is located approximately 670m south of the proposed development.

None of the faunal species recorded on site are protected under Annex II of the Habitats Directive or Annex I of the Birds Directive. Given the urban nature of the site and its habitats, the associated fauna would be expected to be of low ecological significance.

Records of birds taken during the field visit were not significant. Red listed Black-headed Gull and Amber listed Swallow, Swift and Lesser Black-backed Gull were recorded during this time. However, it is considered highly unlikely that these species are dependent on the site for breeding or feeding due to the unsuitable habitat.

Evidence of Otter was not recorded at the site, but is considered likely to be present within the catchment. Although the habitat on site is considered suitable foraging area for several bat species, a high level of activity was not observed and no roosts were identified.

Whilst Salmonids, such as Atlantic Salmon (*Salmo salar*), were not recorded in the most recent surveys undertaken by the IFI, they are QI of the Shannon System. Similarly, European Eel (*Anguilla anguilla*) has been recorded in the River Shannon during Inland Fisheries Ireland surveillance monitoring undertaken approximately 2km downstream of the site. However, the European Eel requires salt water to spawn and only breeds in the Sargasso Sea. Given the habitat available within the site, it does not provide ideal habitat for these species.

The potential cumulative impacts of the proposed development were considered following research of known and likely plans and projects in the area and on the basis that the proposed development has been designed to avoid significant adverse impacts on the ecology of the area.

It is concluded that there will be no significant cumulative impact on the ecology of the area as a result of the proposed development on the basis that none of the plans or projects researched were of a nature and scale likely to exacerbate any of the negligible residual impacts identified.

With mitigation in place, there will be no net loss of habitat with the exception of the physical space associated with the central pier and its pile supports in the river. Any loss of trees or treeline habitat is considered to be a permanent negligible negative impact.

The proposed development, in view of best scientific knowledge and on the basis of objective information, either individually or in combination with other plans or projects, is not likely to have significant or any adverse effects on the ecology of the any European sites or of the ecology of the general area.

7.0 Soils, Geology and Hydrogeology

The underlying bedrock is identified by the Geological Survey of Ireland (GSI) as being Lower Carboniferous Limestones of the Waulsortian Formation. These rocks are overlain by thick deposits of glaciofluvial sands and gravels. The proposed new bridge and associated works transects an urban area and, as such, much of the underlying soils are described as made ground.

The bedrock is classified by the GSI as a Locally Important Aquifer which is moderately productive only in local zones (LI). The underlying glaciofluvial gravels are classified as Locally Important Gravel Aquifer (Lg). The proposed development is located within the 'Athlone Urban East' and 'Athlone Urban West' groundwater bodies. These Groundwater Bodies (GWBs) are classified as having good status and are potentially at risk.

Groundwater vulnerability is classified as high over much of the study area due to the presence of sands and gravels. Groundwater recharge is through a diffuse nature, with rainfall percolating through the subsoil. Groundwater movement tends to be restricted to the upper horizons of the bedrock within the weathered zone. Permeability of the bedrock tends to be low limiting the movement of groundwater. Permeability of the sand and gravel aquifer is higher.

No significant residual impacts on the underlying soils, geology and hydrogeology along the cycleway route were identified during the construction and operational phases of the proposed development.

8.0 Hydrology and Drainage

The Hydrology and Drainage assessment assesses the potential impacts of the proposed development on the existing hydrological and drainage environment in the study area. The assessment was based on a desk study of available information and site visits carried out within the study area.

The scope of the assessment included:

- Identifying, describing and evaluating sites of known or potential hydrological interest;
- Assessing the significance of the likely impacts of the proposed development on the existing hydrology and drainage including residual impact;
- Assessing if there is an increased risk of flooding as a result of the project; and
- Proposing mitigation measures to minimise likely impacts.

As part of the assessment, the existing environment was examined. This included an investigation into the existing bedrock and presence of groundwater in the project area. It was determined that groundwater vulnerability is likely to be relatively high in the project area and therefore due diligence will be required to ensure that these areas remain free from pollution as they will be especially susceptible to contamination.

A Section 50 Flood Risk Assessment and Management Study was carried out for the project to examine the possible impacts of the project on the flooding regime in Athlone Town. Hydraulic modelling was undertaken to quantify the effects that the proposed bridge structure may have on the River Shannon. The assessment determined that the proposed bridge will result in an increase in flood levels of 9mm directly upstream of the bridge which will dissipate down to 4mm approximately 350m upstream of the bridge.

The main flood risk in the area is from the resultant rise in water levels on the River Shannon during heavy rainfall. During flood events in Athlone, the areas affected are the low lying areas to the north and south of the town centre. The Section 50 Flood Risk Assessment and Management Study concluded that no negative impacts will result on the hydraulic properties of the River Shannon and the project will not increase the risk of flooding elsewhere in the catchment.

In conclusion, the temporary and permanent impacts on hydrology and drainage are considered minimal and will be managed by adhering to best practice guidelines as outlined in Control of Water Pollution from Construction Sites (CIRIA, 2001); and the Environmental Handbook for Building and Civil Engineering Projects (CIRIA, 2000)

during the construction and operational stages. The assessment concludes that the proposed development will not pose any additional flooding risk in the area upstream or downstream of the study area. The proposed works will therefore not have residual impacts on the existing hydrological regime of the Shannon River catchment.

9.0 Landscape and Visual Analysis

In landscape terms the proposed development does impact on the open nature of the River Shannon in Athlone Town and long views north and south and east and west along the central river corridor, however this is minimal reflecting its slender form and design. The creation of a new crossing remains a positive aspect, and the location and urban design rationale creates positive new urban events and experiences – the new axis with the side entrance of the Church of SS Peter and Paul, the creation of a new urban and riverside context for the Radisson Hotel and increased animation of the marina area help integrate these large and relatively recent developments into the town centre. In addition it could be argued that the current visual characteristics of the open river are reflective of an undeveloped town centre, where more crossings over the river will be a natural result of the organic development of the town, creating a different, more animated bustling waterfront. Local policy contains an overall objective of enlivening and further enhancing the waterfront and accommodating a pedestrian crossing.

The significance of the proposed new bridge is Medium and, on balance, Neutral – Beneficial in terms of landscape impact as the proposed development complements the existing scale, landform and pattern of the landscape.

The visual impact study reflects the landscape assessment findings also. Whilst in the context of views some attractive features are lost, on balance the bridge and crossing is complementary to the qualities in the view. Characteristics lost e.g. the views, will be recreated in the experience crossing the bridge itself. Opportunities arising from the bridge project will need further consideration as the design develops particularly of the interface between the bridge landing on the eastern bank, the reconstructed riverside banks and ramps, and the retention of the marina at this location. In incorporating significant new engineering works in this area, there is an opportunity for new riverside trees to add to the tree lined river character and experience, and the interaction between the marina and the crossing.

On balance the proposed development represents significant but considered and complementary change to the urban riverside in Athlone.

10.0 Noise and Vibration

The proposed study area is within Athlone town centre. The study area has existing noise levels typical of urban areas with traffic the main source of noise. A desktop noise assessment was conducted in order to assess the impacts of the proposed development on the existing noise environment. The aim of the desktop assessment was to determine the potential impacts of noise generated on the noise sensitive receptors, taking the relevant standards and guidelines into account. A 50m corridor at either side of the route was selected based on the nature of the development (non-traffic cycleway) and the existing noise environment along the route (urban area with existing noise sources, i.e. traffic).

Once operational, the cycleway will not generate high levels of noise as this is a non-traffic route. During the construction phase of the development, it is considered that there

will be moderate impact on noise levels generated on nearby sensitive receptors. The nature of the construction generated noise will be intermittent and temporary during the construction phase. It is expected that construction plant will include pile driving equipment, ground breaking and excavation plant and paving plant. Noise generating activities will also include the transportation of materials and general works.

A series of mitigation measures adopted during the construction phase will ensure that the impact of noise on the sensitive receptors is kept to a minimum. These mitigation measures include:

- Selection of plant equipment taking into account predicted acoustics;
- Establishing noise limits during the construction phase in line with NRA guidelines;
- Development of noise control measures for plant items likely to be used e.g. erection of barriers as necessary around noisy processes and items such as generators, heavy mechanical plant etc.;
- Limiting of hours for which noise generation is expected to be high;
- Establish procedures for dealing with specific activities with the potential to generate significant levels of noise;
- Establish procedures for dealing with emergency work; and,
- Establishing communication with the general public.

On completion the operation will have the potential to reduce the amount of traffic noise in the town centre resulting in a positive impact.

11.0 Air Quality and Climate

It is considered that the construction and operation of the proposed development will have limited impact on the air quality and climate. To this end, the proposal does not warrant a full air quality assessment. A desktop air quality assessment was carried out using existing background air quality data to assess the likely air quality and climate impact associated with the construction and operation of the proposed development. This assessment included a review of the existing air quality and was carried out having regard to relevant EPA and NRA documents.

Although some increase in air pollution may occur at the identified receptors due to the construction of the proposed development, no significant increase in pollutant levels will occur. The impact to air quality during the construction phase due to the movement of full trucks on paved public roads, the unloading of material, the movement of empty trucks on paved public roads and the use of generators will be limited through the application of measures outlined in the dust minimisation plan.

Due to the size and nature of the construction activities, any emissions during construction will have a negligible impact on climate. During operation, it is anticipated that the number of local car journeys in the area will be reduced as a result of the proposed development and thus air quality in the area will improve.

There will be no negative residual impacts on air quality as a result of the proposed development. Any air pollution created during the construction phase will be short term in nature and minor in magnitude. The operation of the development will provide positive impacts to the local air quality due to the reduction in local vehicular

traffic. Furthermore, there will not be any impact on air quality due to cumulative impacts as a result of the proposed development project.

12.0 Archaeological Heritage

Of the thirty-nine sites identified within 50m of the proposed development, 5 will be impacted directly, 2 will be impacted indirectly and 32 will have no predicted impact. Therefore, the potential impact of the proposed development is considered significant for 3 sites, slight for 2 sites and 32 sites will have no predicted impacts.

Watercourses are considered to be of high archaeological potential, containing features such as fulachta fiadh or burnt mounds, fords, ancient bridging sites, mills, and longphorts (Viking harbours) and producing archaeological artefacts such as log boats, organic material and votive offerings of axeheads and metalwork.

The River Shannon at Athlone is considered to be an area of high archaeological potential due to its long history of use as a transport corridor, a boundary and as a defence. The river channel has been altered in the past by the construction of various weirs, bridges and the navigation lock. The proposed development involves the installation of a single bridge pier in the centre of the current channel. While the dimension and footprint of this pier may be relatively small, the potential construction impacts will be significant on what is considered a fragile environment. Construction of the bridge will require the use of 3 no. Jack Up barges. The barges are supported on legs, approximately 300mm in diameter, which will cause localised disturbance of the river bed.

Proposed landscaping works to the east of the castle will open up views to it from the east bank of the river and the east end of Custume Bridge. The visual impact of the proposed landscaping works is considered to be positive.

The construction of the in-channel pier of the proposed bridge may cause scouring of the river bed downstream of the proposed bridge. The pier, which is elliptical in plan oriented with the long dimension oriented parallel to the flow of the river, has been designed to minimise turbulence and associated scour effects and the area has been subject to an Underwater Archaeological Impact Assessment.

Due to the archaeological potential of the site the following archaeological mitigation measures are proposed:

- All archaeological works on this scheme will be subject to Ministerial Directions issued by the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.
- All works in the vicinity of Athlone Castle will require the prior written consent of the Minister for Arts, Heritage, Regional, Rural and Gaeltacht Affairs.
- All in-channel works including the excavation of deposits within the area enclosed by the coffer dam and the emplacement of the Jack Up barges will be archaeologically monitored and the deposits removed to the works compound for archaeological processing in accordance with statutory requirements. Following processing, the residue spoil will be managed in accordance with the Waste Management Acts 1996-2013.

- Archaeological test excavation will be undertaken in advance of construction, where sub-surface development works are to be undertaken. Targeted testing allows an assessment to be made on the extent of any surviving archaeology before any further mitigation is decided upon.
- Should the results of the mitigations outlined above indicate the requirement for archaeological excavation and/or preservation *in situ*; this will be undertaken as per best practice and in consultation with the National Monuments Service of the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

13.0 Architectural Heritage

The architectural heritage assessment assessed fifteen structures and areas of built heritage significance; one of these areas is a street that includes a total of eleven protected structures. The western extremity of the proposed river crossing is located at the edge of the Town Centre Architectural Conservation Area, while the cycling hub is within the Town Centre Architectural Conservation Area.

Of the sites examined, two will be affected to a greater or lesser extent by the proposed river crossing to the extent that mitigation will be required, while a third will need to be safeguarded during construction works. Four of the sites will be affected positively.

One site requiring mitigation is the bust of Count John McCormack. This mitigation will include the erection of a new plinth further to the north along the river bank, mirroring the nature of the present plinth, and relocating the bust, with its pedestal and bronze plaque, to the new location. Following mitigation the impact will be slight.

The other site requiring mitigation is the Luan Gallery. Mitigation will include the provision of the required bridge landing, stairs and ramps in architectural harmony with the design and finish of the gallery and its adjacent service building. The residual impact will be slight.

Following examination of the various structures adjacent to the proposed river crossing, the cycling hub and in the immediate vicinity, it is concluded that the proposed river crossing and cycling hub will not have any significant effects on built heritage other than the bust of Count John McCormick and the Luan Gallery. Care will also need to be taken to safeguard the bollard on the quayside.

In many of the cases cited – amounting to four of the sites described – the works will have a positive effect on the setting.

It is envisaged that following the recommended mitigation the proposed river crossing will have no significant negative effect on architectural heritage.

14.0 Human Beings and Material Assets

This assessment focused on demography and employment, economic activity, housing and land-use, community facilities, traffic and public transport and material assets. The assessment of impacts to human beings and material assets was undertaken in line with EPA guidelines and UK DMRB guidelines. Potential impacts

to human beings and material assets arising from the proposed development include traffic impacts, visual impacts and noise and air pollution.

It is predicted that the development will attract approximately 35,600 users annually once in operation. It is considered that the proposal will have limited negative impacts during the construction phase of the development which is, by its nature, temporary. The removal of 13 car parking spaces to the eastern side of the castle is the most significant permanent impact associated with the project. In contrast, the operation of the development will provide many significant positive impacts to the town and wider area.

Some of these positive impacts include:

- Providing sustainable transport options of cycling or walking along a safe and secure route which is separated from vehicular traffic;
- Providing indirect health benefits through the provision of a safer facilities for recreational users which will increase and encourage the opportunity for physical exercise;
- Providing new amenity for the town of Athlone, enhancing the attractiveness of the town to tourism;
- Aiding integration within the town due to the positioning of the proposed development close to the town centre;
- Introducing a new type of tourism to the town as the cycle route is part of the National Cycle route from Dublin to Galway;
- Corresponding with the Destination Athlone website, www.athlone.ie, which is a website dedicated to promoting activities offered in Athlone and cycling is strongly promoted by the site;
- Developing Athlone as a cycle tour hub town, which will positively impact on the economic activity of the town; and
- Providing positive impacts on material assets due to enhanced accessibility and attractiveness of the area which in turn will maintain commercial and residential rents and property values.

There will be no negative residual impacts on human beings as a result of the proposed development through Athlone town. During the construction phase the temporary removal of berths from the marina will cause some disruption. Any disruption during the construction phase will be temporary in nature and minor in magnitude. The proposed development will provide an additional amenity to the area with positive impacts for the local community with regard to increased tourism (economic impact) and the potential health improvements.

Furthermore, it is not expected that there will be any negative cumulative impacts on human beings as a result of the proposed development.

15.0 Interrelationships

The identification of possible impacts was facilitated through the iterative design process that included the holding of meetings between the engineering design team and the environmental team on a regular basis. This allowed for dynamic interaction between all parties/ topics. Where a potential exists for interaction between two or more environmental topics, the relevant specialists have taken these potential interactions into account when making their assessment. Mitigation measures have

been identified where impacts on each of the individual environmental factors were identified.

Following an examination of the interactions, it was determined that no additional impacts will occur as a result of interactions between two or more topics. Therefore no additional mitigation was required.

16.0 Further Information & What Happens Next?

The EIS will be available for inspection at the following location, as detailed in the published newspaper notices:

Westmeath County Council
National Roads Design Office
Cullen Beg
Mullingar
Co. Westmeath

Alternatively, a copy of the EIS can be accessed free of charge at the Westmeath County Council's website at: <http://www.westmeathcoco.ie/>

Written submissions may be made in writing to:

An Bord Pleanála
Strategic Infrastructure Division
64 Marlborough Street
Dublin 1
D01 V902

prior to the dates specified in the published newspaper notices, in relation to:

- The likely effects on the environment of the proposed development;
- The implications of the proposed development for proper planning and sustainable development in the area in which it is proposed; and
- The likely significant effects of the proposed development on any European Site

An Oral Hearing may be held at the discretion of An Bord Pleanála. Written submissions, together with any representations made at any oral hearing, will be considered by the Board in making its decision on whether or not to approve the proposed development, with or without modifications or conditions. The Board's decision will be published in one or more newspapers circulating in the area, including, where appropriate, particulars of any modifications or conditions to the proposed development.

Chapter 1

Introduction

Chapter 1

Introduction

1.1 General

This Environmental Impact Statement (EIS) is for the proposed Athlone Pedestrian and Cycleway Bridge (illustrated in Figure 1.1 of Volume 3).

The proposed bridge will provide a new link for pedestrians and cyclists across the river Shannon in the heart of the Athlone town centre.

The EIS has been prepared by Roughan & O'Donovan – AECOM Alliance Consulting Engineers and a team of specialist sub consultants on behalf of Westmeath County Council and the National Roads Authority (NRA) (now known for operational purposes as Transport Infrastructure Ireland (TII)).

For presentation purposes, this EIS is set out in four Volumes as presented below:

Volume 1 Non Technical Summary

Volume 2 Main Text

This document, which is contained in Volume 2 Main Text, contains the following:

| | | |
|---------|-----|---|
| Chapter | 1: | Introduction |
| Chapter | 2: | Background to the Proposed Development |
| Chapter | 3: | Outline of Alternatives Considered |
| Chapter | 4: | Description of the Proposed Development |
| Chapter | 5: | Traffic, Cyclist and Pedestrian Integration |
| Chapter | 6: | Flora and Fauna |
| Chapter | 7: | Soils, Geology & Hydrogeology |
| Chapter | 8: | Hydrology and Drainage |
| Chapter | 9: | Landscape and Visual Impact Assessment |
| Chapter | 10: | Noise and Vibration |
| Chapter | 11: | Air Quality and Climate |
| Chapter | 12: | Archaeological and Cultural Heritage |
| Chapter | 13: | Architectural Heritage |
| Chapter | 14: | Human Beings and Material Assets |
| Chapter | 15: | Interactions, Interrelationships and Cumulative Effects |
| Chapter | 16: | Mitigation Measures |

Volume 3 Figures

Volume 4 Appendices

| | |
|----------------|---|
| Appendix 6.1: | Conservation Objectives and Site Synopses |
| Appendix 6.2: | Appropriate Assessment Screening Report |
| Appendix 6.3: | Tree Survey Report |
| Appendix 8.1: | Section 50 Flood Risk Assessment and Management Study |
| Appendix 8.2: | Section 50 Application and OPW Consent |
| Appendix 12.1: | Recorded Archaeological Monuments |

- Appendix 12.2: Archaeological Finds
- Appendix 12.3: Previous Excavations
- Appendix 12.4: Recorded Shipwrecks at Athlone
- Appendix 12.5: Underwater Assessment

1.2 EIS Study Team

Roughan & O' Donovan – AECOM Alliance have led the preparation of this EIS with the assistance of specialist environmental studies undertaken by sub-independent specialists as follows:

| Topic | Independent Specialist |
|--------------------------------------|---|
| Flora and Fauna | McCarthy Keville O' Sullivan |
| Archaeological & Cultural Heritage | CRDS (Cultural Resource Development Services) – Aislinn Collins |
| Architectural Heritage | Historic Building Consultants – Rob Goodbody |
| Section 50 Flood Risk Assessment | AWN Consulting Ltd – David Casey |
| Landscape & Visual Impact Assessment | CSR (Cunnane Stratton Reynolds) – Declan O' Leary |

All other EIS topics have been undertaken by Roughan & O' Donovan – AECOM Alliance including:

- Soils, Geology and Hydrogeology;
- Hydrology and Drainage;
- Noise and Vibration;
- Air Quality and Climate;
- Human Beings and Material Assets; and
- Interactions, Interrelationships and Cumulative Effects.

1.3 Context to the Proposed Development

The route for the proposed Galway to Dublin Cycleway currently passes through several urban settlements, with Mullingar and Maynooth the major towns to the east of Athlone. It is generally planned to be a 3m wide facility and it is intended that the route will be segregated from vehicular traffic for the majority of its length.

The route between Maynooth and Mullingar follows the route of the Royal Canal and is at various stages of construction.

Construction of the Old Rail Trail along the disused railway between Mullingar and the Ballymahon Road in Athlone (known locally as Whitegates) was completed in 2016.

These sections have previously been the subject of separate Part 8 Planning Applications in Counties Kildare, Meath and Westmeath, with all of the proposals approved by the respective county councils.

A further Part 8 Planning Application is approved, which includes the section from Whitegates to the Marina on the banks of the River Shannon in Athlone town centre.

Recent counts demonstrate a high level of usage of that portion that has been constructed from Whitegates to Garrycastle.

The route from Athlone to Galway is at route selection stage at present.

The proposed development which is subject to this EIS comprises a pedestrian and cycleway bridge over the River Shannon.

1.4 Legal Requirements

1.4.1 Legislative Requirement for Environmental Impact Assessment (EIA)/Appropriate Assessment (Habitats)

An EIS is required under the mandatory trigger in subsection (b) of Article 8 of the Roads Regulations, 1994.

Concurrently, application is being made to An Bord Pleanála for consent for the proposed development pursuant to Part XAB of the Planning and Development Acts 2000-2016 which requires the submission of a Natura Impact Statement for the purposes of Article 6 of the Habitats Directive.

1.4.2 Determination of the requirement for an EIA

In the case of the proposed development, EIA is mandatory under Article 8 of the Roads Regulations, 1994 as it will involve:

The construction of a new bridge or tunnel which would be 100 metres or more in length

as prescribed for the purposes of S. 50(1)(a)(iii) of the Roads Act.

1.4.3 Contents of the Environmental Impact Statement

Sections 50(2) and 50(3) of the Roads Act specify the information to be contained in the EIS.

In addition to the above legislation, the following Environmental Protection Agency (EPA) guidance documents have been consulted in the preparation of this EIS:

- EPA, Guidelines on the Information to be contained in Environmental Impact Statements, 2002;
- EPA, Advice notes on Current Practice (in the preparation of Environmental Impact Statements), 2003.

The following draft guidance documents which are currently on consultation have also been considered:

- Revised Guidelines on the Information to be Contained in Environmental Impact Statements, Draft September 2015;
- Advice Notes for Preparing Environmental Impact Statements, Draft September 2015.

The NRA has also developed a series of best practice guidelines to facilitate the integration of environmental issues into the planning of national road projects. The latest versions of the published guidelines have been utilised, where appropriate, during the preparation of this EIS, including:

- Environmental Impact Assessment of National Road Schemes - A Practical Guide, Revision 1, 20 November 2008;
- A Guide to Landscape Treatments for National Road Schemes in Ireland, 2006;
- Guidelines for Implementation of Landscape Treatment on National Roads Scheme in Ireland, 2011;
- Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes, Revision 1, May 2011;
- Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes, 2006;
- Guidelines for Assessment of Ecological Impacts of National Road Schemes, Revision 2, 1st June 2009;
- Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes, 2009;
- Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Scheme, 2008;
- Guidelines for the Treatment of Noise and Vibration in National Road Schemes - Revision 1, October 2004;
- Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes, March 2014;
- Guidelines for the Assessment of Architectural Heritage and National Road Schemes, 2005;
- Guidelines for the Assessment of Archaeological Heritage Impact of National Road Schemes, 2005.

Given the importance of the proposed development for the tourism industry and following consultation with Fáilte Ireland as part of the overall EIA process, the following guidelines have also been taken into account in the formulation of this EIS:

- Fáilte Ireland Guidelines for the Treatment of Tourism in an EIS, 2011.

1.5 Informal Consultation

1.5.1 Informal Scoping

An informal scoping exercise took place during April and May 2015. This consisted of written consultations with a number of statutory and non-statutory bodies who are likely to have an interest in the proposed development as listed in Table 1.1.

The purpose of the Scoping Report was to provide consultees with information on the proposed development and on the proposed scope of the EIA. A significant number of responses were received and these have been recorded and considered as part of the compilation of the EIS.

Table 1.1 List of Consultees

| |
|---|
| An Bord Pleanála |
| An Taisce – The National Trust of Ireland |
| Birdwatch Ireland |
| Department of Communications, Energy & Natural Resources |
| Department of Environment, Community & Local Government |
| Department of Jobs, Enterprise and Innovation |
| Department of Transport, Tourism and Sport |
| Development Applications Unit/ Department of Arts, Heritage & the Gaeltacht |
| ESB Head Office |
| Fáilte Ireland, Environmental Planning Officer |
| Geological Survey of Ireland |
| Health & Safety Authority |
| Iarnród Éireann |
| Inland Fisheries Ireland |
| Inland Waterways Association of Ireland |
| Midlands Ireland |
| Midlands Regional Authority (now Eastern and Midlands Regional Assembly) |
| Old Athlone Society |
| Ordnance Survey Ireland |
| Planning & Development Department, Roscommon County Council |
| Shannon International River Basin District Project Office |
| The Arts Council - Planning Department |
| The Heritage Council - Planning Department |
| The National Museum of Ireland, Archeology Department |
| The National Roads Authority, Environmental Manager |
| The National Roads Authority, Head of Archaeology |
| The National Roads Authority, Planning and Land-use |
| The National Roads Authority, Senior Project Manager |
| The Office of Public Works, Co. Meath |
| The Office of Public Works, Dublin |
| Waterways Ireland, Co. Fermanagh |
| Waterways Ireland, Environment Officer |
| Waterways Ireland, Shannon Navigation |
| Westmeath County Enterprise Board Ltd, Business Information Centre |

1.5.2 Further Consultations

In addition to the above consultation exercise, a series of meetings were held with relevant statutory stakeholders including:

- National Parks and Wildlife Service (NPWS);

- Westmeath County Council;
- Iarnród Éireann;
- Inland Fisheries Ireland;
- Department of Arts Heritage and Gaeltacht – Underwater Archaeology Unit;
and
- Inland Waterways Association of Ireland (IWAI) Athlone.

In addition, the Office of Public Works (OPW) was issued a Section 50 Application for the proposed development.

1.5.3 Non-Statutory Public Consultation Events

Public consultation events were held in May and December 2013 to invite comments on potential crossing points for the proposed development. The feedback from these events and consultations with the local authority informed the route selection process.

1.6 Difficulties Encountered

No particular difficulties were encountered while undertaking the environmental assessment or while producing this EIS. It should be noted that surveys, assessments and information that form the basis of this EIS are based on the current design of the proposed development.

Chapter 2

Background to the Proposed Development

Chapter 2 Background to the Proposed Development

2.1 Need for the Proposed Development

The Irish Government is committed to developing cycling as one of the most desirable modes of travel. The National Cycle Policy Framework (NCPF) (2009-2020) sets out objectives to the year 2020 to achieve this vision of creating a strong cycling culture in Ireland.

From the perspective of the NCPF, encouraging recreational cycling is a key element of creating a cycling culture in Ireland. Rural recreational routes in and around urban areas, which in turn connect with major urban areas are considered very important. Accordingly, Objective Number 3 of the NCPF is to *“Provide designated rural cycle networks especially for visitors and recreational cycling”*.

In 2009, the Minister for Transport, Tourism and Sport approved the commissioning of the National Roads Authority (NRA) (now known for operational purposes as Transport Infrastructure Ireland (TII)) to undertake a study on a National Cycle Network (NCN), to include rural recreational routes. The NRA worked with the National Trails Advisory Committee, comprising a number of agencies and bodies including Fáilte Ireland, Waterways Ireland and Coillte, and the Department of Transport, Tourism and Sport's National Sustainable Travel Office in the development of the NCN Scoping Study.

The advisory group identified the vision of the NCN to *“develop a National Cycle Network that will allow users to cycle between the main urban areas throughout the country. The network will be built to best practice standard, follow routes that maximise the number of potential users and its attractiveness to users, facilitate access for all, and ensure that short and long trips can be engaged in. The National Cycle Network Scoping Study routes will, where possible, avail of existing routes and State-owned lands, share use with walking and form the basis for linkages to more comprehensive rural and urban local networks”*

The Scoping Study was completed and published in August 2010. It identified thirteen potential route corridors between urban centres of a population of 10,000 and upwards that could make up a National Cycle Network, see Plate 2.1. Plate 2.2 illustrates the proposed corridors as indicated in the Scoping Study.

One of the corridors identified is NCN02: Dublin to Clifden corridor. According to the Study, the Mullingar-Oranmore section of NCN02 corridor includes the towns of Mullingar, Athlone, Ballinasloe and Oranmore. NCN02 also features in the European Cycle Route Network (EuroVelo) as EV2 *‘The Capitals Route’* from Moscow to Galway, as shown in Plate 2.3.

The Scoping Study concluded by stating that the next step for the National Cycle Network project will be to carry out a detailed *‘Route Feasibility and Delivery’* study on a selected corridor. Consequently, in 2012, the Minister for Transport, Tourism & Sport instructed the NRA to identify route options available for the development of a segment of the NCN02: Dublin to Clifden corridor comprising an off road cycle route between Galway and Maynooth. The Athlone Pedestrian and Cycleway Bridge over the River Shannon is a key component of this route as it ensures a segregated cycleway crossing that provides easy passage and, critically, safe access to the town of Athlone, which is seen as a halfway point along the proposed Galway to Dublin

Cycleway. The current progress of the Galway to Dublin Cycleway is presented in Plate 2.4.

The Athlone Pedestrian and Cycleway Bridge will form an integral part of the above vision, providing a central link across the River Shannon and a cycle hub with ample facilities and tourism attractions.

Figure 5.2 Midland Region: Cycle Network Strategy

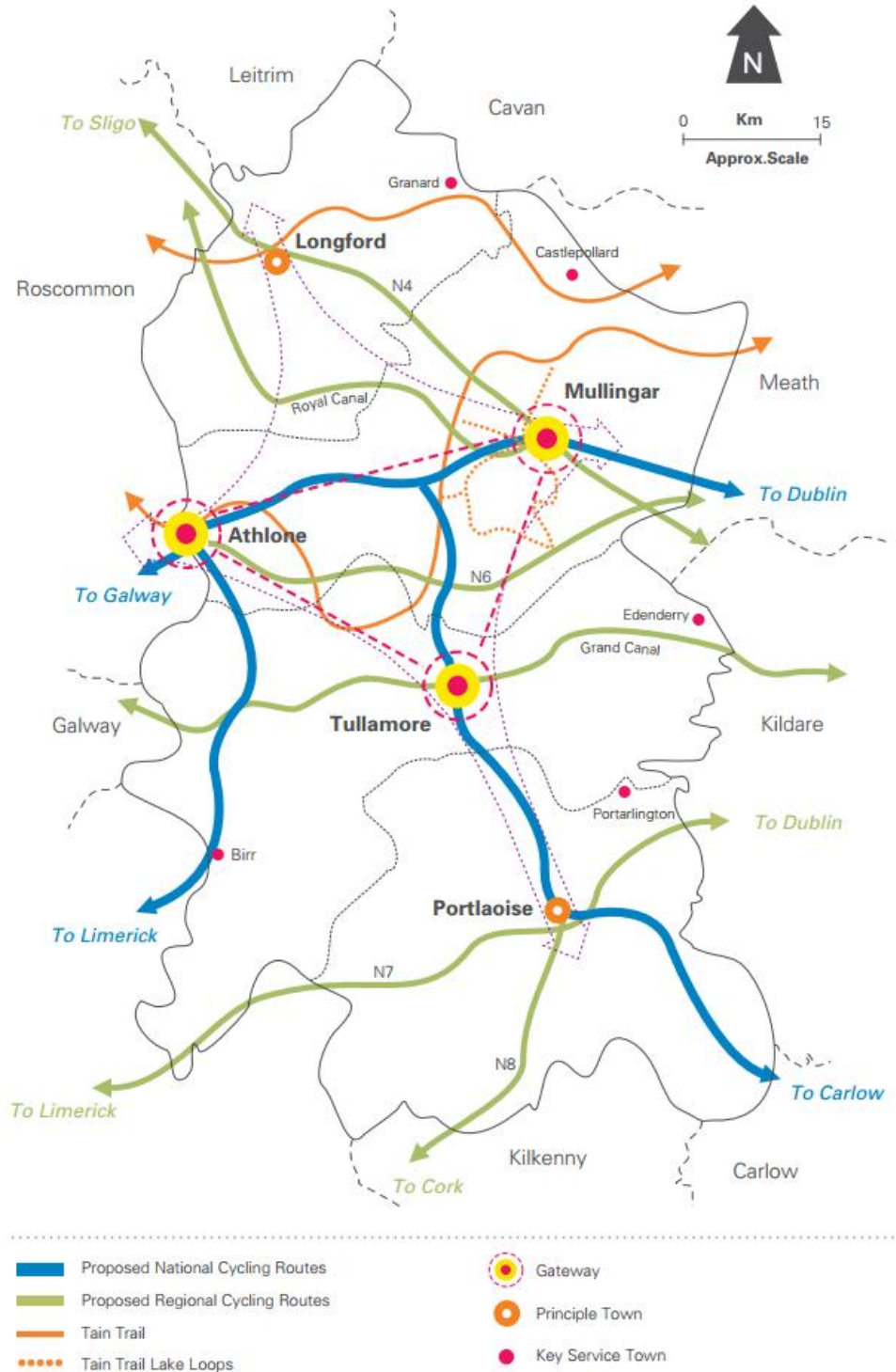


Plate 2.1 National Cycle Network Displaying Links to Carlow and Limerick



Plate 2.2 National Cycle Network Route Map

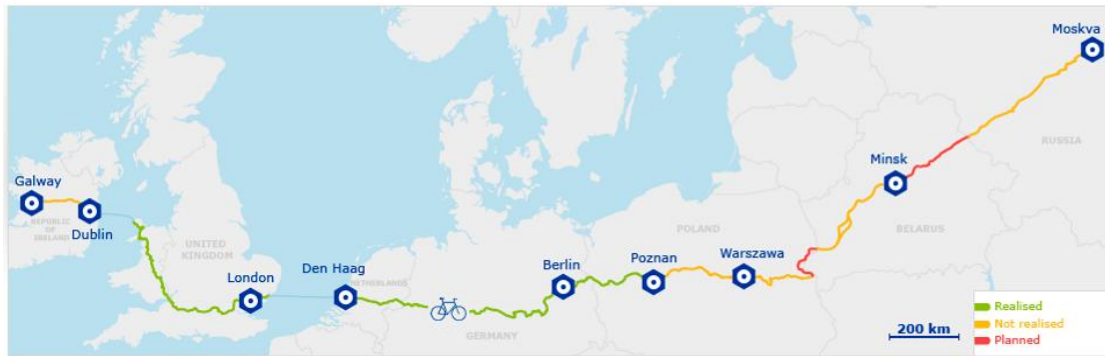


Plate 2.3 EuroVelo Route 2

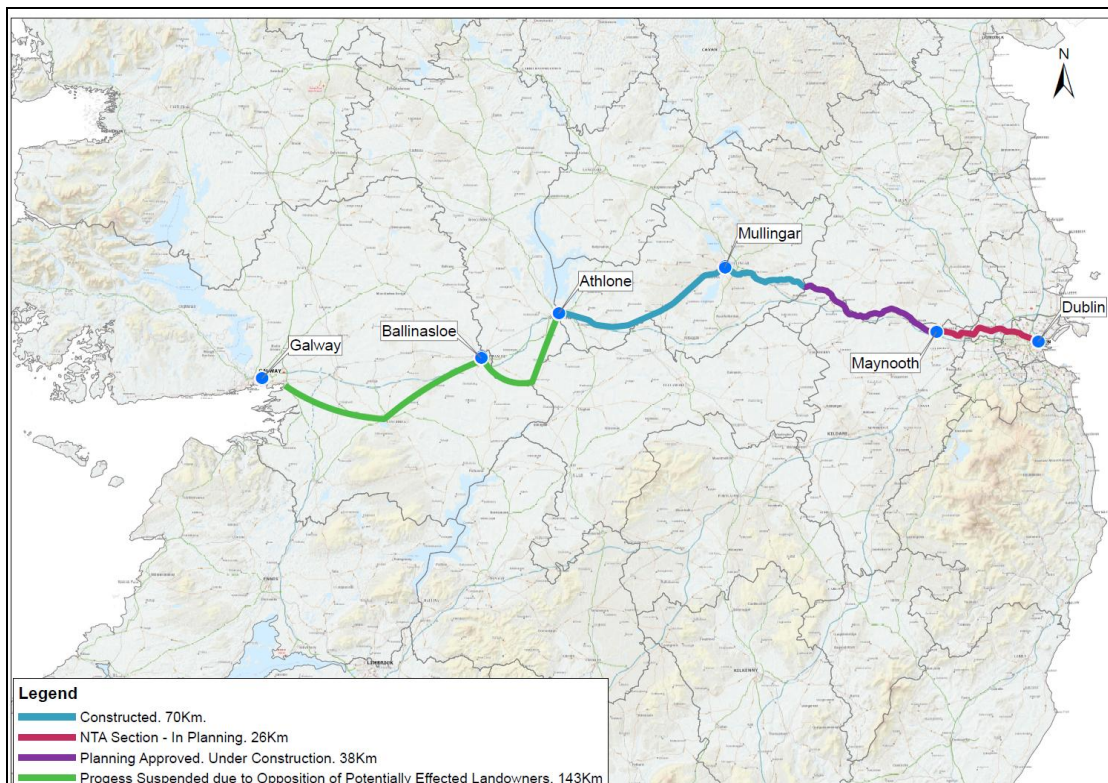


Plate 2.4 Current Progress of the Dublin to Galway Cycleway

2.2 Department of Transport Policy Statement

In May 2014, the Minister for Transport, Tourism and Sport issued the vision, policy and objectives of the Galway to Dublin Greenway. This included:

Vision

To develop a segregated cycle and walking trail to international standards, extending from Dublin City to Galway which is of a scale that will allow Ireland to harness the potential of an identified growing tourism market for cycling. This route will form part of an interconnected national cycle network of high quality, traffic free, inter urban routes, which will establish Ireland as a quality international tourism destination for a broad range of associated recreational activities and pursuits.

Policy

To provide a segregated, substantially off road cycle route from Dublin City to Clifden via Galway City, utilising where possible existing and approved routes and disused railway line corridors and to require regional and local authorities to incorporate

appropriate policies to facilitate the implementation of this cycle route. The development of the route will be subject to the requirements of Habitats and Environmental Impact Assessment Directives. Where State lands are not available, land will be acquired in order to secure the use of the infrastructure for future years, thereby securing the State's investment.

Objectives

- Establish a cycleway route connecting Dublin to Clifden via Galway City which is segregated from vehicular traffic and is safe, attractive and comfortable.
- Maximise the value of existing infrastructure including canal towpaths, disused railway lines and state owned lands.
- Secure permanent access to the entire route through land acquisition if necessary.
- Develop a tourism experience that caters for a broad range of users in key tourism markets.
- Route to be designed and built to international best practice and in accordance with adopted standards.
- Maximise the value of existing and proposed investment in key tourism destinations.
- Facilitate regular access to visitor attractions and services along the corridor.
- Facilitate connections with public transport hubs which will provide access to the route from bus and rail.
- Provide frequent connections to towns, tourism facilities, natural amenities and other attractions in proximity to the route in collaboration with local communities and tourism providers.
- To generate ongoing economic benefits for rural and urban areas along the route.
- To maximise the number of potential commuter, leisure and tourist users.
- To facilitate the achievement of smarter travel targets for sustainable travel.
- To market and promote the cycleway internationally.
- To provide comprehensive route signage, mapping and distinct branding to international standards.
- To provide for maintenance of the route and monitoring of patterns of use.
- To create an economic stimulus for growth in the national and local economy, providing opportunities for new and existing businesses and communities.

This high level plan has been the subject of strategic environmental assessment (SEA). The SEA for this high level Ministerial statement can be read at the macro level in conjunction with the SEA for the Athlone Town Development Plan 2014-2020 and the Westmeath County Development Plan 2014-2020.

2.3 Planning and Policy Context

This section provides a summary of the regional and local planning strategies and policies relevant to the proposed development.

2.3.1 Regional Planning Guidelines (RPGs) for the Midland Region 2010-2022

The RPGs for the region state that:

“targeted investment in transport and infrastructure is a fundamental element in the creation of a more competitive, sustainable region with an improved quality of life for all.”

The policy document Smarter Travel – A Sustainable Transport Future published by the Department of Transport in 2009 is reflected in this RPG strategy which aims to establish sustainable transport patterns.

The Eastern and Midland Regional Assembly (EMRA) supports the Government's Smarter Travel Policy and the NCPF and encourages the policies outlined in these documents. The aim is to develop a strong culture of walking and cycling which is key in the development of an overall sustainable transport strategy. The EMRA sees this in turn contributing to the sustainability of the region, enhancing quality of life, increasing walking and cycling facilities, increasing integration with public transport modes in the region and also enhancing the tourism offer in the area.

Policy No. TIP5 of the RPGs states that the guidelines will:

“Support the development of regional cycling routes in addition to the cycling routes identified in the National Cycle Policy Framework.”

Fáilte Ireland's 'Strategy for the Development of Irish Cycle Tourism' and also Objective TIO5 states the RPGs will:

“Support the Local Authorities in the development of Walking and Cycling Strategies within and between the linked gateway and principal towns in the region.”

2.3.2 County and Local Planning Policy

This section examines the Planning Policy in place at a local level that supports the development of the Galway to Dublin Cycleway and in particular the section of the route which is the subject of this EIS – the proposed bridge in Athlone. This section also examines the initiatives and studies that have been carried out to date to facilitate and/or encourage the proposed development.

Athlone Town Plan 2008-2014

The Athlone Town Plan 2008-2014 contained a specific objective to undertake a Waterfront Strategy for the river front area of the town. This strategy considered the long term role of the river front and the town's relationship with the River Shannon. The strategy examined opportunities to improve accessibility and movement including the feasibility of creating new river crossings for pedestrians and cyclists, improvement and development of public access along the river and the extension of walking and cycling routes.

Objectives of the Plan support the proposed development stating that it is an objective of the Council:

O-TC10 *To undertake a Waterfront Strategy for the river front area in Athlone Town to include the assessment of the provision of a footbridge across the Shannon.*

O-IC31 *To improve and develop safe public access to the Shannon and other features of amenity value and seek to extend public walking and cycling routes along the River and to the lake in a sustainable manner.”*

Westmeath County Development Plan 2014 – 2020

The document outlines the following policies and objectives which are related to cycling in Westmeath;

Walking and Cycling Policies

It is a policy of Westmeath County Council:

“P-WC1 To encourage and facilitate safe walking and cycling routes in the county, as a viable alternative to the private car, in accordance with initiatives contained within “Smarter Travel, A Sustainable Transport Future 2009-2020”, taking account of the need to protect habitats and species of importance.

P-WC2 To develop walking and cycling routes within and between the Linked Gateway towns of Mullingar and Athlone.

P-WC6 To support and facilitate the provision of a cycleway and walkway between Mullingar and Athlone, as part of the National Cycleway Network within the corridor of the disused railway line, pending the re-opening of this line as a railway, subject to environmental and habitats requirements.

Walking and Cycling Objectives

O-WC4 To develop the Athlone Rail Greenway, incorporating a walking/cycling route along the entirety of the Athlone Mullingar railway line.

Infrastructure Objectives

O-MTE5 To provide cycle way line to Athlone on the disused rail line; as an interim measure pending the re-opening of the line.

O-KR3 To enhance pedestrian and cycle permeability from the centres of the settlement to their development boundaries on all access roads.”

Athlone Town Development Plan 2014-2020

The Athlone Town Development Plan 2014-2020 supports, in principle, the development of the national cycleway through Athlone, including the provision of a new river crossing at a suitable location.

There are a number of policies and objectives in the Athlone Town Plan 2014-2020 which relate in particular to the proposed development and which were required to be addressed in overall project design. In particular the sensitivity of developing any bridge crossing in the town centre is highlighted. Factors including the possible impacts on protected views and the unique character of the riverine environment, as well as possible archaeological and environmental sensitivities.

The following policies specifically support the proposed development within the town:

Policy **P-WC6** states that the plan will seek:

“To support and facilitate the development through Athlone of the National Cycle Network between Dublin and Galway, including the construction of a new pedestrian and cycle Bridge across the River Shannon, subject to the requirements of the Habitats Directive, Water Framework Directive and environmental sensitivities identified in the SEA being addressed.”

Objectives **O-WC1**, **O-WC15** and **O-WC17** of the Plan also support the proposed development stating that it is an objective of the Council:

“O-WC1 *To further the development of an integrated cycle network in Athlone.*

O-WC15 *To provide a new pedestrian and cycleway bridge across the River Shannon, in conjunction with the development of the Dublin to Galway National Cycle Network, subject to habitat protection requirements and environmental sensitivities identified in the SEA being addressed.*

O-WC17 *To provide a network of pedestrian and cycle routes within the town in conjunction with the development of the Dublin Galway National Cycle Network, subject to habitat protection requirements and environmental sensitivities identified in the SEA being addressed.”*

Access and integration with town and beyond (movement, economy and society)

The proposed development will connect with the Mullingar to Athlone section of the Galway to Dublin cycleway at the Marina building, which was constructed along the disused railway from Mullingar as far as the Ballymahon Road Level crossing, known locally as Whitegates in 2016. Planning has previously been approved for the connection from Whitegates to the Marina building.

Promoting and developing access and integration with the town centre area, including its public realm from the proposed development, is a major consideration of the proposed development. In order to maximise the benefits of the proposed development for Athlone, connections to the principal routes of the town centre from the proposed development will be a priority. Future planning proposals in the town will seek to connect to cycle and walking routes and create a network of integration with local and community services and public amenities.

Improved accessibility is considered to be a vital aspect of the local economy and the proposed development. Connecting the eastern and western banks of the Shannon River will be a significant development in the challenge to attract investment to the area. Athlone plays a regionally significant role in relation to industry, public services, retail and tourism and the proposed development will compliment and expand on this role. The proposed development plays a central role in the continued success of Athlone Town and the surrounding area.

On the western side of the Shannon it is envisaged that the development will continue on from the Athlone Castle hub to the Roscommon border and then onto Galway. This section will be subject to a separate environmental assessment.

2.3.3 National Planning Policy

Ireland 2040 Our Plan National Planning Framework (herein referred to as NPF) is a long term plan which will shape spatial, social and economic policy in Ireland for the coming decades. Ireland 2040 Our Plan Issues and Choices, (Feb 2017) sets out the main issues and possible choices for the development of Ireland as a place over the next twenty years or more, to 2040. This position paper supports the use of sustainable transport modes in conjunction with the development of personal health and well-being.

‘Creating and maintaining environments that encourage people to make healthier, more active choices is central to making the healthy choice the easy choice. Factors that are of relevance in promoting an active environment include location, density and mix of land use; provision of safe walking and cycling routes; street layout and

connectivity; availability and density of open and green space; accessible sports facilities and proximity to public transport facilities and services.'

The paper has highlighted Ireland's unique environment and seeks to encourage Green Infrastructure (GI) and Biodiversity: -

'Green infrastructure (GI) is where natural and/or managed landscape features such as a watercourse and/or parkland is managed and enhanced as a multifunctional resource capable of delivering a wide range of economic, environmental and quality of life benefits, known as 'ecosystem services'.

'These benefits can include creating an attractive environment to encourage businesses and inward investment; more places for people to access nature, outdoor recreation or social interaction or physical activity by providing quality, linked green or 'blue' (water-related) spaces for walking, cycling and other physical activity and creating a sense of place and local distinctiveness. They also generally include a holistic approach to developing the landscape inclusive of other influences, such as ecological development, improving air, water and soil quality and flood protection.'

2.3.4 Other Strategies and Studies that support the principle of the Proposed Development

Athlone Town Council Green Routes Strategy, 2011

The Town Council adopted a Green Routes Strategy for Athlone in 2011. The aim of the strategy is to encourage alternative forms of transport within the town and environs, such as walking and cycling, rather than the private car, thereby reducing congestion within the town centre and promoting healthier lifestyles. The goals which form the basis of the strategy are as follows:

- Goal 1:* Promote safe and sustainable alternative modes of travel to the private car within the town and its environs and reduce reliance on the private car;
- Goal 2:* Reduce congestion in the town centre; and
- Goal 3:* Reduce pressure on the environment thereby improving health and increasing tourism for the town and its environs.

The delivery of these goals will require the councils to work with partners in the private and voluntary sectors together with other sections of the public sector. Central to the strategy is the development of a Strategic Cycle Network within Athlone. It is intended that this network will connect the main residential areas to the Town Centre and the main areas of employment including Athlone Institute of Technology (see Figure 2.1 of Volume 3). The aim is to build upon and extend existing cycle lanes in the town. In areas where the provision of cycle lanes is not feasible, traffic calming measures will be introduced to enable cyclists, pedestrians and motorists to co-exist safely. The development of the NCN within Athlone and the proposed River Shannon crossing will greatly assist in achieving the above strategy's goals.

Athlone Waterfront Strategy, 2010

The Athlone Waterfront Strategy 2010 was undertaken as a result of an objective in the Athlone Town Plan 2008-2014. The main objectives of the strategy were to provide a strategic approach to conservation and protection of natural and built heritage, to identify economic development and tourism related opportunities and to provide a framework for amenity on the waterfront. An objective of relevance to this project is the examination of new river crossing points for cycles and pedestrians.

A strategic objective of the Waterfront Strategy is to identify opportunities to improve accessibility and movement along the river edge and examine the feasibility of creation of new river crossings for pedestrian / cycle use. The report study states that *“an additional link catering specifically for pedestrian and cyclist’s movement would be a great asset to the Waterfront”*.

The illustrative framework plan has been developed through consultation with stakeholders. The plan includes the following objectives which support the development of a cycleway within the waterfront area:

- New cycle / pedestrian bridge over the canal which will improve circulation and access;
- New landmark pedestrian bridge over the Shannon linking Strand Square to the Left Bank which will allow for good circulation and movement patterns.
- New boathouse allowing an uninterrupted pedestrian link at ground level at the river’s edge;
- New boardwalk allowing uninterrupted riverside access south of Custume Bridge on the east bank and at the Strand; and
- New exhibition centre south of Burgess Park to reinforce a connection to the river whilst creating strong pedestrian linkages northwards to Burgess Park and the Town Centre.

The new landmark pedestrian bridge over the Shannon linking Strand Square to the Left Bank alternative was examined. However, due to navigational and flood risk constraints it was not advanced as a viable option.

Athlone Canal Study, 2012

The Athlone Canal Study was prepared to complement the Waterfront Strategy. It sets out principles for the regeneration of the Canal area and its use as a public space and amenity for the town. The study makes recommendations for natural heritage and nature conservation practices for the area. It provides analysis of connectivity, incorporating existing and potential linkages to adjoining areas and integration with the River Shannon waterfront environs. The study addresses the need to provide for better and more continuous links with the existing and future pedestrian and cycle routes along the Shannon and the town centre. Recommendations in relation to natural heritage and nature conservation practices for the area are also made in the study. In addition, opportunities for both tourism-related development and water-based recreational activities are identified.

2.4 Conclusion

The Athlone Pedestrian and Cycleway Bridge is a key component of the NCN02: Dublin to Clifden corridor contained in the National Cycle Network.

Policy at all levels recognises the strategic importance of the proposed development and the potential benefits it may bring to Athlone. The proposed development takes account of all those planning policies and objectives listed above.

Chapter 3

Outline of Alternatives Considered

Chapter 3

Outline of Alternatives Considered

This chapter outlines the potential locations considered for crossing the River Shannon and illustrates the approach routes associated with those locations. It describes access configurations for the preferred location. The main reasons for selecting the preferred crossing location and bridge design are outlined taking into account environmental factors.

The selection of the route was undertaken in three stages: A Constraints Study undertaken in 2013, a Route Selection Study undertaken from 2013 to 2015 and the development of the design from 2015 to 2016. An outline of the examination of alternatives at each stage of the selection of the proposed development is summarised below.

The alternatives considered as part of this proposed development include the 'do-nothing' scenario and a number of alternative Routes and Crossing Points as illustrated in Figures 3.2 and 3.3 of Volume 3.

3.1 Study Area

The proposed route of the Galway to Dublin Greenway between Ballinasloe and Athlone has been identified through southern County Roscommon, approaching from the direction of Shannonbridge in the Monksland area on the western side of the town. The Town Council boundary on the Newton Carbury Road represented the westernmost point of the Study Area in the route selection process.

On the eastern approach planning for the Greenway had been approved along the existing disused Mullingar to Athlone railway line as far as Garrycastle (The Greenway has since been constructed as far as the level crossing at Ballymahon Road, known locally as Whitegates). The level crossing on the disused railway at Cartronroy (XG098) is the last convenient location at which cyclists leaving Athlone town centre and travelling to the east could potentially join the disused railway. Therefore, the Cartronroy level crossing was considered to be the easternmost point of the Study Area.

The extent of the study area was therefore selected as between these two points whilst the Shannon weir was selected as the southernmost point, with the existing N6 Bridge selected as a general northern extent. Refer to Figure 3.1 in Volume 3.

3.2 Constraints

The following natural and artificial constraints were identified comprehensively as part of the route selection process:

- Flora and Fauna;
- Flooding;
- Visual Amenity and Local Planning Policy;
- Designated Sites and Natural Heritage;
- Archaeological Heritage;
- Architectural Heritage;
- Heritage Planning Policy;
- Socio-Economics;

- Arts, Culture and Tourism; and
- River Navigation

These constraints are discussed in more detail below.

3.2.1 Flora and Fauna

The designated sites that are closest to the site and have the potential for habitat or surface water connectivity include:

- River Shannon Callows SAC/pNHA (Site Code: 000216), located approximately 670m south of the proposed development.
- Middle Shannon Callows SPA (Site Code: 004096), which is located approximately 670m south of the proposed development.
- Lough Ree SAC/pNHA (Site Code: 000440), which is located approximately 1km north of the proposed development site.
- Lough Ree SPA (Site Code: 004064), which is located approximately 1km north of the proposed development site.

3.2.2 Flooding

There is a history of flooding events associated with the River Shannon around Athlone. On 25th November 2009, the level on the Shannon at Athlone exceeded the highest level then on record, with the estimated return period in excess of 150yrs. This level was surpassed on the 5th January 2016 when the water level reached 37.01m OD. The estimated return period for this event is approximately 1 in 200yrs.

3.2.3 Visual Amenity and Local Planning Policy

The Athlone Town Development Plan 2014 – 2020 presents a number of 'Important Views and Panoramas' within Athlone (see Figure ATC 01 in Volume 3), which it is considered should be protected from adverse visual impact. The listed views include that of the Castle from the east bank, a view looking south from Custume Bridge and one looking south along the river from the railway bridge toward Custume Bridge.

3.2.4 Designated Sites and Natural Heritage

The proposed development is located approximately 0.67km north of the nearest European Natura 2000 sites which are the Middle Shannon Callows Special Protection Area (SPA) (004096) and River Shannon Callows Special Area of Conservation (SAC) (000216). In addition to these sites two other Natura 2000 sites are located approximately 1km to the north of the development location, namely Lough Ree SPA (004064) and Lough Ree SAC (000440). A separate assessment of the likely significant effects of the proposed development on these sites has been carried out under the Habitats Directive and is presented in the Natura Impact Statement which accompanies this EIS.

Lough Ree and the River Shannon Callows are also designated under national legislation (Wildlife Acts 1976-2012) as proposed Natural Heritage Area (pNHA).

The Westmeath County Development Plan (2014-2020) identifies Trees and Woodlands of Special Amenity Value in Appendix 9. This includes the trees along Grace Road on the west bank of the River Shannon.

It is a policy (P-TWH1) of the Development Plan "*to protect, preserve and ensure the effective management of trees and groups of trees, considered to be of special amenity value included in Appendix 9 of the plan*".

It is an objective of the Development Plan (O-TWH3) "*to discourage the felling of healthy mature trees to facilitate development and to encourage tree surgery rather than tree felling where possible*".

3.2.5 Archaeological Heritage

Due to the historic development of Athlone Town there are numerous Recorded Monuments within the study area. Significant archaeological monuments within the area include the Castle, Shannon Bridge, the Franciscan Abbey (in ruins) and Custume Barracks.

Zone of Archaeological Potential

The Urban Archaeological Survey of County Westmeath conducted in 1985 identifies a 'Zone of Archaeological Potential' within the Town. This zone is illustrated as the blue line on Figure ATC 06 from the Athlone Town Development Plan, in Volume 3.

3.2.6 Architectural Heritage Protected Structures

There are 257 structures contained in the List of Protected Structures of the Athlone Town Development Plan 2014 – 2020.

The following are of particular note:

- Shannon Railway Bridge rated as of National Importance (see Plate 3.1);
- Shannon Road Bridge rated as of Regional Importance;
- Shannon Navigation Lock rated as of Regional Importance;
- King John's Castle rated as of National Importance;
- Abbey House rated as of Regional Importance;
- Franciscan Abbey, Coosan Road rated as of Regional Importance;
- Quay and Slipway, Grace Road rated as of Regional Importance;
- Entrance Gateway, Custume Barracks rated as of Regional Importance;
- Boundary Walls, Custume Barracks rated as of Regional Importance;



Plate 3.1 Shannon Railway Bridge

Architectural Conservation Areas

There are nine Architectural Conservation Areas (ACAs) in Athlone. The proposed development is proximate to The Town Centre ACA. The area of this ACA incorporates both the east and west banks of the river. The Town Centre is a designated ACA because it retains the medieval form of the town and has a variety of styles and types of buildings ranging from the castle, domestic houses, civic buildings and churches, commercial premises and shop units.

3.2.7 Heritage Planning Policy

The Athlone Town Development Plan 2014 – 2020 contains policies and objectives to ensure the protection of the archaeological monuments, protected structures and conservation areas within Athlone Town in the life time of the plan.

The long history and historic development of Athlone has resulted in the presence of a large number of upstanding Protected Structures and a high level of recorded archaeological monuments.

3.2.8 Socio-economic Considerations and Project Objective

The socio-economic context is set directly by the aspirations contained within the Athlone Town Development Plan 2014 – 2020. Project Objective 2 '*To provide a direct connection to the main visitor attraction, Athlone Castle*' has been developed with specific reference to the economic vision and policies contained in the development plan.

3.2.9 Arts, Culture and Tourism

The cultural assets of the town are concentrated in the town centre / around the Castle in the area regarded as the Historic Quarter (see Figure ATC 09 of the Athlone Town Development Plan in Volume 3).

It is a policy (P-PT8) of the Development Plan "*To encourage and facilitate the development of a sustainable riverbased transport system on the River Shannon, including the development of ferry and waterbus services*".

3.2.10 River Navigation Requirements

Waterways Ireland (WI) was consulted in the early stages of development of proposals for the proposed development and WI personnel have provided geometric requirements in respect of a proposed bridge crossing location. They can be summarised as follows:

- A 40m wide navigation channel will be provided under the proposed bridge;
- A minimum vertical navigation clearance provision matching the Custume Bridge will be provided - Soffit level 39.99m OD. Malin.

3.3 Do Nothing Scenario

The Do Nothing option would require cyclists who have used the adjoining traffic free sections of the Galway to Dublin Greenway to either abandon their mode of transport or set out on a number of regional and local roads.

The *EuroVelo* guidelines state that shared on-road cycle routes should normally carry less than 1,000 vehicles per day. Following an investigation of the existing road infrastructure in Athlone it is evident that a shared on-road cycle route through Athlone Town is not feasible based on high existing traffic flows. It is desirable therefore for the proposed development to have a consistently standard facility, free from traffic through Athlone town centre. The route cannot follow the existing streets and road bridge over the River Shannon within the town as part of a "Do-Nothing Scenario".

3.4 Alternative Bridge Locations Considered

Nine potential Bridge Locations were examined as shown in Figure 3.3 in Volume 3.

In the following description the alternative bridge locations are laid out starting with the most northerly point and working in order south to the Athlone weir.

- Bridge Location 1 – Independent bridge to the North of the Athlone Water Works (BL1);
- Bridge Location 2 – Independent bridge north of the Railway Bridge (BL2);
- Bridge Location 3 – Independent bridge South of the Railway Bridge (BL3);
- Bridge Location 4 – Independent bridge at Marina Lane (BL4);
- Bridge Location 5 – Independent bridge at the Luan Gallery (BL5) (Proposed Location);
- Bridge Location 6 – Boardwalk on southern side of the existing Custume Bridge (BL6);
- Bridge Location 7 – Independent bridge immediately to the south of the existing Custume Bridge (BL7);
- Bridge Location 8 – Independent bridge to the south of the existing Custume Bridge between Strand Square and Left Bank (BL8);
- Bridge Location 9 – Independent bridge between Friary Lane and Athlone Lock (BL9).

Of the nine location options, no bridge option is more favourable than another in terms of potential impacts on European designated sites. The bridge location options range from 0.3 to 1.2km from the River Shannon Callows SAC and the Middle Shannon Callows SPA while Lough Ree SAC and SPA are located between 600m

and 2km from the nine bridge location options. Due to their proximity to the European designated sites, all potential bridge locations would require an assessment of potential ecological impacts.

3.4.1 Location 1 – Independent Bridge to the North of the Athlone Water Works

At Location 1 the route would cross the River Shannon on an independent pedestrian and cycle bridge to the north of the Athlone Water Works site. At this location the proposed development would link Wansboro Field to Diskin Enterprise Centre and the public open spaces and rights of way on either side of the Shannon, see Plate 3.2.



Plate 3.2 View of Wansboro Field from the west bank of the river

Advantages

- This bridge is positioned to optimum effect with respect to adjacent residents;
- The crossing is likely to be the shortest;
- Adequate space is available for the ramp that would be required on the eastern approach to the structure;
- The proximity of the adjacent dual carriageway bridge and land for construction space; and
- It is likely that there would be few issues of archaeological concern as the site is well outside the limits of the old town and the Zone of Archaeological Potential identified in the Town Plan.

