



KILBEGGAN TO MULLINGAR GREENWAY

Feasibility Report



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Contents

EXECUTIVE SUMMARY	1
1 INTRODUCTION	3
1.1 Overview	3
1.1.1 Greenways/ Cycleways	3
1.1.2 Definition of a Cycleway as a 'Public Road' and 'Local Road'	3
1.2 Project Objectives	4
2 PROJECT NEED, STRATEGIC FIT & PRIORITY	6
2.1 National Drivers	6
2.1.1 Project Ireland 2040 National Planning Framework	6
2.1.2 National Development Plan 2021-2030	6
2.1.3 National Investment Framework for Transport in Ireland	6
2.1.4 National Sustainable Mobility Policy	7
2.1.5 Climate Action Plan 2023	8
2.1.6 Transport Appraisal Framework (TAF)	8
2.1.7 Strategy for the Future Development of National and Regional Greenways	9
2.1.8 Code of Best Practice National and Regional Greenways	10
2.1.9 Embracing Ireland's Outdoors: National Outdoor Recreation Strategy 2023-2027	11
2.1.10 National Cycle Network	11
2.1.11 CycleConnects	11
2.1.12 Draft All-Island Strategic Rail Review	11
2.2 Tourism	12
2.3 Economic Benefits	12
2.4 Promoting Healthy Living	13
2.5 Preserving our History and Culture	13
2.6 Regional and Local Drivers	14
2.6.1 Eastern & Midland Regional Spatial & Economic Strategy 2019-2031	14
2.6.2 Westmeath County Development Plan 2021-2027	14
2.7 Design Standards	15
3 EXISTING CONDITIONS	16
3.1 Overview	16
3.2 Start and End Points	16
3.3 Existing Transport Infrastructure and Accessibility	16
3.4 Land Ownership	18
3.5 Communities	18
4 CONSTRAINTS & OPPORTUNITIES STUDY	20
4.1 Study Area	20
4.2 First Public Consultation: Study Area	20
4.3 Environmental Constraints & Opportunities	22
4.3.1 Protected Sites	22
4.3.2 Other Environmental Constraints and Opportunities	23
4.4 Sample Attractions in the Study Area	32
4.4.1 Sample Destinations	32
4.4.2 Things to See & Do	34
5 CONSIDERATION OF OPTIONS AND ALTERNATIVES	41
5.1 Alternatives	41
5.2 Phase 1 Long List of Options	41
5.2.1 Considerations in the Selection of Options	41
5.2.2 Option Corridors	41
5.2.3 Option 1: R446-Horseleap-MGWR Clara Branch-Streamstown	42

Feasibility Report

5.2.4	Option 2: L1223-MGWR Clara Branch-Streamstown	43
5.2.5	Option 3: L1223 to Streamstown	44
5.2.6	Option 4: Via Castletown Geoghegan	45
5.2.7	Option 5: Via Dysart Westmeath Way and Ladestown	46
5.2.8	Option 6: Via Dysart and Ladestown along the Western Shore of Lough Ennell.....	47
5.2.9	Option 7: Along River Brosna-Old N52-Belvedere	48
5.2.10	Option 8: Along River Brosna and Eastern Shore of Lough Ennell.....	49
5.2.11	Option 9: R446-Tyrellspass-N52	50
5.3	Methodology for Preliminary Options Appraisal	51
6	PRELIMINARY OPTIONS APPRAISAL	53
6.1	Step 1 Project Objectives: Does an option accomplish the project objectives in a satisfactory manner?	53
6.1.1	Appraisal	53
6.2	Step 2 Feasibility: Evaluation to identify feasible options	59
6.2.1	5 S's Appraisal	59
6.2.2	Engineering Appraisal	62
6.2.3	Environmental Appraisal	65
6.2.4	Economic Appraisal (Option Comparison Estimate)	72
6.2.5	Policies Appraisal	72
6.2.6	Overall Feasibility Evaluation Summary	74
7	DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS.....	77
7.1	Discussion on Shortlisted Options	77
7.2	Conclusions	78
7.3	Recommendations	78
8	REFERENCES	79

