Comhairle Cathrach & Contae Luimnigh

Limerick City & County Council

Limerick City Greenway (UL to NTP)

Full Planning Permission Application for a proposed Greenway

Report Accompanying Planning Application to An Coimisiún Pleanála

Under Section 51(A) of the Roads Act 1993, As Amended

July 2025

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Table of Figures

Schedule of Tables

Executive Summary

This report has been prepared to support a planning application to An Coimisiún Pleanála made under Section 51(A) of the Roads Act (1993) (As amended). This report has been prepared by Ryan Hanley on behalf of Limerick City & County Council (LCCC).

The proposed Limerick City Greenway (University of Limerick (UL) to National Technology Park (NTP)) will be 4.25km long and will consist of a 3.3km long and 3.0-4.0m wide shared path on existing paths or in green fields, and 0.9km of separated 1.8m wide footpaths and 1.8-2.0m wide cycle lanes alongside the eastern and western sides of University Road and McLaughlan Road. The proposed Greenway will extend between the River Goody bridge and Plassey Park Road.

All elements of this project will be constructed for permanent local and visitor recreational use.

There will be no buildings constructed along the route. Two concrete bridge decks will be replaced with wider steel decks, but the existing bridge supports will remain. One new steel and concrete bridge will replace a narrow reinforced concrete bridge. One new steel and concrete bridge will provide access to all and replace the function of a narrow reinforced concrete bridge with steps, but the exiting bridge will remain in place. One new steel and concrete bridge will be constructed alongside a narrow stone bridge. A new concrete ramp to Plassey Beach will replace stone steps, and a new concrete retaining wall will enable the existing gravel path at Plassey Beach to be widened to 3.5m.

The proposed Greenway will be constructed in Castletroy, Co. Limerick. It will extend eastwards from the existing Limerick Smarter Travel Cycle Route 2 to run along the southern bank of the River Shannon and provide a new connection between the existing Shannon Fields Greenway to UL path at Groody Bridge, and existing cycle lanes and footpaths on Plassey Park Road. It will also provide new connections to the IDA's National Technology Park (NTP) at Plassey, and the University of Limerick. This proposed Greenway east of Limerick city will extend existing cycle routes from the city further east and provide future links to Castleconnell and to Co. Clare.

The proposed Limerick City Greenway (UL to NTP) is included in Section 9.1.7 Greenway Cycle Network in the Limerick Shannon Metropolitan Area Transport Study (LSMATS) and is described as an '*Extension of the Shannon Fields Greenway to UL along the banks of River Shannon to the NTP and Annacotty*'. The Limerick Development Plan 2022-2028 (LDP) includes policies to deliver modal split (Objective TR 06), to promote '*walking, cycling or other non-motorised wheel-based transport modes for purposeful travel*' (Section 7.5.2), to encourage behavioural change (Objective TR 07), to provide walking and cycling infrastructure (Objective TR O8), and to promote sustainable patterns of transport use (Objective TR P4). This project will provide an accessible cycling and walking route for users of all abilities in accordance with the objectives in the LDP and LSMATS.

The project is not a class of development for which mandatory Environmental Impact Assessment (EIA) is required as specified in either Part 1 of Schedule 5 of the Planning and Development Regulations, 2001 (as amended) or in Part 2 of Schedule 5 of the Planning and Development Regulations, 2001 (as amended). The Formal EIA screening process was completed having regard to the Roads Act as amended by the EIA Directive 2014/52/EU. An EIA report has been prepared for this project. An AA Screening Report was prepared for this project. It concluded that a Natura Impact Statement (NIS) was required so an NIS has been prepared for this project.

The proposed Greenway will provide strategic, sustainable, and safe connectivity between Limerick city the University of Limerick, the National Technology Park, and connect community facilities, tourist attractions, and transport nodes (i.e., bus stations). This connectivity will benefit communities, businesses, and visitors.

The proposed works for the construction of the Limerick City Greenway (UL to NTP) will be on land for which specific planning objectives are in place. All applicable planning objectives have been examined and any risks to the meeting of same have been mitigated. As a result, the development of the proposed Greenway will not significantly impede development potential or zoning objectives of the land. The proposed development is consistent with planning policy at National, Regional and Local level and is in accordance with proper planning and sustainable development.

1. Introduction

1.1. Purpose of this Planning Application Report

This report has been prepared to support a planning application to An Coimisiún Pleanála made under Section 51 (A) of the Roads Act (1993) (As amended). This report has been prepared by Ryan Hanley on behalf of Limerick City & County Council (LCCC).

1.2. Project Name and Location

The proposed Limerick City Greenway (the University of Limerick (UL) to the National Technology Park (NTP)) in Castletroy, Co. Limerick hereafter referred to as the Limerick City Greenway (UL to NTP) will extend eastwards from the existing Limerick Smarter Travel Cycle Route 2 to run along the southern bank of the River Shannon, then pass through the IDA's National Technology Park in Plassey and run alongside McLaughlan Road, then connect to cycle lanes and footpaths on Plassey Park Road. A link will also be provided alongside Kilmurray Student Village and University Road. The location is in Figure 1-1.

1.3. Project Overview

The proposed Limerick City Greenway (UL to NTP) will be 4.25km long and will consist of a 3.3km long and 3.0-4.0m wide shared path on existing paths or in green fields (refer to the orange and green lines on Figure 1-1), and 0.9km of separated 1.8m wide footpaths and 1.8-2.0m wide cycle lanes alongside the eastern and western sides of University Road and McLaughlan Road (refer to the blue lines on Figure 1-1). The proposed Greenway will extend between the River Goody bridge and Plassey Park Road.

The proposed route is located along the southern bank of the River Shannon within the grounds of the University of Limerick, and IDA lands. The route is partially located within the Lower River Shannon SAC, interspersed with pockets of alluvial woodland along its banks.

All elements of this project will be constructed for permanent local and visitor recreational use. There will be no buildings constructed along the route. Two concrete bridge decks will be replaced with wider steel decks, but the existing bridge supports will remain. Two new steel and concrete bridges will replace existing reinforced concrete bridges. One new steel and concrete bridge will be constructed alongside a narrow stone bridge. A new concrete ramp to Plassey Beach will replace stone steps, and a new concrete retaining wall will enable the existing gravel path to be widened at Plassey Beach. Refer to the Planning Drawings in Appendix A for details.

The proposed works for the Limerick City Greenway (UL to NTP) will comprise the following:

- Site clearance including tree/scrub removal and earthworks;
- Set up of temporary construction compounds and working areas;
- Construction of temporary access roads and haul routes;
- Traffic management;
- Relocation of existing utilities/services;
- Construction of proposed Greenway path;
- Construction of three new bridges and replacement of two concrete bridge decks;
- Construction of concrete retaining wall and access ramp;
- Construction of drainage infrastructure (open drains and culverts);
- Installation of Public Lighting columns and lanterns;
- Installation of wooden and metal parapet fencing;
- Interfaces with roads (Safety barriers, tactile paving, dipped kerbs, and raised tables);
- Ancillary and amenity (wooden fencing, signage, bollards, bike racks, benches);
- Landscaping and Reinstatement works.

There are detailed descriptions for each of the bullet points in Appendix C in this report.

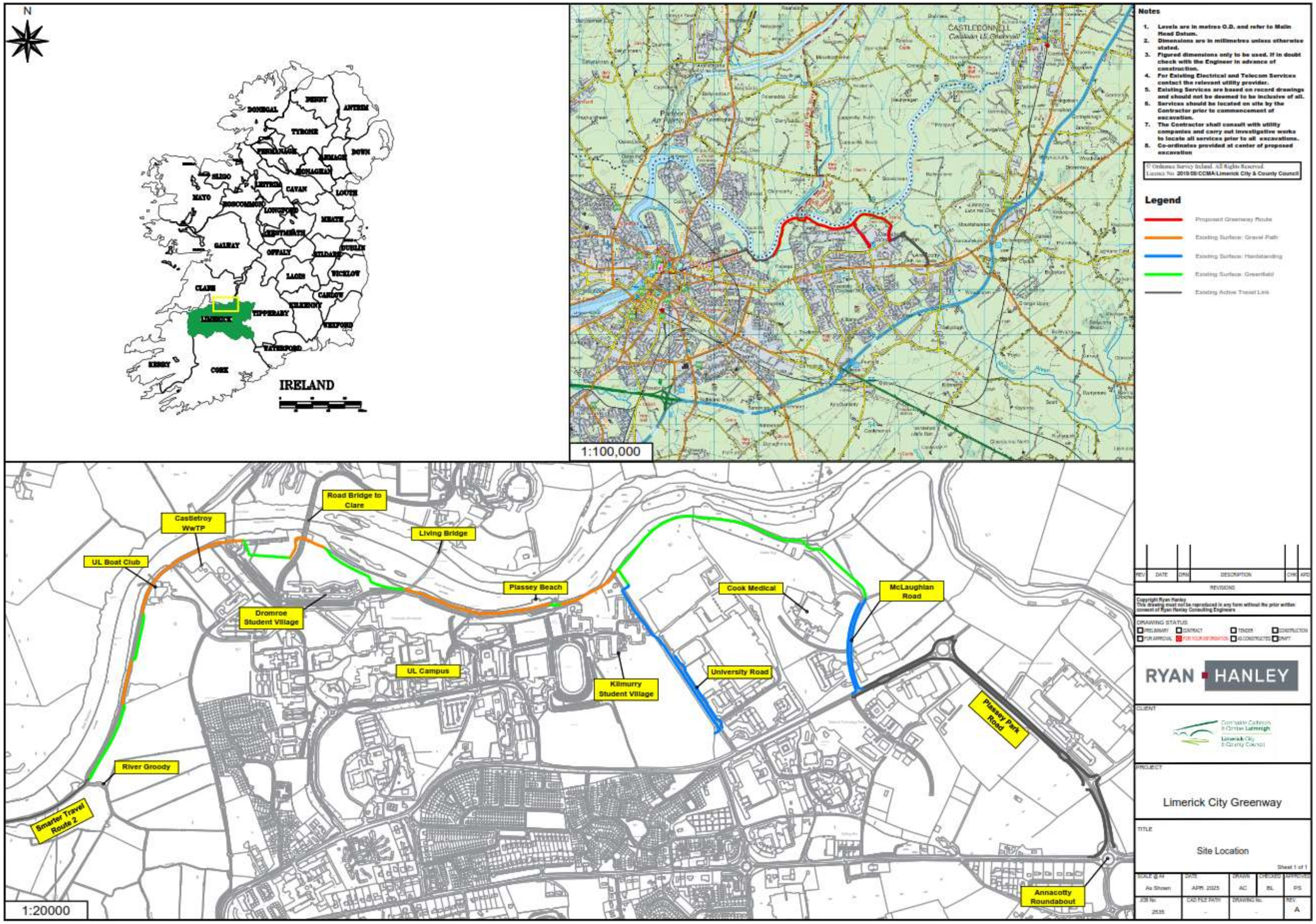


Figure 1-1: Location Map

2. Context

2.1. Location Description

The proposed 4.25km long Limerick City Greenway (UL to NTP) will pass through the townlands of Dromroe, Sreelane, and Castletroy in Co. Limerick. The proposed Greenway will be constructed on existing gravel paths, in green fields, and adjacent to public roads. It will connect to infrastructure at the River Groody bridge, University Road, McLaughlan Road, and to cycle lanes and footpaths on Plassey Park Road.

The land between the River Groody bridge and the UL Boat Club is either privately owned or in the ownership of UL. The land between the UL Boat and Cook Medical is registered to UL. University Road is registered to UL. McLaughlan Road is registered to IDA (Industrial Development Agency) Ireland.

There are student residences at Dromroe village and Kilmurray village in UL, and there are fishermen cottages east of Plassey Mills. There are no residences between Kilmurray Village and McLaughlan Road and there are commercial properties and playing pitches along University Road. The UL campus is south of the proposed Greenway route and existing cycle lanes and unpaved footpaths in UL will join the proposed Greenway route.

2.2. Defining the Project Boundaries

The project boundary is approximately 8m wide along the 4.25km length but this width is subject to the river edge, the Plassey Mill Race stream, mature trees, existing structures and fences, embankments, and road verges. All construction works will take place within this boundary. The temporary boundary for the project also includes four construction compounds, one temporary working area, and temporary haul routes to link between the public/private roads, the compound areas, and the working areas. The temporary haul routes, working area, and construction compounds will be removed following construction of the Greenway, and the ground will be reinstated.

2.3. Planning Policy Context

The Limerick Shannon Metropolitan Area Transport Strategy (LSMATS) seeks to develop a framework for sustainable transport with investment in walking and cycling infrastructure. The proposed Limerick City Greenway (UL to NTP) is included in Section 9.1.7 Greenway Cycle Network in the LSMATS and is described as an '*Extension of the Shannon Fields Greenway to UL along the banks of River Shannon to the NTP and Annacotty*'. Refer to Figure 1-1 which illustrates existing cycling and walking infrastructure using black lines and the proposed greenway as red lines. The proposed Limerick City Greenway (UL to NTP) will provide a new connection between the existing Limerick Smarter Travel Cycle Route 2 shared path (i.e., the *Shannon Fields Greenway to UL* path) and cycle lanes and footpaths on Plassey Park Road.

Chapter 7 - Sustainable Mobility and Transport in the Limerick Development Plan (LDP) 2022-2028 outlines the strategy to provide an effective, sustainable, and accessible transport system. The LDP includes policies to deliver modal split (Objective TR 06), to promote '*walking, cycling or other non-motorised wheel-based transport modes for purposeful travel*' (Section 7.5.2), and encourage behavioural change (Objective TR 07). It requires LCCC '*to support sustainable mobility, enhanced regional accessibility and connectivity within Limerick.*' The proposed Limerick City Greenway (UL to NTP) complies with both national and local policy objectives and will contribute to the creation of integrated cycling and pedestrian networks that will be accessible by all and serve both an amenity and commuter function (Objective TR 08).

The proposed Limerick City Greenway (UL to NTP) will help to deliver Objective SCSI O27 particularly '*c) Encourage use of nature-based play*', and Objective SCSI O28 to '*promote and facilitate the development of walkways subject to an appropriate level of environmental and ecological assessment*'.

Furthermore, Objective ECON O48 states it is an economic objective of LCCC to support the development of greenways in the county, particularly '*c) Extend the greenway from the University of Limerick to Annacotty*'. This project will contribute towards this goal by providing a greenway to Plassey Park Road, joining an existing active travel link that extends from Plassey Park road to Annacotty roundabout.

In addition, this project can act as a link to a future greenway across Plassey Bridge (or locally name the 'Black bridge') over the River Shannon to Co. Clare and onwards along the River Blackwater to Killaloe. The proposed Limerick City Greenway (UL to NTP) design has strategically located an amenity/rest area at Plassey Mills and the Black bridge where the proposed and future greenways could meet. The proposed greenway could also become part of a future greenway along the River Shannon between Castletroy and Castleconnell and further afield.

From a National perspective, this area of Limerick boasts a world class University, the National Technology Park, the headquarters of the Munster Rugby team, a settled and transitory (i.e., students during term time, summer students) residential area, and excellent recreational facilities. The proposed Greenway follows the River Shannon which has a rich and diverse ecosystem.

From a Local perspective, the proposed Greenway is located 3.7km east of Limerick City centre. Housing, in the form of large housing estate developments for local families and transitory renters, have introduced diversity to the housing mix in the area.

3. Relevant Planning History

A review of planning applications within and adjacent to the proposed route has been undertaken and no previous planning applications exist for a Greenway along this route. Planning applications relevant to the proposed Greenway (that are on the planning register) are illustrated in Figure 3-1, Figure 3-2 and Figure 3-3. The proposed route does not impose on any existing planning permission applications.

In 2002 An Bord Pleanála granted permission (Case No: 312559) for ground investigation works to inform the option selection and design of the Limerick City and Environs Flood Relief Scheme along the River Shannon parallel to the proposed Greenway route.

There was a conditional grant of planning in 2000 which included the construction of (a) concrete bridge over Shannon, (b) 210 metres of access road, cycle path & footpath, (c) temporary 150m bailey bridge, (d) temporary closure of right of way & provision of temporary pedestrian crossing, and (e) ancillary works, but this relates to the Black Bridge across the Shannon river which is not part of this planning application.

Refer to Appendix D for details of the planning applications.

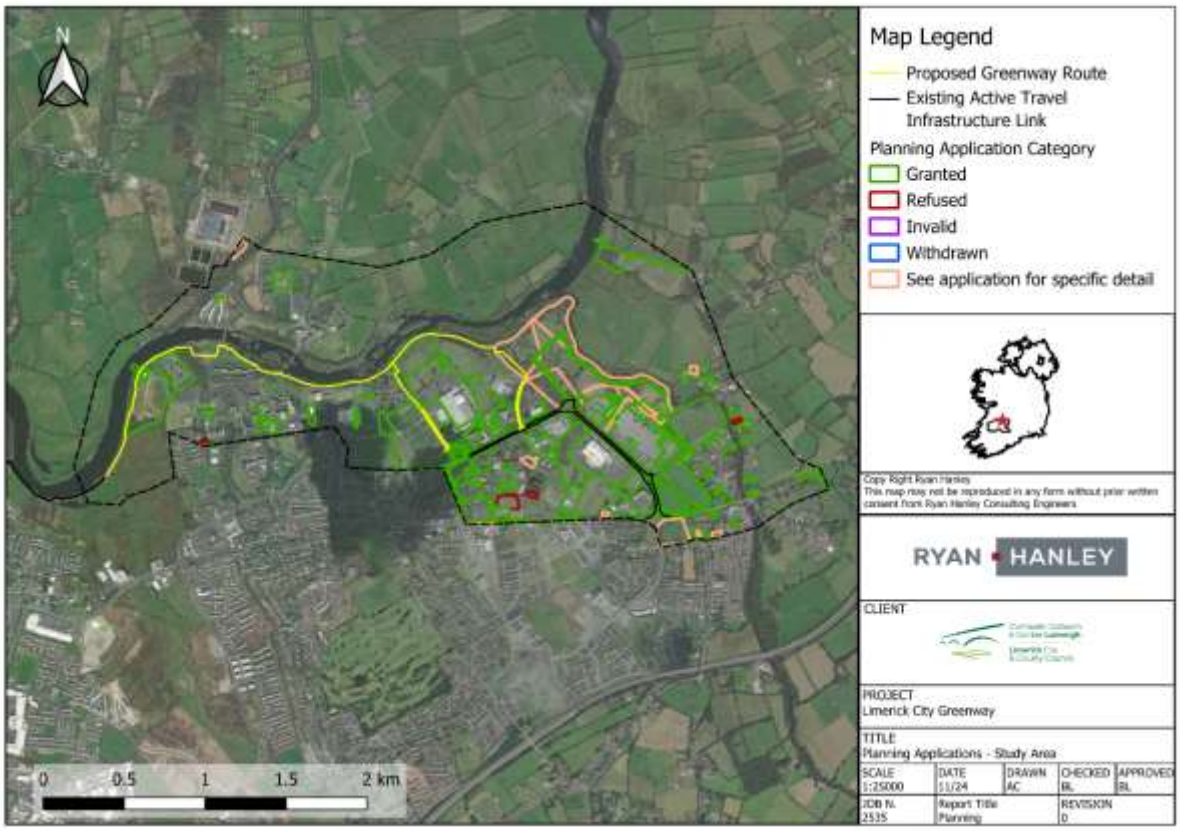


Figure 3-1: Overview of Planning Applications in the Project area

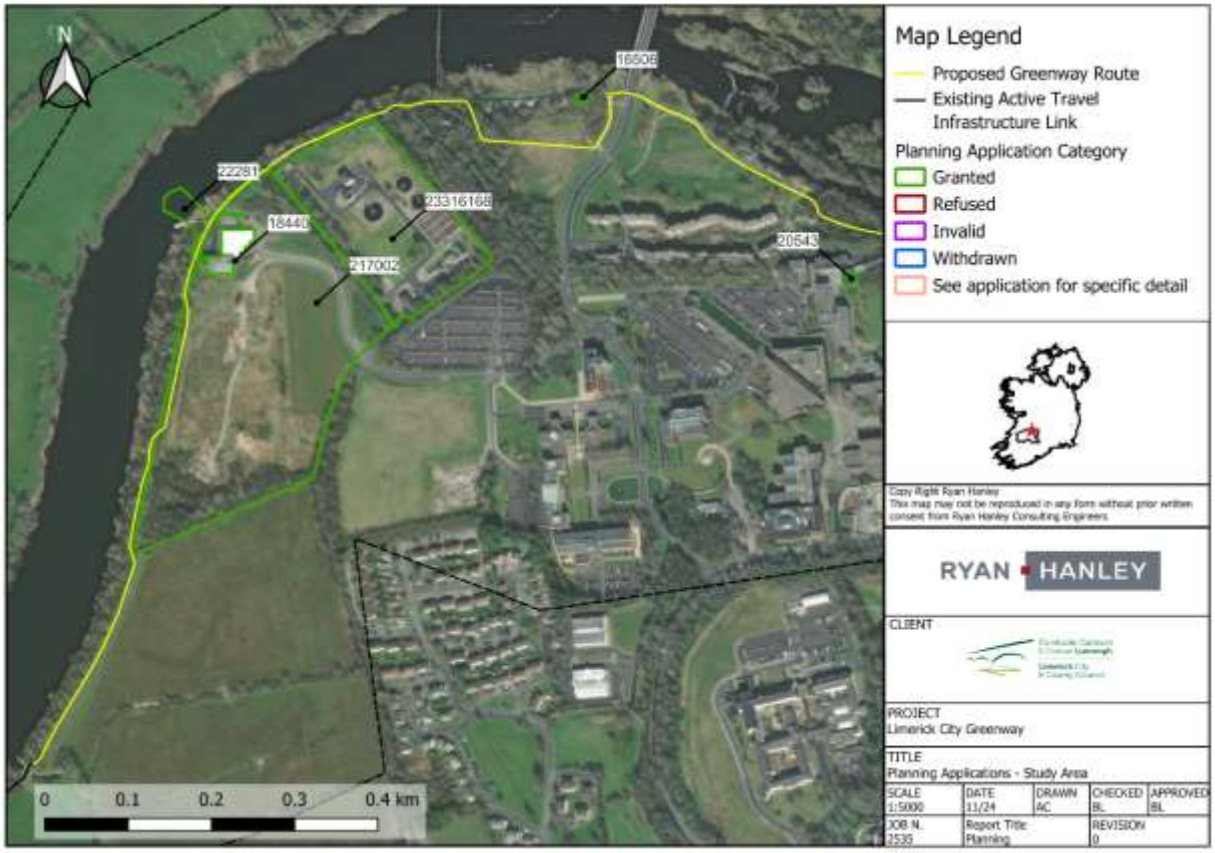


Figure 3-2: Planning applications in UL (western)

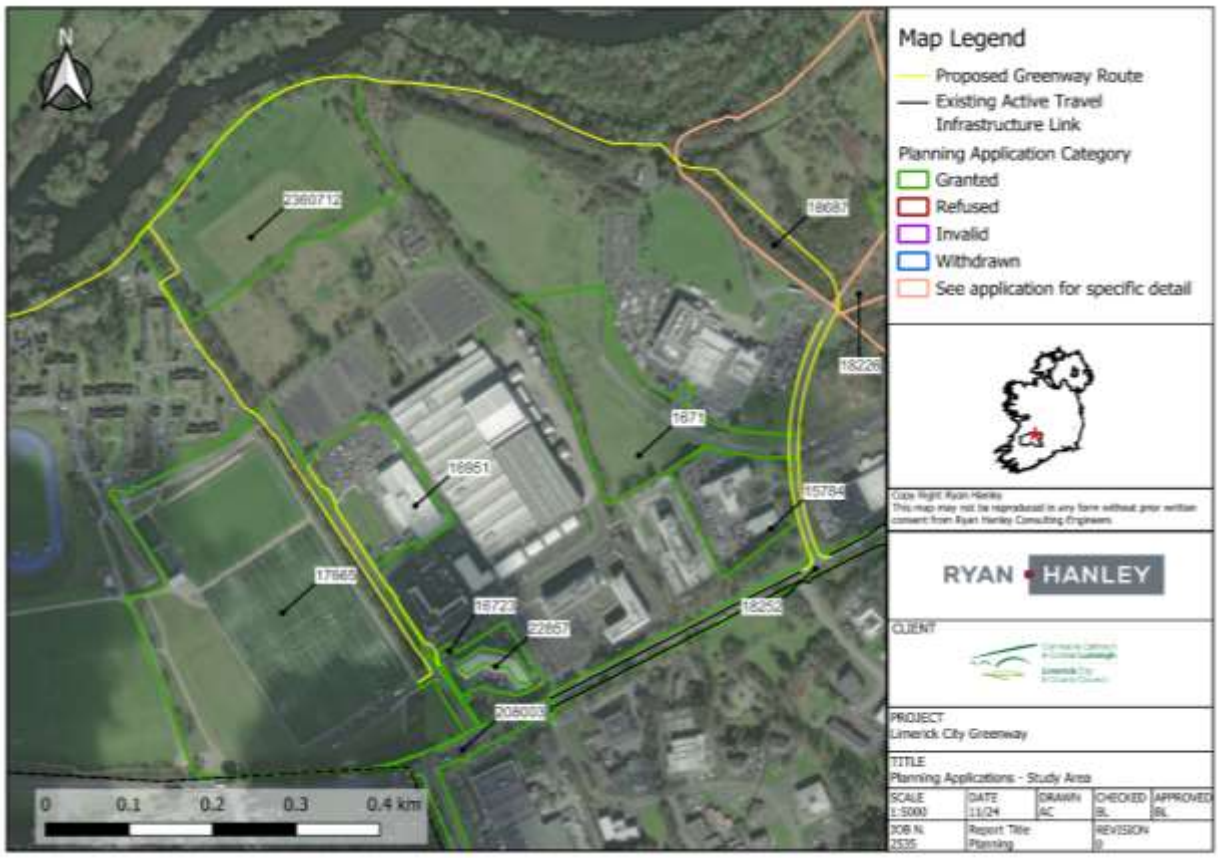


Figure 3-3: Planning applications in UL (eastern) & IDA NTP campus

3.1. Pre-Application Consultation with An Coimisiún Pleanála

LCCC (the applicant) and their consultant Ryan Hanley met with An Coimisiún Pleanála to discuss the proposed Greenway in October 2022 in a pre-application consultation meeting. An Coimisiún Pleanála provided feedback about the proposed route and documentation, and this has been incorporated into the design.

Subsequent to this meeting approximately 50% of the proposed Greenway route changed and it will no longer run along the River Mulcair or along Mulcair Drive.

In November 2024, Ryan Hanley and LCCC met with An Coimisiún Pleanála at Pre-Application Consultation under Section 51 of the Roads Act 1993 (As amended), for the development of a Greenway.

4. Legislative and Planning Policy Context

4.1. European Context

4.1.1. Environmental Impact Assessment Directive

The project is not a class of development for which mandatory Environmental Impact Assessment (EIA) is required as specified in either Part 1 of Schedule 5 of the Planning and Development Regulations, 2001 (as amended) or in Part 2 of Schedule 5 of the Planning and Development Regulations, 2001 (as amended). The Formal EIA screening process was completed having regard to the Roads Act as amended by the EIA Directive 2014/52/EU. An EIA report has been prepared for this project. Both the EIA Screening report and the EIA report are included in this Planning application.

4.1.2. Birds and Natural Habitats Directives

The requirement for an Appropriate Assessment (AA) Screening Report is set the EU Habitats Directive (92/43/EEC), transposed into Irish Law by the European Communities (Birds and Natural Habitats) Regulations, 2011 (consolidating the European Communities (Natural Habitats) Regulations 1997 to 2005 and the European Communities (Birds and Natural Habitats) (Control of Recreational Activities) Regulations 2010, as well as addressing transposition failures identified in CJEU Judgements) and the Planning and Development (Amendment) Act, 2010.

An AA Screening Report was prepared for this project, and it concluded that a Natura Impact Statement was also required for the project. Both reports were produced to assess the proposed Greenway and they are included in the Planning application.

4.2. National Context

4.2.1. Project Ireland 2040 – National Planning Framework

Project Ireland 2040: National Planning Framework (NPF) is the Government's high-level framework plan for the future development of Ireland, with a particular focus on strategic growth. It is designed to improve the effectiveness of public investment in infrastructure and other relevant services around the country, and to deliver a more balanced social, economic, and physical development and population growth across Ireland. The NPF contains 10 no. National Strategic Outcomes (NSOs) and one of the shared goals and NSOs of the NPF states that:

"Ireland has abundant natural and environmental resources such as our water sources that are critical to our environmental and economic wellbeing into the future. Conserving and enhancing the quality of these resources will also become more important in a crowded and competitive world".

4.2.2. National Cycle Network Plan (2023)

The planned National Cycle Network (NCN) links cities and towns of over 5,000 people with a safe, connected and inviting cycle network. One of the most ambitious and wide-reaching infrastructure plans in the history of the State, the proposed cycle network of approximately 3,500km will connect more than 200 settlements and 2.8m people. The NCN will link to destinations such as transport hubs, centres of education, centres of employment, leisure, and tourist destinations with the intention of facilitating greater cycling and walking amongst students, leisure users, tourists, and commuters alike.

As well as contributing to Ireland's commitments to sustainability and decarbonisation, successful implementation of the NCN Plan will provide many benefits for cyclists and communities across Ireland, including:

- Ensuring delivery of a high-quality cycle network which will promote safety, comfort and increased
- participation in cycling.

- Improving sustainable connectivity nationally and providing links with other networks such as
- CycleConnects, EuroVelo and Northern Ireland networks.
- Supporting both urban and rural economies through increased leisure and tourism cycling.
- Improving public health through well documented benefits of active travel.
- Guiding how local authorities prioritise exchequer-funded investments in cycle infrastructure.
- Making use of existing infrastructure wherever possible including greenways, road infrastructure,
- and declassified roads where safe and inviting cycle experiences can be provided.

The Proposed NCN Corridor 11 of the proposed national route shall traverse from Limerick to Carrick-on-Shannon. The proposed Limerick City Greenway (UL to NTP) will construct 4.25km of this NCN.

4.2.3. The National Cycle Policy Framework (2009 – 2020)

The National Cycle Policy Framework was published in 2009 and reviewed in 2019 as part of the Smarter Travel Policy.

- Objective 2 of the policy National Cycling Policy is to 'Ensure that the urban road infrastructure (except for motorways) is designed / retrofitted to be cyclist-friendly and that traffic management measures are also cyclist friendly', this scheme will align with this objective since the Greenway will traverse along University Road, McLaughlan Road, and Mulcair Drive.
- Objective 6 outlines that both urban and rural cycling networks are to be signposted to an agreed standard.

The vision of the overall policy is to encourage cycling for all circumstances including work/shopping and recreational, which is key in creating a cycling culture in Ireland. It was proposed that by 2020 that 10% of all trips made will be via bike. It was identified that the network of dis-used railway lines would be ideal to be converted to high quality and off-road cycle routes suitable for cyclists of all ages and abilities.

4.2.4. Smarter Travel Policy

Actions 16 and 17 of the Smarter Travel Policy outline various objectives for achieving an increase cycling and walking infrastructure:

- Under Action 16 two programmes were created by the NTA and funded by the Department of Transport, Tourism and Sport (DTTAS). In addition, legislation was introduced to allow for 20km/hr, 30km/hr, and 40km/hr speed limits for urban centre in 2010 and 2019. This will apply to this project as the Greenway provides a link with existing active travel infrastructure that extends to Annacotty Roundabout.
- Under Action 17 the 'Outdoor Recreation Plan for Public Lands and Waters in Ireland 20172021' was published in 2017 and the 'Strategy for the Future Development of National and Regional Greenways' was also published under this policy in 2018.

4.2.5. National Investment Framework for Transport in Ireland

The National Investment Framework for Transport in Ireland and the future investment decision making in land transport within a strategic framework. It will ensure transport investment over the years ahead to enable the National Planning Framework, support the Climate Action Plan, and promote positive social, economic, and environmental outcomes throughout Ireland. A proposed Greenway located in this area would align with the supports being provided under the National Investment Framework for Transport in Ireland.

4.2.6. National planning and spatial development policy outlined in the National Planning Framework

Under Section 8.4, over the course of the National Planning Framework an increase in transport connectivity is forecast, and this will need to include rail and bus services for service between the main cities, in the northwest region and the border region.

Under National Strategic Outcome 3, there has been a strong start made in the development of a national long-distance Greenway/Blueway Network. This type of network, including cycling, rural walking, and water-based recreation routes, has demonstrated great potential to bring new life to rural and regional locations through the "win-win" scenario of increased tourism activity and healthier travel. Developing this network into the future will aim to diversify our rural economy by embracing the great potential for a major expansion in the demand for activity-based tourism.

Under National Policy Objective 22, it is the intention to facilitate the development of tourism with focus on a national Greenways, Blueways and Peatways Strategy. The Strategy aims to priorities projects which will achieve maximum connectivity and impact at a national and regional level.

4.2.7. National climate action policy including the current national Climate Action Plan

As part of the Climate Action Plan 2021 developing improved and sustainable mobility infrastructure is one of the core measures that could be used to meet the required level of emissions reduction. This scheme aims to provide citizens with reliable and realistic sustainable mobility options to enable better mobility choices.

4.2.8. Regional Spatial & Economic Strategy for the Southern Region (RSES)

One of the key enablers of this strategy is to improve and protect the quality of the environment and Ireland's rich heritage for future generations along the Wild Atlantic Way, into Ireland's Hidden Heartlands, through Ireland's Ancient East, the Gaeltacht, and islands, and along the Blueways and Greenways.

4.2.9. National Biodiversity Plan, Sectoral Biodiversity Plans

The Plan sets out actions through which a range of government, civil and private sectors will undertake to achieve Ireland's 'Vision for Biodiversity' and follows on from the work of the first and second National Biodiversity Action Plans. It has been developed in line with the EU and International Biodiversity strategies and policies. There are 119 No. actions and seven strategic objectives that outline Ireland's approach to biodiversity including:

- Mainstreaming biodiversity across the decision-making process in the State;
- Strengthening the knowledge base underpinning work on biodiversity issues;
- Increasing public awareness and participation;
- Ensuring conservation of biodiversity in the wider countryside;
- Ensuring conservation of biodiversity in the marine environment;
- Expanding and improving on the management of protected areas and protected species;
- Enhancing the contribution to international biodiversity issues.

It will be a key element of the Greenway that the engineering and environmental assessments and designs address threatened species and habitats along the proposed routes and the designs protect and restore biological systems.

4.2.10. Healthy Ireland - A Framework for Improved Health and Wellbeing (2013-2025)

The vision of the Healthy Ireland Framework is "A Healthy Ireland, where everyone can enjoy physical and mental health and wellbeing to their full potential, where wellbeing is valued and supported at every level of society and is everyone's responsibility". It has four goals:

- Goal 1: Increase the proportion of people who are healthy at all stages of life;
- Goal 2: Reduce health inequalities;
- Goal 3: Protect the public from threats to health and wellbeing; and,
- Goal 4: Create an environment where every individual and sector of society can play their part in achieving a healthy Ireland.

4.2.11. Common Appraisal Framework (DTTAS)

This guidance document replaces the 2009 Guidelines on a Common Appraisal Framework for Transport Projects and Programmes and explains the steps to be used in the appraisal of transport projects and programmes for which the Department of Transport or its agencies are Sanctioning Authorities. The purpose of this document is to develop a common framework for the appraisal of transport investments that is consistent with the Public Spending Code (PSC) and elaborates on the Public Spending Code in respect of the appraisal of transport projects and programmes to assist scheme promoters in constructing robust and comparable business cases for submission to Government.

4.2.12. Public Spending Code

This guidance sets out the ex-ante (based on forecasts rather than actual results) requirements before new Current expenditure programmes are undertaken by the Sponsoring Agency or approved by the Approving Authority, or before extensions to existing current expenditure programmes are approved.

4.3. Regional Context

4.3.1. Regional Spatial and Economic Strategy (RSES)

At a regional level, the Regional Spatial and Economic Strategy (RSES) translates the objectives of the National Planning Framework 2040 (NPF) and the National Development Plan 2021-2030 (NDP) for the Southern Region and aims to enable improved coordination regarding planning and development policy issues across local authority boundaries.

The RSES was adopted in January 2020 by the Southern Regional Assembly. As part of the development of the RSES, Metropolitan Area Strategic Plans were also devised to provide more detailed focus on city and metropolitan issues for the key cities, including the LSMA.

The NPF envisages that the Limerick-Shannon Metropolitan Area (LSMA) will become the growth engine of the Mid-West Region with projected growth of at least 50% during the period up to 2040.

4.4. Local Context

4.4.1. Limerick Development Plan 2022-2028

The LDP was adopted by the Elected Members of Limerick City and County Council at a Special Meeting on the 17th of June 2022.

It is an objective of Limerick City & County Council to:

a) Improve and provide clear, safe, and direct pedestrian linkages, cycle networks as identified in the final Limerick Shannon Metropolitan Area Transport Strategy, including the greenways and primary segregated cycle routes, between the employment zones, shopping areas and residential areas throughout Limerick; and,

b) Maintain and expand the pedestrian route network, infrastructure and where possible retrofit cycle and pedestrian routes into the existing urban road network, to provide for accessible c)safe pedestrian routes within Limerick.

The proposed Limerick City Greenway (UL to NTP) will deliver an amenity that supports these Objectives particularly the following:

Objective TR O6 – Delivering Modal Split

It is an objective of the Council to:

- Promote a modal shift away from the private car towards more sustainable modes of transport including walking, cycling, carpool and public transport in conjunction with the relevant transport authorities;
- Support investment in sustainable transport infrastructure that will make walking, cycling carpool and public transport more attractive, appealing and accessible to all.