Disadvantages

- Road access for the purpose of construction is difficult;
- The location is within an Important View identified in the Athlone Town Development Plan;
- The crossing would involve a detour to north of the existing railway structure of between 200 and 340 metres;
- Space is limited for the ramp that would be required on the western approach to the structure;

- The ramps feeding the bridge west of the river would be up to 60m long and potentially imposing;
- The route would require users to cross Coosan Road and Coosan Point Road;
- Cyclists would be required to mix with motorised traffic along the residential areas of Beechpark West and Assumption Road. In addition, on-street parking of privately owned vehicles would pose an inherent obstacle for cyclists, thus reducing comfort levels; and
- Would not provide integration with town centre streets.

This location had little to offer over Location 2 and was not brought forward for further consideration.

3.4.2 Location 2 – Independent Bridge north of the Railway Bridge

At Location 2 the route would cross the River Shannon on an independent pedestrian and cycle bridge immediately to the north of the existing railway bridge, see Plates 3.3 to 3.5.



Plate 3.3 View of the north side of the Railway Bridge from Marine View, east bank

Once on the east bank of the river, the route would ramp downwards and run south along the east bank until it reached the Railway Bridge.

Advantages

- Cyclists could be completely segregated from traffic flows;
- This route would be more direct than Location 1;
- Adequate space is available for the ramp that would be required on the west approach to the structure;
- The proposed location is outside of the Zone of Archaeological Potential identified in the Town Plan; and
- The use of the disused railway is maximised.

Disadvantages

- Interruption of the views of the Shannon for the residents of Marine View;
- Careful engineering would be required in order to avoid impact on the promenade of mature trees lining the west bank;
- The ramps feeding the bridge west of the river would be extensive and potentially imposing;
- Due to its proximity to the Railway Bridge, this location would obstruct views of the Railway Bridge from the north; and
- Would not provide integration with town centre streets.



Plate 3.4 Bridge location on the north side of the Railway Bridge



Plate 3.5 Existing piers and wing wall under the Railway Bridge

3.4.3 Location 3 – Independent Bridge South of the Railway Bridge

At Location 3 the route would cross the River Shannon on an independent pedestrian and cycle bridge to the south of the existing Railway Bridge, (see Plates 3.6-3.8). This location was examined in some detail and was presented in the Route Section Report published in December 2014 as the "Emerging Preferred Route".

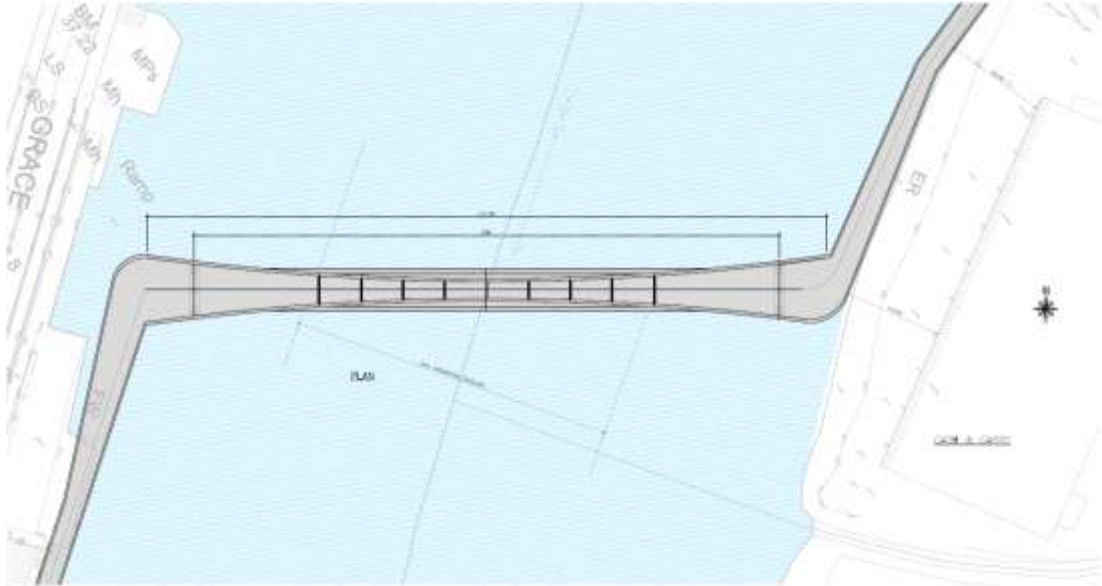


Plate 3.6 Independent Bridge South of the Railway Bridge



Plate 3.7 Indicative photomontage of Location 3 south of the Railway Bridge



Plate 3.8 Indicative photomontage of Location 3, viewed from the north

The route would ramp up south of the Athlone Boat Club on the west bank and then cross the Shannon on a skewed bridge, landing on the east bank at the rear of the Cash & Carry Warehouse (see Plate 3.9).

Once on the east bank the route would ramp down to pass under the Railway Bridge (minimum headroom of 2.5m) between the river and the piers via an elevated boardwalk.



Plate 3.9 Indicative aerial photomontage of Location 3, viewed from the south

Advantages

- Similar to Location 2, this option provides the opportunity of a completely segregated cycle facility which would ensure the safety of the end-user;
- This route would be more direct than Location 2;
- Adequate space is available for the ramps that would be required on the approaches on either side of the structure; and

- The proposed location is outside of the Zone of Archaeological Potential identified in the Town Plan, although archaeological monitoring would still be required.

Disadvantages

- The skewed orientation results in a marginally longer bridge span which is consequently more expensive;
- The ramps feeding the bridge east and west of the river would be up to 60m long and result in a long undulating steel structure;
- Navigation clearance requirements would result in a higher structure, which would have less scope for reduction in extensive ramp lengths and would compete visually with the adjacent railway bridge;
- There is a boathouse on the western bank which might need to be removed;
- The location is within an Important View as identified in the Athlone Town Development Plan;
- An expensive cantilevered boardwalk along the length of the west bank would be required in order to avoid impact on the promenade of mature trees;
- It would dominate the riverside space, prohibiting future development; and
- Would not provide required levels of integration with town centre streets.

3.4.4 Location 4 - Independent Bridge at Marina Lane

At Location 4 the route would cross the River Shannon on an independent pedestrian and cycle bridge in the middle of the existing marina, (see Plates 3.10 and 3.11).

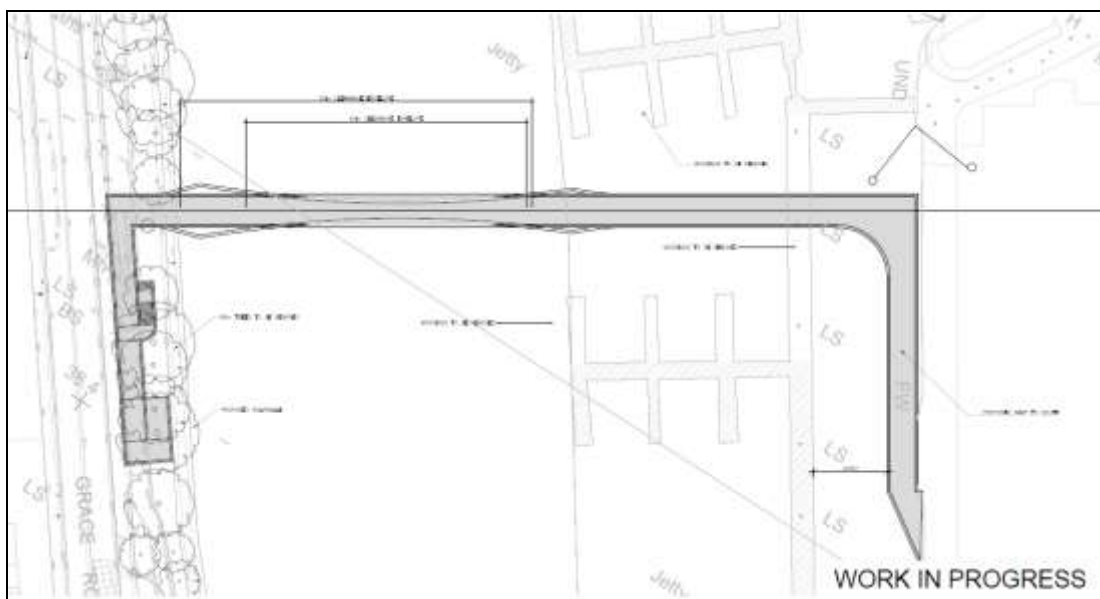


Plate 3.10 Indicative layout of Location 4



Plate 3.11 Indicative photomontage of Location 4, viewed from the south

Advantages

- Similar to Location 2, this option provides the opportunity of a completely segregated cycle facility which would ensure the safety of the end-user;
- This route would be more direct than Location 2;
- The proposed location is outside of the Zone of Archaeological Potential identified in the Town Plan, although archaeological monitoring would still be required.

Disadvantages

- The ramps feeding the bridge east and west of the river would be up to 60m long;
- The bridge location would have a very significant impact on the viability of the marina;
- Navigation clearance requirements would result in a higher structure, which would have less scope for reduction in extensive ramp lengths and would compete visually with the adjacent railway bridge;
- The location is within an Important View as identified in the Athlone Town Development Plan.

Location 4 was discounted because the ramp on the west side would cause significant disruption and loss of the tree promenade and it would be very problematic for the bridge to achieve the required navigation clearance so close to the marina.

3.4.5 Location 5 - Independent Bridge at the Luan Gallery (Proposed Location)

At Location 5 the bridge is proposed to land on the west bank of the Shannon immediately north of the Luan Gallery, directly in line with the side door of the Church of SS Peter and Paul. The loading bay will need to be reconfigured to allow safe

access for users of the bridge and the Luan Gallery's own operations. On the eastern bank the bridge will land above the existing quay and ramp down to the north (see Plates 3.12-3.14).



Plate 3.12 An indicative photomontage of Location 5, viewed from Custume Bridge



Plate 3.13 An indicative photomontage of Location 5, from the western bank, looking towards the eastern bank



Plate 3.14 An indicative photomontage of Location 5, from the eastern bank, looking towards the western landing

Advantages

- Location 5 is compliant with the objectives and policies outlined in the Athlone Town Development Plan;
- It facilitates a segregated route east of the river and a potential route west of the river;
- It presents the user with attractive views of the Railway Bridge and the marina;
- It provides a more direct route to Athlone Castle;
- It facilitates a nested ramp structure within the existing side slope of the river, reducing the visual impact of the ramp;
- It is an appropriate distance north of Custume Bridge, such that its setting would be protected;
- It would allow the structure and character of the Custume Bridge to be appreciated from a different angle;
- It provides an opportunity to improve and resolve poor river frontage access at the east bank/Radisson Blu Hotel;
- It would minimise the visual impact on views from the Shannon Railway Bridge and would avoid impacting open water views to the north of the marina; and
- It provides required levels of integration with town centre streets

Disadvantages

- The site is within the Architectural Protection Area identified in the Athlone Town Development Plan;
- The location is within an Important View identified in the Athlone Town Development Plan;

- The existing Custume Bridge already facilitates pedestrians near to this location; and
- The construction phase impacts on part of the marina berthing spaces.

This is the preferred location for the proposed development. The bridge, access ramps and approach routes are described in detail in Chapter 4.

3.4.6 Location 6 - Boardwalk on Southern Side of the Existing Custume Bridge

At Location 6 a cantilevered boardwalk or multi-arched bridge would be attached to the south side of Custume Bridge (see Plate 3.15).



Plate 3.15 Indicative photomontage of cantilevered boardwalk attached to the south side of Custume Bridge

Access to the boardwalk from the west would be via a ramp over the pedestrian arch (see bottom left of Plate 3.16).



Plate 3.16 North side of the Castle at the west bank of the river

The boardwalk would reach the east side of the river at the steps which are currently used by the Olive Grove restaurant (see Plate 3.17).



Plate 3.17 Potential east abutment location on the south side of Custume Bridge

It is not feasible to locate a structure on the north side of the bridge to link to the pedestrian arch under Custume Bridge without removing the navigation channel and impacting on the concourse adjacent to the Luan Gallery (see Plates 3.18 and 3.19).



Plate 3.18 Northwest side of Custume Bridge showing the pedestrian arch



Plate 3.19 North side of Custume Bridge at the Laun Gallery

Advantages

- Location 6 would present the user with attractive views of the river and the weir;
- Location 6 provides a direct route to Athlone Castle;
- A multi-arch bridge option would not interfere with navigation as the piers could coincide with the piers on the existing Custume Bridge;
- There would be little need for an access ramp on the southeast side of the bridge as the approach is at the level of the existing bridge; and
- Provides integration with town centre streets.

Disadvantages

- Cyclists would be required to mix with vehicular traffic on the majority of the length of the eastern approach routes, i.e. along Northgate Street and Custume Place for over 300m;
- The site is within the Architectural Protection Area identified in the Athlone Town Development Plan;
- There are heritage issues associated with works to Custume Bridge which is a Protected Structure;
- There would be significant visual impact to the iconic view looking north from Golden Island which is an Important View in the Town Development Plan; and
- The existing Custume Bridge already facilitates pedestrians at this location.

3.4.7 Location 7 - Independent Bridge immediately to the South of the Existing Custume Bridge

Under Location 7 the route would cross the River Shannon on an independent pedestrian and cycle bridge to the south of the Existing Custume Bridge using West Route W3 and East Route E4/E5.

There is an existing structure at Bridge Street which was once an abutment belonging to the old bridge that traversed the Shannon. This could be investigated to support a new pedestrian and cycle bridge.



Plate 3.20 View of the east abutment of the old town bridge taken from the quay on the west side

Advantages

- No ramp would be needed on the east side;
- It provides a direct route to Athlone Castle;
- It provides an additional option for pedestrians to cross between the two sides of the core retail area of the town; and
- Provides integration with town centre streets.

Disadvantages

- The route is not segregated and cyclists would be required to mix with vehicular traffic, i.e. along Northgate Street and Custume Place, for over 350m;
- The crossing location is within the Architectural Conservation Area,
- The crossing location is within an Important View;
- An access ramp on the west side would be approximately 60m long and have a significant impact on the amenity value of the quay side;
- The bridge would obscure views of the Athlone Castle;
- The east abutment is a Protected Structure;
- The location coincides with the presence of historical foundations from previous construction works;
- Construction access to this location is very difficult by road. The upstream bridges and downstream weir present further constraints on access;
- The East Route E5 approach would impact on the one way system in place on Bridge Street;

- Cyclists would be forced to travel along Bridge Street (one-way), cross Custume Place and down Northgate Street; and
 - The bridge would obscure views of Custume Bridge from the south.
- This location had little to offer over Location 4, had significant safety implications and was quite problematic environmentally, therefore it was not brought forward for consideration.

3.4.8 Location 8 - Independent Bridge to the South of the Existing Custume Bridge between Strand Square and Left Bank

Under Location 8 the route would cross the River Shannon on an independent pedestrian and cycle bridge to the south of the Existing Custume Bridge between Strand Square and Left Bank using West Route W3 and East Route E6.

Due to the location of the navigation channel, the bridge soffit is set relative to the soffit at Custume Bridge (40.08m Malin). The ramp for the bridge would then need to extend for at least 60m, based on the allowances in the TII publication *BD 29 - Design Criteria for Footbridges*, which would cause an unacceptable impact to the quays on the west bank.



Plate 3.21 Indicative photomontage of the bridge viewed from the south

Advantages

- This bridge location is identified in the Draft Athlone Waterfront Study;
- Adequate space is available for an access ramp on the east side;
- It provides a direct route to Athlone Castle;
- It provides an additional option for pedestrians to cross between the two sides of the core retail area of the town; and
- Provides integration with town centre streets.

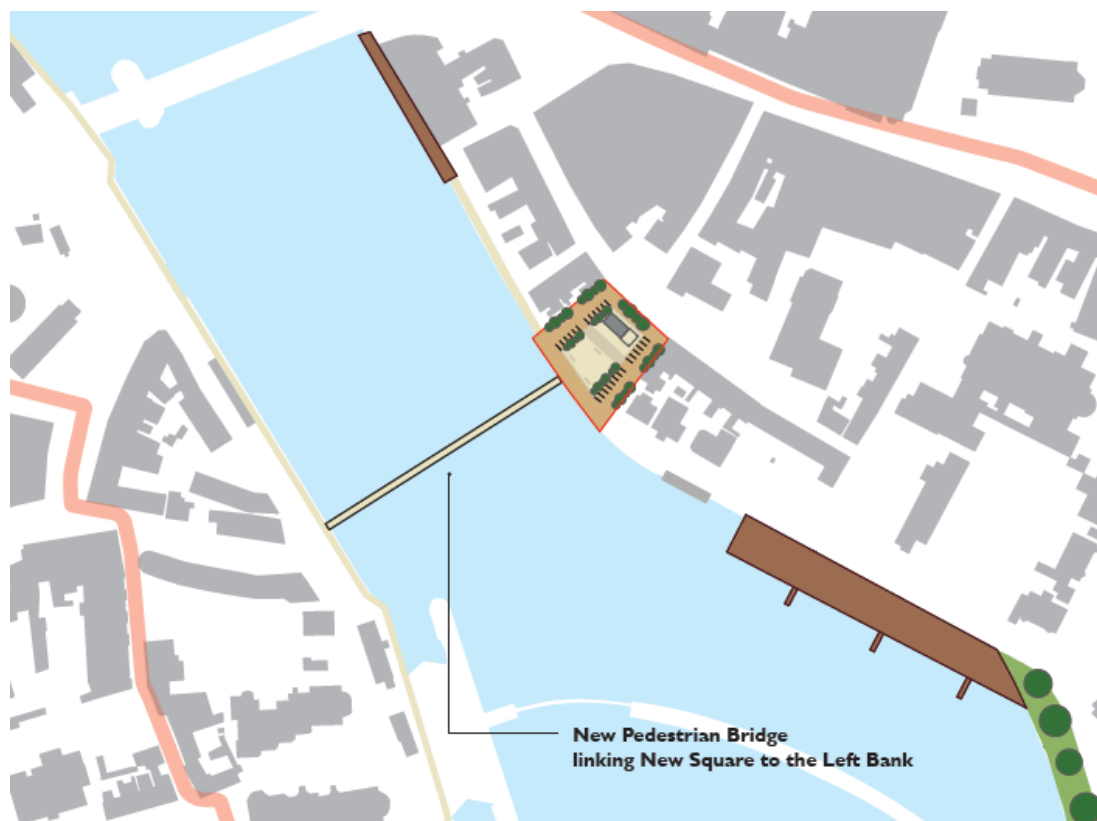


Plate 3.22 Location of new Pedestrian Bridge from the Draft Athlone Waterfront Study

Disadvantages

- The east approach route is over 1.5km, all on-street, requiring a crossing of the live railway - either by means of the existing underbridge at Love Lane or at the narrow overbridge along Lower Road;
- The crossing location is within the Architectural Conservation Area,
- Given the proximity of the west end of the bridge to the navigation lock, an access ramp on the west side would be at least 60m long and have a significant impact on the amenity value of the quay side; and
- The crossing location is within Important Views;

The east routes associated with this crossing point are not safe nor traffic free, in fact they are the longest on-road approaches considered. Given the length over which cyclists would be required to mix with a high volume of motorised traffic through busy streets and the significant environmental challenges, Crossing Point 8 was not brought forward for consideration.

3.4.9 Location 9 – Independent Bridge between Friary Lane and Athlone Lock

This option crosses the River Shannon on an independent pedestrian and cycle bridge to the south of Custume Bridge between Strand Square and Left Bank. Two alternatives were considered for a low level bridge across to Athlone Lock, with a small swivel bridge between the lock and the quay in order to maintain the navigation channel. Both were subject to agreement with Waterways Ireland.

Alternative 9A is positioned to the south of the Waterways Ireland buildings and Alternative 9B is positioned between the two buildings.

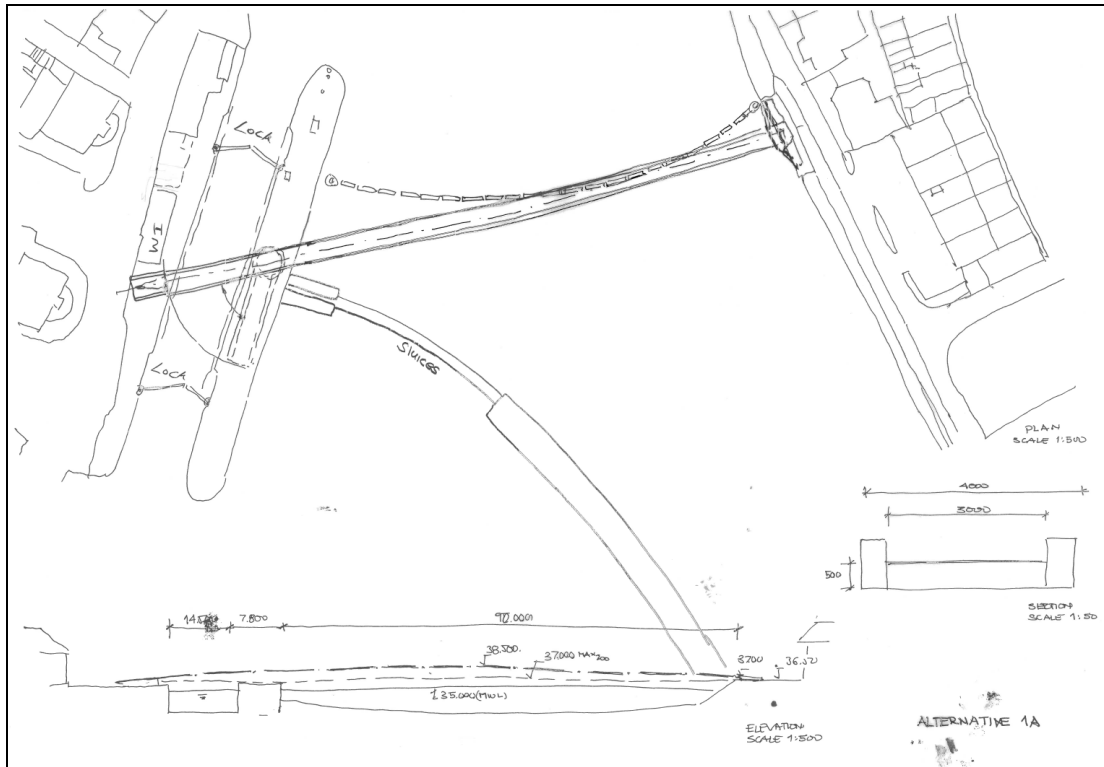


Plate 3.23 Alternative 9A

Alternative 9B would require removal of a portion of the yard between the Waterways Ireland buildings.

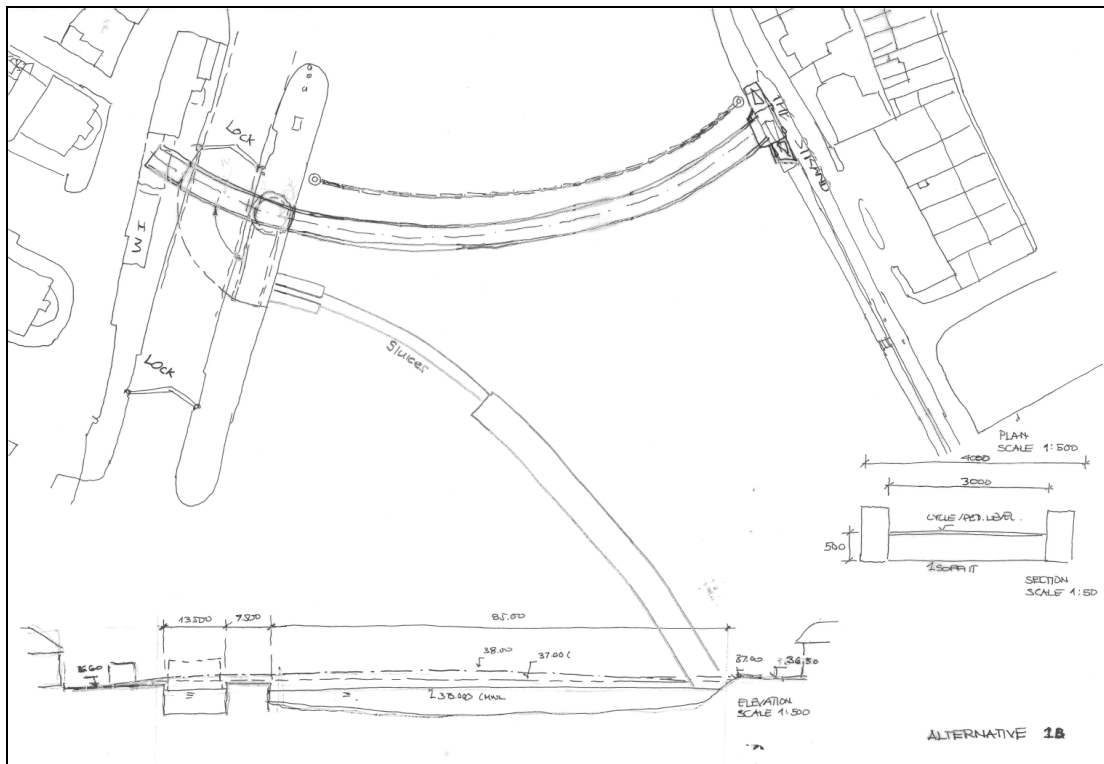


Plate 3.24 Alternative 9B

In both cases, it would require a swivel bridge to be opened and closed manually adjacent to the lock gates, which would present unacceptable operational difficulties for Waterways Ireland and the location was not considered further.



Plate 3.25 Athlone Lock

3.4.10 Conclusion Bridge Location

Four of the bridge locations (namely Locations 1, 4, 7 and 8), were discounted early in the route selection process as described above.

The five potential bridge locations (with sub-options of the east and west approach routes) were assessed under the headings of Integration with Local Policy, Safety, Local Traffic Environment and Cost.

Bridge Location 5 - Independent Bridge at the Luan Gallery scored highest in the matrix and was brought forward for the proposed development.

This route is compliant with the objectives and policies outlined in Chapter 2 of this EIS. The route is also compliant with objectives and policies outlined in the Athlone Town Development Plan 2014-2020.

With regards to safety, Location 5 rated highly as the route will be fully segregated from traffic and avoids major junctions. It is considered that a bridge at this location will not affect the existing traffic flow system and there will be no impact to parking facilities along the route.

3.5 Alternative Bridge Design Options Considered

Four alternative bridge design options were considered at the preferred location:

- Arch Option;
- Asymmetric Cable Stayed Option;
- Two Span Cable Stayed Option; and
- Two Span Beam Option (Proposed Option).

The four options are discussed briefly below.

3.5.1 Arch Option

This option is presented in Figure 3.4 in Volume 3. It comprises a steel arch tied at deck level and supported on a steel triangular frame on piles below deck level. The tied arch supports the deck off tensioned interlaced hangers providing a light appearance to the deck.

The principal arch and deck members are of approximately 600mm diameter tubular steel section. The deck is of steel orthotropic plate construction welded to the tubes which extend over the full length of the bridge and eastern ramp.

The main span is supported on piled piers in the river approximately 56m apart. The east ramp is supported on discrete spread or piled foundations at an approximate spacing of 17m. The western ramp is embedded in walled construction. It is 3.0m wide and adopts a nested configuration. The opportunity to nest is not available on the east bank due to space restrictions so a straight alignment is adopted. The ramp is widened as a consequence to facilitate the intermingling of pedestrians and cyclists on the slope.

The main bridge deck is proposed to be of 4.0m clear width but it is anticipated the width will vary to provide viewing points at the ends of the main span.

This option is not preferable with regards to environmental impacts as the arch would potentially disturb flight lines and increase the potential for bird strikes, particularly due to the proximity of the Middle Shannon Callows SPA and Lough Ree SPA. Furthermore, this option comprises four abutments in the river which would result in increased disturbance of the river bed, increased risk of flooding and increased risk of impacts to underwater archaeology.

3.5.2 Asymmetric Cable Stayed Option

This option, presented in Figure 3.5 in Volume 3, comprises a single span crossing of the river with principal support provided on the east side of the river by a 40m high inclined pylon with backstays. Due to the proximity of a building to the east and Grace Road to the west, the pylon and abutment encroach into the river. The east ramp is supported on discrete piles at approximately 17m centres as for Option 1.

The bridge deck is of steel ladder beam construction with infill concrete slab. This deck construction is carried down the eastern ramp.

With regards to environmental impacts, this option is not favourable due to the high pylon and backstays which, similar to the arch option, may increase the potential for bird strikes. Additionally, the large abutment in the river would result in increased disturbance of the river bed which would potentially increase siltation in the river.

3.5.3 Two Span Cable Stayed Option

This option provides for incorporation of the eastern approach ramp within the main bridge structure, as presented in Figure 3.6 in Volume 3. The crossing alignment is curved, finishing square to the Luan Gallery and the church.

This option incorporates a pylon in the river at the edge of the navigation channel. It does not address the principal objectives in respect of the plan alignment but does incorporate the eastern ramp within the main bridge structure. Similar to the other bridge options, this option provides ramp access to the lower boardwalk.

Similar to the Asymmetric Cable Stayed Option, this option has the potential to increase bird strikes and, due to the large abutment in the river, may result in increased disturbance to the river bed.

3.5.4 Two Span Beam Option (Proposed Option)

The proposed bridge structure is presented in Figures 4.3 and 4.4 in Volume 3. It comprises a two span bridge with a pier in the middle of the river and end supports on the river banks. The spans are of approximately equal 52.0m length. The overall length of the main bridge is approximately 104m.

The main crossing spans are straight on plan and are aligned approximately perpendicular to the existing eastern river wall. They vary in width between 5.0m (between handrails) over the central pier to 13m (approximately between handrails) at each end support. This is an orthotropic steel construction, i.e. in appearance it is made of one steel plate.

The soffits of the spans are primarily flat, with gradients implemented at the ends of the bridge where geometric constraints dictate. The depth of the main crossing spans is variable, increasing from 500mm at the end supports to approximately 2.3m over the central pier.

The eastern end support is on a dedicated full height abutment which provides a landing for the main crossing and the eastern approach ramp. The level of the proposed landing matches the level of the adjacent raised deck area. The maximum longitudinal gradient on the proposed main crossing spans is to be 5% to accommodate mobility impaired access.

The western end support is proposed to be off the existing Luan Gallery structure. This will involve alterations and perhaps underpinning of the Gallery structure.

The main crossing spans are proposed to be supported on a reinforced concrete pier located approximately in the centre of the river. Its proposed position is well suited to the accommodation of navigation and the protection of the existing mooring facilities to the maximum degree.

With regards to potential environmental impacts, this option is the most preferable due its simple design and the absence of cable stays and arches.

3.5.5 Conclusion Bridge Design

Following an evaluation of the four bridge options described above, the Two Span Beam Option was the chosen bridge design option. The evaluation comprised an assessment matrix which assessed the bridge options under the headings Health and Safety, Environmental, Conservation, Technical, Economics and Aesthetics. The Two Span Beam Option emerged from this assessment matrix as the most attractive option. Merits of this option include:

- The steel beam configuration sits well in a heritage context with both upstream and downstream bridges. The choice of a simple clean form avoids competition with heritage forms while providing contemporary elements in clean, smooth finishes and engineered slenderness consistent with themes in the Luan Gallery;
- The choice of painted steel maximises the potential for slenderness in the finalised design;

- The form is sufficiently contemporary and unique to provide a landmark structure for those arriving in Athlone;
- The provision of elevated landings at both ends of the bridge and multiple access configurations maximise the amenity potential for the bridge;
- The provision of a widened ramp to the east and soft gradients accommodate the amenity of both cyclists and pedestrians;
- Provision of access under the eastern landing offers enhanced promenade facilities along the river in the vicinity of the bridge;
- The provision of the eastern ramp tight against the Radisson carpark wall serves to minimise the visual impact of the design on the location; and
- The embedded ramp incorporating an extension of the existing Luan configuration to the west significantly mitigates the impact of the bridge on the Luan Gallery, the church and the river bank.

This option is described further in Chapter 4.

3.6 Alternative Ramp Options Considered

Two ramp arrangements were considered on the west side of the river to connect the bridge to the river promenade.

A nested configuration was considered which would provide the most direct link from the bridge to the river promenade. This is illustrated in Figure 4.3 of Volume 3 and is represented in Plate 3.26.



Plate 3.26 - View of the nested ramp arrangement on the west side of the river

Four young maple trees and five mature trees (Sycamore and Lime) would inevitably be removed using this arrangement, which would be a significant impact on the tree line.

A second configuration was therefore considered with the intention of reducing the impact on the tree line. It is illustrated in Figures 4.3, 4.5 and 4.6 of Volume 3. In this arrangement the ramp extends in a straight line for over 90m, situated between the lines of two existing walls, which requires the ramps to reduce to 2.7m at its narrowest point.

One young Norway Maple tree immediately south of the bust of Count John McCormack and one dead Sycamore tree north of the existing set of steps between Grace Road and the promenade would be removed as illustrated in Figures 4.5 and 4.6 of Volume 3.

Although 13 other mature and semi-mature trees are in close proximity to the ramp layout, the spread of the tree roots appears to be contained by existing walls within the tree line and will not be harmed by the proposed construction, see Plate 3.27.



Plate 3.27 - Existing walls within the tree line

The existing stairs immediately north of the Luan Gallery would be replaced by a new set of steps 50m to the north.

3.6.1 Conclusion Ramp Options

The nested configuration would inevitably require the removal of at least nine trees from the tree line. Although the straight arrangement is slightly narrower and will require users to travel a slightly longer distance, it has the potential to avoid any lasting impact on the tree line and can be more readily integrated into the streetscape.

The straight ramp configuration was taken forward as the preferred Option and is described further in Chapter 4.

Chapter 4

Description of the Proposed Development

Chapter 4 Description of the Proposed Development

4.1 Site Location, Description and Topography

The location of the proposed bridge for the pedestrian and cycleway in Athlone Town Centre is approximately 75 metres (measured at mid-channel) north of the existing Custume Bridge. The location is illustrated in Figure 4.1 of Volume 3.

Athlone town centre is characterised by narrow streets with on-street parking. There are only two road bridge crossings in Athlone - the N6 relief road by-passes Athlone to the north and Custume Bridge services the town centre.

The setting is urban with the site of the proposed development surrounded by a mix of historic buildings and structures, tourism sites and commercial properties. The Church of St Peter and St Paul and the Luan Gallery are located immediately to the west. The Radisson Hotel, apartments and Marina are located to the east.

The streetscape in the vicinity of the proposed development is generally set at about 5m above river level at the proposed crossing point. The proposed crossing will match the river navigation clearance levels of the Custume Bridge immediately downstream.

Athlone Castle is located immediately southwest of Custume Bridge and will be connected to the new bridge via a new cycleway and ramp structure at the Luan Gallery service area on the western bank of the River Shannon. The castle will mark a midway point for cyclists on their cross-country journey and will be a main focal point for touring cyclists arriving in Athlone town.

4.2 Proposed Development

The bridge will be mixed use, in the sense that pedestrians and cyclists will share the available space for leisure purposes and are expected to exercise courtesy to other users. The width of the link is generally a minimum of 3m, with the exception of the ramp on the west side of the river which will be reduced to 2.8m in order to avoid extensive removal of the tree line between Grace Road and the river.

Otherwise the link widens out to 13m at the two landing areas on either end of the bridge, the purpose of the increased widths at these locations is to create a civic space where users can linger and experience the new views of Athlone's built heritage that will be opened up.

The following works will take place between Athlone Castle and Marina Lane:

- Removal of 13 parking spaces to the east of the castle and south of Custume Bridge;
- Removal of 3 existing ornamental trees to the east of the castle;
- Streetscape works to the east of the castle and south of the pedestrian arch under Custume Bridge, including paving to emphasise a pedestrian and cyclist environment;
- Widening of the existing riverside promenade/boardwalk to the east of the Luan Gallery;
- Removal of the existing stairway and ramp between Grace Road and the riverside promenade to the north of the Luan Gallery;

- Removal of two trees and the existing bust of Count John McCormack along Grace Road, on the west side of the river;
- Construction of an extensive ramp layout for the exclusive mixed use of pedestrians and cyclists linking the riverside promenade to the east side footpath on Grace Road;
- Modifications to the existing riverside promenade for approximately 75m north of the Luan Gallery and widening of the promenade into the river by 1.8m generally but by up to 2.8m at one location;
- Construction of a new bridge over the river between the Luan Gallery and the Radisson Hotel and apartments for the exclusive mixed use of pedestrians and cyclists, consisting of a two span bridge which includes a central pier at the midpoint of the river;
- Provision of boardwalks on the eastern and western banks;
- Modifications to the roof of the service area to the Luan Gallery to accommodate the west landing area of the new bridge;
- Temporary removal of berths and a section of walkway of the Athlone Marina to facilitate construction of the proposed development;
- Construction of a landing area at the east side of the bridge to tie in to the existing terrace of the Radisson Hotel;
- Construction of a new ramp for the exclusive mixed use of pedestrians and cyclists on the line of the existing riverside promenade on the west side of the Radisson Hotel and apartments in order to provide mobility access north from the east landing area to the existing promenade, close to Marina Lane;
- Construction of stairs on the line of the existing riverside promenade to the south side of the east landing area to the existing promenade in order to provide mobility access south to Methodist Church Lane;
- Removal of the existing security gate between Marina Lane and the existing riverside promenade on the west side of the Radisson Hotel and apartments;
- Removal of the two existing gates on the existing eastern promenade along the riverside of the Radisson Hotel; and
- Provision of a new security gate at the gangway between the existing riverside promenade on the west side of the Radisson Hotel and apartments and the marina.

A temporary construction compound will be created adjacent to the river at the southern end of Wansboro Park, as identified in Figure 4.1 of Volume 3. The purpose of this temporary compound is to allow for on-site assembly of sections of the proposed bridge deck prior to floating downstream into position on river barges.

Design Considerations

Bridge Main Span - The principal constraints to be addressed in the design of the main crossing include the European designated Natura 2000 sites downstream of the crossing, the river with provision for navigation and flooding concerns, the adjacent heritage structures and protected views, the presence of high value tourism enterprises and the concerns of adjacent landowners.

Western Access Ramp - In order to deliver full segregation from traffic it is necessary to provide ramped access alongside Grace Road to get down to the riverside promenade level. In addition, it is proposed to enhance access towards the Castle to the south along the river by extending the existing promenade along the side of the Luan Gallery. At route selection stage particular concerns were identified in respect of protection of existing trees, provision for pedestrian and cyclist access south along

the river, the presence of adjacent heritage structures, the provision of slender new structural forms and the curtailment of the length of elevated structure to minimise visual impact.

Eastern Access Ramp - The Eastern access ramp is necessary to provide access to the existing river bank promenade from the bridge that will provide the connection for the cycle route via Marina Lane to Abbey Road and on eastward. The plan alignment is dictated by the availability of space fronting the existing Radisson Hotel. There is also a requirement to address a link to walkway level southeast of the proposed development towards the town centre at Northgate Street.

The Existing Marina - This is located along the eastern side of the river. Elements of the marina will require temporary removal to facilitate construction of the proposed development (see Plate 4.1).



Plate 4.1 View of eastern bank of River Shannon showing existing marina and Radisson Hotel

The Luan Gallery - This is located immediately to the west of the proposed bridge alignment. The proposed bridge will land on the service area for the gallery. The effective management of constraints associated with the Luan Gallery is critical to the delivery of the proposed development (Plate 4.2).



Plate 4.2 View from the roof of the service area of the Luan Gallery on the western bank of the River Shannon

The SS Peter and Paul Church - This is located on the western side of Grace Road opposite the Luan Gallery. The alignment of the proposed bridge travels in line with the side entrance to the dome of the Church, landing at the Luan Gallery service area on the western side. It is envisaged that the relationship between the new bridge and the Church will provide a feature element to the scheme and a landmark in Athlone town centre (Plate 4.3).



Plate 4.3 View looking west across the River Shannon from the existing marina to the Church of St. Peter and St. Paul and Luan Gallery

4.3 Proposed Bridge Structure and Approach Ramps

4.3.1 Structural Form

A plan of the bridge and approach ramps is presented in Figure 4.3 of Volume 3. The structural form of the bridge is largely consistent with, and is driven by, objectives as follows:

- to minimise any potential effects on the integrity of surrounding European designated sites;
- to minimise the length of elevated structure so as to curtail the visual impact of any proposed bridge and ramps;
- to take the opportunity offered by alignment of the bridge with the side entrance to the dome of the Church to enhance the synergy of the proposed bridge with the heritage structure;
- to provide a structural form which complements the heritage setting of the proposed development and in particular the adjacent buildings; and
- to mitigate the impact on adjacent developments.

The result is a straight bridge with a straight embedded ramp to the west and a straight elevated and enclosed ramp to the east in front of the Radisson Hotel basement car park.

4.3.2 Bridge Structure

General Description

Plans and sections of the proposed bridge structure are presented in Figures 4.3 and 4.4 of Volume 3. It comprises a two span bridge with a pier in the middle of the river and end supports on the river banks. The spans are approximately equal in length, of approximately 52m each, with a total overall length of the main bridge approximately 104m.

The main crossing spans are straight on plan and are aligned approximately perpendicular to the existing eastern river wall. They vary in width between 5m (between handrails) over the central pier to 13m (approximately, between handrails) at each end support. This is an orthotropic steel construction, i.e. in appearance it is made of one steel plate, see Plate 4.4.



Plate 4.4 **Photomontage of the proposed bridge**

The soffits of the spans are primarily flat, with gradients implemented at the ends of the bridge where geometric constraints dictate. The depth of the main crossing spans is variable, increasing from 500mm at the end supports to approximately 2.3m over the central pier.

The main crossing spans are proposed to be supported on a reinforced concrete pier located approximately in the centre of the river. Its position is selected to accommodate navigation and the protection of the existing mooring facilities to the maximum degree.

Detailed Description

Bridge Deck

The deck of the main crossing spans is of orthotropic structural steel and is of variable cross section. The variable depth of construction is accommodated by voided construction (with maintenance access) where depths exceed 1.3m and spaced beam construction where internal access is not practicable. A seamless external appearance is proposed to be accomplished by the provision of inclined flat plates of variable depth over the full length of the main crossing spans. They are planar and provide continuity of elevation throughout.

A particular complication of the proposed form is associated with the provision of a construction depth of only 500mm within 10m of the end supports of the main spans. This is a very onerous provision for spans in excess of 50m long. It is envisaged that specific construction stage provisions will need to be made to ensure an acceptable load distribution is achieved within the completed structure in the permanent condition. The need to transition from voided to spaced beam construction is a further complication associated with the proposed design. This will require careful detailing to ensure appropriately durable configurations are achieved in the final design.

End Supports

The eastern abutment is proposed in piled reinforced concrete construction and will be located on the existing river bank. The abutment will incorporate high quality

finishes and will support the proposed cantilevered promenade under the bridge which facilitates continuity of the eastern promenade to the south. It is proposed to incorporate seating into the abutment with a curved recess incorporated on plan. Movement joints are envisaged at the ends of the main crossing spans.

The eastern end support is on a dedicated full height abutment which provides a landing for the main crossing and the eastern approach ramp. The level of the proposed landing matches the level of the adjacent raised deck area. The maximum longitudinal gradient on the proposed main crossing spans is to be 5% to accommodate mobility impaired access.

The western end support is proposed to be off the Luan Gallery structure. This will involve alterations and perhaps underpinning of the Gallery structure.

River Pier

A reinforced concrete pier on piled supports is proposed in the middle of the river. The pier is proposed to be elliptically shaped on plan, orientated with the long dimension parallel to the flow of the river and of constant cross section above base level. It represents an obstruction to flow of approximately 2m wide. It is envisaged that either one or two mechanical bearings will be provided on the pier to support the bridge deck.

Critical Bridge Levels and Clearance Envelopes

The western bank level is 36.4m Ordnance Datum, Malin Head (OD). The eastern bank level is 36.3m OD. The minimum overhead clearance for pedestrians and cyclists provided at the eastern and western promenades is 2.4m. The highest proposed deck level is 42.75m approximately. The bridge provides for a 40m wide navigation clearance envelope with a soffit level of 39.99m OD, providing a vertical clearance to match the existing Custume Bridge approximately 75 metres (measured at mid-channel) downstream.

Restraint Systems

Road restraint systems are not needed for the proposed development due to the low speed environment, and general layout and design of the approaches to it. Demountable bollards will be provided on the western side of the proposed bridge to prevent the access of vehicles intentionally or otherwise onto the bridge.

The parapet railings for the bridge will consist of 1.4m high stainless steel (or similar approved) guard rails and will be designed in accordance with Clause 7 of BD 29/04 of the Design Manual for Roads and Bridges (Volume 2 Section 2).

4.3.3 West Approach Ramp

General Description

Plans and sections of the proposed west approach ramp are presented in Figures 4.5, 4.6 and 4.7 in Volume 3. A linear embedded ramp is proposed along the river to the west. The ramp will require the removal of two mature trees as identified in Figures 4.5 and 4.6 of Volume 3. One of these trees, the Sycamore at the north end of the ramp, is already dead and needs to be removed. The minimum width of ramp proposed is 2.8m between handrails. The maximum gradient of the proposed ramp is 5% in accordance with the Design Standard *BD 29/04 Design Criteria for Footbridges* published by TII.

The west landing will require raising the finished surface of the Luan Gallery hard standing area by a maximum of 700mm immediately at the end of the bridge. Gradients on the landing will be adjusted to provide a tie-in to existing levels. The parapets on the landing area will require to be altered and the facade raised. The refuse storage area will require to be relocated and this area reconfigured. Access for deliveries is reconfigured within the proposals as shown on Figures 4.5 and 4.6 in Volume 3. The landing will be repaved in high quality paving to tie into the existing footpaths and the proposed ramp access to the river bank.

The existing ramp and steps adjacent to the Luan Gallery will be removed.

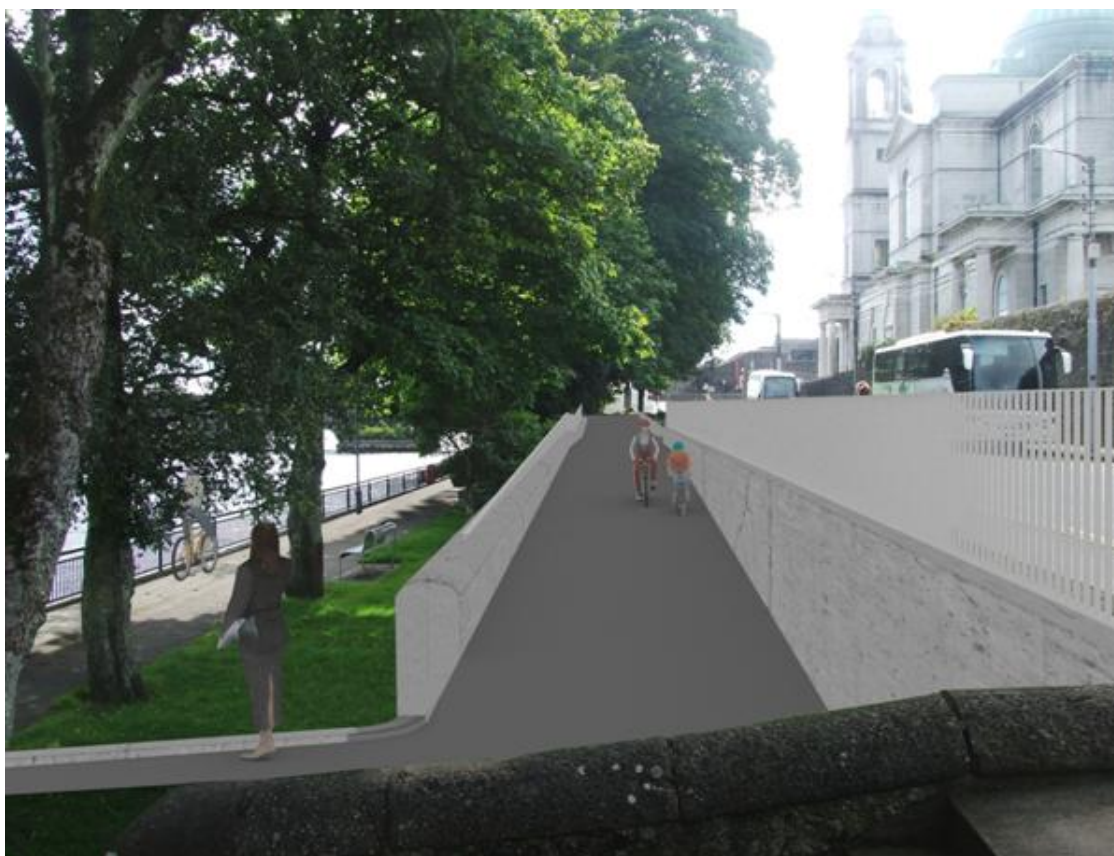


Plate 4.5 Photomontage of the proposed west ramp

It is proposed that the existing river facade / wall of the Luan will be extended to the north along its existing line to facilitate the reconfigured high level access and to accommodate the proposed ramp to river bank level and the reconfigured gallery access.

Detailed Description

Luan Gallery Landing

It is anticipated that the existing wall of the Luan Gallery will be used to carry foundation loads associated with the main river crossing. Alterations are likely to be necessary to the building structure to facilitate this. It is also anticipated that localised underpinning of the Luan Gallery service area will be required. Specific measures will be taken in the detailed design to minimise any loads to be transferred through the Luan Gallery services area. These measures will impose construction constraints on the construction of the proposed development, which will be addressed in detailed design.

It is envisaged that where levels need to be raised to accommodate landing levels this will be done using light weight materials.

Ramp

The walls for the proposed ramp will be of reinforced concrete construction and finished to match the existing finishes on the Luan Gallery. They are supported on spread foundations. An open arrangement is proposed with handrails, rather than walls, to minimise the visual impact of the proposed ramp and steps.

All of the construction is envisaged in reinforced concrete with masonry cladding to match that on the Luan Gallery. Details of these proposals are shown on Figures 4.5, 4.6 and 4.7 in Volume 3. Width provisions along the upper portion of the proposed western ramp are dictated by the alignment on plan of the existing Luan Gallery riverside facade and vary between 7m and 2.8m. The lower section of ramp is proposed to provide a clear width of 2.8m. This is a narrower provision than that provided on the east bank, consequent on the intention to retain as much of the tree line as possible.

The existing steps north of the Luan Gallery which provide access from Grace Road to the river promenade will be reinstated approximately 50m to the north, as shown on Figures 4.5 and 4.6 in Volume 3.

Western Promenade

The existing river promenade along the Luan Gallery will need to be replaced with a wider promenade extended further to the north to facilitate mixes of pedestrian and cycle access to the south along the river bank. It is proposed that this modification will comprise of cantilevered steel sections of boardwalk, in the same construction as that currently used for the promenade. The minimum width will be 3m. The proposed design of the landing on the western ramp is presented in Figure 4.5 of Volume 3.

4.3.4 East Approach Ramp

General Description

Plans and sections of the proposed east approach ramp are presented in Figures 4.8, 4.9 and 4.10 in Volume 3. The eastern ramp structure runs north from the landing area parallel to the existing river bank. It is proposed to be approximately 4.5m wide between handrails. The additional width ensures a safer interaction between cyclists and pedestrians on the sloped surface. The maximum gradient on the proposed ramp is to be 5% to accommodate mobility impaired access.

Detailed Description

Ramp Structure

The proposed east ramp is to be built wholly on the bank of the river and runs parallel to it, north from the proposed landing. It will be constructed immediately adjacent to the existing hotel basement walls and will be solid in appearance. It will be designed so as to ensure no load is shed onto the existing structure of the hotel basement carpark walls and will ensure adequate ventilation to the internal carpark. It is proposed that the ramp will be supported with a light steelwork lattice structure on discrete spread or piled foundations dependent on the ground conditions encountered. Enclosure is likely to be accomplished in masonry construction with embedded venting.

Eastern Promenade

The existing eastern promenade will need to be widened to accommodate the proposed landing and ramp, see Figure 4.10 in Volume 3. This 3.5m widening is proposed to take the form of that used on the western bank comprising cantilevered steel sections of boardwalk with decking. It is proposed that the widened boardwalk will taper back into the ramp and steps. The proposed design of the landing on the eastern ramp is presented in Figure 4.8 of Volume 3.

4.3.5 Foundations

From historic borehole records available for the site it is evident that soft clays and silts are present to a depth of between 7m and 14m. These overlay sands and gravels with boulders. The underlying rock is a mudstone. Refer to Chapter 7 Soils, Geology and Hydrogeology for more details.

It is anticipated that all of the principal bridge foundations will be piled. The piles will be steel tubular piles driven into the river bed.

The details at each of the support locations are as follows:

- **Eastern End Support** (See Figure 4.10 of Volume 3) - The Eastern support for the bridge will be of piled construction. This will be on the river bank and is likely to be of smaller diameter than the river piles. The piles are likely to be close to the existing Radisson Hotel and Apartments and will consequently need to take account of the potential impact on the adjacent building. Low noise and low vibration technology will be used at this location.
- **Western End Support** - The primary structural loads will be taken to ground at the Luan Gallery and the structure is likely to require strengthening and possible underpinning dependent on detailed appraisal at a later stage of the project.
- **Central Pier** - It is anticipated that the central pier will be supported on a rectangular pilecap on four piles. The top of the pilecap will be set just below bed level of the river to ensure no impact on flow. A temporary cofferdam is likely to be needed to facilitate construction of the pilecap.
- **Eastern Ramp Supports** - These are likely to be supported on spread foundations and / or discrete piles of small cross section located under trestle columns.
- **Western Ramp Supports** - These are likely to be supported on traditional reinforced concrete foundations on piles.
- **Cantilevered Boardwalks** - The proposed boardwalks are likely to require discrete small diameter piles along the river bank to provide support to the structure above.

4.4 Utilities

A search has been carried out as part of the structures option selection process for the proposed development. Each of the principal services providers was consulted with a view to identifying any utilities which may be affected by the proposed works.

Eircom underground cables are located under the existing footpaths along both sides of Grace Road extending from the mini roundabout at eastern end of the Custume

Bridge, past the Athlone Boat Club and Army Barracks heading towards the old Athlone Railway Station.

Furthermore, an ESB line is located on the western side of Abbey Road. This line transitions from overhead at the southwest end of the bridge to underground within the bridge western footpath which then feeds into the existing cable at the northern side of the bridge.

There is an existing low voltage (LV)/ overhead (OH) ESB cable extending along the western side of Grace Road which also provides a supply to the existing buildings along the eastern side of the road e.g. Boat Club, Luan Gallery.

4.5 Lighting

To avoid the need for tall lighting masts on the bridge itself that would visually clutter the composition, LED safety lighting will be concealed in the bridge handrail, which will be complemented with uplighting (for facial recognition), recessed into the deck and flush with the surface finish, similar to the Rosie Hackett Bridge in Dublin as shown in Plate 4.6.

Downlighters in the handrail will also illuminate the reflective metallic leading edge of the beam, at deck level, but outside the line of the balustrades. At night-time this will give the appearance of the bridge being an elegant metallic blade spanning the river.

Two feature lighting columns are proposed at the ends of the main bridge crossing.

The directed nature of the luminaries and the low level of luminescence provided will ensure that the neighbouring residents will not suffer from any glare.

Similarly, the luminaries will ensure that the area is not lost as a foraging area for bat species and that there are no impacts on migrating fish, otter or other wildlife that result from illumination of the river channel. Therefore, there will be no significant effects due to lighting of the bridge.

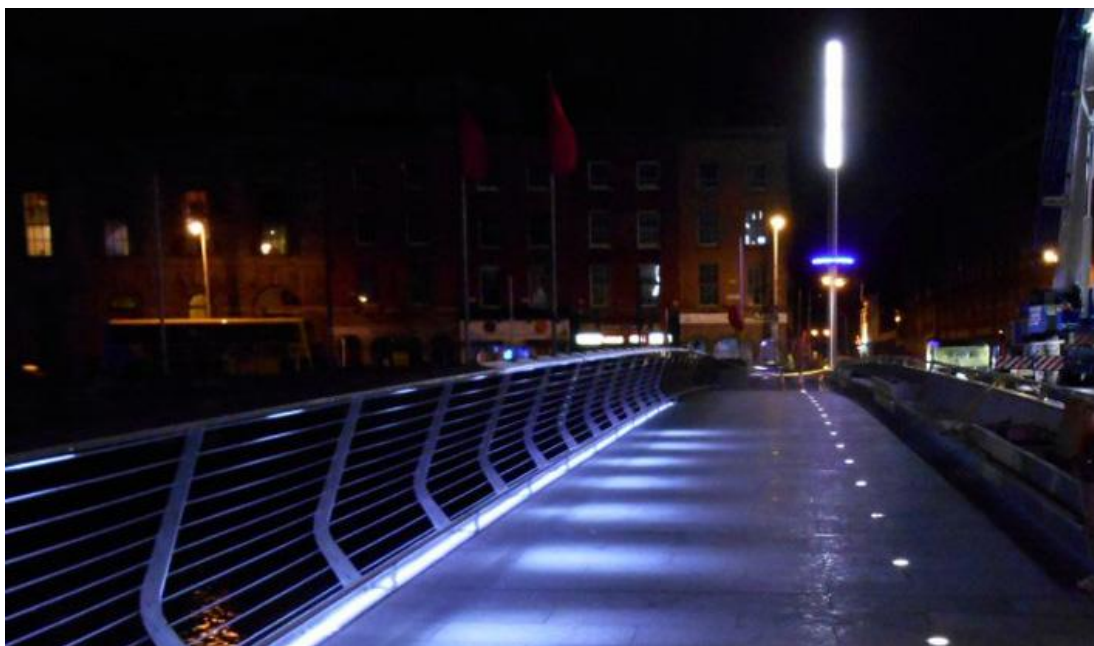


Plate 4.6 Example of lighting used on the Rosie Hackett Bridge

4.6 Drainage

It is proposed that surface water be permitted to fall freely from the bridge, the ramps and the boardwalks. This is due to the fact that motorised vehicles (cars, trucks, vans etc.) will not use the proposed development and the risk of contamination is consequently minimal.

4.7 Construction Methodology

4.7.1 Potential Construction Procurement Method

The contract type has not been decided but it is proposed that the detailed design and construction of the proposed development will take place as part of an Employer Designed Contract. This description of the development is based on the design of the proposed development. The current design has been developed to a stage to permit a fully informed examination and assessment to be carried out on the proposed development.

4.7.2 Timescale for Construction

It is anticipated that the proposed works will take 24 months to complete. Piling activities in the river will be restricted by fisheries requirements. Tree felling and pruning activities will be constrained in respect of nesting birds. Although no bat roosts were identified during the survey, should bat roosts be identified, these will constrain construction activities on site. Works affected by seasonal constraints will require a programme which ensures minimal delay to the main construction contract.

4.7.3 Construction Arrangements

Site Compounds

A temporary construction/fabrication compound will be located upstream of the proposed development, on the east bank of the river, adjacent to Wansboro Park (see Figure 4.1 in Volume 3). The total anticipated area of the construction/fabrication compound is approximately 2,400m².



Plate 4.7 Wansboro Park

The temporary compound will require the creation of a hard standing area to facilitate storage fabrication of the bridge deck components, which will be delivered to the compound in approximately 20m long segments. Once the main bridge span is welded together, it will be lifted onto barges in the river to be transferred downstream under the railway bridge on barges.

The storage of fuels, other hydrocarbons and other chemicals within the construction compound will not be permitted within 50m of a watercourse and within 100m of the River Shannon. All fuel storage areas will be bunded to 110% of storage capacity to prevent spills and provide sufficient additional capacity in the event of rainfall occurring simultaneously. The proposed compound will also have appropriate levels of security to limit potential vandalism, theft and unauthorised access within the compound.

Following completion of construction these areas will be cleared and re-instated. Temporary buildings and containers, parking areas and waste material such as rubble, aggregates and unused construction materials will not be permitted to remain exposed on these sites and will be removed and disposed of appropriately.

Construction Sequence

The following outlines the anticipated sequence of activity associated with the construction works. Figures 4.11 to 4.15 of Volume 3 present the anticipated construction sequence.

Stage 1: 6 weeks duration

- (i) Establish site;
- (ii) Implement pollution control and monitoring measures;
- (iii) Carry out site clearance on the river banks sufficient to carry out the works including elements of the existing boardwalk in front of the Luan Gallery to be replaced;
- (iv) Temporarily decommission the southernmost berths of the marina.

Stage 2: 16 weeks duration

- (v) Construct a sheet piled temporary cofferdam (See Plate 4.8) around the proposed river pier to accommodate construction. This cofferdam is likely to occupy a width of approximately 5m of the river and will extend approximately 7m along the river;
- (vi) Carry out piling works for the pier in the river, at the east abutment and along the existing promenades and proposed ramps. The pier and abutment piling will comprise 750mm diameter steel tubular piles driven into the river bed. The promenade piles will be 355mm H section steel piles. This activity will be carried out from Jack up barges in the river (See Plate 4.9). Jack up barges are floated into position into position and the legs are lowered on to the river bed. The barges are then elevated clear of the water by jacking themselves up on the supporting legs, which are approximately 300mm in diameter;
- (vii) Install bridge protection adjacent to navigation channel.



Plate 4.8 Typical cofferdam arrangement

Stage 3: 25 weeks duration

- (viii) Carry out underpinning and refurbishment works to Luan Gallery;
- (ix) Excavate boardwalk and ramp foundations, west bank.
- (x) Construct concrete works for boardwalks, west bank;
- (xi) Erect boardwalk steelwork, west bank;
- (xii) Construct end support, west bank;
- (xiii) Fabricate steelwork at a workshop remote from the site;
- (xiv) Construct river pier base and column and install bearing.



Plate 4.9 Example of Jack up barge

Stage 4: 12 weeks duration

- (xv) Excavate boardwalk and ramp foundations, east bank.
- (xvi) Construct concrete works for boardwalks, east bank;
- (xvii) Erect boardwalk steelwork, east bank;
- (xviii) Construct abutment, east bank;
- (xix) Erect steelwork east bank;
- (xx) Construct infill and steps, east bank
- (xxi) Install abutment bearings.

Stage 5: 20 weeks duration

- (xxii) Assemble bridge steelwork elements along the river on site;
- (xxiii) Bridge installation - central 80m long section from barge with temporary support;

Stage 6: 6 weeks duration

- (xxiv) Install remaining sections of main spans;
- (xxv) Complete steelwork welding, stressing and final paintwork;
- (xxvi) Install paving, lighting, parapets, landscaping and finishes;
- (xxvii) Reinstate the southern marina berths.

Set up of Construction Compound & Traffic Management

The operations associated with the establishment of the site compounds will be subject to the agreement on a site Waste Management Plan prior to commencement of site activity. All traffic management activities will be subject to the requirements of Chapter 8 of the Traffic Signs Manual published by the Department of Transport, the approval of the County Council, and the Garda Siochana, and any licensing and permits necessary under current legislation.