Tables

Table 1.1	Project Objectives	5
Table 2.1	National Sustainable Mobility Policy Principles and Goals	7
Table 3.1	Key Access Points to the Greenway	17
Table 4.1	Protected Sites Related Policy Objectives from the Westmeath County Development Plan	23
Table 4.2	Summary of Environmental Constraints & Opportunities	24
Table 5.1	Alignment with Project Objectives.....	51
Table 5.2	Alignment with Project Feasibility Criterion.....	52
Table 6.1	Alignment of the Long List of Options against the Project Objectives	57
Table 6.2	Summary of the Step 1 Project Objectives Appraisal	59
Table 6.3	Scenic Appraisal	60
Table 6.4	Sustainability Appraisal	60
Table 6.5	(Offers lots to) See and do Appraisal	61
Table 6.6	5 Ss Appraisal	61
Table 6.7	Estimates Road Crossings.....	62
Table 6.8	Estimated River and Stream Crossings	63
Table 6.9	Engineering Appraisal	65
Table 6.10	Length inside Protected Sites and Percentage of Approximate Option Length.....	66
Table 6.11	Environmental Appraisal	71
Table 6.12	Estimated Construction Costs	72
Table 6.13	Economic Appraisal	72
Table 6.14	Economic Appraisal	74
Table 6.15	Feasibility Criteria Summary	75
Table 6.16	Summary of the Step 2 Feasibility Appraisal	76

Figures

Figure 0.3	Consultation Areas to be Brought Forward to Phase 2	2
Figure 1.1	Typical Greenway next to a Rural Road	4
Figure 2.1	NIFTI Modal and Intervention Hierarchies	7
Figure 3.1	State Owned Lands in the Area	18
Figure 4.1	Kilbeggan to Mullingar Greenway Study Area	20
Figure 4.2	Archaeological and Architectural Constraints within the Study Area	31
Figure 4.3	Destinations, Amenities, Scenic Locations and Main Population Centres	32
Figure 4.4	Images of Kilbeggan	33
Figure 4.5	Images of Mullingar	34
Figure 4.6	Images of the Old Rail Trail.....	34
Figure 4.7	Images of the Royal Canal Greenway and Blueway	35
Figure 4.8	Images of the Westmeath Way	35
Figure 4.9	Images of Lough Ennell	36
Figure 4.10	Images of the River Brosna.....	36
Figure 4.11	Images of the Lilliput Adventure Centre	37
Figure 4.12	Images of the Castletown Geoghegan & the Geographical Centre of Ireland.....	37
Figure 4.13	Images of Tyrellspass Castle.....	38
Figure 4.14	Images of the Belvedere House and Garden.....	38
Figure 4.15	Images of the Cloncrow Bog and Village Trail	39
Figure 4.16	Images of Carrickwood and Lough Ennell Caravan Park	39
Figure 5.1	Option 1: R448-Horseleap-MGWR Clara Branch-Streamstown.....	42
Figure 5.2	Option 2: L1223-MGWR Clara Branch-Streamstown	43
Figure 5.3	Option 3: L1223 to Streamstown	44
Figure 5.4	Option 4: Via Castletown Geoghegan.....	45
Figure 5.5	Option 5: Via Dysart and Ladestown	46
Figure 5.6	Option 6: Along Western Shore of Lough Ennell.....	47
Figure 5.7	Option 7: Along River Brosna-Old N52-Belvedere	48
Figure 5.8	Option 8: Along River Brosna and Eastern Shore of Lough Ennell.....	49
Figure 5.9	Option 9: R446-Tyrellspass-N52.....	50
Figure 6.1	Areas Prone to Flooding between Kilbeggan and Mullingar.....	64
Figure 6.2	Lough Ennell Wetlands (Lauder & Cussen, 2021).....	66
Figure 6.3	Landscape Character Areas from Westmeath County Development Plan (Map 68, 2021)	69
Figure 7.1	Consultation Areas to be Brought Forward to Phase 2	77