Objective TR O8 - Walking and Cycling Infrastructure

It is an objective of the Council to:

- Maintain and expand the pedestrian route network, infrastructure and where possible retrofit cycle and pedestrian routes into the existing urban road network, to provide for accessible safe pedestrian routes within Limerick.

Objective TR O7 – Behavioural Change Measures

It is an objective of the Council to:

- Facilitate and implement school streets and school zones, including slow zones around schools, park and stride facilities and promote and facilitate active travel options for school children, to reduce the health and safety risk associated with traffic congestion, pollution and inactive lifestyles.

Objective TR P4 – Promotion of Sustainable Patterns of Transport Use

- It is a policy of the Council to seek to implement in a positive manner, in co-operation with the other relevant authorities and agencies, the policies of the NPF, RSES and the Department of Transport's Smarter Travel, A Sustainable Transport Future 2009 – 2020 (and any subsequent updates), to encourage more sustainable patterns of travel and greater use of sustainable forms of transport, including public transport, cycling and walking.

4.4.2. Limerick-Shannon Metropolitan Area Transport Strategy (LSMATS)

The Limerick-Shannon Metropolitan Area Transport Strategy 2040 (LSMATS) has been developed by the National Transport Authority in collaboration with Limerick City and County Council, Clare County Council and Transport Infrastructure Ireland (TII).

It is an objective of Limerick City & County Council to implement in full, the Cycle Network, as set out in LSMATS, with priority given in the short term to delivering the primary cycle network and cycle routes serving school.

The proposed Limerick City Greenway (UL to NTP) will deliver 4.25km of the proposed cycle network and link the eastern suburbs with Limerick city.

5. Project Justification

The purpose of the Limerick City Greenway(UL to NTP) is to provide an accessible cycling and walking route for users of all abilities in accordance with the objectives in the LDP and LSMATS.

One of the Strategic Objectives in the LDP is to '*protect, enhance and connect areas of natural heritage, green infrastructure and open space*'. The Limerick City Greenway (UL to NTP) will be environmentally sustainable with minimal impact on the environment and host communities. The proposed Greenway will protect important habitat and provide a corridor for people and wildlife. There will be information boards at the Plassey Mill and Plassey Beach rest/amenity areas highlighting the local flora and fauna that have made their habitat in the area.

By promoting modal shift away from private car usage (as per LDP Objective TR 06), the proposed Greenway will help improve air quality. The community will enjoy a safe and healthy option for travel, and benefit from improved air quality as a result of reduced release of pollutants from engines. This will also help to deliver LDP Policy CGR P3 and LDP Objective CGR O8, i.e., Growing Limerick City and Suburbs (in Limerick) Mungret, and Annacotty.

The first Strategic Transport Objective of the LSMATS is to '*prioritise investment in sustainable transport in order to reduce the reliance on the private car*'. The National Planning Framework 2040 (NPF) National Policy Objective (NPO)27 seeks to ensure the '*integration of safe and convenient alternatives to the car into the design of our communities, by prioritising walking and cycling accessibility to both existing and proposed developments, and integrating physical activity facilities for all ages*'.

The LSMATS Measure WK5 calls for developments that support measures for walking. The provision of the proposed Greenway will improve the mental and physical health of people by providing infrastructure to promote regular physical exercise which is required to maintain a healthy weight and properly functioning body. The proposed Greenway will provide a safe and free amenity for people living in Limerick to regularly exercise, and for visitors to the area to enjoy.

One of the Strategic Objectives in the LDP is to '*protect, conserve and enhance the built and cultural heritage of Limerick*'. The proposed Greenway will highlight local history and heritage by incorporating existing architectural heritage into the design. There will be rest/amenity areas with information boards at Plassey Mills and Plassey Beach (the mouth of the Plassey Mill race). The information boards will provide historical information about the local heritage structures.

The LDP Objective ECON O48 states it is an economic objective of LCCC to support the development of greenways in the county. The proposed Greenway will provide an opportunity for economic growth by providing an incentive for people to visit the area. Walkers and cyclists will support local businesses and the money visitors spend will stay in the local economy which will help support local businesses, village shops, pubs, cafes, small scale rural attractions, and both urban and rural based providers of accommodation.

The proposed Greenway will provide strategic, sustainable, and safe connectivity between Limerick city and Plassey Park Road and connect community facilities, tourist attractions, and transport nodes (i.e., bus stations). This connectivity will benefit communities, businesses, and visitors. This proposed Greenway east of Limerick city will extend existing cycle routes from the city further east and provide future links to Castleconnell and to Co. Clare. Refer to Figure 5-1 for an illustration of the proposed LSMATS Limerick Cycle Network. The proposed Greenway will become an important residential connectivity route between the eastern suburbs and Limerick city centre. The proposed Greenway along the Shannon riverbank and the proposed rest areas at local heritage and scenic locations will provide excellent opportunities to create a high-quality living environment in this part of Limerick.

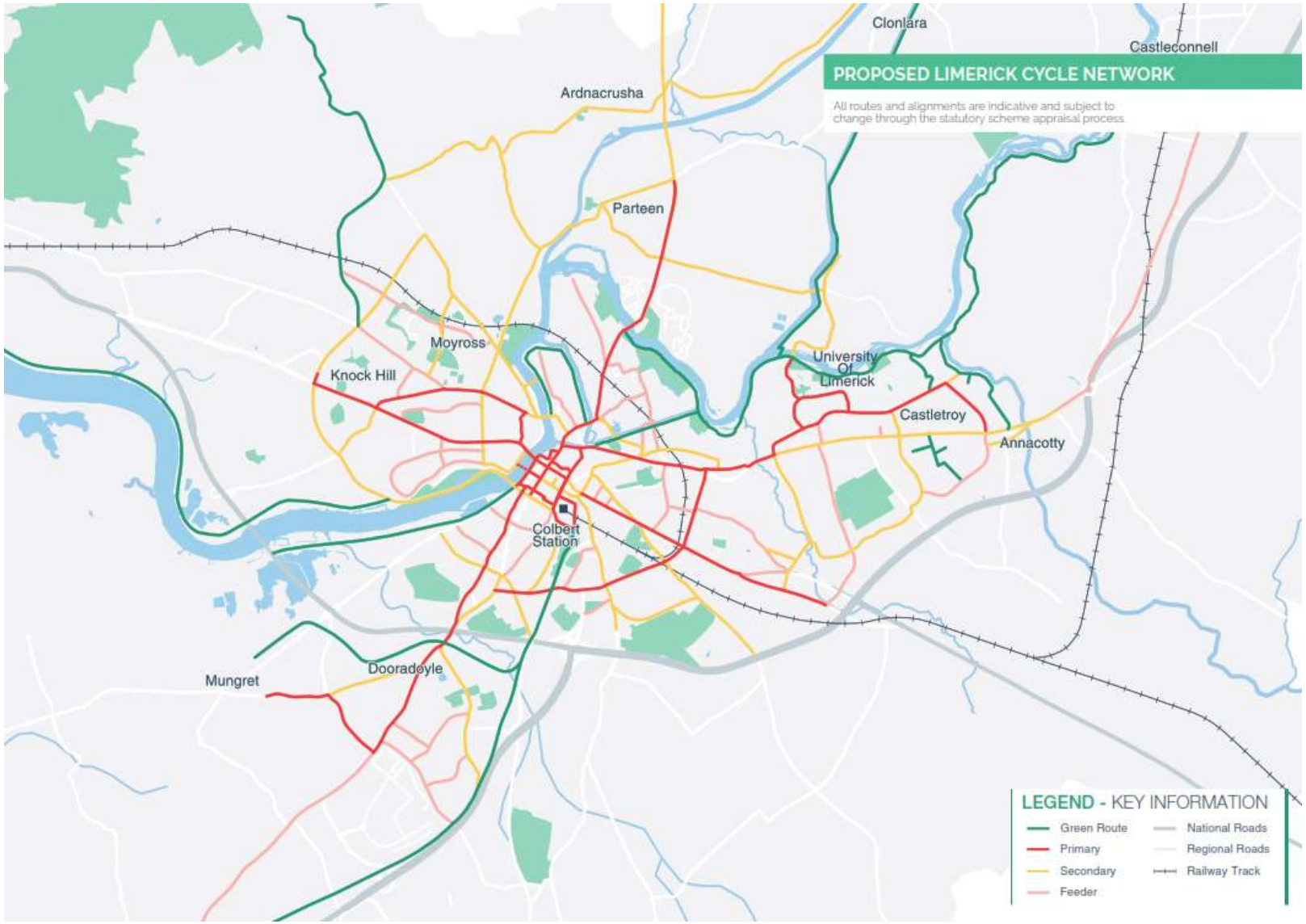


Figure 5-1: Proposed Limerick Cycle Network

6. Description of Project

6.1. Existing gravel path, green field, and roads

The proposed Limerick City Greenway (UL to NTP) will be constructed alongside the southern bank of the River Shannon between the River Groody bridge and east of Cook Medical in the IDA park. There will be links perpendicular to the river between Kilmurray Student Village and University Road, and between Cook Medical/McLaughlan Road and Plassey Park Road.

For the remainder of this section refer to the Preliminary Design drawings in Appendix A for Chainages.

6.1.1. CH000 – CH300

The proposed route commences west from the existing River Groody bridge (Figure 6-1) at the confluence of the River Groody with the River Shannon.

Figure 6-1: Existing Bridge at River Groody

The proposed Greenway route will divert from and run adjacent to an existing narrow walking track along the southern bank of the River Shannon. The existing narrow path has a wooden fence along its sides and there have been complaints to LCCC from the public regarding the width of the path, especially in relation to the speed of cyclists and scooter users. For this reason a new 3.5m wide path is proposed to be constructed between CH0-300.

Figure 6-2: Start of proposed greenway in green field with existing path alongside

6.1.2. CH300-CH430

The proposed greenway will cross the land drain and rejoin the existing path which will be resurfaced but the existing path will remain the same. The path will avoid a small forest of trees that were planted to compensate for habitat loss when the Living Bridge that connects the UL Campus that is located in Co. Limerick and in Co. Clare was constructed. The path will cross the existing bridge at CH400.

Figure 6-3: Existing bridge at CH400

6.1.3. CH430-CH615

The proposed greenway will divert away from the existing path and run through a green field. It will cross a land drain.

6.1.4. CH615-CH795

The proposed greenway will rejoin the existing path and run in front of the UL Boat Club building, and the UL slipway. The existing ESB covered will be raised to match the level of the proposed greenway (approx. 150mm higher than existing).

Figure 6-4: Existing path to be resurfaced

The proposed greenway will continue along the existing paved path until the surface changes from paved to gravel surface. It will connect to an existing shared surface leading to the UL campus.

Figure 6-5: Paved path connects to shared path leading to UL

Figure 6-6: Existing Project information sign for Limerick Smarter Travel Cycle Route 2

Figure 6-7: Existing direction sign outside the UL Boat Club and slipway in background

There is existing public lighting along the existing path between the River Groody bridge and the UL Boat House. Refer to the black column and lantern in Figure 6-8.

Figure 6-8: Examples of existing Public Lighting Column and Lantern along Limerick Smarter Travel Cycle Route 2

East of the paved path towards the UL campus, the existing path surface changes from tarmac to gravel.

Figure 6-9: Path surface changes from paved to gravel and narrows to approximately 1.5m width

6.1.5. CH795

The path will cross a bridge over a land drain (Named as Bridge 1 for the purposes of this project). There is a stone parapet on the River Shannon side of the bridge and a metal railing on the opposite side. There are wooden fences leading to the bridge on the eastern and western approaches.

Figure 6-10: Existing Bridge No 1

Figure 6-11: Existing bridge over land drain (Bridge 1)

Figure 6-12: Existing abutment wall (proposed to be decommissioned)

6.1.6. CH795-CH950

The proposed greenway will continue eastwards and pass along the existing gravel path north of the Castletroy wastewater treatment plant. There is a northern access into the plant with an existing route over a culverted land drain that will be included in the proposed greenway path.

Figure 6-13: View south to the northern access gate of Castletroy Wastewater Treatment Plant

Figure 6-14: View facing east outside the Castletroy wastewater treatment plant

There are existing concrete railings alongside the narrow gravel path. The proposed path will avoid two trees with a potential for a bat roost at CH850. No bat roosts have been identified in these trees, but the trees will remain.

6.1.7. CH950-CH980

The existing path continues to an existing narrow stone bridge (named as Bridge 2 in this project). The surface changes from gravel to paved.

There are existing stone abutments and a high stone wall at Bridge 2.

Figure 6-15: Existing path and stone bridge along Shannon River leading to Bridge 2

Figure 6-16: View of Bridge 2 from the exiting paved path

The existing stone parapet that is missing in Figure 6-17 has been reset into position by LCCC since the photo was taken.

Figure 6-17: View of Bridge 2 from bank of drain

Figure 6-18: View under Bridge 2 facing north to the River Shannon

Figure 6-19: Existing railing between Bridge 2 and Bridge 3

6.1.8. CH1000

The existing path continues to a temporary steel truss bridge that has replaced a concrete deck over an existing stone bridge (named as Bridge 3 in this project). This bridge crosses the Plassey Mill Race where it flows into the River Shannon.

Figure 6-20: Existing temporary bridge across the Plassey mill race where it rejoins the River Shannon

Figure 6-21: Shallow water level in Plassey Mill Race and existing abutments of Bridge 3

6.1.9. CH1000-1040

The existing path continues past a rest area north of Plassey Mills (Figure 6-22).

Figure 6-22: Existing bench in front of Plassey Mill

The existing bridge between Co. Limerick and Co. Clare is to the north of this area (Figure 6-23). This bridge is known locally as the 'Black bridge'.

Figure 6-23: Black bridge

Figure 6-24: Blocked access to the Black bridge that links County Limerick and County Clare

There is an existing kissing gate on the path east of the rest area in front of Plassey Mills.

Figure 6-25: Existing gate on path at Plassey Mills (1 of 2)

Figure 6-26: Existing gate on path at Plassey Mills (2 of 2)

6.1.10. CH1040

The existing path continues eastwards towards an existing bridge (named as Bridge 4 in this project) across the decommissioned overspill for the Plassey Mill Race.

Figure 6-27: Existing bridge (Bridge 4) over the decommissioned and dry Plassey Mill race overspill

Figure 6-28: Dry bed of overspill from Plassey Mill Race

6.1.11. CH1040-CH1330

The existing path continues north of the existing Fisherman cottages, but the proposed path will turn south-east and run behind the Fisherman Cottages as requested by the residents. This area is characterised by uneven poorly drained ground with thick undergrowth. The residents in the cottages have reported regular flooding in their properties so this project will construct a new flood defence system for the residents.

Figure 6-29: Thick vegetation with immature trees with Plassey Mills in the background

Figure 6-30: Heavy undergrowth to rear/south of Fisherman Cottages

Figure 6-31: Trees to south/rear of Fisherman Cottages (cottage partially visible)

Figure 6-32: Existing Bee Hives east of the Fisherman Cottages

Figure 6-33: Existing kissing gate at the Garrisson Wall to be retained on the gravel path that runs in front of the Fisherman cottages

There is an existing gravel path to the east of the Fisherman Cottages that connects to existing shared paths in the UL Campus.

Figure 6-34: Existing gravel path east of Fisherman Cottages

6.1.12. CH1330-CH1340

The proposed path will rejoin the existing path and will pass under an existing bridge between Co. Limerick and Co. Clare.

Figure 6-35: Existing road bridge between the UL campus in Co. Limerick and Co. Clare

Figure 6-36: View of existing gravel path under road bridge that links UL campus between Co. Limerick and Co. Clare

6.1.13. CH1340-CH1410

East of the road bridge the existing path continues eastwards along the southern bank of the River Shannon and towards the existing Dromroe Student village in the UL Campus. The existing path runs through a designated Annex 1 habitat Alluvial woodland forest. UL Facilities has planted Oak trees between Dromroe Student village and the existing path at this location.

Figure 6-37: Existing gravel path along southern bank of the River Shannon

Figure 6-38: Extent of Annex 1 Alluvial Forest interactions with existing path and proposed Greenway route

6.1.14. CH1410-1730

To avoid the existing avenue of beech trees in the Annex 1 Alluvial forest alongside the riverside path, the proposed greenway route will divert to the south of the beech trees and north of the Oak trees towards a newly planted stand of birch trees. The existing gravel path will remain unaltered.

Figure 6-39: Existing Beach and newly planted Oak trees between the River Shannon and Dromroe Student village

Figure 6-40: Existing gravel path alongside river through an avenue of mature trees in the Annex 1 Alluvial forest

A 6.5m wide strip of immature Birch trees will be removed to provide space for the proposed greenway.

Figure 6-41: Existing immature trees to be removed

The existing path continues under the Living Bridge.

Figure 6-42: Living Bridge in UL campus

Figure 6-43: Existing gravel path under the Living Bridge

6.1.15. CH1730-CH1965

The existing earthen path enters an existing Annex 1 Alluvial woodland and continues eastwards on a raised earth path north of the Plassey Mill Race and approximately 10-20m to the south of the River Shannon.

Figure 6-44: Existing raised earthen path in the Annex 1 habitat Alluvial residual forest

6.1.16. CH1965-CH2150

An existing footbridge from the UL campus joins the earth path at CH1915.

Figure 6-45: Existing footbridge to University of Limerick and flowering Himalayan Balsam (looking west)

The existing earthen path continues eastward on an elevated earth mound with the Plassey Mill Race to the south and the River Shannon to the north.

Figure 6-46: Existing stone steps from earthen path to Plassey Beach

6.1.17. CH2150-CH2250

The existing earthen path continues alongside Plassey Beach.

Figure 6-47: Unpaved path at Plassey Beach

6.1.18. CH2250

There is an existing reinforced concrete bridge that crosses the start of the existing Plassey Mill race.

Figure 6-48: Existing concrete bridge at mouth of Plassey mill race (to be retained)

Figure 6-49: Existing concrete bridge at mouth of Plassey mill race with Plassey Beach in the background

Figure 6-50: Existing concrete bridge at mouth of Plassey mill race looking northeast

6.1.19. CH2250-CH2500

The existing route passes north of Kilmurray Student Village and reaches a junction.

Figure 6-51: Existing gravel path north of Kilmurray Student Village

The route south provides access to University Road and to Plassey Park Road. The route east provides access to Cook Medical in the IDA's National Technology Park and McLaughlan Road.

Figure 6-52: Existing earthbound path south of the River Shannon

Figure 6-53: Existing path east of Kilmurray Student village approaching the land boundary between UL and the IDA

Figure 6-54: Existing gate and culvert at the land boundary between UL and the IDA

6.1.20. CH2500-CH3180

The path changes from an earthen path to a desire line and continues eastwards running generally 20-50m south of the southern bank of the River Shannon. It crosses under overhead electric wires.

Figure 6-55: Desire line through green field

Figure 6-56: Desire line through green field approaching a small stand of trees

Figure 6-57: Desire line through green field weaving between small stands of trees

Figure 6-58: Proximity of desire line to River Shannon

Figure 6-59: Desire line along proposed Greenway route

6.1.21. CH3180-CH3490

The existing desire line continues along the southern bank of the River Shannon at the boundary between UL registered land and IDA registered land (approx. CH3180), but the proposed Greenway route turns south to McLaughlan Road.

Figure 6-60: Warning signs at the IDA boundary (at Cook Medical)

Figure 6-61: Overhead ESB utilities

Figure 6-62: Existing earth berm with Johnson & Johnson factory in background

Figure 6-63: Example of scrubland between the River Shannon and McLaughlan Road

6.1.22. CH3490-CH3805

There are existing concrete footpaths and grass verges alongside McLaughlan Road between the original entrance road into Cook Medical and Plassey Park Road. There is street lighting and other utilities including drainage, telecommunications, and underground electricity cables in this private road.

Figure 6-64: McLaughlan Road in the IDA park

Figure 6-65: McLaughlan Road in the IDA park with street lighting and junctions to other roads/entrances

Figure 6-66: McLaughlan Road where it joins Plassey Park Road (in background)

There is an existing zebra crossing on Plassey Park Road to the north-east of the junction between Plassey Park Road and McLaughlan Road.

Figure 6-67: Existing Zebra crossing on Plassey Park Road

6.1.23. CH000_C-CH300_C

There is a junction in the existing path east of Kilmurray Student Village and the southern route follows a desire line to an existing bridge east of the UL Agricultural Laboratory. The bridge crosses an existing drainage channel at the north of University Road.

Figure 6-68: Existing desire line connecting the riverside path to an existing bridge to the UL Agricultural Laboratory

There is a secure car parking area immediately south of the laboratory.

Figure 6-69: Secure car parking area immediately south of the laboratory

The entrance road to the UL Agricultural Laboratory runs west of the large drainage channel (bounded by an anti-climb fence) and there are rubbish bins and a car parking area between Kilmurray Student Village and the anti-climb fence. There is an entrance road and gate into Kilmurray Student Village that is generally locked. The gate opens onto University Road.

Figure 6-70: Existing gate access from Kilmurray Student Village to University Road

6.1.24. CH300_C-CH677_C

There are no footpaths along University Road but there are large parking bays and public lighting along the western side of the road. There are commercial/industrial buildings along the eastern side.

Figure 6-71: University Road (looking south)

Figure 6-72: Entrance to industrial buildings off University Road

The proposed Greenway will join into newly constructed Active Travel infrastructure at the southern part of University Road where it joins Plassey Park Road.

Figure 6-73: Junction of University Road and Plassey Park Road

6.2. Proposed Greenway and Bridges

6.2.1. CH000 to CH795: Groody Bridge to Proposed Bridge 1

The proposed Greenway will divert to the southeast of the existing tarmac path because the existing path narrows to 2.2m width (between the existing wooden fences) and LCCC has received complaints from members of the public about near passes from cyclists and scooters. It is intended that walkers would continue to use the existing path and cyclists and other users travelling at speeds in excess of walking pace would utilise the proposed Greenway.

Figure 6-74: Proposed Greenway and existing path, and proposed rest area at CH 000

A new rest area with new benches will be provided (refer to Figure 6-95 for an example of the proposed bench). Proposed wooden bollards will redirect cyclists off the existing path and towards the proposed Greenway.

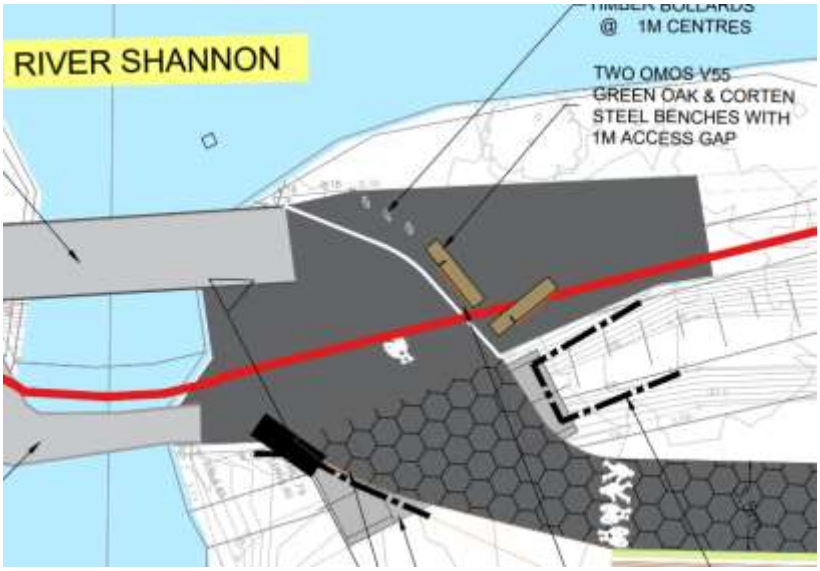


Figure 6-75: Proposed rest area at Groody Bridge

Figure 6-76: Example of wooden bollard that would be installed along the proposed Greenway

In the green field the proposed Greenway will run parallel to a land drain which runs parallel to the River Shannon. A proposed shallow land drain will run along the south side of the Greenway and drainage culverts will enable surface water to drain to the River Shannon. New public lighting will be provided.

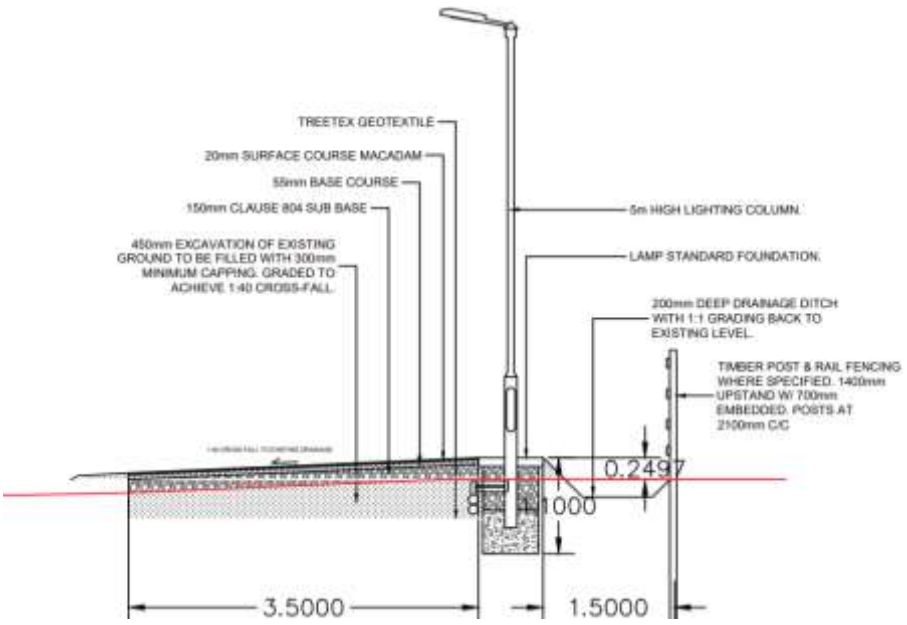


Figure 6-77: Proposed cross section of 3.5m greenway, public lighting column, and land drain

The proposed Greenway will divert north to join the existing 3.5m wide Smarter Travel path and avoid passing through a compensatory habitat area that was planted by the developers of the Living Bridge that connects the UL campus between Co. Limerick and Co. Clare. The proposed Greenway will cross an existing bridge (CH 400). A new steel parapet will be installed above the low stone parapet on this existing bridge to replace the existing parapet which currently narrows the bridge.

Figure 6-78: Existing bridge at CH400

The existing path will be resurfaced.

In accordance with LCCC's tree replacement guide, there will be five trees planted for every tree that will be removed to facilitate construction of the proposed Greenway.

The proposed Greenway will divert south (@ CH430) east of the compensatory habitat area and continue in a green field until it will rejoin the existing 3.5m wide path immediately west of the UL Boat Club. The existing tarmac path will be resurfaced where it passes the existing slipway for the Boat club until CH725 where the existing 2.0m (approx.) wide gravel path will be replaced with a 3.5m wide tarmac path. The surface of the existing path will not be excavated except to install twin ducts for the public lighting and a cellular membrane will be paid onto the gravel path and appropriate building layers will form the base for the tarmacadam surface finish. This will ensure tree roots will not be disturbed.

Figure 6-79: Tree root protection system under new tarmac path in Fairview Park, Dublin 3

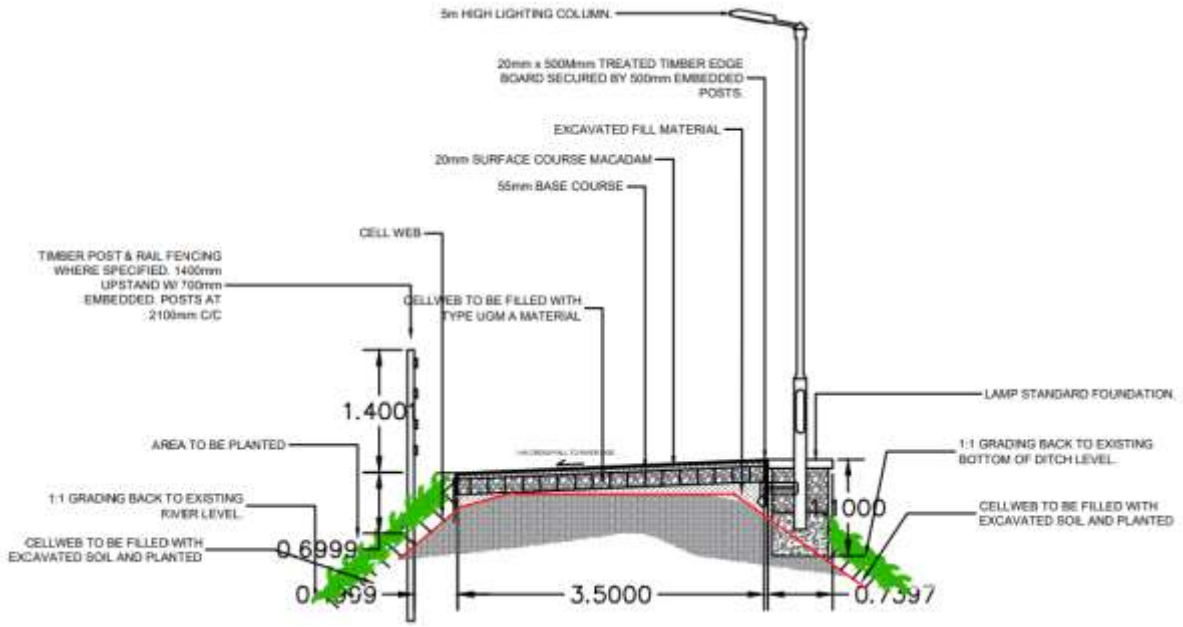


Figure 6-80: Replacement of gravel path with proposed 3.5m wide Greenway

At CH775 there is a proposed tarmac path to join to the existing UL campus shared surface. There are proposed replacement planting trees alongside this proposed path and a proposed bug hotel will be constructed from leftover construction wood and small bore tree branches that may be removed.

Figure 6-81: Example of a bug hotel that will recycle construction materials and reuse tree branches

6.2.2. CH795: Proposed Bridge 1

The proposed Greenway route will extend eastwards to an existing concrete bridge which will be replaced by a proposed 4.8m long and 4.5m wide steel bridge on new concrete abutment walls (Bridge No. 1 @ CH 795). Refer to drawing RHA-XX-DR-C-PD0007.

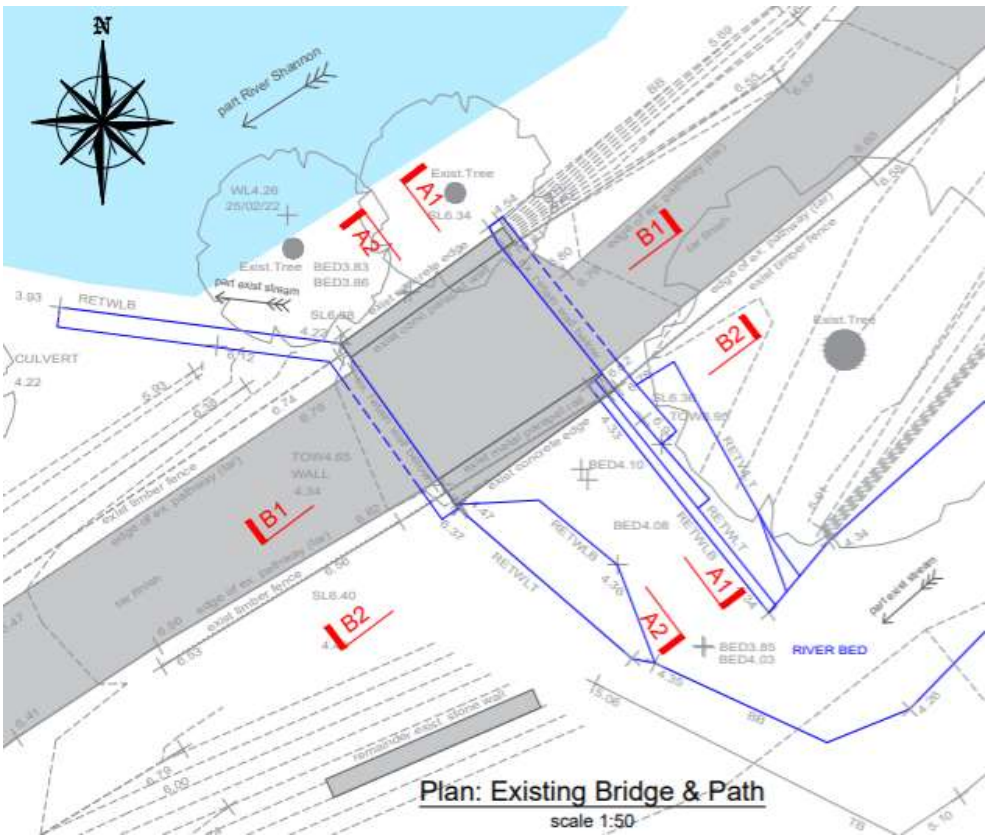


Figure 6-82: Plan of existing Bridge 1 (refer to drawing RHA-XX-DR-S-SP0010)

The existing bridge parapets, one reinforced concrete and one metal railing (refer to Figure 6-10, Figure 6-11, and Figure 6-12), will be taken down and the bridge deck will be deconstructed.

The existing abutments will be deconstructed. The existing reinforced concrete bridge deck will be deconstructed by lifting it off the abutments and transporting it to the temporary construction compound where it will be crushed. The crushed material will be recycled by using it to construct haul roads/temporary compounds/ and as a base for the proposed greenway path. Metal arisings, the parapet and the railing will be transported offsite to a licenced waste facility. The existing abutments will be deconstructed by breaking out the walls which will be removed to the construction compound for crushing and recycling, and the foundations will be exposed. Any concrete in the foundations will be broken out and mixed with stone rubble to form the base of the foundations for the proposed bridge abutments.

Dust will be suppressed during the wall and foundation breaking works. To avoid water runoff carrying fines, a shade cloth will be erected immediately adjacent to the concrete that will be broken out to trap dust arisings.

To carry out this deconstruction work and minimise the impact on the environment and local ecology there will be a water filled flood barrier to protect the work site from the River Shannon. To protect the River Shannon from contaminated liquids associated with construction activities including silt, a temporary sheet piled wall will be inserted into the riverbank between the water filled barrier and the worksite, and a silt curtain will be suspended in the River Shannon.

New bridge abutments are proposed to be constructed on new concrete foundations and a new steel deck with parapets will be installed by lifting a prefabricated structure into place. Refer to drawing RHA-XX-DR-S-SP0011.

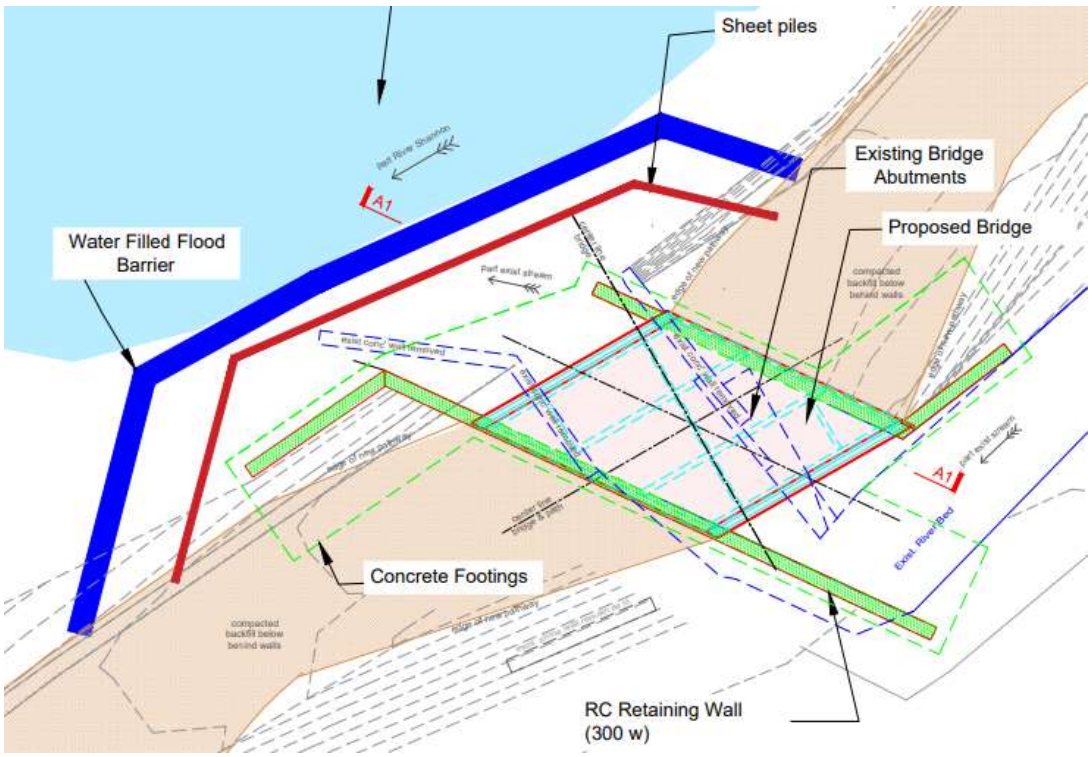


Figure 6-83: Proposed plan of Bridge 2, with ecology protection measures (refer to drawing RHA-XX-DR-S-SP0011 & 12)

The breaking up and removal of the bridge abutment walls and foundation will be carried out on a dry day within a 6–8-hour period so those works will have a very short duration. The construction period of the bridge is expected to take 2-3 weeks. The existing drain under Bridge 1 is dry so there won't be a risk of drainage water running through the work site. The proposed sheet pile will prevent any material contaminated with dissolved chemicals (from broken concrete) from running into the river. The proposed shade cloth will prevent airborne dust from floating to the river. The proposed water filled flood barrier will prevent water from entering the worksite.

