



Comhairle Cathrach
& Contae **Luimnigh**

Limerick City
& County Council

Limerick City Greenway (UL to NTP)

ENVIRONMENTAL IMPACT ASSESSMENT SCREENING REPORT



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LIST OF ABBREVIATIONS

AA	Appropriate Assessment
ABP	An Bord Pleanála
EC	European Commission
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
EU	European Union
LCCC	Limerick City and County Council
NHA	Natural Heritage Area
NIS	Natura Impact Statement
NPWS	National Parks and Wildlife Service
NTP	National Technology Park
OPR	Office of the Planning Regulator
OPW	Office of Public Works
pNHA	Proposed Natural Heritage Area
SAC	Special Areas of Conservation: are sites designated under the Habitats Directive 92/43/EEC
SPA	Special Protection Areas: are sites designated under the Birds Directive 79/409/EEC
UL	University of Limerick

1 INTRODUCTION

Ryan Hanley was commissioned by Limerick City and County Council (LCCC) to prepare an Environmental Impact Assessment (EIA) Screening Report for the provision of the design of the proposed Limerick City Greenway (UL to NTP) which forms part of a larger cycleway plan for Limerick, as detailed in the Limerick Development Plan 2022-2028 (LDP) and the Limerick Shannon Metropolitan Area Transport Strategy 2022 (LSMATS).

The purpose of this report is to determine whether an EIAR is required for the proposed project based on criteria listed in Annex II of the EIA Directive (Annex II Projects) and transposed into Irish Planning Law in Schedule 5 of the Planning and Development Regulations 2001.

The findings of the EIA screening undertaken by Ryan Hanley are presented in this report.

1.1 Need for the Development

The proposed Limerick City Greenway (UL to NTP) is included in Section 9.1.7 Greenway Cycle Network in 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 proposed greenway can serve both an amenity and commuter function.

Chapter 7 - Sustainable Mobility and Transport in the LDP 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 (Objective TR 08). 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'*.

1.2 Statement of Authority

Paola Rodolfi is an Environmental Scientist, joined Ryan Hanley in 2022 and compiled this report. Paola has over 10 years of experience in environmental management, preparing EIAR, NIS and other related reports. Her experience further includes carbon assessment calculations, sustainability reports and GIS analysis tools. With Ryan Hanley, Paola has been involved in preparing Environmental Impact Assessment Reports, AA Screening reports, NIS, EIA Screening and Scoping reports.

Trevor Stafford joined Ryan Hanley in 2018 as a Senior Ecologist and reviewed this report. Trevor has over 17 years' experience in Environmental Services sector including periods within both the Public and Private Sectors. Trevor is a Senior Ecologist and is responsible for the delivery of environmental and ecological assessments to support a range of proposed developments including greenways, active travel, water, wastewater, utilities and flood relief schemes.

2 DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1 Background

The Limerick City Greenway (UL to NTP) Project will form an extension to the already constructed Limerick Smarter Travel, Route 2, which involved the upgrade of an existing pathway, 1.5km in length between the Kevin Hannan Bridge and the University of Limerick Boat Club along the southern bank of the River Shannon. This path enables a direct connection between the city centre and the University of Limerick (UL) campus. It will also connect to existing cycle lanes and footpaths on Plassey Park Road. Refer to Figure 2. 1.

The Study Area is situated within the Lower Shannon River Catchment, and the main water body is the Lower River Shannon. Other rivers within the Study Area are the River Groody to the west, the River Mulkear to the east, and the River Blackwater to the north of the Study Area. Refer to Figure 2. 1.

The Zone of Influence of the project is located entirely in County Limerick.

The entire site is located within the administrative boundary of Limerick City and County Council.

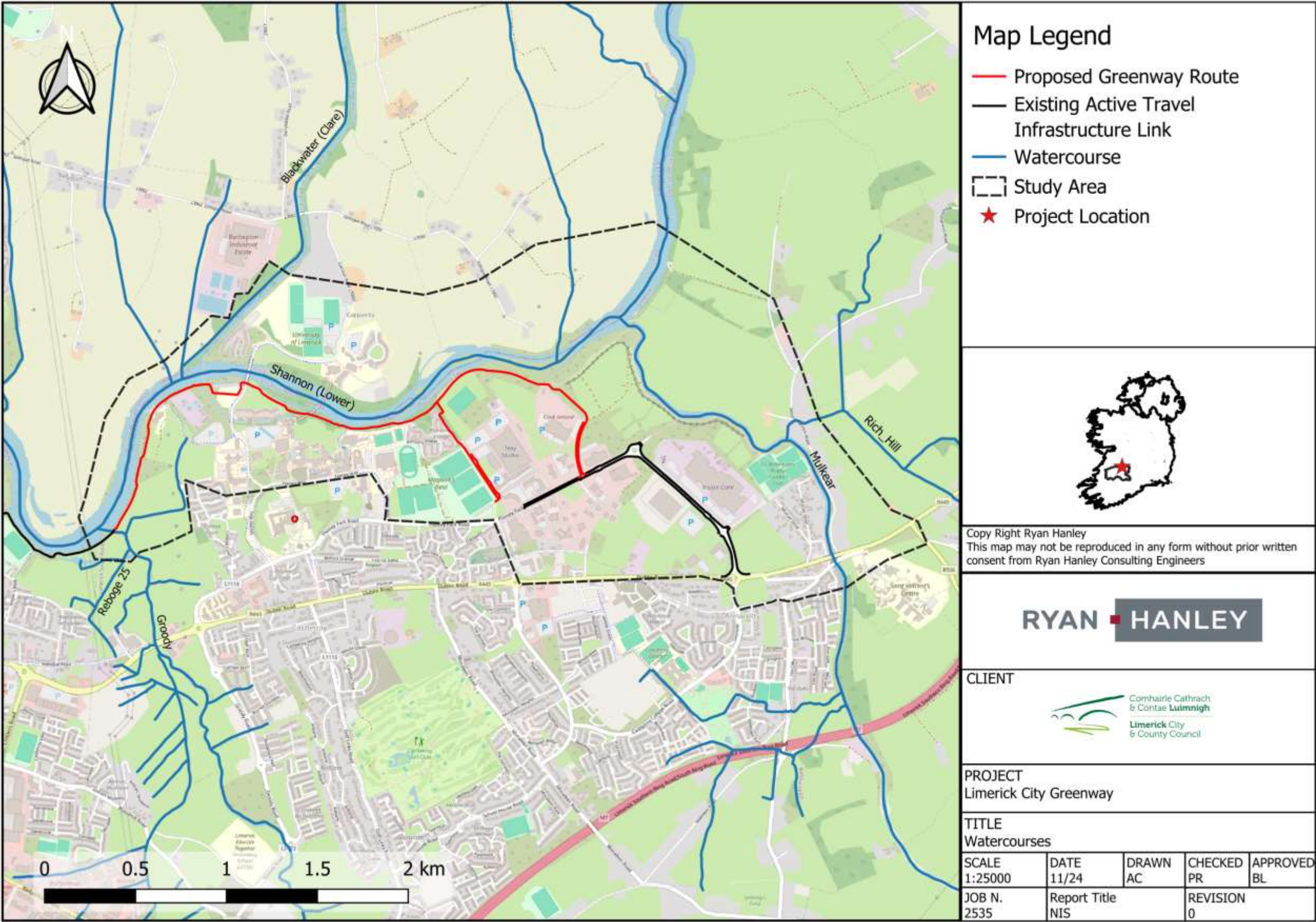


FIGURE 2. 1 SITE LAYOUT OF THE PROPOSED WORKS

2.2 Proposed works

The proposed works consists of a new greenway covering 4.5 kilometres (km) from start to finish, adjoining 1.4km of existing cycle lanes and footpaths on Plassey Park Road. It will have a path width of 3.5-4.3m and interfaces where the proposed Greenway meets existing public roads.

The proposed route commences from the west side of the existing River Groody bridge at the confluence of the River Groody with the River Shannon (CH 0). The proposed Greenway route will run adjacent to an existing narrow walking track along the southern bank of the River Shannon. The proposed Greenway will rejoin this existing Active Travel path where it is 3.5m wide and 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.

The route will pass by the UL Boat Club and extend eastwards to an existing concrete bridge which will be replaced by a 4.8m long steel bridge (Bridge No. 1 @ CH 795). A new 9.6m long steel and concrete bridge will be constructed alongside an existing stone bridge (Bridge No. 2 @ CH 970). The existing bridge across the Plassey Mill race will be replaced with a new 5.4m long steel bridge (Bridge No. 3 @ CH 1000) and an amenity space is proposed adjacent to the Plassey Mill (CH 1010). Access for a future connection to the Blackbridge across the River Shannon to Co. Clare will be provided. The existing bridge across the overspill for the Plassey Mill race will be replaced with a new 5.1m long steel bridge (Bridge 4 @ CH 1050).