Impacts are expected to deliveries to the Luan Gallery however this only occurs every two months as the gallery exhibitions change. Any impacts to the deliveries will be mitigated against through co-ordination between Westmeath County Council and the Luan Gallery operators.

4.7.4 Enabling Works, Site Access

Construction Traffic Routing

The existing bridges upstream and downstream of the proposed development and the weir downstream represent significant constraints on access by water. Access to the site is likely to be by road. In this regard the upstream railway bridge presents a barrier to access and will constrain the size of elements which can be transported to site. In addition, the downstream roundabout on the western bank of the river at the Custume Bridge will limit the practicable size of elements to be transported to site. Site based assembly of steelwork is therefore likely to be necessary.

Safety Measures on the River for Navigation

Waterways Ireland has been informed of planned works in the river. Approval will be sought of Waterways Ireland during construction for any activities which may have an impact on navigation. Necessary security and protective measures will be put in

place to ensure the safety of waterborne vessels during and on completion of the proposed works.

An area will be required on the river in the vicinity of the bridge to facilitate the assembly and final painting of steelwork prior to installation. It is anticipated that such will be accommodated using jack up barges (See Plate 4.9).

Working Hours

The normal working hours to be employed will be as follows:

- Monday to Friday 07:00 to 19:00hrs
- Saturday 08:00 to 16:30hrs
- Sunday & Bank Holidays 08:00 to 16:30hrs

Works on Sundays and Bank Holidays will only be permitted with the approval of the Client. Similarly, emergency works outside of the normal working hours will only be permitted with the approval of the planning authority.

Chapter 5

*Traffic, Cyclist & Pedestrian
Integration*

Chapter 5 Traffic, Cyclist & Pedestrian Integration

5.1 Introduction

This chapter assesses the impact of the proposed development on the receiving environment with respect to traffic conditions (including pedestrian and cyclist movement), transport routes and general traffic safety. The assessment identifies the existing road network in the vicinity of the proposed construction areas, potential impacts of the various stages of the proposed development on the transport infrastructure and its users.

5.2 Methodology

A review of the existing transport infrastructure for the surrounding area was undertaken in order to establish a baseline environment for the traffic assessment.

This was completed on two levels which considered:

- (i) The public road network in the region, and
- (ii) The internal access routes within the project area where the proposed development will be constructed.

A study area has been applied for this assessment based on the nature of the proposed development (non-vehicular pedestrian and cycleway) and the existing noise environment along the route (urban area with existing noise sources, i.e. vehicular traffic).

5.3 Description of Existing Environment

The proposed development is located within the urban setting of the town of Athlone, upstream (north) of the existing Custume Bridge across the Shannon River. The site of the proposed development is surrounded by a mixture of historic buildings and structures, tourism sites, community facilities, residential and commercial properties.

The proposed bridge is to land on the western bank of the Shannon at the northern side of the Luan Gallery in the loading bay area, directly in line with the side door of the SS Peter and Paul Church. The loading bay will be reconfigured to allow safe access for users of the proposed development and safe deliveries to the Luan Gallery. The west approach ramps will provide access to Grace Road and also access via a new ramp to the quay side promenade, where it will continue south, connecting to the existing boardwalk and through to the existing Custume Bridge archway and then terminate at Athlone Castle.

On the eastern bank, the bridge will land above the existing quay and ramp down to the north. Steps will also be provided for access to the southern side of the bridge. This eastern part of the proposed development will travel northeast from the Marina along a narrow laneway to join Abbey Road and then connect up with the Marina to Garrycastle section of the Galway to Dublin Cycleway via Marina Lane.

5.3.1 Existing Conditions for Cyclists and Pedestrians

The existing town centre route used by pedestrians to cross the River Shannon is via the R446 across the Custume Bridge. Footpaths are available on either side of the carriageway on the bridge but no cycling facilities currently exist. This results in a

dangerous environment for cyclists as these users often have to compete with heavy traffic as can be seen in Plate 5.1 and Plate 5.2 below.



Plate 5.1 Heavy traffic travelling east off the Custume Bridge at Custume Bridge



Plate 5.2 Heavy traffic travelling onto the Custume Bridge from the western approach

Although pedestrian access along the promenade to the rear of the Radisson Hotel on the eastern bank of the River Shannon is currently discouraged by security gates at the Marina, it is a listed public right of way in the Westmeath Development Plan 2014-2020 as shown in Plates 5.3 and 5.4. The proposed development will open up full access along the promenade by way of a newly constructed boardwalk.



Plate 5.3 Access to promenade from the rear of the Radisson Hotel



Plate 5.4 Methodist Church Lane

5.3.2 Existing Cycle and Vehicular Parking

Existing vehicular parking is in place to the eastern side of the castle (13 spaces) (see Plate 5.5). These spaces are mainly used during the day by visitors and customers of the local shops and commercial premises.



Plate 5.5 Existing parking to eastern side (fronting River Shannon) of Athlone Castle

Some bicycle parking is available to the southern side of the archway under the Custume Bridge (see Plate 5.6). This cycle parking is sparsely used at present.



Plate 5.6 Existing bicycle parking adjacent to Custume Bridge archway

5.4 Access and Integration

The proposed development will support a segregated route for cyclists and pedestrians within the town centre and will connect effectively with the proposed hub at Athlone Castle and the surrounding amenities. The route also draws in local attractions within the immediate areas such as the Franciscan Abbey and Graveyard, the Luan Gallery and SS Peter and Pauls Church. Good access by foot or bicycle will be available from the Athlone Castle area to the town's other main services and attractions, subject to proper information and signage.

The location of the proposed development also provides strong potential for local connections to the town centre on the eastern side of the town, with the range of local services, accommodation and attractions. The new crossing affords the opportunity to provide improved linkage and connectivity to local services and facilities within the town centre. It will also provide a segregated link for east west pedestrian and cycling trips to local services and places of employment and education (refer to Figure 2.1 and Figure 14.1 in Volume 3).

The proposed development will relieve pedestrian and cyclist loading on Custume Bridge, which is at capacity at peak times and will enhance the safety and capacity for pedestrians crossing from one side of the town centre to the other, especially for buggy and wheelchair users. The walkway to the rear of the Radisson Hotel will be opened up to full pedestrian and cycle access under the proposed development.

5.5 Description of Likely Impacts

The National Cycle Manual, 2011 recognises the irregular nature of Irish urban roads and street networks and recommends a range of design approaches and methods to achieve an efficient network and quality of service. Significantly, it sets out the cyclist needs in network planning as directness, safety and coherence. It also recommends a three-level hierarchy in urban areas consisting of primary, secondary and feeder networks. The proposed development will be considered as part of the primary network for Athlone and given that it will play a very significant role in tourism and recreation, quality of cyclist experience will be included as a primary need in the network planning.

The proposed development will consist of three main elements;

- (i) Path sections – where resurfacing or minor works are required;
- (ii) Promenade widening; and
- (iii) Bridge and ramp construction.

The route will avoid existing busy streets, focussing primarily on river frontage and the promenade. When it emerges at the river, the route will provide a high quality experience, providing expansive views of the river corridor and its features. The sections that follow examine the potential impacts that may occur as a result of the development and associated works.

5.5.1 Parking

It is proposed to remove 13 car parking spaces as part the proposed development. These spaces are located in the area to the eastern front of the castle and will be removed to make way for the main Cycle Hub area in this riverside location. The removal of these spaces may cause some local impacts for the property owners/vendors of the nearby commercial premises, however alternative parking is available within walking distance to the south and north western side of the castle.

At present there are four bicycles stands available to the southern side of the Custume Bridge. Additional bicycle parking spaces will be added to this area to accommodate the expected increase in demand.

5.5.2 On Road Sections

The development will link to existing roadways such as Marina Lane which currently provide access from the promenade on the eastern side of the river to Abbey Road. The proposed development will also link on to Grace Road on the western side of the

River Shannon. In these busier areas it is proposed to erect signage alerting the user to the busier environments which may involve shared use with motor vehicles.

5.5.3 Promenade Widening

Widening of the existing promenade on both the eastern and western side of the bridge will form an integral part of the overall proposed development. A cantilevered structure will be constructed on both banks of the river to provide adequate space for pedestrians and cyclists.

5.5.4 Bridges and Structures

A major component of the proposed development is the construction of the new shared cycleway and pedestrian bridge across the River Shannon and also the access ramps on the eastern and western banks. This will result in a positive impact for tourists and locals in the area by providing a means of alternative access across the Shannon, free from vehicular traffic, which will enhance the town centre making it more accessible for those with restricted mobility including elderly people and those with children.

5.5.5 Compatibility with Other Uses and Activities

The proposed development will enhance the town centre and provide an added amenity to the area and also safer access across the Shannon for cyclists and pedestrians. The bridge crossing and associated ramps will provide enhanced connectivity to the waterfront area. The proposed ramp configuration on the western side of the river will improve user safety, as it will replace the existing narrow and steep ramp with ramps that are at least 2.8m wide, at gradients of 5%. It will also connect with the proposed Athlone Marina to Garrycastle section of the Galway to Dublin greenway. This section of the greenway has been progressed as a separate Part VIII planning application by Westmeath County Council.

5.5.6 Fencing and Security Gates

As part of the separate Marina to the Garrycastle cycleway section it is proposed to remove an existing security gate and fencing in the vicinity of the marina to provide access along Marina Lane onto the promenade, see Plate 5.7.



Plate 5.7 Marina Lane

A second access gate will also be removed along the promenade section of the route, see Plate 5.8. The removal of this gate as part of this proposal will reinforce the existing public right of way.

It is acknowledged that the removal of these gates may result in an increased security risk to the marina and in order to ensure no unauthorised access to this area occurs as a result of the proposed development, it is proposed that an appropriate new access gate will be erected at the entrance to the marina berths, see Plate 5.9.



Plate 5.8 Access gate to Promenade



Plate 5.9 Access gate to Marina

5.5.7 Erection of Signage and Information Boards and Mapping

New signage will be required to deal with the anticipated increased usage of the local road system by cyclists and pedestrians. This signage will be in line with the current signage on the opened stretches of the greenway.

Signs

Signs will be required for:

- Identifying the start of the cycleway/continuation from other sections;
- Directions when the route changes course sharply;
- Warning and cautions about the cycleway or features (e.g. slip prone area; narrow, winding trail; single file track or structure); and
- Features/facilities within the town (tourism attraction, cafes, toilets, etc).

Information Board

Basic information about the facility will be available on an information board at trailheads and popular access points along the route. Information will include:

- A map showing a clearly defined route with a start and finish point and a 'you are here' pointer; and
- A phone number and web address for users to provide feedback and/or report incidents or issues on the route; and
- Code of conduct and walking and cycling advice.

5.5.8 Impacts Assessment - Construction Phase

Construction phase impacts relate to works which are temporary in nature such as the closure of roads or restrictions in their use, movement of heavy plant and machinery on the local road networks and noise and dust emissions resulting from construction. A construction sequence has been developed (see Figures 4.11 to 4.15 in Volume 3) and the construction phase impacts have been assessed.

It is anticipated that the main construction impacts will result from the activities listed below and as listed in Table 5.1 below.

Pedestrians

- Carrying out site clearance on the river banks sufficient to carry out the works including elements of the existing boardwalk in front of the Luan Gallery to be replaced. The west promenade will be closed from the steps immediately north of the proposed development to the pedestrian archway at Custume Bridge. An alternative pedestrian route to Market Place will be along Grace Road;
- Carrying out underpinning and refurbishment works to Luan Gallery services area;
- Excavating boardwalk and ramp foundations on the west and east banks;
- Constructing concrete works for boardwalks and erecting boardwalk steelwork on the west and east banks; and
- Constructing abutment, erecting steelwork and constructing infill and steps on east bank.

Marina

- Temporary decommissioning the southernmost berths of the marina;
- Constructing a sheet piled temporary cofferdam around the proposed river pier to accommodate construction;
- Carrying out piling works for the pier in the river, at the east abutment and along the existing promenades and proposed ramps;
- Constructing end support on west bank;

- Installing bearings of the pier;
- Installing bridge from barge with temporary support.
- Install abutment bearings;
- Assemble bridge steelwork elements along the river on site; and
- Install remaining sections of main spans.

Road Traffic

- (a) Materials supply (road pavement materials, structural steel and concrete, etc) and disposal of unsuitable materials;
- (b) Movement of site equipment, vehicles, workers and visitors to the site; and
- (c) Construction or improvement to tie-in junctions.

Construction taking place on or close to the R446 may result in disruption to traffic. The magnitude of the disruption is dependent on the nature and duration of the works. Motorists can also be inconvenienced by the presence of works vehicles travelling along public roads or crossing public roads which results in delays. Depending on the time of year the levels of inconvenience of the delays experienced may be exacerbated due to higher volumes of tourist traffic in the area, especially in the summer months.

Cyclists and pedestrians can also be impacted by construction vehicles similar to the above.

There will be short term impacts on communities along the principal access routes to Athlone when the large bridge elements are being transported to site. It is anticipated that these works will be undertaken at night to minimise the impacts on access routes.

The works associated with the project will involve initial site clearance on the river banks sufficient to carry out the works. This will include works on certain areas of the existing boardwalk to the front of the Luan Gallery and on the eastern bank to the rear of the Radisson Hotel. It is anticipated that the construction stage of the project will have a minor temporary effect on traffic at the tie-in locations.

5.5.9 Impact Assessment - Operational Phase

Following completion of the proposed development it is anticipated that the majority of pedestrian and cyclist traffic will be channelled off existing vehicular roads and onto the safe segregated town centre route.

The completion of the proposed development will generally have an overall benefit to local users and tourists alike in Athlone and will be a key component of the Dublin to Galway Greenway. The proposed development will provide an alternative, more reliable and safer crossing point for cyclists and pedestrians within the town and enhance the movement of people within the surrounding area.

5.6 Mitigation Measures

In order to minimise the impacts on all road users and pedestrians the following measures will be put in place prior to, during and post construction:

Construction Phase

The implementation of the following mitigation measures will significantly reduce the impacts associated with the construction phase:

- A Traffic Management Plan will be put in place to maintain all road and accesses affected by the works and to maintain traffic flows and existing accesses until such times as the permanent works have been completed;
- Heavy construction vehicles will be confined to those roads that are capable of carrying the predicted number of movements of these vehicles;
- The number and duration of temporary road closures will be limited;
- Any road closures will be subject to consents from the Road Authority and are to be placed as Public Notices in a prominent paper to inform the public;
- Construction working hours will generally be between the hours of 07:00 and 19:00 from Monday to Friday and 08:00 to 16:30 on Saturdays except for exceptional activities. Works on Sundays and Bank Holidays will be from 08:00 to 16:30 if approved by the Client.
- Residents will be kept informed of the works to be carried out and of any proposals for work outside normal hours;
- The main compounds are to be located in areas away from sensitive receptors such as residential or commercial properties, and will be accessed from roads that can cater for the expected volume of site traffic (See Figure 4.1 of Volume 3);
- The construction programme will be phased to limit disruption to road users; and
- Pedestrian and vehicle access to the promenade areas will be diverted during the construction of the bridge and promenade area; and

Operational Phase

When operational, the proposed development will have a positive local and regional impact with respect to traffic and transport, therefore no mitigation measures are required.

5.7 Residual Impacts

With mitigation measures implemented there will not be residual impacts resulting on the traffic and transport aspect of the environment from any stage of the proposed development's construction and operation.

Table 5.1 Summary of Potential Impacts and Proposed Mitigation Measures Relative to Road Traffic, River Traffic, Cyclist and Pedestrian Integration

| Potential Impact on Road Traffic, River Traffic, Cyclist and Pedestrian integration | Positive/Negative | Major/Moderate/Minor | Area Affected | Duration | Mitigation Measures | Residual Impact |
|---|-------------------|----------------------|------------------|-----------|--|-----------------------------------|
| Site Preparation | | | | | | |
| Transport machinery to site causing traffic inconvenience | Negative | Minor | Local Road Users | Temporary | Notify local road users of time that machinery will be transported to site. Transport machinery during non-peak traffic hours. Do not transport machinery in convoy. | None |
| Delivery of material for river bank works | Negative | Minor | Local Road Users | Temporary | Notify local road users of time that materials will be transported to site. Transport materials during non-peak traffic hours. | None |
| Construction | | | | | | |
| Temporary road closures, diversions, or traffic controls to facilitate construction of new bridge and ramps | Negative | Moderate | Local Road Users | Temporary | Road Closures to be placed as Public Notices in a prominent paper to inform the public. | None |
| Temporary removal of existing marina berths. | Negative | Moderate | Boat users | Temporary | The berths will be reinstated after construction. | None |
| Operation | | | | | | |
| Alternative route to avoid Custume Bridge | Positive | Moderate | Local Road Users | Permanent | None. | Permanent Moderate Positive |

5.8 Conclusion

Some potential impacts were identified including temporary inconvenience to road users when machinery is delivered or where road traffic restrictions, closures and diversions were identified, however it is concluded that with the proposed mitigation measures implemented at the appropriate times over the lifespan of the proposed development, vehicular traffic, cyclists and pedestrians will not be significantly impacted.

Chapter 6

Flora and Fauna

Chapter 6

Flora & Fauna

6.1 Introduction

The flora, fauna and habitats of the site of the proposed development (hereafter referred to as “the site”) were assessed by means of a desk study of literature pertinent to the site and surrounding area and by a field survey of the site including a survey of flora, fauna and general observation work. This section is based on desk studies and field visits made in August 2013 and July 2015, when the site was the subject of a detailed multi-disciplinary walkover surveys that were undertaken in accordance with NRA Guidelines Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes (2009). The extent and location of the site is shown in Figure 6.1.

The survey work was carried out by a suitably qualified ecologist (Pat Roberts B.Sc. (Env.) MCIEEM) of McCarthy Keville O’Sullivan Ltd. Fauna were surveyed through direct observation of bird and mammal species or of their signs and calls. Habitat suitability was also assessed for the likely occurrence of species that would not be present due to seasonal factors. This section also includes information and reference to works carried out in August 2013 by Eamonn O’Sullivan (B.Sc. (Env.) GradCIEEM).

6.2 Methodology

6.2.1 Desk Study

The desk study investigated ecological records from the site and its surrounding area. The study included an examination of legislation, designated areas and other notable ecological records. Reference was also made to information or records of protected habitats and species that are likely to occur at or near the site. Sources of such information included biodiversity atlases (including Preston *et al.* (2002) and Balmer *et al.* (2013)), the National Parks and Wildlife Service (NPWS) site synopses for designated areas, national red data lists (such as the Plant Red Data Book (Curtis and McGough, 1988; Stewart and Church, 1992) and the Birds of Conservation Concern in Ireland (BoCCI)(Colhoun and Cummins, 2013)) and records from the NPWS and National Biodiversity Data Centre (NBDC).

6.2.2 Field Study

Field visits were made to the site in August 2013 and July 2015, which fall inside the recognised optimum period for vegetation surveys and habitat mapping, *i.e.* May to September (National Roads Authority (NRA) (2009)). The habitats present at the site and in the surrounding area were mapped and observations of plants, mammals, mammal signs and birds within the site were made throughout the study period. Habitat surveys were carried out by means of dedicated walkover surveys undertaken in August 2013 and July 2015. Habitats present on the site and the adjacent area were classified according to the guidelines set out in ‘*A Guide to Habitats in Ireland*’ (Fossitt, 2000).

Due to the urban and built nature of the habitats within the site, the use of detailed botanical surveys to evaluate percentage vegetation cover and habitat status was not deemed necessary. Similarly, given that the site is located in the centre of Athlone Town and subject to extensive anthropogenic disturbance, it was considered that, due to the low avifaunal diversity at the site, bird sampling techniques such as those recommended by Bibby *et al.* (2000) were not necessary. The site was instead

systematically and thoroughly walked and habitats were assessed, classified and sketched on to field maps of the site in accordance with '*Best Practice Guidance for Habitat Survey and Mapping*' (Smith et al., 2011). The presence (or signs) of protected fauna, including birds, mammals, amphibians and reptiles was noted during the visits.

Any observations or auditory records of bird species during the site visits were recorded, along with any potential bird nesting, feeding or commuting habitat. No additional targeted bird surveys were considered necessary due to the urban nature of the habitats present, the location of the bridge within the urban centre of Athlone Town, close to an existing marina and in between two existing road and rail bridges. In addition, the design of the bridge is such that it is at approximately the same height as the adjacent Custume Bridge and avoids the use of cables or arches that could present a barrier or obstruction to bird species. The site of the proposed development was also searched for signs of Otter activity such as spraints, prints, couches and holts.

A survey of the site was carried out for signs of bat activity on the site and surrounding buildings and trees. It was considered following the initial survey that the proposed development was highly unlikely to impact on bat species given the nature of the works and the habitats upon which they are proposed. All buildings on the site were the subject of a thorough external inspection for signs of bat activity such as droppings, staining, potential roost entrances. In addition, a dusk survey was conducted on the 21st of July 2015, and some information was gained on the existing levels of lighting of the river/banks/marina/bridge and the existing levels of bat activity in the area. The trees surrounding the site were also surveyed during the dusk survey. Further bat surveys were not considered necessary.

Seasonal factors that affect distribution patterns and behaviour of certain protected faunal species were taken into account when conducting the field surveys. The potential of the site to support certain populations (in particular, those of conservation importance that may not have been recorded during the field survey due to their seasonal absence or cryptic nature) was assessed.

The criteria used for assessment of the value of the ecological resources follow those set out in Section 3.3 of the NRA Guidelines (2009). These guidelines set out the context for the determination of value on a geographic basis with a hierarchy assigned in relation to the importance of any particular receptor. The guidelines provide a basis for determination of whether any particular site is of importance on the following scales:

- International
- National
- County
- Local Importance (Higher Value)
- Local Importance (Lower Value)

The NRA Guidelines (2009) clearly sets out the criteria by which each geographic level of importance can be assigned. Locally Important (lower value) receptors contain habitats and species that are widespread and of low ecological significant and of any importance only in the local area. Internationally Important sites are either designated for conservation as part of the Natura 2000 Network (SAC or SPA) or provide the best examples of habitats or internationally important populations of protected fauna.

All habitats and species along the proposed route corridor were assigned a level of significance on the above basis and the Zone of Influence and Key Ecological Receptors (KER) were established and classified on this basis.

6.2.3 Survey Limitations

The surveys were undertaken inside the recognised optimum period for vegetation surveys and habitat mapping (summer). Habitat suitability was also assessed for the likely occurrence of species that would not be present during the summer period. Given the nature of the proposed development and the habitats and species present and likely to utilise an urban area such as this, it is considered that a thorough assessment of baseline environmental conditions on the site was achieved with site visits in the summer period.

6.3 Description of the Existing Environment

6.3.1 Designated Sites

European Sites

The Habitats Directive (together with the Birds Directive) forms the cornerstone of Europe's nature conservation policy. It is built around two pillars: the Natura 2000 network of protected sites and the strict system of species protection. All in all the directive protects over 1,000 animal and plant species and over 200 "habitat types" (e.g. special types of forests, meadows, wetlands, etc.), which are of European importance.

With the introduction of the EU Habitats Directive (92/43/EEC) and Birds Directive (79/409/EEC) which were transposed into Irish law as S.I. No. 94/1997 *European Communities (Birds and Natural Habitats) Regulations 1997*, the European Union formally recognised the significance of protecting rare and endangered species of flora and fauna, and also, more importantly, their habitats. The 1997 Regulations and their amendments were subsequently revised and consolidated in S.I. No. 477/2011-*European Communities (Birds and Natural Habitats) Regulations 2011*. This legislation requires the establishment and conservation of a network of sites of particular conservation value that are to be termed 'European Sites'.

Special Areas of Conservation

Articles 3 – 9 of the EU Habitats Directive (92/43/EEC) provide the EU legislative framework of protecting rare and endangered species of flora and fauna, and habitats. Annex I of the Directive lists habitat types whose conservation requires the designation of Special Areas of Conservation (SAC). Priority habitats, such as Turloughs, which are in danger of disappearing within the EU territory are also listed in Annex I. Annex II of the Directive lists animal and plant species (e.g. Marsh Fritillary, Atlantic Salmon, and Killarney Fern) whose conservation also requires the designation of SAC. Annex IV lists animal and plant species in need of strict protection such as Lesser Horseshoe Bat and Otter, and Annex V lists animal and plant species whose taking in the wild and exploitation may be subject to management measures. In Ireland, species listed under Annex V include Irish Hare, Common Frog and Pine Marten.

Species can be listed in more than one Annex, as is the case with Otter and Lesser Horseshoe Bat which are listed on both Annex II and Annex IV.

Special Protection Areas

Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds (Birds Directive) has been substantially amended several times. In the interests of clarity and rationality the said Directive was codified in 2009 and is now cited as Directive 2009/147/EC. The Directive instructs Member States to take measures to maintain populations of all bird species naturally occurring in the wild state in the EU (Article 2). Such measures may include the maintenance and/or re-establishment of habitats in order to sustain these bird populations (Article 3).

A subset of bird species have been identified in the Directive and are listed in Annex I as requiring special conservation measures in relation to their habitats. These species have been listed on account of inter alia: their risk of extinction; vulnerability to specific changes in their habitat; and/or due to their relatively small population size or restricted distribution. Special Protection Areas (SPAs) are to be identified and classified for these Annex I listed species and for regularly occurring migratory species, paying particular attention to the protection of wetlands (Article 4).

Nationally Designated Sites

Natural Heritage Areas (NHAs) and Proposed Natural Heritage Areas (pNHAs) are heritage sites that were designated for the protection of flora, fauna, habitats and geological sites under the Wildlife (Amendment) Act 2000. These sites do not form part of the Natura 2000 network and the AA process, or screening for same, does not apply to NHAs or pNHAs.

European Sites in relation to the Proposed Development

Using the GIS software, MapInfo (Version 10.0), European sites within the likely zone of impact of the project were identified using the following rationale. Initially, sites within a 15km radius of the proposed works were identified as per the Department of Heritage, Environment and Local Government (DoHELG) guidance issued in 2009 and updated in 2010 (DoHELG, 2009; 2010). In addition, using the precautionary principle, European sites located outside the 15km buffer zone were also taken into account and assessed where potential pathways for impact were identified and, particularly, where hydrological connectivity could be established. In this case, no potential for impacts on European sites that are located outside the 15km buffer were identified. Sites within the likely zone of impact are listed in Table 6.1.

Table 6.1 Designated sites within the likely zone of impact of the proposed bridge crossing and their minimum distance from it.

| Designated Site and Site Code | Distance From Proposed Works (km) |
|---|--|
| Special Area of Conservation | |
| River Shannon Callows SAC (000216) | 0.67 km |
| Lough Ree SAC (000440) | 1 km (approx. 500 metres from the temporary construction compound) |
| Crosswood Bog SAC (002337) | 4 km |
| Carn Park Bog SAC (002336) | 6 km |
| Castlesampson Esker SAC (001625) | 8.3 km |
| Ballynamona Bog and Corkip Lough SAC (002339) | 9 km |
| Pilgrim's Road Esker SAC (001776) | 9.8 km |

| Designated Site and Site Code | Distance From Proposed Works (km) |
|---------------------------------------|--|
| Mongan Bog SAC (000580) | 10.1 km |
| Fin Lough (Offaly) SAC (000576) | 11.6 km |
| Lough Funshinagh SAC (000611) | 12.3 km |
| Special Protection Area | |
| Middle Shannon Callows SPA (004096) | 0.67 km |
| Lough Ree SPA (004064) | 1.1 km (approx. 600 metres from the temporary construction compound) |
| Mongan Bog SPA (004017) | 10.3 km |
| Natural Heritage Area | |
| Carrickynaghtan Bog NHA (001623) | 2.8 km |
| Clonydonnin Bog NHA (000565) | 10.7 km |
| Proposed Natural Heritage Area | |
| River Shannon Callows pNHA (000216) | 0.58 km |
| Lough Ree pNHA (000440) | 1.0 km |
| Crosswood Bog pNHA (000678) | 4.0 km |
| Carn Park Bog pNHA (000676) | 6.5 km |
| Waterstown Lake pNHA (001732) | 6.9 km |
| Castlesampson Esker pNHA (001625) | 8.3 km |
| Mongan Bog pNHA (000580) | 10.1 km |
| Pilgrim's Road Esker pNHA (001776) | 10.2 km |
| Doon Esker Wood pNHA (001830) | 11.6 km |
| Feacle Turlough pNHA (001634) | 11.6 km |
| Fin Lough (Offaly) (000576) | 11.6 km |
| Ballynagarbry pNHA (001713) | 12.3 km |
| Clonfinlough Esker pNHA (000892) | 12.4 km |
| Lough Funshinagh pNHA (000611) | 12.7 km |
| Lough Nanag Esker pNHA (000910) | 13.6 km |
| Cranberry Lough pNHA (001630) | 13.6 km |

Description of Natura 2000 in relation to the Site

The designated sites that are closest to the site and have the potential for habitat or surface water connectivity are listed below. The potential for the proposed development to result in significant effects on the European Sites is fully assessed in the Appropriate Assessment (AA) Screening Document that accompanies this application (Appendix 6.2 of Volume 4).

- River Shannon Callows SAC/pNHA (Site Code: 000216), located approximately 670m south of the proposed development.
- Middle Shannon Callows SPA (Site Code: 004096), which is located approximately 670m south of the proposed development.

The locations of all designated sites within the likely zone of impact of the proposed development are shown in Figure 6.2 and, in addition, the location of the closest sites is shown in Figure 6.1. The potential for effects on European sites is fully considered in the NIS that accompanies this application. The pNHAs that are contiguous with European sites are considered under the European designation. No potential for connectivity with or impacts on other NHAs or pNHAs was established during this

assessment. A brief discussion on the conservation objectives of the three designated sites listed above is provided below.

River Shannon Callows SAC/pNHA (Site Code 000216)

The current generic conservation objective of the River Shannon Callows SAC, as per NPWS, is to maintain or restore the favourable conservation status of the Annex I habitats and the Annex II species for which the SAC has been selected. The QIs for this SAC are listed in Table 6.2. The NPWS publishes site synopses and conservation objectives for all designated sites on its website (www.npws.ie, accessed on 26/05/2016). The River Shannon Callows SAC conservation objectives and site synopsis are available in Appendix 6.1 of Volume 4.

Table 6.2 Qualifying Interests of the River Shannon Callows SAC/pNHA (Site Code: 000216)

| Qualifying Interests | |
|---|-------------------------------------|
| Annex I Habitats | Annex II Species |
| <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinia caeruleae</i>) [6410] | Otter (<i>Lutra lutra</i>) [1355] |
| Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>) [6510] | |
| Limestone pavements [8240]* | |
| Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>) [91E0]* | |

*Annex I priority habitat

Middle Shannon Callows SPA (Site Code 004096)

The current generic conservation objective of the Middle Shannon Callows SPA, as published by the NPWS, is to maintain or restore the favourable conservation condition of the bird species listed as SCIs for this SPA and to maintain or restore the favourable conservation condition of its wetland habitat as a resource for the regularly-occurring migratory waterbirds that utilise it. These SCIs are presented in Table 6.3. As with SACs, the site synopses and conservation objectives of SPAs are available on the NPWS website (www.npws.ie, accessed on 26/05/2016). The Middle Shannon Callows SPA conservation objectives and site synopsis are provided in Appendix 6.1 of Volume 4.

Table 6.3 Special Conservation Interests of the Middle Shannon Callows SPA (site code 004096)

| Special Conservation Interests | |
|--------------------------------|--|
| Habitats | Annex I Species |
| Wetlands [A999] | Whooper Swan (<i>Cygnus cygnus</i>) [A038] |
| | Wigeon (<i>Anas penelope</i>) [A050] |
| | Corncrake (<i>Crex crex</i>) [A122] |
| | Golden Plover (<i>Pluvialis apricaria</i>) [A140] |
| | Lapwing (<i>Vanellus vanellus</i>) [A142] |
| | Black-tailed Godwit (<i>Limosa limosa</i>) [A156] |
| | Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] |

6.3.2 Flora Atlases

A search was made in the New Atlas of the British and Irish Flora (Preston *et al.*, 2002) to investigate whether any rare or unusual plant species have been recorded in the vicinity of the site. Such species include those listed in Annex II of the Habitats Directive, the Flora (Protection) Order, 2015 (S.I. No. 356/2015) or the Plant Red Data Book. The Atlas provides records for 10km hectads taken during the 1987-1999 survey. The proposed development is situated within hectad N04.

A total of 501 vascular plant species were recorded in hectad N04 by the Atlas. Three of these are protected under the Flora (Protection) Order (2015) and 13 are listed in the Plant Red Data Book. These 16 species are listed in Table 6.4.

Table 6.4 Protected and Listed Vascular plants within hectad N04

| Common Name | Scientific Name | Flora (Protection) Order 2015 | Habitats Directive Annex II | Plant Red Data Book |
|----------------------------|-----------------------------------|-------------------------------|-----------------------------|---------------------|
| Narrow-leaved Helleborine | <i>Cephalanthera longifolia</i> | ✓ | X | ✓ |
| Red Hemp Nettle | <i>Galeopsis angustifolia</i> | ✓ | X | ✓ |
| Betony | <i>Stachys officinalis</i> | ✓ | X | ✓ |
| Bog Rosemary | <i>Andromeda polifolia</i> | X | X | ✓ |
| Smooth Brome | <i>Bromus racemosus</i> | X | X | ✓ |
| Narrow-leaved Marsh Orchid | <i>Dactylorhiza traunsteineri</i> | X | X | ✓ |
| Marsh Helleborine | <i>Epipactis palustris</i> | X | X | ✓ |
| Alder Buckthorn | <i>Frangula alnus</i> | X | X | ✓ |
| Marsh Pea | <i>Lathyrus palustris</i> | X | X | ✓ |
| Bee Orchid | <i>Ophrys apifera</i> | X | X | ✓ |
| Green-winged Orchid | <i>Orchis morio</i> | X | X | ✓ |
| Ivy Broomrape | <i>Orobanche hederaceae</i> | X | X | ✓ |
| Cowslip | <i>Primula veris</i> | X | X | ✓ |

6.3.3 Bird Atlases

The most recent bird atlas project took place over four winters and four summers between November 2007 and July 2011. Surveys were carried out by BirdWatch Ireland, the British Trust for Ornithology and the Scottish Ornithologists Club. This data has been published in Bird Atlas 2007-11 (Balmer *et al.*, 2013). Distribution map data from this atlas is also available online from BirdWatch Ireland map store (available at: <http://blx1.bto.org/mapstore/StoreServlet>).

A search of this atlas revealed records of 25 species of ecological concern within hectad N04 (listed in Table 6.5). They are of ecological concern as they are protected under Annex I of the Birds Directive or listed on the BoCCI Red List. Those listed on the BoCCI Red List meet one or more of the following criteria: their breeding population or range has declined by more than 50% in the last 25 years; their breeding population has undergone significant decline since 1900 or; they are of global conservation concern. It should be noted that breeding was not proven in all instances where birds were recorded during the breeding atlas surveys. However,

the absence of a record does not necessarily imply that the species was absent from that hectad.

Table 6.5 Bird species of ecological concern recorded in hectad N04

| Common Name | Scientific Name | Breeding | Wintering | Birds Directive Annex I | BoCCI Red List |
|-------------------|---------------------------------|-----------------------|-----------|-------------------------|----------------|
| Barn Owl | <i>Tyto alba</i> | Probable Breeding | - | - | Yes |
| Black-headed Gull | <i>Larus ridibundus</i> | Present, non-breeding | Yes | - | Yes |
| Common Tern | <i>Sterna hirundo</i> | Present, non-breeding | - | Yes | - |
| Corncrake | <i>Crex crex</i> | Probable breeding | - | Yes | Yes |
| Curlew | <i>Numenius arquata</i> | Confirmed breeding | Yes | - | Yes |
| Dunlin | <i>Calidris alpina schinzii</i> | Present, non-breeding | - | Yes | Yes |
| Golden Plover | <i>Pluvialis apricaria</i> | Present, non-breeding | Yes | Yes | Yes |
| Hen Harrier | <i>Circus cyaneus</i> | - | Yes | Yes | - |
| Herring Gull | <i>Larus argentatus</i> | Present, non-breeding | - | - | Yes |
| Kingfisher | <i>Alcedo atthis</i> | Confirmed breeding | - | Yes | - |
| Lapwing | <i>Vanellus vanellus</i> | Confirmed breeding | Yes | - | Yes |
| Little Gull | <i>Larus minutus</i> | - | Yes | Yes | - |
| Meadow Pipit | <i>Anthus pratensis</i> | Confirmed breeding | Yes | - | Yes |
| Merlin | <i>Falco columbarius</i> | - | Yes | Yes | - |
| Peregrine | <i>Falco peregrinus</i> | - | Yes | Yes | - |
| Pintail | <i>Anas acuta</i> | - | Yes | - | Yes |
| Quail | <i>Coturnix coturnix</i> | Probable breeding | - | - | Yes |
| Redshank | <i>Tringa totanus</i> | Confirmed breeding | Yes | - | Yes |
| Ruff | <i>Philomachus pugnax</i> | Present, non-breeding | - | Yes | - |
| Short-eared Owl | <i>Asio flammeus</i> | Present, non-breeding | - | Yes | - |
| Shoveler | <i>Anas clypeata</i> | Present, non-breeding | - | - | Yes |
| Tufted Duck | <i>Aythya fuligula</i> | Probable breeding | Yes | - | Yes |
| Whinchat | <i>Saxicola rubetra</i> | Confirmed breeding | - | - | Yes |

| Common Name | Scientific Name | Breeding | Wintering | Birds Directive Annex I | BoCCI Red List |
|--------------|----------------------|-----------------------|-----------|-------------------------|----------------|
| Whooper Swan | <i>Cygnus cygnus</i> | Present, non-breeding | Yes | Yes | - |
| Wigeon | <i>Anas penelope</i> | - | Yes | - | Yes |

- Species not recorded

6.3.4 Other Records and Published Data

The NBDC provides a national database of biological records from Ireland. This database was accessed on the 15th of June 2015 and the information provided in Table 6.6 was obtained. Table 6.6 lists the rare and protected species recorded within hectad N04.

Table 6.6 National Biodiversity Data Centre Records

| Common Name | Scientific Name | Protection Status |
|----------------------------------|----------------------------------|----------------------------|
| Common Tern | <i>Sterna hirundo</i> | Annex I, WA 1976-2012 |
| Corncrake | <i>Crex crex</i> | Annex I, WA 1976-2012 |
| Golden Plover | <i>Pluvialis apricaria</i> | Annex I, WA 1976-2012 |
| Kingfisher | <i>Alcedo atthis</i> | Annex I, WA 1976-2012 |
| Merlin | <i>Falco columbarius</i> | Annex I, WA 1976-2012 |
| Peregrine Falcon | <i>Falco peregrinus</i> | Annex I, WA 1976-2012 |
| Whooper Swan | <i>Cygnus cygnus</i> | Annex I, WA 1976-2012 |
| Desmoulin's whorl Snail | <i>Vertigo moulinsiana</i> | Annex II, IV, WA 1976-2012 |
| Geyer's Whorl Snail | <i>Vertigo geyeri</i> | Annex II, IV, WA 1976-2012 |
| Common Frog | <i>Rana temporaria</i> | Annex V, WA 1976-2012 |
| Freshwater White-clawed Crayfish | <i>Austropotamobius pallipes</i> | Annex II, V, WA 1976-2012 |
| Common Pipistrelle | <i>Pipistrellus pipistrellus</i> | Annex IV, WA 1976-2012 |
| Daubenton's Bat | <i>Myotis daubentonii</i> | Annex IV, WA 1976-2012 |
| Leisler's Bat | <i>Nyctalus leisleri</i> | Annex IV, WA 1976-2012 |
| Badger | <i>Meles meles</i> | WA 1976-2012 |
| Irish Hare | <i>Lepus timidus hibernicus</i> | Annex V, WA 1976-2012 |
| Otter | <i>Lutra lutra</i> | Annex II, IV, WA 1976-2012 |
| Pine Marten | <i>Martes martes</i> | Annex V, WA 1976-2012 |
| Narrow-leaved helleborine | <i>Cephalanthera longifolia</i> | FPO 2015 |
| Large White Cushion Moss | <i>Leucobryum glaucum</i> | Annex V, WA 1976-2012 |

Annex I – Annex I of the Birds Directive; WA 1976-2012 – Wildlife Acts 1976-2012; Annex II – Annex II of the Habitats Directive; Annex IV – Annex IV of the Habitats Directive; Annex V – Annex V of the Habitats Directive; FPO 2015 – Flora (Protection) Order 2015

6.3.5 Inland Fisheries Ireland Surveillance Monitoring

Under the requirements of the Water Framework Directive (WFD), Inland Fisheries Ireland (IFI) conducted electrofishing of the River Shannon approximately 2km south

of Athlone town, between Bunnaribba and Carrickynaghtan townlands in 2010 (IFI, 2010). Surveys were undertaken using four high-voltage boat-based electric fishing units. Glide was the only habitat recorded with a substrate of gravel, sand and mud. A total of four fish species were recorded. Perch (*Perca fluviatilis*) was the most abundant species followed by Pike (*Esox lucius*), European Eel (*Anguilla anguilla*) and Roach (*Rutilus rutilus*). Annex II species, such as Salmonids or Lamprey, were not recorded in the IFI Athlone sampling area during this assessment.

6.3.6 Scoping Consultation

A scoping report providing details regarding the site and proposed development was sent to a number of recipients on the 15th of April 2015. A list of consultees is provided in Table 1.1 of Section 1.5.1 of the EIS.

The Development Application Unit (DAU) of the Department of Arts, Heritage and Gaeltacht (DAHG) provided one formal scoping response. The main points in this submission are provided below.

“The proposed works are likely to have an impact on the River Shannon Callows cSAC 000216, Middle Shannon Callows SPA 004096 and Lough Ree SPA 004064. The Department has concerns regarding the following;

- *Disturbance to flight lines and potential bird strike*
- *Disturbance and fragmentation of hunting sites for bats*
- *Disturbance to bird nesting sites*
- *Pollutants entering the river*

The Department recommends the following;

- *The design of the bridge should have no impact on commuting and migrating species*
- *The bridge should not impact on commuting and migrating species during construction*
- *Lighting on the bridge and on western bank should not spill onto the water channel or the mature treeline and kept to a low watt and low height*
- *Best practice for refuelling, storage and removal of material needs to be emphasised and enforced.”*

BirdWatch Ireland was also contacted in relation to a similar development in 2013 but there were no concerns in relation to the proposed bridge, flightlines, commuting or foraging birds in this submission. Whilst this body has not formally responded in relation to this project in 2015, they were informally contacted by telephone, and no particular concerns were raised (Pers. Comm.).

IFI was contacted but has not formally responded in relation to this project. Similarly, this body was informally contacted by telephone in both 2013 and 2015 and no particular issues were raised. (Pers. Comm.).

6.3.7 Flora in the Existing Environment

Habitats Present

During a field visit to the site in July 2015, habitats present on the site and adjacent area were classified according to Fossitt (2000). The habitats present are shown on habitat maps in Figure 6.3 and 6.3a and are listed below. The habitat names are followed by their corresponding habitat reference code in brackets.

- Buildings and Artificial Surfaces (BL3)
- Amenity Grassland (GA2)
- Tree Line (WL2)
- Flowerbeds and Borders (BC4)
- Lowland Depositing River (FW2)

The site of the proposed bridge is located approximately 75m to the north of the existing Custume Bridge in the centre of Athlone Town. In this area the River Shannon is approximately 100m wide and the banks and surrounding area are highly modified and built up, as is typical of a location within the urban centre of Athlone. The right (eastern) section of the river supports a floating marina (Athlone Marina) and is subject to high levels of activity both on the water and in the surrounding area. There is existing street lighting on both banks of the river in the form of standard lampposts and bollard lighting. The Custume Bridge to the south is illuminated and uplit with floodlighting. A temporary construction compound is proposed on existing playing fields located on the left bank (east) of the river approximately 600 metres upstream of the Custume Bridge and still within Athlone Town (a habitat map for the construction compound is presented in Figure 6.3a). The various habitats recorded are described in detail below.

Buildings and Artificial Surfaces (BL₃) and Spoil and Bare Ground (ED₂)

The banks of the River are constructed of stone and concrete walls that support sparse vegetation that is typical of stone wall habitats including Ivy-leaved Toadflax (*Cymbalaria muralis*), Red Valerian (*Centranthus ruber*), Pellitory of the Wall (*Parietaria officinalis*), Rustyback Fern (*Asplenium ceterach*) and a range of bryophyte species. In some sections of the left (western) bank, there was ornamental planting on the wall. On one small section on the right bank, there was growth of small Ash (*Fraxinus excelsior*) saplings, Bramble (*Rubus fruticosus* agg.), Greater Willowherb (*Epilobium hirsutum*) and Hedge Bindweed (*Calystegia sepium*) growing out of the wall. A few plants of the invasive alien species Japanese Knotweed (*Fallopia japonica*) were recorded growing out of the stones within the bridge to the south of the proposed development. However, no knotweed was recorded within the site itself.

A series of floating jetties are located within the river and many boats, barges and cruisers are moored in this area. Further away from the river, the majority of the surrounding area comprises built areas that comprise the urban centre of Athlone Town and include hotels, libraries, roads, pavements and other urban developments (Plate 6.1). Aside from occasional plants that grow out of and around these buildings, there is little of floral interest in these habitats.



Plate 6.1 Built habitats surrounding the River Shannon at the site of the proposed development as viewed from the left (western) bank.

Amenity Grassland (GA₂) and Flowerbeds and Borders (BC₄)

The site of the proposed development includes a small section of mown amenity grassland that is located between the existing river walkway and the public road along the western bank (Plate 6.2). This area also represents the end of a treeline (WL2) that is located along the western bank of the river. In addition, there are various flowerbeds around the area on both sides of the river. The largest (and the only one that is mapped on the habitat map) is located on Custume Bridge itself. A wide variety of non-native trees and shrubs is planted within these flowerbeds. In addition a temporary construction compound will be located on an area of existing amenity grassland that is located to the north of the site of the proposed development site and currently in use as playing pitches and an amenity park.



Plate 6.2 **Amenity Grassland (GA2) on the western bank of the river**

TreeLine (WL₂)

A tree line is present on the western bank of the river and is separated from the channel by an existing pedestrian walkway. This tree line consists of a line of planted mature trees including Sycamore (*Acer pseudoplatanus*), Birch (*Betula* spp.), Lime (*Tilia* spp.) and Maple species (*Acer* spp.). This tree line stretches along the riverbank to the north of the site on the western bank with only eight small (young) Maple trees and a mature Sycamore at the end of the line within the site itself (Plate 6.3).

On the eastern (right) bank there are small immature trees planted at intervals along the walkway. These are relatively recently planted and include Ash (*Fraxinus excelsior*), Oak (*Quercus* spp.) and Hornbeam (*Carpinus* spp.). This is classified as a tree line but is very young and dominated by immature ornamental trees at present (Plate 6.4).



Plate 6.3 Four young Maples and one Sycamore located within the development site on the western bank of the river

Lowland Depositing River (FW₂)

The River Shannon is classified as a Lowland Depositing River at this location. It is wide and slow flowing, with artificial banks and a marina development within it (Plate 6.5). On visual inspection, the substrate is silty with cobbles and pebbles. In-stream vegetation was sparse at the western bank but species such as Water Milfoil (*Myriophyllum* spp.), Aquatic Moss (*Fontinalis antipyretica*), Canary Grass (*Phalaris arundinacea*) and Reed Sweet Grass (*Glyceria maxima*) in a few places. The river is highly modified from its natural state at this location.



Plate 6.4 Example of the young trees along the eastern bank of the river



Plate 6.5 The River Shannon at the site of the proposed development as viewed from the Custume Bridge

Character of Habitats

The site of the proposed development has an amenity character of a town riverside park with riverside walks and parks along with a marina and waterfront effect associated with the nearby hotel. It has been highly modified from its natural state over centuries of urbanisation and navigation. It is urban in its character.

Significance of Habitats

The habitats present on the site were assessed in accordance with best practice guidance (NRA 2009). None of the habitats recorded on the site are protected under Annex I of the Habitats Directive or were considered to be of International or National Importance.

The River Shannon itself, although highly modified, is the habitat with the highest biodiversity value within the site. It has the potential to act as a conduit for pollution to spread to more sensitive areas downstream, to the Middle Shannon Callows SPA and River Shannon Callows SAC that is located 670 metres downstream. The river is regarded as being a receptor of County Importance on the basis of its connectivity with more natural habitats up and downstream and its value as a habitat for a range of faunal species. It is also considered to be an area of special amenity value and this is, in part, linked to its ecological value.

The mature tree line on the western bank is classified as a receptor of Local Importance (Higher Value) on the basis that it is a feature that is essential in maintaining a link and ecological corridor along the riverside in the urban environment. The other built and highly managed habitats on the site were considered to be of Low Ecological Value.

6.3.8 Fauna in the Existing Environment

Birds

Table 6.7 shows the seven bird species recorded, during the site visit in July 2015, within and adjacent to the development site. The bird species recorded were typical of the habitat types found on the site, built up areas. Of the bird species recorded, one is listed on the BoCCI red list: Black-headed Gull. This bird was recorded flying over. Black-headed Gull breeding populations have declined by at least 50% in the past 25 years and its breeding range has declined by at least 70%. For this reason, this species has been newly added to the BoCCI Red list. Three birds were Amber listed and all the other birds recorded during the field visit were BoCCI Green listed species and have favourable conservation status.

Table 6.7 Bird species recorded within the site during visit

| Common Name | Scientific Name | Conservation Status |
|--------------------------|-----------------------------------|---------------------|
| Black-headed Gull | <i>Larus ridibundus</i> | Red Listed |
| Feral Pigeon | <i>Columba livia f. domestica</i> | Green Listed |
| Lesser black-backed Gull | <i>Larus fuscus</i> | Amber Listed |
| Mallard | <i>Anas platyrhynchos</i> | Green Listed |
| Pied Wagtail | <i>Motacilla alba yarrelli</i> | Green Listed |
| Swallow | <i>Hirundo rustica</i> | Amber Listed |
| Swift | <i>Apus apus</i> | Amber Listed |

The site of the proposed development was also considered in relation to other bird species that may potentially use the area. However, there was little habitat or cover for bird species in this highly disturbed urban environment. Mallard were abundant and were clearly regularly fed, but there was little suitable habitat for wintering wildfowl and it was considered that the site is unlikely to be of importance for this group. This assertion is validated by Birdwatch Ireland, who, despite extensively surveying the Athlone area as part of the Irish Wetland Bird Survey (IWeBS), does not have overwintering wildfowl records for this section due to the lack of suitable foraging and roosting habitat.

With reference to commuting wildfowl, this area is subject to high levels of disturbance with a marina, two existing bridges and the urban centre of Athlone all surrounding the site. No data on the importance of the site for commuting wildfowl was available within the extensive desk study sources or referenced field and scoping studies undertaken as part of this project. Correspondence with BirdWatch Ireland provided no known records of birdstrike on similar existing Custume, Railway or N6 bridges. It is considered likely that commuting wildfowl would avoid this urban area or else fly at a height such as to avoid the existing bridges and Marina. No evidence that this urbanised section of the River Shannon is a significant flightpath for commuting wildfowl was found during this study. The bridge has been designed to minimise obstruction along the river channel with no cables or arch structures included in its design. In addition, it has been designed at approximately the same height above the water as the nearby Custume Bridge and does not protrude significantly above or below the existing bridge.

Otter

A dedicated search for signs of Otter was carried out during the site surveys. The site was searched for signs of Otter activity such as spraints on ledges or stonework surrounding the river. No such signs were recorded. There was little soft mud or tall vegetation present where other signs such as couches, slides, prints or holts could have been identified. There was an overhanging board walk on the western bank close to the Luan Gallery that was inaccessible to the survey but this area will not be impacted in any way by the proposed development.

Given that the development is located in an urban centre that is subject to high levels of existing activity and disturbance, it is unlikely to provide significant resting, breeding or foraging habitat for Otter. The site does however provide a potential commuting link to areas of more suitable habitat up and downstream.

Bats

An assessment of the site by visual inspection for signs of bats was undertaken using a protocol set out in BCT guidelines provided by Collins (2016). All buildings on the site were inspected externally for signs of bat activity and classified as being of lower potential (As defined in table 8.2 of the BCT Guidelines (Collins 2016)). As structures on the site comprised of modern structures with metal cladding, there is little available habitat for roosting on the site.

The stretch of river channel running through the site provides good quality foraging habitat for bat species. The treeline on the western bank enhances this and provides some natural roosting opportunities outside the site along with artificial bat boxes. None of the structures within the vicinity of the site were considered to have significant potential to support bat roosts. However, many buildings in the surrounding area of Athlone Town show physical features suitable for bat roosts, in particular Athlone Castle and the nearby Custume Barracks that are located within

100 metres of the proposed development. The trees within the development site were visually assessed according to Collins (2016). Eight young *Maple/Sycamore* trees were considered to be trees with negligible potential to support bats (Category 3, Table 8.4, Collins (2016)). One mature *Sycamore* within the site had no obvious potential but was considered to be of a size and age that it may support features, which may have limited potential to support bats (Category 3, Table 8.4, Collins (2016)).

The dusk emergence survey was conducted on the 21st of July 2015. The weather conditions during this survey were dry and calm with patchy cloud cover. The temperature ranged between 11°C and 13°C during the survey period. Sunset was at 21:45 and the emergence survey commenced at 21:40 and continued until 23:00. The main purpose of the survey was to monitor emergence from potential roosts in the one tree on the site with potential as a bat roost.

During the survey, no bats were seen emerging from the tree that was under surveillance or from the nearby bat boxes. The first bat recorded was a Leisler's Bat (*Nyctalus leisleri*) at 22:15. This bat was recorded foraging in the open area over the river and also around the streetlighting periodically until 22:26. A Common Pipistrelle (*Pipistrellus pipistrellus*) was recorded at 22:22 feeding around the treeline and river. This was joined by another bat of the same species at 22:28 along with a Soprano Pipistrelle (*Pipistrellus pygmaeus*). Both *Pipistrellus* species were recorded feeding over the river and along the treeline for the remainder of the survey period with one or two bats present at all times. No other species were recorded but the habitat was considered suitable for a range of other bat species such as Daubenton's Bat (*Myotis daubentoni*). The area was streetlit throughout with bollard and standard streetlights on the banks and floodlights on the existing Custume Bridge.

In summary, no roost was identified in the trees that were surveyed or any other part of the site and the potential for any such roosts to be present is considered to be low. The river and tree line are used by Pipistrelle bats and Leisler's Bat and are considered likely to be used by a range of other bat species. The requirement for further bat surveys was discounted given the nature and location of the proposed development and surrounding habitats.

Other Faunal Species

The urban setting of the site limits its potential to support other protected mammals. No other dedicated faunal surveys were carried out at the site, with the evaluation of the aquatic species present based on a desk study and correspondence with IFI. Similar to mammals, the urban setting of the site limits its potential to support other protected faunal species.

Significance of the Fauna

None of the faunal species recorded on site are protected under Annex II of the Habitats Directive or Annex I of the Birds Directive. Given the urban nature of the site and its habitats, the associated fauna would be expected to be of low ecological significance.

Records of birds taken during the field visit were not significant. Red listed Black-headed Gull and Amber listed Swallow, Swift and Lesser Black-backed Gull were recorded during this time. However, it is considered highly unlikely that these species are dependent on the site for breeding or feeding due to the unsuitable habitat.

Evidence of Otter was not recorded at the site, but is considered likely to be present within the catchment. Although the habitat on site is considered suitable foraging area for several bat species, a high level of activity was not observed and no roosts were identified.

Whilst Salmonids, such as Atlantic Salmon (*Salmo salar*), were not recorded in the most recent surveys undertaken by the IFI, they are QI of the Shannon System. Similarly, European Eel (*Anguilla anguilla*) has been recorded in the River Shannon during Inland Fisheries Ireland surveillance monitoring undertaken approximately 2km downstream of the site. However, the European Eel requires salt water to spawn and only breeds in the Sargasso Sea. Given the habitat available within the site, it does not provide ideal habitat for these species.

6.4 Likely and Significant Impacts

6.4.1 Do Nothing Impact

If the proposed development does not go ahead it is likely that the area will continue to be used as it is at present, highly urbanised, with significant anthropogenic activity occurring on the banksides and continued navigation on the Shannon River. The flora and fauna of the site and surrounding area are likely to remain relatively unchanged.

6.4.2 Impacts During Preparation and Construction Phases

Direct Habitat Loss

Permanent Negligible Impact

The proposed development will result in very minor loss of the habitats Lowland Depositing River (FW2) and Treeline (WL2), as the majority of the proposed works are located on existing Building and Artificial Surfaces (BL3) habitat and will involve no change of habitat.

Habitat loss within the river will be limited to the central pier on four piled supports, which will be driven into the river bed at this location without the requirement for additional excavations or in-stream works on the banks. This habitat loss will amount to less than 10sqm. of river bed that does not provide suitable fisheries spawning habitat. The pier represents an obstruction to flow of approximately 2m wide and the top of the pilecap will be set just below the bed level of the river to ensure a minimal impact on flow. Areas surrounding the pier will remain unaffected by the proposed development and, in addition, the existing marina will be partly removed during construction and repositioned in its current location once construction is complete.

All works will be carried out from a barge with no requirement for habitat disturbance on the riverbed outside the immediate area where the piles are to be driven, using a methodology that minimises habitat disturbance or loss. A temporary cofferdam will facilitate construction of the pilecap.

The proposed eastern abutment will be located on the existing river bank and will be of piled construction. The habitats present on this section of river bank are Buildings and Artificial Surfaces (BL3) and Treeline (WL2). This treeline consists of immature ornamental trees spaced at intervals. These will be retained in the design where possible, but some may need to be removed to facilitate bridge construction. The loss of such trees would be a negligible negative impact. As such, no habitat of ecological importance will be affected by the construction of the eastern abutment.

The construction of the linear embedded ramp along the west bank of the river will require the removal of two mature trees as identified in Figures 4.5 and 4.6 of Volume 3. One of these trees, the Sycamore at the north end of the ramp, is already dead and needs to be removed. A Tree Survey Report was carried out to present a record of existing trees within the site that may be affected by the proposed development. The Tree Survey Report is available in Appendix 6.3 of Volume 4.

Run Off of Pollutants

Short term Moderate Negative Impact

During the construction phases of the development, the temporary removal of the existing southern berths of the marina and construction of the bridge and associated bankside works creates the potential for pollution including hydrocarbons and silt laden run off to flow from the site into the River Shannon and potentially into more sensitive habitats such as those that are designated for conservation as part of the River Shannon Callows SAC that is located approximately 670m downstream. Both bankside and in-stream works have the potential to result in pollution.

Disturbance to Fauna

Short-term Negligible Impact

Noise and disturbance during the construction phase may disturb some of the fauna on the site and adjacent to the site. However, the site is already subject to high levels of anthropogenic activity in the form of an existing marina with urban town centre and public amenity activities occurring on either bank. Bridges are present both up and downstream of the location. Whilst the area is not considered to be an important conduit for migrating or commuting wildfowl, the in-stream works will be completed in the period of May to September inclusive and will therefore not occur within main migration periods or when these species are resident in peak numbers. The operation of barge mounted piling rigs or assembly of pre-fabricated bridge sections at a location within and adjacent to an existing marina that is located between two (if not three if the N6 bridge is considered) existing bridges in a town centre location is unlikely to have any significant impact on commuting or migrating wildfowl.

Loss of Faunal Habitat

Permanent Negligible Impact

The proposed development will be centred on areas that provide very limited cover, shelter or habitat for faunal species. One of the trees within the works area that may be removed was considered to have some limited potential for roosting bats, but the emergence survey at this tree did not identify a bat roost. The other trees and shrubs within the site support potential bird nesting habitat but are very limited in their occurrence within the site.

There will be very little loss of riverbed habitat and no significant impact is anticipated. The banksides support little vegetation or cover for wildfowl and will not be altered in any way by the proposed development. The stone walls that surround the river provide potential nesting habitat for bird species, but no evidence of breeding birds was observed during the field survey. It is likely that the proposed bridge will result in the creation of nesting habitat for these and other bird species where none currently exists.

Loss of Connectivity

No Impact Anticipated

In relation to the proposed development, the dominant feature providing habitat connectivity is the River Shannon. It is considered unlikely, given the nature and scale of the proposed development and its location within Athlone Town, that the proposed bridge construction will result in any impacts on habitat connectivity or prevent passage of fish, birds or Otters through the works area.

The works will represent no physical barrier to migration on the river. Retention of the aquatic commuting corridor has been built into the project design and commuting aquatic species shall not be significantly hindered during the construction or operational phase of the development. Furthermore, the construction works will not be significantly different from the ongoing activity on the banks, associated with the operation of the marina or on the adjacent railway or road bridges. Thus, the proposed development will not significantly impede on any natural commuting or foraging corridors or potential links between Middle Shannon Callows and Lough Ree. In addition, robust measures are in place to avoid pollution of the watercourse during the construction phase and are outlined in Section 6.5 below.

Regarding Otter, the construction of a small scale bridge crossing on the river Shannon is deemed unlikely to adversely affect the commuting and foraging potential of Otter. As such, the proposed works are unlikely to cause any significant habitat fragmentation.

Spread of Invasive Species

Long Term Minor Negative Impact

Whilst no invasive species (Listed on the third schedule of the Birds & Natural Habitats Regulations) were recorded on the site of the proposed development, Japanese Knotweed (*Fallopia japonica*) was recorded on Custume Bridge, outside the construction site. This stand is located on the opposite side of a fence from the proposed works and will not be disturbed by the proposed development. Mitigation for invasive species is proposed as outlined below.

6.4.3 Impacts during the Operational Phase

Disturbance to Fauna

No Significant Impact Predicted

It is not anticipated that the proposed development will result in any additional disturbance to wildlife during its operational phase. It is located within the urban setting of Athlone Town. Furthermore, it is located adjacent to an existing road bridge and in between two bridges. This area is subject to high levels of anthropogenic disturbance at present and it is unlikely that the proposed development will result in any significant further impact in this regard. The area is already subject to extensive streetlighting, with both banks illuminated and floodlighting present on the adjacent Custume Bridge. Whilst the deck of the proposed development will be illuminated, the lighting has been designed to avoid light spillage onto the river or its banks in the wider area. The directed nature of the luminaries and the low level of luminescence provided will ensure that the neighbouring residents will not suffer from any glare and similarly will not have any ecological impact on species such as birds or bats that use the River Shannon as an ecological corridor or feeding and foraging area. This will ensure that the area is not lost as a foraging area for bat species and there are no impacts on migrating fish, Otter or other wildlife that result from illumination of the river channel.