No refuelling will be permitted outside of construction compounds and all machinery will be periodically serviced and regularly maintained to ensure diesel and oils spills do not occur.

The proposed construction sequence for Bridge 1 is illustrated in Figure 6-84.

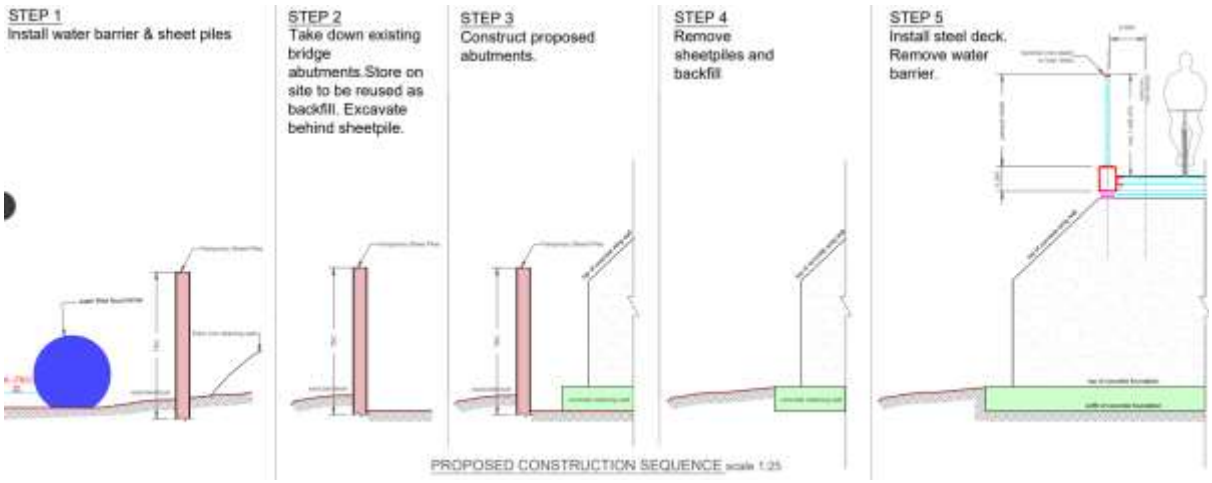


Figure 6-84: Proposed construction sequence for Bridge 1 (refer to drawing RHA-XX-DR-S-SP0012)

Due to its proximity to the River Shannon which supports lamprey, the proposed works (including preparatory work) beside the River Shannon which supports salmonids shall be undertaken from May to October (inclusive) and in consultation with Inland Fisheries Ireland (IFI) to avoid accidental damage or siltation of spawning beds, subject to the water level in the river.

Bat surveys have been carried out along the riverbank and in the location of Bridge 1. No trees with a potential for bat roots were identified at Bridge 1 and the closest tree with a potential for a Bar roost is 60m to the east.

The existing bridge and vegetation growing on it were surveyed by an experienced Ecologist to look for species such as dipper, grey wagtail, wren and other bird species that will use bridge structures as nesting sites, and there was no evidence of birds nests or bat roosts at the structure or vegetation. A survey by an experienced Ecologist shall be undertaken at Bridge 1 no more than 24 hours ahead of vegetation clearance or structure removal works to confirm there are no bats roosting or birds nesting in the vegetation or in the structure that will be taken down and removed.

The SAC boundary line runs through the existing and proposed bridge.

The existing area under Bridge 1 is dry so a flume is not proposed.

No refuelling will be permitted outside of construction compounds and all machinery will be periodically serviced and regularly maintained to ensure diesel and oils spills do not occur.

There will be a 40m long silt curtain installed in the River Shannon to catch any discharges from the worksite into the river. Silt curtains will catch materials that float or are suspended in the water. Silt curtains are typically made from PVC and closed-cell foam. They are a flexible, water permeable barrier that extends downwards in the body of water, where it is typically anchored or weighted to prevent the silt from moving. The foam provides buoyancy, while the PVC curtain controls sediment in the water.

Example photos of a silt curtain in the River Corrib in Galway are provided in Figure 6-85 and Figure 6-86.

Figure 6-85: Installation of a silt curtain in the River Corrib, Co. Galway

Figure 6-86: Silt curtain retaining contaminated water during advanced works for sheet piling

Figure 6-87: Example of sheet piling along the bank of the River Corrib

6.2.3. CH795 to CH970: Proposed 3-4m wide greenway

The proposed 3.5m wide greenway will be installed on top of the existing 1.5-2.0m wide gravel path and grass verges (refer to the cross section in Figure 6-77). The proposed Greenway will pass two trees with bat roost potential (although no roosts have been identified) at CH850. The public lighting columns have been designed at maximum distances from these trees to minimise light impacts.

6.2.4. CH970: Proposed Bridge 2

The proposed Bridge No. 2 @ CH 970 will be a new 9.6m long and 4.5m wide steel and concrete bridge will be constructed alongside an existing stone bridge. No demolition works are required for Bridge 2.

A photomontage which illustrates the proposed Bridge 2, the proposed Bridge 3, and the proposed amenity area can be seen in Figure 6-88.

Figure 6-88: Proposed bridges No 2 & 3 and rest area east of Plassey Mills

Due to its proximity to the River Shannon which supports lamprey, the proposed foreshore works (including preparatory work) beside all watercourses supporting salmonids shall be undertaken from May to October (inclusive) and in consultation with Inland Fisheries Ireland (IFI) to avoid accidental damage or siltation of spawning beds, subject to the water level in the river.

The SAC boundary line runs through the proposed bridge.

The existing Bridge 2 plan and section are provided in Figure 6-89.

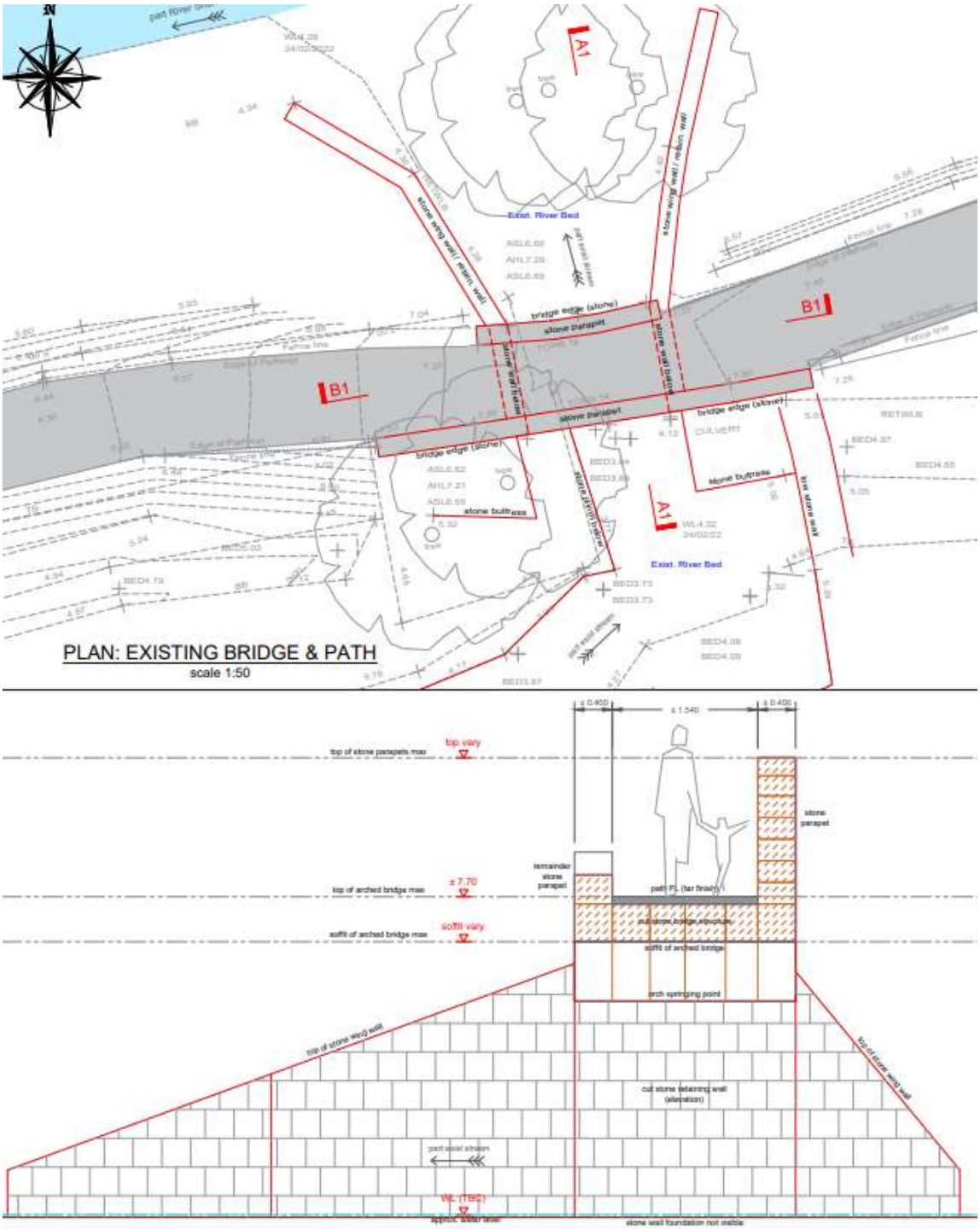


Figure 6-89: Existing plan and section for Bridge 2 (refer to drawing RHA-XX-DR-S-SP0020)

The plan for the proposed new bridge 2 alongside the existing stone bridge is illustrated in Figure 6-90 and the section drawing that illustrates the same is in Figure 6-91. The abutment for the existing stone bridge will remain untouched. The stonework for the existing bridge will be repointed and cleared of debris, and the low parapet wall will be restored by a stonemason, and a new metal railing will be installed onto it to ensure the existing stone bridge complies with current design standards for bridge parapets, i.e., 1.45m high. The bottom of the new metal parapet railing on the existing low stone parapet will follow the arc of the stone wall to preserve its historical function which was to allow a tow rope to slide over the parapet while a horse was towing a barge down the River Shannon.

Figure 6-90: Plan for the proposed new bridge 2 alongside the existing stone bridge (refer to drawing RHA-XX-DR-S-SP0021)

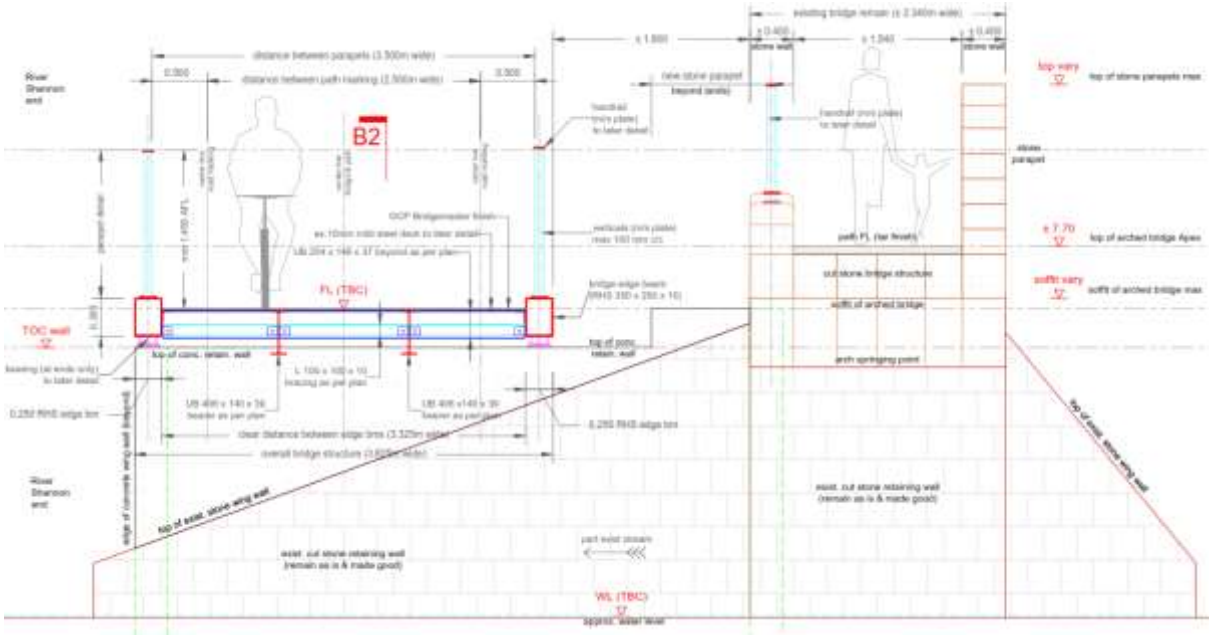


Figure 6-91: Section for the proposed new bridge 2 alongside the existing stone bridge (refer to drawing RHA-XX-DR-S-SP0021)

To carry out this construction work and minimise the impact on the environment and local ecology there will be a water filled flood barrier to protect the work site from the River Shannon. To protect the River Shannon from contaminated liquids associated with construction activities including silt, a temporary sheet piled wall will be inserted into the riverbank between the water filled barrier and the worksite, and a silt curtain will be suspended in the River Shannon. Refer to drawing RHA-XX-DR-S-SP0022.

The construction period of Bridge 2 is expected to take 2-3 weeks. The existing stream under Bridge 2 will be flumed during the works to keep the work site dry. The proposed sheet pile will prevent any material contaminated from running into the river. A proposed shade cloth will prevent airborne dust from floating to the river. The proposed water filled flood barrier will prevent river water from entering the worksite.

There will be a 60m long silt curtain installed in the River Shannon to catch any discharges from the worksite into the river. Silt curtains will catch materials that float or are suspended in the water. Silt curtains are typically made from PVC and closed-cell foam. They are a flexible, water permeable barrier that extends downwards in the body of water, where it is typically anchored or weighted to prevent the silt from moving. The foam provides buoyancy, while the PVC curtain controls sediment in the water. Example photos of a silt curtain in the River Corrib in Galway are provided in Figure 6-85 and Figure 6-86.

Tree felling of immature trees and saplings will be required in the September to February period before the construction work for Bridge 2. All trees to be cut down shall be inspected by an experienced and qualified Ecologist to check for nests and roosts (despite their very limited habitat potential) and shall be laid on the ground for at least 24 hours before they will be recycled or mulched.

There will be aquatic wall plates bolted to the new abutments where they will be in contact with river/surface water drainage water. The purpose of the aquatic plates is to provide a habitat for fish and other aquatic life.

Figure 6-92: Example of aquatic plates to be installed on bridge abutments

6.2.5. CH1000: Proposed Deck replacement for Bridge 3

The existing temporary bridge across the Plassey Mill race @ CH1000 will be replaced with a new 5.4m long and 4.5m wide steel bridge. The new steel deck and parapets will be lifted onto new concrete plinths which will be cast directly onto the stone abutment walls. Refer to drawing RHA-XX-DR-S-SP0031.

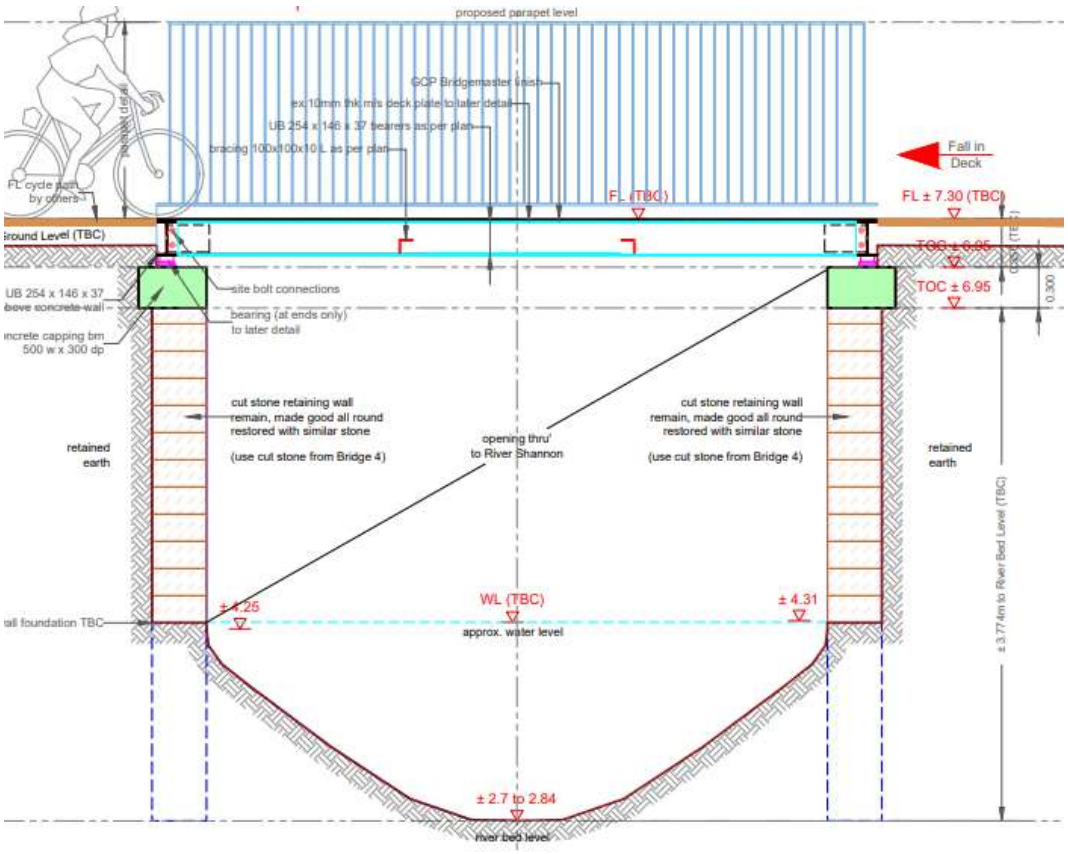


Figure 6-93: Proposed deck replacement for Bridge 3 with new concrete plinths on existing stone abutments

Due to its proximity to the River Shannon which supports lamprey, the proposed foreshore works (including preparatory work) beside all watercourses supporting salmonids shall be undertaken from May to October (inclusive) and in consultation with Inland Fisheries Ireland (IFI) to avoid accidental damage or siltation of spawning beds, subject to the water level in the river.

There will be two 6m long silt curtains installed in the Mill Race stream to catch any discharges from the worksite into the stream. Silt curtains will catch materials that float or are suspended in the stream water. They are a flexible, water permeable barrier that extends downwards in the body of water, where it is typically anchored or weighted to prevent the silt from moving. Silt curtains are typically made from PVC and closed-cell foam. The foam provides buoyancy, while the PVC curtain controls sediment in the water.

The SAC boundary line runs through the existing and proposed bridge. Refer to the red line in Figure 6-94.

6.2.6. CH1010 to CH1030: Proposed rest area at Plassey Mills

The plan for the proposed rest area at Plassey Mills is illustrated in Figure 6-94.

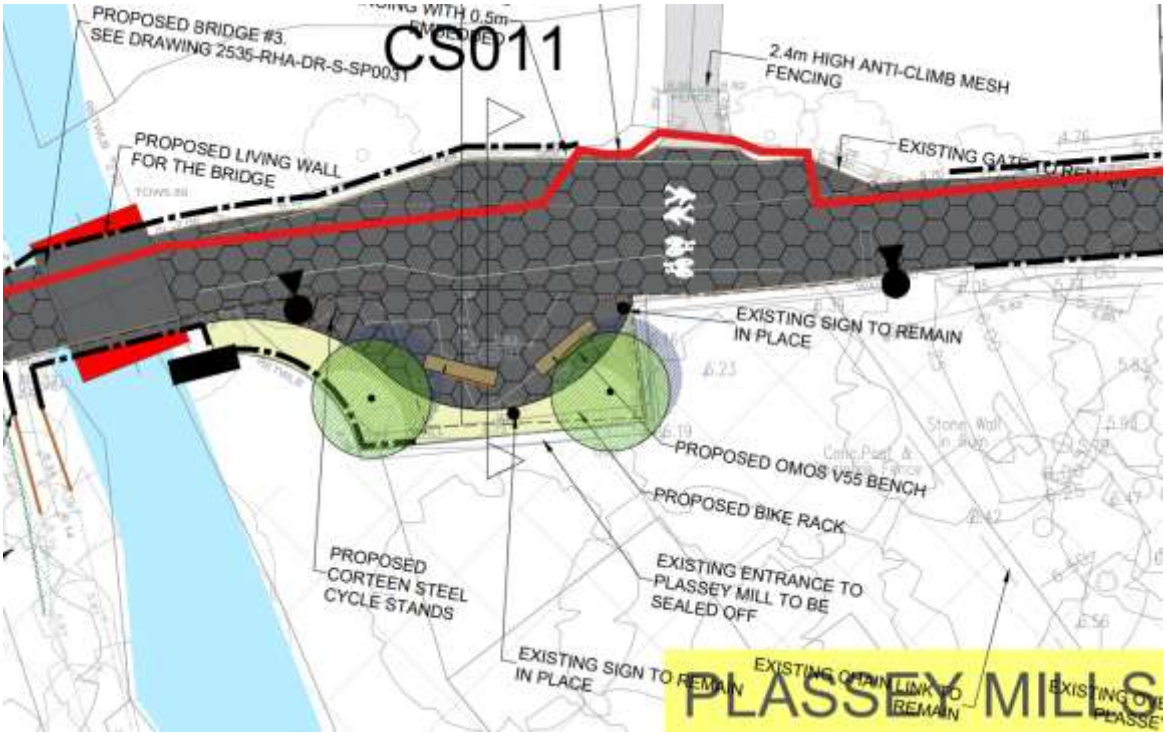


Figure 6-94: Proposed rest area at Plassey Mill

Two new benches similar to an OMOS green oak and Corten steel bench will be provided. A rack of new Corten steel cycle stands will also be provided and two new native Irish trees with understory will soften the interface between the existing stone/block walls and the proposed tarmac path surface.

Figure 6-95: Green Oak and Corten steel seat and cycle stand

A future connection to the Black bridge across the River Shannon to Co. Clare could join the proposed Greenway at this rest area.

6.2.7. CH1045: Proposed deck replacement for Bridge 4

A proposed 5.1m long and 4.5m wide steel bridge deck for Bridge 4 @ CH 1045 will replace the existing 3m wide concrete bridge deck across the overspill for the Plassey Mill race. The existing reinforced concrete bridge deck will be deconstructed by lifting it off the cut stone abutment walls and transporting it to the construction compound where it will be crushed. The crushed material will be recycled by using it to construct haul roads/temporary compounds/ and as a base for the proposed

greenway path. Metal arisings and the existing steel parapets will be transported offsite to a licenced waste facility. The existing cut stone abutment walls and foundations will remain in-situ. The proposed steel deck will sit on top of a concrete plinth that will be set into place on the existing stone abutments. The existing width of the Plassey Mill Race overspill will not be impacted. New parapets will replace the existing stainless-steel parapets. Refer to drawing RHA-XX-DR-S-SP0042.

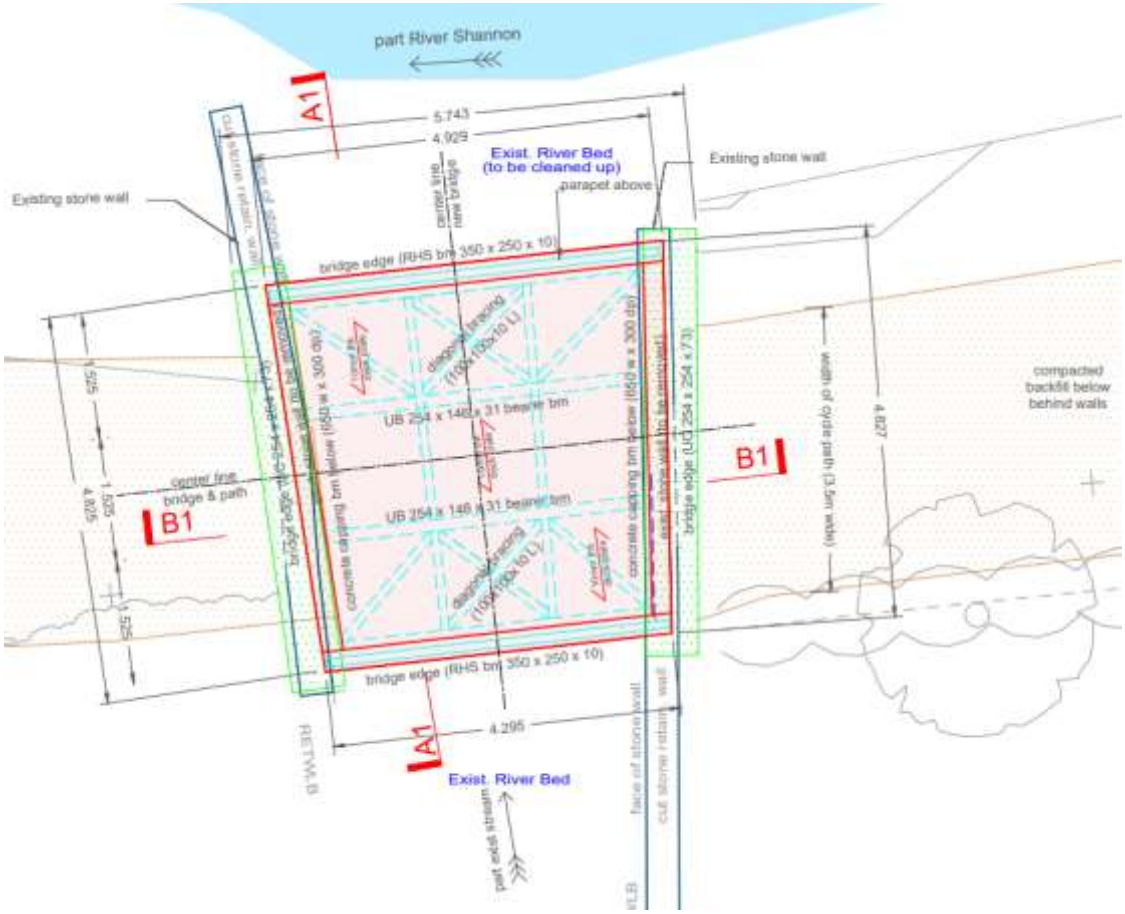


Figure 6-96: Proposed plan of Bridge 4 deck replacement

Due to its proximity to the River Shannon which supports lamprey, the proposed foreshore works (including preparatory work) beside all watercourses supporting salmonids shall be undertaken from May to October (inclusive) and in consultation with Inland Fisheries Ireland (IFI) to avoid accidental damage or siltation of spawning beds, subject to the water level in the river.

The SAC boundary line runs through the existing and proposed bridge.

There are no trees proposed for removal to construct Bridge 4.

6.2.8. CH1050 to CH1320: Proposed route south of Fisherman Cottages

The proposed Greenway will turn southeast and will continue south of a collection of fishing huts and cross a section of mixed broadleaved woodland and amenity grassland (approx. CH 1050 – CH 1250).

The plan for the proposed Greenway route south of the Fisherman cottages is illustrated in Figure 6-97.

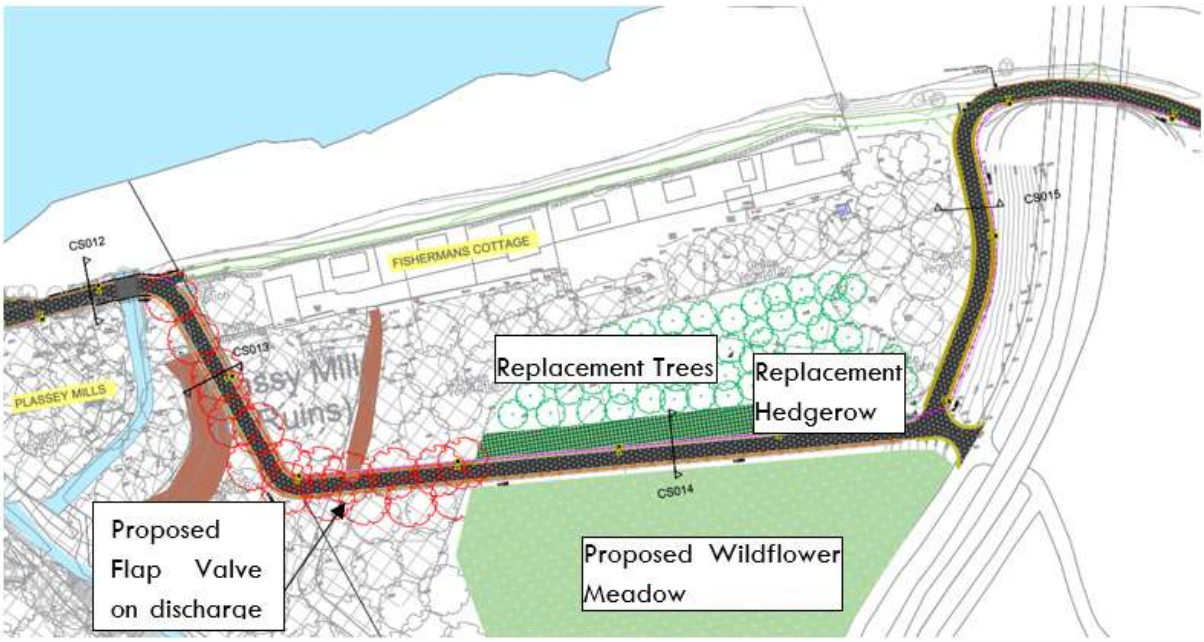


Figure 6-97: Proposed route south of Fisherman cottages

The trees and hedgerows that will be cut down to clear a path for the proposed Greenway will be replanted to act as a screen between the proposed path and the rear of the Fisherman cottages. All trees and hedgerows shall be cut down between September and February and shall be inspected by an experienced and qualified Ecologist to check for nests and roosts. They shall be laid on the ground for at least 24 hours before they will be recycled or mulched. Refer to the Landscape drawing 2525-RHA-XX-DR-C-LA0003 for proposed planting details for the Trees, Hedgerows, and wildflower meadow in this area.

The residents in the Fisherman cottages requested LCCC to resolve flooding at the rear of their properties. The proposed earth bund along the east (partially), south, and west (partially) of the properties will prevent flood water from the Plassey Mill Race from entering the rear of the properties. There will be proposed drainage channels on the north and south sides of the elevated Greenway path (refer to Figure 6-98) and surface water will drain towards the existing land drain that discharges to the Plassey Mill Race (refer to drawing RHA-XX-DR-C-PD0011). A proposed flap valve will prevent water from back entering the rear of the Fisherman Cottage properties from the Plassey Mill Race.

There is no direct drainage route to the river at the rear of the cottages. The area drains overland south to the Plassey Mill Race and the Plassey Mill Race overspill drain adjacent to the worksite is dry. Sediment mats will be placed between the bund and the Plassey Mill Race on the overland drainage route to trap material. If the area at the rear of the cottages needs to be drained dry ahead of the works, a silt buster tank to remove sediment from water will be utilised, before the water will be returned to the Plassey Mill race.

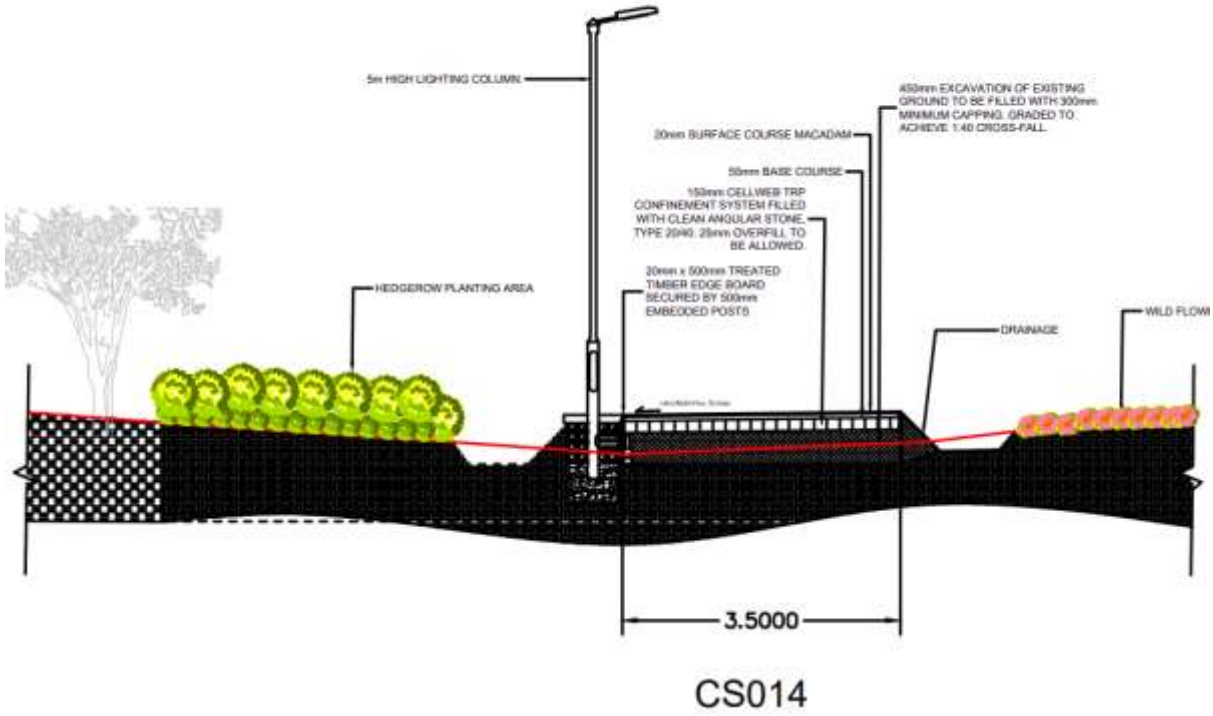


Figure 6-98: Cross Section 014 along proposed Greenway south of the Fisherman Cottages

Figure 6-99: Proposed Greenway south of the Fisherman cottages with proposed hedgerows and trees (looking west)

6.2.9. CH1320 to CH2180: Proposed Greenway through Annex 1 Alluvial Woodland forest area

East of the road bridge and east and west of the Living bridge between Co. Limerick and Co. Clare there is an Annex 1 Alluvial Woodland forested area. Refer to Figure 6-100. The existing path is illustrated by the orange line, and the proposed path in a green field is illustrated by the green line. The trees that are proposed to be cut down are illustrated in red outline. There is also an avenue of mature Beach trees along the riverbank within this wooded area and the proposed greenway avoids those trees.

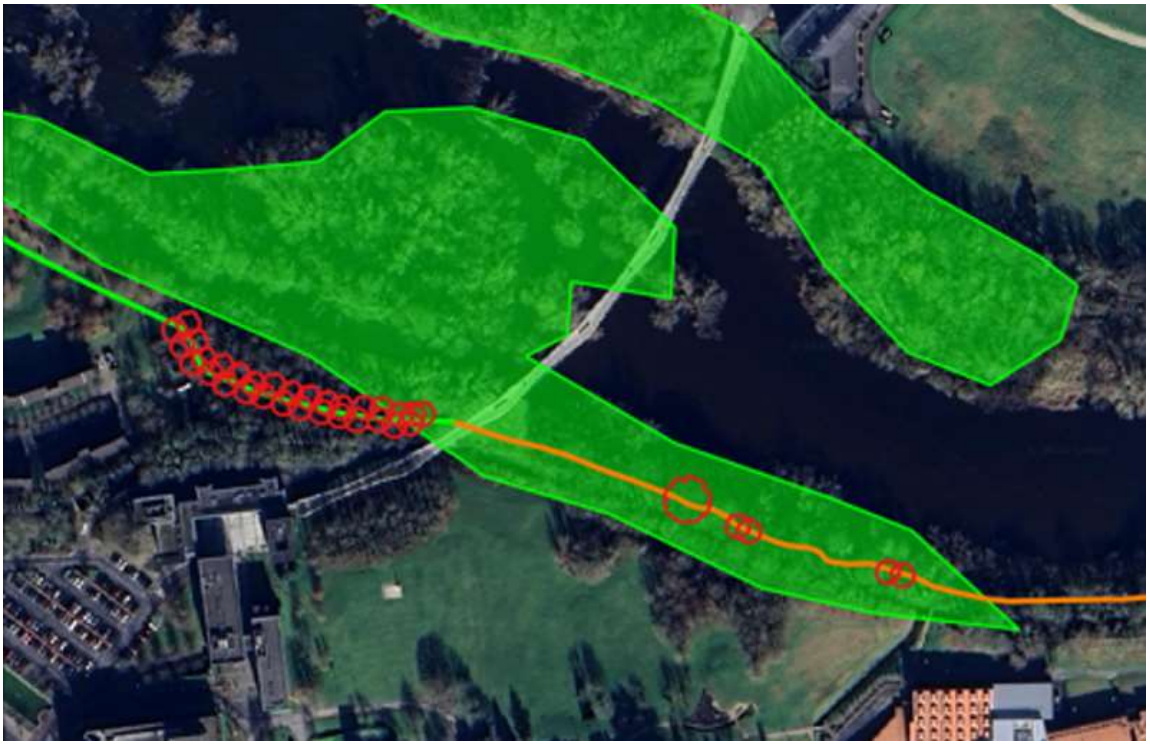


Figure 6-100: Existing Annex 1 Alluvial woodland

Figure 6-101: Proposed Greenway diverts from existing path to avoid the Annex 1 Alluvial Woodland north of Dromroe Student Village

The proposed Greenway avoids the mature Beach trees by diverting south of the existing gravel path (@ CH1420) to immature Birch trees where a 6m wide avenue of tree clearance will be required to construct the proposed Greenway. The trees that will be cut down are saplings and immature Birch with no habitat potential. Refer to Figure 6-132 later in this report. All trees shall be cut down between September and February and shall be inspected by an experienced and qualified Ecologist to check for nests and roosts. They shall be laid on the ground for at least 24 hours before they will be recycled or mulched.