The route turns southeast and will continue behind a collection of fishing huts and crosses a section of mixed broadleaved woodland and amenity grassland (approx. CH 1050 – CH 1250). The proposed route will replace an existing gravel path going north towards Drumroe Village University Bridge and turn east to continue along the River Shannon past the Drumroe Student Village. The proposed Greenway route will replace the existing gravel path, pass under the Living bridge (CH 1650), and meander between the River Shannon and the Plassey Mill race to avoid mature trees (wherever possible) until it reaches Plassey Beach.

A 12.8m long steel bridge is proposed to replace the existing concrete bridge at the mouth of the Plassey Mill race (CH-2200 – CH-2245). This new bridge will facilitate wheelchair users and cyclists to cross the Plassey Mill race whereas the existing bridge is narrow and has steps. There will be a new ramp for people to walk down, wheelchair users and buggies/children's scooters from the proposed Greenway to Plassey Beach providing an amenity that provides access to all. There will be new seating and planting areas provided at the beach.

The proposed Greenway route then passes north of Kilmurry Student Village and reaches a junction (CH 2250). The route south provides access to University Road and to Plassey Park road. The proposed Greenway runs south past the eastern boundary of the Kilmurry Student Village and 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 footpaths and cycle lanes along the eastern and western side of University Road. The proposed cycle lanes and footpaths will tie into Active Travel infrastructure which has been constructed along Plassey Park Road as part of the Limerick Metropolitan Cycle Network Study.

The proposed Greenway continues route east at (CH 2250) and traverses amenity grassland and scrub areas where there is an unpaved desire line before turning south (CH 3100) to traverse more grassland and scrub areas, then turns south to join connect to McLaughlan Road in the National Technology Park

(NTP) at CH 3500. This section of the route is subject to extensive flooding and it lies within Flood Zone A, so drainage along and under the Greenway has been designed to ensure the path can be utilised as soon as possible after flooding events.

The proposed 3.5m wide greenway shared surface will separate into footpaths and cycle lanes along the eastern and western side of McLaughlan Road. The proposed footpaths and cycle lanes will connect to existing footpaths and cycle lanes on Plassey Park Road. An existing raised table will be converted to a 6m long Toucan crossing to prioritise crossings for pedestrians and cyclists.

The proposed route will join into the existing infrastructure on Plassey Park Road between University Road and McLaughlan Road to Annacotty roundabout (CH 0_B).

2.3 Receiving environment

Schedule 6 of the Planning and Development Regulations, 2001, as amended, outline the aspects of the environment likely to be significantly affected by a proposed development. These are:

- Human beings;
- Biodiversity;
- Land use, Soil and Geology;
- Water;
- Air, Noise and Vibration;
- Climate
- Landscape;
- Cultural heritage; and
- Material assets.

Key receptors that were identified within the area of the proposed development, considering the baseline environment, are included in Section 4.3 of this report.

3 EIA SCREENING PROCESS

3.1 EIA Screening Methodology

This EIA Screening Report has been prepared to inform an appraisal of a proposed Greenway for likely significant effects on the environment and whether or not, due to its size, scale and location, the project will be subject to EIA. The information used to inform this report includes desk studies and relevant project reports and documents, as well as current the guidelines:

- Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022)
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment, (Government of Ireland, August 2018)
- Advice Notes for Preparing Environmental Impact Statements Draft September 2015 (EPA, 2015)
- Environmental Impact Assessment of Projects Guidance on Screening (Directive 2011/92/EU as amended by 2014/52/EU) European Commission
- Environmental Impact Assessment Screening, OPR Practice Note PN02 (OPR, 2021)

EIA is required in one of three circumstances based on the Planning and Development Regulations 2001 (as amended), and the criteria set out in Schedule 7 and Schedule 7A (as appropriate):

- 1) The proposed development is of a class specified in Part 1 of Schedule 5 of the Planning and Development Regulations, 2001 (as amended) and exceeds any specified relevant quantity area or other limit specified; or
- 2) The proposed development is of a class specified in Part 2 of Schedule 5 of the Planning and Development Regulations, 2001 (as amended) and exceeds any specified relevant quantity, area or other limit as specified; or
- 3) The proposed development is of a class specified in Part 2 of Schedule 5 of the Planning and Development Regulations, 2001 (as amended), does not exceed the relevant quantity area or other limit, but having conducted a screening it is determined that the proposed development would nevertheless be likely to have significant effects on the environment as determined by reference to criteria specified in Schedule 7 of the Planning and Development Regulations, 2001 (as amended).

As for the Roads Act 1993 (as amended), an EIA must be prepared based on the criteria set in Section 50 of the Act. Details on the criteria for this legislation can be found in the following headings of this report.

3.2 Legislative Context

The EIA Directive 2011/92/EU on the assessment of the effect of certain public and private projects on the environment (codification), as amended by EIA Directive 2014/52/EU, sets out the process by which the likely significant effects of a project on the environment are assessed. Projects listed in Annex I of the EIA Directive require mandatory EIA while projects listed in Annex II require Screening to determine whether an EIA is required or not. The relevant requirements of this EIA Directive have been implemented into Irish law pursuant to the provisions of, inter alia, the Planning and Development Regulations 2001, as amended. The provisions of Schedule 5 of the EIA Regulations 2001 (as amended) identify the

requirement of EIA for different project types, in accordance with Annex I and Annex II of the EIA Directive.

Part 1 of Schedule 5 identifies projects of a class that will always have the potential for significant environmental effects and therefore will always require an EIA. Part 2 of Schedule 5 identifies projects that may have an environmental impact and, therefore, thresholds or criteria have been set by member states as to the requirements for EIA.

The proposed development also falls under the EIA requirements of the Roads Act 1993 as amended by the Planning and Development Acts 2000 (as amended) and the Roads Act (2007) as well as regulations made under the Roads Acts, The European Communities (Environmental Impact Assessment) (Amendment) Regulations 1989-2001, and EU's Environmental Impact Assessment (EIA) Directive (2011/92/EU as amended by 2014/52/EU) mentioned above.

A road within the 1993 act is defined to include:

- a) any street, lane, footpath, square, court, alley or passage,
- b) any bridge, viaduct, underpass, subway, tunnel, overpass, overbridge flyover, carriageway whether single or multiple, pavement or footway,
- c) any weighbridge or other facility for the weighting or inspection of vehicles, toll plaza or other facility for the collection of tolls, services area, emergency, telephone, first aid post, culvert, arch, gully, railing, fence, wall, barrier, guardrail, margin, kerb, lay-by, hard shoulder, island, pedestrian refuge, median, central reserve.

In addition, a cycleway is referred to in Section 68 of the 1993 Act as follows:

68. (1) In this section "cycleway" means a public road or proposed public road reserved for the exclusive use of—

- (a) pedal cyclists, or*
- (b) a combination of pedal cyclists and either or both people driving powered personal transporters and pedestrians.]*
- (2) (a) A road authority may construct (or otherwise provide) and maintain a cycleway.*
- (b) Where a road authority constructs or otherwise provides a cycleway it shall by order declare that the cycleway is for the exclusive use of—*
 - (i) pedal cyclists, or*
 - (ii) a combination of pedal cyclists and either or both people driving powered personal transporters and pedestrians.*
- (c) Any person who uses a cycleway in contravention of an order under paragraph (b) shall be guilty of an offence.*

3.3 Screening Exercise

This EIA screening is required to determine if the proposed development requires a mandatory EIA i.e., if it is a development listed in Schedule 5 of the Planning and Development Regulations 2001 (as amended) or the Roads Act and its Regulations (as amended).

Schedule 5, Part 1 and Part 2, of the Planning and Development Regulations 2001 (as amended) and the Roads Act 1993 (as amended), require that the competent authority should carry out or consider the requirement for EIA in respect of projects, as set out in Table 1.