Appendices

- Appendix A Planning Policies and Objectives
- Appendix B Constraints and Opportunities Study
- Appendix C Drawings
- Appendix D Performance of Options Against Project Objectives

EXECUTIVE SUMMARY

Westmeath County Council appointed RPS to provide professional services for the development of the Kilbeggan to Mullingar Greenway. The study area is broadly bounded by the Old Rail Trail in the west, Mullingar to the north, the N52 to the east and an axis between Horseleap-Kilbeggan-Tyrrellspass to the south.

This Feasibility Report is prepared in accordance with the TII Project Management Guidelines and Project Manager's Manual for Greenway projects (TII, 2022). It aims to identify at least one feasible option for a greenway between Kilbeggan and Mullingar. It also takes account of the Project Appraisal Guidelines for National Roads Unit 13.0 - Appraisal of Active Modes, PE-PAG-02036 (TII, 2023a) and the new Transport Appraisal Framework (DoT, 2023).

Chapter 2 details the need and strategic fit of the project in respect of how it aligns with the national, regional and county policies and objectives.

Chapter 3 defines the existing conditions of the broad area between Kilbeggan and Mullingar and some key physical constraints.

Chapter 4 identifies a project study area based on the existing conditions. This study area was the subject of a public consultation, the findings of which are presented in Section 4.2. Following this, the various constraints and opportunities were identified within this study area.

Chapter 5 describes the various considerations with regards to alternatives and options. In particular a long list of nine options are identified, taking into account the constraints and opportunities within the study area. The nine long list options all commence at Kilbeggan Harbour to the southeast of Kilbeggan on the Grand Canal (Kilbeggan Branch). From there they follow various routes to link back to Mullingar. The nine long-list options are:

- Option 1: R446-Horseleap-MGWR Clara Branch-Streamstown.
- Option 2: L1223-MGWR Clara Branch-Streamstown.
- Option 3: L1223 to Streamstown.
- Option 4: Via Castletown Geoghegan.
- Option 5: Via Dysart Westmeath Way and Ladestown.
- Option 6: Via Dysart and Ladestown along the Western Shore of Lough Ennell.
- Option 7: Along River Brosna-Old N52-Belvedere.
- Option 8: Along River Brosna and Eastern Shore of Lough Ennell.
- Option 9: R446-Tyrrellspass-N52.

Chapter 6 presents the appraisal of the nine long list of options in a two-step process.

Step 1 involves appraising the long list of options against the project objectives. Each option is assessed individually to identify those options that best meet the project objectives. Of the nine long list options, four options were brought forward to step 2 as they were the best performing options that strongly or satisfactorily aligned with the project objectives. Five options were unsatisfactorily or poorly aligned with the project objectives and were discounted. The four options that strongly or satisfactorily aligned with the project objectives are:

- Option 5: Via Dysart Westmeath Way and Ladestown.
- Option 6: Via Dysart and Ladestown along the Western Shore of Lough Ennell.
- Option 7: Along River Brosna-Old N52-Belvedere.
- Option 8: Along River Brosna and Eastern Shore of Lough Ennell.

Step 2 involves appraising these four options against the feasibility criteria in line with the following overarching criteria: 5 Ss (Scenic, Sustainable, Substantially segregated and shared use, (Offers lots to) See and do, and Strategic); Engineering, Environment, Economy and Policies. There are sub-criteria associated with each criterion. Each option is assessed to identify one or more options that are feasible. Of the four options, Options 6 and 8 were deemed to be poorly aligned with the feasibility criterion of biodiversity (ecology) due

Feasibility Report

to their proximity to/ through the European sites around Lough Ennell, and wetlands. Therefore, they were considered not feasible. Options 5 and 7 are the two best performing options.