These trees have been characterised as moderate quality by the project Arborist, namely '*Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality*' Further information is available in the LCG Tree Survey Report_Rev0 in the EIA Part 3 Appendices.

Figure 6-102: Arborist map of moderate-quality trees east of the Living Bridge that will be removed for the proposed Greenway

The proposed Greenway will rejoin the existing gravel path and pass under the Living bridge (@ CH 1650).

Figure 6-103: Proposed Greenway under the Living Bridge (looking west)

Figure 6-104:Proposed Greenway in the Annex 1 Alluvial Woodland

6.2.10. CH2180 to CH2250: Proposed Bridge 5, Ramp to Plassey Beach, Rest area

The proposed infrastructure at Plassey Beach includes a new bridge, an access ramp to provide access from the path to the beach for all users, new seating for a rest area or for swimmers to change, new cycle stands, and new landscape planting areas as illustrated in Figure 6-105. The existing earthen embankment at the start of the Plassey Mill Race will be preserved.

The new bridge (Bridge 5) will facilitate pedestrians with limited mobility, wheelchair users, and cyclists to cross the Plassey Mill Race in this area whereas the existing bridge is narrow and has steps to access it which currently makes it inaccessible to users with limited mobility, buggies/prams, and wheelchair users (refer to Figure 6-48, Figure 6-49, and Figure 6-50). This existing narrow concrete bridge at the mouth of the Plassey Mill Race will remain in place.

There will be a new ramp for people to walk down, wheelchair users to roll down, and children's prams/buggies to be pushed down from the proposed Greenway to Plassey Beach providing an amenity that provides access for all.

New public lighting will be provided using both 5m high and 1.6m high columns depending on existing tree cover.

The SAC boundary line runs south of the Plassey Mill Race stream (refer to the red line in Figure 6-105) and the existing and proposed bridge, retaining wall, and ramp are within the SAC.

The trees that have to be removed are illustrated in red in Figure 6-105. They will be cut down between September and February. All trees to be cut down shall be inspected by an experienced and qualified

Ecologist to check for nests and roosts and shall be laid on the ground for at least 24 hours before they will be recycled or mulched.

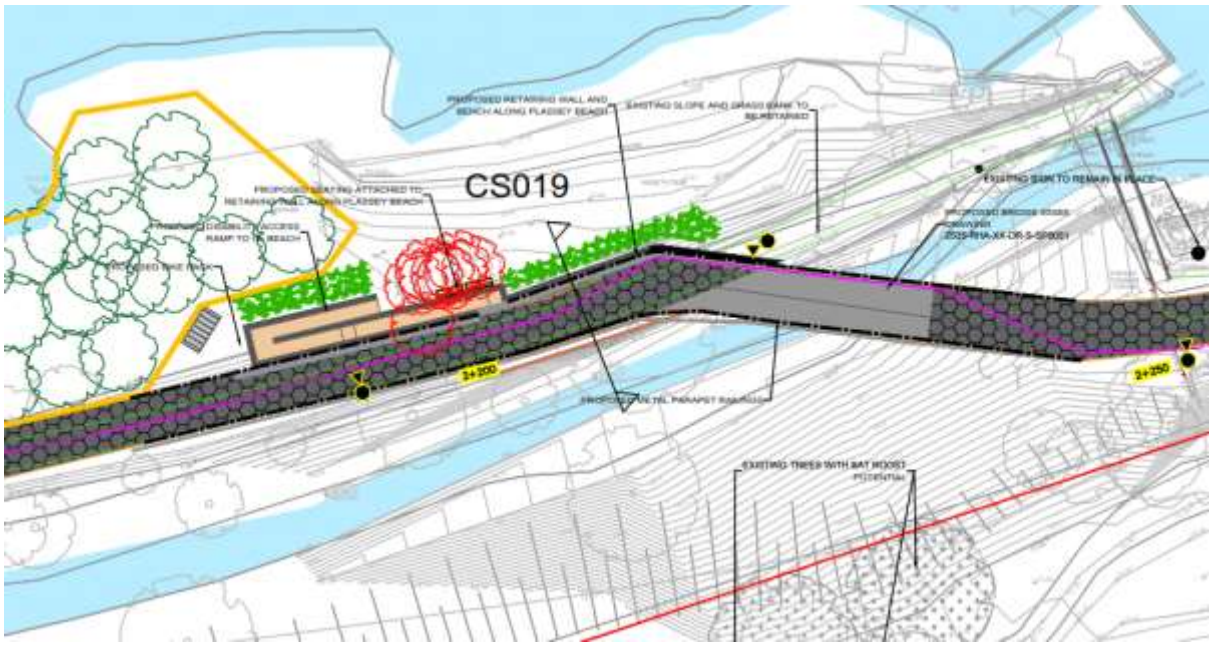


Figure 6-105: Proposed plan of ramp and Bridge 5 at Plassey Beach

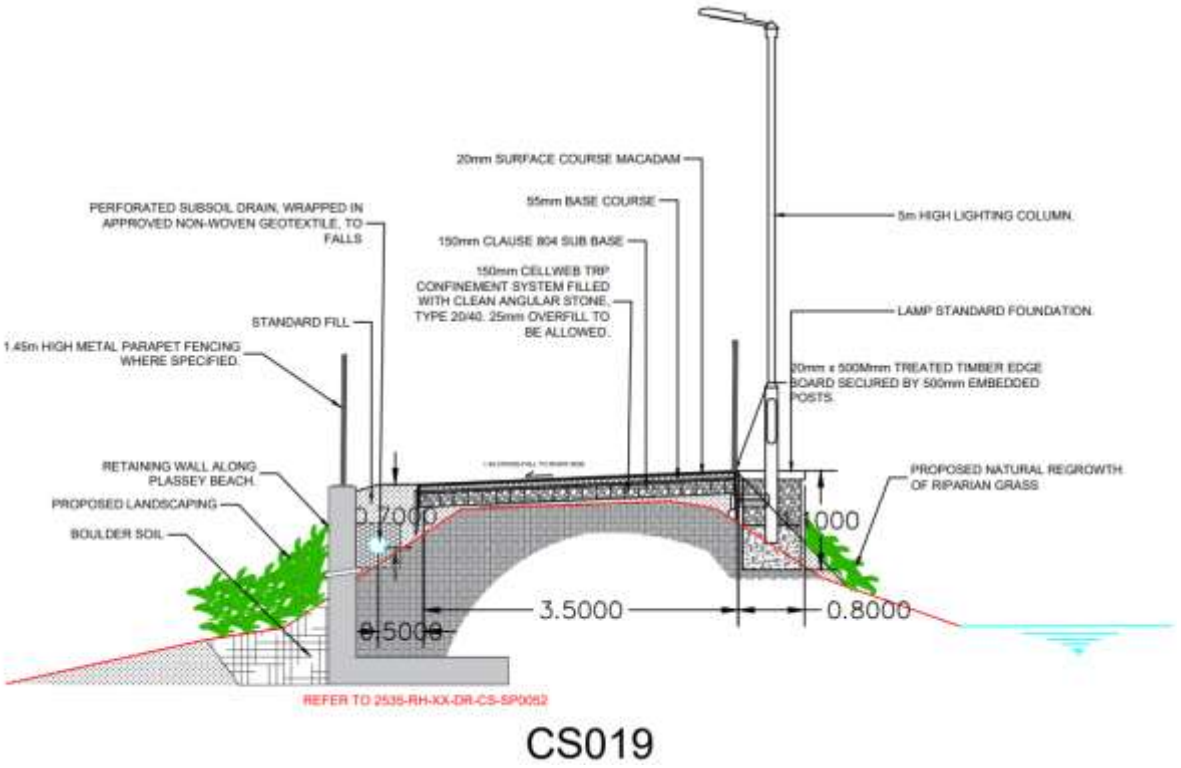


Figure 6-106: Proposed section of retaining wall for ramp at Plassey Beach

Figure 6-107: Proposed Bridge No. 5, existing embankment at Plassey Beach, and existing bridge in background

Figure 6-108: View of proposed Bridge 5 and ramp to Plassey Beach with landscaping, seating, and cycle stands

No instream works will take place at Plassey Beach or in the Plassey Mill Race. As per Bridge 1 and Bridge 2, the worksite will be protected from river water flooding by installing a water filled flood barrier on Plassey Beach, and the River Shannon and Plassey Mill Race will be protected from accidental spillages of contaminated water by proposed sheet piles and a silt curtain.

There will be a 100m long silt curtain installed in the River Shannon to catch any discharges from the worksite into the river. Silt curtains will catch materials that float or are suspended in the water. Silt curtains are typically made from PVC and closed-cell foam. They are a flexible, water permeable barrier that extends downwards in the body of water, where it is typically anchored or weighted to prevent the silt from moving. The foam provides buoyancy, while the PVC curtain controls sediment in the water. Example photos of a silt curtain in the River Corrib in Galway are provided in Figure 6-85 and Figure 6-86.

Dust will be suppressed during the construction works. To avoid water runoff carrying fines, a shade cloth will be erected immediately adjacent to the proposed concrete foundations and walls to trap dust arisings.

Dewatering of the area where the proposed foundations for the Bridge 5 abutment walls will be constructed will utilise a silt buster tank to remove silt from water before the water will be returned to the River Shannon.

The construction period of the bridge, the retaining wall, and the ramp is expected to take 4-5 weeks and the work will be carried out during the summer when it is expected to be dry and the river is at the lowest level during the year. The existing Mill Race stream under the proposed Bridge 5 will continue to run during the works and during the summer months the depth of this stream has been measured during the summer of 2022 as being 100mm deep. The proposed sheet pile will prevent any loose soil or suspended material from running into the Mill Race stream. The proposed shade cloth will prevent airborne dust from floating onto the stream or River Shannon. The proposed water filled flood barrier will prevent river water from entering the worksite.

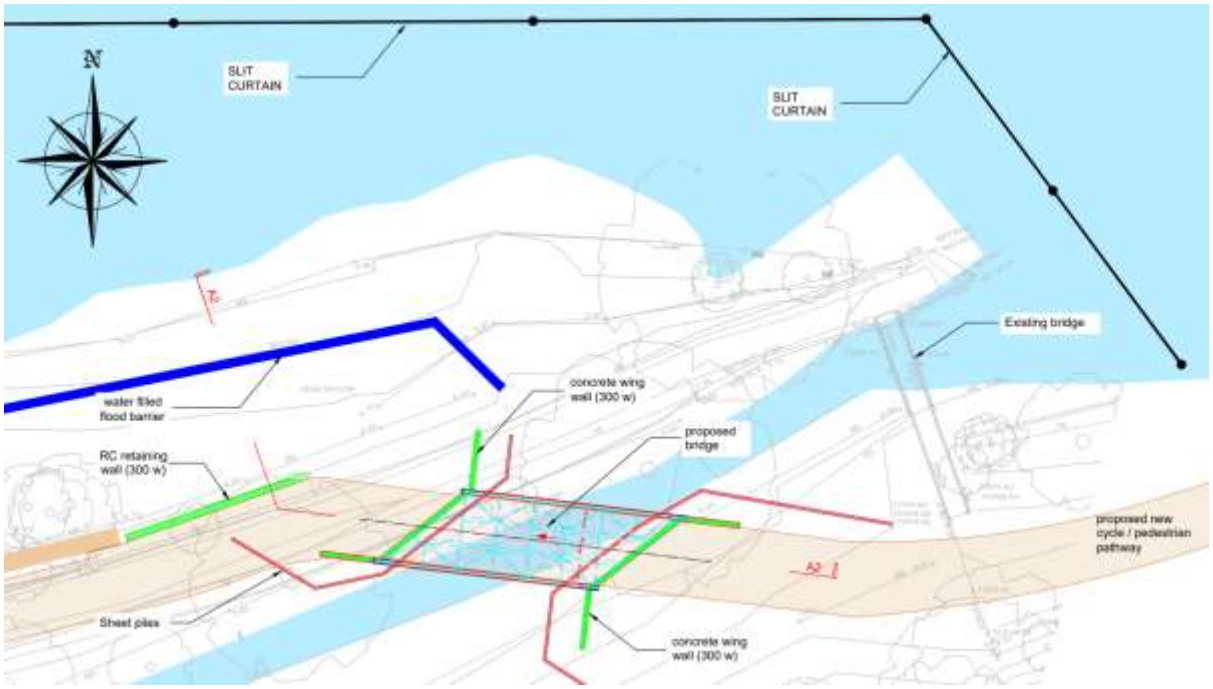


Figure 6-109: Plan of proposed Bridge 5 and proposed Ramp, showing proposed Silt Curtain, Sheet piles and water filled flood barrier (refer to drawing RHA-XX-DR-S-SP0052)

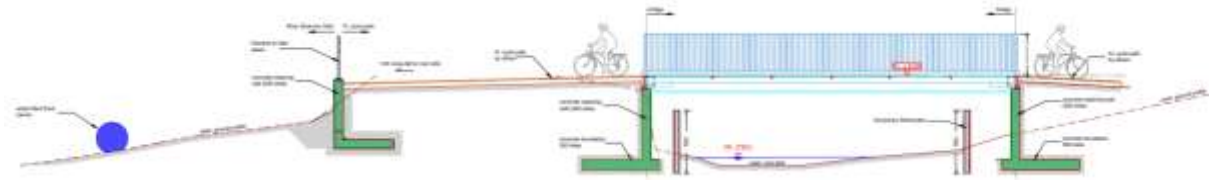


Figure 6-110: Section of retaining wall for proposed Ramp and Abutment walls for proposed Bridge 5 (refer to drawing RHA-XX-DR-S-SP0052)

The construction sequence for the bridge abutments is illustrated in the figure below.

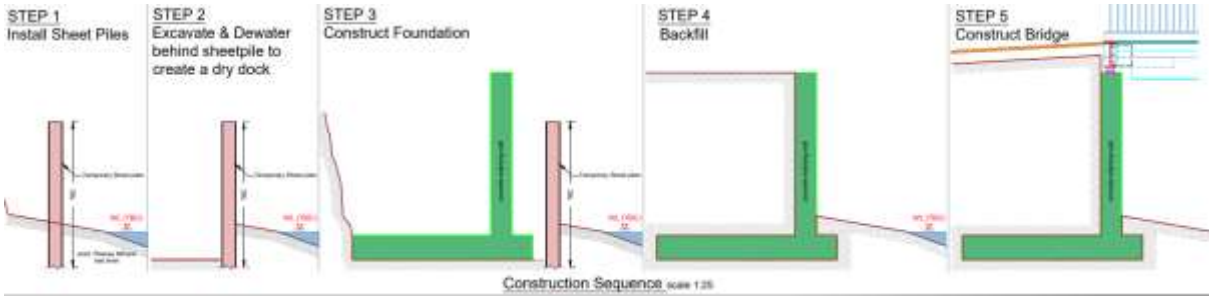


Figure 6-111: Construction sequence for abutment structures to support the steel deck of Bridge 5 (refer to drawing RHA-XX-DR-S-SP0052)

6.2.11. CH2250 to CH2500: Proposed Greenway on raised gravel path

East of Plassey Beach and north of Kilmurray Student village is an existing raised gravel path that will be covered with a tarmac surface. The proposed Greenway will cross an existing watercourse and the existing drainage pipe will be replaced with a proposed 900mm diameter culvert pipe.

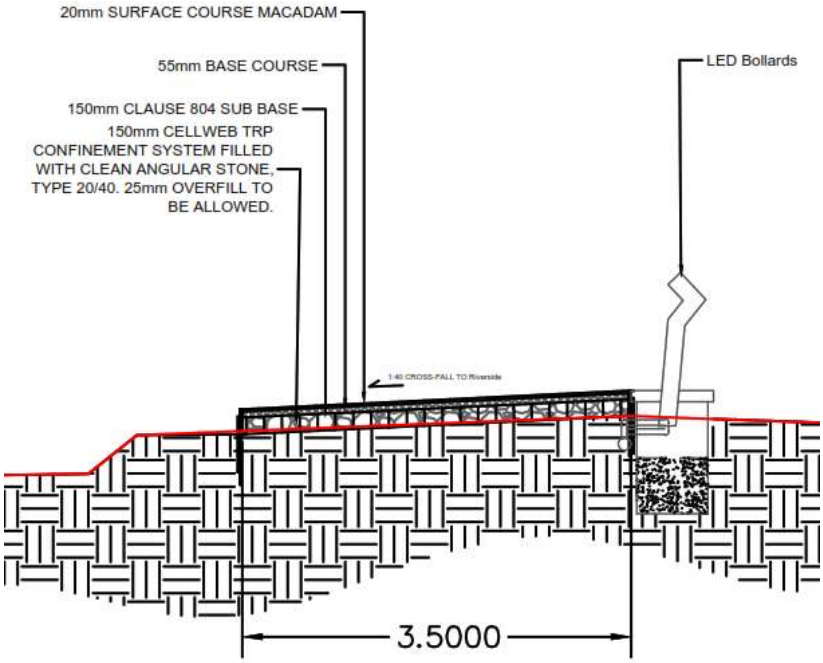


Figure 6-112: Proposed tarmac path and public lighting north of Kilmurray Student Village

At CH2500 the proposed Greenway will split into two paths. One will continue eastwards along an existing desire line to Cook Medical and onwards to McLaughlan Road. There will be a new swing gate installed at this junction so the section of proposed Greenway in the green field can be temporarily closed during and after flood events. The other path at the junction will turn south towards University Road and this is described in section 6.2.15.

Figure 6-113: Proposed junction on Greenway at CH2500 (refer to drawing RHA-XX-DR-C-PD0019)

6.2.12. CH2500 to CH3180: Proposed Greenway along desire line

The proposed Greenway route continues east and traversers amenity grassland and scrub areas where there is an unpaved desire line.

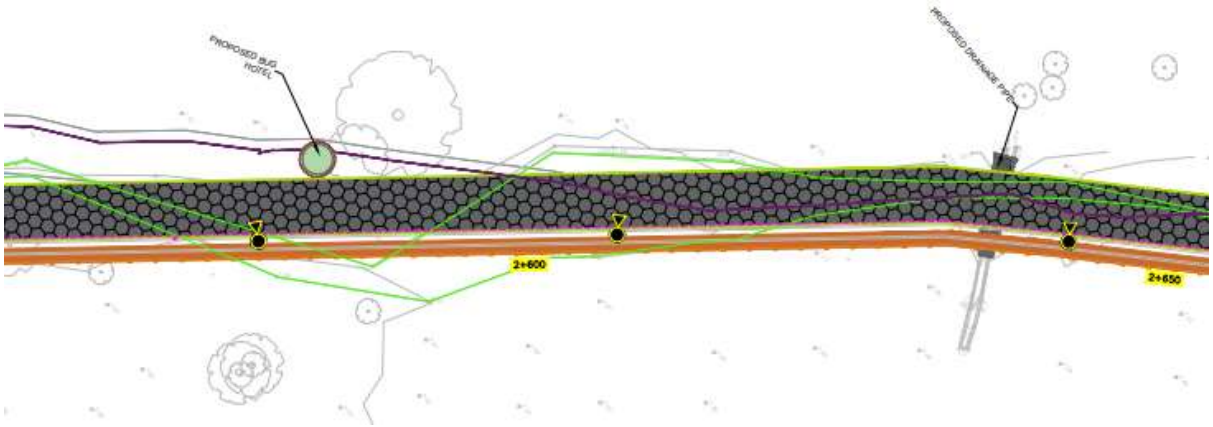


Figure 6-114: Proposed Greenway to replace existing grass desire line

There will be a new shallow land drain on the field side of the proposed Greenway and proposed drainage culverts will be constructed under the proposed path to drain surface water to the River Shannon, and to ensure the tarmac path can be utilised as soon as possible after flooding events (after LCCC maintenance personnel have inspected and cleared the path of flood debris).

The Flood Risk Assessment undertaken for this project, CFRAM flood mapping, confirms this part of the proposed Greenway will be subject to low probability (1 in 1000 year) and medium probability (1 in

100 year) flooding events. Anecdotal evidence collected during site visits and the public consultation event in August 2022 confirmed there will also be a high probability (1 in 10 year) of flooding events.

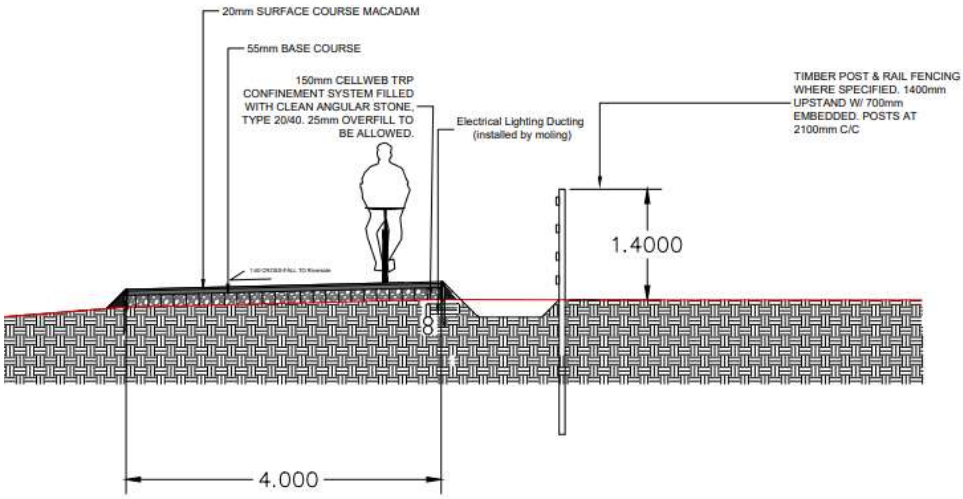


Figure 6-115: Proposed Greenway cross section in green field

6.2.13. CH3180 to CH3490: Proposed Greenway in green field

The proposed Greenway route turns south-east (CH 3180) to traverse the edge of trees, and through grassland and scrub areas. It will avoid the IDA's proposed surface water management system (shown in greyscale). There will be drainage channels along the east and west sides of the proposed Greenway to manage surface water and drain water towards the River Shannon.

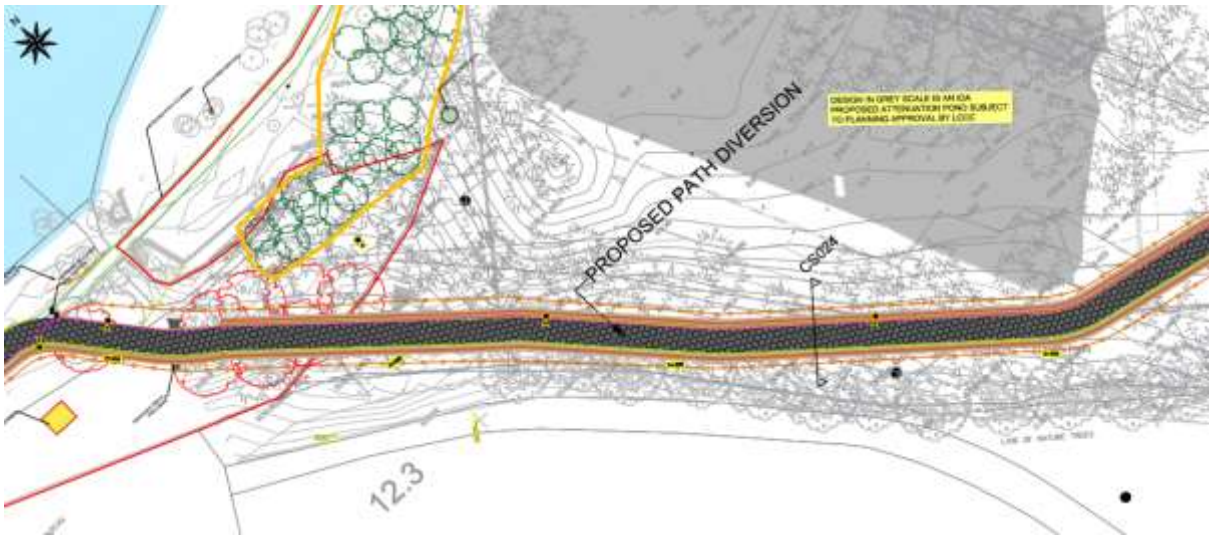


Figure 6-116: Proposed drainage alongside proposed path to manage surface water

The proposed Greenway will turn south-west to join to McLaughlan Road in the National Technology Park (NTP) at CH 3490.

6.2.14. CH3490 to CH3805: Proposed Cycle lane and Footpaths alongside McLaughlan Road

The proposed Greenway changes from a shared 3.5m wide greenway to Active Travel infrastructure with separate 1.8m wide footpaths and 1.8m wide cycle lanes along the eastern and western side of McLaughlan Road.

Figure 6-117: Proposed cycle lanes and footpath on McLaughlan Road where it joins the shared path

The proposed footpaths and cycle lanes will tie into existing footpaths and cycle lanes on Plassey Park Road at its junction with McLaughlan Road.

Figure 6-118: Proposed plan for footpaths and cycle lanes alongside McLaughlan Road

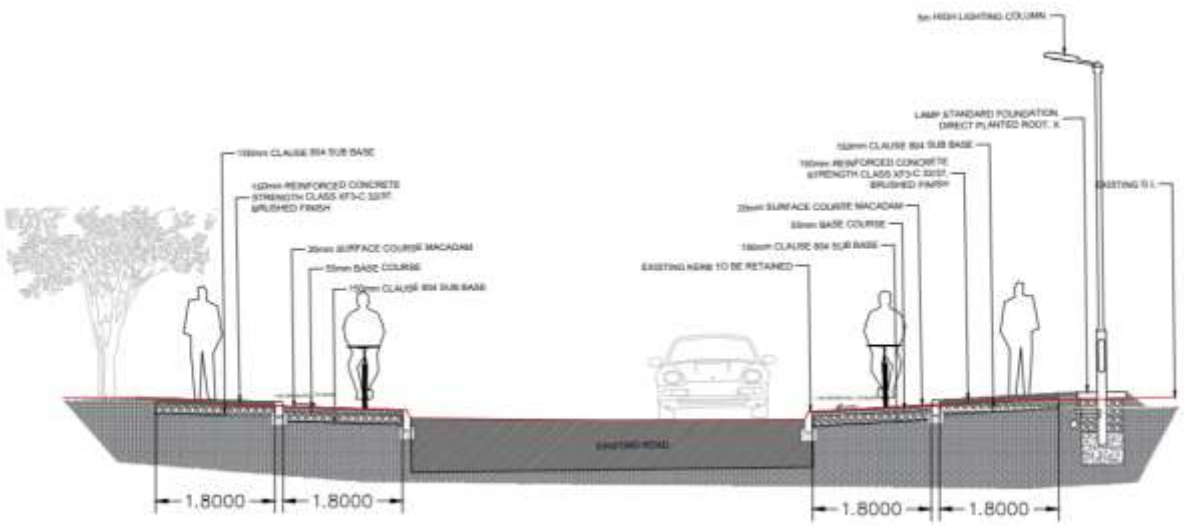


Figure 6-119: Proposed cross section for footpaths and cycle lanes alongside McLaughlan Road

An existing 2m wide raised table Zebra crossing on Plassey Park Road will be converted to a 6m wide Toucan crossing to prioritise crossings for pedestrians and cyclists and in accordance with design guidance for Toucan crossings on bus routes.

Figure 6-120: The existing Zebra crossing on Plassey Park Road proposed to be converted to a Toucan crossing

6.2.15. CH000_C to CH300_C:P Proposed Greenway east of Kilmurray Student Village

The proposed Greenway will run in a southerly direction past the eastern boundary of the UL Agricultural Laboratory building and Kilmurray Student Village. This short section of the Greenway will be a shared space between Greenway users and vehicles associated with the UL Agricultural laboratory, but removable bollards will be installed on the Greenway that will be operated by UL Facilities to manage vehicle movements. Typically the bollards would be locked in place to prevent unauthorized access for vehicles to this section of the Grenway. Refer to drawing RHA-XX-DR-C-PD0029. The existing parking spaces to the east of Kilmurray Student Village will be reconstructed to accommodate the proposed Greenway. The existing rubbish bin area will be realigned for the same reason.

Figure 6-121: Proposed Greenway at UL Agricultural Laboratory building east of Kilmurray Student Village

Figure 6-122: Proposed Greenway approaching the eastern/rear entrance to Kilmurray Student Village

The proposed Greenway will leave the Kilmurray Student Village and join University Road.

Figure 6-123: Proposed Greenway at eastern entrance to Kilmurray Student Village

6.2.16. CH300_C to CH677_C: Proposed footpaths and cycle lanes on University Avenue

The proposed Greenway crosses the entrances to Kilmurry Student Village and the UL Gaelic grounds where it changes from a shared 3.5m wide greenway to Active Travel infrastructure with separate 1.8m wide footpaths and 2.0m wide cycle lanes along the eastern and western side of University Road.

Figure 6-124: Proposed Greenway on University Road

The proposed cycle lanes and footpaths on University Road will tie into Active Travel infrastructure which was constructed along Plassey Park Road as part of the Limerick Shannon Metropolitan Area Transport Strategy (refer to Figure 6-73).

6.3. Proposed Amenity/Rest areas, Landscaping and Tree Planting

In accordance with LCCC's replacement tree planting policy, there will be five native Irish trees (e.g.: Oak, Willow, Alder, Birch) are proposed to be planted for every tree that is cut down to enable construction of the proposed Greenway path.

There will be three new amenity/rest areas provided along the proposed Greenway with new seating and cycle stands.

There will be a new wildflower meadow (in accordance with the All-Ireland pollinator plan), a hedgerow, and tree planting south of the Fisherman cottages, and new understory planting at the Plassey Mills rest area. There will be new landscaping along the retaining wall and ramp at Plassey Beach.

6.3.1. CH000: Proposed Amenity/Rest area at Groody Bridge

There will be a proposed amenity/rest area east of Groody Bridge. The red line in Figure 6-125 is the SAC boundary line which passes through the existing path. Refer to drawings 2525-RHA-XX-DR-C-PD0001 and 2525-RHA-XX-DR-C-LA0002.

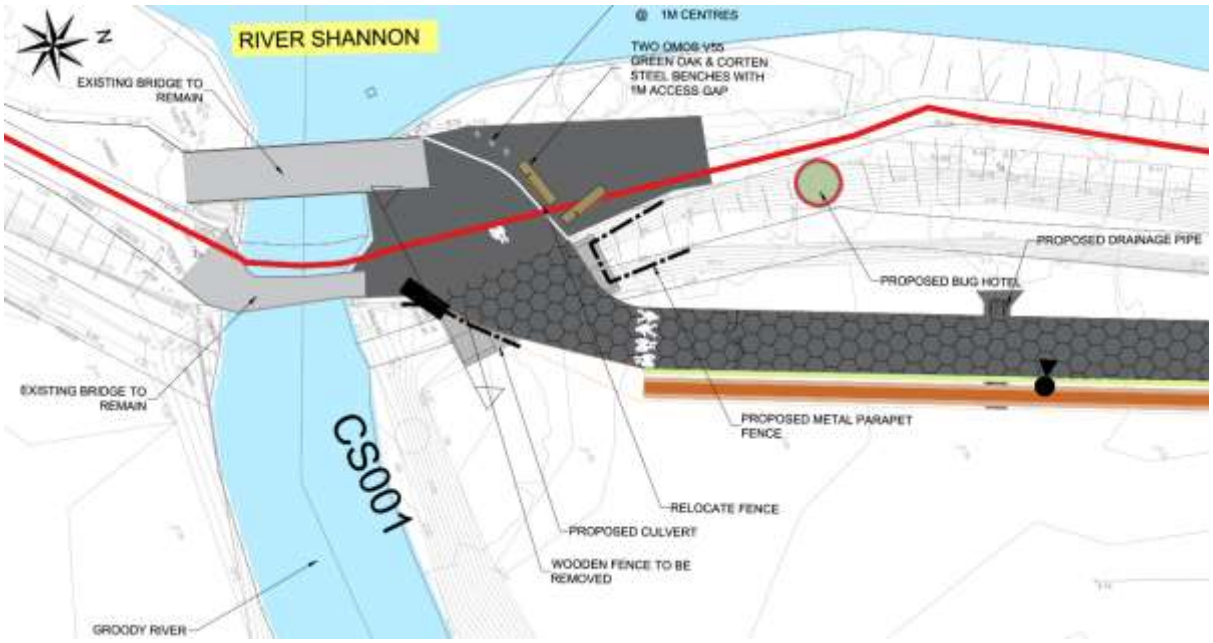


Figure 6-125: proposed amenity/rest area east of Groody Bridge

6.3.2. CH 770: Proposed Tree planting east of UL Boat Club

There will be native Irish trees planted along a proposed path between the proposed Greenway and an existing UL campus shared path. Refer to drawing 2525-RHA-XX-DR-C-PD0007.

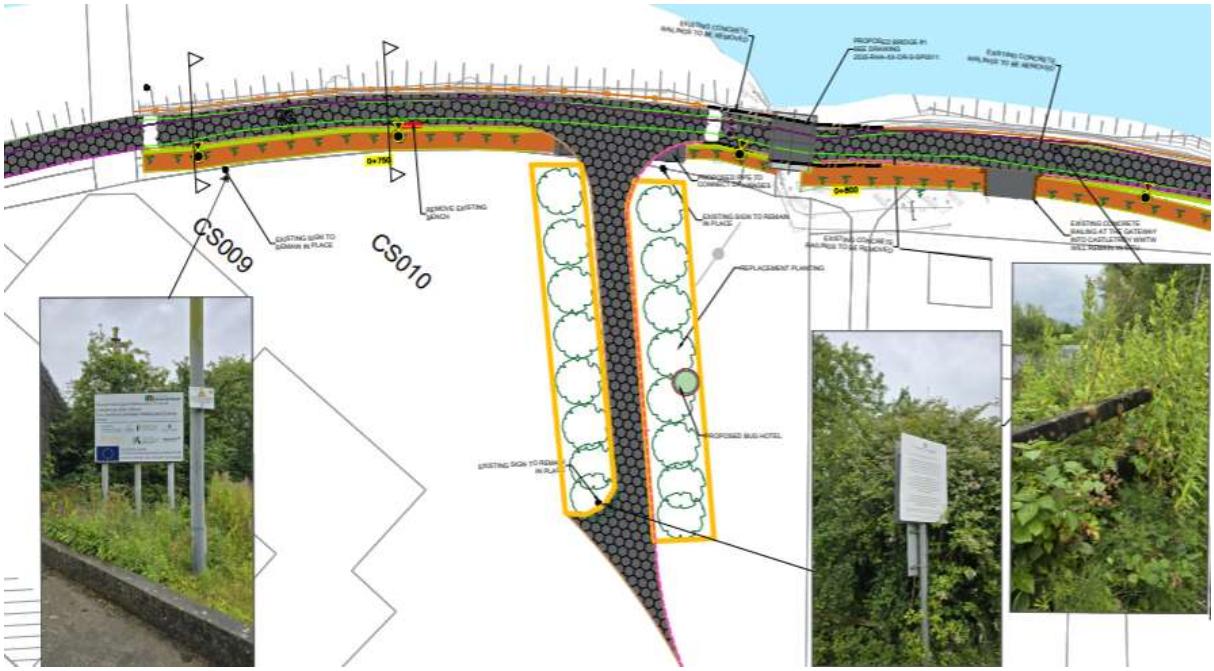


Figure 6-126: Proposed tree planting area west of proposed Bridge 1

6.3.3. CH1020: Proposed Amenity/Rest area at Plassey Mills

The proposed amenity/rest area at Plassey Mills will provide new seating and cycle stands. It could also function as a junction for any future usage of the currently sealed off Black bridge that crosses the River Shannon in this location.

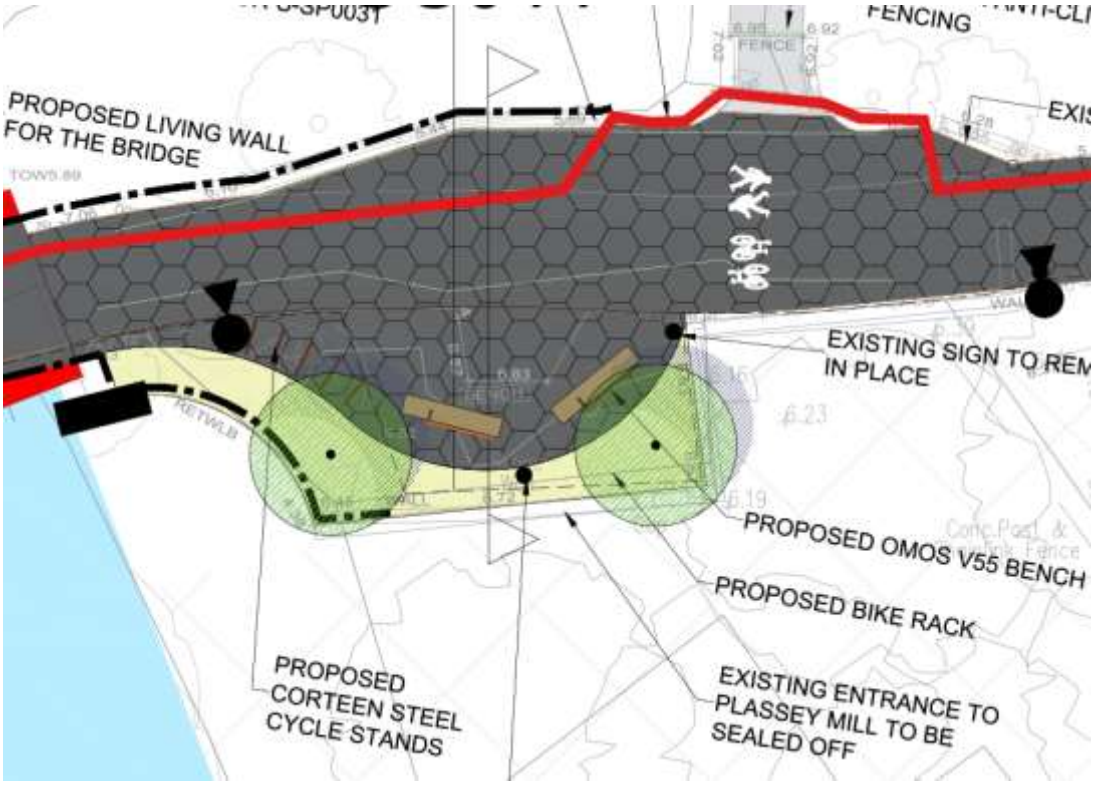


Figure 6-127: Proposed amenity/rest area at Plassey Mills

6.3.4. CH 1200; Proposed Landscaping south of the Fisherman cottages

There will be a new wildflower meadow (in accordance with the All-Ireland pollinator plan), a hedgerow, and tree planting south of the Fisherman cottages. Refer to drawings 2525-RHA-XX-DR-C-PD0001 and 2525-RHA-XX-DR-C-LA0003.