TABLE 1: SCREENING MATRIX FOR EIA

Mandatory Threshold	Statutory Reference	Screening conclusion
Any change or extension of development already authorised, executed or in the process of being executed (not being a change or extension referred to in Part 1) which would: (i) result in the development being of a class listed in Part 1 or paragraphs 1 to 12 of Part 2 of this Schedule, and (ii) result in an increase in size greater than- - 25 per cent, or - an amount equal to 50 per cent of the appropriate threshold, whichever is the greater.	<i>P&D Regs 2001, as amended</i> <i>Schedule 5, Part 1, or paragraphs 1 to 12 of Part 2 (of Schedule 5)</i> <i>Schedule 5, Part 2, Section 13 (a)(i)(ii).</i>	This application is not a development listed in Part 1, and this application is not a development listed in paragraphs 1 to 12 of Part 2 of Schedule 5. This development would result in an increase in size greater than 25 per cent of the existing gravel/tarred path. The application does not satisfy both requirements, so this project does not require a mandatory EIA
A road development that is proposed that comprises any of the following shall be subject to an environmental impact assessment: (i) the construction of a motorway; (ii) the construction of a busway; (iii) the construction of a service area; (iv) any prescribed type of road development consisting of the construction of a proposed public road or the improvement of an existing public road. a) the construction of new road of four or more lanes or the realignment or widening of an existing road so as to provide four or more lanes where such new, realigned or widened road would be eight kilometres or more in length in a rural area or 500 meters or more in length in an urban area	<i>Roads Act 1993 (as amended)</i> <i>Section 50, (1) (a)</i> <i>Roads Regulations, 1994</i> <i>Article 8</i>	The proposed greenway route, as per definition of Section 68 of the 1993 Act is considered a public road or proposed public road reserved for the exclusive use of: pedal cyclists, or a combination of pedal cyclists and either or both people driving powered personal transporters and pedestrians. The project involves the upgrade of an existing pathway, considered as per definition above, as a public road. However, it does not involve the construction or widening of a road of four or more lanes. The proposed greenway does not exceed 8 km in rural areas. None of the proposed bridges will exceed the 100 metres length threshold. Therefore, an EIA is not triggered under the Roads Act and Regulations criteria.

Mandatory Threshold	Statutory Reference	Screening conclusion
b) the construction of a new bridge or tunnel which would be 100 metres or more in length		

The proposed development does not fall under any of the thresholds established in Schedule 5 Part 1 for mandatory EIA and it does not meet or exceed the thresholds in Schedule 5 Part 2 of the Planning and Development Regulations 2001 (as amended), therefore, a mandatory EIA is not triggered under this legislation.

The proposed development is deemed not to require a mandatory EIA. The proposed development needs to be assessed to determine whether or not it requires an EIA based on whether the proposed development is likely to have significant effects on the environment.

3.4 Assessment for Likely Significant Effects

Considering the criteria set in Section 50 (1)(d)(i) of the Roads Act 1993 (as amended), and the location of the project adjacent and *within a European Site within the meaning of Regulation 2 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011)*, it is deemed necessary to assess the likely significant effects of the proposed greenway on the environment (Table 2) to determine whether an EIA is required for the project.

TABLE 2: ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS

Assessment of Likely Significant Effects	Statutory Reference	Conclusion
In particular, where a proposed development (other than development to which paragraph (a) applies) consisting of the construction of a proposed public road or the improvement of an existing public road would be located on (i) a European Site within the meaning of Regulation 2 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), (ii) land established or recognised as a nature reserve within the meaning of section 15 or 16 of the Wildlife Act 1976 (No. 39 of 1976), (iii) land designated as a refuge for fauna or flora under section 17 of the Wildlife Act 1976 (No. 39 of 1976), or (iv) land designated a natural heritage area under section 18 of the Wildlife (Amendment) Act 2000, the road authority or the Authority, as the case may be, proposing the development shall decide whether or not	<i>Roads Act 1993 (as amended)</i> <i>Section 50 (1) (d) (i)</i>	The proposed greenway route is located adjacent and within the Lower River Shannon SAC, which has Annex I protected habitats and important key species. An AA Screening report was prepared for the project and concluded that the proposed works would result in likely significant effects on European Sites and its Qualifying Interests in the absence of mitigation and therefore a Stage 2 Natura Impact Statement is required. An assessment of likely significant effects would be

Assessment of Likely Significant Effects	Statutory Reference	Conclusion
the proposed development would be likely to have significant effects on the environment.		needed to determine the requirement for EIA.

4 SCREENING FOR LIKELY SIGNIFICANT EFFECTS

This section includes a detailed assessment used in determining whether the development would or would not be likely to have significant effects on the environment.

Where a decision is being made on whether a proposed development would be likely to have significant effects on the environment, regard must be given to the following broad categories as outlined in Annex III of the EIA Directive 2014/52/EU, directly transposed to Irish legislation in Schedule 7 (and schedule 7A within) of the Planning and Development Regulations 2001 (as amended);

- (i) Characteristics of the project
- (ii) Location of proposed development
- (iii) Type and characteristics of the potential impacts.

Each category is broken down into sections and a number of subsections, in accordance with Department of Housing, Planning, and Local Government guidelines (2018).

This sections have been provided to give further clarity on the screening process and EIA requirements for the proposed Limerick City Greenway (UL to NTP) project.

4.1 Characteristics of the proposed development

To determine whether the characteristic of the proposed development are likely to have a significant impacts on the environment, the screening form from OPR Practice Note PN02 'Environmental Impact Assessment Screening' (OPR, 2021) was followed.

Characteristics of proposed development	Description
The size and design of the whole of the proposed development	The proposed works consists of a new greenway route which covers a distance of 4.5 kilometres (km) from start to finish adjoining 1.4km of existing cycle lanes and footpaths on Plassey Park Road. It will have a path width of 3.5-4.3m and interfaces where the proposed Greenway meets existing public roads. As part of the infrastructure, 5 No. new bridges are proposed along the route: ▪ 4.8m long steel bridge east from UL Boat House; ▪ 9.6m long steel and concrete bridge constructed alongside an existing stone bridge; ▪ 5.4m long steel bridge across Plassey Mill; ▪ 5.1m long steel bridge at the Plassey Mill race; ▪ 12.8m long steel bridge at the mouth of the Plassey Mill race; 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. The path level will be raised by installing a geotextile web membrane to protect existing tree roots and the webs will be filled with Type A crushed stone. This will be surfaced with a porous tarmac surface generally 40mm thick. Where the path is being laid in an area with an existing tarmac or concrete pavement, the top 250mm of the existing road or footpath surface will be planed out and removed and replaced with tarmac on proposed cycle lanes or concrete on proposed footpaths.

Characteristics of proposed development	Description
Other existing or permitted projects that could give rise to cumulative effects	The following main materials were consulted to assess the potential for cumulative effects: ■ Limerick Development Plan 2022-2028; ■ Limerick Shannon Metropolitan Area Transport Strategy (LSMATS); ■ Limerick County Council planning register The review of the Limerick City & County Council planning register documented relevant general development planning applications in the vicinity of the proposed greenway, most of which relate to the provision and/or alteration of one-off housing and other structures. The Castletroy WwTP Upgrade Project is an element of Irish Water's 2017-2021 Investment Plan, whereby 52 Wastewater 'Above Ground' (i.e., treatment) projects were identified. The planning application (permitted by An Bord Pleanála 12/10/2023, Case reference: PA91.316168) for the upgrade works at Castletroy WwTP will cater for the 10-year growth projections from 45,000 PE to 77,500 PE, which includes a future IDA load of 5,500 PE. There will be provision made in the infrastructural development of the plant (i.e. tank sizing and pipework) for the 25-year growth projections of 81,100PE. Planning Decision, Procurement and Construction is scheduled between 2023-2026. The potential cumulative impacts with the Limerick City Greenway (UL to NTP) should be considered if the construction programmes overlap. An application for a single storey, Golf Academy Building (15697) was approved and Extension of Duration granted in 2021. This proposal lies directly adjacent to the existing riverside path and the proposed path adjacent to the UL Boathouse. Should this development proceed, the proposal shows tree planting inside the development boundary which is immediately adjacent to the existing riverside path. The potential cumulative impacts with the Limerick City Greenway (UL to NTP) should be considered if the construction programmes overlap. A planning application (208003) proposed 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. This development also proposed cycle lanes and footpaths along the southern half of University Road, which is nearing completion, as well as a pedestrian crossing. The proposed Limerick City Greenway (UL to NTP) development has taken into consideration these works, and the combined projects will provide a continuous pedestrian and cycle facility along the length of University Road and connecting to Kilmurry student village. Closer to the river Shannon, and east of Kilmurry Village, the proposed Limerick City Greenway (UL to NTP) runs through green space slightly inland from the river's edge. Adjacent to this there is a permitted development (2360712) which consists of two pitches, a rugby pitch and a training pitch, a small changing building to the west. North of the pitches, several biofiltration ponds are connected by a swale. Tree planting is proposed adjacent to the north of to the pitches. The northern site boundary appears to run immediately adjacent to the existing informal pedestrian path but no works are proposed here, and the tree clumps appear to be retained. An alternative linked path runs through the existing /meadow' area which is adjacent to the proposed Limerick