Barriers to wildlife commuting and migration

No Significant Impact Predicted

No significant impact on fish and aquatic species is anticipated. The proposed development has been designed with very minimal in-stream components (one central pier) that will not alter flow conditions or up-stream and downstream connectivity within the River Shannon at this location. Neither will it result in disturbance or habitat loss issues that may impact on connectivity in any way.

Whilst this section of the River Shannon is not considered to be extensively used by migrating or commuting wildfowl, the bridge has been specifically designed to ensure that any potential for impacts such as bird strike or avoidance as a result of disturbance are minimised. The main features in the design that ensure that the risks to migrating or commuting birds are minimised to insignificance are listed below.

- **Location.** The proposed bridge is located 75m from the existing Custume Bridge and partially on the site of an existing marina. It is located in between this bridge and a railway bridge that is located approximately 380m upstream. There is another road bridge located approximately 1.2km further upstream. This is not an area where regular migratory wildfowl have been recorded and no evidence or records were found for birdstrike on any of the structures mentioned above. The site is subject to existing anthropogenic disturbance and is likely to be avoided by commuting or migrating birds to a large extent.
- **Height of Bridge.** The proposed development has been designed to replicate the existing Custume Bridge in height above the water. It is neither significantly lower nor protrudes significantly higher than the existing bridge. This design lessens the potential for the bridge to act as a barrier or potential obstruction to birds as they are unlikely to be flying at the height of the existing bridge having had to avoid it in their flightpath.
- **Design of Bridge.** The proposed bridge has been designed to avoid the use of features that are a potential hazard to birds. The main crossing spans are straight and the soffit of the spans is primarily flat. No structures generally considered hazardous to birds, such as large arches with cables, are included in the design of this bridge.

6.5 Mitigation

6.5.1 Construction Phase

Mitigation for Direct Habitat Loss

- The works area will be fenced in advance of the commencement of construction. Trees to be retained will be fully protected in accordance with the British Standards Institution's (BSI) '*BS5837: 2005 Trees in Relation to construction*'.
- The trees that are lost can be replaced, thus ensuring no net loss of trees or treeline habitat.

Mitigation for Run-off of Pollutants

In-stream works

- Despite the lack of sensitivity of the receiving waters, all in-stream works will be undertaken within the period May to September inclusive to avoid the period of maximum sensitivity for fisheries and in particular Salmonid species.

- In-stream works have been minimised so that there will be the requirement only for the creation of a small (5m x 7m) temporary cofferdam to allow for the capping of piles. There will also be a requirement for driving of the supporting piles for the bridge and extraction of three existing piles associated with the marina with no requirement for damming or diverting of the channel, tracking of machinery or other activities in the water. All works will be undertaken from a barge working in a section of the river that is already subject to high levels of disturbance.
- Existing piles will be removed by direct extraction using a machine working from a barge. The sediment that will be mobilized associated with this procedure will be very short term and is considered insignificant in the context of the overall operation of the marina.
- Piles to be driven will take the form of steel tubes that will be driven or bored into the river bed. This operation will be undertaken from a barge and will involve minimal sediment disturbance and no excavation outside the physical area of the pile.
- When assembling the bridge sections all works will be undertaken either from the land or a barge. The barge will provide an effective barrier to ensure that any pollutants used in the bridge finishing do not reach the river.
- Should the piles require concrete re-enforcement, this will be undertaken within a fully sealed and watertight steel casing, which will be left permanently in place with no direct contact between the concrete and the River Shannon, either cured or uncured. Concrete will be brought onto the barge in sealed containers and fully shuttered to avoid any potential for spillage during the pouring operations.
- Clean water will be pumped from inside the cofferdam each morning in advance of the works proceeding. This will be pumped directly to the River Shannon.
- Whilst working within the cofferdam, any dirty water that requires pumping out will be tankered off site and disposed of at a licenced waste facility.
- No tools or potentially toxic materials will be stored or left within the Cofferdam overnight or when there is any danger of the dam becoming inundated with water.

Bankside works

- Whilst significant water is not expected to arise on the site and no large scale excavations are proposed, prior to the commencement of construction work, silt fencing will be placed along the river boundary of the site.
- These will form a solid barrier to ensure all site water is captured and filtered. They will be removed to install the cantilever boardwalk sections, which will be completed at the end of the construction sequence and will not involve significant excavation or any concrete or in-stream works.
- As construction advances there may be some small requirement to collect and treat surface water within the site. Given the nature and scale of the works, this is not considered likely and if it does occur, it will be very small in scale. It is proposed that any such arisings are pumped to a tanker and removed from the site for disposal using a licensed waste contractor.
- Daily monitoring of the works will be completed by a suitably qualified person during the demolition and construction phase. All necessary preventative measures will be implemented to ensure no entrained sediment, or deleterious matter will enter the River Shannon.

- Earth works and concrete works will take place during periods of low rainfall to reduce run-off and potential siltation of watercourses.
- Concrete works will be required on the banks as part of the route leading up to the bridge.
- Formwork will be of solid construction and will be sealed to prevent any leakage of concrete during pouring operations.
- Whilst no significant excavations are proposed, should any ingress of water (ground or rain) require pumping out prior to the pouring of concrete, this will be pumped to a sealed clean tanker and removed from the site and spread to improved agricultural grassland at a distance of over 50m from any watercourse.
- The weather forecast will be checked prior to the pouring of the concrete and no such works will be undertaken when bad weather is forecast. Any works at any time when water levels that may cause inundation of the works area will be avoided. Concrete will not be poured at times when rain is predicted as this may lead to run off and over spillage of the form work.
- Form work will be constructed with an adequate capacity and additional freeboard to prevent any spillage.
- Concrete trucks will work entirely from the existing roads where they are located in close proximity to the proposed works. Concrete trucks will not be washed out at the site of the proposed works. If chutes require wash out, this will be undertaken at a designated wash out tank located in the site compound. This will recycle waters within the tank.
- Good construction practices such as dust suppression on site roads, and regular plant maintenance will ensure minimal risk. The Construction Industry Research and Information Association (CIRIA) provide guidance on the control and management of water pollution from construction sites (CIRIA, 2001). This will ensure that surface water arising during the course of demolition and construction activities will contain minimum sediment.
- All plant and machinery will be serviced before being mobilised to site. No plant maintenance will be completed on site, any broken down plant will be removed from site to be fixed.
- Refuelling will be completed in a controlled manner using drip trays at all times.
- Mobile bowsers, tanks and drums will be stored in secure, impermeable storage areas away from open water.
- Fuel containers will be stored within a secondary containment system, e.g. bunds for static tanks or a drip tray for mobile stores.
- Containers and bunding for storage of hydrocarbons and chemicals will have a holding capacity of 110% of the volume to be stored. Ancillary equipment such as hoses and pipes will be contained within the bund.
- Taps, nozzles or valves will be fitted with a lock system.
- Fuel and oil stores including tanks and drums will be regularly inspected for leaks and signs of damage. Drip-trays will be used for fixed or mobile plant such as pumps and generators in order to retain oil leaks and spills. Only designated trained operators will be authorised to refuel plant on site.
- Procedures and contingency plans will be set up to deal with emergency accidents or spills. An emergency spill kit with oil boom, absorbers etc. will be kept on-site for use in the event of an accidental spill.

- Concrete (including waste and wash down) will be contained and managed appropriately to prevent pollution of watercourses. Pouring will occur in the dry, with appropriate curing times (48 hours) before re-flooding.
- Mixer washings and excess concrete will not be discharged to water. If cement washings are to be discharged they will first be held in a treatment facility in order to neutralise the pH and to settle out solids; and,
- All existing containers and tanks to be decommissioned during demolition work will be emptied by a licensed waste operator prior to removal, thereby preventing leakages and spillages.
- Highest standards of site management will be maintained and utmost care and vigilance followed to prevent accidental contamination or unnecessary disturbance to the site and surrounding environment during construction. A named person will be given the task of overseeing the pollution prevention measures agreed for the site to ensure that they are operating safely and effectively.
- The works will be periodically monitored during the construction phase by a suitably qualified ecologist. Following completion of the works, the ecologist will complete a final audit report to show how the works complied with the environmental provisions described in this document. This audit report will be forwarded to the NPWS if required.

Mitigation for Disturbance to Fauna

No mitigation required.

Mitigation for Loss of Faunal Habitat

- Tree felling activities will occur outside the bird nesting season (March 1st – August 31st).
- Any loss of trees or shrubs may be replaced in the landscaping scheme.

Mitigation for Invasive Species

Whilst no invasive species were recorded on the site of the proposed bridge, Japanese Knotweed (*Fallopia japonica*) was recorded on the Custume Bridge to the outside the site of the proposed works. The following measures will be employed to ensure that there is no disturbance to or spread of invasive species as a result of the proposed works and that there is no breach of Section 49 of the Birds and Natural Habitats Regulations. The below biosecurity measures apply also to the potential spread of aquatic invasive species such as Curly Leaved Pondweed, Asian Clam and Zebra Mussel.

- As mentioned above, the construction site will be fenced off at the outset of the works with no access to areas outside the construction site. The construction area does not include the Custume Bridge, where the Japanese Knotweed was recorded;
- Any material imported onto the site such as soil for landscaping will be obtained from a source that is guaranteed to be free from Japanese Knotweed or any other invasive species; and
- All plant and machinery to be used on the site will be cleaned down in advance of use on the site to ensure it is free from any invasive species.

6.5.2 Operational Phase

The bridge itself has been designed to minimise impacts on the natural environment through its positioning, height and construction type as described in the impacts section above. The bridge is located in an urban setting that is already subject to widespread street and flood lighting and the proposed lighting has been specifically designed to avoid any additional impacts. The design of the bridge will ensure that there are no barriers to connectivity either within the River Shannon or in respect of birds flying overhead. Therefore, no mitigation outside the sympathetic design of the scheme is proposed.

6.6 Residual Impacts

6.6.1 Construction Phase

Residual Impact of Direct Habitat Loss

With mitigation in place, there will be no net loss of habitat with the exception of the physical space associated with the central pier and its pile supports in the river. Any loss of trees or treeline habitat is considered to be a permanent negligible negative impact.

Residual Impact of Run Off of Pollutants

Any residual impact is negligible.

Residual Impact of Disturbance to Fauna

No residual impact anticipated.

Residual Impact of Loss of Faunal Habitat

No residual impact anticipated.

Residual Impact of Loss of Connectivity

No residual impact anticipated.

6.6.2 Operational Phase

Residual Impact of Disturbance to Fauna

No residual impact anticipated.

Residual Impact of Barriers to Wildlife Commuting and Migration

No residual impact anticipated.

6.7 Impact Interactions and Cumulative Impacts

6.7.1 Other Plans and Projects

A number of other plans and projects were considered in relation to the potential for cumulative impacts and any interactions that may exacerbate any impacts identified above. Where appropriate, these are listed below.

Athlone Town Development Plan 2014 – 2020

This plan acknowledges that it was a key consideration of previous plans to protect the town's environmental assets, in particular the River Shannon and its Callows. It is a core strategic policy of the plan to protect features of natural heritage including the River Shannon, canal, watercourses and habitats. It also makes reference to the

promotion of a new pedestrian bridge over the Shannon in the town the facilitation of the development of a National Cycle Network between Dublin and Galway. It is an objective of the plan to adhere to the Shannon River Basin District Plan (Water Framework Directive) and it discusses the planned upgrade of the surface water and sewage treatment and collection networks and other works to help achieve the goals of the Water Framework Directive. This plan has been the subject of both AA and Strategic Environmental Assessment (SEA).

Proposed Dublin Galway Cycleway

The sections of cycleway that are planned to link the proposed bridge to the wider cycle network were considered when carrying out this cumulative assessment. It was concluded that the proposed cycleway will be located entirely within urban habitats in the vicinity of the bridge and will be (or have been) subject to detailed Ecological Impact Assessment (EclA) and AA. The design of these sections of cycleway will ensure that no significant negative impacts on the ecology of the area and in particular, the River Shannon will occur. It is therefore concluded that there will be no significant cumulative impact when assessed alongside the currently proposed bridge development.

Westmeath County Development Plan

This plan has also been subject to AA and SEA and is much broader in terms of its objectives. However, it does have a number of policies in relation to natural heritage and the enhancement of biodiversity. It also describes policies and objectives for the protection of inland waterways, rivers, lakes and canals including the protection of biodiversity and the enhancement of natural heritage. The plan also provides for the development of the Dublin to Galway Cycleway, of which this proposed bridge is a constituent part.

Proposed Upgrade to Athlone Main Drainage

It is proposed to upgrade the Main Drainage network in Athlone Town. This will involve the upgrade of sewer pipes within the roads in Athlone Town and also the provision of tunneled pipes beneath the River Shannon downstream of Custume Bridge. These works will be designed also to minimise impacts on the River Shannon and any other sensitive receptors and will be the subject of Screening for Appropriate Assessment and where necessary Stage 2 (Appropriate Assessment). It is concluded that there will be no significant cumulative impact when assessed alongside the currently proposed bridge development.

Other Planning Applications

A search was made of Westmeath County Council planning files for developments in the vicinity of the proposed bridge crossing. This revealed no significant recent applications (within the past five years) or developments that are not typical of urban town centre development. None of the applications or developments reviewed were of a nature and scale likely to result in significant cumulative impacts when assessed in combination with the proposed bridge crossing.

Ongoing Operation of the Marina

The ongoing operation of the marina at this location was considered during the assessment but it is concluded that this section of the river is in an urban setting and that the bridge will not result in any significant difference to the existing level or type of activity in this area. There will be no loss or damage to habitats cumulatively when considering a new bridge crossing and the ongoing marina operation. The existing

marina will be partly removed during construction and repositioned in its current location once construction is complete.

6.7.2 Cumulative Impact Conclusion

It is concluded that there will be no significant cumulative impact on the ecology of the area as a result of the proposed development on the basis that none of the plans or projects researched were of a nature and scale likely to exacerbate any of the negligible residual impacts identified in the preceding section (Section 6.6).

6.8 Conclusion

The proposed development, in view of best scientific knowledge and on the basis of objective information, either individually or in combination with other plans or projects, is not likely to have significant or any adverse effects on the ecology of the area.

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Relevant legislation

Council Directive 92/43/EEC of the European Parliament and of the Council of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora

Council Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds

SI 94/1997 European Communities (Natural Habitats) Regulations 1997

SI 29/2012 Wildlife (Amendment) Act 2012

SI 356/2015 Flora Protection Order 2015

Chapter 7
*Soils, Geology and
Hydrogeology*

Chapter 7

Soils, Geology & Hydrogeology

7.1 Introduction

This chapter outlines the soils, geology and hydrogeological conditions of the study area and assesses how these may be impacted as a result of the proposed development.

7.2 Methodology

Scoping Consultation

Consultation was carried out with the Geological Survey of Ireland (GSI) and the Department of Arts, Heritage and the Gaeltacht (DAHG). The GSI highlighted sources of available geological information which they hold. A response was also received from the DAHG, however there were no comments with regard to geological or hydrogeological conditions.

Sources of Information

The assessment and interpretation of existing ground conditions has been based on a desk study of available published information; site reconnaissance; a review of the field logs; and, any available reports from historical site investigations in the vicinity of the development.

The following available published information was reviewed as part of this process:

- Geological Survey of Ireland, Geology of Galway – Offaly; 1:100,000 Bedrock Geology Map Series, Sheet 15;
- Geological survey of Ireland, Geology of Longford-Roscommon; 1:100,000 Bedrock Geology Map Series, Sheet 12;
- Geological Survey of Ireland (2014) Website Review of Geological Data; (Bedrock and Quaternary Mapping; Aggregate potential; Mining & quarries data base);
- Geological Survey of Ireland (2014); Website review of Hydrogeological data (Aquifer, Groundwater Vulnerability, Karst features database, Subsoils, Groundwater Recharge, Well database and Groundwater Source Protection Zones);
- Geological Survey of Ireland; Geotechnical reports for site investigations carried out within environs of the cycle route. (Report no. 2369 and 2612);
- Environmental Protection Agency (2015); Website review of licensed waste and IPPC facilities;
- Aerial photographs of the study area; and,
- Ordnance Survey of Ireland (OSI) 1:50,000 Discovery Series Map.

Site Walkover

A walkover survey was carried out by Sarah Casey, qualified hydrogeologist, in January 2014 to inspect the site of the proposed development and its environs to identify any geological or hydrogeological characteristics. This walkover was updated with subsequent visits throughout the design and environmental assessment phases, including a final multidisciplinary team visit in July 2015.

Site investigation

There were no site investigation works carried out as part of this proposed development as the development will be constructed on existing built ground with the exception of the proposed new bridge pier. However, historic site investigations were reviewed as part of the background research for the area within and along the eastern bank of the River Shannon. The results of these are discussed further in Section 7.3.3.

7.3 Description of Existing Environment

7.3.1 Geomorphological Assessment

The study area is generally flat and low lying with ground levels ranging from 40-50m above ordnance datum (OD). The landscape of the study area is influenced by the underlying limestones, glacial cover and the River Shannon.

7.3.2 Bedrock Geology

The bedrock geology is identified as Lower Carboniferous Limestones of the Waulsortian Formation. These rocks are Courceyan to Chadian in age and are described as pale to dark grey massive, unbedded, biomicrite fossiliferous argillaceous limestones interbedded with thin calcareous shales. A copy of the bedrock geology map is included in Figure 7.1 in Volume 3. Bedrock geology has been observed at depths of 9.4m below ground level (BLG) in boreholes conducted near the site (see Table 7.1).

The underlying bedrock is considered by the GSI as being of low crushed rock aggregate potential.

7.3.3 Soils and Subsoils

The soils and subsoils of the study area are identified (GSI Groundwater viewer layer Teagasc Soils) as mainly Glaciofluvial sands and gravels (GLs), alluvium and made ground. The underlying subsoils include made up ground with the exception of the bridge crossing identified as Glaciofluvial sand and gravels (see Table 7.1 summary of historic boreholes - GSI GeoTech Report no. 2612 & 2369). Plate 7.1 illustrates the locations of the historic boreholes detailed in Table 7.1.

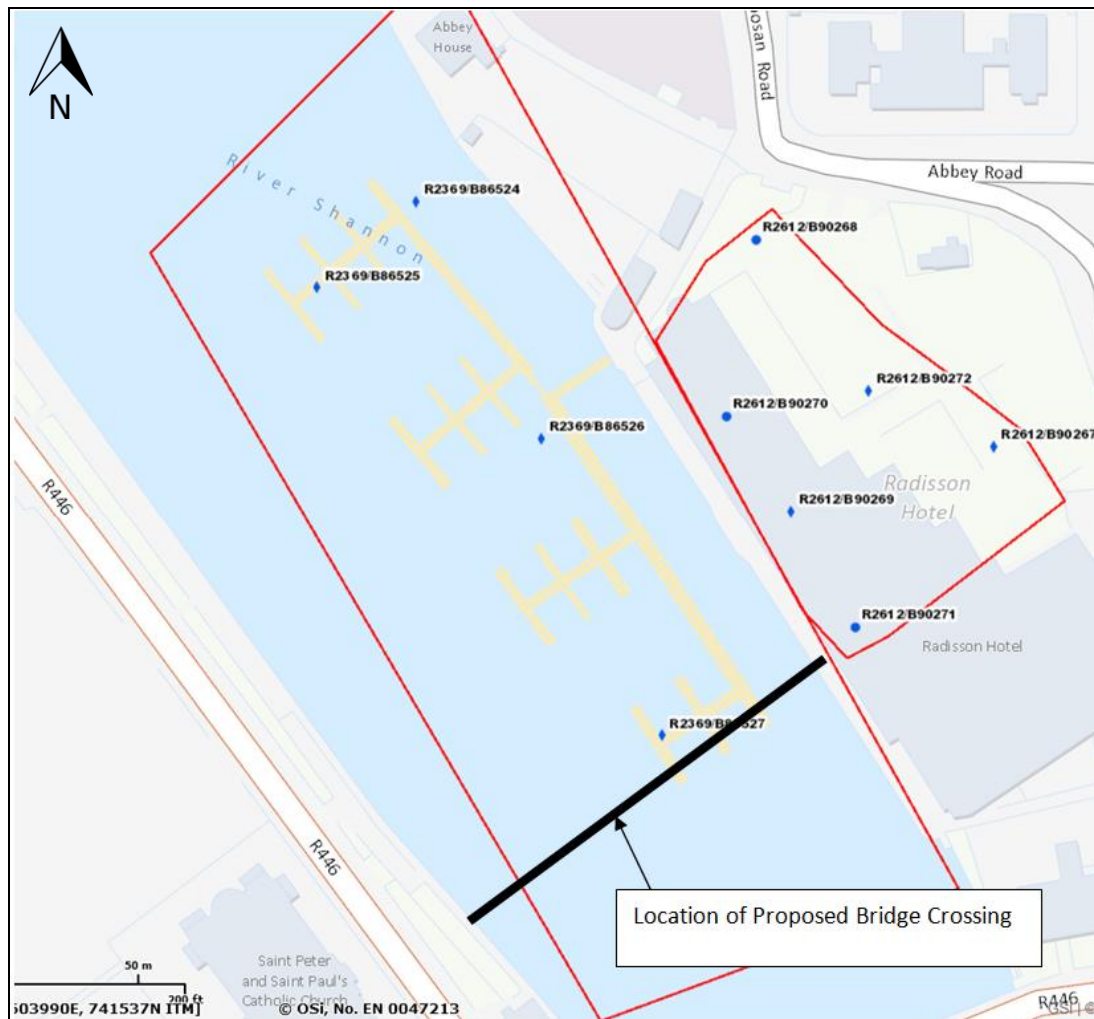
Details of the underlying soils/subsoils of the study area are shown on Figure 7.2 in Volume 3.

Table 7.1 Summary of Historic borehole data

| Location | Name | GSI Reference No. | Depth | Depth | Lithology |
|----------------------------------|------|-------------------|-------|------------------------|--|
| Within the River Shannon Channel | BH 1 | R2369/B86524 | 8.1m | 0 – 2.7m 2.7 – 8.1m | clayey sand; fine to coarse sandy gravel |
| | BH2 | R2369/B86525 | 9.5m | 0 – 2.9m 2.9 – 9.5m | clayey silt; fine to coarse sandy gravel |
| | BH3 | R2369/B86526 | 6.6m | 0 – 0.3m 0.3 – 6.6m | Boulders Fine to coarse sandy gravel |
| | BH4 | R2369/B86527 | 9.7m | 0 – 5.4m 5.4 – 9.7m | Very silty/sandy clay Fine to coarse sandy gravel |

| | | | | | |
|-------------------------------|-----|--------------|-------|---|---|
| Eastern bank of River Shannon | BH1 | R2612/B90267 | 7m | 0 – 0.2m 0.2 – 1.6m 1.6 – 7 | Made ground Silty clay Fine to coarse sand & gravel |
| | BH2 | R2612/B90268 | 16.4m | 0 – 0.7m 0.7 – 1.3m 1.3 – 16.4m | Made ground Silty clay Fine to coarse gravel with lenses of silty clay and silt |
| | BH3 | R2612/B90269 | 8m | 0 – 3.5m 3.5 – 8m | Made ground Fine to coarse sandy gravel |
| | BH4 | R2612/B90270 | 12m | 0 – 2.9m 2.9 – 12m | Made ground Fine to coarse sandy gravel |
| | BH5 | R2612/B90271 | 16.6m | 0 – 2.8m 2.8 – 3.7m 3.7 – 12m 12 – 16.6m | Made ground Fine gravel Silt Fine to coarse gravel |
| | BH6 | R2612/B90272 | 9.2m | 0 – 3m 3 – 4.7m 4.7 – 9.2m | Made ground Silty clay and silt Fine to coarse sandy gravel |

Source: <http://spatial.dcenr.gov.ie/GeologicalSurvey/GeoTechnicalViewer/index.html> [Accessed online 20 April 2017]



Source: <http://spatial.dcenr.gov.ie/GeologicalSurvey/GeoTechnicalViewer/index.html> [Accessed online 20 April 2017]

Plate 7.1 Location of Boreholes in the Marina extension area and the former Silverlea Site, now the Radisson Hotel and Apartments

Aggregate Potential

The glaciofluvial sands and gravels which underlie the eastern section of the study area are identified by the GSI as being of very high aggregate potential.

7.3.4 Hydrogeology

Aquifer Classification

The bedrock beneath the cycle route at the proposed Athlone River Shannon crossing is classified by the Geological Survey of Ireland as being a Locally Important Aquifer which is moderately productive only in local zones (LI).

The underlying sand and gravels are classified as a Locally Important Gravel Aquifer (Lg). The aquifer map for the study area is shown in Figure 7.3 of Volume 3.

Groundwater Body

The study area is located within the Groundwater Bodies (GWB) Athlone Urban East and Athlone Urban West. These GWBs are made up of low permeability rocks with local zones of higher permeability. The transmissivity (hydraulic conductivity

multiplied with the saturated thickness of the aquifer) of the limestone bedrock in the region is reported to be low (GSI) and range 2-20m²/day.

The GWBs are classified under the Water Framework Directive (WFD) as being of Good status with a risk scoring of 1b “possibly at risk of not achieving good status”.

Groundwater Vulnerability

Groundwater Vulnerability is a term used to represent the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated by human activities (GSI website). The vulnerability of groundwater depends on the pathway between activities on the land surface and the underlying aquifer. This includes the type and nature of the overlying soils and subsoils, the nature of the recharge and the thickness of the unsaturated zone.

Table 7.2 GSI Groundwater Vulnerability Classification

| Vulnerability Rating | Hydrogeological Conditions | | | | |
|----------------------|---|--|--|------------------------------|----------------|
| | Subsoil Permeability (Type) and Thickness | | | Unsaturated Zone | Karst Features |
| | High permeability (sand/ gravel) | Moderate permeability (e.g. sandy subsoil) | Low permeability (e.g. clayey subsoil, peat) | (Sand/ gravel aquifers only) | (<30m radius) |
| Extreme (E) | 0-3.0m | 0-3.0m | 0-3.0m | 0-3.0m | - |
| High (H) | >3.0m | 3.0-10.0m | 3.0-5.0m | >3.0m | N/A |
| Moderate (M) | N/A | >10.0m | 5.0-10.0m | N/A | N/A |
| Low (L) | N/A | N/A | >10.0m | N/A | N/A |

The proposed development and the surrounding environs are underlain by glaciofluvial sands and gravels with a depth of unsaturated zone greater than 3 metres. Consequently the groundwater vulnerability is classified as High (see Table 7.2).

Groundwater Flow & Movement

Groundwater recharge is through a diffuse nature, with rainfall percolating through the subsoil and into the underlying aquifers. The overlying subsoils vary with a range of permeabilities from low permeable clays to high permeability sands and gravels. The recharge potential are reported to range from 112 mm/yr in areas with made ground overlying the bedrock aquifer to 466 mm/yr in areas with dry soils overlying the gravel aquifer.

Groundwater flow in bedrock

There is no intergranular flow within the bedrock, with groundwater flowing within fractures, fissures and joints within the underlying rock. Groundwater movement tends to be within the upper weathered horizon of the bedrock and a zone of interconnected fissures down to c.15 m BGL. Groundwater flow paths tend to be short within the bedrock with groundwater discharging to small springs, or to the streams and rivers that traverse the aquifer. Flow directions are expected to approximately follow the local surface water catchments all ultimately flowing towards the River Shannon.

Groundwater flows in gravel aquifer

Sand and gravel aquifers typically consist of unconsolidated coarse grained material with low percentage of fines. Permeabilities and storativity tend to be high with transmissivities ranging from 200 – 1500 m²/day.

Regionally, groundwater is expected to be flowing towards the River Shannon with some potential local variations based on topography and rock permeability.

Groundwater Dependent Terrestrial Ecosystems (GWDTE)

There are no GWDTE identified within the study area.

7.3.5 Geological Heritage

The GSI and the Irish Geological Heritage programme (IGH) are in partnership with the National Parks and Wildlife Service (NPWS) of the DAHG to identify and select important geological and geomorphological sites throughout the country for designation as proposed Natural Heritage Areas (pNHA). No geological heritage areas have been identified within the study area.

7.4 Description of Likely Impacts

The development of the cycle route will not require any significant excavations. It is proposed to construct much of the cycle route along existing pathways and open spaces and as such the works will take place on made ground.

There are no likely significant environmental impacts predicted on the economic geology or the geological heritage of the study area.

7.4.1 Construction Phase

Impacts on the soil

During the construction phase of the development, there is the potential for compaction of soils through the movement of plant equipment. It is noted however that the cycle route is located in an urban area and access roads are paved thus heavy equipment/compaction/soil contamination will not be a factor.

Impacts on Solid Geology

Piling operations will install structural foundations through to competent bedrock by boring out holes to the specified diameter and installing steel and concrete piles. Loading and stresses applied to the bedrock will be well within the capacity of the rock mass and will be insignificant relative to prevalent earth pressures once distributed.

Impacts on Groundwater Bodies (GWB) status

A risk to the groundwater quality and thus GWB status exists during the construction phase as a result of accidental spillages and leakages from equipment/machinery used on site. Construction techniques will be carefully selected for piling operations in order to avoid pollution of groundwater and the River Shannon.

7.4.2 Operational Phase

The proposed development will be a non-traffic route and it is considered that there are no potential impacts on the underlying soil, geology or hydrogeology predicted during the operational phase.

Impacts on Groundwater Recharge

The proposed development is primarily on existing built urban ground. There will be no impact on groundwater recharge from the proposed development.

7.5 Mitigation Measures

Whilst there are no likely significant impacts on the underlying geological and hydrogeological environment, a number of precautionary mitigation measures will nonetheless be adopted. These include:

- All excavated material along the route will be disposed of in accordance with legislative and archaeological requirements and the waste management plan;
- Construction techniques will be carefully selected for piling operations to avoid pollution of groundwater and the River Shannon; and
- A Construction and Demolition Waste Management Plan will be prepared by the contractor.

7.6 Residual Impacts

There are no significant residual impacts predicted on the underlying soils, geology and hydrogeology.

7.7 Impact Interactions and Cumulative Impacts

There are no anticipated impact interactions or cumulative impacts predicted on the underlying soils, geology and hydrogeology within the study area as a result of the proposed development.

7.8 Conclusion

There are no identified potentially significant impacts on the underlying soils and geology along the site of the proposed development during the construction and operational phases of the project.

Chapter 8

Hydrology & Drainage

Chapter 8

Hydrology & Drainage

8.1 Introduction

This chapter assesses the potential impacts of the proposed development on the existing hydrological and drainage environment in the study area. The scope of the assessment is to:

- Identify, describe and evaluate sites of known or potential hydrological interest;
- Assess the significance of the likely impacts of the proposed development on the existing hydrology and drainage including residual impact;
- Assess if there is an increased risk of flooding as a result of the project; and,
- Propose mitigation measures required to minimise the likely impacts.

8.2 Methodology

This assessment was based on a desk study of available information:

- Flood data was obtained from the Office of Public Works (OPW) and the Environment Protection Agency (EPA) (www.opw.ie; www.floodmaps.ie; www.epa.ie)
- Shannon River Basin District (SRBD) – River Basin Management Plan, and watermaps (www.shannonrbd.com)
- Preliminary Flood Risk Assessment (PFRA) mapping (www.cfram.ie)
- Ordinance Survey 1:50,000 Discovery Series.

The following hydrological attributes may possibly be affected by the proposed development:

- Flood Hydrology; and,
- Drainage.

8.3 Existing Environment

The bridge structure of the proposed development is located centrally in Athlone town approximately 75 metres (measured at mid-channel) north of the existing Custume Bridge. The proposed bridge crosses the River Shannon and access ramps extend on both the western and eastern sides to tie in with the existing promenade on either side of the river.

A desk study was undertaken using available information from the Geological Survey of Ireland (GSI), including solid and drift geology maps. Records from the EPA were also consulted to determine if there were any landfill sites in the vicinity of these proposed structures that could potentially contaminate soils or groundwater. A list of references used is outlined below:

- Geological Survey of Ireland, Select Digital Map output – Subsoils Geology;
- Geological Survey of Ireland, Select Digital Map output – Aquifers Map of Ireland;
- Geological Survey of Ireland, Select Digital Map output – Karst Features Database;

- Geological Survey of Ireland, Select Digital Map output – Active Quarries, Pits and Mines; and
- Environmental Protection Agency, Local Authority landfill sites in Ireland (2003).

8.3.1 Bedrock

The bedrock under the proposed site is classified as Waulsortian Limestone which is described as Massive fine-grained limestone (see Figure 7.1 of Volume 3). The Waulsortian Limestone formation is part of the Dinantian Pure Unbedded Limestone (DPUL). The closest fault line is located approximately 1.4km to the southwest which runs in a northwest to southeast direction.

The GSI Geotechnical Data Viewer database was consulted on available historical borehole information in the vicinity of the proposed structures to determine the level at which the rock has adequate bearing capacity for large structures (rock head level). Specific information was obtained in respect of the existing N6 river crossing to the north of the proposed bridge crossing where bedrock was confirmed and the Marina at the site of the proposed bridge crossing where bedrock was not confirmed. No Rock Quality Designation (RQD) values or fracture information (core recovery) were available in the borehole records. The information suggested a likely depth to rock of between 8m and 10m.

8.3.2 Bedrock Aquifers

As discussed in Chapter 7 Soils, Geology and Hydrogeology, the Bedrock Aquifer underlying the Athlone area is a locally important aquifer indicating that the bedrock is moderately productive only in local zones as shown on Figure 7.3 of Volume 3.

8.3.3 Groundwater

As part of the investigation into the presence of groundwater in the proposed development area, borehole logs were obtained from the GSI website and examined. No groundwater was reported in any of these logs; however this does not rule out the possibility of a high groundwater table in these areas. The groundwater vulnerability for the site is classified as 'Moderate' in the south-western bank of the site and 'High' in the north-eastern bank, which indicates a subsoil depth of greater than 3m at the proposed site (see Plate 8.1 below).

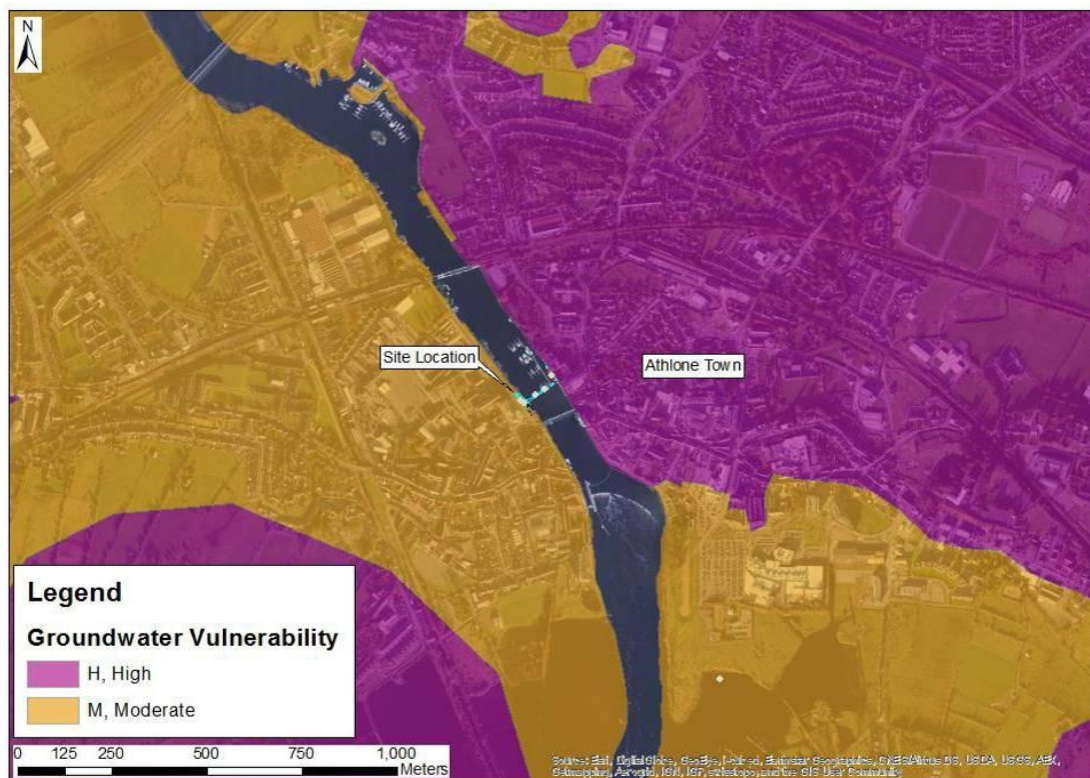


Plate 8.1 Groundwater Vulnerability

It is highly likely that groundwater vulnerability in these areas close to the River Shannon is relatively high as the surrounding lands drain into these watercourses. Due diligence will be required to ensure that these areas remain free from pollution as they are especially susceptible to contamination.

8.3.4 Contaminated Lands

The EPA database was consulted regarding licenced waste facilities located around Athlone. Potential for contamination was not found within the site location.

8.3.5 Principal River Catchments

The Shannon River is the main hydrological feature in the area of the proposed works. The source of the River Shannon rises in the Cuilcagh Mountains in a small lake named as the Shannon Pot in Co. Cavan and predominantly flows in a southerly direction through Dowra and Lough Allen. It flows for approximately 386 km through the main towns of Belturbet, Leitrim, Carrick-on-Shannon, Athlone, Portumna, Killaloe and Limerick City. The River Shannon discharges to the Atlantic Ocean via the Shannon Estuary. The Shannon River Basin District (RBD) is the largest RBD in Ireland covering approximately 17,800 km². The RBD includes the entire catchment of the River Shannon and estuary including catchments in North Co. Kerry and West Co. Clare that discharge directly to the Atlantic. The Shannon Upper and Lower Unit of Management (or UoM 25/26) encompasses areas of the following counties: Sligo, Leitrim, Roscommon, Longford, Cavan, Meath, North and South Tipperary, Offaly, Galway, Clare, Westmeath, Limerick, and small areas of Mayo and Laois. A very small area of Co. Fermanagh, Northern Ireland contributes to groundwater flow in the headwaters of the River Shannon.

8.3.6 Drainage & Runoff

The proposed River Shannon Crossing will be located within the centre of Athlone town, crossing from the front of the Radisson Hotel on the eastern side of the Shannon to the Luan gallery service area on the western side of the Shannon. The area around the site is primarily an urban setting with associated stormwater drainage infrastructure in place to capture and manage surface water. The site is not identified as being at risk of flooding from pluvial flooding (see Section 8.3.9) and will not increase the risk of pluvial flooding elsewhere in the catchment.

8.3.7 Flood Risk

In accordance with Section 50 of the Arterial Drainage Act 1945 (as amended 1995) and the requirements pursuant to European Union (Environmental Impact Assessment) (Flood Risk) Regulations 2010, a Flood Risk Assessment and Management Study has been carried out to inform this EIS (see Appendix 8.1 of Volume 4). This study examined the flood risk in the proposed crossing area, the results of which are summarised in the sections below.

8.3.8 Fluvial Flooding

Draft floodmaps released by the OPW in 2015 for the Shannon Catchment Flood Risk Assessment and Management (CFRAM) highlight the flood extent of the 10%, 1% and 0.1% annual exceedance probability (AEP) flood events along the River Shannon (see Figure 3.2 of Volume 3).

The nearest measurement node (07MSH00682) to the proposed development provides flow data of the Shannon River approximately 200m south of the site. The CFRAM model produced the following data for the 1 in 100 year event (i.e. 1% AEP);

- Total Flow = 407m³/s
- Water Level = 36.43 mAOD

The OPW provided records of historical flooding events occurring in Athlone town close to the location of the proposed site. The flooding appears to occur in predominantly low lying areas to the north and south of Athlone town centre (see Plate 8.2).

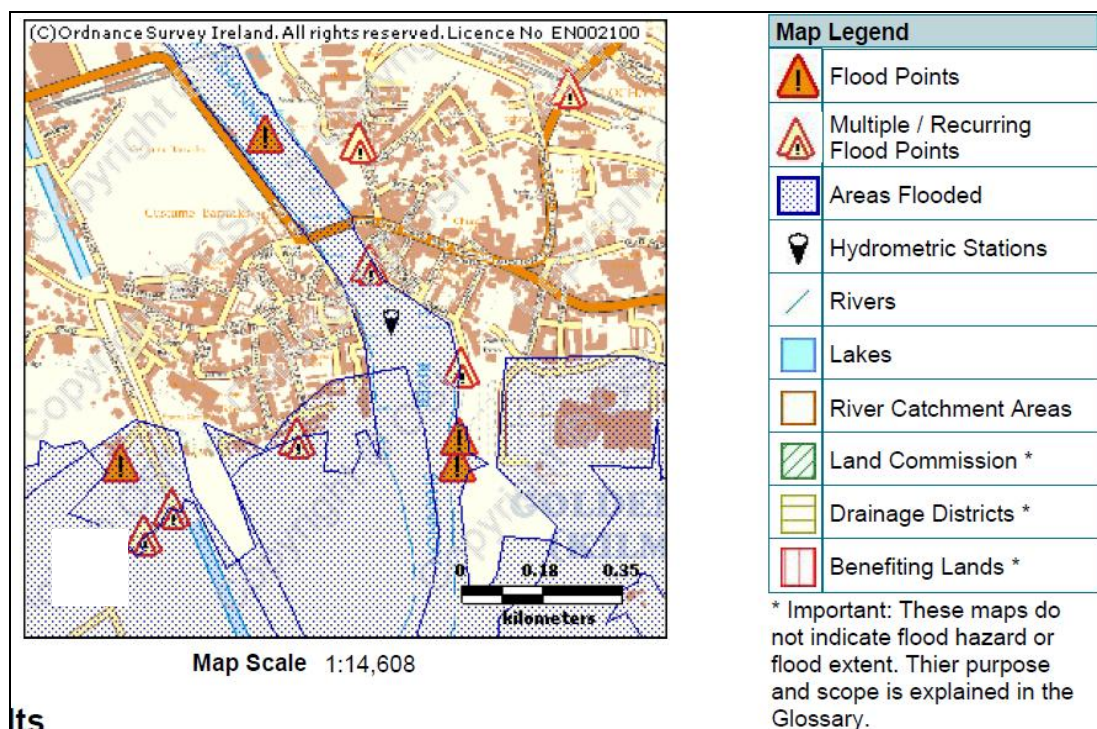


Plate 8.2 OPW Flood Maps Athlone Town

Some major flooding events have occurred within close proximity to the proposed site of the Shannon crossing, these are listed as follows;

- Winter 1994/1995 – Extensive flooding in the Shannon callows south of Athlone, and in the Suck Catchment. These areas are subject to regular winter flooding.
- Winter 1999/2000 – Heavy rainfall during December 1999 resulted in severe flooding along the Shannon. A total of 414mm of rain fell in 92 days.
- February 2002 – The River Shannon overflowed its banks in February 2002 at Burges Park, Athlone due to heavy rainfall.
- November 2009 – Record breaking flooding hit the Shannon River Basin in late November 2009, close to 20,000 ha were flooded as a result of intense rainfall.
- January 2015 - Severe flooding was recorded along the River Shannon during December 2015 when a series of storms hit Ireland during the months of November and December. The peak flood level recorded in Athlone town was 37.01 mAOD (Malin) on the 05th January 2016. (Station No. 26333, Athlone Weir U/S) (Source: waterways Ireland).
- The GSI subsoil maps of Athlone town indicate the whole town consists of made ground. This is down to the urbanisation of Athlone town which removed all alluvial soils within the Shannon River environs.

The extent of the flooding is confirmed by the CFRAM PFRA floodmaps, (see Figure 3.2 of Volume 3) and draft CFRAM floodmaps. Floodmaps.ie, CFRAM PFRA and the draft CFRAM floodmaps do not indicate flooding risks at the site.

8.3.9 Pluvial Flooding

Pluvial flooding is defined as flooding from occasional intense rainfall that may last a few hours, it may also occur with low intensity rainfall where the ground is saturated, developed or has low permeability. Water falls through precipitation and flows

towards established watercourse routes. These routes typically follow natural valley lines creating flow paths adjacent to roads; through and around developments; and, ponding in low spots. These low spots typically coincide with naturally occurring flood plains.

The OPW Preliminary Flood Risk Assessment (PFRA) indicates Athlone does not suffer from pluvial flooding around the site area. The urban centre of Athlone Town has established storm water drainage infrastructure that is capable of managing the surface water discharge from rainfall events.

The site is not identified as being at risk of flooding from a rainfall event and the development will not increase the risk of pluvial flooding within the surrounding environs.

8.3.10 Groundwater Flooding

Groundwater flooding can be due to high water tables and increased recharge following long periods of rainfall. Groundwater flooding typically occurs in areas underlain by limestone and where underlying geology is highly permeable with high capacity to receive and store rainfall.

There is no evidence of groundwater flooding at the site and from reviewing the above data the likelihood of groundwater flooding at the site is Low.

8.3.11 Flood Risk Overview

The main flood risk is from the River Shannon, primarily from the resultant rise in water levels during heavy rainfall. During flood events in Athlone the areas affected are generally low lying areas to the north and south of the town centre, however flooding was identified at the promenade of the east bank during the January 2016 flood event, see Plate 8.3.

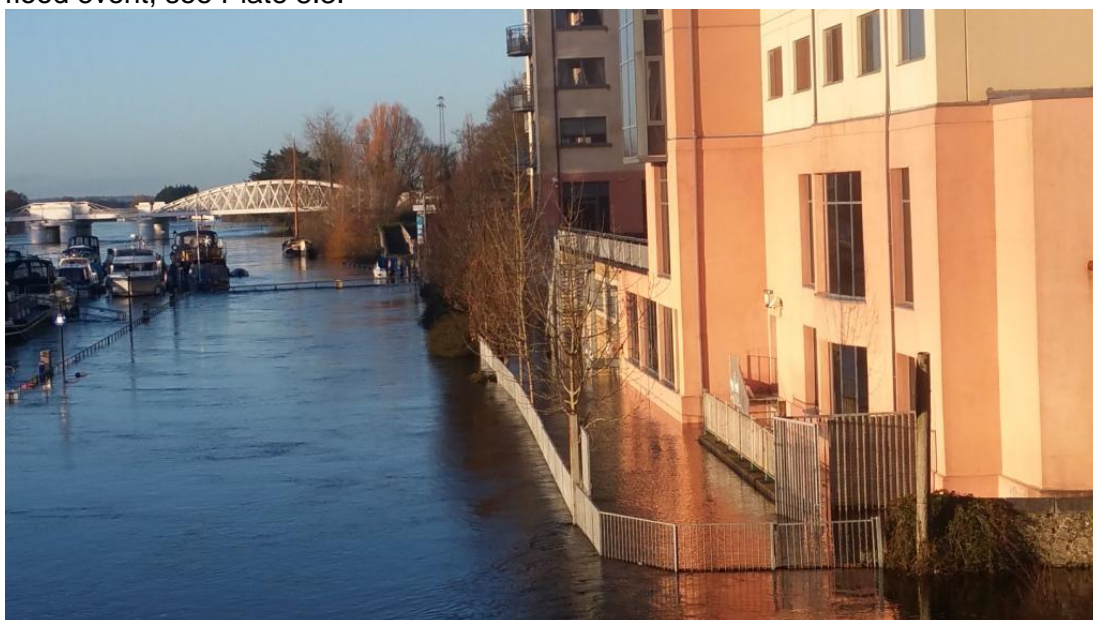


Plate 8.3 Flooding to the promenade at the east bank of the River Shannon in January 2016

There is minimal risk of pluvial flooding to the site due to the urban setting of the site and established drainage infrastructure.

There is little risk of Groundwater Flooding due to the low permeability of the aquifer body and the subsoil overburden depth of greater than 3m.

8.4 Description of Likely Impacts

The potential impacts of the proposed development crossing over the River Shannon on the existing hydrological environment have been examined.

In accordance with the Section 50 Application and requirement for Flood Risk Assessment and Management Study pursuant to European Union (Assessment and Management of Flood Risks) Regulations 2010, a 2D Hydraulic modelling was undertaken to determine the water levels associated with a 1% AEP flow (36.261 (mAOD) event for pre and post construction of the proposed development.

Following this, hydraulic simulations were undertaken for the following scenarios, including the climate change factor:

- 1% AEP Flood Event (Pre development construction)
- 1% AEP Flood Event (Post development construction)
- Partial Blockage of development due to debris

To assess the potential impact on river levels from blockage due to debris hydraulic modelling was undertaken to simulate 50% blockage of the two quay bays. Under this scenario the same design and flow characterises from the 1% AEP scenario model will be utilised.

The results of the above study found that the proposed development will result in an increase in flood levels of 9mm directly upstream of the bridge which will dissipate down to 4mm approximately 350m downstream of the bridge.

The construction of the proposed development will reduce the cross-sectional area of the river by approximately 30.64m² from the total river sectional area of approximately 707.16m² resulting in a final conveyance area of 676.52m². The loss of conveyance due to expected flow increases and dissipation in conjunction with the proposed development will result in minimal increase in peak flood levels of between 4-10mm.

Furthermore a potential blockage scenario was included in the hydraulic modelling process which assumes a reduction in the cross-sectional area from 676.52m² to 660.52m². The result from the modelling process indicates an additional flood level increase of 14mm directly upstream of the proposed bridge. Under this scenario a freeboard of 3.714m is provided therefore no additional risk of flooding is foreseen during the Blockage scenario.

It is the conclusion of the Section 50 Flood Risk Assessment and Management Study that no negative impacts will result on the hydraulic properties of the River Shannon and will not increase the risk of flooding elsewhere in the catchment. The OPW reviewed the Section 50 application for the proposed development and gave its consent for the development to proceed (see Appendix 8.2 of Volume 4).

8.5 Mitigation Measures

In general, the temporary and permanent impacts on hydrology and drainage are considered minimal and will be managed by adhering to best practice guidelines as outlined in Control of Water Pollution from Construction Sites (CIRIA, 2001); and the Environmental Handbook for Building and Civil Engineering Projects (CIRIA, 2000) during the construction and operational stages as outlined below.

Construction Stage

Mitigation measures are proposed to manage flooding and storm water drainage during the construction stage of the works. Any impact from the proposed works on the river water quality will be kept to a minimum. Any likely increase in sediment exports during the preparation stage of the lands will be minimised by implementing a number of mitigation measures, such as installation of silt fence along the perimeter of the site boundary.

Operational Stage

Mitigation measures are proposed to manage flooding and stormwater drainage during the operational phase of the works:

- Existing surface water flow paths will be maintained and it is proposed that surface water be permitted to fall freely from the bridge, the ramps and the boardwalks.

Runoff from the new hardstanding areas will be through existing drains. These drains will discharge to the adjacent natural watercourses. This will reduce the likelihood of water logging on site.

8.6 Conclusions

The proposed development will not pose any additional flooding risk in the area upstream or downstream of the study area. The proposed works will therefore not have residual impacts on the existing hydrological regime of the Shannon River catchment.

Chapter 9

Landscape and Visual Impact Assessment

Chapter 9 Landscape and Visual Impact Assessment

9.1 Introduction

This chapter addresses the potential landscape and visual impacts of the proposed development through Athlone Town approaching the River Shannon from the east and west through the town's urban area and environs, and the feature cycleway and pedestrian bridge creating a significant new structure over the River Shannon in the centre of the historic town.

The methodology for the assessment is in accordance with the Landscape Institute *Guidelines for Landscape and Visual Impact Assessment*, Third Edition, 2013 (hereafter referred to as the GLVIA). The assessment has also taken into account the following documents:

- *Guidelines on the Information to be Contained in an Environmental Impact Statement*, 2002, published by the Environmental Protection Agency (EPA);
- *Advice Notes on Current Practice in the Preparation of Environmental Impact Statements*, 2003, published by the EPA;
- *Athlone Town Development Plan 2014 – 2020* (ATDP)
- Athlone Waterfront Strategy - October 2010
- Athlone Visual Amenity Study

9.2 Methodology

9.2.1 Introduction

The LVIA Guidelines prescribe that landscape and visual impacts be assessed by separate, although linked, procedures. Landscape assessment considers the effects deriving from alterations to the elements and characteristics of the landscape, which may give rise to changes in its character, how it is experienced and hence the ascribed value of the landscape. Visual assessment is concerned with changes that arise in the composition of available views, the response of people to these changes and the overall effects on the area's visual amenity.

A number of key principles prescribed in the GLVIA 3rd Edition (2013) are worthy of emphasis.

Use of the term 'effect' vs. 'impact'

The GLVIA advises that the terms 'impact' and 'effect' are clearly distinguished and consistently used in the preparation of an LVIA.

'Impact' is defined as the action being taken. In the case of the proposed development, the impact will be the construction / installation of the new river crossing and associated approach cycle routes and ramps, realignment of river banks and walks, including any removal/clearance of vegetation, excavation and regrading of topography including drainage, construction and surfacing, and associated landscape works and mitigation proposals

'Effect' is defined as the change or changes resulting from that action, e.g. a change in landscape character, visual intrusion of the new development, or changes to the quality of views and visual amenity in the receiving environment.

Assessment of both 'landscape' and 'visual' effects

Another key distinction to make in LVIA is that between the landscape effects and the visual effects of development.

'Landscape' results from the interplay between the physical, natural and cultural components of our surroundings. Different combinations of these elements and their spatial distribution create distinctive character of landscape in different places. 'Landscape character assessment' is the method used in LVIA to describe landscape, and by which to understand the potential effects of a development on the landscape as 'a resource'. Character is not just about the physical elements and features that make up a landscape, but also embraces the aesthetic, perceptual and experiential aspects of landscape that make a place distinctive.

Views and 'visual amenity' refer to the interrelationship between people and the landscape. The GLVIA prescribes that this subject is assessed separately from landscape, although the two topics are inherently linked. Visual assessment is concerned with changes that arise in the composition of available views, the response of people to these changes and the overall effects on the area's visual amenity.

Proportionality of the assessment

The EIA Directive, on which the practice of Environmental Impact Assessment including LVIA is founded, identifies that the emphasis should be on the identification of likely significant environmental effects. This stresses the need for an approach that is in proportion to the scale of the project that is being assessed and the nature of its likely effects.

9.2.2 Landscape Assessment

In the landscape assessment the potential landscape effects of the development are considered. The likely nature and scale of changes to individual landscape elements and characteristics are considered and the consequential effect on the baseline landscape character and value. Existing trends and changes in the landscape are taken into account. The effect is assessed based on measurement of the baseline landscape sensitivity against the magnitude of change which will result from the development:

- *Landscape sensitivity* is a function of its land use, landscape patterns and scale, visual enclosure and distribution of visual receptors, and the value placed on the landscape.

Landscape sensitivity is classified as *high* (exhibits a very strong positive character with valued elements and characteristics that combine to give an experience of unity, richness and harmony, therefore particularly sensitive to change in general), *medium* (exhibits positive character but has evidence of alteration to/degradation/erosion of elements and characteristics resulting in an area of mixed character, therefore potentially sensitive to change in general), or *low* (exhibits generally negative character with few valued elements or characteristics).

- *Magnitude of landscape change* is a measure of the degree of change to the elements and characteristics of the landscape which will result from the proposed development.

Magnitude of landscape change is classified as high (total loss of or major alteration to the key elements or characteristics of the landscape, and/or introduction of elements considered totally uncharacteristic in the context of the

receiving environment's landscape character), *medium* (partial loss of or alteration to one or more key elements or features, and/or introduction of elements that may be prominent but may not necessarily be considered to be substantially uncharacteristic in the context of the receiving environment), *low* (minor loss of or alteration to one or more key elements or characteristics, and/or introduction of elements that may not be uncharacteristic in the context), or *negligible* (very minor loss, alteration or introduction of elements of the landscape).

For both landscape and visual amenity the significance of the effects is classified as high, medium or low based on measurement of the magnitude of change against the sensitivity of the landscape or view, using the guide shown in Table 9.1.

Table 9.1 Assessment/Grading of Impact Significance

| | | Sensitivity | | | | | | | | | |
|-----------|---------------------|---------------------|---------------------|---------------------|---|-------------------|--|---------------------|--|------------------|--|
| | | H | M | L | | | | | | | |
| Magnitude | H | High Significance | High Significance | Medium Significance | <table border="1"> <tr> <td style="background-color: #f4a460;">High Significance</td> <td></td> </tr> <tr> <td style="background-color: #fde0dd;">Medium Significance</td> <td></td> </tr> <tr> <td style="background-color: #fff2cc;">Low Significance</td> <td></td> </tr> </table> | High Significance | | Medium Significance | | Low Significance | |
| | High Significance | | | | | | | | | | |
| | Medium Significance | | | | | | | | | | |
| | Low Significance | | | | | | | | | | |
| M | High Significance | Medium Significance | Medium Significance | | | | | | | | |
| L | Medium Significance | Medium Significance | Low Significance | | | | | | | | |
| N | Low Significance | Low Significance | Low Significance | | | | | | | | |

For landscape, the predicted effect is also classified as beneficial, neutral or adverse based on an evaluation of the likely impact on identified landscape values. This is not an absolute exercise; it is a professional judgement informed by the process of landscape character assessment, particularly landscape values assessment, also taking into account relevant planning policies.

9.2.3 Visual Assessment

The visual assessment considers the likely changes to the component elements of views, the character of the views, and the visual amenity experienced by visual receptors.

The assessment is made for a number of viewpoints selected to represent the receiving environment and its users and inhabitants. For each viewpoint the field of view towards the site is described in terms of its key elements or characteristics. The potential visual effect on each viewpoint is assessed based on a measurement of the viewpoint sensitivity against the magnitude of change which will result from the development:

- *Viewpoint sensitivity* is a function of the location and context of the viewpoint, the expectations and occupation or activity of the visual receptor, and the importance of the view.

Viewpoint sensitivity is classified as *high* (e.g. users of outdoor recreation facilities or centres of activity focussed on the landscape, and occupiers of residential properties with views affected by the development), *medium* (e.g. people travelling through or past the affected landscape in cars or on public transport, i.e. viewing but not focussed on the landscape), or *low* (e.g. people

at their place of work or engaged in similar activities such as shopping, etc., whose attention will be focussed on these activities).

- *Magnitude of change to the field of view* (towards the site) takes into account the extent of the view that will be occupied by the development, e.g. full, partial, glimpse, etc. including the distance of the viewpoint from the development and its effect on the importance of the development in the field of view, the proportion of the development or particular features that will be visible, and whether the view of the development will be static, or a sequence or transient (as seen from a moving vehicle).

The magnitude of change to each view is classified as *high* (total loss of or major alteration to the key elements or characteristics of the view, and/or introduction of elements considered totally uncharacteristic in the context of the view), *medium* (partial loss of or alteration to one or more key elements or features, and/or introduction of elements that may be prominent but may not necessarily be considered to be substantially uncharacteristic in the context of the view), *low* (minor loss of or alteration to one or more key elements or characteristics, and/or introduction of elements that may not be uncharacteristic in the context), or *negligible* (very minor loss, alteration or introduction of elements of the view).

For visual amenity the classification of an effect as positive, neutral or negative is a professional judgement and can be subjective. Visual receptors' attitudes to development including greenways and bridges will vary, and so will their perception of their visual impact. These qualitative impacts are defined as:

Adverse – Scheme at variance with landform, scale, pattern will degrade, diminish or destroy the integrity of valued features, elements or their setting or cause the quality of the landscape (townscape)/view to be diminished.

Neutral – Scheme complements the scale, landform and pattern of the landscape(townscape)/view and maintains landscape quality.

Beneficial – improves landscape(townscape)/view quality and character, fits with the scale, landform and pattern and enables the restoration of valued characteristic features or repairs / removes damage caused by existing land uses.

Effects are also categorised according to their longevity or timescale:

Construction

Short Term – Lasting one to seven years

Medium Term – Lasting seven to fifteen years

Long Term – Lasting fifteen years to sixty years

Permanent – Lasting over sixty years

This LVIA seeks as far as possible to be objective in the classification of impacts, and to provide a robust justification for the conclusions drawn.

9.3 Description of the Proposed Development

The proposed development is described in detail in Chapter 3. In summary the proposed development is a pedestrian and cycleway bridge comprising the proposed River Shannon crossing and associated quayside works and access ramps.

The preferred option for the river crossing is the result of a lengthy iterative process of location option assessment, and design form and language option assessment. The preferred option will be aligned perpendicularly (with the eastern wall) across the river starting from the riverfront of the Radisson Hotel and travelling in line with the side entrance to SS Peter and Paul Church, landing adjacent to the Luan Gallery on the western side. It will comprise a two span bridge with a pier in the middle of the river and end supports on the river banks. The spans will be approximately 52m in length. The overall length of the main bridge is approximately 104m.

The soffit of the spans is primarily flat, with gradients implemented at the ends of the bridge where geometric constraints dictate. The depth of the main crossing spans is variable, increasing from 500mm to approximately 2.3m over the central pier.

The eastern end support is on a dedicated full height abutment which provides a landing for the main crossing and the eastern approach ramp. The level of the proposed landing matches the level of the adjacent raised deck area. The maximum longitudinal gradient on the proposed main crossing spans is to be 5% to accommodate mobility impaired access.

The western end support is proposed to be off the existing Luan Gallery structure. This will involve alterations and perhaps underpinning of the Luan structure.

The main crossing spans are proposed to be supported on a reinforced concrete pier located approximately in the centre of the river. Its proposed position is well suited to the accommodation of navigation and the protection of the existing mooring facilities to the maximum degree.

The central pier will be oval in shape and the main spans vary in depth to create a slender form crossing the river. The deck height will be sufficient to allow full navigable clearance over a 40m span reflecting Custume Bridge 70m downstream. Railings to the bridge will be 1.4m high in stainless steel.

Ramp access will be required to both sides of the bridge. On the eastern bank the bridge will be approached from the north on a simple long ramp parallel to the river bank and solid in appearance. The bridge landing at this point will be on the existing river bank to create a structure independent of the hotel building at this location. Steps are proposed to access the walkway to the south.

On the western bank the landing and ramp access will require modifications to the existing Luan Gallery boardwalk and road links with a long ramp running parallel to the road to take the user down from the bridge level to the riverside cycleway. The riverside at this location contains an important and characteristic feature of Athlone i.e. an informal row of mature trees framing the river bank. The configuration of the corridor of land at this location consists of the road and footpath, a wide grassy margin at the road level and a lower grassy verge at the riverside walk level. A substantial stone masonry wall separates both of these terraces. Site testing indicates that this wall extends underground to a significant depth and it is thought that it was the former river wall visible in old photographs. The insertion of this ramp between the historic riverside wall and the road edge minimises interference on the

existing mature trees. Their root zone is confined to the lower terrace by the historic wall, other than one younger semi-mature tree close to the bridge landing. Two trees are of poor quality in this group and are recommended for removal by the arborist appointed for the proposed development. The link from the ramp back to the riverside alignment is located where one of these trees is to be removed. Due to potential impacts on their root zone from associated retaining walls, a further two trees located either side of this crossover link will be removed.