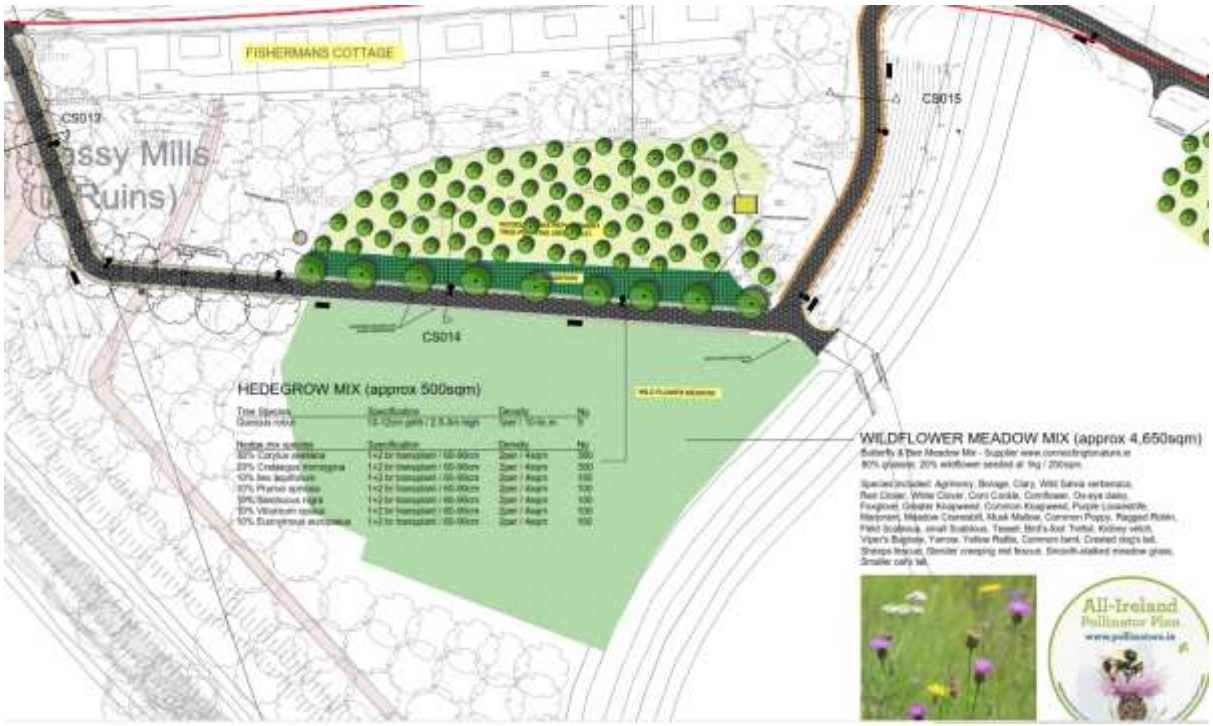


Figure 6-128: Proposed landscaping south of the Fisherman cottages

6.3.5. CH 1400-1520: Proposed Tree planting north of Dromroe Student Village

There will be replacement trees planted in a green field area to the north of Dromroe Student Village. Refer to drawings 2525-RHA-XX-DR-C-PD0011, 2525-RHA-XX-DR-C-PD0012, and 2525-RHA-XX-DR-C-LA0003.

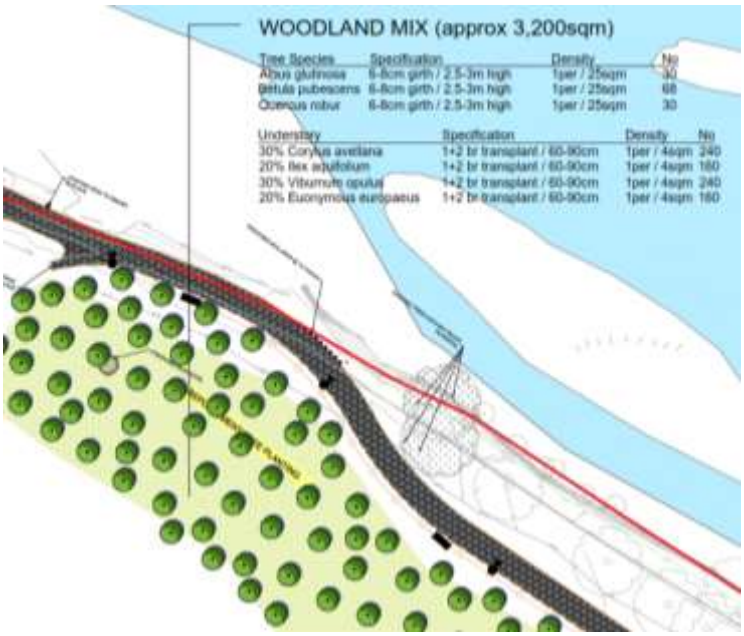


Figure 6-129: Proposed tree planting area north of Dromroe Student Village

6.3.6. CH 2105-2175: Proposed Landscaping and Amenity/Rest area at Plassey Beach

There will be new native Irish trees and new riverside shrubs planted at Plassey Beach. Refer to drawings 2525-RHA-XX-DR-C-PD0017 and 2525-RHA-XX-DR-C-LA0004.

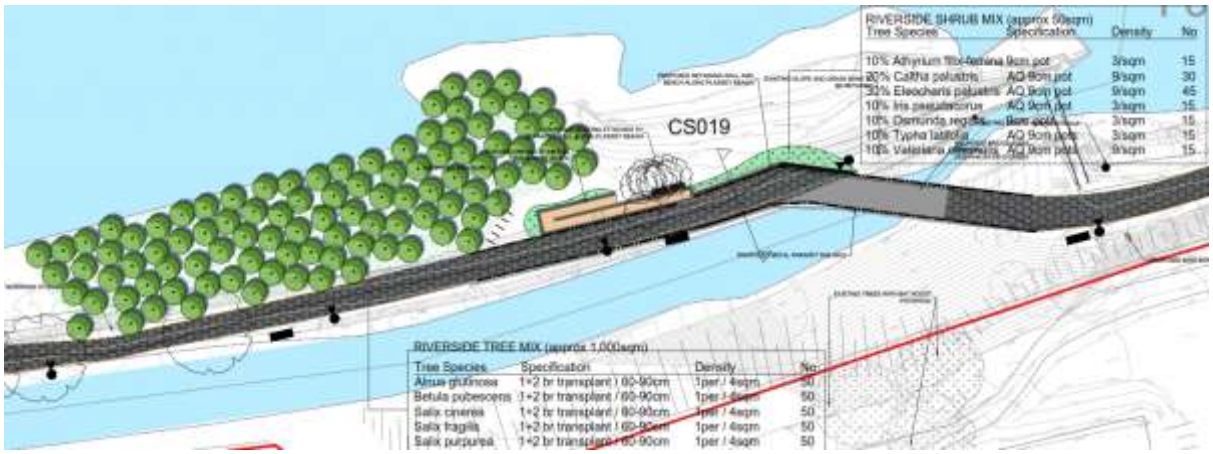


Figure 6-130: Proposed native Irish trees and new riverside shrubs at Plassey Beach

6.3.7. CH 3190-3450: Proposed Tree planting east of Cook Medical campus

There will be native Irish trees and an understory planted adjacent to the proposed path east of the Cook Medical campus and southwest of Troy Castle. Refer to drawing 2525-RHA-XX-DR-C-PD0023 and 2525-RHA-XX-DR-C-LA0005.

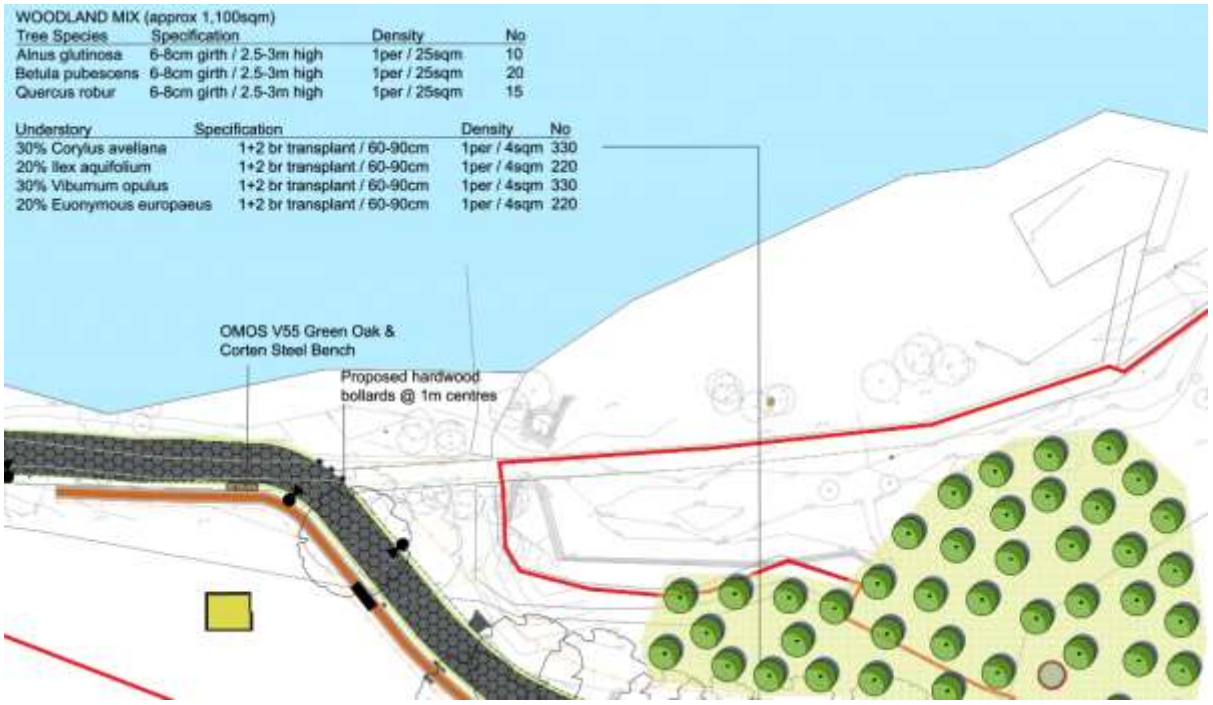


Figure 6-131: Proposed Tree planting area east of Cook Medical

6.4. Proposed Construction Works Description

6.4.1. Tree removal

The proposed works have been designed to minimise disturbance to the habitat and limit tree removal within the site, but there are trees that will be cut down to construct the proposed Greenway. In accordance Section 40 of the Wildlife Act 1976 as amended by Section 46 of the Wildlife Amendment Act 2000 the proposed trees can only be removed between and 1st September and the last day of February in the following year. The trees that have to be removed will be cut down during this period.

The proposed path has been designed to avoid existing mature trees except for one dead mature tree and one dead semi-mature tree that will be felled ahead of the construction works. Tree overhang from approximately 30 No. semi-mature and mature trees will be cut down along the proposed path. These trees have been assessed by an experienced and qualified Arborist and an experienced and qualified Ecologist, and they have very limited habitat potential. There is one dead mature tree and four immature trees that will be removed in the Annex 1 habitat Alluvial woodland forest (Refer to Figure 4.2). The remainder of the trees to be cut down are outside the Annex 1 habitat Alluvial woodland and they are saplings and immature trees with no habitat potential. Refer to Figure 6-132.

Figure 6-132: Saplings and immature trees that will be removed along the route of the Greenway

All trees to be cut down between September and February shall be inspected by an experienced and qualified Ecologist to check for nests and roosts and shall be laid on the ground for at least 24 hours before they will be recycled or mulched.

LCCC requires trees that are cut down to be replanted at a rate of 5:1 so over 300 native trees are proposed to be planted along the proposed Greenway. This will help to deliver the LDP Objective EH O10 to plant 'native trees, hedgerows and vegetation and the creation of new habitats in all new developments and public realm projects'.

Tree branches and immature trunks which are felled will be reused in the production of bug hotels. Any leftover trunks and branches will be chipped and mulched at the closest construction compound for reuse on site.

Figure 6-133: Scrubland that will be cleared ahead of the Greenway construction works

6.4.2. Site Clearance

Surface stripping will be required in greenfield areas where topsoil and subsoil will be stripped along the route of the path to an average depth of 300mm. The topsoil and subsoil will be mounded and seeded on the river side of the path and will be left in place as a permanent installation. To prevent soil washing into the river, a sediment barrier will be erected at the base of the mounds on the river side.

In advance of construction works existing infrastructure items will be removed and disposed off-site, these include:

- One steel kissing gates along the existing gravel track at Plassey Mills and disposal off site;
- Approximately 500m of existing wooden, concrete, and steel fencing and disposal off site.

Advance work in Section 2 will require the removal of a temporary steel bridge at the location of Bridge No. 3.

Advance works will also include cutting out of four existing concrete footbridges and one set of bridge abutments and crushing of concrete within the construction compounds so the aggregate can be reused during the construction works.

Extensive areas of vegetation will need to be cleared in advance of construction works. Trees which are felled will be chipped on site for mulch for use on site. Mulch will be added to slopes to prevent soil erosion, retain water, and manage weeds.

Vegetation clearance includes:

- Felling of trees and mulching for onsite use;

- Clearance of overhanging branches and mulching for onsite use;
- Clearance of native scrub from drainage channels, bagging, and disposal;
- Clearance of native scrub in heavy dense areas, bagging, and disposal.

A planting scheme is proposed to replace vegetation which has been removed as part of the works. Refer to the landscape drawings 2525-RHA-XX-DR-C-LA0001 to 2525-RHA-XX-DR-C-LA0005 for details of the proposed planting areas and species.

Advanced treatment and removal of invasive species including Giant Hogweed and Himalayan Balsam that have been surveyed in the work site shall be carried out ahead of construction works. Refer to the Invasive Species Management Plan in Appendix E for details.

If invasive species plants that spread by rhizomes (e.g. Japanese Knotweed) are encountered by site clearance crews, the plant will be removed in accordance with guidelines for managing invasive species, wrapped in plastic, and buried under topsoil and subsoil mounds so those invasive species plants cannot propagate. No invasive species will be moved to a different location within the works site or off site.

Site clearance will be required in advance of the Greenway's construction, as follows:

- At a minimum this will include excavation of topsoil and subsoil and establishment of permanent mounds (including reseeding) immediately alongside the stripped soil in green fields along the proposed route between Kilmurray Student village and Cook Medical;
- Existing infrastructure items obstructing the proposed path, such as metal gates, metal parapets, metal arisings from crushed concrete, and metal fences will be removed and disposed offsite to a licenced waste facility;
- Existing concrete footbridges will be or crushed in temporary construction compounds and the material will be reused as aggregate for haul roads during the works (metal arisings will be transported to a licenced waste facility);
- Vegetation clearance involves removing scrub and will be carried out in consideration of ecological restrictions between September and February.
- Trees which are felled will be mulched in a temporary construction compound for reuse on site to minimise soil erosion, keep soil wet, and prevent weed growth.
- Where excavation is required to remove roots from trees that have been cut down, any unconsolidated ground will be sown with grass seed following reinstatement to prevent erosion;

Temporary works will be put in place in advance of construction, including the provision of silt fences at all interfaces of the works area and the existing watercourse to prevent run off from the works area.

6.4.3. Temporary Construction Compounds

The temporary construction compounds will be temporarily surfaced with hard standing on a geomembrane to prevent generation and spreading of mud. Temporary perimeter fencing with silt curtains at the base and shade cloths to act as dust curtains will be erected around compounds. Delivery trucks will not cross through the compounds, and they will drop their loads within the compounds. The construction works vehicles will be permitted to work on the Greenway side of the compounds only and will not pass through the compound to exit onto public roads. This will control mud spreading onto public roads and will help to prevent the spread of invasive species that are evident along the proposed path.

The compounds will be adequately buffered to prevent any surface water runoff. The construction compounds will be constructed in Flood Zone C areas only.

The compounds will comprise the following elements:

- temporary site office, portaloo toilets, facilities for staff, and car-parking areas;
- crushing and storage areas for construction materials;
- bunded containment areas for plant refuelling which will only be permitted within the compounds,
- maintenance area for construction vehicles and plant;
- wheel wash area for construction vehicles and plant with water capture and settlement to prevent the spread of invasive species;
- storage of fuels, oils, lubricants, solvents, and site generators;
- a dedicated waste storage area for any construction waste generated. Skips or bays will be provided for recyclable material;
- wheel wash area for delivery vehicles (or road cleaning to be carried out as an alternative subject to UL, IDA and LCCC requirements).

Temporary compounds and a working area will be required during the construction period to accommodate workforce and vehicle movements, stockpiling of excavated material, and the construction (and removal where required) of haul roads. For each compound the top-soil and sub soil will be removed and mounded on the compound footprint, a geotextile layer will be laid across the entre area, imported fill (40mm crushed rock) will be spread across the area, and the compounds will have a temporary fence set up on their boundary.

Provision has been made for four temporary compounds with areas typically measuring 40m x 40m but these dimensions will be adjusted to suit site conditions and avoid tree felling. There is one temporary working area proposed in Castletroy wastewater treatment plant (WwTP) to set up a crane to lift in prefabricated concrete and steel sections associated with Bridges 2 and 3. Each of the compounds facilitate access to the five different sections of the proposed Greenway. Sectioning of the route in this way will allow part of the existing path to remain open for the public while works are being carried out in other sections. Refer to Figure 6-134.

Each temporary compound and working area will be removed after works in each section are completed and the area will be reinstated back to its original state.

Upon completion of sections of the Greenway, the temporary construction compounds and haul roads will be decommissioned, and the grounds will be reinstated to their original condition. Where possible, hardstanding materials removed will be reused in the construction of other temporary compounds and used in the construction of the base layers of the proposed Greenway project.

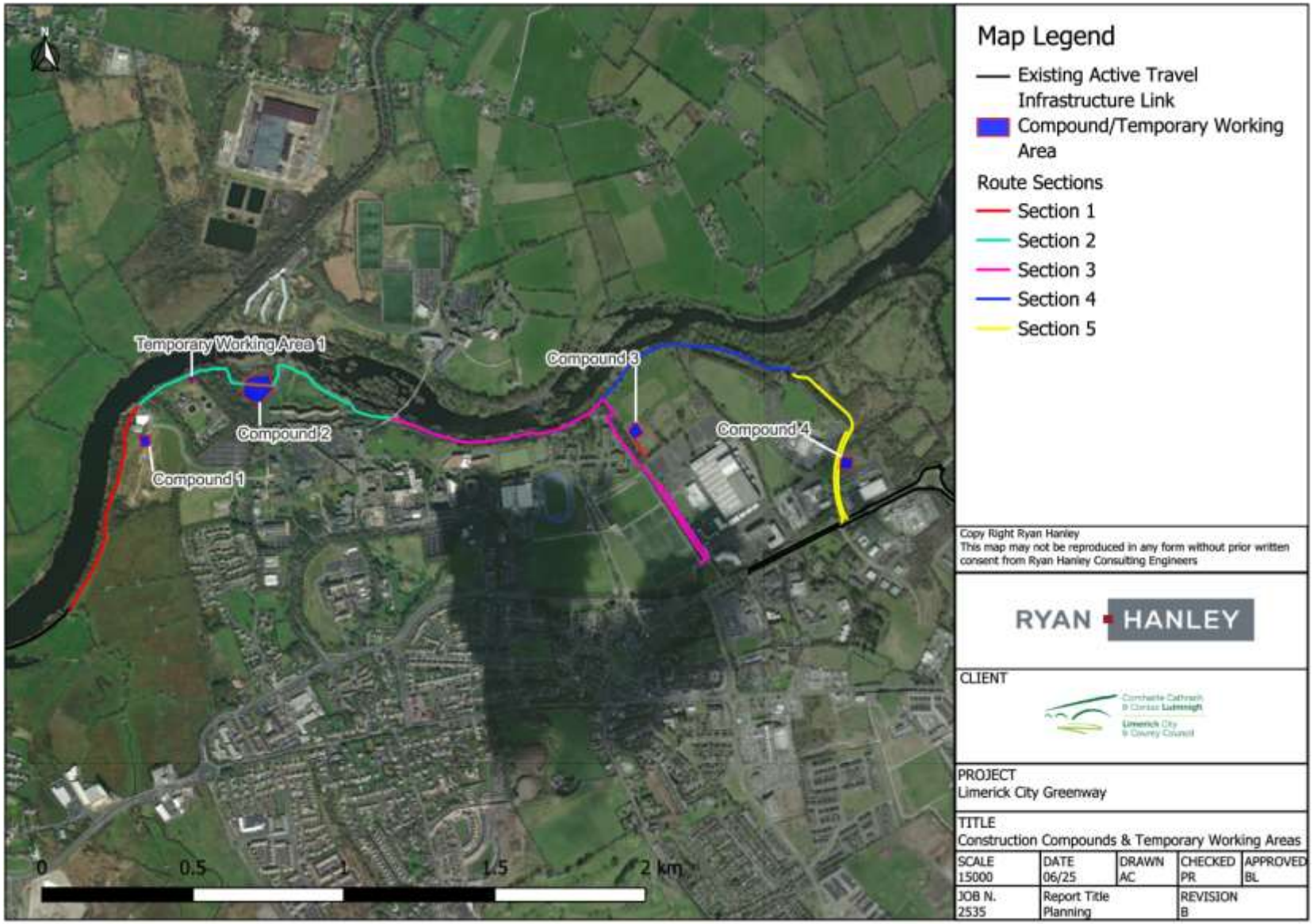


Figure 6-134: Proposed Sections, Compounds and Temporary Working area

6.4.4. Haul roads

Haul roads are required to facilitate the construction of the proposed Greenway. Haul road will be developed in green fields, scrublands, tree felling areas, and along existing gravel paths to enable construction vehicle movements. The haul roads will form the sub-base layer of the proposed path. Approximately 3.6km of haul roads will be developed along the proposed route as per Table 6-1

Table 6-1: Lengths of Haul Roads per Section

Section Ref.	Haul Roads (m)
Section 1	736
Section 2	1005
Section 3	845
Section 4	725
Section 5	284
Total Length	**3,595**

The haul roads for construction vehicles will be developed along the route of the proposed path so the tarmac finished layer can be laid onto the haul road. The haul road will be approximately 3.5-4.0m wide and will comprise of the subbase layers of the proposed path: a geotextile layer, and crushed rock (UGM A). The depth of the subbase layer will generally be 300mm – 450mm depending on the ground conditions of the area and the haul roads will be laid in sections as the construction of the Greenway progresses.

Approximately 313m of temporary haul roads which do not lie along the proposed path will be constructed to facilitate access between the compounds and the works areas in each section. These haul roads will be removed after works in each section are completed and the area will be reinstated back to its original state.

Temporary haul roads will be constructed by excavating topsoil and subsoil and laying geotextile and aggregate/blinding (UGM A). The soil will be stored temporarily if it is required for reinstatement or will be permanently mounded and reseeded if it is not required for reinstatement. The haul roads will be laid in sections as construction of the path progresses.

On completion of sections of the proposed Greenway, the temporary haul roads will be removed and materials will be reused in subsequent sections as the works advance, or the UGM A material, 55mm binder course and 20mm surface macadam course will be laid above the haul roads in greenfield areas. Lath edging (50 x 75mm) will be laid at both side of path attached to stakes located at 900mm c/c.

6.4.5. Earthworks

There will be no excavation required for the proposed Greenway along existing tarmac or gravel paths. To protect trees alongside the path a 'Cellweb®TRP' tree root protection system (or equivalent) will be laid onto the existing path and imported material (i.e., crushed rock and gravel to UGM A, overlaid with tarmacadam) will build up the level of the path. The sloping banks on the river side and the Plassey Mill Race will be stabilized using a 'Cellweb®TRP' system (or equivalent) to enable widening of the existing gravel track. Refer to Figure 6-135 for an example.

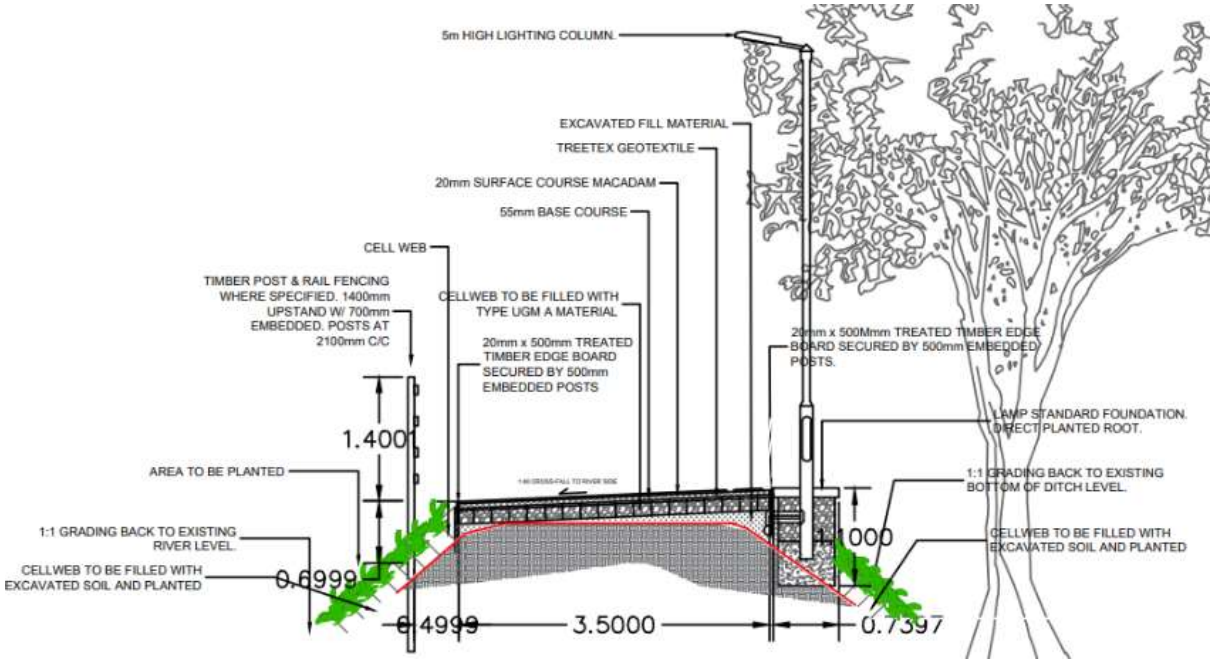


Figure 6-135: Tree root protection along proposed Greenway (Red line is existing ground level)

Excavation of topsoil and subsoil will be required where the proposed path passes through green field areas. Approx. 300mm depth of soil will be excavated and permanently left as a mound to be reseeded approximately 0.75m high and 2m wide on the river side of the path. Soil from areas that were contaminated with invasive species will be wrapped in plastic and buried under excavated soil. This accords with the project objective to ensure at least 95% of all waste is kept on site and not sent to a landfill.

Excavation of the carriageway, green verge, and footpaths will be required along University Road and McLaughlan Road to build up the concrete footpath and tarmac cycle lanes. A raised kerb will separate the existing roads from the proposed cycle lanes.

6.4.6. Testing of Imported Material

Clean Type UGM A fill material is required to be imported into the work site. To prevent cross contamination or pollution, a suite of testing from the source quarry will be required because the proposed Greenway is adjacent to water.

6.4.7. Traffic Management

A *Draft* Traffic Management Plan has been prepared for the proposed works and consultation has been carried out with UL Facilities and Uisce Éireann. The traffic management proposals have been presented to elected representatives. Construction and works delivery traffic will use the following existing roads/routes:

- The entrance road to the Castletroy WwTP;
- The road across the bridge to Co. Clare;
- University Road;
- McLaughlan Road;
- Plassey Park Road.

For more details refer to Section 7.2.5 in this report.

6.4.8. Construction of Greenway

Construction works should take place during daylight hours only with no temporary lighting on the site during the hours of darkness. Works shall only be carried between 08:00-18:00 during daytime hours or between dawn and dusk to minimize disturbance to nocturnal Qualifying Interests species.

During construction, noise limits, noise control measures, hours of operation and selection of plant items will be considered in relation to disturbance of birds. Plant machinery will be turned off when not in use.

The design and construction of the 4.25km long and 3.5-4.0m wide shared path, 1.5-2.0m wide footpath, and 1.8-2.0m wide cycle lanes has been carried out in accordance with the following:

- Transport Infrastructure Ireland (TII) *Rural Cycleway Design DN-GEO-03047* (2022);
- Department of the Transport and Department of Housing, Local Government and Heritage, *Design Manual for Urban Roads and Streets* (DMURS, 2023);
- National Transport Authority's *Cycle Design Manual* (2023); and,
- Department of Transport, Tourism & Sport document *Traffic Signs Manual* (TSM) (2019).

Construction of the path will be carried out in sections. The sequencing of works per section is flexible. Each section will be reinstated before works commence in the next section. Existing users of the gravel track along the River Shannon will be directed around each section and there are existing footpaths and cycle lanes in the UL campus and along Plassey Park Road to accommodate diversions.

Isolation of the works area, including erection of fencing around the temporary works area and traffic management will be set up as required. The fenced area will include the full area required to facilitate the works including the temporary site compounds and the temporary haul roads.

Construction of the Greenway along the existing gravel path in wooded areas will involve the installation of lath edging (50 x 75mm) at both sides of the proposed path attached to stakes located at 900mm c/c, laying a 150mm thick root protection material onto the gravel track, filling this with UGM A material, laying a 55mm binder course onto it and finishing with 20mm surface macadam course;

Construction of the path along the existing gravel path in non-wooded areas will involve the installation of lath edging (50 x 75mm) at both sides of the proposed path attached to stakes located at 900mm c/c, laying 150mm of UGM A material directly onto the existing gravel path, laying a 55mm binder course onto that, and finishing with 20mm surface macadam course;

Where the path is being laid in an area with an existing tar pavement (i.e., along University Road and McLaughlan Road, the top 250mm of the existing surface will be removed and subsequently the depth of the subbase layer in these areas will be reduced to approximately 180mm.

Storage of other excavated material will be on a temporary basis, on site within the temporary works area and separate from the topsoil storage. Excavated material will be reused on-site, primarily for backfilling against new bridge abutments and the proposed retaining wall at Plassey Beach. This material will be classified as a construction by-product in the context of Article 27 of the European Communities (Waste Directive) Regulations. If there is any surplus excavated material, it will be transported off site to an authorised waste or recovery facility. Large volumes of excavated material will not be allowed to accumulate within the temporary working areas.

The construction works for reinforced abutment walls, retaining walls, concrete culverts, open drains will be carried out in parallel with the path construction.

The construction works for lighting column foundations and trenches for ducting will be carried out in parallel with the path construction. To protect the tree roots, ducts will be moled to a minimum crown depth of 600mm wherever the ducts pass mature trees.

Additional works including the installation of; signage, safety barriers, fencing, park benches and tree planting will be completed along the path prior to reinstatement of works area and the works area being reopened.

The works area will be reinstated to its original condition. This will involve levelling, raking, and seeding with grass.

6.4.9. Construction of Bridges, Retaining wall, Ramp

The five bridges on which the proposed path will cross existing drains, a stream, and the Plassey Mill Race (at two locations). These are as follows:

- A 4.9m long single span, steel frame bridge and new concrete abutments will be constructed for both pedestrians and cyclists at CH795;
- A 9.6m long single span steel bridge and 41m of concrete retaining wall and abutments will run adjacent to an existing stone footbridge at CH970;
- A 5.4m long single span, steel frame bridge for both pedestrians and cyclists will be constructed on existing cut stone abutments at CH1000;
- A 5.1m long single span, steel frame bridge for both pedestrians and cyclists will be constructed on existing cut stone abutments at CH1045;
- A 12.9m long single span, steel frame bridge for both pedestrians and cyclists will be constructed on new concrete abutments and obliquely cross the Plassey Mill Race at CH2220-2235. 28m of concrete abutments will support the 12.9m long steel deck;
- A new 12m long concrete retaining wall will be constructed at Plassey Beach;
- A new fully accessible 20m long ramp at a 3% slope will be constructed at Plassey Beach to provide access from the proposed Greenway to the beach for all users.

Construction of the new bridges will take place as follows:

- Temporary works will be put in place including silt barrages, and temporary flumes will be installed to manage overland drainage water.
- To prevent pollution to the adjacent stream and river bio-degradable hydraulic oils are to be used in machinery, and spill kits shall be ready on site for immediate use.
- Works beside streams will be restricted as a result of the spawning season for salmonids so work will not be carried out during Nov-March.
- Biosecurity management for in-stream works will be strictly monitored. With the presence of Giant hogweed (*Heracleum mantegazzianum*) and Himalayan balsam (*Impatiens glandulifera*) along the path route, regular cleaning of machinery to prevent spread of non-native species is very important.
- The foundations and abutment walls will be excavated down to formation level. Excavated material will be stored on site for reuse as backfilling. Formwork will be erected, and aggregate and blinding will be tamped into place. Reinforcement bars will be placed into the formwork and concrete will be poured in using a concrete pump crane. After the required curing time has passed the formwork will be removed.
- The new bridges will be constructed using prefabricated steel frames that will be placed and fixed *in situ* onto the concrete abutments or onto the existing cut stone abutments. Steel frames will be delivered to the construction compound by truck, and then transported to the proposed

crossing location by mini digger. The steel frames will be swung into place using the mini digger and placed and fixed by hand.

- The annulus between the new structures and the excavated areas will be backfilled with excavated material (and topped up with imported material if required), the area will be reinstated, and the section will be reopened.

6.4.10. Drainage infrastructure

A Flood Risk Assessment for the proposed greenway has been completed. The following figures illustrate the potential temporary impact that 1 in 100 year and 1 in 1000 year floods will have on the proposed Greenway, and demonstrates why a new drainage network of land drains and culverts will be required to convey surface water to the River Shannon after flood events. Maintenance of this drainage infrastructure by LCCC will be required.

Figure 6-136: Past Flood Events OPW database (www.floodinfo.ie)

Flood Mapping developed by the OPW CFRAM programme confirms that appreciable lengths of the proposed Greenway are in Flood Zone A (2.36km) and Flood Zone B (2.77km) associated with the River Shannon and its tributaries scheme floodplains.

Portions of the existing paths and the proposed greenway are below the 10% AEP flood level.

The proposed scheme, being an "Amenity open space, outdoor sports and recreation" facility, is classed as a Water Compatible development in the OPW Planning System and Flood Risk management Guidelines, and therefore is an appropriate development for both Flood Zone A and B.

A justification test for the development in accordance with the Flood Risk Management Guidelines, further confirmed that the proposed development is appropriate albeit with mitigations. The Greenway track should be constructed to be water compatible, i.e. one which is resistant to damage caused by flooding and prolonged inundation, e.g. sealed surface, appropriate drainage etc.