Characteristics of proposed development	Description
	City Greenway (UL to NTP), and adjacent to the biofiltration ponds, connecting with the Greenway on the western side. These two proposals will add a more formal layout to what is currently an informal pitch area, and a more informal area with clumps of shrubs and several trees nearer the water's edge. Elements introduced include hard surfacing, wider path and a building in the form of changing rooms. The potential cumulative impacts should be considered if the construction programmes overlap, but overlaps between the project are expected to be very minor.
Use of natural resources, in particular land, soil, water and biodiversity: <i>Will construction or the operation of the proposal use natural resources such as land, soil, water, materials or energy, especially any resources which are non-renewable or are in short supply?</i>	As part of the pre-construction works, there will be some general clearance activities which will be undertaken in land principally used by agriculture (c. 1.6 ha), road and railroad networks associated land (c. 0.5 ha), and vegetation loss in land mainly used by agriculture (0.5 ha). It is estimated that there will be tree felling of mostly immature and some semi-mature trees (0.15 ha) in mixed forest areas. Mature trees will be avoided when possible. A tree planting scheme of 305 No. trees has been designed as part of the proposed project in accordance with LCCC requirements to plant five trees for every tree that is removed during development works. The use of natural resources during the construction phase also includes importing of construction aggregate materials to site for the construction of the greenway and the haul roads.
Production of waste: <i>Will the proposal produce solid wastes during construction, operation, or decommissioning?</i>	Solid, liquid and very small quantities of hazardous wastes (i.e., oils, diesels and lubricants) will be generated by the construction works. Excavation works will include the removal of just over c. 6,000 m³ of topsoil and paved surfaces. On site materials that cannot be used for construction and reinstatement will be disposed of in accordance with all relevant legislation and guidance including the Waste Management Acts (1996, as amended), Waste Management Permit Regulations, and the Guidelines for the Management of Waste from National Road Construction Projects (NRA, 2014). The Contractor will be responsible for the collection, control and disposal of all wastes generated and shall dispose of all waste in a responsible manner. Waste management recommendations will be included in the Construction Environmental Management Plan (CEMP).
Pollution and nuisances: <i>Will the proposal release pollutants to ground or surface water, or air (including noise and vibrations) or water, or lead to exceeding environmental standards set out in other Directives?</i>	Emissions to air related to construction activities and traffic are expected to increase during the construction phase. Noise, vibration and a reduction of air quality related to dust during the construction phase may affect local residences and student villages especially around Drumroe and Kilmurry. These disturbances could also potentially have an effect on aquatic fauna, birds and conservation interests of the adjacent European Site, Lower River Shannon SAC (002165). There is potential for accidental hydrocarbon spillage into the riverine environment given the proximity of the works to the banks of the River Shannon and other smaller drainages along the route. There is also potential for silt and sediment run-off into the river.
Major accidents and disasters: <i>In accordance with scientific knowledge, is there a risk of major</i>	The proposed greenway is not a recognised source of pollution and it is not an activity that falls within any thresholds requiring Environmental Protection Agency licensing under the Environmental Protection Agency

Characteristics of proposed development	Description
<i>accidents and/or disasters which are relevant to the project, including those caused by climate change?</i>	Licensing Act 1992, as amended. As such, is not considered to have ongoing significant emissions to environmental media and the subsequent potential for impacts on the environment or human health effects. A section of the route is subject to flooding and it lies within Flood Zone A, so drainage along and under the Greenway has been designed to ensure the path can be utilised as soon as possible after flood water levels drop after events. Should flooding occur, the potential sources of pollution onsite during the construction and operational phases are limited. Sources of pollution that could possibly cause significant environmental pollution and associated negative effects on the environment and human health are related mainly to storage of hazardous materials or wastes. In relation to health and safety the risk is limited to typical risks associated to construction works and there is limited risk to the wider community.
Risks to human health, for example due to water contamination or air pollution	The risks to human health are unlikely, given the size and temporary nature of the construction phase of the greenway. Any accidental pollution occurring on site, will be managed appropriately following best practice construction and environmental guidance. During the operation, the greenway will result in a positive impact for human health as it promotes greener and more sustainable transport modes.

4.2 Location of the proposed development

To determine whether location of the proposed development is likely to have a significant impacts on the environment, the screening form from OPR Practice Note PN02 'Environmental Impact Assessment Screening' (OPR, 2021) was followed.

Location of the proposed development	Description
General description of the site and its surroundings	The proposed development will include the upgrading of an existing gravel path and construction of a new path on existing desire lines along the riverbank. The extensions will occur in areas where no path exists and where the land use is dedicated primarily to agricultural fields and some areas of mixed forests. There will be a land use change of approximately 0.5 ha of land from green field (with informal amenity usage) to sealed macadam surface.
Is the project located within, close to or has it the potential to impact on any site specified in Article 103(3)(a)(v) of the Regulations: ▪ European site ▪ NHA/pNHA ▪ Designated Nature Reserve ▪ Designated refuge for flora or fauna	The proposed greenway is located adjacent and in some sections within the Lower River Shannon SAC (002165) which is considered of significant ecological value for a variety of habitats and species that are part of its Qualifying Interests. The site's Qualifying Interests include 14 habitats and 7 species. In accordance with Article 6(3) of the EU Habitats Directive (92/43/EEC), an Appropriate Assessment Screening Report was prepared for the proposed development (Ryan Hanley, 2024). The AA Screening assessment concluded that in the absence of mitigation there are likely

Location of the proposed development	Description
Place, site or feature of ecological interest, the preservation, conservation, protection of which is an objective of a development plan/ local area plan/ draft plan or variation of a plan.	significant effects from the proposed development on each of the following habitats and species: [1106] Atlantic salmon (<i>Salmo salar</i>); [1355] Otter (<i>Lutra lutra</i>); [1095] Sea lamprey (<i>Petromyzum marinus</i>); [1096] Brook lamprey (<i>Lampetra planeri</i>); [1099] River lamprey (<i>Lampetra fluviatilis</i>); [91E0] Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>); and [3260] Watercourses of plain to montane levels with the <i>Ranunculus fluitans</i> and <i>Callitriche-Batrachion</i> vegetation. The report concluded that the proposed works for the construction of the proposed Limerick City Greenway (UL to NTP) 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). The Stage 2 Appropriate Assessment (NIS) concluded that the mitigation measures will prevent adverse effects on the European site.
Are there any other areas on or around the location that are important or sensitive for reasons of their ecology e.g. wetlands, watercourses or other waterbodies (including riparian areas and river mouths), the coastal zone and the marine environment, mountains, forests or woodlands, that could be affected by the project?	The proposed development will run along the banks of the River Shannon (Lower River Shannon_060) According to the latest EPA data (2016-2021) the Lower River Shannon_060 has a status of 'Moderate' with current risk being reviewed. The Shannon provides suitable habitat for all three species of lamprey, otter, and salmon. These species are sensitive to water quality changes. No signs of otters were recorded during the ecological surveys undertaken during 2021 and 2024 but the River Shannon provides suitable habitat for the species. Juvenile lamprey habitat was present during an aquatic survey ecological appraisal survey (2021) in the silted marginal habitat along the banks of the River Shannon. NBDC records show records of sea lamprey in the vicinity of the proposed works. The proposed greenway route passes through a section of Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0]. 91E0 Alluvial forests is a priority Annex I habitat. It occurs along the Shannon restricted to narrow bands where the ground is subject to flooding or flushing. It should be noted that woodland adjacent to waterbodies, even if it does not conform to 91E0, may provide "fringing habitat" or "riparian habitat" for EU protected aquatic habitats and species. Pressures include removal of dead and dying trees, invasive alien species (abundant along the greenway route, especially Himalayan Balsam (<i>Impatiens glandulifera</i>) and Giant Hogweed (<i>Heracleum mantegazzianum</i>), mixed sources of pollution to surface and groundwaters, land use changes, among others. The priority for most sites of alluvial forests is the control of invasive alien species.