In terms of the bridge design merits from a landscape and visual impact perspective they are as follows:

- The configuration minimises the need for any elevated (above deck) structure required to cross the river;
- This bridge is slender and low in appearance and minimises impacts on existing views upstream from Custume Bridge;
- The contemporary form of the bridge complements local heritage bridges and structures reflecting best practice of contrasting with heritage elements – as the Luan Gallery itself - rather than copying them;
- The form is sufficiently contemporary and unique to provide a landmark structure for those arriving in Athlone.
- Amenity of pedestrians and cyclists as well as functionality is provided for in the design, thus contributing to place making.

A landscape scheme has been prepared illustrating the new places, spaces and indicative materials for the bridge landing points and adjacent greenway, as shown in Figure 9.2 of Volume 3.

Concerns arising include

- Proximity to developments and potential visual receptors/valued views looking directly at this location.
- Potential impact on trees to the western bank and tree lined riverside promenade – design development has limited this impact to those immediately adjacent the landing location and the crossover link from the ramp to the riverside cycleway.

9.3.1 Policy Context

Athlone Town Development Plan 2014-2020 (ATDP)

Sections 2.2 and 2.5 of the ATDP (Vision for Athlone) describes the strategic location of Athlone in the centre of Ireland, part of the linked Midlands Gateway described in the National Spatial Strategy. As a focus for the regional economy it requires investment in key infrastructure and supporting services – in particular the development of good transport links. It recognises the town's natural and cultural assets and supports and promotes the development of Athlone as a tourism destination.

Chapter 5 of the ATDP – Town Centre and Urban Design is very relevant to the context of this project and sets out a number of supporting studies / policy guidance documents:

Section 5.3.2 Athlone Town Walls and Defences Conservation Plan 2005

This document was produced as an action of the Westmeath Heritage Plan in 2005. The plan sets out the policies for the conservation of the Town walls and defences and also puts forward strategies to raise awareness of these important monuments.

Section 5.2.5 Athlone Waterfront Study 2011

This study focuses on both sides of the River Shannon, stretching from the points of the Shannon past the N6 Athlone by-pass bridge on the western side and from the Town Park past the N6 Athlone by-pass bridge, on the eastern side. The Study has identified the following:

- Key areas for protection and conservation.*
- Character areas which display distinct enclaves along the river leading to enhancement provisions and increased linkages.*
- Opportunities to improve accessibility and movement along the River Shannon.*

Section 5.2.6 Athlone Visual Amenity Study

This study includes proposals for the upgrading of the streets and facades in the town from St. Mary's Square to Custume Place.

Section 5.4 sets out an approach to the Town Centre and Urban Design.

Urban Design is defined as "places for people". Places where people have a sense of belonging and where they feel comfortable and safe walking to employment, services, public transport or other destinations; and in so doing meet their neighbours and the wider community. The Councils aim to achieve the following in relation to Urban Design in the town:

- To promote quality of the public realm: public spaces and routes that are attractive, safe, uncluttered and work effectively for all in society, including disabled and elderly people.*
 - To promote ease of movement: accessibility and local permeability; by making places that connect with each other and are easy to move through, putting people before traffic and integrating land uses and transport.*
 - To promote legibility through development that provides recognisable routes, intersections and landmarks to help people find their way around.*
 - To promote adaptability through development that can respond to changing social, technological and economic conditions.*
 - To promote diversity and choice through a mix of compatible developments and uses that work together to create viable places that respond to local needs.*
 - To promote continuity and enclosure: the continuity of street frontages and the enclosure of space by development which clearly defines private and public areas.*
 - To promote character in townscape and landscape by responding to and reinforcing locally distinctive patterns of development, land use, culture and built form*

The following relevant policies are set out:

P-UD1 To adopt a design led strategy in assessing the impact of development on the town centre, in accordance with Guidelines issued to Planning Authorities by the Department of Environment, Community and Local Government.

P-UD2 To require new development to positively contribute to a network of streets and spaces, in terms of positive additions to the streetscape, or by creating links through sites where opportunity exists.

P-UD3 To require applications for significant development in the town centre to be accompanied by Design Statements, including how the proposal contributes to the

achievement of urban design principles as specified in the Development Management Standards.

Section 5.6.2 identifies a number of Architectural Conservation Areas, the character or appearance of which it is desirable to preserve or enhance. The plan identifies a number of “Architectural Conservation Areas” and “Character Areas” within the town – See maps ATC 06 and ATC 07 from the Athlone Town Development Plan in Volume 3.

The Character Areas are:

- Old Town Wall Historic Quarter
- Merchant/Shopping Quarter
- Waterfront Quarter / Quay Area

Of these the proposed development will pass through the central part of the Waterfront Quarter, and the western part of the Historic Quarter lying alongside the river.

Key descriptive commentary for the three areas states:

5.7.1 Old Town Wall Historic Quarter

Given the town’s origin as a defensive town and its uniqueness of being contained within a town wall it is considered appropriate to identify this area. This area would unite both sides of the river, include the Castle, on the west bank and Bastion Street, and extend from North gate Street to Dublin Street and include St. Mary’s Church and part of Devenish Street on the eastern side of the river. This area is characterised by its compact form and narrow medieval lanes and there is evidence of the town wall within this area.

The inclusion of both sides of the river within this quarter places an emphasis on uniting both sides of the river. The uses within this quarter include the Castle, St. Mary’s Church, the Franciscan Church and abut Custume barracks and the Batteries.

The west bank in particular has developed a cultural area within the town walls and includes several theatres, restaurants and cafés. These particular uses have evolved as a result of the narrow terraced frontages and plot layouts of the buildings and the growth of tourism and commercial activity. The existing market place by the castle and Cathedral would be an appropriate location for a tourist market.

5.7.2 Merchant/ Shopping Quarter

This area is centred around the axis extending from Irishtown, through Dublin Gate St/ Church Street/ Pearse St. and Connaught St. The built form is characterised by narrow building frontages and deep plot widths. Vacancy levels are high along the main shopping street and there is a need to make improvements to the main shopping street through environmental improvements to the street, reuse of derelict and empty units and incentives to refurbish shopfronts.

5.7.3 Waterfront Quarter/ Quay area

This area has been identified in the Waterfront Study and includes both sides of the Shannon. The study promotes a new pedestrian bridge over the Shannon to link the west bank with the east bank. The study has identified the existing walkways and proposed new walkways along the east and west banks of the river.

As well as policies to protect streetscape and historic character, to manage building heights and promote high quality urban design, encourage tourism and development

in accordance with the Athlone Waterfront Strategy 2011 the ATDP also contains the following objective:

O-CA1 To examine the potential to construct a new bridge across the River Shannon linking the east and west areas of the town for pedestrians and cyclists.

Section 5.14 sets out Place Making Policies and Objectives including:

P-PM1 To require all new development to draw on the intrinsic qualities of Athlone's urban environment and add to the local distinctiveness and sense of place that forms the basis of the town's unique character and attractive urban form.

P-PM2 To ensure high quality open spaces are provided and maintained to create vibrant civic spaces for a wide range of active and passive activities.

The Building Height Policy Map, as shown in map ATC 07 of Volume 3, has developed further and incorporates additional viewpoints and panoramas. These include views south along the Shannon corridor from the R446, Railway Bridge/ Railway Station area and south from Custume Bridge.

Chapter 6 of the ATDP also sets out supporting policy and objectives in relation to cycling and walking including the provision of a Greenway along the Athlone-Mullingar railway line and the provision of a pedestrian boardwalk along the West Bank of the River Shannon from the Luan Gallery to the Canal. The following policies are particularly relevant:

P-WC5 To implement proposals for pedestrian and cycle routes along the River Shannon as prescribed in the Athlone Waterfront Strategy.

P-WC6 To support and facilitate the development through Athlone of the National Cycle Network between Dublin and Galway, including the construction of a new pedestrian and cycle Bridge across the River Shannon, subject to the requirements of the Habitats Directive, Water Framework Directive and environmental sensitivities identified in the SEA being addressed.

P-WC7 To support and facilitate the provision of a Cycleway and Walkway in Athlone within the corridor of the disused Mullingar to Athlone railway line, pending the re-opening of this line as a railway, subject to environmental sensitivities identified in the SEA being addressed.

The following specific objectives are also relevant:

O-WC3 To provide a cycleway and walkway in the town within the corridor of the Mullingar to Athlone disused railway, pending its reopening as a railway line, together with a pedestrian and cycleway link to the Roscommon County Boundary, including all related signage, way-marking and all associated site works and connections. Development of the cycleway and walkway shall be carried out in a manner such that landscape impacts are minimised and the project will be subject to Appropriate Assessment and the requirements of the Water Framework, Floods and EIA Directives.

O-WC7 To provide a pedestrian bridge across the River Shannon south of the existing Town Bridge

O-WC10 To provide a pedestrian boardwalk along the West Bank of the River Shannon from the Luan Gallery to the Canal.

O-WC14 To provide a network of on-road and greenway pedestrian and cycle routes within the town.

O-WC15 To provide a new pedestrian and cycleway bridge across the River Shannon, in conjunction with the development of the Dublin- Galway National Cycle Network, subject to habitat protection requirements and environmental sensitivities identified in the SEA being addressed.

O-WC16 To provide a walking/cycling route from the Athlone Mullingar railway line in Athlone, to the River Shannon, via a new bridge over the Shannon to the west bank and onwards to the Roscommon county boundary, with the potential to connect to Athlone Castle and southwards around the town. This route shall be subject to the requirements of the Habitat, Water Framework and SEA Directives.

Chapter 10 of the ATDP sets out policy in relation to open spaces and recreation and is supportive of Greenways, Cycleways and related initiatives.

Chapter 11 of the ATDP sets out policy in relation to Natural Heritage, Built Heritage and Archaeology. These policies are protective of this heritage and of relevance to this project. These policies are related to built heritage and in particular military, fortification and industrial heritage and built structures of the Shannon and historic parts of the town as well as medieval streetscapes and patterns.

Policies to protect trees and encourage trees to be planted are also included – Trees along Grace Road – Promenade are scheduled in Appendix 9.1 of Volume 4, as well as the mature trees around Abbey Grove and House.

A number of policies throughout the development plan support the protection of designated views – these are illustrated on the Natural Heritage Map as shown in map ATC 01 of Volume 3.

Athlone Waterfront Study 2010

This study sets out a framework plan and development guidance, including materials and design guidance, for the Shannon River corridor as it passes through Athlone, as shown in Plate 9.1.



Plate 9.1 Illustrative Framework Plan - Athlone Waterfront Study 2010

Key relevant proposals in the Framework Plan include:

- General urban / waterfront environmental improvements
- A new pedestrian bridge –located south of Custume Bridge
- An open air art fair on the west bank adjacent the Luan Gallery
- A new mixed-use area on the east bank (Cash and Carry site)

Athlone Visual Amenity Study

This study, as shown in Plate 9.2 relates primarily to the network of town centre streets east of the river and is therefore of limited relevance to the proposed development corridor.

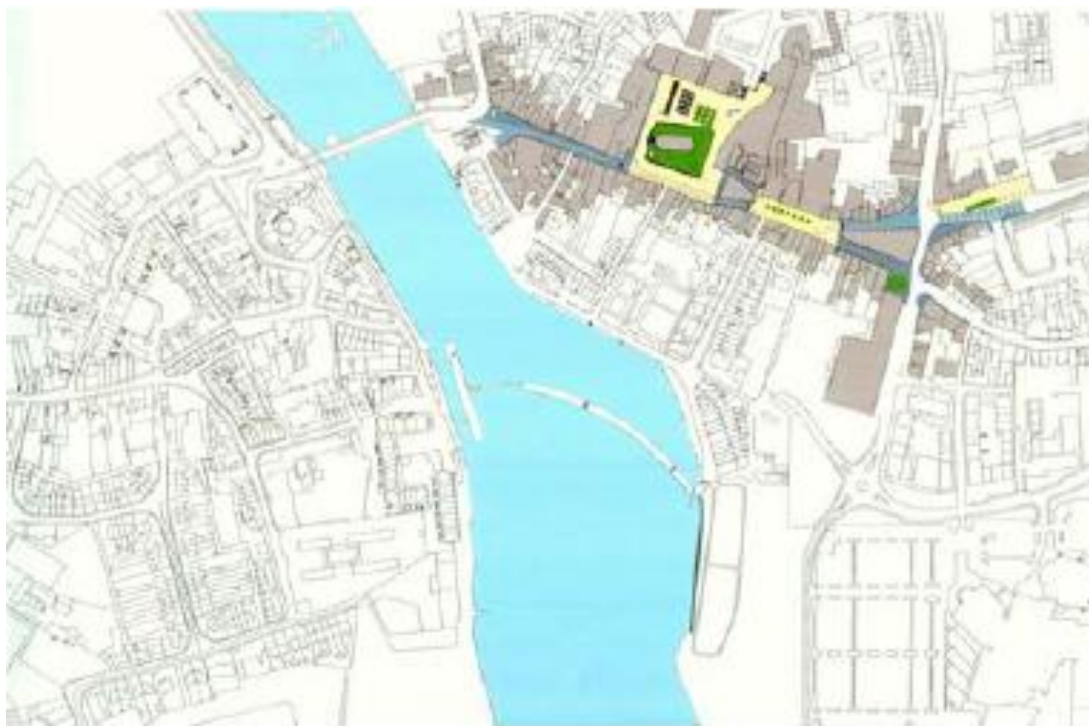


Plate 9.2 Athlone Visual Amenity Study

Building Height Policy

The ATDP also refers to the building height policy document. Although specifically aimed at the management of tall buildings as opposed to structures and bridges, the ATDP does underline the importance of the Church Spires as the predominant features of the skyline in Athlone.

Key Guidance relevant to this project includes:

2.4.2 Skyline/Roofscape

The Skyline should be considered from the various approaches and prominent views both into and out of the towns, of both the built and natural environment need to be considered. The character of the skyline varies considerably between night and day, tall modern buildings can have a considerable impact upon the established skyline of a town particularly at night. In considering the impacts of any proposed tall building day and night views should be taken into consideration. Views of chimney stacks, ridges and eaves on existing buildings can strongly contribute to the skyline and roofscape, and should therefore not be entirely obscured by a tall structure.

2.4.3 Views and Panoramas

A number of important/prominent views and panoramas have been identified which require special consideration with regard to a tall building proposal. Impacts on these important views and panoramas could be negative or positive, however where it is considered that a proposal would have a significant impact on an important view or panorama a high level of detail would have to be presented to justify the proposal, including computer generated images and 3D modelling of the views in question.

Important views/panoramas of relevance to the proposed development are scheduled below:

| Important Panoramas | Map Ref |
|---|---------|
| From the bridge to the Callows | Pan 1 |
| From the east bank of the Shannon to the west bank with particular emphasis on the castle | Pan 2 |
| Changing views from the river on approach from south. | Pan 4 |
| Changing views from the river on approach from the north | Pan 5 |

These views reflect those contained within the protected / designated views in Map ATC 01 of Volume 3.

Policy Context Key Issues:

The above analysis of policy highlights the following:

- Recognition of the need to foster and develop a high quality urban environment
- Recognised intrinsic qualities of Athlone – its riverine setting and historic core.
- Supporting policy for improved cycling and pedestrian provision including along the Shannon waterfront and the Athlone – Mullingar railway including a new cycleway and pedestrian crossing over the Shannon.
- Policy supporting the provision of a new pedestrian river crossing south of Custume Bridge.
- Policy supporting the provision of boardwalks or similar along the Shannon
- Policies to protect the built and natural heritage of the town
- Policy protecting trees along Grace Road - Promenade
- Guidance on the height of buildings which underlines the importance of Church spires in forming the predominant features of Athlone's skyline.
- Identification of a range of important views and panoramas through the town, concentrated on the river corridor and key distant features. In the current development plan there is a view from the railway bridge R446 towards the proposed new river crossing location.
- The ATDP describes the key character areas of the town and their sensitivities / values.
- The Waterfront Study and Visual Amenity Studies provide guidance for physical development within the core town centre and river corridor areas.

9.3.2 The Receiving Environment

Athlone has a long historic existence as a strategic crossing and defensive point on the River Shannon. There is documentary reference to Athlone going back to 333.

While there are several interesting aspects to Athlone's history including its administrative role and important religious role, the history of the Town indicates a past rooted in conflict, primarily resulting from the strategic position of the Town at an important river crossing. Early wooden bridges were constructed to facilitate crossing but were destroyed, a castle was constructed to guard subsequent bridges; and defences, in the form of stone walls, were built around the east side of the Town, sealing it to the bank of the River, see Plate 9.3. In the 17th century earthen ramparts were constructed around the west side of the town and bastions were added to the

walls to the east side of the town. In 1691 the town was the site of the famous Siege of Athlone where Jacobite forces unsuccessfully defended the town against the soldiers of King William 3rd. Defences in the form of batteries were added to the west of the town in the early 19th century in anticipation of Napoleonic invasion. This military heritage is still very visible in the Town today, dominating the town in the form of the Castle and upstanding remains of the Town Wall and evidenced in the street pattern and street names; as such it adds to Athlone's distinctiveness, it has shaped the town.

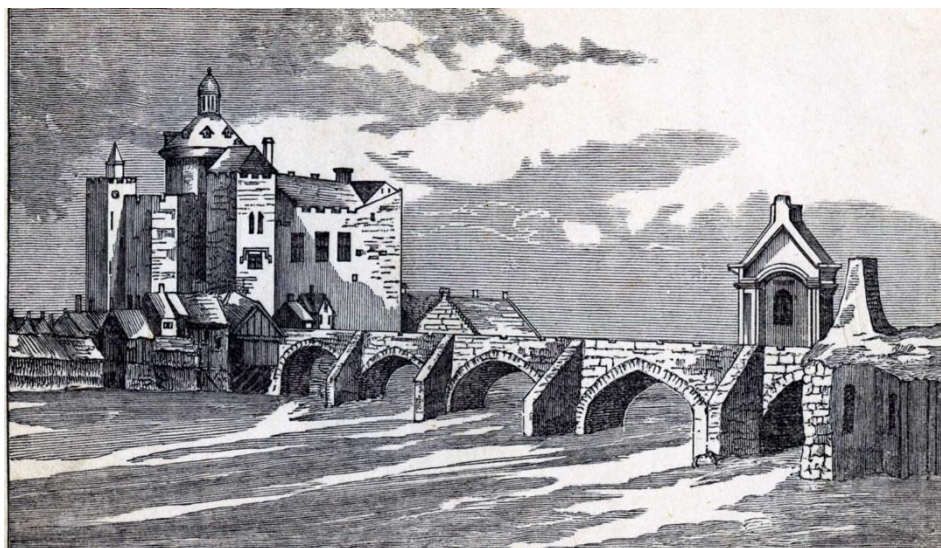
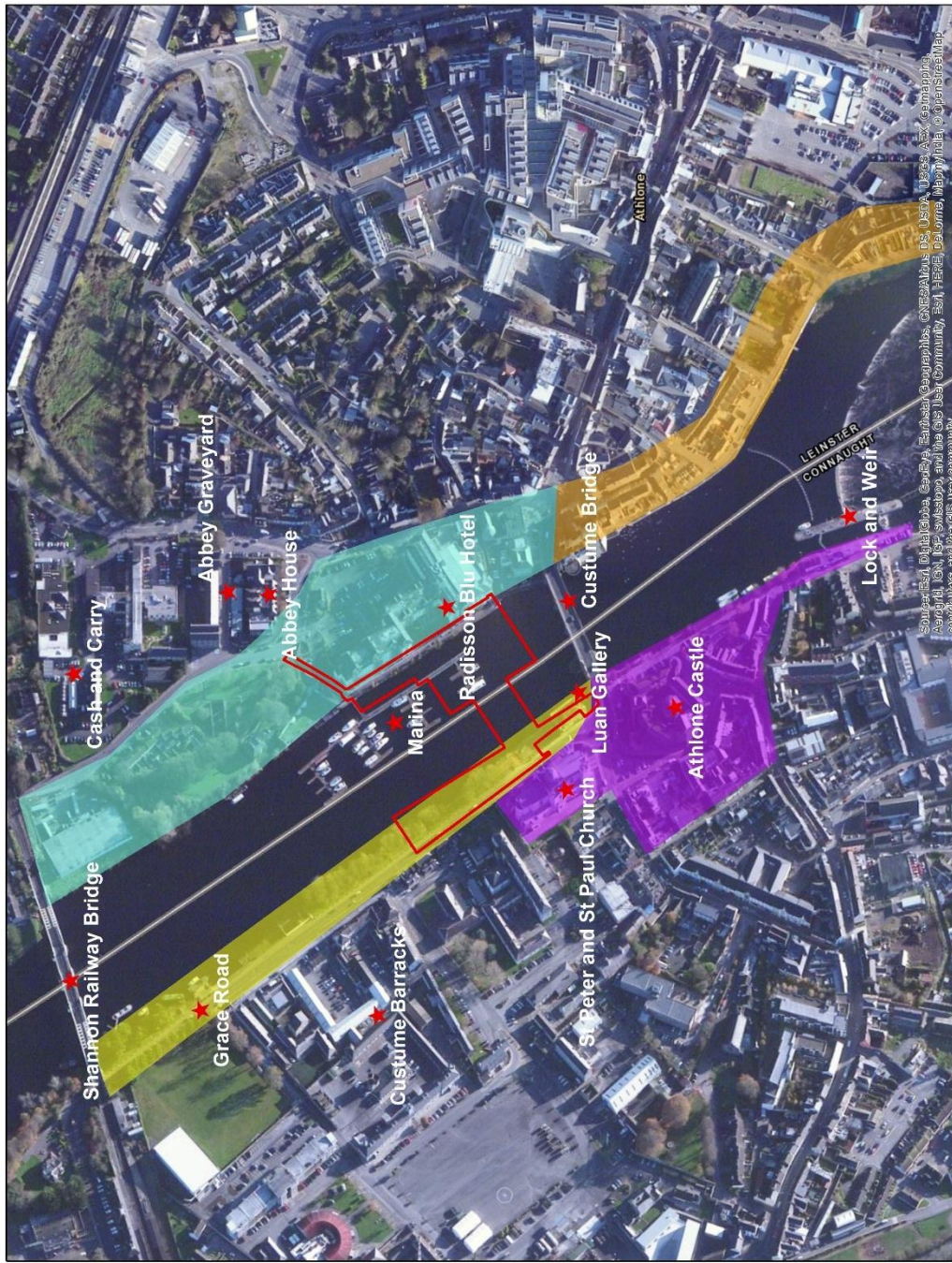



Plate 9.3 The original Elizabethan Bridge of Athlone





In the context of this project it is pertinent to note the origin of the town's name Athlone – Luan's Ford (crossing point). The development of the town owes much to its role as a strategic crossing point on the River Shannon. Between the Shannon Railway Bridge (1850) to the north and the navigation weir to the south lies the dense town centre as it abuts the waterfront to the east and west. The historic town centre displays a unique medieval street pattern lined with terraces, linked across the Shannon by Custume Bridge. The river corridor described by this area is the receiving environment and study area for this landscape and visual impact assessment.



Legend

 Outline of Proposed Bridge

Character Areas

1. The western bank of the Shannon from Custombridge/Luan Gallery, Grace Road, Shannon waterfront and Custume Barracks 
2. The Eastern bank of the Shannon from the railway bridge to the Custume Bridge 
3. The eastern bank running from Custume Bridge to the weir 
4. St Peter and Paul's Church, Custume Place, Athlone Castle, Castle Street and the western Quay 

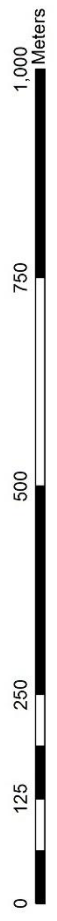


Plate 9.4 Character Areas

The receiving environment and visual envelope of the proposed new bridge, waterfront cycleway and Castle cyclehub is defined by the western built edge of Grace Road to the east, the railway viaduct to the north, the western river edge south from the railway past Custume Bridge to the weir, the weir and widening Shannon to the south and the Quay linking back to Grace Road.

This area is the heart of historic Athlone and, with the reduction of heavy through traffic in recent years, has become a distinctive urban area centred on the medieval hub of buildings and streets around Castle Street, Athlone Castle and Custume Bridge.

For the purposes of this analysis the area can be broken down into a number of specific character areas, places or zones as shown in Plate 9.4:

1. The western bank of the Shannon from Custume bridge/Luan Gallery, Grace Road, Shannon waterfront and Custume Barracks.
2. The Eastern bank of the Shannon from the railway bridge to the Custume Bridge.
3. The eastern bank running from Custume Bridge to the weir
4. St Peter and Paul's Church, Custume Place, Athlone Castle, Castle Street and the western Quay.

9.3.2.1 The western bank of the Shannon from Custume bridge/Luan Gallery, Grace Road, Shannon waterfront and Custume Barracks

This part of the Shannon corridor is bounded to the west of Grace Road by a long limestone retaining and then enclosing wall to, initially St Peter and Paul's Church and then the extensive boundary of Custume Barracks, Plate 9.5. Despite its solidity and distinct character its does create a barrier to links between the Waterfront and the wider town to the west and limit a more animated Waterfront.



Plate 9.5 St Peter and Pauls Church from western bank and Grace Road / Luan Gallery

Grace Road itself is also a heavily trafficked route – R446 – often carrying heavy volumes of traffic. Between Grace Road and the Shannon lies a tree lined linear park or waterside promenade. With some flower beds, seating, although lightly used, this linear park terraces slightly from the road towards the river where a retaining wall provides an edge to the Shannon waters and floods, see Plate 9.6. The trees consist primarily of closely planted mature Horse Chestnut (*Aesculus hippocastanum*) and Sycamore (*Acer pseudoplatanus*). Younger trees are found in places and to the north

near the railway bridge, where the character is softer, mature pines and other conifers are found (see Arborist's report in Appendix 6.4 of Volume 4).



Plate 9.6 Tree lined western promenade and Luan Gallery near Custume Bridge

The southern part of this area is distinctively urban with the contemporary architecture of the Luan Gallery on the waterfront and St Peter and Pauls Church across Grace Road. The promenade walkways have been altered here (partly cantilevered over the river) and access ramps built to accommodate the Gallery.

The northern section of the waterfront changes at the Athlone Boat Club, as the tree lined promenade gives way to the club house and a series of historic and more recent quayside slipways and mooring points. This “harbour” area illustrates a range of historic masonry materials as well as more recent utilitarian concrete elements. The mooring points are accessed via cut stone pillars from the road and are directly opposite the imposing entrance to the Custume Barracks itself with which it will have been historically associated, see Plate 9.7. Further north along this bank the “built” edge of the waterfront gives way to trees and grass adjacent to the elevated and iconic railway bridge which crosses the Shannon from the railway station west of the R446. A number of barges are moored at this location.



Plate 9.7 Slipway looking south from western quays Gateway to Custume Barracks, Grace Road



Plate 9.8 Grace Road near Railway Bridge looking south and looking towards bridge

This area offers open views eastwards, north and south over the open Shannon waterway and encompasses views to the iconic railway bridge, Abbey Graveyard and House in their wooded setting, the Radisson Hotel and adjacent Marina and Custume Bridge and the associated historic cluster of buildings including stepped terraces to the river (Plates 9.9 and 9.10).



Plate 9.9 Abbey House from western promenade



Plate 9.10 Radisson Hotel from Western Promenade

9.3.2.2 The Eastern bank of the Shannon from the railway bridge to the Custume Bridge

This part of the river corridor consists of the eastern abutments of the elevated railway bridge, the large and unsightly industrial structure occupied by Hanley's Cash and Carry which then changes into the soft, green and distinctive riverside landscape of the Abbey graveyard and Abbey House with their remnant historic structures and mature trees, see Plate 9.11.



Plate 9.11 View south towards St Peter and Pauls from eastern bank by railway bridge

Further south along the bank the waterfront becomes distinctively urban with the busy marina and the large buildings (up to 6 stories) of the Radisson Hotel fronting directly onto the river, see Plate 9.12. The large blocks, materials and form contrast uncomfortably with the local palette, urban grain and patterns.



Plate 9.12 Radisson Hotel and Marina

Immediately south of this, the local palette of materials and form is restored in the AIB building and its associated walls, steps and terraces elegantly linking to Custume Bridge, see Plate 9.13.



Plate 9.13 AIB Bank and Custume Bridge

This part of the river bank in Athlone offers a mixture of warehouse building, high quality and historic riverside parkland, large, contemporary but architecturally bland buildings as a backdrop to the town marina and an elegant urban composition of bridge and associated historic buildings. Nonetheless its west facing sunny aspect is attractive, offering views across the Shannon to the composition of Luan Gallery and St Peter and Paul's Church, the tree lined promenade and Custume Barracks leading to the softer landscape adjacent the railway bridge. However access along this bank is limited to the Marina and hotel environs.

9.3.2.3 The eastern bank running from Custume Bridge to the weir

South of Custume Bridge the river bank has a finer grained urban character typical of older Athlone. A 5 and 6 storey contemporary building occupies the corner site to the bridge and, unlike the traditional buildings further south addresses the river with frontage and terraces. The built form of the river's east bank gives way thereafter to 2 and 3 storey domestic scale buildings backing on to the river or quayside, see Plate 9.14.



Plate 9.14 Looking east and south from western bank south of Custume Bridge

The quayside is walled with access steps and bollards with some boats moored directly. The quayside continues south with improved vehicular access – at Barnet Street a wide parking area has been identified as suitable for a small public square. The quayside continues along Wolfe Tone Terrace where it meets the weir and the public park created adjacent to the river here. Beyond the park the Shannon and nature reassert themselves.



Plate 9.15 Athlone Castle looking west from The Strand/East bank

The area has significant “old town” character, its narrow street pattern and grain still legible even with more recent new buildings. It also offers views westwards towards the medieval heart of the town – Athlone Castle, Castle Street and the Quay and its developing historic café quarter character, see Plate 9.15. A particularly distinctive view is formed by the Quay, the Castle, St Peter and Paul's Church and Custume Bridge.

9.3.2.4 St Peter and Paul's Church, Custume Place, Athlone Castle, Castle Street and the western Quay

The landmark building in Athlone is undoubtedly St Peter and Paul's Church, its twin steeples and dome rising tall on Custume Place on the west bank of the river, see Plate 9.16. It forms a distinctive terminus for Custume bridge arriving to the south of

the building and, along with the bridge, Athlone Castle and the Luan Gallery, forms a unique cluster of architectural and cultural assets.



Plate 9.16 St Peter and Pauls church and walls of Athlone Castle at Castle Street

Streets in this part of Athlone are distinctively narrow lined by two and three storey buildings and small industrial and other structures. There has been public realm work in recent years to Castle Street and the Quay – quality paving and street reorganisation – and the Castle itself has been refurbished as a visitor attraction, see Plate 9.17. However there is still outstanding work and opportunities to enhance this part of town, particularly the environs of the Castle itself and the Quay / riverfront where the robust historic materials and qualities of the Quay wall, slipways and navigation features, as well as the fortress presented by the Castle, have their character somewhat eroded by more utilitarian concrete paving, and miscellaneous small buildings, walls, site furniture, parking and related clutter. The southern boundary of this area is marked by the weir, lock and related Shannon navigation features.



Plate 9.17 Main Street and The Quay

The castle itself is closely followed by buildings along its surrounding streets. To the west at Castle Street the street opens up to create a large - albeit containing traffic and parking – open space to the frontage of St Peter and Paul's Church. From a cultural and historical point of view this is the landmark arrival point in Athlone.

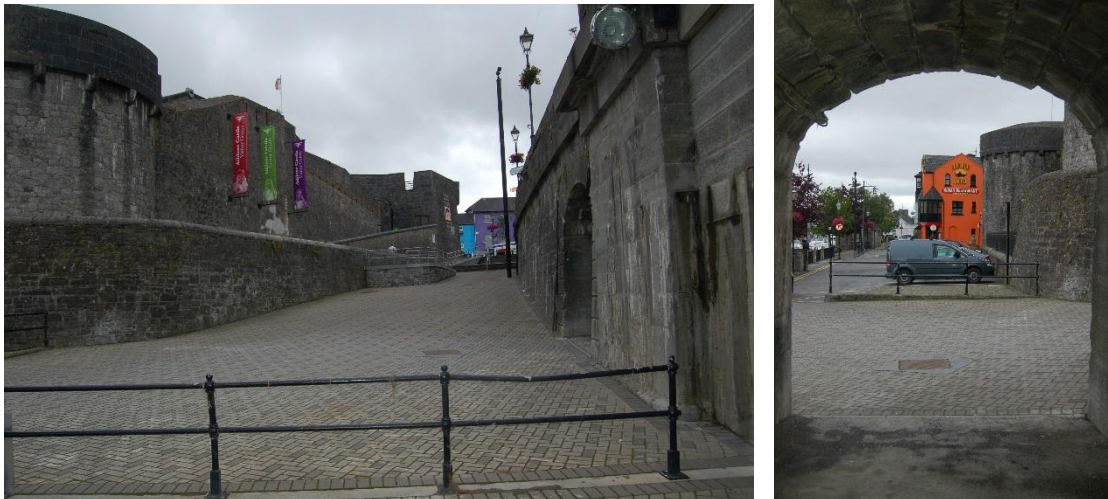


Plate 9.18 Athlone Castle ramp and Custume Bridge – and its underpass/arch

As elsewhere along the river, the open waterfront offers panoramic views north to Custume Bridge and beyond to the Radisson Hotel, to the eastern bank and its low-rise, fine grained urban patterns and south to the weir and beyond to the re-emerging wilder Shannon. An underpass is provided under Custume Bridge linking to the Luan Gallery and northside of the bridge, allowing pedestrian and potentially cycle access without crossing the road, see Plates 9.18 and 9.19.



Plate 9.19 View south to weir from The Quay



Plate 9.20 Athlone Lock

9.3.3 Landscape Character Assessment and Landscape Sensitivity

The above description of the receiving environment describes a number of characteristics of the river corridor that are experienced in or viewed from each of the areas described. These contribute a rich experience of townscape, heritage, iconic industrial and institutional architecture, nature and urban quality and materials.

One of the defining aspects of place is the scale of the river – the Shannon is a wide and “great” river – with consequent grand vistas created. This creates a distinct character, particularly when coupled with the necessitated responses in built scale when addressing the river – Riverside Walks, Quays/Quay Walls, River Navigation features including the Weir – as well as the landmark and iconic bridges – Shannon Rail Bridge and Custume Bridge.

Athlone is fortunate to also have significant lines and groups of trees along the urban river and a number of landmark buildings and attractive vernacular streets – Saints Peter and Paul’s Church, Custume Barracks, Abbey House, AIB Bank buildings, Athlone Castle and its environs.

These features and characteristics are summarised below:

Conservation Values – those values or aspects of the receiving environment that should be protected and conserved

- The pedestrian and visual amenity provided by the mature tree lined promenade from Luan Gallery to the Shannon Rail Bridge
- Views eastwards from the eastern promenade particularly to Abbey House and the Franciscan graveyard, and views to AIB Bank and Custume Bridge.
- Views to Shannon Rail Bridge
- Historic parkland setting of Abbey House and Graveyard.
- Distinctive and quality urban character of AIB building and east bank environs with Custume Bridge
- Views westwards to Luan Gallery / SS Peter and Paul Church, the tree lined promenade.

- Traditional street patterns and urban grain to eastern riverside south of Custume Bridge.
- Traditional street patterns and urban grain to western riverside south of Custume Bridge – Castle area and Quay.
- Urban composition looking west towards Castle and Quay area from east bank.
- Robust traditional masonry construction materials to key buildings, structures, walls and quays.
- Protected view in the town southwards from Grace Road / Shannon Railway Bridge, and also northwest (to the Castle and Custume Bridge) from the east bank to the south of Custume Bridge.

Enhancement Values – those aspects or characteristics of the landscape that are supportive of change and development.

- Further potential in the Castle and environs as a visitor attraction / arrival point
- Radisson Hotel building complex requires improved integration in the urban fabric.
- Developing marina destination
- Limited accessibility of the eastern bank.
- Developing café quarter on west bank around Castle Street / The Quay.
- Requirement for continued enhancement of Castle environs.
- Partially realised potential of Castle and Custume Place as destination point in Athlone.
- Policy supportive of further river crossing in the town centre area.
- Policy supportive of general urban and waterfront improvements.
- Routing of Galway – Dublin cycleway through Athlone.

9.4 Predicted Landscape Impact

9.4.1 Landscape Sensitivity

Whilst some of the core elements of the landscape exhibit a timeless quality and are inherently sensitive to change, in particular the central waterway corridor between the Shannon Railway Bridge and Custume Bridge, and the medieval character of the built environment bounding the eastern and western banks south of Custume Bridge, it must be acknowledged that there have been significant new developments in recent years impinging on these landscapes/riverscapes. This is inevitable in a living and developing town and it is the management of that change that is important in order to ensure that such change is positive and sensitive to the town's identity and character and landscape quality.

The receiving landscape is therefore classified as **medium sensitivity** (*exhibits positive character but has evidence of alteration to/degradation/erosion of elements and characteristics resulting in an area of mixed character, therefore potentially sensitive to change in general*).

9.4.2 Magnitude of Landscape Change

The physical scale of the proposed bridge is relatively modest due to its simple elegant form, physical presence and design language. In the context of an urban centre with only one existing bridge, policy to provide an additional crossing in the

central area and general recent and expected ongoing urban development appropriate to a living urban area, such change cannot be regarded as uncharacteristic. In this regard the magnitude of landscape change is classified as **medium** (*partial loss of or alteration to one or more key elements or features, and/or introduction of elements that may be prominent but may not necessarily be considered to be substantially uncharacteristic in the context of the receiving environment*).

9.4.3 Predicted Landscape Impact

The proposed bridge does impact on the open nature of the Shannon river in the town and long views north and south and east and west along the central river corridor, however this is minimal reflecting its slender form and design. The creation of a new crossing remains a positive aspect, and the location and urban design rationale creates positive new urban events and experiences – the new axis with the side entrance of the Church of SS Peter and Paul, the creation of a new urban and riverside context for the Radisson Hotel and increased animation of the marina area help integrate these large and relatively recent developments into the town centre. In addition it can be argued that the current visual characteristics of the open river are reflective of an undeveloped town centre, where more crossings over the river would be a natural result of the organic development of the town, creating a different more animated waterfront. Local policy contains an overall objective of enlivening and further enhancing the waterfront and accommodating a pedestrian crossing.

The significance of the proposed new bridge is **Medium** and on balance **Neutral – Beneficial** in terms of landscape impact *i.e. scheme complements the scale, landform and pattern of the landscape(townscape)/view and maintains landscape quality and enables repairs / removes damage caused by existing land uses.*

9.4.4 Mitigation Proposals

The proposed development consists of the approaches to a landmark new river crossing in the heart of Athlone.

As a result of navigational requirements the bridge deck is relatively high resulting in a large, elevated but light, simple and elegant structure. Mitigation of impacts has been in the form of a lengthy analysis of a range of location options, bridge forms and final design. The current location is regarded as the best fit for a treasured urban waterfront, the most positive in terms of integration with existing street patterns and urban features and the most complementary design in the context of the historic setting.

Other elements of the scheme encourage public access to the eastern riverside and help anchor the large Radisson Hotel complex in the town's urban fabric around a major new landmark piece of infrastructure. Works to the western bank and the ongoing development of the cycleway are in the form of further and appropriate public realm improvements to this area – in keeping with local policy objectives. Consideration of the public realm opportunities to the eastern riverfront should be explored.

9.5 Predicted Visual Impacts

Based on the assessment of the landscape characteristics, values and sensitivities, 11 viewpoints were selected for assessment of visual amenity impact. These are presented in Figure 9.1 of Volume 3 and are scheduled below.

| No. | Location / Description | Distance from Site |
|-----|--|--------------------|
| 1. | Custume Bridge south of the proposed crossing | 75m |
| 2. | East Bank Custume Bridge | 75m |
| 3. | Window of Luan Gallery – looking east | 0m |
| 4. | Grace Road at the proposed bridge location | 0m |
| 5. | Marina gangway north of the proposed crossing | 0m |
| 6. | Luan Gallery Looking North | 0m |
| 7. | Radisson Hotel riverfront at the eastern landing of the proposed crossing | 0m |
| 8. | Western riverside promenade 122m north of the proposed crossing | 122m |
| 9. | Listed Viewpoint adjacent the railway bridge | 300m |
| 10. | Athlone Castle 145m south of the proposed crossing | 145m |
| 11 | Western Riverside Promenade looking south along the R446 terraces. | 0m |

Each Viewpoint is illustrated by a photograph taken with a 35mm lens and on which the proposed view / photomontage is created. Viewpoint 1 (Custume Bridge) is also illustrated by a wide angle view.

Viewpoint 1 – Custume Bridge south of the proposed crossing



Plate 9.21 **Standard View**



Plate 9.22 **Wide Angle**

Existing View

This view is the iconic view upstream from Custume Bridge, often seen in promotional images of Athlone, Plates 9.21 and 9.22.

In the foreground and occupying much of the view into the distance are the open wide waters of the River Shannon looking north towards the elevated and iconic railway bridge. To the east, right of the view, can be seen the river boats moored at the pontoons / marina along the waterfront of the Radisson Hotel. The busy and attractive marina and young trees along the waterfront add interest to the façade. Further north the eastern bank becomes greener and more natural in character in the view. The tree lined western promenade provides strong and attractive enclosure to the river channel.

The view represents that typically experienced by pedestrians and to a lesser extent adjacent road users at a predominantly town centre although iconic viewpoint within Athlone.

The scene is of an urbanised river in transition. Whilst new development such as the hotel poses challenges in terms of scale and character, there are timeless qualities to the view – particularly the green river edges framing views towards the 165 year old bridge that is so representative of Athlone.



Plate 9.23 **Standard View**



Plate 9.24 **Wide Angle**

Proposed Change

The proposed development will result in a considerable change to the view, see Plates 9.23 and 9.24. A new access to the bridge ramp and deck will be constructed on the eastern side. This will create a new pedestrian and cyclist riverside corridor in front of the hotel. To the western side, the bridge will complement the contemporary Luan Gallery and will involve the loss of one of the minor trees to the north of the Luan Gallery. Two mature trees at the north end of the ramp will be removed, one because it is in poor condition and the other due to excavation work within their root zone. Whilst there will be some localised thinning of the tree group in the view, the close proximity of the trees means that this loss will be limited visually and over time mitigated as adjacent tree crowns expand into the open space. The slender structure of the bridge can be seen gracefully extending across the river from west to east, its slim form reflecting its contemporary design language in contrast to the more distant and 165 year old rail bridge to the north, which will be partly obscured by the new structure.

Aesthetically, the composition introduces a large but elegant new structure which enlivens the currently open and bland views of the large blocks of the Radisson Hotel and also creates a strong new urban structure or axis around which the hotel will now be organised. The new bridge and its pedestrians and cyclists will be the focal point of the view, adding a dynamic pattern of river crossings in the heart of the town. It will be important to maintain boating activity and mooring along the eastern bank in and around the bridge location. Nonetheless the iconic view north to the rail bridge will be lost or diminished from this location – although this view could be experienced perhaps more comfortably from the new pedestrian and cycle bridge.

Visual Impact

The viewpoint sensitivity is High, although an urban centre location, it is still an iconic and much loved view.

The magnitude of change will be High - alteration to the key elements or characteristics of the view.

The significance of the change will be High and Permanent.

Qualitatively the impact will be Neutral (complements the scale, landform and pattern of the landscape (townscape)/view and maintains landscape quality) to **Beneficial** (improves landscape (townscape)/view quality and character, fits with the scale, landform and pattern and enables the restoration of valued characteristic features or repairs / removes damage caused by existing land uses).

A valued local and iconic view will be removed from Custume Bridge and the open river views to the rail bridge will be altered. However, whilst such change could be regarded as adverse, within the view a new, elegant and attractively designed structure will be introduced creating an attractive new feature repairing the urban form in relation to the large hotel building, and positively developing the urban character of the town at this location. The iconic view will not be lost and could still be experienced, perhaps more comfortably, from the new pedestrian and cycle bridge. The important tree group along the western promenade will be retained although individual trees will require removal and where appropriate replacement. Overall, the development will maintain much of the landscape quality and qualities as well as making a significant contribution in itself.

Viewpoint 2 – East Bank Custume Bridge



Plate 9.25 Existing View

This view is from Custume Bridge on the Eastern Bank of the river adjacent to the AIB bank, Plate 9.25.

In the foreground can be seen the masonry structure of Custume Bridge and the Bank building. In the middle ground can be seen the open wide waters of the River Shannon looking west towards the Luan Gallery, the Church of St Peter and Paul and the tree lined western riverside promenade. In the distance can be seen the walls and buildings of Custume Barracks.

To the east, right of the view, can be seen the river boats moored at the pontoons / marina along the waterfront of the Radisson Hotel.

This is an attractive viewpoint and similar in experience to Viewpoint 1, without any negative elements.

The scene is very attractive composed of simple elements – the contemporary Luan Gallery, the Church and Barracks and the mature trees along the western bank and open river waters.



Plate 9.26 Proposed Change

The proposed development will result in major change to the view, Plate 9.26. The new bridge will introduce a significant new structure into the view - the slender form of the bridge gracefully extending across the river from east to west and deliberately aligned with the western entrance to the church – although its relatively transparent form only partly obscuring the western promenade looking north west. The contemporary composition of church and gallery will remain linked back across the river close to the viewer in a dramatic new and deliberate urban pattern. The mature tree group that forms the western promenade just north of the landing point will be retained as a feature, although some individuals removed, maintaining the landscape amenity and structure here. Additional suitable semi-mature species within the new landscape will be planted at the landing areas to replace those lost.

Aesthetically, the composition introduces a large but graceful and well considered new structure. The new bridge and its elegant form, and pedestrians and cyclists, becoming the focal point of the view and adding/developing a dynamic pattern of river crossings in the heart of the town. It will be important to maintain boating activity and mooring in and around the bridge location.

Visual Impact

The viewpoint sensitivity is High, an important experience of Athlone.

The magnitude of change will be High - alteration to the key elements or characteristics of the view.

The significance of the change will be High and Permanent.

Qualitatively the impact will be Neutral (complements the scale, landform and pattern of the landscape (townscape)/view and maintains landscape quality). The existing view is very attractive with no negative elements. The new bridge will obscure certain features in the view and affect the setting of the landmark church, but the bridge will also be a new elegant structure in its own right and represent positive development within the town. It will also create a new place with its own views and experiences.

Viewpoint 3 – Window of Luan Gallery – looking east



Plate 9.27 Existing View

This view is from mid-way along the internal corridor of the Luan Gallery and represents the gallery itself and the external riverside promenade, both attractive amenities and places of interest in Athlone, Plate 9.27.

In the foreground and middle distance are the open wide waters of the River Shannon looking east towards the marina and, further east, the Radisson Hotel. The hotel presents a very long bland, rendered shades of pink, façade to the river. The busy and attractive marina and young trees along the waterfront add interest to the façade.

The scene is of an urbanised busy river in transition. The scale of the river helps to anchor the large hotel and the colourful and random toing and froing of the boats in the river creates an interesting and active composition.

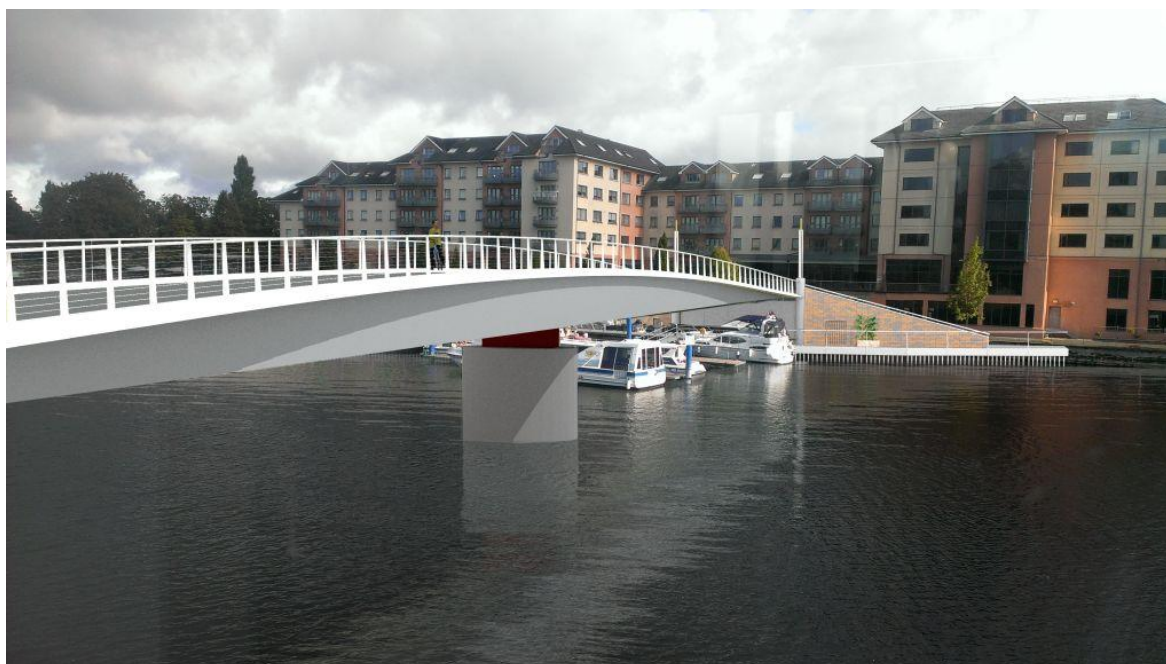


Plate 9.28 Proposed Change

The proposed development will result in a considerable change to the view, Plate 9.28. The marina berths will be temporarily displaced. The new ramp to allow access to the bridge ramp and deck on the eastern side will be visible creating a new pedestrian and cyclist riverside corridor in front of the hotel. The elegant form of the bridge can be seen gracefully extending across the river from west to east, reflecting a contemporary design language.

Aesthetically the composition will introduce a large but simple new structure which partly softens the currently open views of the large blocks of the Radisson Hotel and also creates a strong new urban structure or axis around which the hotel will now be organised. The new bridge and its elegant but transparent form, and pedestrians and cyclists, and a new activity / buzz will become the focal point of the view and develop a dynamic pattern of recurring river crossings in the heart of the town. Boating activity and mooring along the eastern bank will be maintained in and around the bridge location during operation.

Visual Impact

The viewpoint sensitivity is High, representing an amenity / leisure area where people are enjoying the view.

The magnitude of change will be High - alteration to the key elements or characteristics of the view.

The significance of the change will be High and Permanent.

Qualitatively the impact will be Neutral (complements the scale, landform and pattern of the landscape(townscape)/view and maintains landscape quality) to **Beneficial** (improves landscape(townscape)/view quality and character, fits with the scale, landform and pattern and enables the restoration of valued characteristic features or repairs / removes damage caused by existing land uses).

The proposed bridge and associated eastern bank interventions complements the scale of the hotel and river as well as creating an attractive new feature repairing the urban form and positively developing the urban character of the town at this location.

Viewpoint 4 – Grace Road at the proposed bridge location



Plate 9.29 Existing View

This view is from Grace Road along the western bank of the river adjacent to the Luan Gallery – a road and cultural destination with local people and visitors, Plate 9.29. The location is also aligned with the eastern entrance to the St Peter and Paul Church (behind the viewer) – part of the urban design rationale underlining the bridge location and the resulting urban set-piece.

In the foreground, and occupying much of the centre ground, are the stone paved spaces and service areas around the Luan Gallery, beyond which can be seen waters of the river Shannon and river boats moored at the pontoons / marina along the waterfront of the Radisson Hotel. As previously described the hotel façade is large overlooking the river however the overriding impression is an attractive and busy marina and waterfront. The bridge location at this point is aimed at improving the urban form and structure around this large and important commercial development in the centre of Athlone and seeking to make it more active and successful.

The view represents that typically experienced by pedestrians and to a lesser extent adjacent road users at this location.

The scene is of an urbanised river in transition, with the Radisson Hotel dominating the view. The scale of the river helps to anchor these large buildings, and the colourful and random toing and froing of the boats in the river creates an interesting and active composition.



Plate 9.30 Proposed Change

The proposed development will result in a considerable change to the view, Plate 9.30. The new bridge will land in the terrace adjacent the Luan Gallery opening, to the footpath on Grace Road. Car-parking and related uses will be moved elsewhere. The bridge deck will pass eastwards across the river to the Radisson hotel riverfront. The existing marina will be partly repositioned and a new access ramp along the eastern bank constructed to allow access to the bridge ramp and deck on the eastern side. This will create a new pedestrian and cyclist riverside corridor in front of the hotel. The gently arched deck of the bridge can be seen gracefully extending across the river from west to east.

Aesthetically the composition introduces a large new structure obscuring views of the river itself and some of the boating activity from this location. It will break up the currently open views of the large blocks of the Radisson Hotel but also create a link to the hotel and the eastern riverside. The new bridge and pedestrians and cyclist activity will become the focal point of the view.

Visual Impact

The viewpoint sensitivity is Medium, representing people travelling through the landscape along the road.

The magnitude of change will be High - alteration to the key elements or characteristics of the view.

The significance of the change will be High and Permanent.

Qualitatively the impact will be Neutral. The proposed bridge and associated eastern bank interventions complement the scale of the hotel and maintain landscape quality and qualities.

Viewpoint 5 – Marina gangway north of the proposed crossing



Plate 9.31 Existing View

This view is from the gangplank of the waterfront marina on the eastern side of the river, Plate 9.31.

The view looks south along the eastern bank towards Custume Bridge. In the foreground and middle distance is the waters of the River Shannon and the existing marina and pontoons including moored vessels. To the left (east) can be seen the terraced riverside edge of the Radisson Hotel and its young trees.

The scene illustrates attractive and typical bustling waterside activity of the marina area coupled with the backdrop of Custume Bridge and the adjacent hotel.



Plate 9.32 Proposed Change

The proposed development will result in some change to the view, Plate 9.32. The new bridge will be visible, however its considered slender beam and deck alignment mean it merges with the elevation of Custume Bridge and is not intrusive.

The eastern bank will be reconstructed to accommodate the bridge access ramp with the loss of some greenery / trees.

Aesthetically the composition introduces a large new graceful structure into the view that is relatively unobtrusive. The marina remains operational and the new riverside ramps further animate this location. Further enhancement could involve additional trees along the bank to create a tree lined character/promenade.

Visual Impact

The viewpoint sensitivity is High, representing users of outdoor recreation facilities or centres of activity focussed on the landscape.

The magnitude of change will be High - alteration to the key elements or characteristics of the view.

The significance of the change will be High and Permanent.

Qualitatively the impact will be Neutral. The proposed bridge and associated eastern bank interventions complement the scale of the hotel and maintain landscape quality and qualities.

Viewpoint 6 – Luan Gallery Looking North



Plate 9.33 Existing View

This view is from mid way along the internal corridor of the Luan Gallery and represents the gallery itself and the external riverside promenade, both attractive amenities and places of interest in Athlone. This view is orientated north towards the railway bridge, Plate 9.33.

In the foreground and middle distance are the open wide waters of the River Shannon looking north towards the railway bridge. To the east the marina occupies the central right hand side of the view. Beyond the marina the trees around Abbey House can be seen.

The scene is of an urbanised busy river. The elements making up the view are simple – Water, Bridge, Trees and Boats - the colourful and random toing and froing of the boats in the river creating an interesting and active composition.



Plate 9.34 Proposed Change

The proposed development will result in major change to the view, Plate 9.34. The new bridge will introduce a significant new structure into the foreground view extending across the river from west to east.

Whilst the new structure will be quite dominant much of the attractive views to the river, marina, railway bridge and trees will still be visible, and indeed the new bridge provides an opportunity to enjoy them further. The new bridge and its users will add to the bustle of the river corridor and western promenade and introduce new activity that is complementary to the existing area character.

Visual Impact

The viewpoint sensitivity is High – this is a leisure, recreational and cultural setting with people enjoying the river amenity.

The magnitude of change will be High - alteration to the key elements or characteristics of the view.

Qualitatively the impact will be Neutral (complements the scale, landform and pattern of the landscape(townscape)/view and maintains landscape quality).

Viewpoint 7 – Radisson Hotel riverfront at the eastern landing of the proposed crossing



Plate 9.35 Existing View

This view is from the waterfront at Radisson Hotel on the eastern side of the river, Plate 9.35.

In the foreground and middle distance is the waters of the River Shannon and the existing marina and pontoons including a moored vessel. The view looks west towards the Church of St Peter and Paul directly at the eastern entrance to the church. To the right (north) can be seen the start of the tree lined promenade and beyond Custume Barracks. To the left (south) can be seen the Luan Gallery.

The scene is very attractive and typical of a bustling waterside activity or marina area.



Plate 9.36 Proposed Change

The proposed development will result in major change to the view, Plate 9.36. The new bridge will introduce a significant new structure into the view and the deck will be prominent travelling from east to west directly in front of the viewer.

Aesthetically the composition introduces a large new structure which will obscure views directly to the water and activity as well as providing a new viewing platform for them. The location and alignment is part of a new urban axis linking the hotel with the prominent entrance to the church on the west bank. The new activity and animation created by the users of the bridge, coupled with the religious, cultural and recreational context of other uses will enliven this part of the urban river further.

Visual Impact

The viewpoint sensitivity is High – this is a leisure, recreational and hotel setting with people enjoying the river amenity.

The magnitude of change will be High - alteration to the key elements or characteristics of the view.

The significance of the change will be High and Permanent.

Qualitatively the impact will be Neutral. Views to the western promenade and church will be altered and replaced with a new structure, resulting in, from this viewpoint, the loss of the marina and clear views of the landmark church. However there will also be the additional animation resulting from the structure at this location and the urban design rationale ensuring it is complementary to the townscape. Any potential adverse impact will be very viewpoint specific and a few steps forward open up the composition intended and alignment with the church eastern entrance and facade.

Viewpoint 8 – Western riverside promenade 122m north of the proposed crossing



Plate 9.37 Existing View

This view is from the pedestrian tree lined promenade running along the western bank of the river – a popular walk with local people and visitors, Plate 9.37. In the foreground and occupying much of the centre ground are the open wide waters of the river Shannon. On the eastern side of the river, boats are moored at the pontoons / marina along the waterfront of the Radisson Hotel, presenting a very long, bland, rendered shades of pink, façade to the river. South of the large hotel can be seen one of Athlone's building gems – the AIB bank in its simple dressed stone façade. Beside this a flight of stone steps leads down to the river adjacent to the broad arches of Costume Bridge running from east to west across the river. To the rear and south of the bridge and closing the view is a landmark more contemporary building in a white rendered finish.

The view represents that typically experienced by pedestrians and to a lesser extent adjacent road users at a predominantly leisure or amenity location.

The scene is of an urbanised river in transition with more recent developments dominating and out of scale with the more intimate and detailed historic elements. Nonetheless the timeless quality and scale of the river helps to anchor these disparate elements, coupled with the colourful and random toing and froing of the boats in the river and at the eastern pontoons creating an interesting and active composition.



Plate 9.38 Proposed Change

The proposed development will result in a considerable change to the view, Plate 9.38. The existing marina will be partly repositioned, and the eastern bank reconstructed to allow access to the bridge ramp and deck. This will create a new pedestrian and cyclist riverside corridor in front of the hotel. The light elegant bridge can then be seen gracefully extending across the river. Whilst this partly obscures views to Costume Bridge, the light structure only partly reduces views to the heritage elements in the existing view.

Aesthetically the composition introduces a large but slender new structure which simultaneously starts to anchor the large blocks of the Radisson Hotel in a new urban structure/axis and active hub, whilst its relatively contemporary design sits comfortably with the heritage structures behind.

Visual Impact

The viewpoint sensitivity is High, representing an amenity / leisure area where people are enjoying the view.

The magnitude of change will be High - alteration to the key elements or characteristics of the view.

The significance of the change will be High and Permanent.

Qualitatively the impact will be Neutral. The proposed bridge will partly obscure the historic Costume Bridge and the open water character – this could be regarded as a loss and adverse impact on this view. Nonetheless the bridge will complement the scale of more recent developments and the landscape quality and qualities. The bridge will also be a positive addition to the view, the urban design rationale ensuring it is complementary to the townscape and adding activity, hustle and bustle to the town centre.

Viewpoint 9 - Listed Viewpoint adjacent the railway bridge



Plate 9.39 Existing View

This view is from the slipway upstream from the Athlone Boat Club on the western bank of the river – part of the western promenade and a popular walk with local people and visitors, Plate 9.39. In the foreground and occupying much of the centre ground are the open wide waters of the river Shannon. On the eastern side of the river, the trees adjacent Abbey Road can be seen, further south along the river boats are moored at the pontoons / marina along the waterfront of the Radisson Hotel. The hotel presents a large, bland, rendered shades of pink, façade to the river. Custume Bridge can be partly seen in the distance travelling east to west across the river. To the west (right) of the view the slipway, boat club and tree lined riverside can be seen and in the distance the bell tower of the Church of St Peter and Paul.

The view represents that typically experienced by pedestrians and to a lesser extent adjacent road users at a predominantly leisure or amenity location.

The scene is of an urbanised river in transition with more recent slightly over scaled developments and historic and parkland features. The timeless quality and scale of the river helps to anchor these disparate elements, coupled with the colourful and random toing and froing of the boats in the river and at the eastern pontoons creating an interesting and active composition.



Plate 9.40 Proposed Change

The proposed development will result in some changes to the view, Plate 9.40. The existing marina will broadly remain and the eastern bank reconstructed at the hotel to allow access to the bridge ramp and deck. This will create a new pedestrian and cyclist riverside corridor in front of the hotel. The light elegant bridge can then be seen gracefully extending across the river, although from this distance will be less dominant in the view. Whilst this partly obscures views to Costume Bridge, the slender structure only partly reduces views to the heritage elements in the existing view.

Aesthetically, the composition introduces a large but contemporary new structure which simultaneously starts to anchor the large blocks of the Radisson Hotel in a new urban structure/axis and active hub, whilst providing a contemporary foil to the historic elements in the view.

Visual Impact

The viewpoint sensitivity is High, representing an amenity / leisure area where people are enjoying the view.

The magnitude of change will be Medium (partial loss of or alteration to one or more key elements or features, and/or introduction of elements that may be prominent but may not necessarily be considered to be substantially uncharacteristic in the context of the view).