Figure 6-137: November 2009 River Shannon Flood Event at UL campus in Co. Limerick on left hand side, with UL campus in Co. Clare on right hand side of figure, OPW database (www.floodinfo.ie)

Figure 6-138: Sections of Greenway at Flood Risk (1 in 100 or 1% AEP)

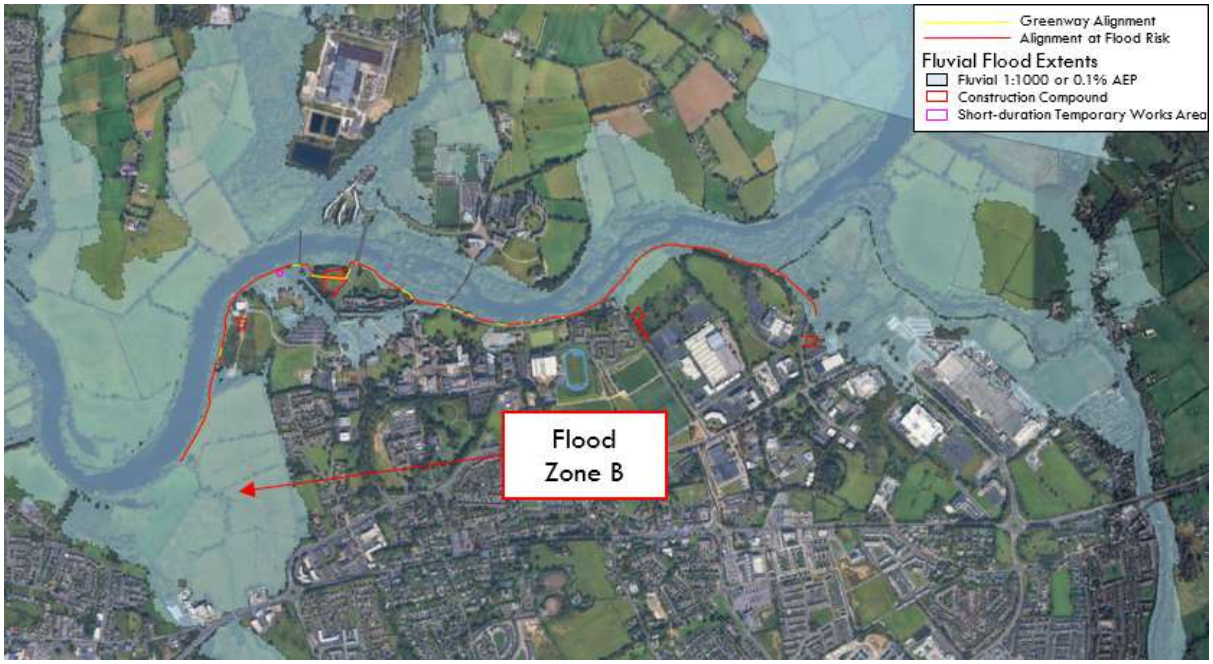


Figure 6-139: Sections of Greenway at Flood Risk (1 in 1000 or 0.1% AEP)

Surface water will be managed through a series of existing open drains alongside the proposed Greenway and existing culverts under existing paths, proposed open drains alongside the proposed Greenway, and new culvert pipes under the proposed path.

There will be 5 No. box culverts constructed in existing drainage channels where the proposed Greenway will cross it. Four are new culverts and one is a replacement culvert. They will have a minimum diameter of 0.9m and range up to 2.0m cross sectional diameter (exact diameters to be confirmed after completion of the Section 50 assessment).

22 No. precast concrete culvert pipes of 0.5m diameter and 6-8m in length and associated headwalls will cross under the proposed Greenway path at 100m intervals where there are no existing culverts. The purpose of these culverts is to enable groundwater which collects in the open drains alongside the path to be discharged to the rivers. The open drains will be shallow, approximately 1.0m wide and 200mm deep. The drains will collect storm water flows from the proposed path and runoff from the hilly green field in the IDA's National Technology Park. Water will flow in the drains to the 22 No. culverts and pass under the proposed path.

Following flood events there is a risk of debris in the minor watercourses culverts and drains pipes. Post flooding maintenance to clear the culverts of debris will be required by LCCC.

6.4.11. Public Lighting

The Public Lighting design for the proposed project will use best practice guidance notes "*Bats and artificial lighting in the UK*" as published by the Bat Conservation Trust, in respect of mitigation strategies, to minimise the impact of outdoor lighting upon bat populations. The LCCC Public Lighting standard has also been followed.

There will be new public lighting along the shared path which follows the south bank of the River Shannon for approximately 3km.

Public lighting will be controlled by light sensors so their turn on time will vary during the calendar year and turn on after dusk, but lights will turn off at 00:00 hours in accordance with the LCCC Public Lighting Design Specification.

Light emitting diodes (LEDs) type lanterns of the cool white type in accordance with the LCCC Public Lighting standard will be installed. They will have a Colour Temperature of 2,700°Kelvin, because it is considered less disruptive to the emergence of bats from roosts at dusk, and subsequent movement from habitats to foraging locations.

LED lanterns do not emit any ultraviolet or infra-red radiation, this again being a desirable feature in relation to impact upon bats, in terms of causing spatial exclusion from artificially lit areas.

Light levels have been kept as low as possible (P4 Class) by reference to levels specified in "Design of road lighting' - BS EN 5489-1: 2020, and these will be in accordance with the LCCC Public Lighting standard.

There will be two lighting columns; 1.6m high and 5m high. The 1.6m high lighting column will have an integrated lantern that will point directly onto the path, and they will be spaced 5m apart (Refer to the Preliminary design drawing 2535-RHA-XX-DR-C-PD-0016 for a photo of an equivalent lighting column). The Lanterns on 5m high columns will be mounted at 0° degree tilt and will be the fully cut off type with no light output above the horizontal plane. The 5m high lighting columns will be spaced approximately 35m apart to avoid siting lighting columns near mature trees with roost potential and the 1.6m high columns shall be used if there are any signs of bats in an area. The 1.6m high columns will be used in the Annex 1 Alluvial forest area.

Cable ducts for the public lighting will be installed by open trench to minimum 300mm cover in areas where no trees or tree roots are present, and by Moling technique in areas with trees. The moling will allow cable ducts to be installed to a minimum depth of 600mm so the cable ducts will pass under tree roots and protect them from damage.

Any temporary lighting required for health or safety reasons during the construction period shall be installed at a minimum of 10 metres from existing treelines and woodland habitats and directed away from such sensitive habitats.

6.4.12. Interface with roads

The proposed Greenway will interface with existing roads at several locations along the route. The features which define interfaces with roads relate to improving the safety of pedestrians, cyclists, and motorists where they interact. In addition to sign posting and path markings/decals, the following features have been included as safety measures at the interfaces with roads.

i) Tactile paving

Tactile paving will be installed on a footpath wherever a footpath crosses a road at road level and at raised tables to provide warning of approaching traffic for the visually impaired.

ii) Toucan Crossing

There will be 1 No. new 6m wide Toucan crossing on Plassey Park Road to replace the existing raised table.

iii) Kerbs

Raised kerbs will run parallel to the proposed cycle lanes to provide a physical separation between the road and the proposed Greenway. At junctions, the proposed raised kerbs will transition to dipped

kerbing to facilitate smooth for vehicles from the carriageway across the proposed cycle lanes and footpaths.

iv) Raised Tables

Alongside University Road, there will be raised tables crossing the road entrance into Kilmurry Village and the northern entrance to the UL Gaelic pitches. There will be raised tables at the southern part of McLaughlan Road. These raised tables will maintain a consistent level of the footpath and the cycle lanes where they cross a road, or a junction, and will signal traffic to slow down and check oncoming walkers and cyclists.

6.4.13. Road Markings

Cycle track markings will be carried out in line with Traffic Signs Manual, Chapter 7 – Road Markings – Department of Transport, Tourism & Sport (2019).

There will be decals on shared surfaces illustrating the side of the path that cyclists and walkers should adopt at transitions from shared surface paths to separated cycle lanes and footpaths.

6.4.14. Signage

There will be directional signs along the 4.25km of the proposed route. Existing signs along the proposed route will be retained. Refer to Figure 6-7 for a photo of an existing directional sign on the existing path.

Directional signage for the Greenway will be erected at the approach to junctions and interfaces with roads, and where the path splits into separate cycle lanes and footpaths. There will be signs to University Road, McLaughlan Road, Plassey Park Road, and at all the interface locations in the UL campus where the proposed path leads to other existing cycle lanes or interfaces with roads.

Speed control signs will be erected to remind cyclists to manage their speed and be mindful of other path users.

All signage will be clear and consistent and will be designed in accordance with the Department of Transport's 'Traffic Signs Manual'.

6.4.15. Information boards

Information boards will be erected at areas of interest including Plassey Beach and Plassey Mills. The information boards will include information about ecology (i.e., flora and fauna and biodiversity) and built heritage (architecture and/or structures of architectural or heritage importance).

6.4.16. Fencing

There will be 1.4m high timber post and rail fencing to Transport Infrastructure Ireland (TII) standard detail CC-SCD-00301 which will be erected at locations along the path including:

- Where the proposed Greenway runs adjacent to or crosses water
- Where the proposed Greenway approaches bridges or retaining walls;
- Where there is a ditch or steep slope adjacent to the path;
- At junctions;
- At sections of the boundary with UL;
- Along the boundary with private landowners; and,
- Along the boundary with the National Technology Park.

There will be 1.45m high corten steel fencing along the parapets of the proposed steel bridges and along the approaches to the existing stone bridges and cut stone abutments.

There will be 2.4m high anti-climb palisade fencing erected along the south-eastern boundary of Kilmurray Student Village and outside the commercial property BD-RCI Limerick on University Road to match the existing fence.

6.4.17. Amenity/Rest area Benches

Green Oak and corten steel benches will be installed in the amenity areas at Groody Bridge, Plassey Mills and Plassey Beach.

6.4.18. Construction Programme and sequencing

The construction duration for 4.25km of the proposed Greenway is approximately 30-60 months with works being carried out in one section at any one time. Sequencing of work in any of the five sections is flexible.

The works will be subject to ecological programme constraints as follows:

- Foreshore works (including preparatory work) beside all watercourses supporting salmonids shall be undertaken from May to October (inclusive) and in consultation with Inland Fisheries Ireland (IFI) to avoid accidental damage or siltation of spawning beds.
- To avoid impacting on bird nesting sites, the vegetation removal within the defined working area will not be carried out during the peak bird nesting season of March to August (inclusive) prior to the onset of works.
- Invasive species along the proposed greenway should be treated and removed prior to construction works.

The following mitigation calendar will be applied and followed to ensure protection of habitats and species during construction and operational phases of the greenway. In general, the construction works should be planned during the 'green' periods in the calendar year, as long as appropriate mitigation measures are implemented. The exception to this is Fish (salmonoid spawning) because foreshore works (including preparatory work) beside all watercourses supporting salmonids shall be undertaken from May to October (inclusive) and in consultation with Inland Fisheries Ireland (IFI) to avoid accidental damage or siltation of spawning beds.

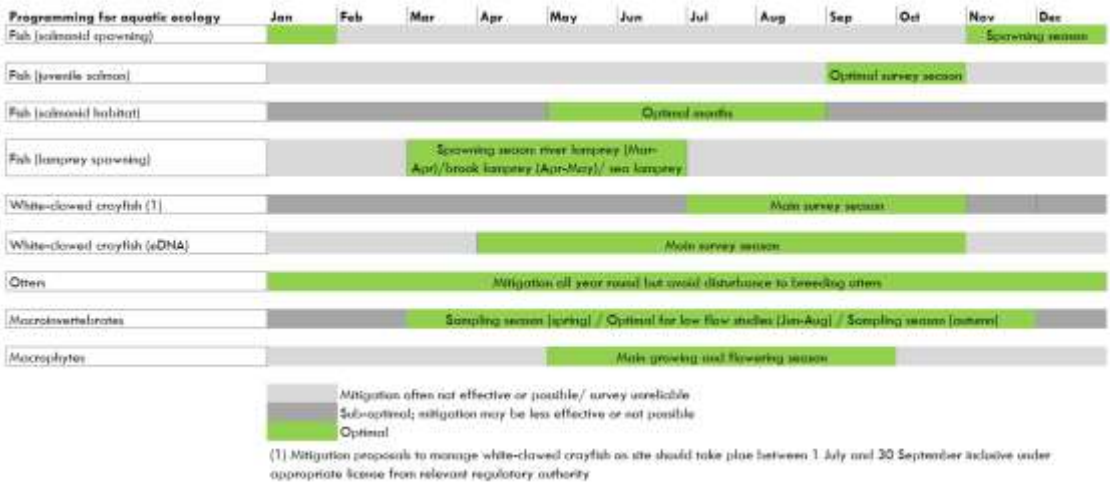


Figure 6-140: Mitigation timing - ecological calendar

6.4.19. Reinstatement works

The temporary working areas and compounds will be reinstated to their original condition following completion of the construction phase in each section.

Tree planning is proposed alongside the Greenway to compensate for tree felling along the route. For every tree that is felled, there will be five trees planted to compensate, so approximately 305 trees are proposed to be planted along the proposed Greenway.

6.4.20. Post construction Maintenance

Adherence to best practice codes such as the "Code of Best Practice for National and Regional Greenways" ensures that a continuously high standard of the proposed Greenway is provided for all users. LCCC be responsible for the upkeep and maintenance including litter control and invasive species management through ongoing maintenance plans.

7. Primary, Secondary and External Considerations

Constraints identified within the project area encompass the physical, technical, legal, environmental, topographical, and other considerations which may potentially affect, limit, restrict or confine the location or other aspect of the project within the area. The various project constraints that exist within the area have been identified and will be discussed as follows:

a) Primary Considerations
   - Protected Areas – European Sites - Special Areas of Conservation (SACs) and Special Protection Areas (SPAs)
   - Flood Risk
   - Development Plan

b) Secondary Considerations
   - Protected Area at National Level - Natural Heritage Area (NHA), proposed Natural Heritage Area (pNHA);
   - Protected Area at National Level – National Monuments and protected structures
   - Area of Natural Biodiversity
   - Land Use Zones and Objectives
   - Access
   - Existing /future infrastructure plans
   - Necessary licenses/ statutory consents

7.1. Primary Considerations

7.1.1. Protected Areas- European Sites

There are two types of EU site designation, the Special Area of Conservation (SAC) and the Special Protection Area (SPA). SACs are designated for the conservation of flora, fauna and habitats of European importance and SPAs for the conservation of bird species and habitats of European importance. These sites form part of "Natura 2000" a network of protected areas throughout the European Union.

Section 3.2.3 of the Guidance for Planning Authorities (DoEHLG, 2010) states that the approach to screening can be different for different plans and projects and will depend on the scale and the likely effects of the project. A key variable that will determine whether or not a particular European Site is likely to be negatively affected is its physical distance from the project site and whether there are any pathways for effect linking the project to these sites.

Using the Source » Pathway » Receptor approach (OPR, 2021) and having regard for the location and the nature of the proposed works, it is considered for the purpose of this screening exercise that the likely zone of influence on designated sites is the zone immediately around the construction site and any sites with a hydrological connection downstream of the works.

Figure 7-1 displays the European sites within the Source » Pathway » Receptor of the proposed works.

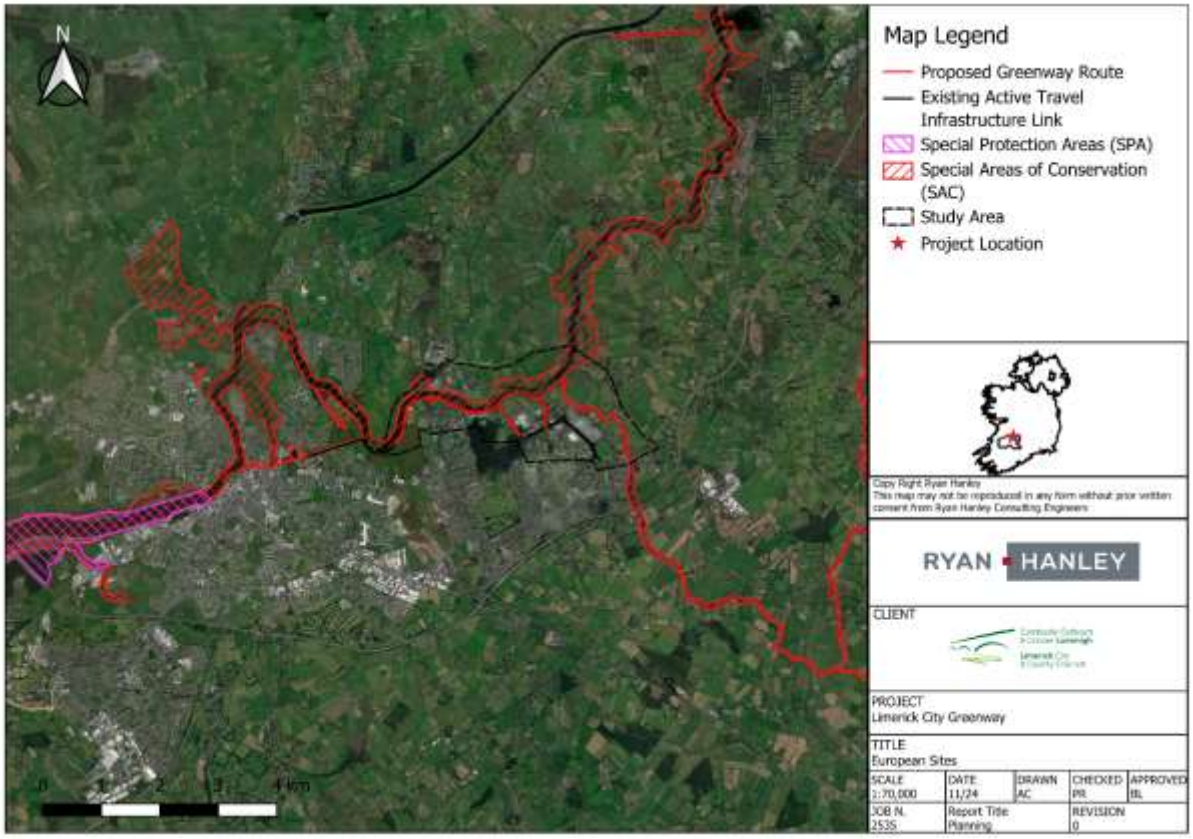


Figure 7-1: Designated European Sites forming part of the Environmental constraints in the Project Area

Table 7-1details European sites with potential Source » Pathway » Receptor links to the proposed works and whether a potential interaction has been identified.

Table 7-1: European sites identified with the SPR model of the proposed development and potential for interaction with the proposed works

European Site Name	Site Code	Distance from Works	Potential Interaction
Lower Shannon SAC	002165	SAC is inside the proposed works study area	Likely, sections of this European Site are located within the area of the proposed works. See Figure 7-1.
River Shannon and River Fergus Estuaries SPA	004077	SPA is outside the proposed works project area	Likely, hydrological pathway exists between this European Site and the area of proposed works. See Figure 7-1.

As outlined in Table 7-1, there is a likely potential interaction between the proposed works and the Lower Shannon SAC as sections of this European site are located within the area of the proposed works. There are also likely potential interactions between the proposed works and the River Shannon and River Fergus Estuaries SPA, due to existence of a hydrological pathway between the area of proposed work and the European Site.

An Appropriate Assessment screening, an Environmental Impact Assessment screening, a Natura Impact Statement, and an Environmental Impact Assessment report has been undertaken for the proposed works during the preliminary design stage.

7.1.2. Flood Risk

Ryan Hanley completed a Flood Risk Assessment Stage 1 and Stage 2 for the project. Table 7-2 summarises the initial screening (Stage1) for flood risk at the proposed Limerick City Greenway (UL to NTP). Refer to Figure 6-136, Figure 6-137, Figure 6-138, and Figure 6-139 in this report.

Table 7-2: Stage 1 Flood Risk Assessment Summary

Source	Initial Conclusion	Screening for further assessment
Fluvial	Potential flood risk associated with the River Shannon and its tributaries	Based on available CFRAM mapping much of the proposed greenway is located in Flood Zone A and Flood Zone B. Can not be screened out, potentially significant.
Pluvial	Flooding due to intense rainfall and ponding	Can not be screened out but likely not significant.
Urban Drainage	Flooding due to inadequate drainage along greenway.	Proposed greenway drainage works will mitigate this risk. Low urban drainage flood risk Screened out.
Groundwater	Low surface groundwater flood risk. However, it is possible that groundwater will be intercepted during the excavation works equal or higher than the adjacent prevailing river levels.	No evidence of groundwater flooding in the area surrounding the proposed greenway. Screened Out Construction stage groundwater management works may be required.
Coastal	Flooding from coastal and estuary areas	The greenway is not shown to be at coastal flood risk according to CFRAM flood mapping extents, however sections of the greenway lie below extreme high tide levels Screened Out

Based on the Stage 1 FRA it was necessary to progress to a Stage 2 assessment to assess the following potential flood risk sources to the proposed greenway.

- Potentially high Fluvial Flood Risk from the River Shannon and its tributaries.

To determine the significance of fluvial flood risk at the proposed greenway route, this Stage 2 flood risk assessment includes a hydrological assessment of readily information available for flood risk at proposed route. Table 7-3 presents the potential Flood Risk Management Measures for the proposed Greenway.

Table 7-3: Flood Risk Management Measures Options

Source	Objective	Flood Risk Management Measures
Fluvial	To protect against flooding from the River Shannon and its tributaries	The proposed greenway and associated structures shall be designed to be a water compatible and robust development, to be able to withstand the effects of long duration inundation flood depths of >1.5m and river scouring and surface erosion. The Greenway, which will facilitate the public to potential enter directly into a floodplain, will be temporarily closed off during flood events. Warning signs and access gates to the Greenway shall be installed to dissuade/ prevent the public from using the Greenway during times of high flood risk. Culverts and drainage channels shall be installed/ upgraded to mitigate localised flood risk. An inspection and maintenance programme are to be put in place for Greenway including maintaining the associated culverts, channels and drainage, and the trackway clear of blockages and flood debris and carrying out repairs following flood events.
Pluvial	To protect against flooding due to intense rainfall/ponding	Appropriate drainage works shall be installed along the Greenway to mitigate pluvial flood risk.
Urban Drainage	To protect against site flooding from incoming flows	The proposed greenway will be designed, and maintenance works planned, to mitigate this flood risk. It is recommended that appropriate drainage is installed along the greenway.
Groundwater	To protect against groundwater flooding	No operation stage groundwater mitigations required. Groundwater monitoring shall be carried out as part of geotechnical investigations for the site to establish the likely level at which groundwater will be intercepted during the project's excavation works and to inform development of appropriate construction stage mitigation measures.
Coastal	To protect against coastal flooding	See the fluvial flood mitigation measures outlined above.

In accordance with 'The Planning System and Flood Risk Management Guidelines for Planning Authorities', the proposed development land use is classed as 'water compatible' (See Table 2-2) and would be appropriate to be located within Flood Zones A & B. A justification test has been completed for the proposed project in accordance with Guidelines for Planning Authorities – Box 5.1 Justification for development management and is summarised in Table 7-4.

Table 7-4: Flood Risk Justification Test for the development

Ref	Condition	Response
1	The subject lands have been zoned or otherwise designated for the particular use or form of development in an operative development plan, which has been adopted or varied taking account of these Guidelines.	*The proposed Greenway largely follows the route of an existing paved and unpaved riverside walkway, and a desire line through a green field. The proposed project site is shown in the Limerick City and County Development plan as cycleways/ walkways and located in lands zoned for University and High Tech/ manufacturing.* *The proposed greenway and associated structures shall be designed to be a water compatible and robust development, to be able to withstand the effects of long duration inundation flood depths of >1.5m and river scouring and surface erosion.*
2	*The proposal has been subject to an appropriate FRA that demonstrates:*	
(i)	The development proposed will not increase flood risk elsewhere and, if practicable, will reduce overall flood risk;	*During flood conditions, which on the Shannon are prolonged in nature, the greenways existing and proposed culverts would be backwatered and much of the greenway would be flooded/inundated from the main River Shannon. Installing new culverts, therefore, will not increase flood risk upstream or downstream of the Greenway.* *The proposed project and its associated culverts, bridge upgrades and drainage are designed not to increase flood risk at the study area.* *When compared to the design flood flows, the loss in flood storage (<1500m³) over the 4.5km greenway length would not be significant and would result in an imperceptible increase in flood levels in the study area.*
(ii)	The development proposal includes measures to minimise flood risk to people, property, the economy and the environment as far as reasonably possible;	*Flood risk management measures have been proposed which will prevent the potential increase in flood risk and dissuade the public from entering the Greenway during times of high flood risk*

(iii)	The development proposed includes measures to ensure that residual risks to the area and/or development can be managed to an acceptable level as regards the adequacy of existing flood protection measures or the design, implementation and funding of any future flood risk management measures and provisions for emergency services access;	*Part of the Greenway will be located in a high flood risk area, and it will need to be temporarily closed off during flood events.* *Warning signs shall be installed and access gates to the Greenway closed off to dissuade/ prevent the public from using the Greenway during flood periods.*
(iv)	The development proposed addresses the above in a manner that is also compatible with the achievement of wider planning objectives in relation to development of good urban design and vibrant and active streetscapes.	*The development of this Greenway will not impact on planning objectives for Limerick City and UL.*

The National Catchment Flood Risk Assessment and Management Programme (CFRAM) was set up to deliver on the core components of the National Flood Policy, adopted in 2004, and on the requirements of the EU 'Floods' Directive (2007/60/EC). The National CFRAM Programme has been carried out in parallel with similar programmes across the European Union, each delivering flood mapping and International Flood Risk Management Plans at the River Basin District (RBD) scale. The Programme commenced in Ireland in 2011 and is central to the medium to long-term strategy for the reduction and management of flood risk in Ireland.

Much of the proposed development site lies within Flood Zone A (relative to the River Shannon 1 in 100 year flood level) for the current modelled scenario.

Figure 7-2: CFRAM Maps (Current Scenario) (*www.floodinfo.ie*)

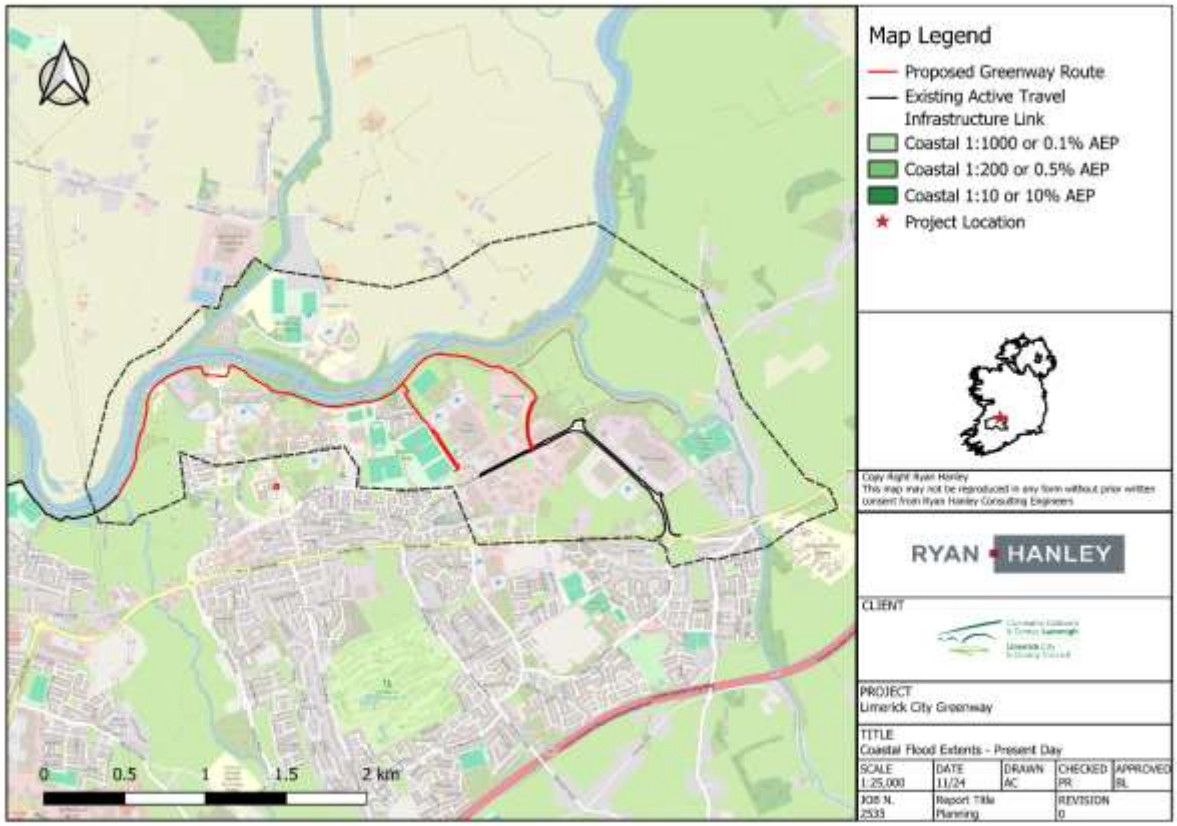


Figure 7-3: Coastal flood map (Present Day)

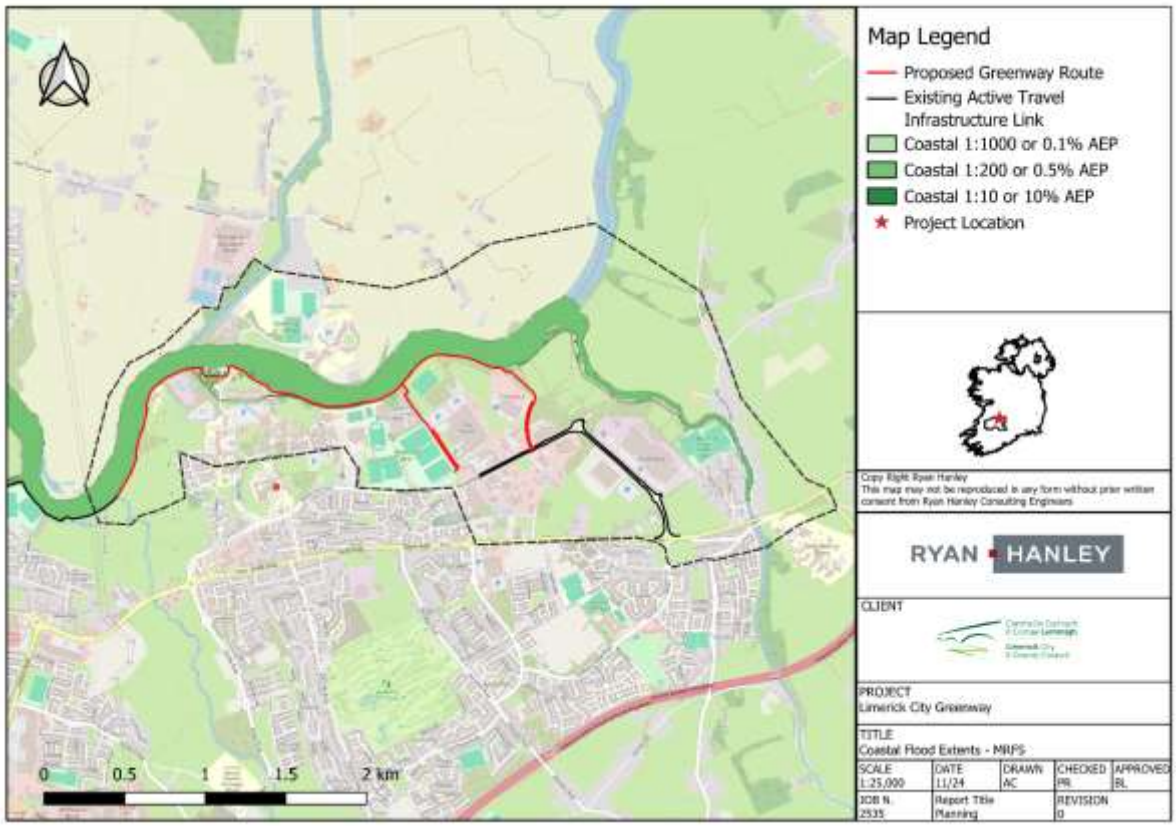


Figure 7-4: Coastal flood map (Mid-Range Future Scenario)

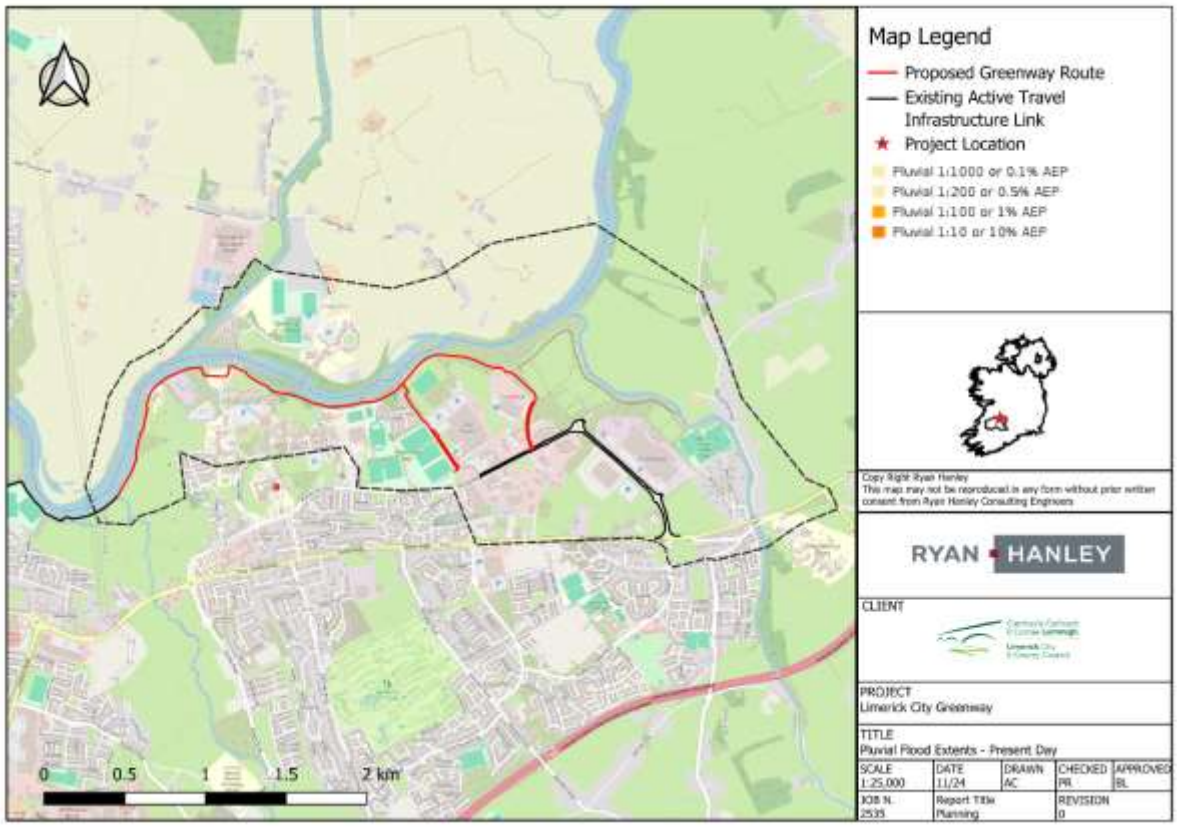


Figure 7-5: Pluvial flood map (Present Day)

7.1.3. Development Plan

The study area is located in the north-western part of Limerick City at the Limerick-Clare County border and the junction between the townlands of Dromroe, Sreelane, and Castletroy. The LDP indicates the study area is in zones designated for agriculture, education, high tech manufacturing and existing residential. The LDP describes how the county will grow and develop over the period of the Plan.

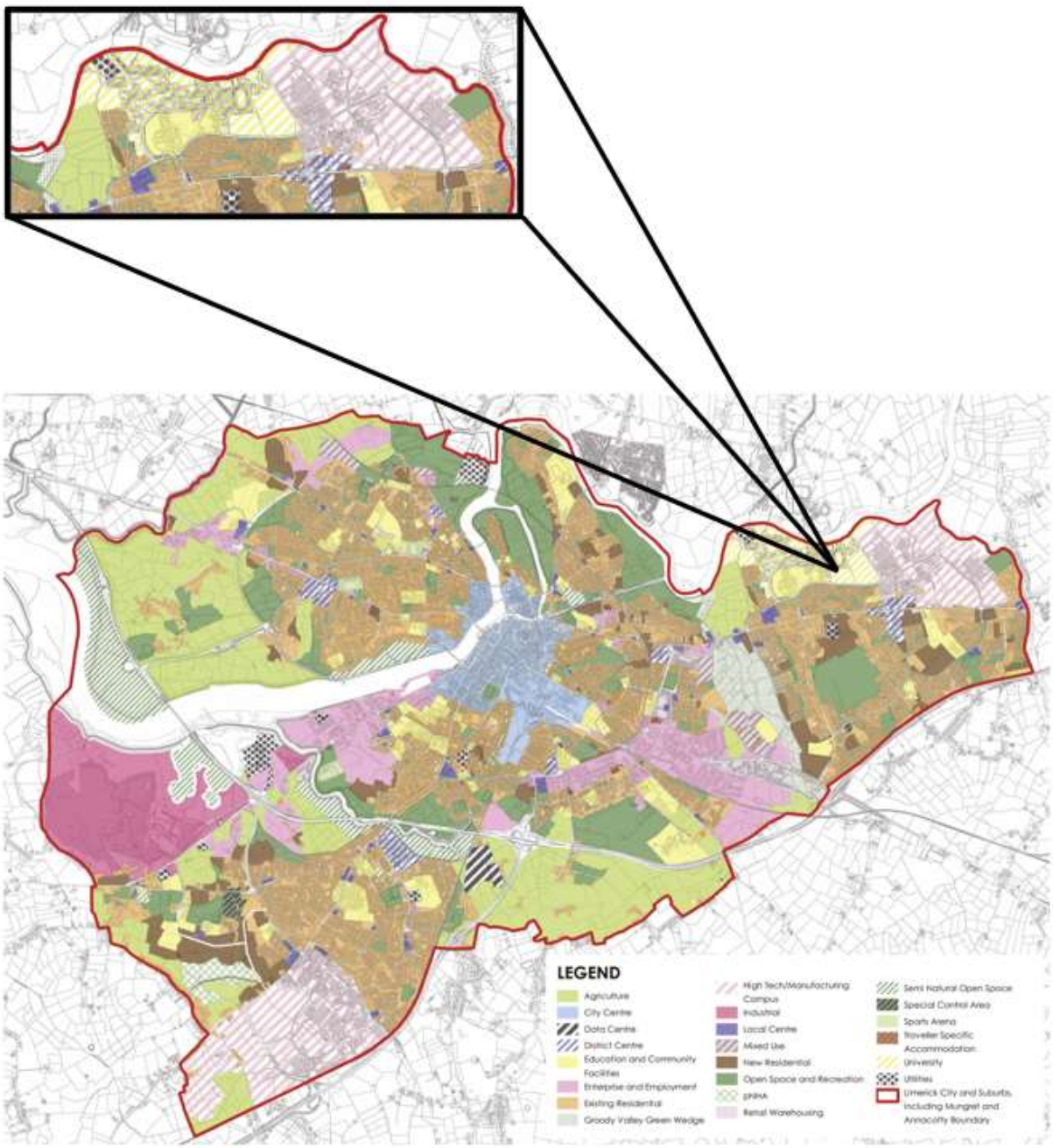


Figure 7-6: Overview of Limerick City and County Council 2022-2028 Development Zones

The relevant zoning objectives are highlighted in the following paragraphs. There is no land use category akin to a greenway in the Land Use Zoning Matrix as per the Limerick Development Plan 2022-2228. However, the creation of an active travel link is compatible with the transport objectives as outlined in Chapter 7 – Sustainable Mobility.