Location of the proposed development	Description
Is the proposal likely to be highly visible to many people? Are there any areas or features of high landscape or scenic value on or around the location, or are there any routes or facilities that are used by the public for recreation or other facilities which could be affected by the proposal?	The University of Limerick Campus spans over 149 hectares spilt between both the north and south banks of the River Shannon. The campus is surrounded by greenery, trees, fountains, the Plassey Mill Race, and the River Shannon flowing through it.
Are there any areas or features of historic or cultural importance on or around the location that could be affected by the project?	Within the area of the greenway, there are important features related to the cultural heritage of the surroundings. There are 6 previously recorded individual monuments/areas of archaeological sensitivity located within the defined study area associated with the proposed project. Some of these notable structures located near the University of Limerick Campus and along the proposed greenway route include: ■ Plassey House: a historic building located in the university campus itself. It dates back to the 18th century and is a fine example of Georgian architecture. ■ Plassey Mill: situated near the River Shannon, this mill is part of the university's heritage and reflects the industrial history of that area.
Are there areas within or around the location which are densely populated or built-up, or occupied by sensitive land uses e.g. hospitals, schools, places of worship, community facilities that could be affected by the proposal?	The proposed greenway route and study area encompasses three main District Electoral Divisions (DED), Ballysimon, Ballyvarra located in Co. Limerick, and Cappavilla which is located in Co. Clare. The combined population of the Study Area was estimated based on DEDs area, total population and population density. The result shows a combined population of 1,129 persons according to data from the CSO Census of Population 2022. The main residential areas in close proximity to the proposed works include Drumroe and Kilmurry Student Villages, There are some fisherman cottages along the route, immediately east of Plassey Mill.
Are there any areas within or around the location which contain important, high quality or scarce resources e.g. groundwater, surface waters, forestry, agriculture, fisheries, tourism, minerals, that could be affected by the proposal?	The River Shannon supports diverse ecosystems, including wetland habitats, fish species, and birdlife. Its waters are used for both residential and industrial purposes, and it is an important corridor for migratory fish such as salmon and eels. The river is also important for leisure activities such as boating, fishing, and kayaking, attracting both locals and tourists. The UL Boathouse and the university's sports programs take advantage of the river for rowing and other water sports. While the Shannon is a critical water resources, it is under pressure from agricultural runoff, urban development, and industrial pollution, which increase the risk of deterioration and scarcity of high-quality freshwater. The Lower River Shannon SAC has amongst its Qualifying Interests Atlantic salmon, sea lamprey, brook lamprey, river lamprey and otter. Atlantic salmon and otter species are listed as Nearly Threatened on

Location of the proposed development	Description
	the IUCN Red List and listed under Annex II and V for the first and Annex II and IV for the latter of the Habitats Directive.
Are there any areas within or around the location which are already subject to pollution or environmental damage , and where there has already been a failure in environmental standards that could be affected by the proposal e.g. the status of water bodies under the Water Framework Directive?	The River Shannon, which flows alongside the UL campus, has faced difficulties in achieving “good status” along their entire lengths as per the WFD standards. The current WFD Status 2016-2021 assigns a “Moderate” status to the sections of the River Shannon (Shannon Lower_060) that flow near the proposed development The surrounding areas, particularly in the section of study area near the Mulkear River, are heavily agricultural. Intensive farming practices, including the use of fertilizers and pesticides, have been a significant source of pollution. Nutrients from fertilizers lead to excess nitrogen and phosphorus in the rivers, contributing to poor water quality.
Is the site located in an area susceptible to subsidence, landslides, erosion, or flooding which could cause the proposal to present environmental problems?	The area where the proposed development will be undertaken is susceptible to flooding. The proposed greenway falls within Flood Zone A (OPW flooding classification) which is the area closest to the River Shannon. This includes sections of the riverside walkways, green areas, and potentially some lower-lying infrastructure. These areas are at a high risk of frequent flooding, especially during major flood events.

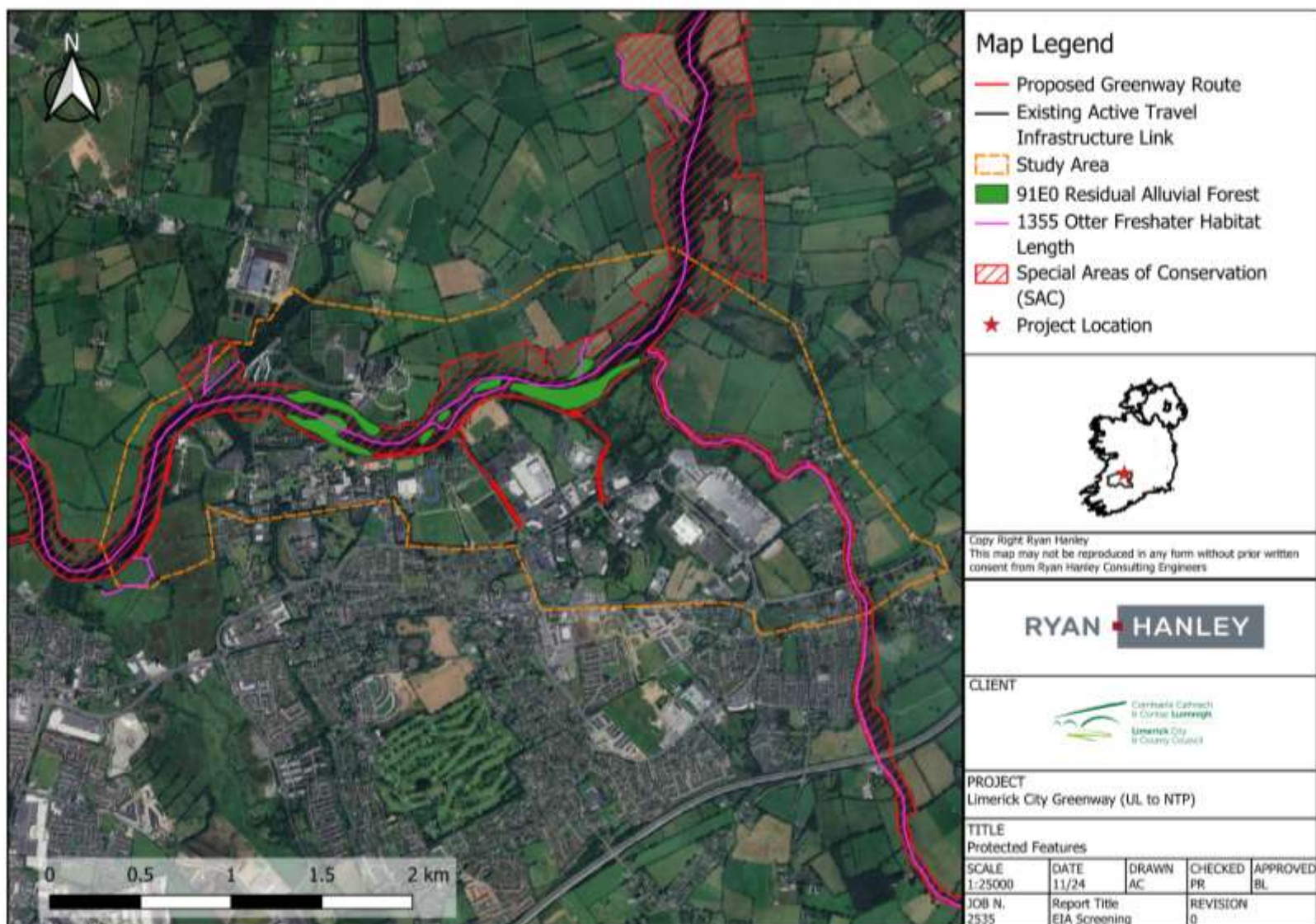


FIGURE 4. 1 PROTECTED ENVIRONMENTAL FEATURES WITHIN AND IN THE PROXIMITY OF THE PROPOSED DEVELOPMENT

4.3 Aspects of the environment likely to be affected

This section describes the main aspects of the environment that would likely be affected directly and/or indirectly by the proposed development in relation to the criteria as set out under sections 4.1 and 4.2 of this report. These are considered in light of the headings listed in Annex III of the amended EIA Directive 2014/52/EU:

- The magnitude and spatial extent of the impact (for example geographical area and size of the population likely to be affected).
- The nature of the impact.
- The transboundary nature of the impact.
- The intensity and complexity of the impact.
- The expected onset, duration, frequency and reversibility of the impact.
- The cumulation of impact with the impact of other existing and/or approved projects.
- The possibility of effectively reducing the impact.

4.3.1 Population and Human Health

The Study Area for the proposed Greenway encompasses three main District Electoral Divisions (DED), Ballysimon and Ballyvarra located in Co. Limerick, and Cappavilla which is located in Co. Clare. The combined population of the Study Area was estimated based on DEDs area, total population and population density. The result shows a combined population of 1,129 persons according to data from the CSO Census of Population 2022.

The route of the Greenway is predominantly located within the grounds of the University of Limerick along the banks of the River Shannon and diverts through the National Technology Park. Residential settlements are comprised of those associated with the University and the local area of Castletroy. The majority of residential dwellings are related to the University campus buildings, and commercial enterprises associated with the National Technology Park.