The significance of the change will be High and Permanent.

Qualitatively the impact will be Neutral. The proposed bridge and associated eastern bank interventions complement the scale of more recent developments and heritage features and maintain landscape quality and qualities.

Viewpoint 10 – Athlone Castle 145m south of the proposed crossing



Plate 9.41 Existing View

This view is from the fortifications of Athlone Castle and looks north east over Custume Bridge towards the Radisson Hotel, Plate 9.41.

In the foreground, Custume Bridge can be seen and to the left (west) the Luan Gallery. The middle ground contains the marina and its boats. The eastern bank is dominated by the large Radisson Hotel. Further upstream the eastern bank is greener in character.

The view represents that experienced by visitors to the castle, an important heritage and tourist attraction in Athlone and the destination cycle hub of the proposed cycleway.

The scene is of an urbanised river in transition. The large hotel block out of scale with its environs and the colourful and random toing and froing of the boats in the river creates an interesting and active composition with the large waterbody holding the disparate elements together.



Plate 9.42 Proposed Change

The proposed development will see the introduction of the new bridge to the view, Plate 9.42. The existing marina will be temporarily displaced, with a new pedestrian and cyclist riverside corridor in front of the hotel. However the elegant structure of the bridge can be seen gracefully extending across the river from east to west, disappearing behind the Luan Gallery in the foreground.

Aesthetically the composition introduces a large but relatively slender new structure which links the large blocks of the Radisson Hotel to the river and also creates a strong new urban structure or axis around which the hotel will now be organised/anchored. The new bridge and the associated eastern access and promenade will add activity and interest to the riverfront and view. Boating activity and mooring along the eastern bank in and around the bridge location will be maintained.

Visual Impact

The viewpoint sensitivity is High, representing a heritage / tourism location where people are enjoying the view.

The magnitude of change will be Medium (partial loss of or alteration to one or more key elements or features, and/or introduction of elements that may be prominent but may not necessarily be considered to be substantially uncharacteristic in the context of the view).

The significance of the change will be High and Permanent.

Qualitatively the impact will be Neutral – Beneficial. The proposed bridge and associated eastern bank interventions complement the scale of the hotel and river. The bridge will

create an attractive new feature, repairing the urban form and positively developing the urban character of the town at this location.

Viewpoint 11 – Western Riverside Promenade looking south along the R446 terraces.



Plate 9.43 Existing View

This view is taken from the west bank of the proposed development, north of the Luan Gallery, Plate 9.43.

Centrally in the view can be seen the various stone walls and resulting lawned terraces and row of mature trees that run along the western riverside bank between the river and the road. The R446 can be seen to the right of the view with the Church of Saint Peter and Paul beyond and above the adjacent stone retaining wall. The River Shannon can be seen to the left of the view.

The view represents that experienced by pedestrians enjoying the river walk at this location and is an attractive urbanised riverside view with distinctive heritage features in the stone walls and a landmark building overlooking the scene.

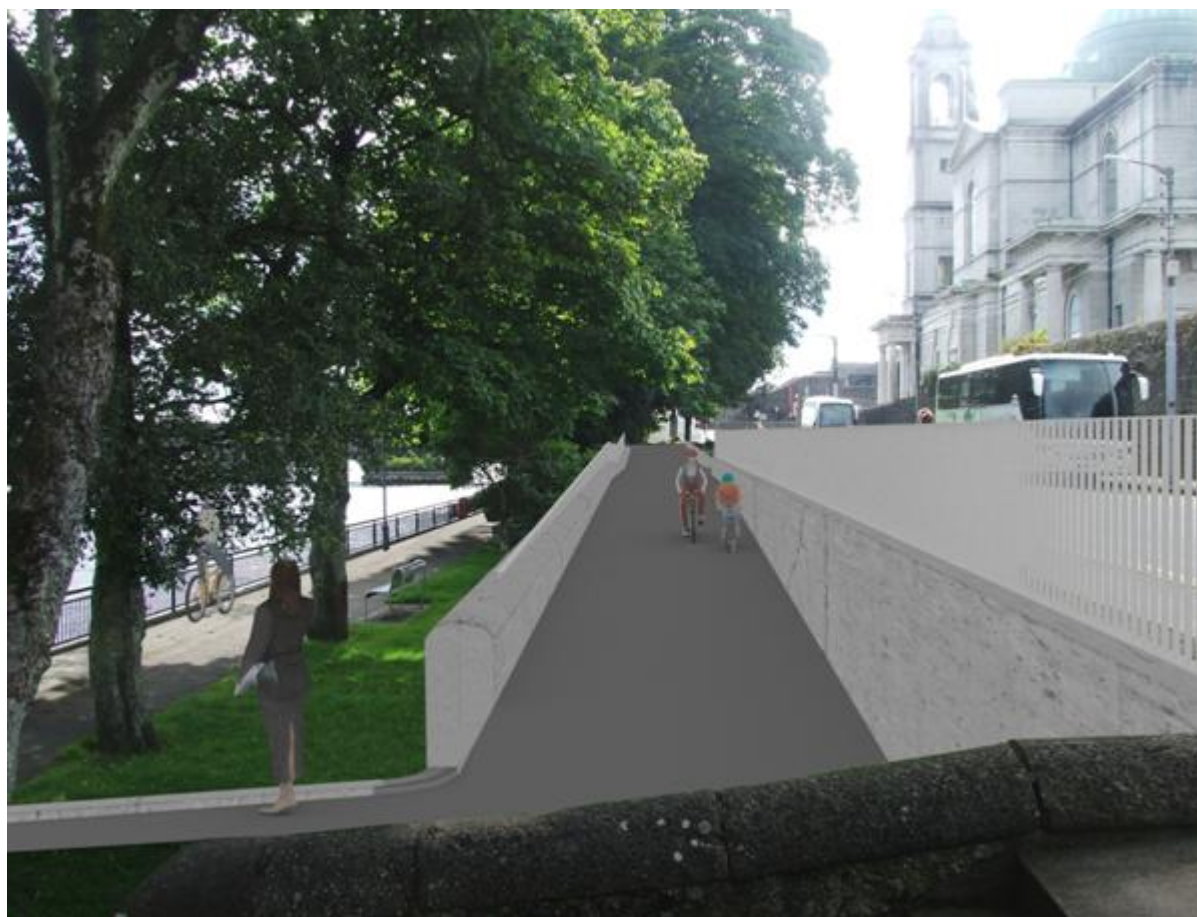


Plate 9.44 Proposed Change

The proposed development will see the introduction of the western ramp to the view, Plate 9.44. The ramp is designed to use the redundant heritage walls present which separate the construction and ramp area from the root zone of the adjacent trees. The main change is the loss of the existing lawn and the introduction of a paved surface and the associated pedestrian and cycling users.

The proposed new ramp is integrated into existing built structures. Whilst the attractive lawned area will be lost, the new ramp will introduce more activity and functionality to the riverside, animating and enlivening this attractive part of the urban area. It is a practical and distinctive solution to the levels issues posed by the bridge and cycleway whilst preserving the most important landscape features i.e. the mature trees along the river, and the heritage walls.

Visual Impact

The viewpoint sensitivity is High, representing a heritage / tourism location where people are enjoying a local amenity along the river.

The magnitude of change will be Medium (partial loss of or alteration to one or more key elements or features, and/or introduction of elements that may be prominent but may not necessarily be considered to be substantially uncharacteristic in the context of the view).

The significance of the change will be High and Permanent.

Qualitatively the impact will be Neutral. The proposed western ramp, although a significant change, will complement its surroundings. With careful detailing, the impact will improve to **Beneficial**.

Table 9.2 Summary of Visual Impact Assessment

| No. | Location / Description | Viewpoint Sensitivity | Magnitude of Change | Significance | | |
|------|---|-----------------------|---------------------|-----------------------------|-----------------------------|-----------------------------|
| | | | | Short Term | Medium Term | Long Term / Permanent |
| 1 | Custume Bridge south of the proposed crossing | High | High | High & Neutral - Beneficial | High & Neutral - Beneficial | High & Neutral - Beneficial |
| 2 | East Bank Custume Bridge | High | High | High & Neutral - Beneficial | High & Neutral - Beneficial | High & Neutral - Beneficial |
| 3 | Window of Luan Gallery – looking east | High | High | High & Neutral - Beneficial | High & Neutral - Beneficial | High & Neutral - Beneficial |
| 4 | Grace Road at the proposed bridge location | Medium | High | High & Neutral | High & Neutral | High & Neutral |
| 5 | Marina gangway north of the proposed crossing | High | High | High & Neutral | High & Neutral | High & Neutral |
| 6 | Luan Gallery Looking North | High | High | High & Neutral | High & Neutral | High & Neutral |
| 7 | Radisson Hotel riverfront at the eastern landing of the proposed crossing | High | High | High & Neutral | High & Neutral | High & Neutral |
| 8 | Western riverside promenade 122m north of the proposed crossing | High | High | High & Neutral | High & Neutral | High & Neutral |
| 9 | Listed Viewpoint adjacent the railway bridge | High | Medium | High & Neutral | High & Neutral | High & Neutral |
| 10 | Athlone Castle 145m south of the proposed crossing | High | Medium | High & Neutral - Beneficial | High & Neutral - Beneficial | High & Neutral - Beneficial |
| 11 | Western Ramp and Riverside Promenade looking south along the R446 terraces. | High | Medium | High & Neutral - Beneficial | High & Neutral - Beneficial | High & Neutral - Beneficial |
| | | Beneficial | Neutral | Adverse | | |
| High | Medium | Low | L, M, H | Low | Medium | High |

Table 9.2 illustrates that of the 11 viewpoints selected, all experience High changes in Significance. In general these are neutral in character, in some instances – viewpoints 1, 3 and 10 borderline beneficial in terms of the quality of change.

This reflects a neutral change or development that is generally complementary to the riverside townscape and well considered, albeit a large built intervention. Where the effect is beneficial it is because the bridge is improving townscape and repairing damaged characteristics, particularly in providing a new urban axis that helps anchor the large built form of the Radisson Hotel in the urban fabric.

9.6 Conclusions

Mitigation of landscape and visual impacts has been in the form of a lengthy analysis of a range of location options, bridge forms and final design. The current location is regarded as the best fit for a treasured urban waterfront, the most positive in terms of integration with existing street patterns and urban features and the most complementary design in the context of the historic setting.

In landscape terms the proposed bridge does impact minimally on the open nature of the Shannon river in the town and long views north and south and east and west along the central river corridor. This reflects its slender form and design. The creation of a new crossing remains a positive aspect, and the location and urban design rationale creates positive new urban events and experiences – the new axis with the side entrance of the Church of SS Peter and Paul, the creation of a new urban and riverside context for the Radisson Hotel and increased animation of the marina area help integrate these large and relatively recent developments into the town centre.

The current visual characteristics of the open river are reflective of an undeveloped town centre, where more crossings over the river would be a natural result of the organic development of the town, creating a different more animated bustling waterfront. Local policy supports an overall objective of enlivening and further enhancing the waterfront and accommodating a pedestrian crossing.

The significance of the proposed new bridge is Medium and on balance Neutral – Beneficial in terms of landscape impact i.e. *scheme complements the scale, landform and pattern of the landscape(townscape)/view and maintains landscape quality and enables repairs / removes damage caused by existing land uses.*

The visual Impact study reflects the landscape assessment findings. Whilst in the context of views some attractive features are lost, on balance the bridge and crossing is complementary to the qualities in the view. Characteristics lost e.g. the views, will be recreated in the experience crossing the bridge itself. The opportunistic integration of the western ramp in the terraced structure of the western bank minimises the impact on the protected trees along the promenade – some trees are lost but the overall feature retained. In incorporating significant new engineering works in this area there is an opportunity for new riverside trees to add to the tree lined river character and experience, and the interaction between the marina and the crossing.

On balance the proposed development represents significant but considered and complementary change to the urban riverside in Athlone.

9.6.1 Mitigation

The process of development of the finalised bridge proposal has been an iterative one involving the integration of mitigation in the design process reflecting the following:

- Location / Bridge alignment examining several locations and the final preferred alignment informed by an Urban Design study to inform the best location from a townscape and urban form perspective as well as a practical and functional perspective.
- Architectural design of the bridge to create an elegant structure to occupy views along the central river corridor i.e. potential adverse impacts are offset by the creation of an attractive new and significant structure with a positive and beneficial role and presence in the town centre.
- Views changed by the presence of the bridge, particularly iconic views north along the river from Custume Bridge towards the railway viaduct, are actually relocated to the new pedestrian and cycleway bridge providing a more pleasant (non-vehicular) setting to enjoy the views.
- Careful design of the western landing and access ramps to minimise impact on trees and also to reflect the distinctive historic character here as previously partly sub-surface river walls are exposed and used to accommodate the bridge approaches.
- Repair of the built form on the eastern river bank as the new links and structure provided by the bridge assist in integrating the large Radisson Hotel building into the town/riverscape.

The bridge cannot and should not be screened / hidden. It should have a distinctive and strong contemporary presence in the town and it's life. This it does. Further mitigation that will assist is the ongoing realisation of the urban design opportunities offered by the bridge:

- Realising the elegant design in construction.
- Ensuring opportunities presented to the eastern bank / Radisson Hotel to enhance the riverside as a place of promenade and lingering as well as access to the bridge are developed further.
- Further tree planting, particularly to the eastern riverside, to compose the setting of the new bridge and wider river corridor.

The above can be considered both as part of the ongoing detailed design phase as well as part of parallel urban design enhancements for the town centre into the future.

Chapter 10

Noise and Vibration

Chapter 10

Noise & Vibration

10.1 Introduction

This is a non traffic route located within an urban setting and it is considered that the construction and operation of the development will have limited impact on the existing noise levels in the town area. To this end, the proposal does not warrant a noise monitoring programme. As part of this EIS, a desk based review of the background noise levels and potential impacts from the proposed development has been carried out. This assessment also identifies any potential sensitive receptors.

10.2 Methodology

A desktop noise assessment was conducted in order to assess the impacts of the proposed development on the existing noise environment. The aim of the desktop assessment was to determine the potential impacts of noise generated on the noise sensitive receptors. The following standards and guidelines were used in completing this assessment:

- EPA (2016) Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4);
- EPA (September 2015) Revised Guidelines on the Information to be contained in Environmental Impact Statements;
- EPA (September 2015) Advice Notes For Preparing Environmental Impact Statements;
- NRA (2014), Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes;
- NRA (2004), *NRA Guidelines for the Treatment of Noise & Vibration on National Road Schemes*, 2004, National Roads Authority. Revision 1;
- EPA (2002), Guidelines on the Information to be contained in Environmental Impact Statements;
- EPA (2003), Advice Notes on Current Practice in the preparation of Environmental Impact Statements;
- Westmeath County Council, Noise Action Plan 2013 – 2018;
- BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites. Noise;
- BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites. Vibration;
- EPA (2006), *Guidance Note for Noise in Relation to Scheduled Activities*, 2nd Edition: Acquisition of data pertinent to land use;
- WHO (1999), *Guidelines for Community Noise*, World Health Organisation;
- British Standard BS 7385-2 (1993): *Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration*;

A study area of 50m either side of the proposed alignment along the route has been applied for this assessment and was examined to identify sensitive receptors. The 50m corridor at either side of the route was selected based on the nature of the development (non-traffic cycleway) and the existing noise environment along the route (urban area with existing noise sources, i.e. traffic). Sensitive receptors were identified using OSI mapping and aerial photographs.

Noise Criteria

Noise is typically defined as “unwanted sound”, with sound being the human sensation of pressure fluctuations in the air. Sound levels are expressed in decibels (dB) on a logarithmic scale, where 0 db is nominally the “threshold of hearing” and 120 dB to 140 dB is nominally the “threshold of pain”. The effects of noise on people can be assessed in terms of subjective effects (annoyance, nuisance), interference effects (sleep, activities) and physiological effects. Environmental noise typically produces subjective and interference impacts while occupational noise can produce physiological effects. The reactions to noise can vary widely and as such it makes it difficult to predict the impact of noise on the receiving environment. Predictions can be made on the reactions to an increase in noise levels above that of ambient/existing noise levels. Depending upon the circumstances and characteristics of the sound in question, a change in level of 3 dB is just perceptible, whereas an increase of 10dB is perceived as a subjective doubling of loudness (TII/NRA, 2004).

When assessing the impact of the proposed cycle way on the noise environment, it is considered that during the operational phase, there will be limited noise levels. The main consideration is the noise generated during the construction phase of the project.

A mechanism known as “A-weighting” has been adopted in order to account for this non-linearity of the human ear. Sound levels expressed using “A-weighting” are typically denoted dB (A). The parameter most commonly used for the assessment of noise impact is LAeq, which is defined as being the A-weighted equivalent continuous steady sound level during the sample period and effectively represents an average value (TII/NRA, 2004).

Vibration Criteria

Vibration is defined as a regularly repeated movement of a physical object about a fixed point (TII/NRA, 2004). This is measured as Peak Particle Velocity (PPV), expressed as mm/s. The effects of ground-borne vibration on buildings are dependent upon a range of factors, including the magnitude and duration of the vibration, structure of the soil, and design of building etc. Exposure to vibration can cause annoyance and in some cases health issues. Human beings are particularly sensitive to vibration stimuli and that any perception of vibration may lead to concern.

Vibrations may be generated through vehicle movement and certain construction activities. This is a non traffic development and as such there will be no vibrations associated with the operational phase of the project.

In the case of continuous sources of vibration (such as traffic), vibration is perceptible at around 0.5 mm/s and may become disturbing or annoying at higher magnitudes. However, higher levels of vibration are typically tolerated for single events or events of short duration (TII/NRA, 2004).

With regards to construction vibration, the TII/NRA Guidelines outline the limits listed in Table 10.1, in respect of ensuring that no cosmetic damage occurs to buildings in the vicinity of construction works.

Table 10.1 Allowable vibration during road construction in order to minimise the risk of building damage

| Allowable vibration velocity (Peak Particle Velocity) at the closest part of any sensitive property to the source of vibration, at a frequency of | | |
|---|------------|-------------------------|
| Less than 10Hz | 10 to 50Hz | 50 to 100Hz (and above) |
| 8 mm/s | 12.5 mm/s | 20 mm/s |

In addition, the TII/NRA Guidelines suggest that human tolerance for daytime blasting and piling, two of the primary sources of construction vibration, limits vibration levels to a peak particle velocity (ppv) of 12mm/s and 2.5mm/s respectively.

10.3 Existing Environment

The setting is urban with the site of the proposed development surrounded by a mix of historic buildings and structures, tourism sites, commercial and residential properties (including the Radisson Hotel, Apartments, Athlone Marina, SS Peter and Paul's Catholic Church, Athlone Methodist Church, the Luan Art Gallery, Athlone Castle, and numerous commercial units). The streetscape in the vicinity of the proposed crossing is generally above river level at the proposed crossing point.

The nature of noise levels along the proposed route of the development range from urban area of Athlone Town to relatively quiet residential areas. Noise levels within the town are expected to be traffic dominated and are assumed to be in the order of 65 – 69 Lden and 60 – 64 Lnight (Westmeath Noise Map 1 & 13, 2013-2018). According to the County Westmeath Noise Action Plan 2013-2019 within the residential areas surrounding the site the noise levels vary from a range of up to 45 dB Lnight and 64dB Lden.

Sensitive Receptors

Within the surrounding environment some receptors are considered more sensitive to noise levels than others, depending on the amount of exposure to the generated noise and the types of activities. The following are considered to be noise sensitive as per the County Westmeath Noise Action Plan 2013 – 2018:

- Residential Areas
- Hospitals
- Schools
- Places of Worship

Additional sensitive receptors include boat users at the marina, the Radisson Hotel, recreational and office facility users and biodiversity receptors in the surrounding area. Noise and disturbance during the construction phase may disturb some of the fauna on the site and adjacent to the site, however, as the site is already subject to high levels of anthropogenic activity in the form of an existing marina with urban town centre and public amenity activities occurring on either bank these impacts are not considered to be significant.

10.4 Impact Assessment

The likely significance of noise levels towards sensitive receptors is determined in consideration of the magnitude of the impact, its integrity, its duration and its probability (NRA, 2004).

10.4.1 Construction Impacts

The construction of the proposed development at the specified river crossing point in the town centre is expected to result in short-term noise impacts on nearby sensitive receptors, such as residential and tourist properties (Radisson Hotel, Silver Quay Apartments and Athlone Marina - see section 10.3) located on the east bank of the river Shannon. There is no published Irish guidance relating to maximum permissible noise levels generated from the construction phase of a project. In the absence of specific noise limits, the noise levels provided in Table 10.1 are typically deemed acceptable as a guideline (NRA, 2004).

Table 10.2 Maximum Permissible Noise Levels at the facade of dwellings during construction

| Days & Times | L _{Aeq} (1hr) dB | L _{pA(max)slow} dB |
|---|---------------------------|-----------------------------|
| Monday to Friday 07:00 to 19:00 hrs | 70 | 80 |
| Monday to Friday 19:00 to 22:00 hrs | 60 ¹ | 65 ¹ |
| Saturday 08:00 to 16:30 hrs | 65 | 75 |
| *Sunday and Bank Holidays 08:00 to 16:30 hrs | 60 ¹ | 65 ¹ |

Source: NRA Guidelines for the Treatment of Noise and Vibration in National Road Schemes Revision 1 (2004).

Note¹ Construction activity at these times, other than that required for emergency works, will normally require the explicit permission of the relevant local authority.

* Approval will be sought if working during bank holidays and Sundays

The magnitude of the construction noise impacts can only be predicted by considering noise emissions for typical construction equipment and the attenuation of the noise levels due to the distance from the nearest sensitive receptors. The noise levels during construction are expected to fluctuate depending on the type and number of construction equipment used at a particular time. The construction activities are short term in nature and the type of noise is considered intermittent. It is estimated that the construction phase will take place over 72 weeks. Whilst it is not known the exact details of the construction method and plant, it is expected that this will entail:

- Pile driving equipment;
- Ground breaking and excavation;
- Transportation of materials;
- Paving plant; and,
- General works.

It is acknowledged that there will be plant items operating at approximately 50m from nearby noise sensitive locations identified in **Figure 10.1 of Volume 3**.

As per TII/NRA guidance noise levels associated with construction may be calculated in accordance with the methodology set out in *BS 5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites - Noise*. This standard sets out sound power levels for plant items normally encountered on construction sites, which in turn enables the prediction of noise levels at selected locations. However, it is often not possible to conduct detailed prediction calculations for the construction phase of a project in support of the EIS. This is due to the fact that the programme for construction works has not been established in detail.

Section 10.5 describes typical measures to minimise the potential for noise disturbance to the surrounding area.

The construction of the proposed development including ramps and boardwalks along the river may result in significant noise impacts. This may entail pile driving which can generate impulsive noise which can be particularly annoying to receptors. It is noted that the proposed development is located within the centre of Athlone Town, which by its nature has already higher background noise levels generated typically from traffic sources.

As stated above, it is difficult to predict the level of potential noise generation during the construction phase. *BS 5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites - Noise* sets out typical noise levels for items of construction plant. Tables 10.3 to 10.5 set out assumed plant items during the key phases of construction with the associated source reference from BS 5228-1:2009+A1:2014.

Table 10.3 Indicative construction noise calculations during site preparation

| Site Clearance & Preparation (BS 5228 Ref) | Calculated $L_{Aeq, T}$ at distance from works (m) | | | | |
|---|--|-----|-----|------|------|
| | 10m | 25m | 50m | 100m | 150m |
| Breaker mounted on back hoe (C.1.1) | 79 | 71 | 65 | 59 | 55 |
| Hand-held pneumatic breaker (C.1.6) | 83 | 75 | 69 | 63 | 59 |
| Breaker mounted on excavator (C.1.9) | 88 | 80 | 74 | 68 | 64 |
| Wheeled backhoe loader (C.2.8) | 68 | 60 | 54 | 48 | 44 |
| Lorry (C.2.34) | 80 | 72 | 66 | 60 | 56 |
| Telescopic handler (C.2.35) | 71 | 63 | 71 | 51 | 47 |
| Dozer rolling fill (C.2.35) | 79 | 71 | 65 | 59 | 55 |
| Vibratory roller (C.2.40) | 73 | 65 | 59 | 53 | 49 |
| Water pump (C.2.45) | 65 | 57 | 51 | 45 | 41 |
| <i>Combined L_{Aeq}</i> | 91 | 83 | 78 | 71 | 67 |

Table 10.4 Indicative construction noise calculations during road works

| Road Works and General Site Activity (BS 5228 Ref) | Calculated $L_{Aeq, T}$ at distance from works (m) | | | | |
|--|--|-----|-----|------|------|
| | 10m | 25m | 50m | 100m | 150m |
| Truck mounted concrete pump + boom arm (C.4.29) | 83 | 75 | 69 | 63 | 59 |
| Poker Vibrator (C.4.33) | 82 | 74 | 68 | 62 | 58 |
| Concrete placing boom (C.4.37) | 63 | 55 | 49 | 43 | 39 |
| Tracked mobile crane (C.4.50) | 68 | 60 | 54 | 48 | 44 |
| Asphalt paver + tipper lorry (C.5.33) | 80 | 72 | 66 | 60 | 56 |
| <i>Combined L_{Aeq}</i> | 86 | 79 | 73 | 67 | 63 |

Table 10.5 Indicative construction noise calculations during Piling and ancillary operations

| Piling and Ancillary Equipment (BS 5228 Ref) | Calculated $L_{Aeq, T}$ at distance from works (m) | | | | |
|--|--|-----|-----|------|------|
| | 10m | 25m | 50m | 100m | 150m |
| Hydraulic hammer rig (C.3.1) | 89 | 81 | 75 | 69 | 65 |
| Vibrator piling rig (C.3.8) | 88 | 80 | 74 | 68 | 64 |
| Large rotary bored piling rig (C.3.14) | 83 | 75 | 69 | 63 | 59 |
| Wheeled mobile crane (C.3.30) | 80 | 72 | 66 | 60 | 56 |
| <i>Combined L_{Aeq}</i> | 92 | 84 | 78 | 72 | 68 |

The nearest sensitive receptor is located within c.10m of the construction works on the eastern bank of the River Shannon, and includes the residential apartments adjacent to the Radisson Hotel and the boats using the marina. However the construction noise will lessen over time by the increasing distance as construction moves along the proposed development.

The noise levels generated during the excavating and the piling may result in intermitted periods where the guideline limits are exceeded at the nearest sensitive receptors however these are not considered to result in a significant impact. Overall, the impacts of noise associated with the construction phase are considered to be of moderate magnitude.

Traffic associated with employees working on site during the proposed works may also be considered a potential source of noise. This is considered to have a negligible impact given the nature of the study area (existing traffic noise levels).

During construction, vibration may result from piling. This activity is typically tolerated at vibration levels up to 2.5 mm/s (NRA, 2004). This guidance is applicable to the day-time only; it is unreasonable to expect people to be tolerant of such activities during the night-time.

The TII/NRA guidelines recommend vibration limits to ensure that there is no potential for damage during construction, as provided in Table 10.6. These limits will ensure that there is little to no risk of structural or cosmetic damage to buildings.

Table 10.6 Allowable Peak Particle Velocity (PPV) at the closest part of any sensitive property to the source of vibration at different frequencies*

| Frequency | Less than 10 Hz | 10 – 50 Hz | 50 – 100 Hz |
|--|-----------------|------------|-------------|
| Vibration Velocity or Peak Particle Velocity (PPV) | 8 mm/s | 12.5 mm/s | 20 mm/s |

*Source NRA 2004 Treatment of Noise and Vibration in National Road Schemes

The potential impacts of noise vibration on the nearby sensitive receptors is considered to be slight during the construction phase. The use of heavy equipment is limited over a period of 16 weeks.

10.4.2 Operational Impacts

This project entails the development of a non-traffic cycle route and as such the potential for noise during the operational phase is considered to have an imperceptible impact on the existing background noise levels.

A potential positive impact of the development is that it may encourage a more environmentally friendly form of transport such as cycling within the town itself. This is in accordance with the principles of sustainability and through the Smarter Travel Policy, Westmeath County Council promotes a modal shift by policy and actions encouraging the greater use of sustainable modes and public transport, e.g. provision of cycle facilities (County Westmeath Noise Action Plan 2013-2018).

Vibration

There will be no sources of vibration during the operational phase.

10.5 Mitigation Measures

Noise

Due to the nature of the construction phase, impacts on noise generation may result in moderate negative impacts to the receiving environment. In order to minimise any predicted impacts, a schedule of mitigation measures will be employed as recommended in the NRA guidelines.

These mitigation measures include:

- Selection of plant equipment taking into account predicted acoustics;
- Establishing noise limits during the construction phase in line with NRA guidelines;
- Development of noise control measures for plant items likely to be used e.g. erection of barriers as necessary around noisy processes and items such as generators, heavy mechanical plant etc.;
- Limiting of hours for which noise generation is expected to be high;
- Establish procedures for dealing with specific activities with the potential to generate significant levels of noise;

- Establish procedures for dealing with emergency work; and,
- Establishing communication with the general public.

Vibration

The TII/NRA Guidelines recommend that in order to ensure that there is no potential for vibration damage during construction, vibration from construction activities will be limited to the values set out in Table 10.1.

It may be concluded that the construction of the proposed development is not expected to give rise to vibration that is either significantly intrusive or capable of giving rise to structural or even cosmetic damage.

10.6 Potential Residual Impacts

The residual impacts of the proposed development on ambient noise levels are considered to be insignificant.

10.7 Potential Cumulative Impacts

Some cumulative impacts may arise through the existing noise levels from town traffic in combination with construction activities. These will be short term and not significant.

10.8 Conclusion

The study area has existing noise levels typical of urban areas, with traffic the main source of noise in the area. During the construction phase of the development, it is considered that there will be moderate impact on noise levels generated on nearby sensitive receptors. The nature of the construction generated noise tends to be intermittent and is short term over the construction phase only. A series of mitigation measures adopted during the construction phase will ensure that the impact of noise on the sensitive receptors is kept to a minimum. It is recognised that vibrations may be generated through vehicle movement and certain construction activities, however these vibrations will not be significantly intrusive or capable of giving rise to structural or even cosmetic damage.

Once operational, the proposed development will not generate any significant noise and as such there will be no vibrations as this is a non-traffic development.

Chapter 11

Air Quality and Climate

Chapter 11

Air Quality & Climate

11.1 Introduction

This section examines the impacts on air quality and climate associated with both the construction and operation of the proposed development.

11.1.1 Ambient Air Quality Standards

In order to reduce the risk to health, vegetation and ecosystems from poor air quality, national and European statutory bodies have set “Air Quality Standards” or limit values for a range of air pollutants.

Air quality significance criteria are assessed on the basis of compliance with the appropriate standards or limit values. The applicable standards in Ireland include the Air Quality Standards Regulations 2011, which incorporate previous air quality framework and European Commission Directives 1996/62/EC, 1999/30/EC, 2000/69/EC and 2008/50/EC which have set limit values for the pollutants SO₂, NO₂, PM₁₀, PM_{2.5}, benzene and CO. The most recent European Commission Directive on ambient air quality, 2008/50/EC, was transposed into Irish Law in April 2011 (see Table 11.1). Furthermore, World Health Organisation (WHO) Guidelines For Air Quality Europe 1999 were also considered when assessing the impacts on air quality (Table 11.2).

New ambient standards for PM_{2.5} are included in Directive 2008/50/EC which sets an annual average target value of 25µg/m³ for PM_{2.5} to be attained by 2015. The Directive also aims to reduce human exposure generally to PM_{2.5}. Technical Instruction on Air Quality Control TA Luft – 1986 recommend a guideline value for dust emissions of 350 mg/m²/day which has been adopted by the Environmental Protection Agency as a licence control limit for dust deposition. These guidelines were considered when assessing air quality impacts as a result of the proposed development.

Table 11.1 European Union Ambient Air Quality Standards (Based on Directive 2008/50/EC)

| Pollutant | Regulation <small>Note 1</small> | Limit Type | Margin of Tolerance | Value |
|------------------|-------------------------------------|--|--|---|
| Nitrogen Dioxide | 2008/50/EC | Hourly limit for protection of human health - not to be exceeded more than 18 times/year | 40% until 2003 reducing linearly to 0% by 2010 | 200 µg/m ³ NO ₂ |
| | | Annual limit for protection of human health | 40% until 2003 reducing linearly to 0% by 2010 | 40 µg/m ³ NO ₂ |
| | | Annual Critical level for protection of vegetation | None | 30 µg/m ³ NO + NO ₂ |
| Lead | 2008/50/EC | Annual limit for protection of human health | 100% | 0.5 µg/m ³ |

| Pollutant | Regulation <small>Note 1</small> | Limit Type | Margin of Tolerance | Value |
|--|-------------------------------------|---|---|--|
| Sulphur dioxide | 2008/50/EC | Hourly limit for protection of human health - not to be exceeded more than 24 times/year | 150 µg/m ³ | 350 µg/m ³ |
| | | Daily limit for protection of human health - not to be exceeded more than 3 times/year | None | 125 µg/m ³ |
| | | Annual & Winter critical level for the protection of vegetation | None | 20 µg/m ³ |
| Particulate Matter (as PM ₁₀) | 2008/50/EC | 24-hour limit for protection of human health - not to be exceeded more than 35 times/year | 50% | 50 µg/m ³ PM ₁₀ |
| | | Annual limit for protection of human health | 20% | 40 µg/m ³ PM ₁₀ |
| PM _{2.5} (Stage 1) | 2008/50/EC | Annual limit for protection of human health | 20% from June 2008. Decreasing linearly to 0% by 2015 | 25 µg/m ³ PM _{2.5} |
| PM _{2.5} (Stage 2) <small>Note 2</small> | - | Annual limit for protection of human health | None | 20 µg/m ³ PM _{2.5} |
| Benzene | 2008/50/EC | Annual limit for protection of human health | 100% until 2006 reducing linearly to 0% by 2010 | 5 µg/m ³ |
| Carbon Monoxide | 2008/50/EC | 8-hour limit (on a rolling basis) for protection of human health | 60% | 10 mg/m ³ (8.6 ppm) |

Note 1 EU 2008/50/EC – Clean Air For Europe (CAFÉ) Directive replaces the previous Air Framework Directive (1996/30/EC) and daughter directives 1999/30/EC and 2000/69/EC

Note 2 EU 2008/50/EC states - 'Stage 2 — indicative limit value to be reviewed by the Commission in 2013 in the light of further information on health and environmental effects, technical feasibility and experience of the target value in Member States'.

Table 11.2 WHO Guidelines For Air Quality Europe 1999

| Substances | Time-weighted Average | Averaging Time |
|--|---|--|
| Lead | 0.5-1.0 µg/m ³ | 1 year |
| Nitrogen dioxide | 200 µg/m ³ 40-50 µg/m ³ | 1 hour annual |
| Carbon monoxide | 100 µg/m ³ 60 µg/m ³ 30 µg/m ³ 10 µg/m ³ | 15 minutes 30 minutes 1 hour 8 hour |
| Benzene | No safe level <small>Note 1</small> | |
| Particulate matter (PM ₁₀) | No specific guideline <small>Note 2</small> | |

Note 1 No safe level recommended owing to carcinogenicity.

Note 2 No specific guideline recommended because there is no obvious exposure concentration and duration that could be judged a threshold and decreased by uncertainty factors to avoid risk.

11.2 Methodology

The proposed development within Athlone Town is a non traffic route and it is considered that the construction and operation of the development will have limited impact on the air quality. To this end, the proposal does not warrant a full air quality assessment.

A desktop air assessment was carried out using existing background air quality data to assess the likely air quality and climate impact associated with the construction and operation of the proposed development. This assessment included a review of the existing air quality and was carried out having regard to the following documents:

- NRA Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes (NRA, 2011);
- Guidelines on the Information to be contained in Environmental Impact Statements (EPA, 2002);
- Advice Notes on Current Practice in the preparation of Environmental Impact Statements (EPA, 2003);
- EPA (September 2015) Revised Guidelines on the Information to be contained in Environmental Impact Statements;
- EPA (September 2015) Advice Notes For Preparing Environmental Impact Statements; and,
- EPA (2015) Air Quality in Ireland 2014.

Recent EPA and Local Authority data in Ireland were also consulted during the desktop assessment in order to identify the baseline concentrations of air pollutants within the study area. The details of these are discussed in Section 11.3 and include an examination of the results of National ambient air quality monitoring and atmospheric pollutants monitoring. Furthermore, the NRA significance criteria have been adopted for the proposed development and are detailed in Tables 11.3 and 11.4.

Table 11.3 Definition of Impact Magnitude for Changes in Ambient Pollutant Concentrations

| Magnitude of Change | Annual Mean NO ₂ / PM ₁₀ | No. days with PM ₁₀ concentration greater than 50 µg/m ³ | Annual Mean PM _{2.5} |
|----------------------|--|--|--|
| Large | Increase / decrease 4 µg/m ³ | Increase / decrease >4 days | Increase/decrease 2.5 µg/m ³ |
| Medium | Increase/decrease 2 - <4 µg/m ³ | Increase / decrease 3 or 4 days | Increase/decrease 1.25 - <2.5 µg/m ³ |
| Small | Increase/decrease 0.4 - <2 µg/m ³ | Increase / decrease 1 or 2 days | Increase/decrease 0.25 - <1.25 µg/m ³ |
| Imperceptible | Increase/decrease <0.4 µg/m ³ | Increase / decrease <1 day | Increase/decrease <0.25 µg/m ³ |

Source: *Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes* - National Roads Authority (2011)

Table 11.4 Air Quality Impact Descriptors for Changes to Annual Mean Nitrogen Dioxide and PM₁₀ and PM_{2.5} Concentrations at a Receptor

| Absolute Concentration in Relation to Objective/Limit Value | Change in Concentration ^a | | |
|--|--------------------------------------|---------------------|------------------------|
| | Small | Moderate | Large |
| Increase with Proposed Development | | | |
| Above Objective/Limit Value With Proposed Development ($\geq 40 \mu\text{g}/\text{m}^3$ of NO ₂ or PM ₁₀) ($\geq 25 \mu\text{g}/\text{m}^3$ of PM _{2.5}) | Slight Adverse | Moderate Adverse | Substantial Adverse |
| Just Below Objective/Limit Value With Proposed Development ($36 < 40 \mu\text{g}/\text{m}^3$ of NO ₂ or PM ₁₀) ($22.5 < 25 \mu\text{g}/\text{m}^3$ of PM _{2.5}) | Slight Adverse | Moderate Adverse | Moderate Adverse |
| Below Objective/Limit Value With Proposed Development ($30 < 36 \mu\text{g}/\text{m}^3$ of NO ₂ or PM ₁₀) ($18.75 < 22.5 \mu\text{g}/\text{m}^3$ of PM _{2.5}) | Negligible | Slight Adverse | Slight Adverse |
| Well Below Objective/Limit Value With Proposed Development ($< 30 \mu\text{g}/\text{m}^3$ of NO ₂ or PM ₁₀) ($< 18.75 \mu\text{g}/\text{m}^3$ of PM _{2.5}) | Negligible | Negligible | Slight Adverse |
| Decrease with Proposed Development | | | |
| Above Objective/Limit Value With Proposed Development ($\geq 40 \mu\text{g}/\text{m}^3$ of NO ₂ or PM ₁₀) ($\geq 25 \mu\text{g}/\text{m}^3$ of PM _{2.5}) | Slight Beneficial | Moderate Beneficial | Substantial Beneficial |
| Just Below Objective/Limit Value With Proposed Development ($36 < 40 \mu\text{g}/\text{m}^3$ of NO ₂ or PM ₁₀) ($22.5 < 25 \mu\text{g}/\text{m}^3$ of PM _{2.5}) | Slight Beneficial | Moderate Beneficial | Moderate Beneficial |
| Below Objective/Limit Value With Proposed Development ($30 < 36 \mu\text{g}/\text{m}^3$ of NO ₂ or PM ₁₀) ($18.75 < 22.5 \mu\text{g}/\text{m}^3$ of PM _{2.5}) | Negligible | Slight Beneficial | Slight Beneficial |
| Well Below Objective/Limit Value With Proposed Development ($< 30 \mu\text{g}/\text{m}^3$ of NO ₂ or PM ₁₀) ($< 18.75 \mu\text{g}/\text{m}^3$ of PM _{2.5}) | Negligible | Negligible | Slight Beneficial |

^aWhere the Impact Magnitude is Imperceptible, then the Impact Description is Negligible

Source: *Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes* - National Roads Authority (2011)

In order to adequately characterise the current baseline air quality, comprehensive monitoring results were obtained from the nearest EPA air quality monitoring location for PM₁₀, NO₂, NO_x and SO₂ from the EPA report, Air Quality in Ireland 2014. There are no major sources of potential air pollution within the vicinity of the development. Prevailing south westerly maritime air flow inhibits the attenuation of airborne pollutants in high densities. The town of Athlone has levels of air contamination due to traffic and home heating within the urban area. No site specific air monitoring was carried out however as of 15th February 2016, the EPA monitoring indicates that the current air quality in the Athlone Air Quality Index for Health (AQIH) Region is 2-Good, (EPA, 2016).

11.3 Existing Environment

The following section details the variable factors that affect local air quality. They include meteorological data, trends in air quality and existing baseline air quality.

Meteorological Data

A key factor in assessing temporal and spatial variations in air quality is the prevailing meteorological conditions. Depending on wind speed and direction, individual receptors may experience very significant variations in pollutant levels under the same source strength (WHO, 2006). Wind is of key importance in dispersing air pollutants such as traffic emissions. Wind speed is generally inversely related to air pollution concentration. In addition, rainfall and temperature is a factor in controlling the generation and suppression of dust.

Wind

The nearest representative weather station collating detailed wind records is Birr meteorological station, which is located approximately 34 km south of the proposed project area. The predominant wind ranges from south easterly to westerly in direction with an average wind speed of approximately 5-7 m/s (see Plate 11.1).

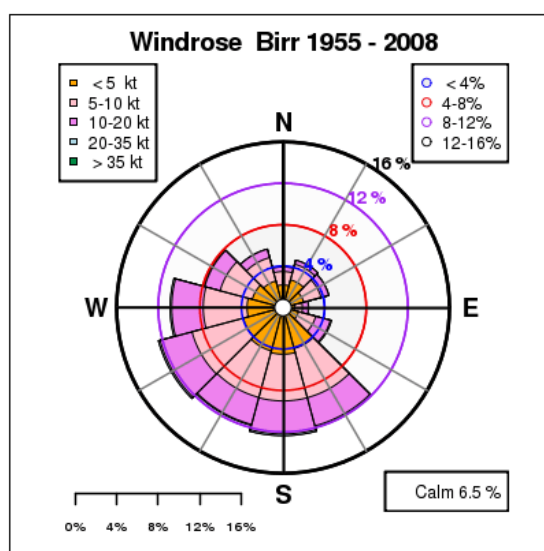


Plate 11.1: Windrose for Study Area

Rain

The nearest representative weather station collating detailed rainfall records is Gurteen meteorological station in Roscrea, Co. Tipperary, which is located approximately 50 km south of the project area. The average annual rainfall for the area is reported as 948.2 mm/yr (Table 11.5). In general, higher levels of rainfall tend to occur over the months August to March.

Table 11.5 Total rainfall in millimetres for Gurteen, Roscrea

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual Mm/yr |
|------|-------|------|------|------|-------|------|------|------|------|-------|-------|-------|--------------|
| 2015 | 108.7 | 49.4 | 70.9 | 57.9 | 136.7 | 28.9 | 71.4 | 67.8 | 52.7 | 45.0 | 170.0 | 217.3 | 1076.7 |
| mean | 96.4 | 66.2 | 74.5 | 59.8 | 68.0 | 71.8 | 66.7 | 84.9 | 74.8 | 103.8 | 89.8 | 91.5 | 948.2 |

Trends in Air Quality

Air quality is variable and subject to both significant spatial and temporal variation. In relation to spatial variations in air quality, concentrations generally fall significantly with distance from major road sources. Thus, residential exposure in urban and

suburban areas will be determined by the location of sensitive receptors relative to major roads sources in the area. Temporally, air quality can vary significantly by orders of magnitude due to changes in traffic volumes, meteorological conditions and wind direction.

Available Background Data

Air quality monitoring programs have been undertaken in recent years by the EPA and Local Authorities. The most recent annual report on air quality “Air Quality in Ireland 2014 Key Indicators of Ambient Air Quality” (EPA 2015), details the range and scope of monitoring undertaken throughout Ireland.

As part of the implementation of the Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011), four air quality zones have been defined in Ireland for air quality management and assessment purposes (EPA 2014).

Dublin is defined as Zone A and Cork as Zone B. Zone C is composed of 23 large towns with a population of greater than 15,000, including the town of Athlone. The remainder of the country, which represents rural Ireland but also includes all towns with a population of less than 15,000, is defined as Zone D. In terms of air monitoring, the region of the proposed development is categorised as Zone C (EPA, 2014).

The air quality results from Zone C in 2014 indicated good air quality, with measured levels recorded as below lower assessment threshold for the pollutants NO₂, SO₂, CO, benzene and heavy metals. Levels of O₃, particulate matter (PM₁₀ and PM_{2.5}) and PAH were elevated in Zone C in 2014 with respect to the lower assessment threshold. The town of Athlone has had a “smoky” coal ban put in place since 2011 which is likely to improve on levels of particulate matter.

NO₂ and NO_x

In 2014, NO_x and NO₂ monitoring was carried out at the Mullingar Zone C monitoring location, approximately 40km north east of Athlone Town. The annual average hourly NO₂ concentration in 2014 at this site was 4 µg/m³ with no exceedences of the 40 µg/m³ limit value. NO₂ levels across Ireland are reported as being static since 2002 with slight increases from 2008 to 2010, decreases noted from 2010 to 2013 and a minor increases again in 2013 to 2014 (EPA, 2015).

NO₂ monitoring carried out in Athlone Town in 2003 classified Athlone as below the lower assessment threshold for the protection of human health and for the protection of ecosystems for NO₂.

The annual average hourly NO_x concentration in 2014 at this site was 6 µg/m³. However, there is no limit value applicable to Zone C locations for NO_x.

SO₂

SO₂ monitoring was carried out at the Mullingar Zone C air quality monitoring station in 2014. The annual average hourly SO₂ concentration in 2014 was 5 µg/m³ and there was no exceedence of the 20 µg/m³ limit value recorded. SO₂ levels are reported as being consistently low with a slight increase noted from 2012 to 2014 (EPA, 2015).

SO₂ monitoring carried out in Athlone Town in 2003 classified Athlone as below the lower assessment threshold for the protection of human health and for the protection of ecosystems for SO₂.

Particulate Matter

Long term particulate matter is measured by the EPA for both PM₁₀ and PM_{2.5}. PM₁₀ refers to particles with diameters of 10µm or less while PM_{2.5} refers to particles with diameters of 2.5µm or less. These particles can originate from emissions such as dust, burning of solid fuel, traffic and natural sources such as plant spores, pollens etc. The annual average hourly PM₁₀ concentration in 2014 at the Mullingar monitoring site was 11 µg/m³ and there was no exceedence of the 40 µg/m³ limit value recorded. The annual average hourly PM_{2.5} concentrations for Mullingar were not recorded in 2014. In 2014, PM_{2.5} monitoring was carried out at the Ennis Zone C air quality monitoring station, approximately 95km south west of Athlone Town. The Ennis 2014 annual average hourly PM_{2.5} concentrations of 16 µg/m³ was below the PM_{2.5} annual mean limit value of 25 µg/m³

CO

CO monitoring was carried out in 2014 at the Mullingar Zone C air quality monitoring station which is situated 40km northwest of Athlone Town. The annual mean rolling 8-hour CO concentration in 2014 was 0.2 mg/m³ with no exceedences of the CO maximum daily 8-hr mean limit value for the protection of human health of 10 mg/m³. Measured concentrations were also below the WHO air quality guideline of 10mg/m³.

O₃

In 2014, O₃ monitoring was carried out at the Kilkenny Zone C air quality monitoring station, approximately 95km south east of Athlone Town. The annual average hourly O₃ concentration in 2014 was 55 µg/m³ and there were no days recorded above the daily 8-hr mean of 120 µg/m³. The target value is that the threshold of 120 µg/m³ will not be exceeded at a monitoring station on more than 25 days per year.

Characteristics of the Proposed Development

Whilst the town is urban there are no heavy industrial premises within the vicinity of the proposed route. The main potential sources of air pollution in the area are road traffic and heating systems.

The proposed route transects an urban area with potential receptors which include residential properties, care centres, schools and historic properties (See Plate 11.2). St. Vincent's Care Centre is located within 100m of the north-eastern tip of the proposed route. Several sites designated for nature conservation are located to the south of the project area. The closest is the River Shannon Callows proposed Natural Heritage Area (pNHA) which is located approximately 670m downstream. The River Shannon Callows Special Area of Conservation (SAC) and Middle Shannon Callows Special Protection Area (SPA) are located approximately 670m downstream of the project location (see Chapter 6: Flora & Fauna).



Plate 11.2 View of proposed development location (outlined in red) from Athlone Castle

11.4 Impact Assessment

The potential impacts of the proposed development on the air quality and climate were assessed with regard to the construction and operational phases of the development. This development is for a non-traffic cycle route through the town of Athlone and it is expected that the operational phase of the development will have a positive impact on the existing air quality of the study area and will have no climatic impacts.

11.4.1 Construction Impacts

During construction, PM₁₀ and PM_{2.5} will be generated by the following activities:

- Movement of full trucks on paved public roads;
- Unloading of material;
- Movement of empty trucks on paved public roads; and,
- Use of generators.

Emissions of nitric oxide (NO) and nitrogen dioxide (NO₂), volatile organic compounds (VOCs), polyaromatic hydrocarbons (PAHs), sulphur dioxide (SO₂) and carbon monoxide (CO), will be insignificant during construction activities. While concentrations of these pollutants are expected to increase in the immediate vicinity of the machines during site works, considering the size and nature of the study area and the number of machines proposed; it is not anticipated that they will have any impact on sensitive receptors in the area or air quality of the region.

Fugitive Dust Emissions

Dust is likely to be generated during the construction phase of the development from the movement of construction traffic and works along the alignment. The potential for dust emissions is difficult to predict as it depends on the type of construction activity being carried out in conjunction with the variable dispersion and dilution characteristics of dust in the air. Environmental factors including levels of rainfall, wind speeds and wind direction on any particular day play a major role in creating and dispersing dust. The impact from the generated dust depends on the distance to potentially sensitive locations and whether the wind can carry the dust to these locations. Deposition typically occurs in close proximity to each site and potential impacts generally occur within 500m of the dust generating activity as dust particles fall out of suspension in the air. The construction of the development is considered to be minor in scale and any impacts from dust deposition will typically be within 10m of the construction activities, with the potential for soiling within 25m, (see Table 11.6) (NRA, 2011).

Table 11.6 Assessment Criteria for the Impact of Dust Emissions from Construction Activities, with Standard Mitigation in Place

| Source | | Potential Distance for Significant Effects (Distance from source) | | |
|----------|---|--|------------------|--------------------|
| Scale | Description | Soiling | PM ₁₀ | Vegetation Effects |
| Major | Large construction sites, with high use of haul routes | 100 m | 25 m | 25 m |
| Moderate | Moderate sized construction sites, with moderate use of haul routes | 50 m | 15 m | 15 m |
| Minor | Minor construction sites, with limited use of haul routes | 25 m | 10 m | 10 m |

Source: NRA, (2011).

Given the temporary nature of the construction phase, the emissions of pollutants and dust are considered to have an imperceptible impact on the receiving environment. The residual impacts of the proposed development on air quality and climate are considered to be insignificant.

The air quality assessment highlights that during construction there is the possibility of nuisance dust arising. This can impact on the human beings and potentially the ecology within the surrounding area. A construction dust management plan is proposed to minimise and control this issue and is discussed in Section 11.5. The potential impacts from traffic related pollutants are considered negligible.

Climate

The proposed development will form a non-traffic route and subsequently, greenhouse gas emissions as a result of this development will be imperceptible in terms of Ireland's obligations under the Kyoto Protocol.

11.4.2 Operational Impacts

It is concluded that the operation of the proposed development will have a positive impact on air quality as it is proposed that the number of local car journeys in the area will be reduced thus resulting in an improvement to the local air quality. Therefore, no mitigation measures are required.

11.5 Mitigation Measures

In order to minimise potential emissions as a result of dust and traffic during construction, a Dust Management Plan will be implemented. Measures involved in the Dust Management Plan include:

- Site access roads will be regularly cleaned and maintained as appropriate. Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential site traffic only. Furthermore, any road that has the potential to give rise to fugitive dust must be regularly watered, as appropriate, during dry and/or windy conditions;
- Vehicles delivering material with dust potential will be enclosed or covered with tarpaulin at all times to restrict the escape of dust;
- Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods; and
- The dust management plan will be monitored and assessed at regular intervals by the contractor. In the event of dust nuisance occurring outside the site boundary, the effectiveness of existing measures will be reviewed and further mitigation will be implemented to rectify the problem.

Provided the dust minimisation measures outlined above are adhered to, the air quality impacts during the construction phase will be not be significant.

11.6 Potential Residual Impacts

There will be no negative residual impacts on air quality as a result of the proposed development. Any air pollution created during the construction phase will be short term in nature and minor in magnitude. The operation of the development will provide positive impacts to the local air quality due to the reduction in local vehicular traffic.

11.7 Potential Cumulative Impacts

It is not expected that there will be any impact on air quality due to cumulative impacts as a result of the proposed development project.

11.8 Conclusion

The plant and machinery to be used for the construction of the proposed development were identified as having potential to produce emissions to the air at a local level. Additionally, traffic associated with employees working on site during the proposed works will also be potential sources of emissions. However, given the temporary nature and small scale of the construction works and the implementation of mitigation measures, it is not considered that this aspect of the proposed development will have a significant negative impact on air quality or climate.

During operation, it is considered that the development will have a positive impact on local air quality as it is proposed that the number of local car journeys in the area will be reduced. It is not predicted that the operation of the development will have an impact on climate due to the size and nature of the project.

Chapter 12

Archaeological and Cultural Heritage

Chapter 12

Archaeological Heritage

12.1 Introduction

This archaeological heritage assessment was undertaken by CRDS Ltd.

12.2 Methodology

The methodology used during the assessment is based on the following standards and guidelines:

- Environmental Impact Assessment of National Road Schemes – A Practical Guide, 2008, NRA.
- National Roads Authority Guidelines for the Assessment of Archaeological Heritage Impacts of National Roads Schemes, 2005.
- National Roads Authority Guidelines for the Assessment of Architectural Heritage Impacts of National Roads Schemes, 2005.
- Advice notes on Current Practice (in the preparation of Environmental Impact Statements), 2003, Environmental Protection Agency.
- Guidelines on the information to be contained in Environmental Impact Statements, 2002, Environmental Protection Agency.
- Code of Practice between the National Roads Authority and the Minister for Arts, Heritage Gaeltacht and the Islands, 2000.
- Framework and Principles for the Protection of the Archaeological Heritage, 1999, Department of the Arts, Heritage, Gaeltacht and the Islands.

12.2.1 Recorded Archaeological Monuments and Places

The Record of Monuments and Places (RMP), comprising the results of the Archaeological Survey of Ireland, is a statutory list of all recorded archaeological monuments known to the National Monuments Service. The relevant files for these sites contain details of documentary sources and aerial photographs, early maps, OS memoirs, the field notes of the Archaeological Survey of Ireland and other relevant publications. Sites recorded on the Record of Monuments and Places all receive statutory protection under the National Monuments Act 1994. The information contained within the RMP is derived from the earlier non-statutory Sites and Monuments Record (SMR); some entries, however, were not transferred to the statutory record as they refer to features that on inspection by the Archaeological Survey were found not to merit inclusion in that record or could not be located with sufficient accuracy to be included. Such sites however remain part of the SMR. The record is a dynamic one and is updated to take account of on-going research. The Record of Monuments and Places was consulted in the Archives of the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs. The Recorded Monuments and Places within c. 50m of the proposed development are listed in Appendix 12.1 of Volume 4 and identified in Figure 12.1 of Volume 3.

Athlone Castle is a National Monument in State Ownership (National Monument NO. 520'O').

12.2.2 Topographical Finds

The National Museum of Ireland's (NMI) topographical files are a national archive of all known archaeological finds from Ireland. They relate primarily to artefacts but

also include references to monuments and contain a unique archive of records of previous excavations. The topographical files were consulted to determine if any archaeological artefacts had been recorded from the area. Other published catalogues of prehistoric material were also studied: Raftery (1983 - Iron Age antiquities), Eogan (1965; 1983; 1994 - bronze swords, Bronze Age hoards and goldwork), Harbison (1968; 1969a; 1969b - bronze axes, halberds and daggers) (see Appendix 12.2 of Volume 4).

12.2.3 Cartographic Sources

Cartographic sources were used to identify additional potential archaeological and architectural heritage constraints. Primary cartographic sources consulted consisted of the Ordnance Survey 6" and 25" maps, first and subsequent editions (T.C.D. Map Library, www.osi.ie). Earlier maps assessed include Thomas Phillips Map of Athlone, 1685, Jean Goubet's Plan de la Ville D'Athlone, c.1691 and Thomas Sherrard's Map of Athlone, 1784 reproduced in the Irish Historic Towns Atlas No. 6: Athlone (Murtagh 1994).

12.2.4 Previous Excavations

The excavation bulletin website (www.excavations.ie) was consulted to identify previous excavations that have been carried out within the study area. This database contains summary accounts of excavations carried out in Ireland from 1970 to 2015 (see Appendix 12.3 of Volume 4).

12.2.5 Local Authority Development Plan

The Westmeath County Development Plan 2014 - 2020 and the Athlone Town Development Plan 2014 - 2020 were consulted. The plans include policy objectives for the protection of the town and county's archaeological and architectural heritage and lists items of special interest within its functional area. The plans also contain a Record of Protected Structures (RPS) which includes every structure which is of special architectural, archaeological, artistic, cultural, scientific, social or technical interest within the county and town boundary. Plate 12.1 illustrates a map from the Local Authority Development Plan, outlining the zone of Archaeological Potential.

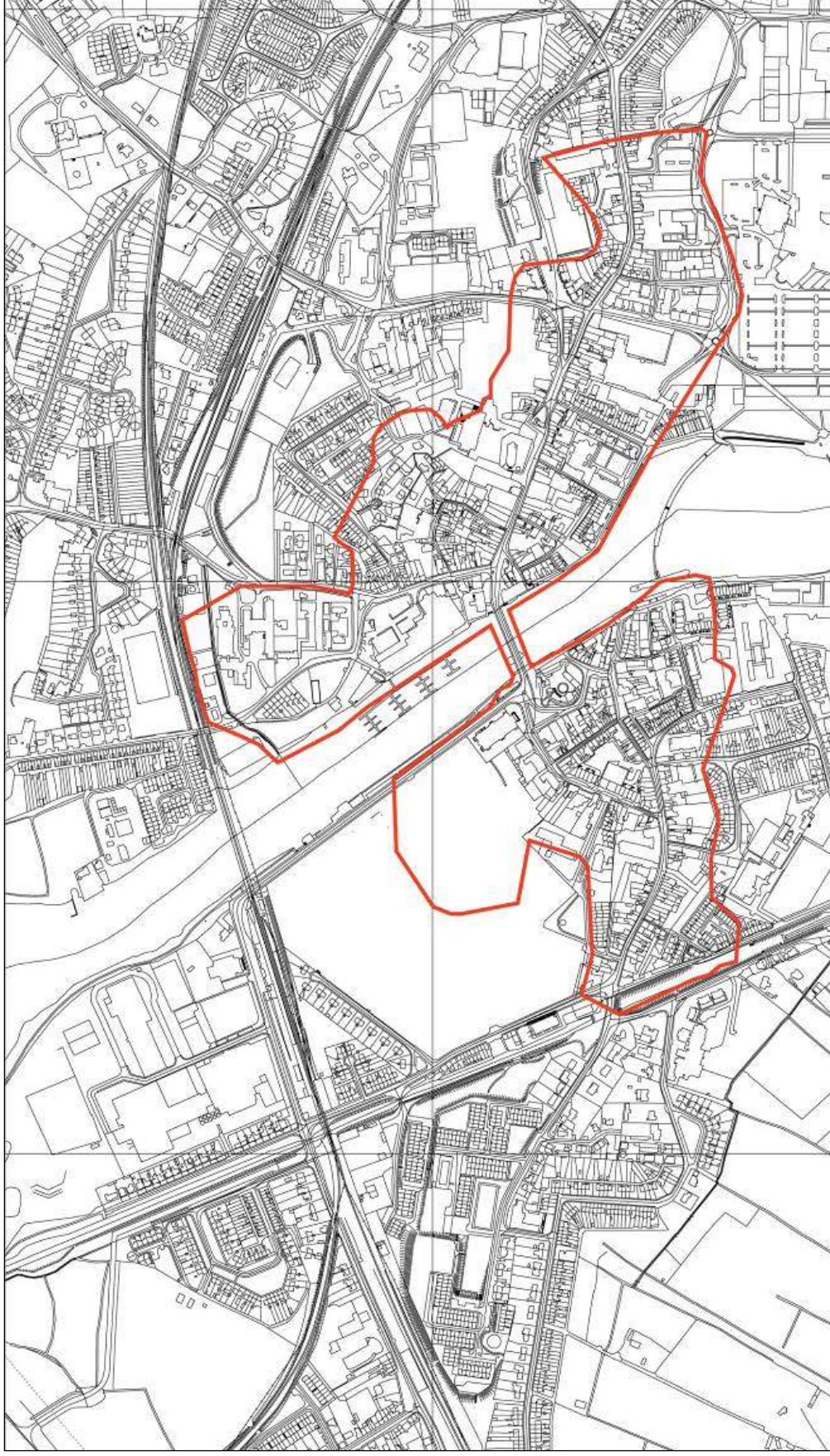


Plate 12.1: Zone of Archaeological Potential, Athlone Town Plan 2014-2020 (after Bradley et. al 1985).

12.2.6 Historical Research

The baseline historical research included a search of the British and Irish Archaeological Bibliography (www.biab.ac.uk). Other sources consulted included the Journal of the Old Athlone Society, the Irish Historic Towns Atlas No. 6: Athlone (Murtagh 1994) and the Urban Archaeological Survey of Athlone (Bradley et. al. 1985) (see Bibliography for full list of references).

12.2.7 Site Assessments

Site assessments were carried out in August 2013 and again in August 2015 following the redesign of the scheme. The site assessment involved the examination of the archaeological heritage constraints identified during the desk top assessment.