LCCC Agriculture

Objective: To protect and improve rural amenity and provide for the development of agricultural uses. Purpose: Protect rural amenity and agricultural lands from urban sprawl and ribbon development and provide a clear demarcation to the adjoining built up areas. Uses which are directly associated with agriculture or rural related business activities which have a demonstrated need for a rural based location

and which would not interfere with rural amenity are open for consideration. Compliance is required with the criteria for Small Scale Home-Based Businesses. One off dwellings will only be considered on agriculturally zoned land outside of Flood Zones A and B, subject to the terms and conditions of the rural housing policy as set out in this Plan. Dwellings are categorized as 'highly vulnerable development' in the Section 28 Planning System and Flood Risk Management Guidelines for Planning Authorities (2010) and will not be permitted in flood zones.

LCCC Educational – University

Objective: To support the growth of the University of Limerick campus. Purpose: To support and facilitate expansion of the University and provide for purpose-built student and ancillary residential accommodation and research and development buildings, which facilitate the sustainable development of community, cultural, educational and ancillary needs, for the benefit of the University population and wider area. General Office, Business and Enterprise uses may be considered on a limited basis on lands not within the ownership, or for the benefit of the University

LCCC High Tech Manufacturing

Objective: To provide for office, research and development, high technology, regional distribution/ logistics, manufacturing and processing type employment in a high quality built and landscaped campus style environment. Purpose: To facilitate opportunities for high technology, advanced manufacturing including pharmaceutical and food production, major office, regional distribution/ logistics, and research and development-based employment, within high quality, highly accessible, campus style settings. The zoning is for high value-added businesses and corporate facilities that have extensive/specific land requirements, such as those located at Raheen Business Park and the National Technology Park. These businesses are generally not accessible to members of the public. Retail warehousing will not be acceptable in this zone. The uses in this zone are likely to generate a considerable amount of traffic by both employees and service vehicles. Sites should be highly accessible, well designed and permeable with good pedestrian, cyclist and public transport links. The implementation of mobility management plans will be required to provide important means of managing accessibility to these sites.

LCCC Existing Residential

Objective: To provide for residential development, protect and improve existing residential amenity. Purpose: This zone is intended primarily for established housing areas. Existing residential amenity will be protected while allowing appropriate infill development. The quality of the zone will be enhanced with associated open space, community uses and where an acceptable standard of amenity can be maintained, a limited range of other uses that support the overall residential function of the area, such as schools, crèches, doctor's surgeries, playing fields et

7.2. Secondary Considerations

7.2.1. *Protected Area at National Level – Natural Heritage Area (NHA) and proposed Natural Heritage Area (pNHA)*

There are six proposed Natural Heritage Areas (pNHA) located in the vicinity of the study area as shown in Figure 7-7. Namely, Cloonlara House, Castleconnell (occupied domestic dwelling), Inner Shannon Estuary – South Shore, Knockalisheeb Marsh, the Fergus Estuary and Inner Shannon North Shore and Loughmore Common Turlough. Due to the presence of hydrological pathways, there is potential for interaction with a number of the noted pNHA.

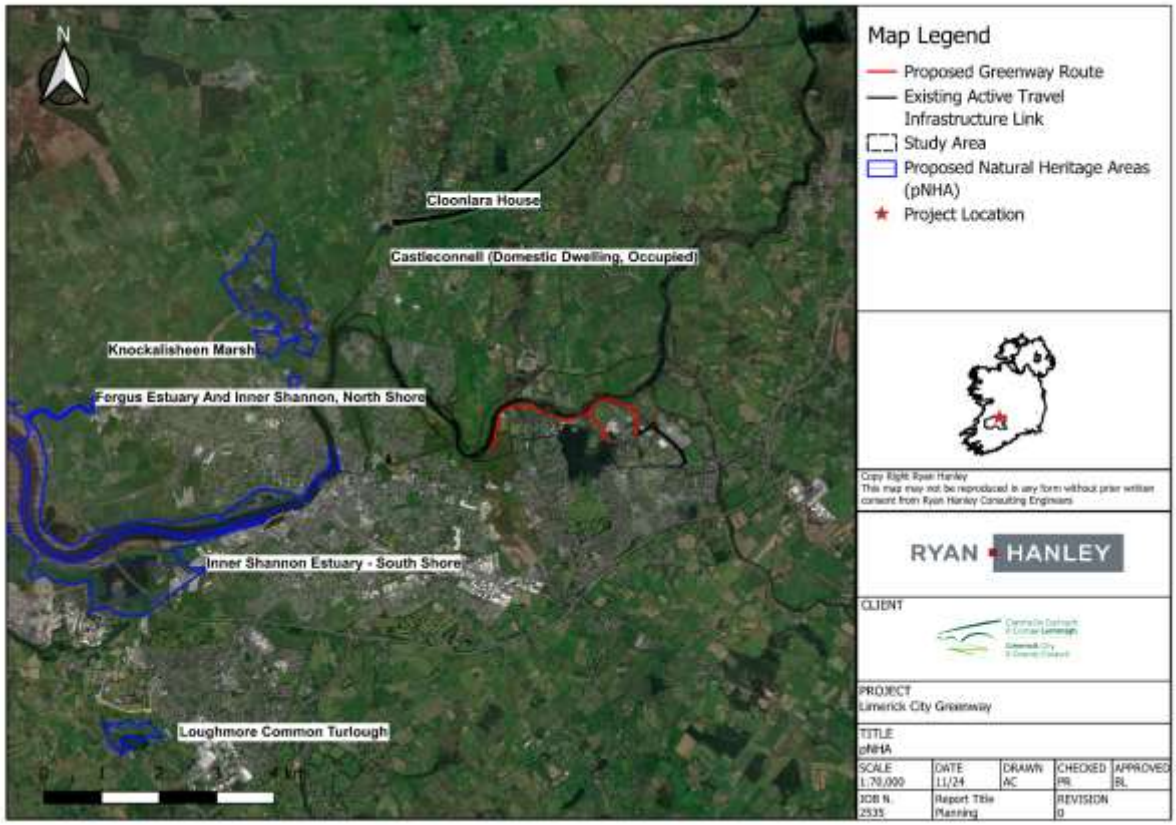


Figure 7-7: Overview of Natural Heritage Area (NHA) and proposed Natural Heritage Area (pNHA) in the Area

7.2.2. *Protected Area at National Level - National Monuments and protected structures*

There are Sites and Monuments Records (SMR), Zones of Archaeological Notification, National Inventory of Architectural Heritage (NIAH) sites, Record of Protected Structures (RPS) sites, and an Archaeological Conservation Area (ACA) within the study area. Figure 7-8 shows an overview of the recorded heritage features. The proposed route passes through two zones of notification of recorded monuments in the study area.

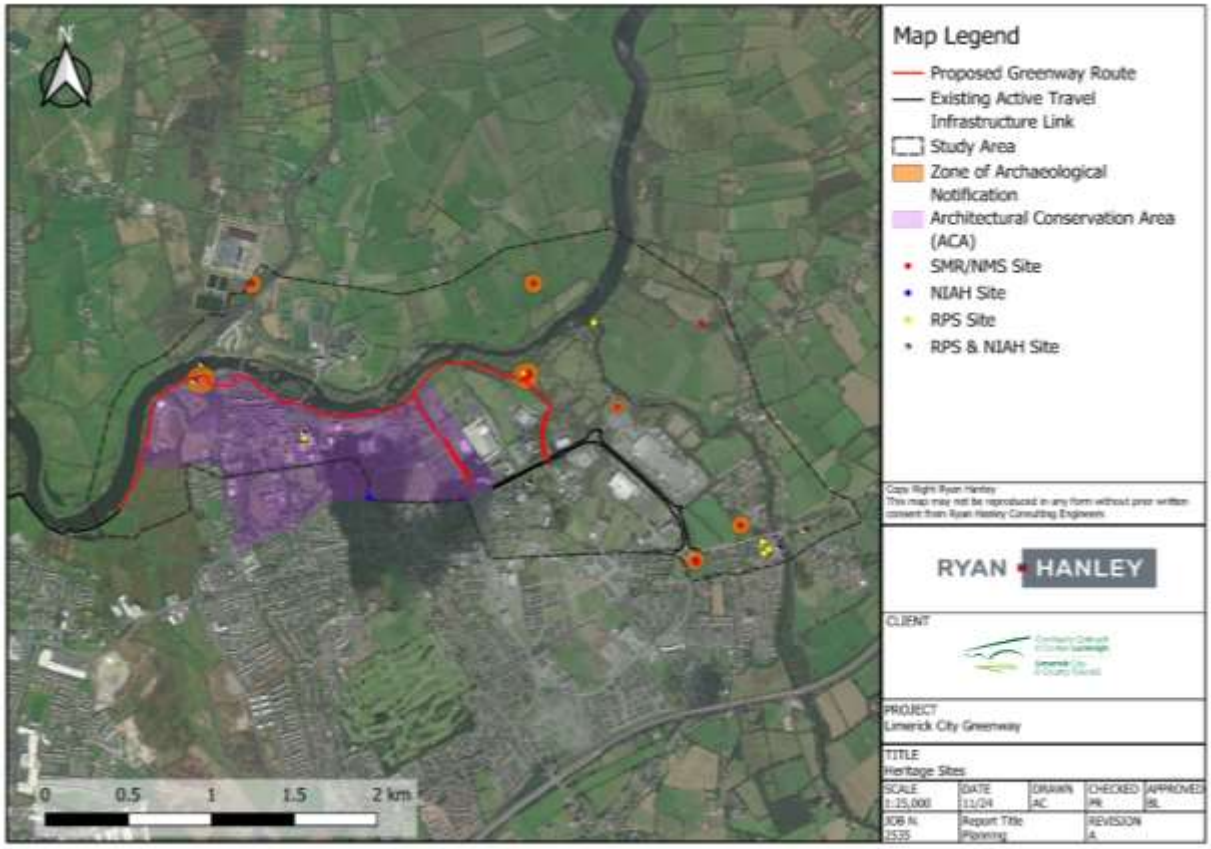


Figure 7-8: Overview of Recorded Monuments in the area

There are three SMR sites that will require an archaeology licence for the works, and they are listed in Table 7-5.

Table 7-5: Details of SMR Sites in area

SMRS Ref	Description	Route Interaction	Townland
LI006-017001	Castle – tower house	Proposed greenway route passes through zone of notification	Castletroy
LI006-017002	Bawn	Proposed greenway route passes through zone of notification	Castletroy
LI006-017003	Gateway	Proposed greenway route passes through zone of notification	Castletroy

There are two NIAH sites adjacent to the proposed Greenway and they are listed in Table 7-6.

Table 7-6: Details of NIAH Sites in area

NIAH Ref	Name	Route Interaction	Townland
21900503	Plassey Bridge	Proposed greenway route passes within 20m of this structure	Sreelane
21900504	Plassey Mill	Proposed greenway route passes within 20m of this structure	Sreelane

There are three RPS sites adjacent to the proposed Greenway and they are listed in Table 7-7.

Table 7-7: Details of RPS Sites in area

RPS Ref	Name	Route Interaction	Townland
1598	Castle – Tower House	Proposed greenway route passes adjacent to this structure	Castletroy
1599	Plassey Bridge	Proposed greenway route passes adjacent to this structure	Sreelane
1600	Plassey Mill	Proposed greenway route passes within 20m of this structure	Sreelane

7.2.3. Foreshore

The Foreshore Act (1993) makes provision for the granting of leases and licences in respect of foreshore belonging to Saorstát Eireann and to amend generally the law relating to foreshore and the seashore. The Foreshore Acts require that before the commencement of any works or activity (including the erection of any structures) on State-owned foreshore a licence or lease must be obtained from the Minister for Agriculture, Food and the Marine. Under the 1993 act, "foreshore" is defined as the bed and shore, below the line of high water of ordinary or medium tides, of the sea and of every tidal river and tidal estuary and of every channel, creek, and bay of the sea or of any such river or estuary.

The project area does not enter the foreshore at any location. Refer to Figure 7-9.

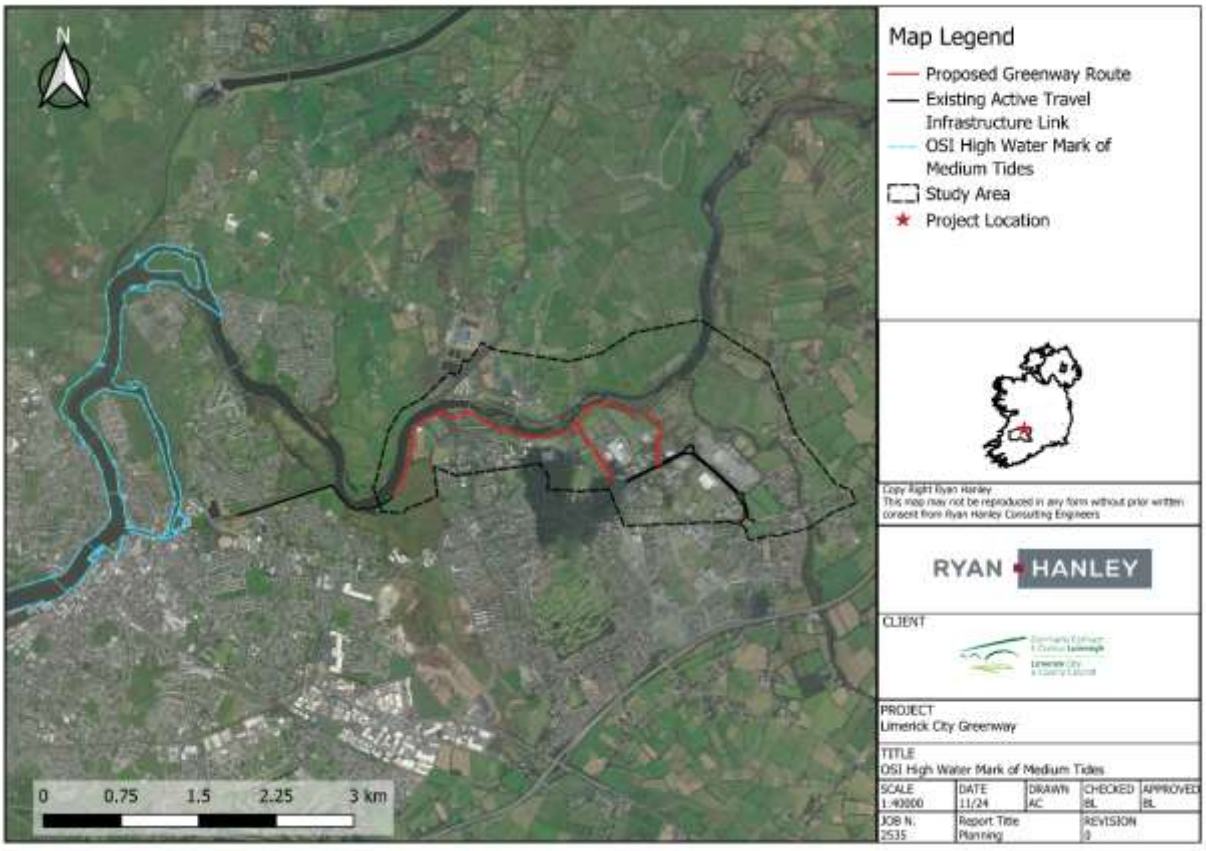


Figure 7-9: OSI High Water Mark - Medium Tide

7.2.4. Water Features as per EPA

Water features in close proximity of the proposed route are illustrated in Figure 7-10.

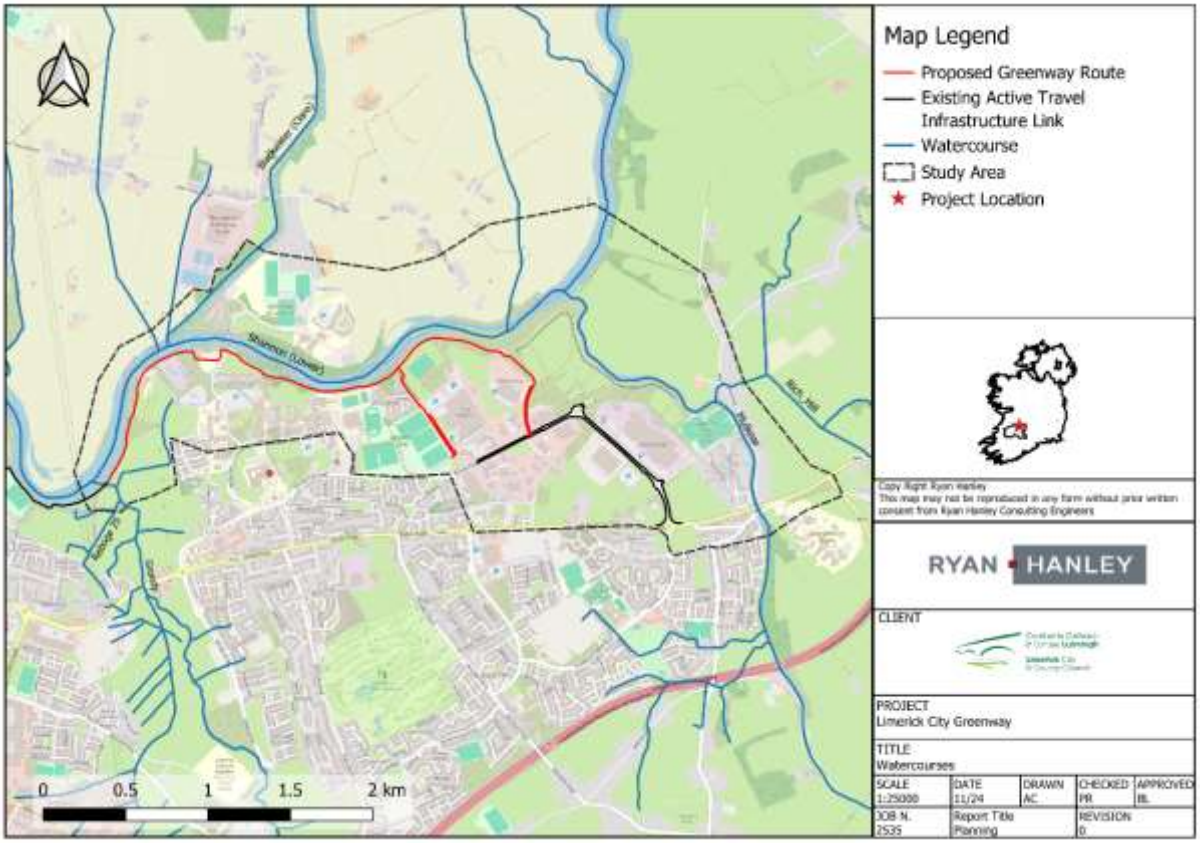


Figure 7-10: Water Features

7.2.5. Access

Each construction compound will be accessed from public roads (Refer to Figure 7-11 - Figure 7-15). Construction traffic will be confined to working along the proposed Greenway in a works section. Construction vehicles will remain in a section until works in that section are completed. The vehicles will be cleaned to remove any invasive species from the vehicles to prevent spreading into other work sections before they are moved. Delivery trucks that use the public road will remain separated from construction vehicles within compounds.

An overview of the proposed access/haul routes for construction and future maintenance vehicles is provided in Figure 7-15. The proposed works sections and corresponding construction compound (and temporary working area) are also illustrated.

Figure 7-11: Access to Section 1 from the entrance road to the Castletroy WwTP

Figure 7-12: Access to Section 2 from the road across the bridge to Co. Clare

Figure 7-13: Access to Section 3 and 4 from University Road

Figure 7-14: Access to Section 5 from McLaughlan Road

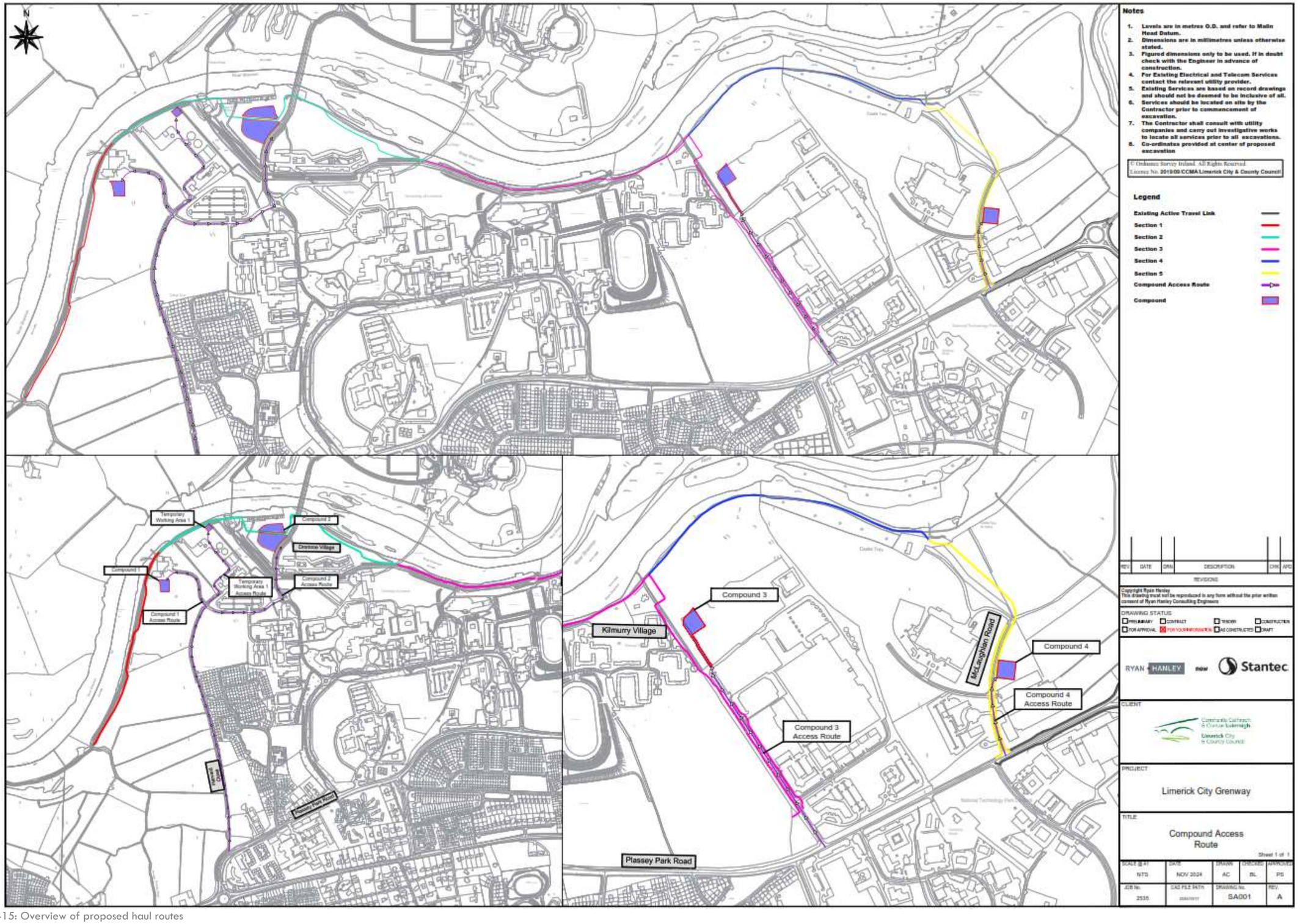


Figure 7-15: Overview of proposed haul routes

7.2.6. Existing / Future Infrastructure plans

Existing utilities in the area include sewer, water, telecommunications, surface water and electrical lines, both overhead and underground. Future utilities will be developed for future residential properties in appropriately zoned areas. Figure 7-16 and Figure 7-17 highlight the existing utilities along the proposed route. The existing utilities/infrastructure will not stop the development of the proposed Greenway.

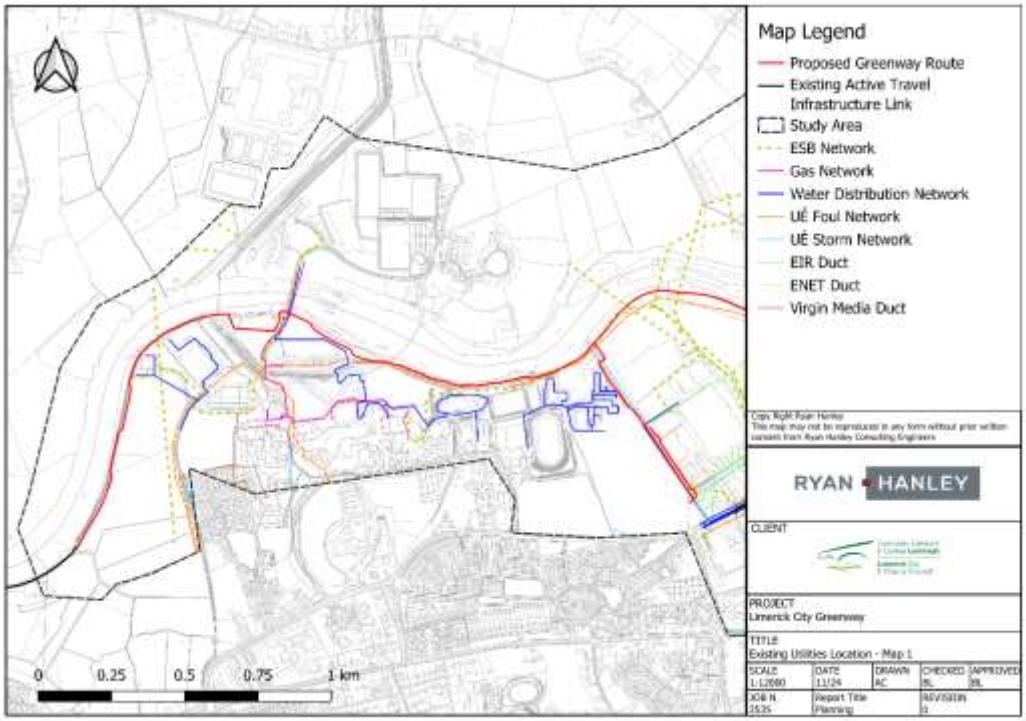


Figure 7-16: Study Area Utilities Map

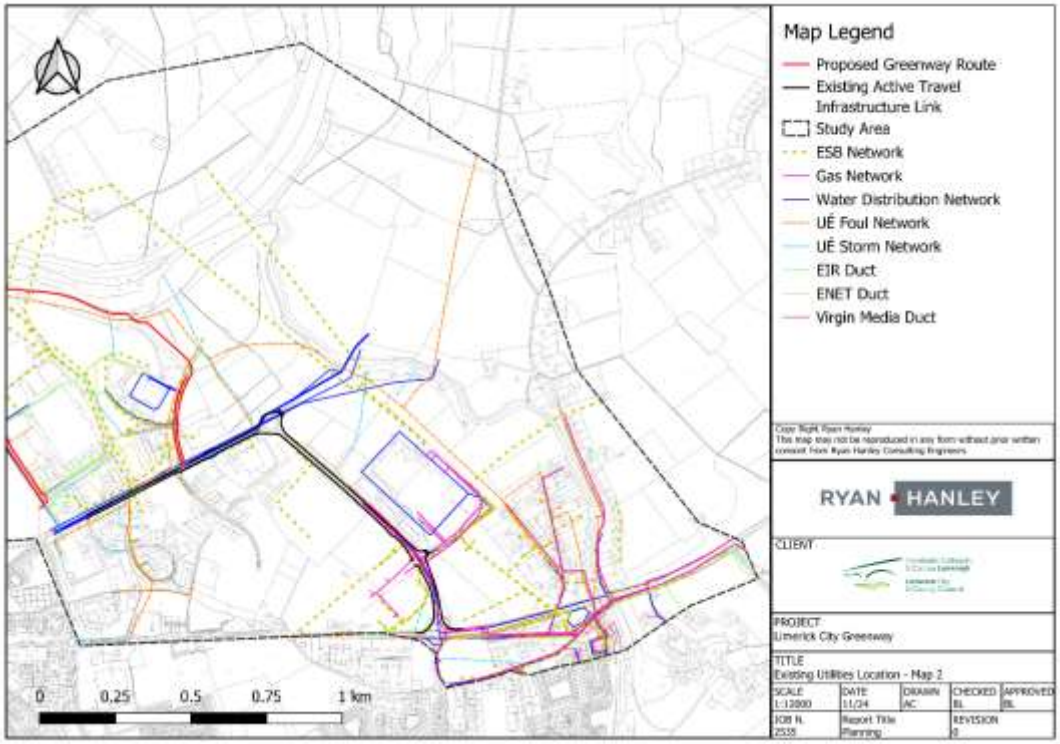


Figure 7-17: Study Area Utilities Map

7.2.7. Necessary licenses / Statutory Consents

A planning application will be submitted to An Coimisiún Pleanála under Section 51 of the Roads Act for this project.

Permission to work on University Road would be required from UL. Permission to work on McLaughlan Road would be required from the IDA.

Permission from the relevant landowners would also be required for any works on private land.

An invasive species survey and report have been completed for the proposed Greenway. An Invasive Species Management plan has been produced. Advance invasive treatment is recommended ahead of construction works.

An archaeological licence is required for locations within Zone of Influence. An archaeology licence was secured for this project in March 2024, and this will be renewed ahead of archaeological testing that will be carried out as part of the Phase 2 site investigations. It will be renewed for the licenced archaeologist ahead of the construction works.

7.3. External Considerations

7.3.1. Funding & Scope

The National Transport Authority (NTA) is funding the proposed Limerick City Greenway (UL to NTP) project.

7.3.2. Required Levels of Service

In accordance with the Greenways and Cycle Routes Ancillary Infrastructure Guidelines the Level of Service (LoS) refers to the appropriate provision of seating, rest areas, lighting, refreshment stops, signage, mapping, aesthetic features, and similar along the Route. Level of Service (LoS) Level 1 is appropriate for the proposed Limerick City Greenway. Refer to Appendix F for details of the Levels of Service and Technical Standards.

The proposed Greenway will include two types of Cycle Links: Shared Active Travel Facility and Segregated, as defined in the Cycle Design Manual. In the Shared Active Travel Facility, the cycle route is shared with pedestrians without segregation between the two and this shared surface is separated from vehicular traffic. The Segregated facility involves separate cycle lanes and footpaths segregated from and alongside a carriageway.

The design speed requirements are outlined in DN-GEO-03031. The proposed Greenway will have a design speed of 30 km/h. However, reduced speed limits of 10 km/h will be advised at shared surfaces and road crossings.

7.3.3. Required Ongoing Maintenance

An ongoing inspection and maintenance schedule will be developed by LCCC for this proposed Greenway. Inspections and maintenance will be especially important after flood events when debris may need to be cleared from the path, and drains/culverts may need to be unblocked.

7.3.4. Access Control

In accordance with the Greenways and Cycle Routes Ancillary Infrastructure Guidelines, access controls will be installed along the route including ancillary infrastructure elements such as fencing, bollards, and kissing gates to control access to the Greenway particularly during and immediately after flooding events, increase the safety of legitimate users, and highlight the presence of hazards.

8. Planning Assessment

8.1. Appropriate Assessment (AA) Screening report

The screening for Appropriate Assessment has identified and assessed for potential likely significant effects which are likely to occur as a result of the proposed construction of the Limerick City Greenway (UL to NTP) in the context of the Lower River Shannon SAC and its Qualifying Interests and Conservation Objectives.

It is determined, in the absence of mitigation, there will be potential for likely significant effects on the above listed protected site in view of the site's conservation objectives either alone or in combination with other plans and/or projects. This assessment is based on the consideration of:

1. Relevant qualifying interests, their sensitivities and Conservation Objectives;
2. Potential source pathways between European Sites identified and the proposed project;
3. The temporary and localised (small-scale) nature of the proposed project.

The detailed screening in the (AA Screening) report identified that in the absence of mitigation there are likely significant effects from the proposed development on each of the following habitats and species:

- [1106] Atlantic salmon (Salmo salar);
- [1355] Otter (Lutra lutra);
- [1095] Sea lamprey (Petromyzum marinus);
- [1096] Brook lamprey (Lampetra planeri);
- [1099] River lamprey (Lampetra fluviatilis);
- [91E0] Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae); and
- [3260] Watercourses of plain to montane levels with the Ranunculus fluitans and Callitricho-Batrachion vegetation;

The Screening report evaluated the objective information presented in the Project Description, taking consideration of the proposed works elements; however, the evaluation does not presuppose that the construction requirements specified in the design, or to be implemented on site by the Contractor, are integral to avoid or reduce harmful effects on any European Site. Therefore, it is considered that in accordance with Article 6(3) of the Habitats Directive, the proposed works for the construction of the Limerick City will result in likely significant effects on the European site, in the absence of mitigation, having regard to the site's conservation objectives. Consequently, a Stage 2 Appropriate Assessment is deemed to be necessary, requiring the preparation of a Natura Impact Statement (NIS).

8.2. Natura Impact Statement (NIS)

A Stage 2 Appropriate Assessment (Natura Impact Statement (NIS)) was prepared for the project to ascertain whether the proposed works would have an adverse effect on the integrity of European sites within the project Zone of Influence (ZoI).

Best practice and mitigation measures have been identified to ensure that potential pollutant sources are not released from the proposed construction works to the receiving environment such that there will be no risk of adverse effects on the Qualifying Features of European sites within this project's ZoI.

With the implementation of construction best practice and mitigation measures, there will be no significant effects which would adversely affect the Qualifying Interests or Conservation Objectives of the European Sites under consideration with regard to the favourable conservation condition of the considered habitats and species of Qualifying Interest.

The provisions of Article 6 of the 'Habitats' Directive 92/43/EC (2000) defines integrity as the 'coherence of the sites ecological structure and function, across its whole area, or the habitats, complex of habitats and/or population of species for which the site is classified'. It is clear that, given the application of prescribed protective measures for the avoidance of impacts and the implementation of the required mitigation measures, the proposed works will not give rise to adverse effects on the integrity of any of the identified European sites evaluated.

It has been concluded that the development of the proposed Limerick City Greenway (UL to NTP) works will not adversely affect the integrity of the European site, either alone or in combination with other plans or projects, and there is no reasonable scientific doubt in relation to this conclusion.

8.3. Environmental Impact Assessment (EIA) Screening report

An EIA Screening report was prepared for this project.

Annex 1 habitats Residual Alluvial Forests (91E0), Hydrophilous tall herb (6430) and Floating river vegetation (3260) are reported within the study area along the banks (north and south) of the River Shannon.

It was concluded that there will be likely significant effects on key environmental receptors and these need to be further assessed, among which:

- Traffic disruption and noise for residential, commercial and campus properties associated with construction works;
- Loss of local air quality associated with construction works and traffic;
- Habitat degradation and disturbance to key species, including Annex I habitats and Qualifying Interests from the Lower River Shannon SAC;
- Loss of water quality associated with construction work;
- Spread of invasive species;
- Changes in soil and geology related to excavation works;
- Emissions during the construction phase;
- Deterioration of cultural heritage and landscape assets in the area.

These likely significant effects on key environmental receptors highlight the need to assess and implement specific mitigation measures to reduce the impacts and direct/indirect effects from the proposed development on these receptors.

With reference to Section 50 (1) (d) (i) of the Roads Act 1993 (as amended), the EIA Screening report concluded that the proposed development which involves the construction of a new greenway, that is located adjacent to and within a protected European Site, is likely to have significant effects on the environment, either by itself or in combination with other plans or projects, and that an Environmental Impact Assessment Report (EIAR) would be required having regard for the proposed works and in the context of previous studies undertaken.

8.4. Environmental Impact Assessment (EIA) Scoping report

An EIA Scoping report was prepared for the project. The report outlined the key themes which would be considered and assessed in the EIAR, along with the assessment methodologies that will be utilised. It confirmed that consultation with the public, statutory bodies and non-statutory organisations, based on this document, was underway, to ensure inputs from all relevant interested parties from the earliest stages of the EIAR preparation. The report invited comments and observations in relation to the EIAR Scoping Report at the Stakeholder's earliest convenience and confirmed that all comments and observations received will be recorded, acknowledged and considered in the relevant chapters during the preparation of the Environmental Impact Assessment Report.

The EIA Scoping report and issued to the following stakeholders:

- LCCC Project Team
- LCCC Heritage
- LCCC Archaeologist
- LCCC Architectural Conservation
- Waterways Ireland
- Office of Public Works
- National Parks & Wildlife Service
- Inland Fisheries Ireland
- An Garda Siochana
- IDA Castletroy
- UL Facilities

No comments were received from the stakeholders.

8.5. Environmental Impact Assessment (EIA) report

An EIA report has been prepared for this project. The following sections provide summaries for chapters in the EIA report.