The **potential impacts** associated with Population and Human Health are as follows:

- During the construction phase, there will be daily commuting to the works' site and a smaller number of specialist construction workers may move into the area temporarily. This will not have an impact on the population in terms of population density, household size or age structure.
- The construction of the proposed greenway may have a potential positive impact resulting from an increase in construction workers on site using the hospitality facilities. However, haul and diversion roads might have a potential negative impact related to disruption and disturbance in the proximity of local businesses. Impacts on economic activity can be considered short term slight negative for the local area.
- Predicted land use impacts will have both positive (utilisation of existing land for amenity and recreation purposes) and negative (for land requisitioned and related access) effects.
- Potential increases in noise and dust levels and temporary impacts on visual amenity related to the works may also deter and/or disturb visitors at the UL Campus and its surrounding areas during the construction phase. These impacts will be short-term in duration.
- Visual amenity might be impacted due to the presence of temporary compounds, machinery and construction materials. This is considered as short-term and negative, as it will only last during the construction phase.
- It is expected that during the operational phase of the greenway there will be an overall significant positive impact to the nearby and wider community as a result of improved amenity

and recreational areas, which turns into improved health and wellbeing by promoting outdoor activities and greener transport. The increase in greenway users can also assist in supporting the local businesses and have a positive economic benefit.

4.3.2 Biodiversity

The proposed Greenway route is adjacent to the Lower River Shannon SAC [002165] with direct land, air and hydrological links between the works and the protected European Site. Qualifying Interests for this SAC include a range of habitats and species, among which Freshwater Pearl Mussel (*Margaritifera margaritifera*), Salmon (*Salmo salar*) and Otter (*Lutra lutra*).

Within the 10 km grid square of the Study Area, sixteen records of species listed under the Flora Protection Order, Annex II or the Irish Red List, were found.

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.

From the NBDC bat landscape suitability mapping, a Bat Landscape Suitability Index score of 42.56 indicates that there are highly suitable habitats for bats within the Study Area. Bat species recorded in the NBDC database include Brown Long-eared bat, Lesser Noctule, Daubenton's Bat, Soprano pipistrelle, Lesser Horseshoe bat, Common pipistrelle.

The shaded riparian banks of the River Shannon and Mulkear River provide suitable foraging and nesting habitat for Annex I bird species like the Kingfisher (*Alcedo atthis*), Swift (*Apus apus*) and Grey Wagtail (*Motacilla cinerea*).

A number of invasive alien species including Himalayan Balsam (*Impatiens glandulifera*) and Giant hogweed (*Heracleum mantegazzianum*) were recorded within the Study Area and in close proximity of the proposed Greenway route.

The **potential impacts** associated with Biodiversity are as follows:

- With regard to European Sites (SACs & SPAs), a Natura Impact Statement (NIS) was prepared for the proposed development, given that the greenway route is located adjacent and within the Lower River Shannon SAC and Annex 1 habitats Residual Alluvial Forests (91E0), and Floating river vegetation (3260) are reported within the study area along the banks (north and south) of the River Shannon. Annex I habitats are considered to be of significant importance for biodiversity as they support a wide range of plant and animal species, many of which are rare or endangered or are of high importance for a particular region.
- The proposed project will result in medium-term habitat loss, fragmentation and disturbance to habitats. Construction activities such as site clearance can result in a direct loss of amenity lands as well as treelines (riparian woodland), scrubs and hedgerow.
- Visual and noise disturbance and presence of human beings throughout the construction phase have the potential to cause disturbance to local fauna such as badger, otters, bats.
- There are no badger setts located within the works area boundary and the proposed scheme will not result in the loss of any badger setts. Disturbance during the construction phase is considered indirect short-term negative effect on the badger population of the area.
- The proposed scheme will involve other works in close proximity to a number of other trees with some suitability to host roosting bats. In the absence of mitigation, if any treelines and buildings had to be removed as a result of the construction works, there would be potential for bat

mortality. Following the implementation of the avoidance and mitigation measures, the potential for temporary disturbance and loss of potential roost features due to construction works is minimised. Effects on bats are considered 'not-significant' and negative.

- During the breeding season, noise, vibration and movement of construction vehicles associated with the construction phase of the proposed scheme has the potential to result in a disturbance to local breeding bird populations. The construction of the proposed scheme will require the removal of some areas of scrub, hedgerows and treelines that have potential to provide breeding habitats which could result in disturbance and damage/destruction of nests and is considered a potential short-term negative effect.
- Potential indirect effects on fish species may include deterioration of habitat resulting from un-mitigated surface water pollution associated with construction activities. Other potential effects may include localised displacement of fish species resulting from deterioration in water quality as a result of pollution or suspended solids runoff. Significant displacement is not anticipated given the absence of instream works. Potential effects are considered short-term and negative, ceasing after the construction works are completed.
- Populations of otter in the Shannon (Lower), where the proposed Greenway works will take place, are unlikely to be significantly affected as there will be no impacts on foraging and commuting habitats of the species. Due to the suitability of the habitats to support otters, the Precautionary Approach should be taken to minimise the potential impact on otter populations.
- Two invasive plant species listed on the Third schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477/2011, as amended) were identified along the proposed greenway route during the walkover surveys, Himalayan balsam (*Impatiens glandulifera*) and Giant hogweed (*Heracleum mantegazzianum*). Construction works, have the potential to introduce invasive species into areas within the Study Area that were previously free of invasive species. In the absence of mitigation this could result in a long term reversible negative impact.
- During the operational phase of the greenway there are no expected significant effects on flora and fauna in the area. A tree planting scheme will prevent long-term net loss by implementing a mitigation measure of replanting removed trees at a ratio of 5:1, using replacement species with similar mature canopy spread, and maintaining contiguous stands to conserve habitat value.

4.3.3 Water

Receiving water bodies associated with the Proposed Works Area, which could potentially be impacted upon were identified: 'Shannon (Lower)_060' (IE_SH_25S012600)

The 'Shannon (Lower)_060' water body WFD status is "Moderate", and a risk status of under "Review"

The Shannon is not listed as a priority area for action.

The River Shannon at the study site is within the River Shannon lower (060) Protected area for River abstraction and Groundwater abstraction (Limerick City East) for drinking water Article 7, Water Framework Directive (2000/60/EC) and European Communities (Drinking Water, No. 2) regulations SI No. 278/2007.

Fish species recorded in the area from the NBDC include European eel (*Anguilla Anguilla*), Brook lamprey (*Lampetra planeri*), Sea lamprey (*Petromyzon marinus*). IFI Transitional Waters Report from 2017 included records of Brown trout (*Salmo trutta*), Smelt (*Osmerus eperlanus*), Pollack (*Pollachius pollachius*), among others.

The **potential impacts** associated with Water are as follows:

- The mobilisation of contaminants in bankside or river sediments, in addition to physical impacts of sediment, can release nutrients or industrial waste into the water, with further impacts on local habitat and water quality. The River Shannon provides habitat for a number of Qualifying Interests (QIs) within the Lower River Shannon SAC [002165], including otters (*Lutra lutra*) kingfishers (*Alcedinidae* sp.), brook lamprey (*Lampetra planeri*), river lamprey (*Lampetra fluviatilis*), sea lamprey (*Petromyzon marinus*), freshwater pearl mussel (*Margaritifera margaritifera*) and Atlantic salmon (*Salmo salar*). Depending on the timing of the proposed works, different life stages of migratory fish species may be impacted by factors increased sediment ingress into the watercourse or other factors such as noise and disturbance associated with construction works.
- The use of construction equipment in the vicinity of the watercourse presents a risk of chemical discharges in the form of fuel spills. Many substances used and produced on construction sites have the potential to pollute both groundwater and surface water if not properly managed and treated. Such substances entering the receiving surface water and groundwater bodies could damage the habitat of local populations of fish which are qualifying species within the Lower River Shannon SAC.

However, given the temporary nature of the construction phase and the works boundary, no long-term negative impacts on aquatic habitats, species and water quality are expected.

4.3.4 Land, soils and geology

The land within the Study Area is covered by agricultural areas (48%) artificial surfaces (41%), and wetlands, forests and semi-natural areas.

The 'Geological Survey of Ireland Online Database' indicates that the proposed Scheme extends across bedrock units assigned to the Dinantian Period: Dinantian Visean Limestone Formation (Undifferentiated); Dinantian Rathkeale Formation; Dark muddy limestone & shaly mudstone; and Lough Gur Formation.

Soil associations according to the General Soil Map of Ireland classifies the lands within the Study Area as 'Alluvial region' and 'Lowland'. The subsoils registered in the GSI Database include made ground, marine/estuarine sediments, alluvial minerals, and tills.