- Option 5: Via Dysart Westmeath Way and Ladestown.
- Option 7: Along River Brosna-Old N52-Belvedere.

Chapter 7 provides a discussion on the shortlisted options, the conclusions and recommendations of the report.

An examination of Option 5 and Option 7 shows that the options provide four “nodes” around which the preferred option can be developed, namely:

- Kilbeggan Harbour
- Ballynagore
- South of Lilliput
- Mullingar

Further information on the constraints (engineering and environmental) alongside landowner consultations will inform the selection of a preferred option in Phase 2. In order to facilitate the collection of this information a consultation area for Phase 2 incorporating the corridors for Option 5 and Option 7 and the four common nodes has been identified, as illustrated in Figure 0.1.

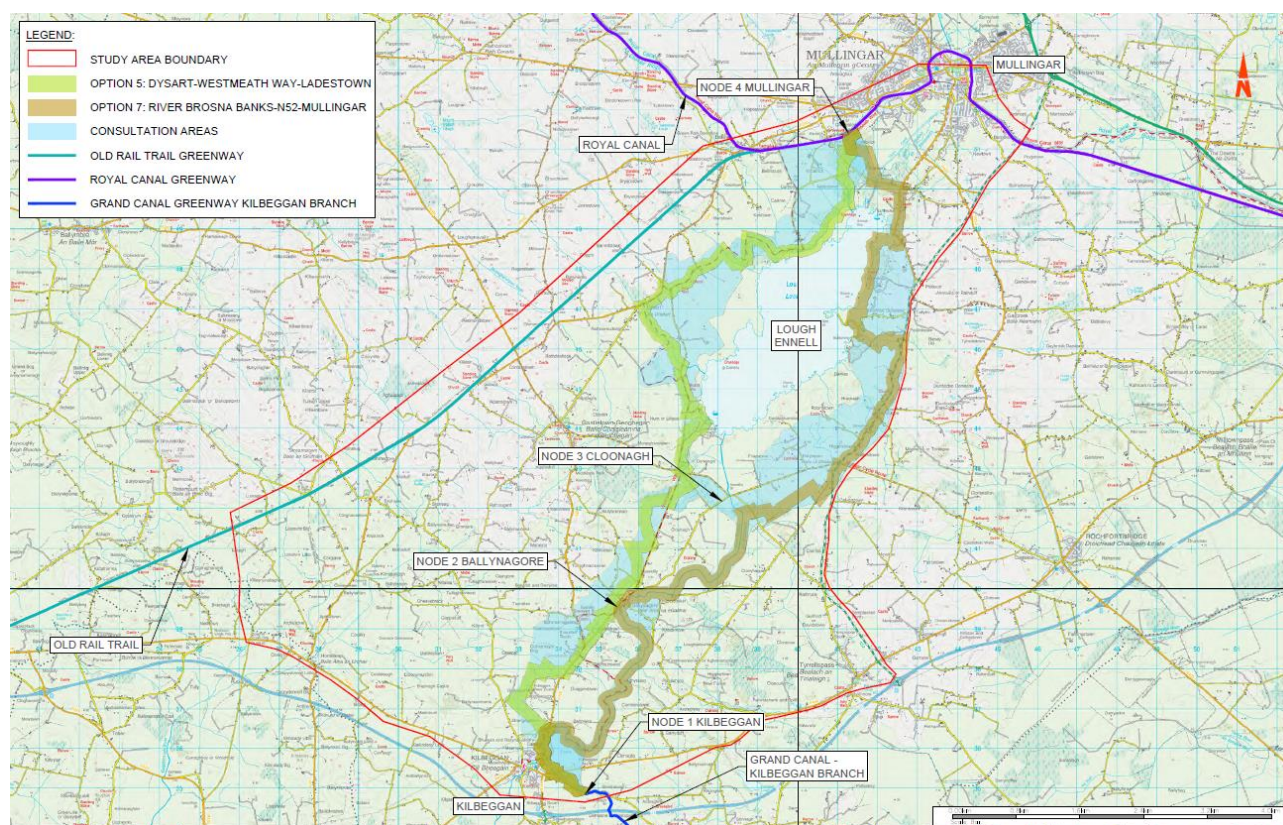


Figure 0.1 Consultation Areas to be Brought Forward to Phase 2

In conclusion, the Kilbeggan to Mullingar Greenway project is feasible and is well supported by existing planning policy at local, regional and national level.