8.5.1. Human Beings, Population & Human Health

Potential impacts on the receiving biodiversity, land, soils and geology, air quality and climate, traffic, noise and vibration, receiving landscape and visual amenity, material assets including traffic, services (electricity, water, telecoms) and waste management could result in associated population and human health impacts. There is potential for air quality impact on the local community during construction phase as a result of increased dust emissions. However, the mitigation measures described in the EIAR will ensure that these are suitability mitigated.

For the assessment of cumulative in combination impacts, any other existing, permitted or proposed developments have been considered where they had the potential to generate a significant in-combination or cumulative impact with the proposed Greenway.

The Limerick Development Plan 2022-2028 emphasises the promotion and facilitation of such Projects including an objective of the Plan to 'Seek the provision of appropriate, inclusive and accessible, safe amenity, recreational open space and community facilities that are available for all sectors of the community, both urban and rural at a convenient distance from their homes and places of work'. Limerick City and County Council also recognises the importance of cycling and walking as a mode of transport and recreational activity and supports the provision of provision of designated cycle routes, walking trails/ pathways and improved road surfaces.

Projects that were included in the Cumulative Impact Assessment for Population and Human Health included numerous small scale proposed, permitted and existing developments (e.g. dwelling house, commercial units, etc.).

Following a detailed assessment of the receiving environment and potential impacts of the proposed Project in combination with the potential impacts of the plans and projects, no potential for significant in-combination cumulative effects on population and human health in the area are anticipated.

8.5.2. Biodiversity

A Biodiversity Management Plan (BMP) has been prepared for this project.

The proposed Greenway project has been designed to achieve its aim of promoting cycling as a realistic choice as a mode of transport in the Limerick Metropolitan Area, providing a safe, clear and accessible network of cycle networks from UL to the National Technology Park and beyond. The identified impacts and potential direct and indirect significant effects of the Project on biodiversity have been fully identified, assessed, quantified and where necessary and appropriately mitigated. The design considered and allowed to the sensitivity to the existing key ecological receptors within the area.

The outcome of the assessment of the effects of the proposed Limerick City Greenway (UL to NTP) on biodiversity, is that there will be local moderate losses of amenity grassland and wooded habitat and in respect of key ecological receptors associated with the these and other habitats within the proposed development study area, prior to mitigation measures. Fauna species, including otter, badger, bats, birds, fish and amphibians were considered in the assessment and was determined that for some of these species, there is potential for moderate negative effects as a result of the construction activities. Invasive species have also been assessed, and if no mitigation measures are applied, this could result in a moderate negative effect on the surrounding area and native flora communities.

Based on the above, environmental management and design measures are proposed, chiefly to limit tree and hedge clearance along the route, control and limit sediment and potential contaminant runoff, to protect watercourses against water quality, minimise disturbance to fauna in the area, and propose reinstatement and a planting scheme measures through a detailed Landscape Plan, that will minimise any potential impacts and/or effects from the construction and operational phases of the proposed greenway.

Furthermore, an assessment of the potential for significant effects on European sites downstream of the project was conducted in accordance with the requirements of the Habitats Directive, of which details are provided in the Natura Impact Statement prepared for the proposed greenway. This assessment concluded that the proposed Greenway, both in isolation and in combination with other plans or projects, is not likely to result in significant effects on any European Sites. Accordingly, no adverse effects on the integrity of these sites are anticipated.

The development of the proposed Limerick City Greenway (UL to NTP) works will not adversely affect key ecological receptors nor the European Sites, and there is no reasonable scientific doubt in relation to this conclusion.

8.5.3. Land use, Soils and Geology

Existing and surrounding land uses are compatible with the proposed Greenway route (and paths), and it has a minimal impact on future nearby developments. Ryan Hanley has prepared land acquisition and wayleave drawings for the Greenway route through private and public land, and the perpendicular footpath and cycle lanes along University Road, and McLaughlan Road.

The soil Lithology is classified as Esturine silts and clays, Urban, Till derived from limestones, Alluvium, and Gravels derived from Limestones. Geological Survey of Ireland (GSI) data has been reviewed in assessing soils, geology, and hydrogeology.

8.5.4. Flood Risk Assessment / Hydrology

An Flood Risk Assessment report was prepared for this project.

The proposed Greenway will be, for the most part, at grade with existing trackway levels and adjacent lands.

The proposed Greenway includes 3 No. watercourse crossings and the replacement of 2 No. existing bridge decks and the upgrade of drainage pipes.

Flood Mapping developed by the OPW CFRAM programme confirms that appreciable lengths of the proposed Greenway are in Flood Zone A (2.36km) and Flood Zone B (2.77km) associated with the River Shannon and its tributaries scheme floodplains.

Portions of the existing paths and the proposed greenway are below the 10% AEP flood level. Flood depths in excess of 1.5m along the Greenway would be expected to occur in a 1% AEP (1 in 100 year) flood event.

The proposed scheme, being an "Amenity open space, outdoor sports and recreation" facility, is classed as a Water Compatible development in the OPW Planning System and Flood Risk management Guidelines, and therefore is an appropriate development for both Flood Zone A and B.

A justification test for the development in accordance with the Flood Risk Management Guidelines, further confirmed that the proposed development is appropriate, albeit with mitigations.

The Office of Public Works (OPW) confirmed in August 2024 that Section 50 applications will be required for all the proposed surface water management infrastructure. Preparation of the Section 50 application report and liaison with the OPW will begin after a grant of planning has been received for the project.

Consultation has been carried out with the LCCC Flooding team who advised that design flood levels are being produced under the CFRAM project.

The IDA have submitted a planning application to LCCC for a new flood defence system and design liaison has occurred between the proposed Greenway design team and the IDA flood defence designers to ensure there is no design overlap. The IDA flood defences are proposed to be 1-1.5m high sheet piles at 10m or 11m invert level (Malin Head) and will be set back from the River Shannon.

Ryan Hanley's Senior Hydrologist recommended that surface water will be managed through a series of open drains along the proposed path, existing culverts should be maintained, and new culverts at low points or at 100m intervals shall be constructed under the proposed Greenway path to ensure existing surface water drainage routes will be maintained. Sections of the proposed Greenway will be covered by water during significant flood events, and the tarmacadam sealed path has been designed with drains to enable water to recede when flood water levels drop in the river, to ensure the proposed Greenway can be brought back into service at the earliest opportunity. There will be gates at strategic locations to close off the greenway between east of Kilmurray Student Village and McLaughlin Road before, during and for a period after storm events.

8.5.5. Water

A Flood Risk Assessment for the proposed greenway has been completed. There will be a potential temporary impact during 1 in 100 year and 1 in 1000 year flood events. A new drainage network of land drains and culverts will be required to convey surface water to the River Shannon after flood events. Maintenance of this drainage infrastructure by LCCC will be required.

Surface water will be managed through a series of existing open drains alongside the proposed Greenway and existing culverts under existing paths, proposed open drains alongside the proposed Greenway, and new culvert pipes under the proposed path.

All elements of the proposed development were assessed in order to identify effects.

Although individually a scheme may have an insignificant impact on WFD quality elements within a reach, the combined effect of several schemes within a water body may cause deterioration. The cumulative effects of existing pressures and other planned schemes that may have similar effects within a water body must be considered in combination with the impacts of the proposed scheme.

Site activities during the construction phase have the potential to give rise to water pollution, and consequential impacts on flora and fauna. Extensive mitigation is proposed to minimise the potential for water pollution arising from the works which also minimises the potential for any cumulative or interacting effect.

The Limerick Development Plan 2022-2028 and planning register were consulted to identify any developments which could cause cumulative impacts with the proposed project. No major developments that would have in-combination effects are planned for the area within this time period.

Once the recommended mitigation measures are implemented, the proposed work will not lead to any deterioration in water quality status. Following a detailed assessment of the receiving environment and potential impacts of the proposed Scheme in combination with the potential impacts of adjacent projects, no potential for significant in-combination cumulative effects on water are anticipated.

The proposed scheme, being an "Amenity open space, outdoor sports and recreation" facility, is classed as a Water Compatible development in the OPW Planning System and Flood Risk management Guidelines, and therefore is an appropriate development for both Flood Zone A and B.

A justification test for the development in accordance with the Flood Risk Management Guidelines, further confirmed that the proposed development is appropriate albeit with mitigations. The Greenway track should be constructed to be water compatible, i.e. one which is resistant to damage caused by flooding and prolonged inundation, e.g. sealed surface, appropriate drainage etc.

8.5.6. Air Quality, Noise & Vibration

All elements of the proposed development were assessed in order to identify any cumulative effects.

Site activity during the construction phase of the Greenway could give rise to noise that could cause potential disturbance to fauna. All construction activities will be temporary in nature with limited interaction on sensitive habitats and will progress across the four works sections, minimising the duration of works in any one area.

The movement of construction vehicles both within and to and from the works areas has the potential to give rise to noise and dust nuisance impacts during the construction phase. The operation of construction plant and machinery during the construction phase of the Greenway has the potential to give rise to

emissions which can impact human health, air quality. Mitigation and control measures have been detailed in this report and in the associated BMP, CEMP, NIS, and EIAr for this project.

Based on the assessment of all elements of the proposed development, no significant cumulative effects relating to air quality, noise and vibration are anticipated.

Air Quality

The construction phase of the proposed Greenway, in combination with the construction phases of adjacent projects will have the potential to negatively impact on air quality of the area due to cumulative dust and construction plant emissions. The mitigation measures employed during the construction phase of the proposed development will minimise the contribution that it will make towards impacting on air quality. Given that existing baseline levels of NO2, PM10, PM2.5, CO and benzene are likely to be below ambient air quality limit values in the vicinity of the proposed works, and with mitigation measures in place, there is the potential for a short-term negligible cumulative impact in terms of air quality. Overall, the proposed Greenway will constitute a permanent positive impact during the operation phase due in terms of air quality by reducing the amount of air pollutants that would otherwise have been emitted from transport vehicles if the Greenway was not available.

Noise & Vibration

In the very unlikely event of all the adjacent projects being constructed simultaneously, there is a potential for a short-term slight to moderate negative cumulative noise and vibration impact. With implementation of the mitigation measures listed in this report and in the associated BMP, CEMP, NIS, and EIAr for this project during the construction phase, the potential cumulative impact that this project will be minimised. Any impacts from the proposed Greenway will be temporary and transient in nature as the works progress along the proposed works sections. Impacts will also differ between receptors, depending on distance to the works areas, and the type of works being carried out in the area. Given the mitigation measures being implemented for the construction phase of the Greenway, and depending on the receptor in question, there is potential for no impact or a temporary imperceptible to moderate negative cumulative impact.

Based on the assessment of the proposed development in combination with all other programmes and projects in the vicinity, no significant in-combinate cumulative effects relating to air quality, noise and vibration are anticipated.

8.5.7. Climate

Impact on air quality and climate during the construction period are not expected to be significant in nature and therefore do not give rise to significant cumulative effects.

Potential in combination effects on air quality and climate between the proposed development and other projects in the surrounding area were also considered as part of the Climate assessment.

During the construction phase of the proposed development, there will be emissions from construction plant and machinery and potential dust emissions associated with the construction activities of other projects adjacent to the proposed greenway. Of the most recent projects, three were granted permission in 2022, one sought permission in Q4 of 2022, and one sought permission in Q2 2025. Once the mitigation proposals are implemented during the construction phase of these projects, there will be no cumulative negative effect on climate.

Emissions of greenhouse gases during the operation of the planned projects will be related to maintenance operations and activities, lighting and energy consumption. There will be no measurable negative cumulative effect of other projects on climate.

8.5.8. Landscape and Visual impact

If the proposed Greenway works were not carried out, the study area would remain as it is. It is likely that the section east of Kilmurry student village would continue to become overgrown, making access difficult, if not well maintained.

The construction phase will result in localised changes in parts of the UL Campus, particularly around the temporary construction compounds. The movement of machinery in these areas and along the proposed route of the Greenway during the Construction phase will result in a magnitude of change ranging from Medium to High along the proposed Greenway route within the UL grounds. The tranquil landscape character with its sense of remoteness will be temporarily affected by the construction works.

A High magnitude of change is likely along the riverbank section east of Kilmurry Village, as there will be a temporary compound in the open field just east of the village, and some vegetation clearance in the vicinity of Castle Troy however this will avoid the area in the immediate vicinity of the Black/Troy Castle and is routed along McLaughlan Road. The changes in the vicinity of Plassey Park Road will be less pronounced as these are already busy routes with construction work ongoing in sections of Plassey Park Road/University Road junction.

The significance of effect in the University of Limerick Campus – UL Boathouse to Kilmurry Village will be Moderate-Significant, adverse, temporary Landscape Effect during the construction phase. This will be a localised effect, confined to the immediate vicinity of the proposed Greenway and the areas around the construction compounds, and not throughout the wider campus.

The significance of effect in the IDA National Technology park to Plassey Park Road will be Slight-Moderate, adverse, temporary landscape effect. This will be localised, as the majority of this area is slightly more remote and is further away from buildings and other routes, however the requirement for more vegetation clearance will result in a considerable temporary effect on the landscape character.

Visual Effects at the construction phase are likely to be primarily associated with vegetation and tree removal, visibility of the temporary construction compounds and of construction machinery on the site.

The visual effects during construction are in this case, more pronounced than at the Operational phase. Depending on the view, viewers will see actions such as removal of trees and vegetation, breaking up and removing of some existing hard surfaces and topsoil stripping, construction of the proposed path and railings, and machinery entering and exiting the site. The visual effects tend to be adverse as the finished pathway will not be visible, and the view is of a construction activity and the temporary loss of the pleasant tranquil character which many of the views represent.

The majority of the areas where the proposed Greenway traverses the UL campus are expected to undergo Not Significant to Slight landscape effects, which are neutral in quality, where the path is simply widened and re-surfaced with some small-scale vegetation loss. Slight to Moderate, adverse effects result in certain areas– the woodland east of Dromroe village and west of the Living Bridge, where some tree removal is necessary to facilitate an alternative route. However over time, as the vegetation along the path route recovers and the ground layer re-establishes, the effects will reduce. The Plassey Mills rest area, which is located at the end of the disused Plassey Bridge, will also undergo a localised change in character, but this will be less pronounced and considered a Moderate, neutral, localised effect, as there are already some elements (a wider path, stone walls) which render this change less obvious.

The area around Plassey Beach will undergo the most noticeable change, considered of Medium-magnitude. This is a High sensitivity landscape and, in this location, the effects on the localised landscape character of the shore would be considered Moderate, and adverse. Through the shore is a small area (geographically) and the effects do not extend to the wider landscape, the small size of the shore area means it has a lower capacity to absorb new elements and the ramp, retaining wall and railings and removal of several distinctive mature trees, and the widened and hard surfaced path adjacent to the shore, will result in a changed character, as no part of the shore is unaffected. The effect is considered Moderate and range from Long Term/Permanent. Some limited re-vegetation is likely to occur over time once the railings and ramp are in place.

The landscape effects will be very localised to the immediate vicinity of the path, and not perceptible from the wider UL campus landscape.

The landscape effects are considered overall to be overall Slight in the NTP. The removal of mature trees is likely to be limited, in particular between the Kilmurry village area to just east of the Black/Troy Castle, where the majority of the Tree Groups (classified as B value in the Tree Survey) are retained and thus the wooded character of much of this part of the path will remain. Along with this, the very dense undergrowth (with its somewhat oppressive character) along this part of the study area will be removed, considerably opening up the character of the path and creating a more inviting atmosphere for the user. The proposed Greenway 'spurs' along University Road and the existing McLaughlin Road are considered to result in Not Significant, neutral landscape effects.

8.5.9. Archaeology

The greenfield areas within the Greenway route in relative proximity to areas of recorded archaeological monuments, coupled with the setting in a wider area of relative archaeological sensitivity (as attested by previous archaeological works) allows for a moderate potential for uncovering previously unrecorded sub-surface archaeological remains.

Where works are proposed on existing pathways and roadways where sub-soils and geology have been previously disturbed, there is a negligible to slight potential to impact on previously unrecorded archaeology.

A programme of Archaeological testing will be undertaken in advance of construction within the scheme footprint at the following locations:

- Between the River Groody bridge and the UL Boat Club, and,
- East of Plassey Mills.

8.5.10. Cultural Heritage

There are fourteen protected structures located within the assessment area as listed on the RPS for Co. Limerick and Co. Clare Although lying outside the immediate areas of proposed works, planning of works for Construction Phase will be cognisant of these structures and associated settings. Contractors will be apprised of the locations and sensitivities of these structures and their settings in order to minimise the potential for incidental impacts during Construction Phase.

The proposed Greenway has been designed to integrate with the built heritage resource of the area and improve the amenity and settings of this resource. The proposed construction methodology for the Greenway is discussed in detail in Appendix C.

Where proposed works require alteration of existing infrastructure associated with Plassey Mills, detailed drawn, photographic, and written records will be made of these elements prior to alteration,

removal, or replacement. This will be undertaken by a suitably qualified built heritage specialist. A Section 57 Declaration may be required from the local authority in advance of such alterations. In general, the locations of street furniture, path-side features and structures including, but not limited to parapets, milestones, vernacular walls, historic paving, gates, ordnance survey benchmarks and trigonometrical stations, etc., have been considered at design stage to allow for retention and/or re-instatement.

8.6. Invasive Species Management Plan (ISMP)

An Invasive Species Management Plan has been produced for this project.

Advanced chemical treatment has been identified as the preferred treatment option for this project. However, given the extent of the invasive species infestation within the Study Area, eradication of these species within the construction site is considered unlikely and further biosecurity control measures during the construction of the greenway will be required. A pre-construction re-survey shall be undertaken by the Works Contractor's specialist to confirm the extent of invasive species within the proposed greenway works area at the time. This plan provides measures to prevent the spread of invasive species listed on the Third Schedule of the Birds and Habitats Regulations (S.I. 477 of 2011) within the proposed greenway works area and adjacent lands.

Invasive species control measures have been described in the plan which states the project specific proposals. Control measures and treatment shall be implemented by a suitably qualified licenced specialist. The site will be monitored through the treatment period of this plan and in the subsequent years. Any re-growth of Himalayan balsam and Giant hogweed shall be treated.

It is recommended that LCCC engages a specialist to carry out IAPS treatment over two calendar years which should be completed before the works contractor starts on site, following the recommended treatment methods detailed in the invasive species management plan.

8.7. Construction Environmental Management Plan (CEMP)

The proposed greenway project will comply with all relevant environmental regulations and guidance set out by key regulatory bodies, including the Environmental Protection Agency (EPA), the National Parks and Wildlife Service (NPWS), and other relevant authorities. The proposed development will adhere to the provision set out in the Habitats Directive and Birds Directive, ensuring the protection of the Qualifying Interests of the Lower River Shannon Special Area of Conservation. Specific measures to prevent pollution will be in line with the Water Framework Directive and the European Communities (Water Policy) Regulations. Compliance will be ensured through monitoring, audits and consultations with the relevant authorities and any mitigation measures will be undertaken in accordance with their recommendations.

The mitigation calendar (in the NIS, BMP, CEMP, EIAr, this report) shall be applied and followed to ensure protection of habitats and species during construction and operational phases of the greenway. In general, the construction works should be planned during the 'green' periods in the calendar year, as long as appropriate mitigation measures are implemented. The exception to this is Fish (salmonoid spawning) because foreshore works (including preparatory work) beside all watercourses supporting salmonids shall be undertaken from May to October (inclusive) and in consultation with Inland Fisheries Ireland (IFI) to avoid accidental damage or siltation of spawning beds.

Daily and weekly environmental inspections of construction activities will be carried out by the Environmental Manager and the Site Construction Manager in accordance with the CEMP to ensure all controls to prevent environmental impact, relevant to the construction activities taking place at the time, are in place.

8.8. Waste Management

Excavated soil will be used to build up embankments along the edges of the proposed Greenway path and excess material will be used to create a shallow berm on the river side of the Greenway route. A waste management plan will be implemented by the Contractor.

8.9. Traffic (and Pedestrian) Management

The effects of construction on traffic have been considered throughout the design process. It is anticipated that restrictions will be limited in duration but will include temporary path closures with local pedestrian diversion routes during construction of the Greenway. Refer to the draft Traffic Management Plan for details.

8.10. Road Safety Audit Stage 1

A Stage 1 Road Safety Audit has been completed for the project.

8.11. Key Focus of Planning Assessment

This report has been prepared to support the full Planning Permission Application for construction of the Limerick City Greenway (UL to NTP) project under Section 51(A) of the Roads Act, 1993 (As Amended). Applicable legislation and policies at National, Regional and Local level and related objectives have been considered and reviewed. Impacts of the project as listed previously are considered and assessed, and measures to mitigate these impacts have been presented.

9. Conclusion

The proposed Greenway will provide an upgraded walking and cycling route along a riverbank in Co. Limerick. There will be public lighting along the proposed Greenway, new connections between the Active Travel and Public transportation routes on Plassey Park Road, and new links to the University of Limerick.

The proposed works for the construction of the Limerick City Greenway (UL to NTP) will be on land for which specific planning objectives are in place.

We have examined all applicable planning objectives and mitigated any risks to the meeting of same and as a result we consider that the development of the proposed Greenway will not significantly impede development potential or zoning objectives of the land.

The proposed development is consistent with planning policy at National, Regional and Local level and is in accordance with proper planning and sustainable development.

Appendix A: Preliminary Design Drawings

Appendix B: Landscape Architecture Drawings

Appendix C: Structural Design Drawings

Appendix D: Planning Application Details

The planning applications that are relevant to the proposed Greenway are listed in the table below.

Application Number	Development Description	Development Address	Status of application
16506	Completion of "Fishermans Cottage" as granted by An Bord Pleanála reference no. PL13.231331	Plassey Mills, Castletroy	Conditional
18440	The erection of illuminated signage on the eastern elevation of the existing boat house.	University of Limerick, Dromroe, Co. Limerick.	Conditional
20543	Extension of the existing common room mezzanine at the Millstream Building, University of Limerick, Sreelane, Co. Limerick. The development will comprise of a mezzanine extension of 59.5 sq.m and minor elevational modifications.	University of Limerick, Sreelane, Co. Limerick	Conditional
217002	Extension of duration for application No. 15697	University of Limerick, Sreelane, Co. Limerick	Conditional
22281	Repairs to the pontoon and gangway adjacent to the UL Boathouse at Dromroe. The works involve the replacement of the existing decking and the installation of a security gate at the entrance to the pontoon.	University of Limerick, Sreelane, Co. Limerick	Conditional
23316168	The proposed upgrade of the existing Castletroy Wastewater Treatment Plant.	Dromore, Castletroy, Limerick	Conditional

Planning applications in UL (eastern) & IDA NTP campus

Application Number	Development Description	Development Address	Status of application
15784	External energy services compound housing electrical and air conditioning plant, fuel storage and equipment for the Data Centre along with modifications to the main electrical power equipment	Customer Call Care Buildings, McLaughlan Road, National Technology Park	Conditional
1671	The construction of a 3 storey office building including a data centre, utility building and esb substation.	O'Halloran Road, National Technology Park	Conditional
16723	The construction of a fenced in compound house electricity generators, smoking area, bicycle parking, refuse bin storage together with modifications to existing	Hamilton House 1, National Technological Park, Plassey	Conditional

Application Number	Development Description	Development Address	Status of application
	elevations on the lower ground floor and removal of existing generators		
16951	The change of use from Recreational to Commercial and of works including extension to front of building for new building entrance, extension to side of building for building services, roof level plant area, elevational changes, revised internal site road	Former Unigolf Building, National Technology Park, Castletroy	Conditional
17655	The construction of a full sized natural grass GAA pitch, 2 full sized synthetic grass pitches, hurling practice area and adjoining 214m squared storage building. The storage building includes a substation room, switch room, plant room, sanitary facilities and storage spaces	Maguires Field, University of Limerick Campus Plassey Park Road, Castletroy Co. Limerick.	Conditional
18226	A wind turbine of up to 3MW, hub height of up to 99m above ground, a rotor radius of up to 51.5m, associated infrastructure, construction of an access track, undergrounding of existing overhead power lines, and all other associated works.	Castletroy and Rivers, National Technology Park, Plassey Limerick.	Withdrawn
18252	The redevelopment of Plassey Park Road, Annacotty roundabout and R445 road at the National Technology Park, Plassey, Co. Limerick.	National Technology Park, Plassey, Co. Limerick.	Conditional
18687	The upgrade of existing flood defences to consist of the following; extension to an existing flood defence berm along the Shannon and Mulkear river banks; the upgrade and rerouting of the existing surface water drainage system; provision of attenuation ponds: and improvements to the existing storm water sewer system	The National Technology Park, townlands of Castletroy & Rivers, Co. Limerick.	Withdrawn
208003	The signalisation of the Plassey Road/Plassey Park Road and Plassey Park Road/University Road junctions with the addition of dedicated pedestrian and cycle crossing facilities. It will also include the addition of bus lanes along both Plassey Park Road & Plassey Road to	Plassey Park Road & Plassey Road, Castletroy, Limerick	Conditional

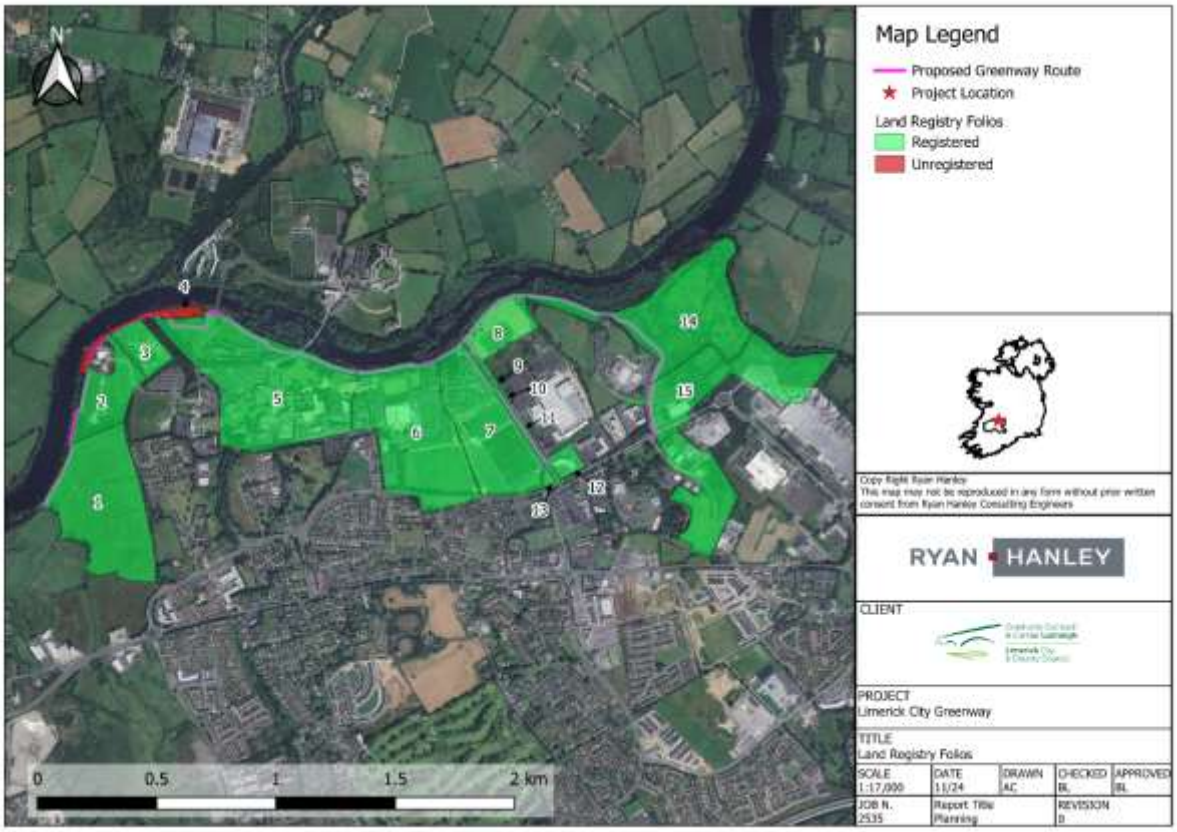
Application Number	Development Description	Development Address	Status of application
	permit bus priority measures to be introduced at both junctions. The proposed works also include upgrades to the existing walking and cycling facilities on both Plassey Park Road & Plassey Road, in conjunction with upgrades to minor road junctions, bus stops, new road surfacing, installation of LED public lighting & surface water drainage works		
22857	the erection of a sign to the Southwest Elevation consisting of an Alubond panel 4.507m x 0.6m in size, with company logo 3.6m c 0.818m, mechanically fixed to building entrance glazing with internal illumination	Hamilton House, Plassey Park Road, Castletroy Plassey Co. Limerick.	Conditional
2360712	the redevelopment of an existing sports pitch to include 1 no. full size, grass rugby playing pitch, a smaller 'training/warm up' grassed area, an immediately adjacent changing rooms building, an additional surface water drainage system	East of Kilmurray Student Village north of Troy Studio Lands, National Technology Park Campus, University of Limerick Castletroy Limerick.	Conditional
25/60477	The proposed upgrade works to existing flood defences consisting of the construction of 1.1m – 1.8m sheet pile wall to act as a flood barrier from the River Shannon and Mulkear River; associated drainage works including new drainage trenches, pipes and attenuation pond; construction of 11 no. mammal crossings comprising earth ramps filled to the top of the proposed sheet piles along the River Shannon and Mulkear River; Localised relocation of an existing boundary fence to the adjacent Johnson and Johnson facility to facilitate the proposed development; Removal of existing berm along the Mulkear River; All associated ancillary site development works.	The National Technology Park Townlands of Castletroy and Rivers Co. Limerick.	Deemed incomplete by LCCC

Application Number	Development Description	Development Address	Status of application
18252	The redevelopment of Plassey Park Road, Annacotty roundabout and R445 road at the National Technology Park, Plassey, Co. Limerick.	National Technology Park, Plassey, Co. Limerick.	Conditional

Appendix E: Land Register

E- 1 Land Register

The land folios where construction activities would need to take place are highlighted Details of these Folios are in the tables below.



Overview of Land Registry Folios along the proposed Greenway

Land Registry Folio Details

No.	Folio No.	Registered Owner
1	LK42026F	Suzanne Bugler
2	LK33105F	The University of Limerick
3	LK67547F	Uisce Éireann
4	N/A	Unregistered
5	LK6545F	The University of Limerick
6	LK25380F	The University of Limerick
7	LK15111F	The University of Limerick
8	LK24577F	The Univeristy of Limerick
9	LK69071F	The University of Limerick
10	LK71771F	Seefill Limerick
11	LK59203F	Patrick J Noonan & Noel Noonan
12	LK47393F	Fgpo Ireland General Partner 6 Limited
13	LK15111F	The University of Limerick
14	LK3287	Industrial Development Agency (Ireland)
15	LK71408F	Industrial Development Agency (Ireland)

Appendix F: Levels of Service and Technical Standards

Ancillary Infrastructure Level of Service (LoS) Levels

Quality of Service	Typical Setting	Projected Main Users	Likely Demand Type	Level of Ancillary Infrastructure
Level 1	Large residential area and/ or a nearby busy visitor attraction.	High recreation and utility use for the community and visitors.	Walk, cycle, jog, pram, dog walk, Segway, wheelchair and other.	Very High. Most ancillary infrastructure elements are appropriate for these locations and including pocket recreation facilities such as playgrounds and refreshment points.
Level 2	Small residential area or a local minor visitor attraction.	Short duration cross community and/or visitors.	Walk, cycle, jog, pram, in-line, dog walk, Segway, wheelchair and other.	High. Most ancillary infrastructure elements are appropriate for these locations.
Level 3	Rural area with a low population, no significant visitor attractions.	Half or full day recreation, community members and visitors.	Mainly cycling with some walking.	Low. Some rest areas and arts pieces may be appropriate in addition to way finding and service signage.

Publication (Design) References

Publication Title	Publication Body	Publication Number
Rural Cycleway Design (Offline & Greenway)	TII	DN-GEO-03047
Rural Road Link Design	TII	DN-GEO-03031
Footway Design	TII	DN-PAV-03026
Design Manual for Urban Roads and Streets (DMURS) – May 2019	Government of Ireland	N/A

Guidelines for Managing Openings in Public Roads (April 2017)	DTTS	N/A
National Cycle Manual (June 2011)	NTA	N/A

Publication (Standard) References

Publication Title	Publication Body	Publication Number
Specification for Works Series 000 – Introduction	TII	CC-SPW-00010
Specification for Road Works Series 100 – Preliminaries	TII	CC-SPW-00100
Specification for Road Works Series 200 – Site Clearance	TII	CC-SPW-00200
Specification for Road Works Series 300 – Fencing and Environmental Noise Barriers	TII	CC-SPW-00300
Specification for Road Restraints Systems (Vehicle and Pedestrian)	TII	CC-SPW-00400
Specification for Road Works Series 500 – Drainage and Service Ducts	TII	CC-SPW-00500
Specification for Road Works Series 600 – Earthworks	TII	CC-SPW-00600
Specification for Road Works Series 700 – Road Pavements – General	TII	CC-SPW-00700
Specification for Road Works Series 800 – Road Pavements – Unbound and Hydraulically Bound Mixtures	TII	CC-SPW-00800
Specification for Road Works Series 900 – Road Pavements – Bituminous Materials	TII	CC-SPW-00900
Specification for Road Works Series 1000 – Road Pavements – Concrete Materials	TII	CC-SPW-01000
Specification for Road Works Series 1100 – Kerbs, Footways and Paved Areas	TII	CC-SPW-01100
Specification for Road Works Series 1200 – Traffic Signs and Road Markings	TII	CC-SPW-01200
Specification for Road Lighting Columns and CCTV Masts	TII	CC-SPW-01300

Publication Title	Publication Body	Publication Number
Specification for Electrical Work Specification for Road Lighting and Traffic Signs	TII	CC-SPW-01400
Specification for Traffic Control and Communications	TII	CC-SPW-01500
Specification for Road Works Series 1700 – Structural Concrete	TII	CC-SPW-01700
Specification for Road Works Series 1800 – Structural Steelwork	TII	CC-SPW-01800
Specification for Road Works Series 1900 – Protection of Steelwork Against Corrosion	TII	CC-SPW-01900
Specification for Road Works Series 2000 – Waterproofing Specification for Concrete Structures	TII	CC-SPW-02000
Specification for Road Works Series 2100 – Bridge Bearings	TII	CC-SPW-02100
Specification for Road Works Series 2200 – Parapets	TII	CC-SPW-02200
Specification for Road Works Series 2300 – Bridge Expansion Joints and Sealing of Gaps	TII	CC-SPW-02300
Specification for Road Works Series 2400 - Brickwork, Blockwork and Stonework	TII	CC-SPW-2400
Specification for Road Works Series 2600 - Miscellaneous	TII	CC-SPW-2600
Specification for Road Works Series 2700 - Watermains, Utilities and Accommodation Works	TII	CC-SPW-2700
Specification for Road Works Series 2800 - Trenchless Installation of Road Drainage and Service Ducts	TII	CC-SPW-2800
Specification for Road Works Series 2900 - CCTV Survey of Road Drainage Systems	TII	CC-SPW-2900
Specification for the Reinstatement of Openings in National Roads	TII	CC-SPW-4007
Structural Concrete Repairs	TII	CC-SPW-5500
Winter Service Manual	TII	AM-PAV-06051

Publication Title	Publication Body	Publication Number
Specification for Road Works Series 900 – Road Pavements – Bituminous Materials	TII	CC-SPW-00900
Edge of Pavement Design	TII	DN-DNG-03062
Design Phase Procedure for Road Safety Improvement Schemes, Urban Renewal	TII	DN-GEO-03030
Road Link Design	TII	DN-GEO-03031
Cross Sections and Headroom	TII	DN-GEO-03036
Subways for Pedestrians and Pedal Cyclists. Layout and Dimensions	TII	DN-GEO-03040
The Geometric Layout of Signal-Controlled Junctions and Signalised Roundabouts	TII	DN-GEO-03044
The Location and Layout of Laybys and Location Markers	TII	DN-GEO-03046
Geometric Design of Junctions (Priority Junctions, Roundabouts, Grade Separated and	TII	DN-GEO-03060
The Treatment of Transition Zones to Towns and Villages on National Roads	TII	DN-GEO-03084
Design of Road Lighting for National Roads	TII	DN-LHT-03038
Pavement and Foundation Design	TII	DN-PAV-03021
Design of Bituminous Mixtures, Surface Treatments, and Miscellaneous Products and P	TII	DN-PAV-03074
The Design of Road Restraint Systems (Vehicle and Pedestrian) for Roads and Bridges	TII	DN-REQ-03034
Design Criteria for Footbridges	TII	DN-STR-03005
A Guide to Landscape Treatments for National Road Schemes in Ireland	TII	GE-ENV-01103
Departures to Standards and Specification	TII	GE-GEN-01005
Applying a Gender Lens to TII Public Transport Projects	TII	GE-GEN-01007
Road Safety Audit	TII	GE-STY-01024

Publication Title	Publication Body	Publication Number
Landscape Character Assessment (LCA) and Landscape and Visual Impact	TII	PE-ENV-01101
Project Appraisal Guidelines for National Roads Unit 4.0 – Consideration of Alterna	TII	PE-PAG-02013
Project Appraisal Guidelines for National Roads Unit 7.0 – Multi Criteria Analysis	TII	PE-PAG-02031
Project Appraisal Guidelines for National Roads Unit 13.0 – Appraisal of Active Mod	TII	PE-PAG-02036
Area Based Transport Assessment (ABTA) Guidance Notes	TII	PE-PDV-02046
TII Project Management Guidelines	TII	PE-PMG-02041
Project Manager's Manual for Major National Road Projects	TII	PE-PMG-02042
Project Manager's Manual for Greenway Projects	TII	PE-PMG-02047