The **potential impacts** on Land, soils and geology are as follows:

- The greenway route area is surrounded mainly by agricultural land and artificial surfaces. The proposed works will not impact on any active farm activities, farm buildings or farm facilities. Construction activities may have the potential to impact on agriculture due to noise and/or dust. In the absence of mitigation, the potential impact on agricultural land use is considered potential short-term slight negative impact.
- The areas where the route will be constructed on an existing path, stripping of gravel, tar and/or topsoil will be required. The potential impact on artificial surfaces is considered temporary not significant to slight negative impact.
- Key effects on geology could arise from the construction activities related to excavation, handling, storage, processing and transport of any earthworks materials. These include, excavation and compaction of soils, use of stone and aggregate for construction of greenway pavement, use and storage of fuels presenting a contamination risk and erosion of soils exposed during earthwork. Potential impacts on geology are considered permanent slight negative.

- Any loss of soil, or other potential impacts will be during the construction phase and likely to be associated with excavation, handling, storage, processing and transport of earthworks materials related to the Greenway. Where soils are disturbed, excavated and/or temporarily stored for re-use during construction and subsequent reinstatement of topsoil, they are prone to erosion by wind and/or surface water run-off. In-situ soils may also be compacted by construction machinery, reducing their ability to store water, which in turn may lead to an increase in run-off and possible soil erosion. The proposed works may result in a permanent slight to negative impacts on soil.

4.3.5 Air quality, Noise/Vibration

Under the Clean Air for Europe Directive, EU member states must designate "Zones" for the purpose of managing air quality. For Ireland, four zones were defined in the Air Quality Standards Regulations (2011). The zones were amended on 1 January 2013 to take account of population counts from the 2011 CSO Census and to align with the coal restricted areas in the 2012 Regulations (S.I. No. 326 of 2012).

The proposed development lies within Zone C "Other cities and large towns". The most recent annual report on air quality "Air Quality in Ireland 2022" (EPA, 2023), details the range and scope of monitoring undertaken as part of the National Ambient Monitoring Programme (AAMP) which commenced at the end of 2017. Nineteen new EU Level monitoring sites were brought online by the end of 2022. Ireland met all the legal requirements in 2022 but failed to meet WHO¹ guideline levels for health.

The use of coal, peat and wood as solid fuel for home heating is noted to be the largest problem for air quality in Ireland, along with traffic in major town and cities.

Limerick City and County Council has installed three air quality monitors in the metropolitan area of Limerick to provide live indicative air quality data to the public. These monitors are located in Limerick City, at Mungret and Castletroy.

The latest available Limerick Air Quality report from February 2024, showed exceedances of the WHO guideline values for particulates for PM 2.5 at all three stations but EU parameters were not exceeded.

There were no exceedances of the WHO guideline values for gases (NO₂, SO₂ and ozone), in February.

The **potential impacts** associated with Air quality, Noise/Vibration are as follows:

- Construction activities may lead to the emission of dust and exhaust emissions from haulage and machinery. These activities will mainly produce particles of dust greater than 10 microns, these particles are considered a nuisance but do not have the potential to cause significant health impacts. Assuming worst case scenario, dust deposition may impact on properties within 500 m of the works during the construction phase of the development. It is considered that construction activities may have a potential temporary, slight, negative impact on air quality in the immediate surroundings of the works' area.
- Four Noise Sensitive Locations (NSLs) have been identified along the proposed greenway route (Drumroe Student Village, UL Physical Education and Sports Science Building, Kilmurry Student Village east and west). Works associated with the proposed development that may contribute to noise impact during the construction phase include site compounds set up and operation, site clearance, installation of temporary access roads, construction of haul roads and greenway,

¹ WHO Air Quality Guidelines are not legally binding however Ireland and Europe should move towards achieving them.

construction of bridges, HGV movements for delivery of materials, among others. The potential impact is considered temporary, not significant to significant and negative.

- The majority of the construction activities which will be employed during the construction phase of the greenway, with the exception of the installation of piles at proposed Bridge No. 2 and Bridge No. 5, are unlikely to generate perceptible vibrations at the sensitive locations. Assuming worst-case scenario and the use of traditional piling methods, this will likely result in a temporary negative impact ranging in severity depending on the distance from the sensitive receptor to the works location.

4.3.6 Climate

In the last few decades, climate change has been accelerated by the release of GHG emissions as a result of human activities. This is causing an increase in the atmospheric temperature, changes in precipitation patterns and extreme weather events across the globe. Ireland's is no exception and has experienced increase temperatures, on average of 0.8 °C compared to 1900. Annual average rainfall has increased around the country but significant reductions are expected during spring and summer months. Sea level rise can have major impacts on coastal cities, increasing erosion, flooding and property damage.

All developments contribute to increasing greenhouse gas emissions to the atmosphere. According to the latest emission data inventory (EPA, 2024) transport and waste sectors showed an increase in carbon emissions in 2022 by 6 and 6.6% respectively.

Limerick has calculated its carbon emissions in view to comply with the objectives set in its Climate Action Plan 2024-2029. Its baseline emissions show that the most carbon intensive sector related to industrial processes (41%), followed by agriculture (25%) and transport (11%).

The **potential impacts** associated with Climate are as follows:

- The proposed development will contribute to GHG emissions during the temporary construction phase which will be mostly related to traffic, plant use and embodied carbon of materials. However, the operational phase of the Greenway will contribute in the long term to achieving Ireland's climate objectives and commitments in reducing GHG emissions and becoming carbon neutral. The Greenway's aim is to promote sustainable transport modes thereby reducing emissions related to traffic and conventional transport.
- The construction activities associated with the proposed greenway are a source of carbon emissions to the atmosphere. The carbon footprint of a greenway comes from the embodied carbon of materials, transport, machinery and construction activities and change of land use in the form of loss of carbon sinks.
- Construction traffic will give rise to some CO₂ and N₂O emissions during the construction phase of the proposed development. These emissions are associated with the construction phase so they are considered temporary in nature. The increase in greenhouse gas emissions due to the proposed development will result in a potential temporary imperceptible impact on climate.
- During construction, in the absence of mitigation, the risk of flooding of the works area and subsequent risk of sediment transport to surface waters from a flood event presents a potential short term significant negative impact due to an increase in flooding frequency as a result of climate change.
- The operation of the greenway will displace GHG emissions associated with fossil fuel-based traffic. This will translate into a long-term moderate positive effect on climate.

4.3.7 Landscape

Limerick City has a unique landscape and it is supported by the River Shannon which provides an essential part of the character and attraction of the area.

While the land cover of the wider study area contains a mosaic of built form and open space, the immediate river corridor is primarily dominated by tree cover. Immediately adjacent to the river corridor and existing walkway, there are some formal grassed open spaces. Several pitches are evident in the vicinity of the Sports Arena and one east of Kilmurry village.

South of the proposed walkway/cycleway, the University campus is a mosaic of large areas of built form interspersed with considerable areas of open space, tree lined roads and parking areas.

Features of built form within the study are generally lie further inland – south of the rivers – but a small terrace of cottages are found to the west of the study area, near Plassey bridge, and lend a distinctive character to this riverside area. Other elements of built form are mainly university buildings, and technology park buildings.

Landscape values are derived from both indications of value as seen in national and local policy, as well as other indications that a landscape or landscape element, is valued. These values can further be categorised in two ways – values which should be conserved, and those that provide opportunity for enhancement.

Based on a preliminary Landscape and Visual Impact Assessment, the landscape value and predicted effects on the landscape elements along the greenway could be described as summarised below. The landscape and visual effects are described under sensitivity, magnitude of change and significance of effect.

TABLE 4. 1 POTENTIAL EFFECTS ON LANDSCAPE AND VISUAL ELEMENTS

Landscape character	Landscape value	Sensitivity	Magnitude	Significance
University of Limerick Campus- UL Boathouse to Kilmurry Village	High. This area has high aesthetic qualities, with many areas of high quality scenery, with a strong sense of naturalness, especially those views towards the river, riverbank and areas of mature trees	High. Has a high proportion of highly valued mature trees along the riverbank path, (as well as on the opposite bank) which contribute to a distinctive character. There are also number of elements of cultural heritage along and near to the path including the Plassey Mills, Plassey Bridge, Plassey House, fishermen's cottages and the Plassey Mill Race. Plassey Beach is another distinctive area	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	Temporary, moderate-Significant, negative

Landscape character	Landscape value	Sensitivity	Magnitude	Significance
			affected by the construction works.	
National Technology Park (including Kilmurry Student Village)	Medium-High. The landscape quality is not as high as the neighbouring area within UL, with several overgrown areas and invasive species observed, an overall the areas is not as easily accessed. There are elements of cultural heritage relevance, but overall the aesthetic value is considered Medium, with less of a connection to the river and some areas where vegetation restricts views.	Medium. Areas of high value include some wooded areas, west of Troy/Black Castle. Remaining areas of open grassland, young woodland and scrub have a pleasant character and are considered Medium.	A High magnitude of change is likely along the section east of Kilmurry Village, as there will be a temporary compound in the open field just east of the village, and considerable vegetation clearance needed.	Temporary, moderate, negative

There will be temporary moderate to significant negative visual effects also at the temporary construction compound locations.