It is recommended that the project proceed to Phase 2.

1 INTRODUCTION

1.1 Overview

The Kilbeggan to Mullingar Greenway will be a recreational trail, providing tourists, commuters and leisure users (collectively Non-Motorised Users - NMU) with a dedicated corridor linking the two towns. The project will be a purposeful recreational facility for use by cyclists, walkers and other designated users.

The existing Old Rail Trail links Athlone and Mullingar with a 43km cycling/ walking trail that utilises a converted stretch of the disused Midlands Great Western Railway. The Old Rail Trail forms part of the Galway to Dublin Greenway that will form part of the European-wide EuroVelo 2 – Capitals Route linking Dublin, London, Berlin, Warsaw, Minsk and Moscow. The section of greenway between Athlone and Maynooth is now complete including a crossing of the River Shannon in Athlone. Just to the west of Mullingar, at Newbrook, the Old Rail Trail meets the Royal Canal Greenway.

The project will also provide a strategic level connection between the Royal Canal Greenway/Old Rail Trail in Mullingar and the Grand Canal Greenway (via the Kilbeggan Branch of the Grand Canal). The Grand Canal Greenway follows the route of the Grand Canal and links Dublin and the River Shannon via Tullamore and a number of other towns and villages on the route. In Offaly, the Grand Canal runs from Shannon Harbour in the west to Edenderry in the east. There is an existing section of greenway between Tullamore and Kilbeggan Harbour via the Grand Canal Greenway at Ballycommon (east of Tullamore). The completed sections of the greenway utilise the old towpath for the canal. The Kilbeggan to Mullingar greenway will complete a greenway/ cycleway between Mullingar and Tullamore via the Grand Canal (Kilbeggan Branch) and Grand Canal Greenway.

The National Cycle Network (NCN) includes proposals to link Mullingar with Tullamore. Further detail on the NCN is provided in Section 2.1.10.

1.1.1 Greenways/ Cycleways

A greenway is defined by Transport Infrastructure Ireland (TII, 2022) as:

A cycleway, or other, that caters for people walking, wheeling and cycling in a mainly recreational environment,

A cycleway is defined (ibid) as

An offline public road reserved for the exclusive use of people cycling or people walking, wheeling, and cycling (see also definitions of 'Greenway' and 'Shared Use Active Travel Facility'). All mechanically propelled vehicles, other than mechanically propelled wheelchairs and electric bikes, are prohibited from entering except for the purpose of maintenance and access.

As per the *Strategy for the Future Development of National and Regional Greenways* (DTTaS, p.7, 2018) greenways should meet satisfactory standards of width, gradient and surface condition to ensure that they are both user-friendly and low risk for users of all abilities. Furthermore:

“Greenways are for everyone. While they might be designed specifically to meet the needs of cyclists in terms of gradient and surface, they are used by pedestrians, wheelchair users, children in buggies as well as people on all types of bicycles. Greenways funded under this Strategy should meet the requirements of all users.”

The *Code of Best Practice National and Regional Greenways* (DoT, 2021) states (p.9) that greenways are typically 8m wide but this may vary from approximately 6m to 10m depending on topography and drainage requirements. Greenways typically have a bituminous surface that is 3m wide with a minimum 1m verge either side. A typical cross-section is shown in Figure 1.1.