12.2.8 Underwater Archaeological Impact Assessment

An Underwater Archaeological Impact Assessment (UAIA) of the River Shannon Crossing at Athlone was recommended during the preparation of the Environmental Impact Assessment for the scheme. The assessment was undertaken by Julianna O'Donoghue Archaeological Services (JODAS) under licence to the National Monuments Service of the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs (Licence Nos. 16D0078 & 16R0213; see Appendix 12.5 of Volume 4 for full report text).

The underwater archaeological dive survey encompassed an area of c. 11,985sq.m across the entire width of the river, which was formalised with stone walls during the mid-nineteenth century. The dive survey extended for 75m downstream and 45m upstream of the proposed bridge construction area. Features identified by the survey were plotted using a global navigation satellite system (GNSS) to <100mm accuracy.

The dive survey was carried out on 16th, 17th and 23rd November 2016 following a period of dry weather. The river level was very low (maximum 2.5m) due to a flood management plan implemented by Waterways Ireland and previous low rainfall. Underwater visibility was very good and up to 4m. The dive survey included a detailed visual inspection and a metal detector survey of the riverbed using an underwater metal detector with a high-resolution discriminator.

Historic and cartographic research on the site revealed that the area in the vicinity of the proposed bridge incorporated a series of eel-weir fisheries dating from at least the medieval period. Historic borehole records available for the site indicate that soft clays and silts are present at the site to a depth of between 7m - 14m. These overlie sands and gravels with boulders. The underlying rock is mudstone.

The dive survey indicated that the riverbed consists of a stony layer overlying compact white clay. Much of the eastern extent of the survey area was covered in a tar-like substance and a large quantity of modern debris was visible on the riverbed, particularly in areas close to the riverbanks.

No archaeological features, stratigraphy or artefacts were recorded within the footprint of the proposed bridge pier and coffer dam. The wider study area, however, revealed the in-situ remains of several hundred wooden stakes protruding from the riverbed, probably representing the remains of eel-weirs. At least two coherent lines or rows of stakes, c. 6.0m and c. 10.0m in length were recorded, as well as a separate concentration of stakes. The stakes are rounded, c. 100mm in diameter and extended above the riverbed by between c. 50mm-150mm. The rows of stakes

are very closely set in the riverbed, c. 0.10m apart. They are arranged continuously and often slightly askew or paired, possibly reflecting repairs, replacement or reinforcement of the eel-weirs. While the two defined rows do not correspond with any of the eel-weirs depicted on the historic maps, their orientations are likely to represent the remains of eel-weirs, rather than early wicker bridges. It is likely that the embedded portions of the timber stakes survived efforts to remove the eel-weirs and other obstructions during navigation works in the mid-nineteenth century.

Numerous artefacts were recorded during the survey of the riverbed, including dressed masonry, several barrel hoops, ceramics, claypipes, glass objects, bullets and a single musket shot. The ceramics were analysed by ceramic specialist Clare McCutcheon. All items recovered date from the mid-nineteenth to early 20th century, apart from the musket shot.

A single reinforced concrete pier on piled supports is proposed in the middle of the river. The pier is proposed to be elliptically- shaped on plan, orientated with the long axis parallel to the flow of the river. It represents an obstruction to flow of approximately 2m wide.

A sheet piled cofferdam will be required to accommodate the construction of the proposed pier. This cofferdam is likely to occupy a width of approximately 5m of the river and will extend for approximately 7m along the river. The pier piling will comprise 750mm diameter steel tubular piles driven into the river bed.

12.3 Archaeological Background

The proposed development is located at Athlone, Co. Westmeath. The town is located on the banks of the Shannon to the south end of Lough Ree. It is here that the Eiscir Riada, a gravel ridge running east-west through the midlands, crosses the river. The placename, Ath Luain or 'the ford of Luan' indicates that the settlement grew up around a significant fording place on the river. The deposition of archaeological material in the vicinity of the ford indicates its significance from the prehistoric period on. Athlone was the main gateway between the provinces of Leinster and Connacht (Bradley et. al. 1985, 20).

Prehistoric

The majority of prehistoric material from the River Shannon in Athlone was recovered during the course of mid-19th century dredging works associated with the construction of a new bridge and only limited information on the findspots has been recorded (Bourke 2001, 29). The earliest material consists of at least 17 stone axeheads of Neolithic date (see Appendix 12.2 of Volume 4).

Bronze Age material is also well-represented with over 50 artefacts recovered (see Appendix 12.2 of Volume 4). The ornaments include elaborate high-status pieces including gold lunulae, bar torcs and pennanular bracelets. The majority of the remainder is martial in nature, consisting of axeheads, dirks, rapiers, spearheads and swords. Though martial in nature the material may not necessarily represent intertribal warfare and may have been deposited ritually or as a result of accidental loss (Bourke 2001). The earliest indicator of permanent settlement in the area is the portal tomb in the townland of Mihanboy, 4.5km to the west of the town (Murtagh 1994, 1).

Iron Age material is represented by iron swords, a bronze ring-headed pin, a bronze bowl and two bronze mounts. The relative scarcity of Iron Age material may reflect a

decrease in the frequency of use of the ford and it is possible that the focus may have moved south to the bridging point at Clonmacnoise (Bradley et. al. 1985, 20).

Early medieval

The first indication of a settlement at Athlone is the presence of mid-eight to tenth century gravestones, recovered from the graveyard of the Franciscan Friary (Fanning and O hEalaidhe 1980). While there are some suggestions that the gravestones may have originated at Clonmacnoise, their presence at Athlone suggests the existence of a significant early church site (Gwynn and Hadcock 1970, 110).

Lough Ree, located immediately to the north of Athlone, was a focal point of Viking activity in the 9th and 10th centuries. The discovery of Viking hoards, containing bracelets, silver anklets and silver ingots, on Hare Island at the south end of the lake indicate that it may have been occupied at this time. Two richly decorated silver armrings were found in the river Shannon at Athlone and a Hiberno-Norse silver necklet is also known from Athlone (Bradley et. al. 1985, 21).

The construction of a causeway at Athlone by Maelsechlainn, king of Mide, and Cathal mac Conchobhar, king of Connacht was noted in the annals c. 1000. The causeway improved the ford and also impeded the movement of the fleet of Brian Bóruma on the Shannon (Murtagh 1994, 1). Toirrdelbach Ua Conchobair, king of Connacht, erected a bridge to replace the causeway c. 1120 to facilitate his expansion into Mide (Ó Danachair 1971, 57). In 1129 Toirrdelbach constructed a castle at Athlone, presumably to defend the bridge (Orpen 1907, 258). The annals record the destruction of the bridge by Ua Mael Sechlainn and its subsequent reconstruction by the Ua Conchobhar's on numerous occasions over the next forty years (Ó Danachair 1971, 57, Bradley et. al. 1985, 21). The recorded Cluniac Priory of Saints Peter and Paul may have been established in the mid-12th century indicating the significance of the town under the Ua Conchobairs.

Later Medieval

Athlone remained a significant settlement following the arrival of the Anglo-Normans, who were established at Athlone before 1200. The construction of a motte and bailey in the last decade of the 12th century is indicated by a reference in the annals to the burning of the *bodhún* or bawn of Athlone by the Ua Conchobair in 1199 (Orpen 1907, 259). In the early 13th century the strategic importance of the town, as the gateway between Meath and Connacht, was recognised by the justiciar of Ireland, John de Grey. His first step in the development of the town was the construction of a new castle on the west bank of the river and a stone bridge in 1210. Their construction would have attracted new settlers to the town and references to the 'Vill of Athlone' occur in 1225 and 1235 (Sweetman 1875-86, I Nos. 1261, 2289). The first references to burgages also occurred at this time (Gilbert 1884, I, 224; cf. *ibid* p. xxix). The settlement received the grant of an annual eight-day fair from Henry III in 1221 (Sweetman 1875-86, I, No. 1010). Development appears to have been concentrated on the west bank of the Shannon with the first definitive reference to settlement on the east bank of the river occurring in the 1230s (35 Report Deputy Keeper Public Records Ireland, 37). The river played an important part in the economy of the town and surrounding area. Fisheries, likely comprising salmon and eel weirs, are recorded in documentary sources from as early as 1216 (Went 1950, 146) when the Prior of Athlone requested compensation for the loss of a 'meadow for site of the King's Castle at Athlone and fisheries'.

The settlement was attacked on a number of occasions by the O'Connors of Connacht. Murage, a toll levied for the building or repairing of town walls, was

granted in 1251, and it is possible that the construction of the town defences commenced at this time. An attack by Aedh O Conchobair in 1272 led to the capture and burning the town and destruction of the bridge. Money was spent on improving the castle defences between 1273 and 1279 (Orpen 1907, 270-1; Claffey 1970-1, 57). In the 14th century the English administration ceased enforcing its authority in Connacht and Athlone increasingly became an isolated outpost on the western frontier of the colony (Claffey 1970-1, 58).

Following a period of unrest in the 14th and 15th centuries when the settlement shifted between English and Irish control, the English regained control of the castle in 1537 (Cal. Carew MSS 1515-74, 124). In the 1560s a new stone bridge was constructed on the orders of the Lord Deputy Sir Henry Sidney (see Plate 12.2). The bridge was ornamented with carved stone plaques bearing the Royal coat of arms, a bust of Queen Elizabeth I, and representations of Sidney, Peter Lewys, the supervisor of works, and Robert Dampont, the overseer of works (Manning 2010, 10). The significance of the fisheries at Athlone continued throughout the later medieval period and they were excluded from attempts to improve the navigation channel elsewhere on the River Shannon. In 1583 Edmund Waterhouse, Overseer of the River Shannon, was given instructions to remove or destroy those weirs impairing navigation on the river, 'excepting those at Athlone' (Went 1950, 147).

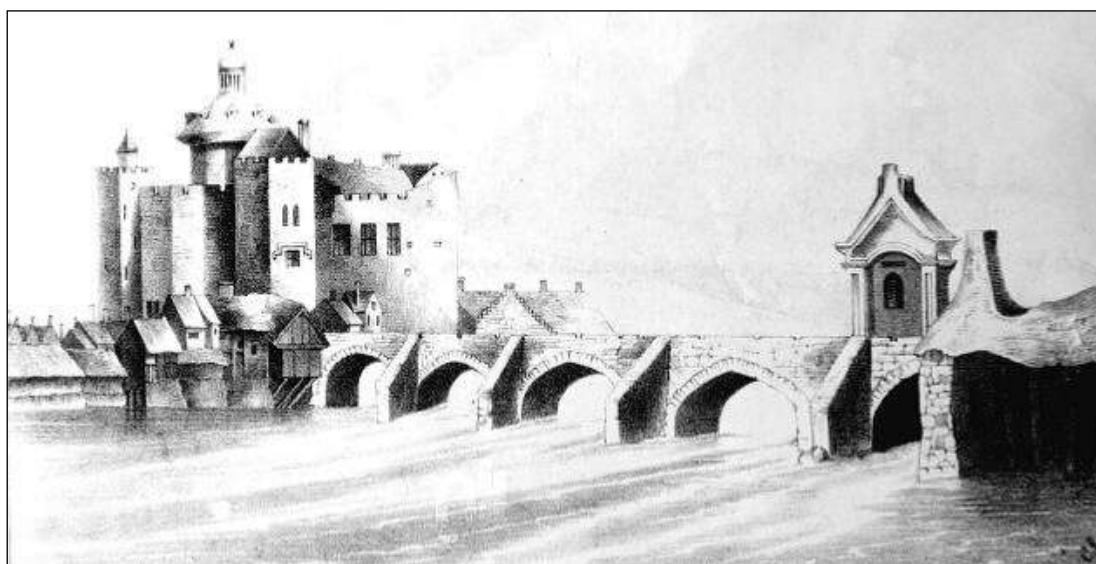


Plate 12.2: The bridge and castle of Athlone, Thomas Phillips 1685.

As a result of the construction of the bridge Athlone once again became a focal point of east/west traffic and the town regained its importance. Town charters were granted by Elizabeth I in 1599 and James I in 1606 and a borough was established. James I granted land to the protestant townsmen in 1619 'with the condition of building every one his house after the English manner and to inclose the town with a substantial wall' (Calendar of State Papers Ireland 1615-25, 351). As a result of this scheme a number of substantial stone houses were constructed, some of which survive to the present day. The walling of the eastern portion of the town appears to have been completed by 1636 (Murtagh 1980, 95) (Bradley et. al. 1985, 24).

Following the capture of the town by the Cromwellian's in 1651 a new wave of settlers came into the town and Athlone witnessed an economic upturn. Trader's tokens have been recovered that were issued in the town between 1654 and 1660 (Stokes 1890-1b, 209).

Modern Period

In the mid-18th century the economy of the town benefited from navigation improvements on the River Shannon. A 2.5km canal, the Athlone Canal, was excavated on the west side of the town to bypass obstructions within the river channel in the vicinity of the old bridge. The engineer Thomas Omer, constructed a full lock towards the southern end of the canal and a guard lock (Rymer Lock) towards its northern end to protect the canal from flooding from the River Shannon (Westmeath County Council 2012, 7). By the end of the 18th century the Athlone Canal was in a poor state and estimates were acquired for its repair. Works were undertaken to repair the canal and its lock was taken down and rebuilt (Westmeath County Council 2012, 7).

From the late 18th century Athlone took on a new military role becoming the headquarters of the new western military district in 1796 and Custume Barracks was developed on the west bank of the river Shannon (Cronin and Associates 2003, 37).

In 1835 the Shannon Navigation passed into the hands of the Commissioners for the Improvement of the Navigation of the River Shannon (Shannon Commissioners). Their operations on the river focused on improving navigation and the reduction of seasonal flooding (Bourke 2001, 27). Natural shoals on the bed of the river at Athlone were a concern for navigation and the Commission undertook their survey and removal during the construction of the new bridge. The new bridge, which had an opening section over the navigation channel was completed in 1844. It was constructed slightly upstream of the Elizabethan bridge which was subsequently demolished and removed. The river was provided with new quay walls to both the Leinster and Connacht banks and a stone regulating weir. The Athlone Canal was abandoned in favour of a large scale lock erected on the river Shannon (Murtagh 1994, 4).

One of the other main obstructions at Athlone was the man-made eel weirs which had been in existence since at least the early thirteenth century. The 1st edition Ordnance Survey map indicates a number of eel weirs in the vicinity of the town including those to the north and south of the location of the proposed bridge crossing (see Plate 12.3). Reports by the Commissioner's record the names, descriptions and owners of weirs on the river at Athlone. The owners and occupiers of the eel weirs were provided with compensation following their removal as part of the improvement works. Their continued importance to the economy and industry of the town and surrounding area meant that the Commissioners looked to devise a new method of eel fishing that would not impact navigation or drainage on the river (Went 1950, 151). A series of timber poles, for use with a form of long conical net known as a coghill, was erected immediately to the north of the regulating weir to facilitate the continued use of the fishery (Murtagh 1994, 4).

The demise of the river navigation was brought about by the advent of the railway in the town. Athlone was connected to Dublin in 1851 and the railway line was carried over the river on an iron viaduct. These improvements instigated a period of industrial development in Athlone.

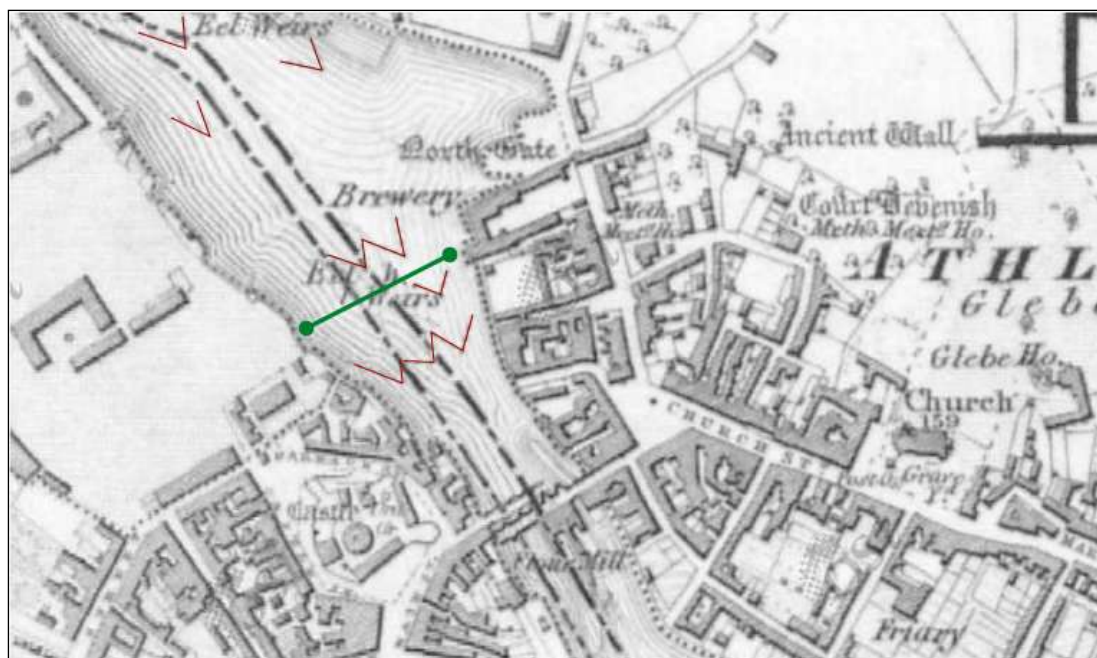


Plate 12.3: Eel weirs depicted on the 1st edition Ordnance Survey map, 1837 and location of proposed bridge crossing (basemap source www.osi.ie).

Town Defences

As noted above the town received a murage grant in 1251 and it is likely that the first wall circuit was constructed soon after this date (Oxford Archaeology 2005, 16). Effectively functioning as a frontier town for English settlement and a bridgehead between Connacht and Meath Athlone's defences were of special significance.

No town walls are mentioned when the town and castle reverted to crown control during the reign of Henry VIII (1509-1547). The economy of the town rapidly developed, and it is clear that the defences were once more developed. New gatehouses were constructed including North Gate (see Plate 12.4) and Dublin Gate. The North Gate is recorded in 1578, when it was occupied by the provost-marshal of Connacht, Robert Dampont. The Dublin Gate was built by Edmund O' Fallon and was leased to him in 1578.

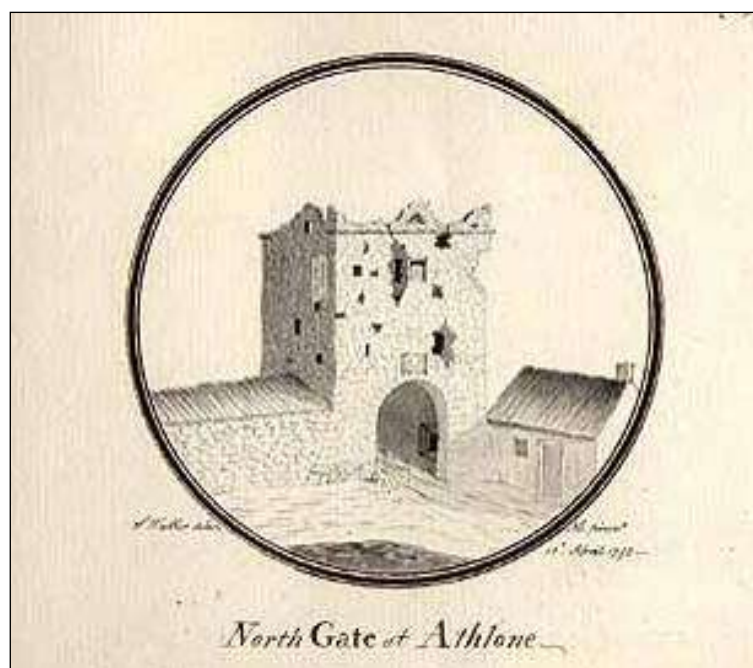


Plate 12.4: North Gate, Athlone 1792 by Austin Cooper (source National Library of Ireland).

In the early 17th century the wall circuit was completed, when a linking section of wall was constructed between the East and North Gates. The town defences were never put to the test during the Cromwellian wars as the royalist forces chose to surrender rather than suffer through a long siege. The Parliamentary forces secured the town and its strategic crossing point on the Shannon and set about improving the state of the towns defences.

The medieval wall and towers had become defunct due to the introduction of artillery. To counter the threat posed, substantial improvements were undertaken, characterised by the introduction of the bastion system. Stone-built bastions were added to the walls of the east town by Cromwell's engineers in the early 1650s. Evidence for four bastions remain, including the principal one at Dublin Gate. A new circuit was erected on the landward side of the West town strengthened by the addition of an earthen rampart and stone-built bastions. The new defences are recorded on a plan of the town completed by Thomas Phillips in 1685 (see Plate 12.5).



Plate 12.5: Extract from Thomas Phillips Athlone, 1685 showing town defences

During the late 17th century conflict between the Williamite and Jacobite forces the defence of Athlone again came to the fore. Jacobite engineers devised ways of further strengthening the town defences. Earthen ramparts were constructed inside the stone walls and bastions of the east town, a new earthen rampart was constructed on the riverfront of the West town and an additional bastion was constructed along the West towns pre-existing wall. The defences and the Jacobite garrison they defended were subject to sieges by the Williamite forces in 1690 and 1691. The defences held during the first series of assaults in 1690 but the subsequent attack resulted in the destruction of one of the bastions and the burning of a large part of the eastern part of the town. The western part of the town and the castle were also badly damaged during the attack. A plan of the town made in 1784 does not indicate the ramparts around West town and it is possible that they were destroyed or dismantled in the aftermath of the siege. The plan does however indicate the subsequent development of an extensive barracks to the north of the castle and the survival of the majority of the walls around the eastern side of the town.

The possibility of war with France was recognised at the end of the 18th century and plans for the fortification of the coastal region were made at this time. French invasion plans also included a proposed landing of troops at Galway Bay followed by an overland advance to take Dublin. The crossing points on the River Shannon, between Lough Derg and Lough Ree, were therefore of strategic importance to the British in the protection of both Ireland and Britain and proposals were made to strengthen the defences at Athlone. New defences were commissioned and in 1798, temporary works were begun on Gallows Hill, in the West town, under Lieutenant-Colonel Buchanan. With the renewal of the war with France in 1803, plans were put forward for the construction of permanent defences at Athlone and eight batteries were constructed at the western boundary of the town. The remains of one of these,

Battery No. 1, survives at the northern end of the canal. The site of Battery No. 2 is preserved in a green area on the west side of the canal.

During the 19th and 20th centuries, the walls and defences have gradually been pulled down and removed to facilitate urban and residential development. Only small sections now remain together with other indicators of the former line of the defences in the layout of streets and open spaces.

12.4 Site Survey

The western springing point of the proposed bridge is located to the east of St. Peter and St. Paul's Catholic Church on Grace Road (see Plate 12.6). In this area the bank of the river was formalised during the Shannon Commissioner navigation works in the mid-nineteenth century. By the late 19th century it had been further reclaimed to allow for a narrow riverside park known as the Promenade. While the construction of Custume Barracks and the reclamation of the river has removed the above ground expression of the town defences depicted on Phillips map of 1685 it is possible that subsurface features associated with a demi-bastion (Connacht Tower) depicted on the map may survive to the north of Custume Bridge.



Plate 12.6: Western springing point of bridge

The proposed bridge has one in-channel pier that will be constructed on the bed of the River Shannon. The river channel is considered to be an area of high archaeological potential. While the river has been subject to dredging works throughout the nineteenth century it has been a focus for east-west movement through the landscape since the prehistoric period. It is possible that material associated with the early fording point, the early medieval causeway and later medieval and modern fishing weirs may survive at the site.

The eastern springing point of the proposed bridge is located to the west of the Radisson Hotel (see Plate 12.7). Here the bank of the river was formalised during the Shannon Commissioner navigation works in the mid-nineteenth century. While nineteenth century reclamation works and later redevelopment of the area has removed the above ground sections of the town defences including a section of town wall running west from the North Gate towards the River Shannon and an associated demi-bastion (WM029-042069- / HC 28, please note this site is included in the Sites and Monuments Record as a Redundant Record, following the next revision of the SMR it will form part of the general Athlone Town Defences Record WM029-042020-) located along the river bank it is possible that subsurface features may survive at the site.



Plate 12.7: Eastern springing point of bridge

A cycling hub is proposed in the area to the east of Athlone Castle (see Plate 12.8). The eastern curtain has circular bastions projecting towards the river. Between the bastions is a sloping area of grass.



Plate 12.8: Athlone Castle from Custume Bridge.

Quay Road runs in a north-south direction to the east of the curtain wall and is currently used for public car-parking. The quay wall at this point comprises ashlar stone with stone mooring bollards. To the west of the quayside is a low wall construction of random rubble stone with concrete coping (see Plate 12.9).



Plate 12.9: Stone wall along quayside to east of Athlone Castle.

12.5 Description of Proposed Development

The full description of the proposed development is outlined in Chapter 4 of the Environmental Impact Statement and the proposed bridge structure is presented in Figures 4.1 to 4.13 of Volume 3. A summary of the description and proposed construction methodology is provided here for reference (see also Figure 12.1 in Volume 3).

Proposed Main Crossing

The proposed bridge structure comprises a two span bridge with a central in river pier. The overall length of the bridge is approximately 104m with approximately even spans. The proposed pier will be constructed of reinforced concrete and will be elliptically shaped on plan. It is anticipated that the central pier will be supported on a rectangular pilecap on 4 No. piles. The top of the pilecap will be set just below bed level of the river to ensure no impact on flow. A temporary cofferdam is needed to facilitate construction of the pilecap.

Construction of the bridge will be undertaken using 3 no. Jack Up barges. The barges will be floated into position and the legs, approximately 300mm in diameter, will be lowered into position on the river bed. The barges are then elevated clear of the water.

Eastern Abutment, Ramp and Promenade

The eastern end support of the bridge is on a dedicated full height abutment which provides a landing for the main crossing and the eastern approach ramp. The proposed abutment will be constructed of reinforced concrete supported on small diameter piles. The eastern ramp structure runs north from the landing area parallel

to the existing river bank. It will measure c. 4.5m in width between handrails. The proposed ramp will be of solid construction, supported on a light steelwork lattice. The steelwork lattice will be supported on discrete spread or piled foundations dependent on ground conditions encountered. The eastern promenade will need to be widened to accommodate the proposed landing and ramp and will comprise a cantilevered steel boardwalk with decking. The boardwalk is likely to require discrete small diameter piles along the river bank.

Western Abutment, Ramp and Promenade

The western end support of the bridge is proposed to be off the roof of the service building immediately north of the Luan Gallery structure and will involve alterations and the localised underpinning of the Gallery structure. The abutment will be accessed by a linear embedded ramp with a minimum width of 2.8m between handrails supported on traditional reinforced concrete foundations on piles. The existing ramp and steps will be demolished. The existing promenade running along the Luan Gallery will be replaced with a wider promenade extended further to the north to facilitate mixes of pedestrians and cyclists. The boardwalk is likely to require discrete small diameter piles along the river bank.

Castle Waterfront

The proposed cycle way will extend along the west bank from the Luan Gallery through the existing underpass at Custume Bridge leading to the waterfront at Athlone Castle.

The proposed development will incorporate:

- Removal of existing ornamental trees to the east of the castle.
- Streetscape works to the east of the castle and south of the pedestrian arch under Custume Bridge, including paving to emphasise a pedestrian and cyclist environment.



Plate 12.10: Proposed Castle Waterfront (source Cunnane Stratton Reynolds)



Historic print of Castle indicating presence on waterfront



Contemporary Seating



Cycle-way creating visual interest for seating area



Tree planting along quay wall

12.6 Inventory of Archaeological Sites and Areas of Archaeological Potential

Thirty-nine archaeological sites were identified within 50m of the proposed development (shown as HC 1 – 39 on Figure 12.1 in Volume 3 and Table 12.1). These sites result from desktop assessment and field survey carried out for the Environmental Impact Assessment.

These cultural heritage sites have been compiled from various sources including the Record of Monuments and Places and the examination of Ordnance Survey maps. In addition, the River Shannon was identified as an area of archaeological potential.

Table 12.1: Inventory of Archaeological and Cultural Heritage Sites within c. 50m of the proposed development (see Figure 12.1 in Volume 3)

| HC # | Status | Ref no. | ITM Reference (E,N) | Site type | Distance to Proposed Bridge or Cycleway Hub | Perceived Significance | Type of Impact | Significance & Quality of Impact | Mitigation Proposals | Impact after Mitigation |
|------|-------------------------------|------------------------------|---------------------|--------------------------------------|---|------------------------|---------------------|----------------------------------|---|---|
| 1 | RMP | WM029-042---- | 603850, 741525 | Historic town | 0m | National | Direct | Significant, negative | Archaeological excavation and resolution of sub-surface works | Archaeological evidence will be preserved either by record or in situ |
| 2 | RMP / National Monument / RPS | WM029-042002- / 520'O' / 070 | 603801, 741443 | Castle - Anglo-Norman masonry castle | 0m | National | Direct | Significant, negative | Archaeological excavation and resolution of sub-surface works | Archaeological evidence will be preserved either by record or in situ |
| 3 | RMP | WM029-042004- | 603891, 741469 | Bridge | 20m | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 4 | RMP | WM029-042005- | 603852, 741518 | Memorial stone | No longer in original position now housed in National Museum of Ireland | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 5 | RMP | WM029-042006- | 603852, 741518 | Inscribed stone | No longer in original position now housed in National Museum of Ireland | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 6 | RMP | WM029-042007- | 603852, 741518 | Inscribed slab | No longer in original position now housed in National Museum of Ireland | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 7 | RMP | WM029-042008- | 603852, 741518 | Inscribed stone | No longer in original position now housed in National Museum of Ireland | National | No predicted impact | No impact | No further mitigation measures required. | None |

| HC # | Status | Ref no. | ITM Reference (E,N) | Site type | Distance to Proposed Bridge or Cycleway Hub | Perceived Significance | Type of Impact | Significance & Quality of Impact | Mitigation Proposals | Impact after Mitigation |
|------|--------|---------------|---------------------|-----------------|---|------------------------|---------------------|----------------------------------|--|-------------------------|
| 8 | RMP | WM029-042009- | 603852, 741518 | Armorial plaque | No longer in original position now housed in National Museum of Ireland | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 9 | RMP | WM029-042010- | 603852, 741518 | Memorial stone | No longer in original position now housed in National Museum of Ireland | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 10 | RMP | WM029-042011- | 603852, 741518 | Memorial stone | No longer in original position now housed in National Museum of Ireland | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 11 | RMP | WM029-042012- | 603852, 741518 | Armorial plaque | No longer in original position now housed in National Museum of Ireland | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 12 | RMP | WM029-042013- | 603852, 741518 | Armorial plaque | No longer in original position now housed in National Museum of Ireland | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 13 | RMP | WM029-042014- | 603852, 741518 | Armorial plaque | No longer in original position now housed in National Museum of Ireland | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 14 | RMP | WM029-042015- | 603852, 741518 | Armorial plaque | No longer in original position now housed in National Museum of Ireland | National | No predicted impact | No impact | No further mitigation measures required. | None |

| HC # | Status | Ref no. | ITM Reference (E,N) | Site type | Distance to Proposed Bridge or Cycleway Hub | Perceived Significance | Type of Impact | Significance & Quality of Impact | Mitigation Proposals | Impact after Mitigation |
|------|---------|---------------|---------------------|-------------------------------------|---|------------------------|---------------------|----------------------------------|--|---|
| 15 | RMP | WM029-042016- | 603852, 741518 | Memorial stone | No longer in original position now housed in National Museum of Ireland | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 16 | RMP | WM029-042017- | 603800, 741450 | Armorial plaque | No longer in original position now housed in Athlone Castle Museum | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 17 | RMP | WM029-042038- | 603812, 741443 | Armorial plaque | No longer in original position now housed in Athlone Castle Museum | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 18 | RMP | WM029-042039- | 603811, 741429 | Armorial plaque | No longer in original position now housed in Athlone Castle Museum | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 19 | RMP | WM029-042040- | 603811, 741429 | Armorial stone (original location) | No longer in original position now housed in Athlone Castle Museum | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 20 | Athlone | WM029-042041- | NPL | Quays possible | 0m | National | Direct | Moderate, negative | Archaeological test excavation and resolution of sub-surface works | Archaeological evidence will be preserved either by record or in situ |
| 21 | RMP | WM029-042042- | 603885, 741635 | Religious house - Franciscan friars | 25m | National | No predicted impact | No impact | No further mitigation measures required. | None |

| HC # | Status | Ref no. | ITM Reference (E,N) | Site type | Distance to Proposed Bridge or Cycleway Hub | Perceived Significance | Type of Impact | Significance & Quality of Impact | Mitigation Proposals | Impact after Mitigation |
|------|--------|---------------|---------------------|----------------------------------|--|------------------------|---------------------|----------------------------------|--|---|
| 22 | RMP | WM029-042043- | 603811, 741429 | Cross-slab | No longer in original position now housed in Athlone Castle Museum | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 23 | RMP | WM029-042044- | 603811, 741429 | Cross-slab | No longer in original position now housed in Athlone Castle Museum | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 24 | RMP | WM029-042045- | 603811, 741429 | Cross-slab | No longer in original position now housed in Athlone Castle Museum | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 25 | RMP | WM029-042052- | 603805, 741427 | Stone head | No longer in original position now housed in Athlone Castle Museum | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 26 | RMP | WM029-042053- | 603809, 741429 | Sheela-na-gig (present location) | No longer in original position now housed in Athlone Castle Museum | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 27 | RMP | WM029-042059- | 603787, 741434 | Cross - Wayside cross | No longer in original position now housed in Athlone Castle Museum | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 28 | RMP | WM029-042069- | 603834, 741648 | Redundant record | 0m | National | Direct | Moderate, negative | Archaeological test excavation and resolution of sub-surface works | Archaeological evidence will be preserved either by record or in situ |

| HC # | Status | Ref no. | ITM Reference (E,N) | Site type | Distance to Proposed Bridge or Cycleway Hub | Perceived Significance | Type of Impact | Significance & Quality of Impact | Mitigation Proposals | Impact after Mitigation |
|------|-----------|---------------------|---------------------|------------------------|--|------------------------|---------------------|----------------------------------|--|---|
| 29 | RMP | WM029-042076- | 603802, 741507 | Redundant record | 12m | National | Indirect | Slight, negative | Archaeological test excavation and resolution of sub-surface works | Archaeological evidence will be preserved either by record or in situ |
| 30 | RMP | WM029-042082- | 603798, 741452 | Memorial stone | No longer in original position now housed in Athlone Castle Museum | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 31 | RMP | WM029-042083- | 603793, 741446 | Architectural fragment | No longer in original position now housed in Athlone Castle Museum | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 32 | RMP | WM029-042085- | 603793, 741446 | Stone head | No longer in original position now housed in Athlone Castle Museum | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 33 | RMP | WM029-042086- | 603836, 741397 | Architectural feature | 40m | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 34 | RMP / RPS | WM029-042087- / 063 | 603834, 741398 | Inn | 40m | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 35 | RMP | WM029-042088- | 603803, 741425 | Memorial stone | No longer in original position now housed in Athlone Castle Museum | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 36 | RMP | WM029-042089- | 603805, 741424 | Inscribed stone | No longer in original position now housed in Athlone Castle Museum | National | No predicted impact | No impact | No further mitigation measures required. | None |

| HC # | Status | Ref no. | ITM Reference (E,N) | Site type | Distance to Proposed Bridge or Cycleway Hub | Perceived Significance | Type of Impact | Significance & Quality of Impact | Mitigation Proposals | Impact after Mitigation |
|------|--------|---------------|---------------------|---------------------------|---|------------------------|---------------------|-----------------------------------|--|---|
| 37 | RMP | WM029-042099- | 603797, 741451 | Castle - motte | 34m | National | Indirect | Slight, negative | No further mitigation measures required. | None |
| 38 | RMP | WM029-042100- | 603894, 741441 | Water mill - unclassified | 44m | National | No predicted impact | No impact | No further mitigation measures required. | None |
| 39 | AAP | N/A | 603824, 741588 | River Shannon | 0m | National | Direct | Potentially significant, negative | Underwater survey, archaeological testing and resolution in situ and/or off-site | Archaeological evidence will be preserved by record. Underwater assessment will address potential residual scouring downstream of new bridge pier |

12.7 Impact Assessment

Methodology

A preliminary assessment of the impact of the proposed development on the heritage constraints identified is made under the classes shown in Table 12.2 (NRA, 2005):

Table 12.2 Type of Impacts

| Impact | Description |
|---------------------|--|
| Direct | A direct impact is where an archaeological or cultural heritage feature or site is physically located within the footprint of a potential route and entails the removal of part, or all of the monument or feature. |
| Indirect | An indirect impact is where a feature or site of archaeological or cultural heritage merit or its setting is located in close proximity to the footprint of a potential route alignment. These impacts may be ameliorated at the detailed design stage and with the implementation of mitigation strategies. |
| No predicted impact | No predicted impact occurs where the potential route does not adversely or positively affect an archaeological or cultural heritage site. |

The assessment of the terrain potential and the examination of the type, density and distribution of archaeological sites within the landscape give rise to the identification of areas and sites of archaeological potential. These areas may be included given their:

- Close proximity to recorded archaeological monuments
- Association with either topographic features or wetland terrain
- Place name evidence
- Find spots of stray finds

The significance criteria, outlined in the NRA Guidelines was used in order to assess the significance (e.g. legal status, condition, historical significance, group value, rarity, visibility, fragility and amenity value; NRA, 2005) of impacts. The results of this assessment are discussed below.

Avoidance is the preferred mitigation measure. However, given the widespread and geographical nature of linear developments it is inevitable that impacts will occur. Early recognition of the type and level of impact should make it possible to minimise and reduce the loss of archaeological heritage features and provide suitable mitigation measures.

The impacts of the proposed route on the archaeological and cultural heritage environment are first assessed in terms of their quality i.e. positive, negative or neutral, as shown in Table 12.3.

Table 12.3 Quality of Impacts

| | |
|------------------------|--|
| Negative impact | A change that will detract from or permanently remove an archaeological monument from the landscape. |
| Neutral impact | A change that does not affect the archaeological heritage. |
| Positive impact | A change that improves or enhances the setting of an archaeological monument. |

A rating of the significance of the each impact is then given i.e. profound, significant, moderate, slight, or imperceptible, as shown in Table 12.4.

Table 12.4 Levels of Perceived Significance

| | |
|----------------------|---|
| Profound | Applies where mitigation would be unlikely to remove adverse effects. Reserved for adverse, negative effects only. These effects arise where an archaeological site is completely and irreversibly destroyed by a proposed development. |
| Significant | An impact which, by its magnitude, duration or intensity, alters an important aspect of the environment. An impact like this would be where part of a site would be permanently impacted upon, leading to a loss of character, integrity and data about the archaeological feature/site. |
| Moderate | A moderate impact arises where a change to the site is proposed which though noticeable, is not such that the archaeological integrity of the site is compromised and which is reversible. This arises where an archaeological feature can be incorporated into a modern day development without damage and that all procedures used to facilitate this are reversible. |
| Slight | An impact which causes changes in the character of the environment which are not significant or profound and do not directly impact or affect an archaeological feature or monument. |
| Imperceptible | An impact capable of measurement without noticeable consequences. |
| No impact | No perceived impact |

Thirty-nine sites were identified within 50m of the proposed new bridge and cycleway hub (see Figure 12.1 in Volume 3).

Of these:

- Five will be impacted directly;
- Two will be impacted indirectly; and
- Thirty-two will have no predicted impact.

The potential impact of the proposed development is considered, as shown in Table 12.5:

- Significant for three of these sites;
- Slight for two of these sites; and
- No predicted impact for 32 sites.

Table 12.5 Summary of Perceived Significance of sites and Impact Significance

Direct Impacts:

| Impact Significance | Perceived Significance of Site | | | | |
|---------------------|--------------------------------|----------|----------|-------|-------------|
| | International | National | Regional | Local | Record only |
| Profound | 0 | 0 | 0 | 0 | 0 |
| Significant | 0 | 3 | 0 | 0 | 0 |

| Impact Significance | Perceived Significance of Site | | | | |
|---------------------|--------------------------------|----------|----------|-------|-------------|
| | International | National | Regional | Local | Record only |
| Moderate | 0 | 2 | 0 | 0 | 0 |
| Slight | 0 | 0 | 0 | 0 | 0 |
| Imperceptible | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 5 | 0 | 0 | 0 |

Indirect Impacts:

| Impact Significance | Perceived Significance of Site | | | | |
|---------------------|--------------------------------|----------|----------|-------|-------------|
| | International | National | Regional | Local | Record only |
| Profound | 0 | 0 | 0 | 0 | 0 |
| Significant | 0 | 0 | 0 | 0 | 0 |
| Moderate | 0 | 0 | 0 | 0 | 0 |
| Slight | 0 | 2 | 0 | 0 | 0 |
| Imperceptible | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 2 | 0 | 0 | 0 |

No impact:

| Impact Significance | Perceived Significance of Site | | | | |
|---------------------|--------------------------------|----------|----------|-------|-------------|
| | International | National | Regional | Local | Record only |
| No impact | 0 | 32 | 0 | 0 | 0 |

Impacts on Recorded Archaeological Monuments and Places (see Figure 12.1 in Volume 3)

The proposed development will impact directly on four sites included the Record of Monuments and Places (HC 1, HC 2, HC 20 and HC 28).

It will impact indirectly on two sites included the Record of Monuments and Places (HC 29 and HC 37).

It will have no predicted impact on a further 30 further sites listed in the Record of Monuments and Places (HC 3, HC 4, HC 5, HC 6, HC 7, HC 8, HC 9, HC 10, HC 11, HC 12, HC 13, HC 14, HC 15, HC 16, HC 17, HC 18, HC 19, HC 21, HC 22, HC 23, HC 24, HC 25, HC 26, HC 27, HC 30, HC 31, HC 32, HC 33, HC 34, HC 35, HC 36 and HC 38).

Impacts on Areas of Archaeological Potential

Watercourses are considered to be of high archaeological potential, containing features such as *fulachta fiadh* or burnt mounds, fords, ancient bridging sites, mills, and longphorts (Viking harbours) and producing archaeological artefacts such as log boats, organic material and votive offerings of axeheads and metalwork. Riverbank sites have been favoured for human occupation since prehistoric times for their proximity to rich food sources and fresh water.

The River Shannon at Athlone (HC 39) is considered to be an area of high archaeological potential due to its long history of use as a transport corridor, a boundary and as a defence. The river channel has been altered in the past by the construction of various weirs, bridges and the navigation lock. The proposed

development involves the installation of a single bridge pier in the centre of the current channel. While the dimension and footprint of this pier may be relatively small, the potential construction impacts would be significant on what is considered a fragile environment.

Construction of the bridge will require the use of 3 no. Jack Up barges. The barges are supported on legs, approximately 300mm in diameter, which will cause localised disturbance of the river bed.

Visual Impact on Athlone Castle

From the defences of Athlone Castle (HC 2) the view expands to the north and east (see Plate 12.11). The foreground of the current view comprises Custume Bridge (RPS no. 004) and the south wall of the Luan Gallery (RPS no. 005), the middle ground comprises the river Shannon, while the background of the view comprises the Radisson Hotel, a large structure of six- to seven-storeys.

The construction of the proposed cycle bridge will introduce a new structural element into the view from the castle (see Plate 12.11). However, the view has already been significantly altered by the construction of the Radisson Hotel along the east bank of the river. The bridge itself will have a neutral impact on the existing view from the castle.

Proposed landscaping works to the east of the castle will open up views to it from the east bank of the river and the east end of Custume Bridge. The visual impact of the proposed landscaping works is considered to be positive.



Plate 12.11: View of proposed bridge from Athlone Castle

12.7.1 Residual Impacts

The construction of the in-channel pier of the proposed bridge may cause scouring of the river bed downstream of the proposed bridge. The pier, which is elliptical in plan oriented with the long dimension oriented parallel to the flow of the river, has been designed to minimise turbulence and associated scour effects and the area has been subject to an Underwater Archaeological Impact Assessment.

12.8 Recommended Avoidance, Remedial or Reductive Measures

Due to the archaeological potential of the site the following archaeological mitigation measures are proposed:

Ministerial Direction

All archaeological works on this scheme will be subject to Ministerial Directions issued by the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

Ministerial Consent

Athlone Castle is a National Monument in State Ownership (Nat. Mon. Ref. No. 520'O'). All works in the vicinity of Athlone Castle will require the prior written consent of the Minister for Arts, Heritage, Regional, Rural and Gaeltacht Affairs. This will include but not be limited to the removal of the existing car-parking, the low stone wall along the quayside and related features to the east (waterfront) side of the castle, the provision of cycle parking and related orientation and interpretation information, the replacement of paving materials, the removal or replanting of trees and the installation of informal seating and performances spaces.

Underwater Investigation

All in-channel works including the excavation of deposits within the area enclosed by the coffer dam and the emplacement of the Jack Up barges will be archaeologically monitored and the deposits removed to the works compound for archaeological processing in accordance with statutory requirements. Following processing, the residue spoil will be managed in accordance with the Waste Management Acts 1996-2013.

Archaeological Testing

Archaeological test excavation will be undertaken in advance of construction, where sub-surface development works are to be undertaken. Targeted testing allows an assessment to be made on the extent of any surviving archaeology before any further mitigation is decided upon.

Archaeological Excavation and Preservation In Situ

Archaeological excavation is the preservation by record of archaeological remains and is recommended only where archaeological features cannot be preserved *in situ*.

Should the results of the mitigations outlined above indicate the requirement for archaeological excavation and/or preservation *in situ*; this will be undertaken as per best practice and in consultation with the National Monuments Service of the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs. Archaeological resolution of river bed deposits may be undertaken *in situ* and/or through off-site archaeological processing of dredged material.

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Chapter 13

Architectural Heritage

Chapter 13

Architectural Heritage

13.1 Introduction

The building survey assessed fifteen structures and areas of built heritage significance; one of these areas is a street that includes a total of eleven protected structures. Of the sites examined, two will be affected to a greater or lesser extent by the proposed river crossing to the extent that mitigation will be required, while a third will need to be safeguarded during construction works. Four of the sites will be affected positively.

13.2 Background

The area was inspected for the purposes of preparing this report on 30th July 2013, 12th May 2015 and 4th April 2016, on which occasions the photographs incorporated in the report were taken and the buildings and other structures in the vicinity of the proposed works were examined to prepare the descriptions contained therein.

This report has been carried out in accordance with the *Guidelines for the Assessment of Architectural Heritage Impacts of National Road Schemes* produced by the National Roads Authority.

Historical research was carried out on the background history of properties along the route or in close proximity and the results are set down below.

While this report contains comment on aspects of the condition of the buildings it is not a condition report or a structural report and must not be read as such.

This report has been prepared by Rob Goodbody BA(mod), DipEnvPlanning, DipABRC, MA, MUBC, MIPI.

13.3 Methodology

The built heritage assessment examines buildings and other structures in the vicinity of the proposed river crossing and cycling hub and assesses the architectural significance of those structures with the anticipated effect of the crossing on their character. The emphasis is on structures still standing. Where a building or other structure has been destroyed it no longer has architectural significance on the landscape, though it may leave traces that fall within the ambit of the archaeological assessment. It may also have had an importance that remains through the historical record, though this is not of concern to the present task. For a structure to have architectural significance it need not survive intact and ruins, or even fragments of buildings may be of importance.

The *Guidelines for the Assessment of Architectural Heritage Impacts of National Roads Schemes*¹ recommends that at assessment stage the study will generally take into account and examine an area extending 50 metres on either side of the centre line of the proposed new road, though using professional judgement as to whether the study corridor will be extended to take into account specific structures. This approach is adopted here as being a reasonable approach to the assessment of the

¹ National Roads Authority, *Guidelines for the Assessment of Architectural Heritage Impacts of National Road Schemes* (n.d.)

proposals, though taking into account the greater visibility of the proposed river crossing along the line of the river. Taking that criterion into account, the identification of buildings and structures to be assessed for impact was based in the first instance on an analysis of current Ordnance Survey maps. The potential for any building or other structure in the vicinity of the proposed bridge to have special architectural significance was also gauged through examination of the following sources:

- Athlone Town Development Plan 2014-2020
- Pre-Ordnance Survey maps by William Larkin and Augustus Beaufort
- Ordnance Survey six-inch maps of 1830s, 1870s and 1930s
- Ordnance Survey five-foot to the mile and 1:500 maps of 1838 and 1874

Any buildings on or close to the proposed river crossing and cycling hub that were identified on the earlier Ordnance Survey maps were then checked against the current Ordnance Survey maps to ascertain which were still extant.

The route was then walked to identify those structures noted in the desktop survey to assess them for their architectural quality. The possibility of finding structures of architectural significance not identified either through the desktop assessment was kept in mind during the site work and any potential additional structures were examined.

The entries in the Records of Protected Structures for the town of Athlone were also checked.

The structures identified along the route were examined to assess the potential effects of the proposed river crossing and cycling hub and to consider potential for mitigation where necessary. In each case the structures identified are rated in accordance with the system adopted by the National Inventory of Architectural Heritage (NIAH) wherein a structure is rated as being of International, National, Regional or Local interest, or, if a structure is of no special interest, the NIAH includes a category of "Record only"².

The definitions for each of these categories is as follows:

International:

Structures or sites of sufficient architectural heritage importance to be considered in an international context. Examples include St Fin Barre's Cathedral, Cork. These are exceptional structures that can be compared to and contrasted with the finest architectural heritage in other countries.

National

Structures or sites that make a significant contribution to the architectural heritage of Ireland. These are structures and sites that are considered to be of great architectural heritage significance in an Irish context. Examples include Ardnacrusha Power Station, Co. Clare; the Ford Factory, Cork; Carroll's Factory, Dundalk; Lismore Castle, Co. Waterford; Sligo Courthouse, Sligo; and Emo Court, Co. Laois.

Regional

² National Inventory of Architectural Heritage *NIAH Handbook* edition March 2013, pp. 21-22

Structures or sites that make a significant contribution to the architectural heritage within their region or area. They also stand in comparison with similar structures or sites in other regions or areas within Ireland. Examples include many Georgian terraces; Nenagh Courthouse, Co. Tipperary; or the Bailey Lighthouse, Howth. Increasingly, structures that need to be protected include structures or sites that make a significant contribution to the architectural heritage within their own locality. Examples of these include modest terraces and timber shopfronts.

Local

These are structures or sites of some vintage that make a contribution to the architectural heritage but may not merit being placed in the RPS separately. Such structures may have lost much of their original fabric.

Record only

These are structures or sites that are not deemed to have sufficient presence or inherent architectural or other importance at the time of recording to warrant a higher rating. It is acknowledged, however, that they might be considered further at a future time.

The legislation relating to the protection of architectural heritage is set down in the Planning and Development Act 2000, as amended, and this defines architectural heritage as including structures which are of special interest under the headings of architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest. Wherever the phrase “special architectural interest” is used in this report it will be taken as including special interest in any one or more of these eight categories.

In this assessment each building or structure that is considered is assigned a rating in accordance with the NIAH system, or is stated to be not of special architectural interest. Where the rating is deemed to be higher than “Record only” the category of special interest is noted.

It will be noted that the term “special architectural interest” applies only in the context of this assessment of architectural heritage and does not imply that those buildings and other structures that are not considered to be of special architectural interest are in any way inferior or are of lower value.

13.4 Historical background

Athlone has been a crossing point on the River Shannon for millennia, initially as a fording point and, for almost a thousand years, as the location of a bridge. In view of its importance for this purpose it seems likely that there was some form of settlement here from an early date and evidence of a probable church site from the early medieval period supports this possibility.

It was in the eleventh century that the first more tangible evidence of settlement at Athlone appears with the erection of a causeway across the river and the first bridge over the Shannon at Athlone was erected in the early twelfth century. Tensions between the O'Connors of Connacht, on the western bank of the river, and the kings of Meath on the east bank led to the periodic destruction of the bridge, which was of timber. The first castle at Athlone was built by the O'Connors soon after the first bridge, in the 1120s and may have been on the eastern side of the river.

The Anglo-Normans arrived at Athlone at the end of the twelfth century and at the beginning of the following century the judiciar, Bishop de Grey, founded the present

castle on the west bank, along with the first stone bridge. The town developed rapidly from this point, principally on the eastern side of the river and was protected by walls.

The success of the town was short-lived, however, and by the early fourteenth century it was in decline following successive attacks by the O'Connors, the O'Kellys and the O'Breens. The bridge was damaged and in 1315 the town was burned. Athlone appears to have been lost to the crown during this period and probably in Gaelic hands.

The town and its castle were regained by the crown early in the sixteenth century and a new bridge was built a few years later. Reinstated as a bridging point on the Shannon, Athlone prospered once again and appears to have been a place where the Gaelic Irish and those of English descent could co-exist in peace. The grant of a charter at the close of the century copper-fastened the status of the town and made it a parliamentary borough. The town's fortifications were rebuilt at the end of the sixteenth century and augmented by bastions in the mid-seventeenth century.

A major factor in the significance of Athlone at this time was its position as the seat of the Connacht presidency, but when this came to an end in 1670 the fortunes of the town went with it. This was exacerbated by the damage suffered by the town in 1690, when the bridge was broken down and the eastern town burnt, while the western town was effectively destroyed in the siege of the following year. Athlone went into decline and failed to benefit from the rise in trade through most of Ireland in the eighteenth century. The town survived, however, and its fortunes were boosted when it was chosen as one of the sites for extensive army barracks that were built throughout Ireland in the 1690s and early 1700s.

It was its location as a bridging point on the Shannon that breathed new life into Athlone, combined with the spending power of the occupants of the barracks. The first innovation in transportation in the town came in the mid-eighteenth century when the first stage of the Shannon navigation resulted in the town being bypassed by a canal on the western side. Greater changes took place a century later, in the 1840s, when the old bridge was finally demolished and replaced by a wider, more substantial structure about fifty metres upstream from the earlier crossing. At the same time, the Midland Great Western Railway arrived at Athlone and provided a new bridge, this time at high level and constructed of iron.

The Midland Great Western Railway commenced in Dublin and ran to Mullingar along the route of the Royal Canal, before branching off to cross the Shannon at Athlone, en route to Galway city. The Dublin end of the line opened in 1847 and it arrived at Athlone and Galway in 1851. Advantage was taken of the bridge when a railway was constructed to Castlebar in the early 1860s, branching off from the Galway line to the west of the town. This line was extended to Westport and later to Westport Quay. The Great Southern and Western Railway also made use of the bridge. This company opened a line from Portarlinton to Athlone in 1859 and in the following year made a connection with the Midland Great Western line to the east of the bridge. This line has now become the main line to Galway, through Tullamore and Clara.

In the nineteenth and twentieth centuries the town grew mainly on the eastern side of the Shannon, though not exclusively. The construction of a new road bridge upstream from the town in the late twentieth century brought a large amount of traffic out of Athlone, while the town's location near to the motorway system has helped its growth in more recent years.

13.5 Baseline Environmental Study

13.5.1 Statutory Position

Record of Protected Structures

Twenty-six buildings and other structures in the vicinity of the proposed river crossing and cycling hub are included in the Record of Protected Structures (RPS) as set down in the Athlone Town Development Plan 2014-2020 and listed in Table 13.1. Two more are at a greater distance, but the potential impact needs to be assessed. These are listed below, with the reference number under which they are listed in the RPS. These RPSs are included in Figures ATC 05 and ATC 06 of the Athlone Town Development Plan 2014-2020, marked with green dots.

Table 13.1 Record of Protected Structures Within Vicinity of Proposed Development

| Protected Structure | RPS No. |
|---|---------|
| AIB Bank, Custume Place | 001 |
| Custume Bridge | 004 |
| Athlone Public Library | 005 |
| SS Peter & Paul Roman Catholic Church | 006 |
| The Left Bank Bistro, Fry Place | 047 |
| House in Fry Place | 048 |
| Yates Pub, Fry Place | 049 |
| Pavarotti's Restaurant, Fry Place | 050 |
| St Paul's Castle Street | 053 |
| Fernhill/Downtown Hairstyles, Castle Street | 053 |
| Castle Inn, Main Street | 055 |
| House in Main Street | 056 |
| Wallace, Main Street | 057 |
| House in Main Street | 058 |
| House in Main Street | 059 |
| Remax Midland Properties, Main Street, house and shop | 060 |
| SMG Doyle King, Main Street, house | 061 |
| Na Linte, Bookseller, Main Street | 062 |
| Sean's Bar/Shine's Hairdressers, Main Street | 063 |
| Liturgical Book Store, Main Street | 064 |
| House in Excise Street | 065 |
| Former canal warehouse, The Quay | 069 |
| King John's Castle | 070 |
| Bust of John McCormick, Grace Road | 071 |
| Bollard at The Quay | 075 |
| Abbey House, Coosan Road | 087 |
| Shannon Railway Bridge | 096 |
| Boundary wall, Custume Barracks | 106 |

Each of these is considered below in relation to any possible effect of the proposed river crossing and cycle hub on the character of the protected structure.

Conservation Areas

The western extremity of the proposed river crossing is located at the edge of the Town Centre Architectural Conservation Area, while the cycling hub is within the Town Centre Architectural Conservation Area. The conservation area boundaries are

shown bounded by green lines in Figure ATC 06 of the Athlone Town Development Plan, 2014-2020 located in Volume 3.

National Inventory of Architectural Heritage (NIAH)

The National Inventory of Architectural Heritage (NIAH) carried out its survey of County Westmeath in 2004-2005 and has published the results. The protected structures listed above are listed in the published survey that are in the vicinity of the proposed river crossing and cycle hub, as are some other buildings in Main Street and The Quay.

13.6 Building Survey

In this section each structure, or group of structures, is examined to assess whether it is of special interest as built heritage. This includes special interest for its architectural, historic, artistic, cultural, scientific, social or technical interest. This list of potential interests is derived from section 10(2)(f) of the Planning and Development Act, 2000, which sets down the obligation of a planning authority to include objectives for the protection of structures in its development plan. The list also includes special archaeological interest, but this is not included in this chapter of the EIS as it is considered in Chapter 12 Archaeological Heritage.

Where a structure or group of structures is found to be of special interest this assessment includes an examination of the potential effects of the proposed pedestrian and cycleway bridge on the structure or group of structures. In each of these cases the structure is given a number prefixed with "BH" for Built Heritage. These structures are presented in Figure 13.1 of Volume 3.

In each case the survey includes a brief description of the structure or group of structures and an approximate date of construction. In the case of the older structures the survey includes some background information about the structure to elaborate on the historical background given above.

The survey takes the protected structures listed above that are in the vicinity of the proposed river crossing, in the same sequence as they are listed in the Record of Protected Structures, as well as one building that is not a protected structure, but is of special architectural interest. The survey then examines those buildings that are to the south of Custume Bridge and in the vicinity of the proposed cycling hub.

BH-01 AIB Bank



The AIB Bank on the east bank of the Shannon has its access via a bridge from the causeway leading to Custume Bridge from Church Street. The building is two-storey over basement and has a façade of limestone ashlar, the side elevation being snecked limestone. The western side of the bank rises high above the river and is separated from it by a narrow strip and a boundary wall. The bank dates from the third quarter of the nineteenth century, when the various banks were expanding their networks throughout the country.

| | |
|-----------------------------------|--|
| Date of construction: | 1850s |
| Protected structure? | Yes, reference 001 |
| Conservation area? | Within Town Centre Architectural Conservation Area. |
| Special interest: | Architectural, artistic |
| Special interest rating: | Regional |
| Impacts on built heritage: | None |
| Effects on setting: | Minor effect on setting, but to the rear of the bank building. The bridge will not affect any part of the setting that is significant to the character of the protected structure. |
| Mitigation required: | None |

BH-02 Custume Bridge



A bridge of three elliptical arches and one beam span in the river channel. A narrower arch on the western side allows for pedestrian access. Faced with limestone ashlar, including the barrels of the arches, and with the voussoirs running through the spandrels. The bridge crosses the river at an angle.

| | |
|-----------------------------------|--|
| Date of construction: | 1842 |
| Protected structure? | Yes, reference 004 |
| Conservation area? | No |
| Special interest: | Architectural, artistic, technical |
| Special interest rating: | Regional |
| Impacts on built heritage: | No direct impact |
| Effects on setting: | New bridge will cross the river upstream at a distance of approximately 70 metres on the western side and 85 metres at the eastern. This will not affect close-up views of Custume Bridge. Longer views from further upriver will be facilitated by the nature of the proposed bridge, with the single pier in mid-stream and relatively slender beams extending on either side, minimising the degree to which the view of the protected structure will be obscured. The separation between the two bridges is sufficient to ensure that the new bridge will not take from the character of Custume Bridge. |
| Mitigation required: | None |

BH-03 Pedestrian arch at Custume Bridge



A pedestrian route runs through the causeway on the western side of Custume Bridge and this causeway and archway form part of the protected structure. The arch is elliptical and is bounded by raised limestone ashlar quoins and voussoirs.

Protected structure? Yes, as part of Custume Bridge, reference 004

Conservation area? No

Special interest: Architectural, artistic, technical

Special interest rating: Regional

Impacts on built heritage: No direct impact

Effects on setting: The proposed development will be routed through the pedestrian arch on the western side of the bridge, without any intervention into the fabric of the bridge. The upgrading of the waterfront on the southern side of the bridge will enhance the setting of the bridge and the pedestrian archway.