4.3.8 Cultural Heritage

The receiving archaeological and historic environment contains evidence of human activity and settlement from at least the Bronze Age and the River Shannon has been a primary thoroughfare and focus of settlement for millennia. Boat timbers and Roman coins have been recovered from the river in this area. Additionally, the industrial heritage of the area is well represented in the remaining mill infrastructure and buildings. These include millraces, bridges and weirs which interact with the river and contribute to the amenity and visual aesthetics of the area.

Located on the southern bank of the River Shannon, roughly 2 km East of the University of Limerick, Castle Troy was erected in the reign of Henry III (1216-1272) by one of the O'Brien's. The current impressive castle ruins are later in date and are associated with a gateway belonging to a levelled bawn (LI006-017002-) defending the castle (LI006-017001-). This gateway may be related to Castletroy House located 70m to W.

Located further to the west the now levelled Sreelane Castle (RMP: LI005-0052) was recorded in the Down Survey of 1654-56, this is believed to have been in the environs of the current location of Plassey Mills. Both Castle Troy and the former Sreelane Castle are testimony to a time from the 13th-17th centuries when this area along the Shannon was a vital link in the defensive chain around Limerick.

Former houses (18th and 19th centuries) with designed gardens and demesnes are evident close to the proposed route at Plassey House, Willow Bank, Roselawn, and Castletroy House.

Rivers and streams running through the terrain provided power for various milling industries. The Plassey Mill Complex with its extensive network of mill races was built between 1823 and 1824 by the Hedges-Maunsell family and it became one of the most significant mills on the Shannon. A small portion of the large mill building survives and significant elements of mill race channels with fine cut masonry walls and bridges are still in evidence.

The **potential impacts** associated with Cultural Heritage are as follows:

- The proposed terrestrial works will result in no direct negative impact upon, or changes to, the known heritage resources of sites, monuments and structures listed in the RMP & RPS within the Study Area.
- Construction works proposed for the Greenway will be sufficiently removed from the locations of recorded archaeological monuments and protected structures - Plassey Mill Complex, Castletroy Tower-House and an unclassified Barrow - to offset direct negative impacts. Works are proposed along the existing long-established pathways and for the most part are located >10m from these recorded sites.
- Works areas, including site compounds and construction access routes, will be located so as to avoid direct impacts on the recorded archaeological & built heritage resources.
- There will be a predicted indirect moderate negative impact on the setting of Plassey Mill complex arising from the construction of the proposed development. However, the ultimate aim of the development is to consolidate and improve the existing amenity at this location.
- The potential for encountering previously unrecorded archaeology is high where works are proposed in the vicinity of sites and monuments listed in the RMP.
- There is a potential for direct, moderate to profound negative impact on the archaeological resource in the absence of mitigation.
- Where the proposed works will affect greenfield areas there is moderate potential for encountering previously unrecorded sub-surface remains or deposits of archaeological significance.
- There are no predicted negative impacts to the recorded cultural heritage resources during operational phase.

4.3.9 *Material Assets*

Road and transportation infrastructure in the townlands of Drumroe, Sreelane, Castletroy, and Newcastle comprise Regional, Local Primary, Local Secondary and Local Tertiary roads. The proposed greenway will run north of the Regional Dublin Road R445. The M7 motorway runs east of the proposed greenway route but there is no direct link.

Within the study area there are a number of utilities for a variety of services. These include the water distribution network, drainage network, electricity network, telecommunications and broadband network.

The **potential impacts** associated with Material Assets are as follows:

- The potential impacts of the proposed development on the road network, due to works being carried out on and in the vicinity of the road network temporary, slight to moderate, negative impact related to the construction traffic and machinery.
- There is potential for temporary not significant to moderate negative impact on underground services during construction phase works including specifically for works in Annacotty village.
- Poor management of waste has the potential to cause nuisance and an adverse environmental impact, particularly due to the presence of Himalayan balsam and Giant Hogweed in the proposed working areas. Waste that is not managed and stored appropriately on site may result in water and ground pollution on or in the vicinity of the site.
- Fuels and hydraulic oils/lubricants that will be used during the construction phase are classed as hazardous. There will be fuels stored on site for plant, machinery and construction vehicles along with oils and lubricants. Should any spillages, waste or surplus liquids be disposed of incorrectly it could cause serious harm to the surrounding environment.
- The potential impacts of construction and demolition waste on the environment are predicted to be temporary, moderate and negative.

- There are no predicted negative impacts during the operational phase of the proposed greenway.

4.3.10 Cumulation with other existing and/or approved plans and projects

Cumulative effects may arise from:

- The interaction between the various impacts within a single project;
- The interaction between all of the different existing and/or approved projects in the same areas as the proposed project.

Plans

The proposed greenway is located in County Limerick where developments are governed by the objectives and policies of the Limerick Development Plan 2022-2028. The plan's strategic objectives highlight the opportunity for development focused on connectivity and accessibility, the transition to environmentally sustainable carbon neutral economy, reduce car dependency and facilitate sustainable transport modes, protect, enhance and connect areas of natural heritage and cultural heritage.

The Limerick Shannon Metropolitan Area Transport Strategy (LSMATS) sets out the framework for the delivery of an environmentally sustainable and unified metropolitan unit through the transport system. Thus creating a hub of cultural and social development and regeneration.

The proposed greenway project aligns with the policies and objectives with the Limerick Development Plan 2022-2028, so could result in positive cumulative impacts on the key receptors in the project area.

Projects

The material was gathered through a search of relevant online Planning Registers, reviews of relevant environmental documents, other phases of Greenway & cycle route projects, planning applications & drawings.

Some of the planning applications are summarised below, which can result in cumulative impacts on the receptors considered throughout this document:

- Permission sought in 2020 for extension to existing common room mezzanine at Millstream Building in UL (Planning Ref: 181263)
- Permission sought in 2020 for the construction of a new temporary pre-fabricated multi-sensory room and all associated ancillary site works at St. Vincent's School (Planning Ref: 2076)
- Permission sought for a new site entrance from Plassey Road and parking (Planning Ref: 191027)
- Permission sought in 2021 for single story extensions to existing J & J building, construction of waste storage yard etc (Planning Ref: 211275)
- Permission sought by J&J in 2021 for removal of existing ditch, erection of fence, tree planting, landscape works, extension of walking amenity etc (Planning Ref: 2113902)
- Permission sought by J&J in 2021 for erection of fence & gate to the northern boundary of the Vision care site (Planning Ref: 211792)
- Permission sought by J&J in 2021 for a water recycling plant, storage tanks, access road, perimeter fence and ancillary site works (Planning Ref: 211793)
- Permission sought in 2022 for the repairs to the pontoon and gangway adjacent to UL boat house (Planning Ref: 22281)
- Permission sought in 2023 by the University of Limerick for the redevelopment of an existing sports pitch just east of Kilmurry Student Village (Planning Ref: 2360712)

- Permission sought by UÉ in 2023 for Castletroy WWTP upgrade (Planning Ref: 23316168).

When considered together with the proposed greenway project, these developments can lead to increased pollution and resource consumption, for which mitigation measures will be necessary to reduce the potential impacts on the receptors found surrounding these projects.

5 CONCLUSIONS

The proposed development is located adjacent to and within the European Site Lower River Shannon SAC (002165). In accordance with Article 6(3) of the EU Habitats Directive (92/43/EEC), an Appropriate Assessment Screening Report was prepared for the proposed development (Ryan Hanley, 2024). The AA Screening concluded 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 *Callitriche-Batrachion* vegetation.

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.

Consequently, a Stage 2 Appropriate Assessment was deemed to be necessary, and a Natura Impact Statement (NIS) was prepared for the project. The NIS concluded that if the prescribed protective measures for the avoidance of impacts are applied, and if the required mitigation measures (as set out in the NIS) are implemented, then the proposed development would not give rise to adverse effects on the integrity of any of the identified European sites evaluated.

However, it is considered that there will be likely significant effects on key environmental receptors and these need to be further assessed as described throughout Section 4 of this report, 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), this report concludes 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) is required** having regard for the proposed works and in the context of previous studies undertaken.

This conclusion is based on an objective review of the proposed development, including its characteristics, location, and the likelihood of it causing significant environmental impacts. The screening has followed the relevant legislation and has had regard to the relevant guidance.

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