1.1.2 Definition of a Cycleway as a ‘Public Road’ and ‘Local Road’

In February 2023, (TII) published a guidance document *Environmental Planning of National Road and Greenway Projects* (Ref: RE-ENV-07008). This provides guidance on the interpretation of greenways/ cycleways under the Roads Act, 1993, as amended. The Act confirms that a greenway can be read as

Feasibility Report

meaning a cycleway which, under Section 68(1) of the Act, is defined as “a public road or proposed public road reserved for the exclusive use of pedal cyclists or pedal cyclists and pedestrians.”

Under Section 10(1)(c) of the Act, a public road, other than a national road or a regional road, shall be a local road. The guidance therefore concludes that as a cycleway constitutes a public road, it can also be considered as a local road.

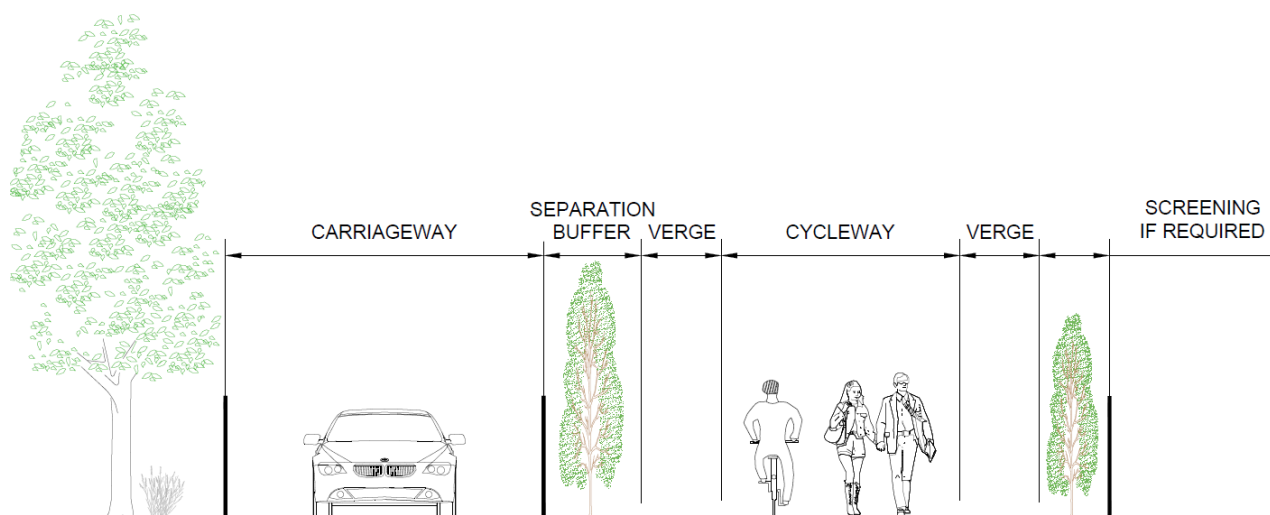


Figure 1.1 Typical Greenway next to a Rural Road

1.2 Project Objectives

In accordance with the Project Manager’s Manual for Greenway projects (p.9, TII, 2022), project objectives are specifically chosen to address the problem as defined whilst aligning to government policies and plans.

The Transport Appraisal Framework (TAF) (p.6, Module 3, DoT, 2023) states that the project objectives:

“[...] should demonstrate a clear link between the desired outcomes of an intervention and the rationale for intervention originally identified. As multiple possible solutions (including different modal options or non-infrastructure options) may be available to address an issue, objectives should not be framed in a manner that may lead to some options being precluded or in a manner that promotes bias in the option selection process.”

The objectives for the Kilbeggan to Mullingar Greenway have been arranged to broadly address the overarching categories required by TAF with sub-objectives identified under each objective that specifically address the requirements of the Kilbeggan to Mullingar Greenway. The objectives and sub-objectives are presented in Table 1.1.