Mitigation required: None

BH-04 Athlone Public Library



Single-storey building to the front, two-storey to the rear, set adjacent to Custume Bridge, between Grace Road and the river. Roughcast rendered façade with brick margins to the opes, including segmental-headed windows and semi-circular arched doors. Roof is hipped and slated. Built as a temperance hall and has undergone several changes of use over the years. Currently the library is part of the Luan Gallery, discussed in BH-15.

| | |
|-----------------------------------|--|
| Date of construction: | 1897 |
| Protected structure? | Yes, reference 005 |
| Conservation area? | No |
| Special interest: | Architectural, artistic, social |
| Special interest rating: | Regional |
| Impacts on built heritage: | No direct effect |
| Effects on setting: | Minimal. The riverside frontage, although larger, is not as important as the roadside frontage and it will not be affected to any significant extent by the proposed river crossing. |
| Mitigation required: | None |

BH-05 Church of Saint Peter and Saint Paul



Substantial church on extremely prominent site. Faced with limestone ashlar, with Portland stone detailing at the lower level. Twin towers flanking the main entrance at Barrack Street and copper-clad dome over crossing. Transept facing the river has a doorway in the centre and a round-arched window above.

| | |
|-----------------------------------|---|
| Date of construction: | 1930s |
| Protected structure? | Yes, reference 006 |
| Conservation area? | Within Town Centre Architectural Conservation Area. |
| Special interest: | Architectural, artistic, social |
| Special interest rating: | National |
| Impacts on built heritage: | No direct impact |
| Effects on setting: | The proposed development will be located in the river adjacent to the church, aligned on the doorway in the transept that is mentioned above. This will complement the setting of the church. The arched deck of the bridge will rise slightly and in the centre of the bridge will be above the level of the entrance to the church. This will provide a dramatic approach towards the church, while ensuring that it will not detract from the character or setting of the protected structure. |
| Mitigation required: | None |



BH-06 Main Street

Main Street consists of a terrace of three-storey buildings facing the southern side of the castle and a shorter terrace on the opposite side, to the west. Eight buildings on the southern side of the street and three on the northern side are protected structures.

| | |
|-----------------------------------|--|
| Protected structure? | Yes – eleven buildings, references 055 to 065. |
| Conservation area? | Within Town Centre Architectural Conservation Area. |
| Special interest: | Architectural. |
| Special interest rating: | Regional |
| Impacts on built heritage: | No direct impact on protected structures |
| Effects on setting: | The upgrading of the area along the river front as part of the cycling hub will see the enhancement of the paving and street furniture. The net effect will be to enhance the architectural character of the area and of the architectural conservation area. The proposed works will have no adverse effect on the protected structures or architectural conservation area and will have a positive effect on the eastern end of Main Street. |
| Mitigation required: | None |

BH-07 Former canal warehouse, The Quay



Two-storey, three-bay former canal warehouse faced in squared limestone and with brick linings to the opes. The central ope is marked by a broad three-centred brick arch, narrowed in the lower part.

| | |
|-----------------------------------|---|
| Protected structure? | Yes, reference 069. |
| Special interest: | Architectural, technical. |
| Conservation area? | No |
| Special interest rating: | Local |
| Impacts on built heritage: | No direct impact on protected structure |
| Effects on setting: | The upgrading of the river margin adjacent to the castle as part of the cycling hub will be approximately twenty-five metres from this building and not in its direct view. The works will have no adverse effect on the former warehouse and will have little positive effect. |
| Mitigation required: | None |

BH-08 Athlone Castle



Thirteenth-century castle with high curtain walls having drum towers at the river-side angles and with a central keep. Modified over the years, including conversion of towers for artillery.

| | |
|-----------------------------------|---|
| Date of construction: | 13 th century |
| Protected structure?: | Yes, reference 070 |
| Conservation area? | Within Town Centre Architectural Conservation Area. |
| Special interest: | Architectural, archaeological, historical |
| Special interest rating: | National |
| Impacts on built heritage: | No direct impact |
| Effects on setting: | <p>There will be no appreciable effect on the setting arising from the construction of the bridge.</p> <p>The upgrading of the area to the east of the castle to accommodate the cycling hub will have no direct impact on the castle. The indirect impact will be positive, as it will remove the parking adjacent to the castle on the eastern side and will enhance the character of the area.</p> |
| Mitigation required: | None |

BH-09 River frontage adjacent to castle



The river frontage between Athlone Castle and the Shannon is partly within the Town Centre Architectural Conservation Area. This area at present includes a roadway and an area of parking and these are divided from the walkway along the river margin by medium-height stone wall and a line of trees.

| | |
|-----------------------------------|--|
| Protected structure? | No |
| Conservation area? | Partially within Town Centre Architectural Conservation Area. |
| Special interest: | n/a |
| Special interest rating: | n/a |
| Impacts on built heritage: | No direct impact on protected structures |
| Effects on setting: | The proposed works will open up the waterfront, removing vehicles, low walls and other non-historic features. New paving and seating will be provided to create a pedestrian space that respects the historic character of the river margin, the castle and the bridge. This will enhance the character of the architectural conservation area and will open up the view of the eastern side of the castle. The works will have a positive effect on the area. |
| Mitigation required: | None |

BH-10 Bust of Count John McCormack



Bronze bust mounted on high marble pedestal and with a bronze plaque to the front. Set on a plinth raised up to street level from the sloping river bank and enclosed by a low wall as part of the landscaped area between Grace Road and the River Shannon.

| | |
|-----------------------------------|---|
| Date of construction: | 1984 |
| Protected structure? | Yes, reference 071 |
| Conservation area? | No |
| Special interest: | Artistic, historical |
| Special interest rating: | Regional |
| Impacts on built heritage: | Profound. The ramp rising from the river crossing will run through the present site of the monument. |
| Effects on setting: | Setting will be reconfigured through the works to move and reinstate the bust. |
| Mitigation required: | The monument will be relocated to the north, on a new site provided on the open space, similar to the present location, and with a new raised plinth, paving and boundary wall. |

BH-11 Bollards at The Quay



There is a series of cast iron bollards along the waterfront from a point near Main Street southwards. These were installed by the Commissioners for the Shannon Navigation in the mid-1840s and bear the legend “Shannon Commissioners 1844”. Similar bollards are found on the opposite side of the Shannon. One of these bollards is opposite the eastern end of Main Street, close to a point where there is a slipway at the river margin, protected by railings.

| | |
|-----------------------------------|---|
| Date of construction: | 1844 |
| Protected structure? | Yes, reference 075 |
| Conservation area? | No |
| Special interest: | Historical, technical |
| Special interest rating: | Regional |
| Impacts on built heritage: | None. The cycle route leading southwards from the junction with Main Street will run between the carriageway at The Quay and the river. The cast iron bollard is off the direct line that will be followed by a cycle route running from the eastern side of the castle and need not be affected by the proposed works. |
| Effects on setting: | The paving that surrounds the bollard is of concrete paviours and is not of traditional material. The proposed new paving will not affect the setting of the bollard unduly. |
| Mitigation required: | Care will be taken during construction to ensure that the bollard is not damaged. |

BH-12 Abbey House



Abbey House is a substantial two-storey house located on the eastern bank of the Shannon upstream from the proposed site of the bridge and adjacent to the abbey. The house was built in the late nineteenth century on land that had been reclaimed from the river.

| | |
|-----------------------------------|--|
| Date of construction: | 1893 |
| Protected structure? | Yes, reference 087 |
| Conservation area? | No |
| Special interest: | Architectural |
| Special interest rating: | Regional |
| Impacts on built heritage: | None |
| Effects on setting: | The proposed bridge will be located approximately 170 metres from the house, which will be visible only from one upstairs window in the house. The view to the bridge from the reception rooms at ground floor level are blocked by a high wall. |
| Mitigation required: | None |

BH-13 Shannon Railway Bridge



Substantial wrought iron bridge, designed by George Willoughby Hemans and carrying the railway to Galway and Mayo over the Shannon. Two bow-string girders of wrought iron are separated by a cantilevered opening span. The bridge is carried on cast-iron piers.

| | |
|-----------------------------------|---|
| Date of construction: | 1851 |
| Protected structure? | Yes, reference 096 |
| Conservation area? | No |
| Special interest: | Architectural, artistic, technical |
| Special interest rating: | National |
| Impacts on built heritage: | No direct impact |
| Effects on setting: | No immediate effect on setting. View of the bridge from Custume Bridge, seen in the photograph above, will be interrupted by the new bridge. However, the low nature of the proposed bridge will ensure that the railway bridge remains visible to some extent, and the new bridge will not detract from the character of the railway bridge, while at the same time providing a dramatic new viewing point for the railway bridge. |
| Mitigation required: | None |

BH-14 Boundary wall, Custume Barracks



The provision of barracks around Ireland began in the 1690s and the barracks at Athlone was commenced as part of this initial phase. The barracks was enlarged and new buildings and facilities provided at various dates since the initial construction. Substantial walls were built around the barracks in 1793, but Grace Road and the river front to the east of the barracks were only laid out in the mid-nineteenth century. A plot of ground in the south-eastern corner of the barracks was disposed of in 1930 for the construction of the Church of SS Peter and Paul and the perimeter wall of the barracks continues southwards past the church, though lowered in height.

| | |
|-----------------------------------|--|
| Date of construction: | Mid-nineteenth century |
| Protected structure? | Yes, reference 106 |
| Conservation area? | No |
| Special interest: | Architectural, historical, technical |
| Special interest rating: | Regional |
| Impacts on built heritage: | None |
| Effects on setting: | <p>The proposed bridge will be located approximately 50 metres from the wall at the nearest point to the barracks. The former barracks wall that is now the boundary of the church is directly in line with the bridge on the opposite side of Grace Road. The bridge and its associated works will have no direct effect on the walls and will have no adverse visual effect on the wall or its setting.</p> <p>A number of buildings within the barracks are protected structures, however these are more than fifty metres from the proposed bridge and are screened from it by the perimeter wall.</p> |
| Mitigation required: | None |

BH-15 Luan Gallery



Gallery building on site between Grace Road and the River Shannon. Clad in cream-coloured ashlar and with a bronze roof set back from the parapet, the gallery has a long glazed frontage towards the river, cantilevered over a riverside walkway. The northern end of the gallery is a low service building, not rising above road level and is in the form of a podium, bounded on two sides by railings and in use as a parking area. A flight of steps runs down the northern end of the building from Grace Road to the riverside walkway.

| | |
|-----------------------------------|--|
| Date of construction: | 2012 |
| Protected structure? | No |
| Conservation area? | No |
| Special interest: | Architectural |
| Special interest rating: | Regional |
| Impacts on built heritage: | Moderate. The bridge landing will be on the roof of the service building at northern end of gallery and the steps will be replaced by a new flight with an easier going. |
| Effects on setting: | The bridge will be located at the gallery, immediately to the north of the two-storey section of the building. This will cross the view in the photograph above. The low nature of the bridge, with its gentle arch, will minimise the effect on the setting and the styles of the gallery, while the gallery and bridge will complement each other. |
| Mitigation required: | The roof of the service building, railings and steps will be modified and reconstructed in harmony with the gallery building. |

13.7 Impacts

The findings of the above survey of the buildings and other structures on which there is a possible impact is summarised in Table 13.3 below. The table starts with the site number and location.

In each case the structure is given a rating as to its importance and, if higher than “Record only” the nature of its special interest is given. The rating definitions are in accordance with those given in Table 13.2. The special interest is based on the categories set down in the Planning and Development Act, 2000. While that Act gives no criteria for assigning a special interest to a structure, the National Inventory of Architectural Heritage (NIAH) offers guidelines to its field-workers³. This offers guidance by example rather than by definition, and is the system adopted for the present assessment.

Architectural interest

The characteristics of architectural interest may be attributed to a structure or part of a structure with such qualities as the following:

1. A generally agreed exemplar of good quality architectural design;
2. The work of a known and distinguished architect, engineer, designer or craftsman;
3. An exemplar of a building type, plan-form, style or styles of any period but also the harmonious interrelationship of differing styles within one structure;
4. A structure which makes a positive contribution to its setting, such as a streetscape or a group of structures in an urban area, or the landscape in a rural area;
5. A structure with an interior that is well designed, rich in decoration, complex or spatially pleasing.

Archaeological interest

Special archaeological interest is essentially defined by the degree to which material remains can contribute to our understanding of any period or set of social conditions in the past (usually, but not always, the study of past societies). The characteristic of archaeological interest in the context of the RPS must be related to a structure. Structures of special archaeological interest may also be protected under the National Monuments Acts.

Structures can have the characteristics of both archaeological and architectural interest as these are not mutually exclusive. For example, the party walls or basements of houses of later appearance may contain medieval fabric and reveal information of archaeological interest. The standing walls of a sixteenth-century towerhouse will have both characteristics of interest. Fragments of early fabric, including carved or worked stone, may have been re-used in later buildings giving these structures archaeological significance as the current context of historically significant material. A complex of industrial buildings may have archaeological interest because of its potential to reveal artefacts and information about the evolution of industry that may be useful to archaeologists, historians and the public.

³ National Inventory of Architectural Heritage *NIAH Handbook* edition March 2013 pp. 15-20

NOTE: For the purpose of the NIAH County Surveys, Archaeological Interest will only be allocated to structures of pre-1700 date or which contain pre-1700 fabric, e.g. Howth Castle, Kildare Church of Ireland Cathedral, Rathfarnham Castle.

Table 13.2 Definitions of level of impact

| Impact | Definition |
|---------------|--|
| Imperceptible | An impact capable of measurement but without noticeable consequences |
| Slight | An impact that causes noticeable changes in the character of the environment without affecting its sensitivities |
| Moderate | An impact that alters the character of the environment in a manner that is consistent with existing or emerging trends |
| Significant | An impact which, by its character, magnitude, duration or intensity alters a significant aspect of the environment |
| Profound | An impact that obliterates sensitive characteristics |

It will be noted that this assessment relates to architectural heritage and no comment is offered on effects on aspects such as property rights or effects on property that are not pertinent to architectural heritage.

Finally, the table states whether any mitigation measures are required to address the effects of the proposal. Where mitigation is required it is considered more fully in the following section.

Table 13.3 Summary of Impacts

| Site | Location | Rating | Interest | Impact on structure | Impact on setting | Mitigation required |
|-------|-----------------------------------|----------|---|---------------------|-------------------|---------------------|
| BH-01 | AIB Bank | Regional | Architectural, artistic | None | None | No |
| BH-02 | Custume Bridge | Regional | Architectural, artistic, technical | None | Slight | No |
| BH-03 | Pedestrian arch at Custume Bridge | Regional | Architectural, artistic, technical | None | None | No |
| BH-04 | Athlone Library | Regional | Architectural, artistic, social | None | None | No |
| BH-05 | Church of Saints Peter and Paul | National | Architectural, artistic, social | None | Positive | No |
| BH-06 | Main Street | Regional | Architectural, artistic, social | None | Positive | No |
| BH-07 | Canal warehouse, The Quay | Local | Architectural, technical | None | None | No |
| BH-08 | Athlone Castle | National | Architectural, archaeological, historical | None | Positive | No |
| BH-09 | River frontage at castle | n/a | n/a | None | Positive | No |
| BH-10 | Bust of Count John McCormack | Regional | Artistic, historical | Direct | Profound | Yes |
| BH-11 | Bollards at The Quay | Regional | Historical, technical | None | None | Yes |
| BH-12 | Abbey House | Regional | Architectural | None | None | No |
| BH-13 | Shannon Railway Bridge | National | Architectural, artistic, technical | None | None | No |
| BH-14 | Wall of Custume Barracks | Regional | Architectural, historical, technical | None | None | No |
| BH-15 | Luan Gallery | Regional | Architectural | Direct | Moderate | Yes |

13.8 Do-Nothing Scenario

In the event of a Do-Nothing Scenario there will be no adverse effect on architectural heritage. The future existence of all protected structures and other buildings considered in this study will not be affected by a decision not to erect the proposed river crossing or to carry out the works at the proposed cycling hub.

13.9 Proposed Mitigation & Residual Impacts

Two structures have been identified above as being affected by the proposed river crossing to the extent that mitigation is required to protect the structure. This is considered below and the nature of the required mitigation is discussed.

Site BH-10

Site BH-10 is the bust of Count John McCormack. Mitigation will include the erection of a new plinth further to the north along the river bank, mirroring the nature of the present plinth, and relocating the bust, with its pedestal and bronze plaque, to the new location. Following mitigation the impact will be slight.

Site BH-11

Site BH-11 is a cast iron bollard on the quayside opposite the eastern end of Main Street. The route of the cycleway will pass close to the bollard and care needs to be taken to ensure that there will be no damage to the bollard during construction works. The residual impact will be imperceptible.

Site BH-15

Site BH-15 is the Luan Gallery. Mitigation will include the provision of the required bridge landing, stairs and ramps in architectural harmony with the design and finish of the gallery and its adjacent service building. The residual impact will be slight.

13.10 Summary of Residual impacts

The extent of any residual impacts is summarised in Table 13.4 below. This takes into account the number of buildings, rather than the number of sites listed above and hence includes eleven buildings in Main Street. The river frontage adjacent to Athlone Castle is an area rather than an individual structure and hence is not included in the totals.

Table 13.4 Summary of Impacts on Sites of Architectural Interest Following Mitigation

| Value of site | Significance of Impact | | | | | |
|-----------------|------------------------|---------------|--------|----------|-------------|----------|
| | None | Imperceptible | Slight | Moderate | Significant | Profound |
| National | 3 | 0 | 0 | 0 | 0 | 0 |
| Regional | 19 | 1 | 2 | 0 | 0 | 0 |
| Local | 1 | 0 | 0 | 0 | 0 | 0 |
| Total | 23 | 1 | 2 | 0 | 0 | 0 |

13.11 Conclusions

Following examination of the various structures adjacent to the proposed river crossing, the cycling hub and in the immediate vicinity, it is concluded that the proposed river crossing and cycling hub will not have any significant effects on built heritage other than the bust of Count John McCormick and the Luan Gallery. Care will also need to be taken to safeguard the bollard on the quayside.

In many of the cases cited – amounting to four of the sites described – the works will have a positive effect on the setting.

It is envisaged that following the recommended mitigation the proposed river crossing will have no significant negative effect on architectural heritage.

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Chapter 14

Human Beings & Material Assets

Chapter 14

Human Beings & Material Assets

14.1 Introduction

This assessment focused particularly on demography and employment, economic activity, housing and land-use, community facilities, traffic and public transport and material assets.

The assessment also identifies the positive impacts that such a development will have, such as the amenity the development will provide.

Material assets can be defined as physical resources in the environment, which may be either of human or natural origin. A development may affect material assets if it involves any of the following:

- Acquisition of land;
- Demolition of buildings,
- Revaluation of or change in the development potential of adjoining lands / properties, or
- Restructuring of city dynamics.

14.2 Methodology

In order to address the potential impacts to human beings and material assets, a number of impact categories have been examined, including:

- Demography and Employment – an examination of potential population changes;
- Economic Activity – an assessment of employment and employment opportunities; impacts on local businesses; property and property values and, the value of development land. The type and extent of positive and/or negative impacts of the proposed development to economic activity will be assessed;
- Housing and Land-Use – an examination of impacts on housing, severance, loss of rights of way or amenities, conflicts, or other changes likely to ultimately alter the character and use of the surroundings;
- Community Facilities – an examination of the positive and negative impacts on the residential community addressed through an examination of severance and journey times and impacts on amenity and recreation. An assessment of patterns in social activities due to the proposed development was undertaken;
- Traffic and Public Transport – an assessment of positive and negative impacts to traffic and transport within the study area and Athlone Town due to the construction and operation of the development; and,
- Material Assets - assessment of likely impacts to economic assets and cultural assets.

The assessment of impacts to human beings and material assets has been undertaken in line with the Environmental Protection Agency (EPA) 'Guidelines on the information to be contained in Environmental Impact Statements (2002)' and the EPA 'Advice Notes on Current Practice (in the preparation of EIS)' (2003). Reference has also been made to the detailed guidelines provided in the UK DMRB Volume 11, Section 3 Environmental Assessment Techniques, particularly Part 6 'Land-use' and Part 8 'Pedestrians, Cyclists, Equestrians and Community Effects'.

In order to complete this assessment, a baseline study of the existing human and material assets environment was undertaken using desktop research. The following sources of information were consulted in the process of this assessment:

- 2006 Census of Ireland; Central Statistics Office (CSO) 2006
- 2011 Census of Ireland; CSO 2011
- Westmeath County Development Plan 2014 -2020
- Athlone Town Development Plan 2014-2020
- Pobal.ie Mapping
- Myplan.ie
- Fáilte Ireland studies and reports on cycle ways

In addition to the sources listed above, aerial photography, OSI maps and a site layout plan of the existing area and proposed development were consulted. Site visits have also been carried out through the project.

Potential impacts to human beings and material assets arising from the proposed development include traffic impacts, visual impacts and noise and air pollution. These aspects are addressed in greater detail in the following sections of this EIS:

Chapter 5: Traffic, Cyclist and Pedestrian Integration

Chapter 9: Landscape and Visual Analysis

Chapter 10: Noise and Vibration

Chapter 11: Air Quality and Climate

Table 14.1 below highlights the specific chapters of the EIS that are relevant to human beings and material assets.

Table 14.1 EIS Chapters Relevant to Human Beings and Material Assets

| Chapter No. | Title | Human Aspect or Asset |
|-------------|--|-----------------------|
| 2 | Background to the Proposed Development | Plans and Policies |
| 7 | Soils and Geology | Natural Resources |
| 8 | Hydrology and Drainage | Water |
| 9 | Landscape and Visual Analysis | Views |
| 10 | Noise and Vibration | Noise Environment |
| 11 | Air Quality and Climate | Air Quality |
| 12 | Archaeological and Cultural Heritage | Cultural Assets |
| 13 | Architectural Heritage | Cultural Assets |

Where relevant, impacts on material assets such as the road network and designated conservation sites are more appropriately described in other chapters of this EIS.

14.3 Existing Environment

14.3.1 Demography and Employment

In this section, the key demographic and employment characteristics of the resident population within the Study Area are examined.

Demography

The study area lies within the Athlone Electoral Area. The section of the proposed development located to the east of the River Shannon is within the Athlone East Urban electoral division whilst the section of the proposed development located to the west of the River Shannon is within the Athlone West Urban electoral division, (see Plate 14.1).

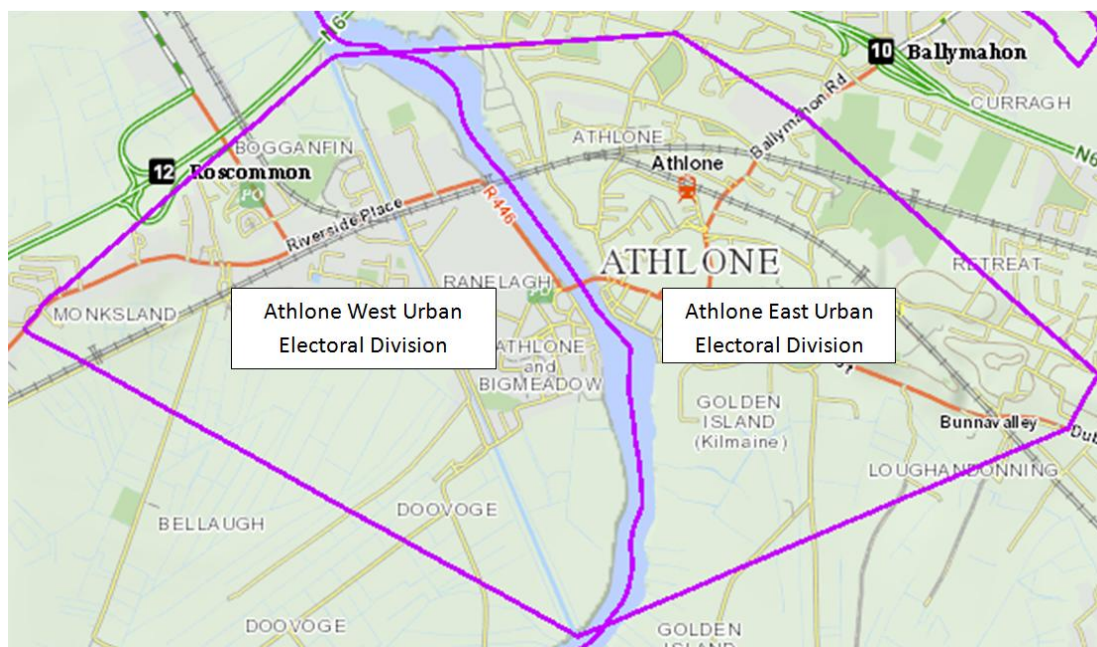


Plate 14.1 Boundaries of Athlone Electoral Divisions (Source: www.westmeathcoco.ie)

The Central Statistics Office (CSO) Census data from 2006 to 2011 identifies that the midlands showed a strong population growth from 2006 to 2011 with an increase of 12.1% whilst the population of the Athlone Electoral Area increased from 14,347 in 2006 to 15,558 in 2011. This is reflected in the population increases for the electoral divisions shown in Table 14.2.

Table 14.2 Census Population Statistics

| Electoral Division and Area | 2006 | 2011 | % change |
|-----------------------------|---------|---------|----------|
| Athlone Town | 14,347 | 15,558 | 8.4 |
| Athlone East Urban | 4,075 | 4,131 | 1.4 |
| Athlone West Urban | 2,883 | 3,165 | 9.8 |
| Athlone East Rural | 6,559 | 7,116 | 8.5 |
| County Westmeath | 79,346 | 85,961 | 8.3 |
| Midlands | 251,664 | 282,195 | 12.1 |

This overall increase in population is expected from a regional and national perspective as the population of Westmeath and Ireland has seen significant population increases in recent years. For example, over the same period from 2006 to 2011 Westmeath witnessed an overall increase from 79,346 to 85,961 (8.3% increase). The Westmeath County Development Plan 2014-2020 anticipates a population increase in Athlone Town to 22,022 by 2016 and a further increase to 26,203 by 2022.

The age profile within Athlone Town and its environs indicated that over 66% of the population are within the ages of 18 – 65 (10,314) with persons over 65 the next highest at 1,848. Primary school going age (5-12) is the next highest at 1,374, secondary school going age (13-18) had 1,075 and pre-school going age (3-4) recorded 436. The high percentage of persons over 65 reflects the Census figures which show a recent trend of emigration of young adults from County Westmeath, likely in search of employment.

Employment Profile

The 2011 Census employment data for the entire Athlone Electoral Area shows that there were 11,667 people working in Athlone, both residents and non-residents. Commerce and trade were the largest industries followed by professional services and manufacturing.

Athlone Town had a labour force population of 9,751 in the 2011 Census. Out of this population, 1,894 were recorded as unemployed having lost or given up a previous job. The unemployment rate for the town was 21.3% which is slightly higher than the national average of 19.0%. Among the 6,288 persons 15 years and over outside of the labour force, 34.8% were students, 21.6% looking after the home/family and 30.6% were retired. Within the work force, 22% worked outside of Athlone while commerce and trade were the largest workers sectors in the town. The car was reported as the most popular means of travel to work, with 28.8% of households having two or more cars.

14.3.2 Economic Activity

In terms of commercial activity the study area is urban in nature and is characterised by tourism, community and cultural, mixed use and commercial properties. The Radisson Blu Hotel, Athlone Castle and the marina cater for tourism within the study area whilst Luan Gallery and St. Peter and Paul's Church serve community and cultural purposes. The Silver Quay Apartments are residential units adjacent to the Radisson Blu Hotel. These facilities offer employment opportunities within the study area (see Figure 14.1 in Volume 3).

Athlone Castle and Visitor Centre cost €4.2 million to develop and opened in late 2012. It had an average of 21,808 visitors per annum between 2013 and 2015. The Luan Gallery opened in 2012 and cost €3.4 million to build. An average of 14,119 visitors per annum visited the gallery between 2013-2015.

With regards to the wider area of Athlone town, Athlone is recognised as a Gateway Town, connecting the east and west of Ireland and is the second largest economic centre in Westmeath. The economic activity of the town is dominated by manufacturing, pharmaceutical, research and development, medical devices and telecommunications software industries and retail. Additionally, major sources of employment within the town include the Department of Education and the Department of Defence. Furthermore, Athlone is also an important administrative centre for national and regional services. In terms of community facilities, the town offers a large selection of restaurants, bars and shops along with visitor attractions such as water sports, walking and fishing. These have been developed in the area over recent years providing good attractions to potential visitors. Athlone Institute of Technology (AIT) and the international sporting arena are large employers and important facilities in the town. Additionally, a number of shopping centres of regional importance for shopping are located in close proximity to the east and south east of the study area, including Athlone Town Centre Shopping Centre and Golden Island Shopping Centre, (Athlone Town Development Plan, 2014-2020).

Athlone is located with Ireland's Ancient East which is a Fáilte Ireland tourism initiative. The aim of the initiative is to attract visitors to areas in Ireland which are renowned for historical features. It is expected that tourism will increase in Athlone as a result of this investment and promotional drive.

14.3.3 Housing and Land-use

The CSO Census shows that the Athlone Electoral Area comprised of a total of 6,462 households in 2006 and 7,629 in 2011. This figure for 2011 consists primarily of 6,324 houses / bungalows and 1,111 apartments. The approximate number of dwellings within 50 metres of the proposed route is 290. In addition there are a number of apartment complexes within 50 meters of the proposed route including Shannon Weir, the Deanery along the western banks of the river and the Silver Quay Apartments along the eastern banks of the river.

Based on the average household size of 2.8 per household in Westmeath (CSO 2011), the population of the area directly along the route of the project is estimated in the region of 1,000. However, the number of potential users of the cycle route is expected to be significantly higher as users of the proposed development are expected to come from all over the greater region of Athlone town and further afield. It is expected that both locals and visitors will benefit from the proposed development.

There are a number of sport and facilities located adjacent to the development within the outskirts of the town. These include the Athlone Town AFC and GAA playing fields and sports fields in surrounding schools. Athlone boat club, which was established in 1837, has its club house along the western banks of the River Shannon. Athlone Tennis Club and the Regional Sports Centre are also important sports facilities in the town.

Athlone town is centrally located on the River Shannon in the heart of Ireland and is an important tourism centre with good transport linkages for both public and private transport.

14.3.4 Community Facilities

A range of community facilities are provided within the study area including the marina, Luan Gallery and castle whilst within the town, there are a number of restaurants, cafes and shops. In addition, many people within the town centre use the existing walkways along the banks of the river on a regular basis for amenity and recreational purposes.

14.3.5 Traffic and Public Transport

The road transport network within the study area is primarily comprised of Custume Bridge and a footpath along the east bank of the River Shannon. Footpaths are provided on either side of the carriageway on the Custume Bridge but no cycleway facilities currently exist, resulting in a dangerous environment for cyclists as they often have to compete with heavy traffic. Athlone Town is connected to major surrounding towns and cities through regular bus and train services and there is a high proportion of commuting traffic from surrounding towns, villages and rural areas travelling into and through Athlone regularly.

14.4 Impact Assessment

14.4.1 Construction Impacts

Demography and Employment

The construction phase is not expected to have a significant impact on the demography of the area. It is expected that the workforce required for the construction of the proposed development will travel from their existing places of residence to the construction site, rather than reside in the immediate environs of the site. It is anticipated that approximately 14 workers will be employed during the construction phase for a period of 72 weeks. Furthermore, access will be maintained for vehicles, pedestrians and cyclists during the construction phase.

Community Facilities

The construction phase will cause a certain amount of loss of amenity, disruption and inconvenience to local residents and visitors. This disruption and inconvenience will be related to traffic and also to the generation of noise and dust, issues which are commonly associated with the construction of infrastructure projects in urban environments. During construction, the temporary removal of berths in the existing marina will be required. The associated impacts on services may result in disruption of services for the remainder of the marina. 13 car parking spaces along the eastern side of the castle will be removed. Furthermore, there will be temporary impacts with regard to the exclusion of the disused railway causing a temporary disruption to those using it as a walking track.

During the construction phase, the level of noise is considered to have a slight impact and will be temporary in nature whilst the level of air pollution due to dust generation will be minimised by good working practices. These issues are further discussed within the relevant chapters of this report, including Chapter 5 Traffic, Cyclist and Pedestrian Integration, Chapter 10 Noise and Vibration and Chapter 11 Air Quality. Subject to the adherence to best practice and the implementation of the mitigation measures outlined in the above chapters, the overall impact on residential amenity is considered as being minor, temporary and negative.

Material Assets

Residents of apartments and commercial properties nearby and within the study area will experience a temporary disturbance during the construction phase. The contractor will work within stringent construction limits and guidelines to protect residential amenities. The vitality and vibrancy that this proposed development will bring to Athlone will be a major benefit to the town centre.

14.4.2 Operational Impacts

Demography and Employment

The most significant negative impact of the operation of the development to those living in and using the area include the removal of 13 car parking spaces to the eastern side of the castle. During operation, re-organisation of up to 17 larger vessels may be undertaken with accommodation elsewhere in the marina required. However, the completion and operation of the proposed development will have an overall positive impact on the population and economy of the local area as it will bring increased employment, tourism, economic benefits and quality of life to the area. This development will enhance the attractiveness of the town for residents, businesses, tourists and development. It is predicted that the development will result in an increase in population in the wider local area which will result in an increase in

demand for housing and development and for local services, thereby enhancing economic activity and employment within the area.

The project could potentially benefit existing businesses in the area, in particular in the service sector (hotels, cafes, restaurants etc). As stated previously, there is also the potential for Athlone to become a cycling hub town with links to public transportation (train and bus) thus further increasing the positive economic impact.

Human Health

There has been an increasing issue of rising obesity levels in Ireland in recent years, with the World Health Organisation (WHO) describing it as a 'global epidemic'. In 2004 the Department of Health and Children set up a taskforce to examine this issue. This taskforce recommended the development of social and physical environments that make it easier for children and adults to increase their physical activity.

Cycling enhances personal health, fitness and well-being and the provision of the development within the town of Athlone will provide a safe, traffic-free cycleway and walkway which adds to the amenities of the area. Furthermore, it is noted that cycling can reduce the number of local car journeys in the area thus improving in the local air quality, reducing the level of noise pollution and having a positive impact on human health.

Light Pollution

It is not expected that the lighting installed on the bridge will increase the light pollution of the area as the lights will direct downwards towards the pavement and the study area is within an urban area and currently comprises public lighting.

Privacy Impacts

The most sensitive receptor of privacy impacts includes residents of the Silver Quay Apartments. However, the reduction in privacy of the residents is likely to be insignificant as currently, the privacy of the Silver Quay residents is impeded by users of the marina and the footpath along the eastern bank of the River Shannon.

Anti-social Behaviour

In order to remove anti-social behaviour as a possibility the area has been designed so that no opportunity for shelter is provided. It is anticipated that a combination of a sufficiently open and lit area with the existing high level of pedestrian and cyclist usage will be enough to prevent groups from congregating.

Housing and Land-use

The proposed development is expected to have positive impacts on land-use and development due to increased attractiveness of the town and increased accessibility through the town. It is expected that the operation of the proposed development will encourage development within the study area and within Athlone Town due to increased traffic brought by the development. There will be a greater demand for facilities associated with tourism such as hotels, restaurants, cafes and shops.

Tourism

Athlone is located in the heart of Ireland on the River Shannon. The town is rich in history and culture with good facilities such as visitors attractions (hotels, and sports activities etc) making it a major tourist destination in the midlands. Tourism is identified as a valuable economic activity for the town generating employment both

directly and indirectly. The proposed development through the town will add to the existing amenities of the area.

The Westmeath County Development Plan 2014-2020 highlights the need to develop sustainable tourism in the County. Due to the proposed development, Athlone has the potential to become a cycling hub town with accessibility to public transport, visitor attractions and visitor services. This will boost the town's potential tourism and allow for the potential of spin off services such as bike hire and bike repair services.

The proposed development is midpoint on the National Network linking Dublin and Galway which will provide an incentive for a new type of tourist to visit the town of Athlone. Studies have shown that cycle tourism is a growing market and there is an increasing demand for such amenities which convert into tangible economic benefit for local economies. It is noted that cycle tourists tend to stay longer and consequently have more time to spend their money in the local community.

Ireland's National Cycle Policy Framework recognises the need to support and encourage recreational and tourist cycling. Recreational cycle routes are routes which link the outskirts of the town to the town centre. Cycle tourism has the potential to actively contribute towards the economic revitalisation of rural areas but also to improve the quality of life for people locally (Strategy for the Development of Irish Cycle Tourism 2009).

Community Facilities

There will be no impact on the community in terms of severance or enhanced journey times. The operation of the proposed development will have a positive impact to the area, providing a safer and more secure access route from the outskirts of the town into the centre. The facility will be accessible from nearby schools and will improve cyclist and pedestrian accessibility to facilities such as Luan Gallery and SS Peter and Paul's Church and will serve local schools and community facilities.

Traffic and Transport

This proposal is a non-traffic route and as such the impacts from noise and air pollution during the operational phase are considered to be positive. As has been outlined above, the proposed development will provide safer traffic and transport facilities as cyclists and pedestrians will have an alternative route option.

Material Assets

There will be no direct loss of land for residential or commercial properties as part of the proposed development. The proposed development will have a positive impact on Material Assets due to enhanced accessibility and attractiveness of the area which in turn will maintain commercial and residential rents and property values.

14.5 Mitigation Measures

During construction, the following mitigation measures will be implemented:

- A dust minimisation plan will be put in place during the construction phase of development.
- Noise mitigation will be provided for during construction of the development.
- A traffic management plan will be implemented prior to construction works in order to minimise disruption to local residents and the general public.

- Access will be maintained for vehicles, pedestrians and cyclists during the construction phase.

All construction works will be temporary and carried out in line with best practice thus minimising the impacts to the receiving communities. No specific mitigation measures related to human beings or material assets are required during operation of the proposed development as the predicted impacts are considered to be positive. .

14.6 Residual Impacts

There will be no negative residual impacts on human beings as a result of the proposed cycle route through Athlone town. During the construction phase the temporary removal of berths from the marina will cause some disruption. Any disruption during the construction phase will be temporary in nature and minor in magnitude. The cycle route will provide an additional amenity to the area with positive impacts for the local community with regard to increased tourism (economic impact) and the potential health improvements.

14.7 Potential Cumulative Impacts

It is not expected that there will be any negative cumulative impacts on human beings as a result of the proposed development.

14.8 Conclusion

The proposed cycle route is located in the urban area of Athlone Town with residential and mixed commercial/residential areas. It is predicted that the development will attract approximately 35,600 users annually once in operation. It is considered that the proposal will have limited negative impacts during the construction phase of the development which is, by its nature, temporary. The removal of 13 car parking spaces to the eastern side of the castle is the most significant permanent impacts associated with the project. In contrast, the operation of the development will provide many significant positive impacts to the town and wider area.

Some of these positive impacts include:

- Providing sustainable transport options of cycling or walking along a safe and secure route which is separated from vehicular traffic;
- Providing indirect health benefits through the provision of a safer facilities for recreational users which will increase and encourage the opportunity for physical exercise;
- Providing new amenity for the town of Athlone, enhancing the attractiveness of the town to tourism;
- Aiding integration within the town due to the positioning of the proposed development close to the town centre;
- Introducing a new type of tourism to the town as the cycle route is part of the National Cycle route from Dublin to Galway;
- Corresponding with the Destination Athlone website, www.athlone.ie, which is a website dedicated to promoting activities offered in Athlone and cycling is strongly promoted by the site;

- Developing Athlone as a cycle tour hub town, which will positively impact on the economic activity of the town; and
- Providing positive impacts on material assets due to enhanced accessibility and attractiveness of the area which in turn will maintain commercial and residential rents and property values.

Chapter 15

Interactions, Interrelationships & Cumulative Effects

Chapter 15 Interactions, Interrelationships & Cumulative Effects

The “aspects of the environment likely to be significantly affected by the development” are covered in Chapters 5 to 14 of this EIS, inclusive, and mitigation measures recommended where required.

In addition to the assessment of impacts on individual environmental topics including: Traffic, Ecology, Soils, Geology and Hydrogeology, Hydrology and Drainage, Landscape and Visual Impact, Noise and Vibration, Air Quality and Climate, Archaeological Heritage, Architectural Heritage, Human Beings and Material Assets, it is also important to analyse any interactions that could result in impacts having a knock on effect on other elements of the environment. The potential interrelationships between these factors are highlighted in Table 15.1 below.

The identification of possible impacts was facilitated through the iterative design process that included the holding of meetings between the engineering design team and the environmental team on a regular basis. This allowed for dynamic interaction between all parties/ topics. Where a potential exists for interaction between two or more environmental topics, the relevant specialists have taken these potential interactions into account when making their assessment. As mentioned above, mitigation measures have already been identified where impacts on each of the individual environmental factors were identified.

Following an examination of the interactions listed in Table 15.1 below it was determined that no additional impacts will occur as a result of interactions between two or more topics. Therefore no additional mitigation was required.

Table 15.1 Matrix to Summarise Inter-relation of Environmental Topics and Impacts

| Activity Receptor | Traffic and Transport | Flora and Fauna | Soils, Geology and Hydrogeology | Hydrology and Drainage | Landscape and Visual | Noise and Vibration | Air Quality and Climate | Archaeological and Cultural Heritage | Architectural & Heritage | Human Beings and Material Assets |
|--|------------------------------|---|---|---|---|--|---|--|---|--|
| Traffic and Transport | | | | | | Traffic volumes directly influence noise quality. Modal shift to bicycle will lead to positive impacts | Traffic volumes directly influence air quality. Modal shift to bicycle will lead to positive impacts. | | | Traffic volumes directly influence quality of life as noise and air pollution has negative impacts on the population. Modal shift to bicycle will lead to positive impacts |
| Flora and Fauna | | | Changes to soils & geology will result in impacts to ecology | Changes to surface water levels will result in impacts to ecology | Changes to the landscape will result in both positive and negative impacts on ecology | Changes in noise and vibration levels will result in impacts to ecology | Changes in air quality levels will result in impacts to ecology | | | |
| Soils, Geology and Hydrogeology | | Changes to soils, geology and hydrogeology will result in impacts to ecology | | | | Excavation of bedrock will result in noise and vibration impacts | | Changes to soils & geology will result in impacts to archaeological features | | Changes to soils & geology will result in impacts in Material Assets |
| Hydrology and Drainage | | Changes to surface water levels will result in impacts to ecology | Changes to surface water levels will result in impacts to soils, geology and hydrogeology | | Changes to surface water levels & quality will result in impacts to landscape | | | | | Changes to surface water quality will result in impacts to human beings |
| Landscape and Visual | | Changes to the landscape will result in both positive and negative impacts to ecology | Changes to the landscape will result in impacts to soils & geology and hydrogeology | | | | | Changes to the landscape will result in impacts to the setting of archaeological sites | Changes to the landscape will result in impacts to the setting of architectural sites | Changes to the landscape will result in impacts to the community and their enjoyment of an area |

| Receptor | Traffic | Ecology | Soils, Geology and Hydrogeology | Hydrology and Drainage | Landscape and Visual Assessment | Noise | Air | Archaeology and Cultural Heritage | Architectural & Cultural Heritage | Human Beings and Material Assets |
|--------------------------------------|---------|---|--|------------------------|---|--|-----|-----------------------------------|-----------------------------------|--|
| Activity | | | | | | | | | | |
| Noise and Vibration | | Changes in noise and vibration levels will result in impacts to ecology | | | | | | | | Changes in noise and vibration levels will result in impacts to the population |
| Air Quality and Climate | | Changes in air quality levels will result in impacts to ecology | | | | | | | | Changes in air quality levels will result in impacts to the population |
| Archaeological and Cultural Heritage | | | Changes to soils & geology will result in impacts to archaeological features | | Impacts on archaeological sites will result in impacts in landscape | Changes in noise and vibration levels will result in impacts to archaeological and architectural sites | | | | |
| Architectural & Heritage | | | | | Impacts on architecturally significant structures will result in visual impacts | Changes in noise and vibration levels will result in impacts to archaeological and architectural sites | | | | |
| Human Beings and Material Assets | | Changes to ecological quality of watercourses will result in impacts to angling and tourism | | | | Changes in noise and vibration levels will result in impacts to the population | | | | |

Chapter 16

Mitigation Measures

Chapter 16

Mitigation Measures

16.1 General

Mitigation measures are the measures proposed in order to avoid, reduce or where possible remedy the significant adverse environmental effects of the proposed development. Mitigation measures have been incorporated into the design of the proposed development and will be applied during both the construction and operation phase where they have been assessed as necessary.

The following chapter provides a summary of the mitigation measures for the proposed development as contained within the preceding chapters of the EIS.

16.1.1 Guidelines and Environmental Plans

During the construction phase of the proposed development the works will comply with all relevant legislation and guidelines that aim to reduce and minimise environmental impacts.

NRA Environmental Construction Guidelines

The NRA Environmental Construction Guidelines provide guidance with regard to environmental best practice methods to be employed in construction on National Road Schemes for the following:

- Guidelines for the Treatment of Badgers prior to the Construction of a National Road Scheme;
- Guidelines for the Treatment of Bats during the Construction of National Road Schemes;
- Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes;
- Guidelines for the Testing and Mitigation of the Wetland Archaeological Heritage for National Road Schemes;
- Guidelines for the Protection and Preservation of Trees, Hedgerows and Scrub Prior to, During and Post-Construction of National Road Schemes;
- Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes;
- Guidelines on the Management of Noxious Weeds on National Roads;
- Guidelines for the Treatment of Noise and Vibration in National Road Schemes;
- Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes;
- Management of Waste from National Road Construction Projects;
- Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan.

Environmental Operating Plan (EOP)

The Contractor will be required to complete an Environmental Operating Plan (EOP) in accordance with the *NRA Guidelines for the Creation and Maintenance of an Environmental Operating Plan* as part of the implementation of the mitigation measures enshrined in any EIA Approval.

The EOP will set out the Contractor's approach to managing environmental issues associated with the construction of the development and provide a documented account to the implementation of the environmental commitments set out in the EIS and measures stipulated in the planning conditions of an EIA Approval.

Details within the plan will include;

- All Environmental commitments and mitigation measures included as part of the planning approval process and any requirements of statutory bodies such as the National Parks and Wildlife Services as well as a method documenting compliance with the measures;
- A list all applicable environmental legislation requirements and a method of documenting compliance with these requirements;
- Outline methods by which construction work will be managed to avoid, reduce or remedy potential adverse impacts on the environment as part of an EIA Approval.

To oversee the implementation of the EOP the Contractor will be required to appoint a responsible manager to ensure that the mitigation measures included in the EIS and EIA approval and the EOP are executed in the construction of the works and to monitor that those mitigation measures employed are functioning properly.

Waste Management Plan (WMP)

Included within the EOP will be the Waste Management Plan prepared in accordance with the Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects (DoEHLG, July 2006). The WMP will clearly set out the Contractor's proposals regarding the treatment, storage and recovery or disposal of waste. As a minimum the plan itself will contain (but not be limited to) the following measures;

- Details of waste storage (e.g. skips, bins, containers) to be provided for different waste and collection times;
- Details of where and how materials are to be disposed of - landfill or other appropriately licensed waste management facility;
- Details of storage areas for waste materials and containers;
- Details of how unsuitable excess materials will be disposed of where necessary;
- Details of how and where hazardous wastes such as oils, diesel and other hydrocarbon or other chemical waste are to be stored and disposed of in a suitable manner;
- A construction and demolition waste plan.

The mitigation measures contained within this EIS and summarised in this chapter which will form the basis for the Schedule of Commitments in any EIA Approval by An Bord Pleanála and will be strictly adhered to within the WMP.

Construction Management Plan

Prior to any demolition, excavation or construction a Construction Management Plan (CMP) will be produced by the successful contractor, as part of the implementation of an EIA Approval. A Construction Management Plan deals with the Contractor's overall management and administration of a construction project. A CMP is prepared by the Contractor during the pre-construction phase, to ensure that the project is completed on-time and within budget. The CMP will include a detailed programme of

works. The CMP is also developed to ensure that all construction activities are undertaken in a satisfactory and safe manner, to a delivery program meeting the Clients requirements.

The production of the CMP will also detail areas of concern with regard to Health and Safety and any environmental issues that require attention during the construction phase. Adoption of good management practices on site during the construction and operation phases will also contribute to reducing environmental impacts

The Contractor will be required to include details under the following headings;

- Details of working hours and days;
- Details of emergency plan - in the event of fire, chemical spillage, cement spillage, collapse of structures or failure of equipment or road traffic incident within an area of traffic management. The plan must include contact names and telephone numbers for: Local Authority (all sections/departments); Ambulance; Gardaí and Fire Services;
- Details of chemical/fuel storage areas (including location and bunding to contain runoff of spillages and leakages);
- Details of construction plant storage, temporary offices and on-site chemical toilet areas;
- Traffic management plan (to be developed in conjunction with the Local Authority – Roads Section) including details of routing of network traffic; temporary road closures; temporary signal strategy; routing of construction traffic; programme of vehicular arrivals; on-site parking for vehicles and workers; road cleaning; other traffic management requirements;
- Dust management to prevent nuisance (demolition & construction);
- Site run-off management;
- Noise and vibration management to prevent nuisance (demolition & construction);
- Landscape management;
- Management of demolition of all structures and assessment of risks for same;
- Lighting details (construction & operation);
- Signage;
- Stockpiles;
- Project procedures & method statements for:
 - Demolition & removal of buildings, services, pipelines (including risk assessment and disposal)
 - Diversion of services
 - Excavation and blasting (through peat, soils & bedrock)
 - Piling
 - Construction of pipelines
 - Storage and Treatment of peat and soft soils
 - Protection of watercourses from contamination and silting during construction.

The production of the CMP will also detail areas of concern with regard to Health and Safety and any environmental issues that require attention during the construction

phase. Adoption of good management practices on site during the construction and operation phases will also contribute to reducing environmental impacts.

The mitigation measures contained throughout this EIS and summarised in this Chapter 16 which will form the basis for an EIA Approval by An Bord Pleanála and will be strictly adhered to in framing the minimum requirements with the CMP.

16.1.2 Construction Compounds

There will be a construction compound site in close proximity to the proposed development.

The storage of fuels, other hydrocarbons and other chemicals within the construction compounds will not be permitted within 50m of a watercourse and within 100m of Natura 2000 sites. All fuel storage areas will be bunded to 110% of storage capacity to prevent spills and provide sufficient additional capacity in the event of rainfall occurring simultaneously. The compound will also have appropriate levels of security to limit potential vandalism, theft and unauthorised access within the compounds.

Following completion of construction, this area will be cleared and re-instated. Temporary buildings and containers, parking areas and waste material such as rubble, aggregates and unused construction materials will not be permitted to remain exposed and will be removed and disposed of appropriately.

16.1.3 Construction Material

Sourcing of Materials and Waste

Only those quarries that conform to all necessary statutory consents will be used in the construction phase.

Archaeological material removed during the in-river investigation may be placed off-site for assessment.

Working Hours

The normal working hours to be employed by the contractor will be as follows:

- Monday to Friday 07:00 to 19:00hrs
- Saturday 08:00 to 16:30hrs
- Sunday & Bank Holidays 08:00 to 16:30hrs

Works on Sundays and Bank Holidays will only be permitted with the approval of the Client. Similarly, emergency works outside of the normal working hours will only be permitted with the written approval of the client.

16.2 Mitigation Measures for Flora and Fauna

The following mitigation measures are proposed:

Construction Phase

Mitigation for Direct Habitat Loss

- The works area will be fenced in advance of the commencement of construction. Trees to be retained will be fully protected in accordance with the British Standards Institution's (BSI) '*BS5837: 2005 Trees in Relation to construction*'.

- Any trees that are lost can be replaced, thus ensuring no net loss of trees or treeline habitat.

Mitigation for Run-off of Pollutants

In-stream works

- Despite the lack of sensitivity of the receiving waters, all in-stream works will be undertaken within the period May to September inclusive to avoid the period of maximum sensitivity for fisheries and in particular Salmonoid species.
- In-stream works have been minimised so that there will be the requirement only for the driving of the supporting piles for the bridge and extraction of three existing piles associated with the marina if required with no requirement for damming or diverting of the channel, tracking of machinery or other activities in the water. All works will be undertaken from a barge working in a section of the river that is already subject to high levels of disturbance.
- Existing piles will be removed by direct extraction using a machine working from a barge. The sediment that will be mobilised associated with this procedure will be very short term and is considered insignificant in the context of the overall operation of the marina.
- Piles will take the form of steel tubes that will be driven into the river bed. This operation will be undertaken from a barge and will involve minimal sediment disturbance and no excavation outside the physical area of the pile.
- When assembling the bridge sections all works will be undertaken either from the land or barges.
- Piles requiring concrete re-enforcement will be constructed within a fully sealed and watertight steel casing, which will be left permanently in place with no direct contact between the concrete and the River Shannon. Concrete will be brought onto the barge in sealed containers and fully shuttered to avoid any potential for spillage during the pouring operations.

Bankside works

- Whilst significant water is not expected to arise on the site and no large scale excavations are proposed, prior to the commencement of construction work, silt fencing will be placed along the river boundary of the site.
- These will form a solid barrier to ensure all site water is captured and filtered. They will be removed to install the cantilever boardwalk sections, which will be completed at the end of the construction sequence and will not involve significant excavation or any concrete or in-stream works.
- As construction advances there may be some small requirement to collect and treat surface water within the site. Given the nature and scale of the works, this is not considered likely and if it does occur, it will be very small in scale. It is proposed that any such arisings are pumped to a tanker and removed from the site for disposal using a licensed waste contractor.
- Daily monitoring of the works will be completed by a suitably qualified person during the demolition and construction phase. All necessary preventative measures will be implemented to ensure no entrained sediment, or deleterious matter will enter the River Shannon.
- Earth works and concrete works will take place during periods of low rainfall to reduce run-off and potential siltation of watercourses.
- Concrete works will be required on the banks as part of the route leading up to the bridge.

- Formwork will be of solid construction and will be sealed to prevent any leakage of concrete during pouring operations.
- Whilst no significant excavations are proposed, should any ingress of water (ground or rain) require pumping out prior to the pouring of concrete, this will be pumped to a sealed clean tanker and removed from the site and spread to improved agricultural grassland at a distance of over 50m from any watercourse.
- The weather forecast will be checked prior to the pouring of the concrete and no such works will be undertaken when bad weather is forecast. Any works at any time when water levels that may cause inundation of the works area will be avoided. Concrete will not be poured at times when rain is predicted as this may lead to run off and over spillage of the form work.
- Form work will be constructed with an adequate capacity and additional freeboard to prevent any spillage.
- Concrete trucks will work entirely from the existing roads where they are located in close proximity to the proposed works. Concrete trucks will not be washed out at the site of the proposed works. If chutes require wash out, this will be undertaken at a designated wash out tank located in the site compound. This will recycle waters within the tank.
- Good construction practices such as dust suppression on site roads, and regular plant maintenance will ensure minimal risk. The Construction Industry Research and Information Association (CIRIA) provide guidance on the control and management of water pollution from construction sites (CIRIA, 2001). This will ensure that surface water arising during the course of demolition and construction activities will contain minimum sediment.
- All plant and machinery will be serviced before being mobilised to site. No plant maintenance will be completed on site, any broken down plant will be removed from site to be fixed.
- Refuelling will be completed in a controlled manner using drip trays at all times.
- Mobile bowsers, tanks and drums will be stored in secure, impermeable storage areas away from open water.
- Fuel containers will be stored within a secondary containment system, e.g. bunds for static tanks or a drip tray for mobile stores.
- Containers and bunding for storage of hydrocarbons and chemicals will have a holding capacity of 110% of the volume to be stored. Ancillary equipment such as hoses and pipes will be contained within the bund.
- Taps, nozzles or valves will be fitted with a lock system.
- Fuel and oil stores including tanks and drums will be regularly inspected for leaks and signs of damage. Drip-trays will be used for fixed or mobile plant such as pumps and generators in order to retain oil leaks and spills. Only designated trained operators will be authorised to refuel plant on site.
- Procedures and contingency plans will be set up to deal with emergency accidents or spills. An emergency spill kit with oil boom, absorbers etc. will be kept on-site for use in the event of an accidental spill.
- Concrete (including waste and wash down) will be contained and managed appropriately to prevent pollution of watercourses. Pouring will occur in the dry, with appropriate curing times (48 hours) before re-flooding.

- Mixer washings and excess concrete will not be discharged to water. If cement washings are to be discharged they will first be held in a treatment facility in order to neutralise the pH and to settle out solids; and,
- All existing containers and tanks to be decommissioned during demolition work will be emptied by a licensed waste operator prior to removal, thereby preventing leakages and spillages.
- Highest standards of site management will be maintained and utmost care and vigilance followed to prevent accidental contamination or unnecessary disturbance to the site and surrounding environment during construction. A named person will be given the task of overseeing the pollution prevention measures agreed for the site to ensure that they are operating safely and effectively.
- The construction works will be monitored at several levels to ensure that the environmental best practice prescribed in this document is fully adhered to and is effective. The following system will be put in place to ensure compliance. The contractor will assign a member of the site staff as the environmental officer with the responsibility for ensuring the environmental measures prescribed in this document are adhered to. A checklist will be filled in on a weekly basis to show how the measures above have been complied with. Any environmental incidents or non-compliance issues will immediately be reported to the project team. The project managers (client representatives) will be continuously monitoring the works and will be fully briefed and aware of the environmental constraints and protection measures to be employed.
- The works will be periodically monitored during the construction phase by a suitably qualified ecologist. Following completion of the works, the ecologist will complete a final audit report to show how the works complied with the environmental provisions described in this document. This audit report will be forwarded to the NPWS if required.

Mitigation for Loss of Faunal Habitat

- Tree felling activities will occur outside the bird nesting season (March 1st – August 31st).
- Any loss of trees or shrubs may be replaced in the landscaping scheme.

Mitigation for Invasive Species

Whilst no invasive species were recorded on the site of the proposed development, Japanese Knotweed (*Fallopia japonica*) was recorded on the Custume Bridge to the south of the proposed works. The following measures will be employed to ensure that there is no disturbance to or spread of invasive species as a result of the proposed works and that there is no breach of Section 49 of the Birds and Natural Habitats Regulations.

- As mentioned above, the construction site will be fenced off at the outset of the works with no access to areas outside the construction site. The construction area does not include the Custume Bridge, where the Japanese Knotweed was recorded;
- Any material imported onto the site such as soil for landscaping will be obtained from a source that is guaranteed to be free from Japanese Knotweed or any other invasive species; and
- All plant and machinery to be used on the site will be cleaned down in advance of use on the site to ensure it is free from any invasive species.

16.3 Mitigation Measures for Soils, Geology and Hydrogeology

The following mitigation measures relating to soils and geology are proposed:

- All excavated material along the route will be disposed of in accordance with legislative and archaeological requirements and the waste management plan;
- Construction techniques will be carefully selected for piling operations to avoid pollution of groundwater and the River Shannon; and
- A Construction and Demolition Waste Management Plan will be prepared by the contractor.

16.4 Mitigation Measures for Hydrology & Drainage

The following mitigation measures are proposed:

Construction Stage

The following mitigation measures are proposed to manage flooding and storm water drainage during the construction stage of the works:

- Any impact from the proposed works on the river water quality will be kept to a minimum. Any likely increase in sediment exports during the preparation stage of the lands will be minimised by implementing mitigation measures, such as installation of silt fence along the perimeter of the site boundary.

Operational Stage

Mitigation measures are proposed to manage flooding and stormwater drainage during the operational phase of the works:

- Existing surface water flow paths will be maintained.
- Runoff from the new hardstanding areas will be through existing drains. These drains will discharge to the adjacent natural watercourses. This will reduce the likelihood of water logging on site.

16.5 Mitigation Measures for Landscape & Visual Impact Assessment

Mitigation of landscape and visual impacts has been in the form of a lengthy analysis of a range of location options, bridge forms and final design. The current location is regarded as the best fit for a treasured urban waterfront, the most positive in terms of integration with existing street patterns and urban features and the most complementary design in the context of the historic setting.

16.6 Mitigation Measures for Noise & Vibration

A schedule of mitigation measures will be employed as recommended in the NRA guidelines.

These mitigation measures include:

- Establishing noise limits during the construction phase in line with NRA guidelines;
- Selection of plant equipment taking into account predicted acoustics;
- Development of noise control measures for plant items likely to be used;
- Limiting of hours for which noise generation is expected to be high;

- Establish procedures for dealing with specific activities with the potential to generate significant levels of noise;
- Establish procedures for dealing with emergency work; and,
- Establishing communication with the general public.

16.7 Mitigation Measures for Air Quality & Climate

In order to minimise potential emissions as a result of dust and traffic during construction, a Dust Management Plan will be implemented. Measures involved in the Dust Management Plan include:

- Site access roads will be regularly cleaned and maintained as appropriate. Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential site traffic only. Furthermore, any road that has the potential to give rise to fugitive dust must be regularly watered, as appropriate, during dry and/or windy conditions;
- Construction vehicles will have their speeds restricted to prevent the unnecessary generation of fugitive dust emissions. Indeed, on any un-surfaced site road, this will be 20km per hour, and on hard surfaced roads as site management dictates. Additionally, vehicles delivering material with dust potential will be enclosed or covered with tarpaulin at all times to restrict the escape of dust;
- Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods; and
- The dust management plan will be monitored and assessed at regular intervals by the contractor. In the event of dust nuisance occurring outside the site boundary, the effectiveness of existing measures will be reviewed and further mitigation will be implemented to rectify the problem.

16.8 Mitigation Measures for Archaeological and Cultural Heritage

Ministerial Direction

All archaeological works on this proposed development will be subject to Ministerial Directions issued by the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

Ministerial Consent

Athlone Castle is a National Monument in State Ownership (Nat. Mon. Ref. No. 520'O'). All works in the vicinity of Athlone Castle will require the prior written consent of the Minister for Arts, Heritage and the Gaeltacht. This will include but not be limited to the removal of the existing car-parking, stone walls and related features to the east side (waterfront) of the castle, the provision of cycle parking and related orientation and interpretation information, the replacement of paving materials, the removal or replanting of trees and the installation of informal seating and performances spaces.

Underwater Investigation

All riverbed disturbance works associated with the bridge construction will be monitored by an underwater archaeologist under licence from the National

Monuments Service. The deposits excavated from the river bed within the area enclosed by the cofferdam will be removed to the construction compound for archaeological processing.

Archaeological Testing

Archaeological test excavation will be undertaken in advance of construction where there is an indication that archaeological remains are likely to occur. Targeted testing allows an assessment to be made on the extent of any surviving archaeology before any further mitigation is decided upon.

Archaeological Excavation

Archaeological excavation is the preservation by record of archaeological remains and is recommended only where archaeological features cannot be preserved in situ.

The construction of the in-channel pier of the proposed bridge may cause scouring of the river bed downstream of the proposed bridge. It is proposed to extend the underwater assessment further downstream to determine if archaeological material survives in this area.

16.9 Mitigation Measures for Architectural Heritage

Two structures have been identified above as being affected by the proposed river crossing to the extent that mitigation is required to protect the structure. This is considered below and the nature of the required mitigation is discussed.

Site BH-10 is the bust of Count John McCormack. Mitigation will include the erection of a new plinth further to the north along the river bank, and relocating the bust, with its pedestal and bronze plaque, to the new location.

Site BH-11 is a cast iron bollard on the quayside opposite the eastern end of Main Street. The route of the proposed development will pass close to the bollard and care needs to be taken to ensure that there will be no damage to the bollard during construction works.

Site BH-15 is the Luan Gallery. Mitigation will include the provision of the required bridge landing, stairs and ramps in architectural harmony with the design and finish of the gallery and its adjacent plinth.

16.10 Mitigation Measures for Human Beings & Material Assets

During construction, the following mitigation measures will be implemented:

- A dust minimisation plan will be put in place during the construction phase of development.
- Noise mitigation will be provided for during construction of the development.
- A traffic management plan will be implemented prior to construction works in order to minimise disruption to local residents and the general public.
- Access will be maintained for vehicles, pedestrians and cyclists during the construction phase.



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