Feasibility Report

Table 1.1 Project Objectives

Objective	Ref	Sub-objective
Transport User Benefits and Other Economic Impacts - Support connectivity and economic growth in the local and regional area.	EC1	To increase the economic contribution of tourism to the regional and local economy, by increasing the numbers of domestic and international visitors to the area through the delivery of a greenway that is scenic and attractive.
	EC2	To create local employment and increase economic opportunities for new and expanded enterprises.
Accessibility Impacts – Enhance accessibility to existing amenities, services and facilities.	AC1	To increase the number of people who choose to take part in physically active outdoor recreation and leisure activities.
	AC2	To connect to other tourist activities or attractions within the region, such as historic and cultural heritage sites, and recreational activities.
Social Impacts – Enhance social inclusion and promote healthier communities through linking communities and disadvantaged areas.	SO1	To be attractive to people of all age groups and abilities, with multiple accesses to the route allowing use for long or short distances.
	SO2	To benefit local communities through promotion of inclusive accessibility for all to existing amenities, services and facilities.
Land Use Impacts – Support and facilitate the implementation of national, regional and local policy.	LU1	To connect to existing transport infrastructure including greenways, cycleways, rail, canals, roads, and public transport.
	LU2	To encourage modal shift to more sustainable modes, i.e. walking and cycling, by facilitating connections to places of employment, schools, recreational hubs and urban centres, where possible.
	LU3	To facilitate the implementation of the National Cycle Network (NCN) through connecting the population centres of Mullingar and Kilbeggan.
Safety Impacts - Provide safe and accessible infrastructure that improves safety and security for vulnerable road users	SA1	To provide Greenway infrastructure that is substantially segregated from motorised traffic.
	SA2	To provide Greenway infrastructure that is a safe and secure environment for all users, regardless of age or ability.
Climate Change Impacts - Contributes to the offsetting/reduction in GHG emissions and is robust and resilient to negative climate change effects.	CC1	To ensure consideration of sustainable development principles and measures to minimise effects on the environment to support the government's Climate Action Plan.
Local Environment Impacts - Increase public appreciation of the natural environment while protecting and enhancing natural assets and biodiversity.	EN1	To minimise the impact to the natural environmental, especially habitats in ecologically sensitive areas.
	EN2	To increase public appreciation of the natural environment by encouraging people to experience the countryside through prioritising scenic and environmentally diverse routes.
	EN3	To protect and where possible enhance biodiversity and ecological connectivity.

2 PROJECT NEED, STRATEGIC FIT & PRIORITY

2.1 National Drivers

2.1.1 Project Ireland 2040 National Planning Framework

The National Planning Framework (NPF) was published by the Government of Ireland in 2018 (DHPLG, 2018) and is the Government's high-level strategic plan for shaping the future growth and development of the country to the year 2040. The NPF includes ten national strategic outcomes (NSO) over the plan period. The following NSOs are particularly relevant:

- NSO 1: Compact Urban Growth;
- NSO 3: Strengthened Rural Economies and Communities;
- NSO 4: Sustainable Mobility;
- NSO 7: Enhanced Amenity and Heritage; and
- NSO 8: Transition to a Low Carbon and Climate Resilient Society.

Criteria to achieve those outcomes include amongst others a transition to more sustainable travel modes such as walking and cycling.

NSO 1 seeks to promote and manage growth in urban areas. Greenways support this by providing alternative travel modes to urban dwellers.

NSO 3 acknowledges that, "Rural areas play a key role [...] in driving our economy [...] and must be a major part of our country's strategic development to 2040." Improved connectivity is seen as one of the keys to strengthening rural economies and communities, and greenways will provide this connectivity.

NSO 4 is part of the de-carbonisation of transport strategy. Greenways help in achieving this by providing alternative modes of transport leading to a "cleaner, quieter environment free of combustion engine driven transport systems."

NSO 7 sets out the need for "throughout the country. This enhancement is noted as including a number of different elements, including cycleways. This is linked to and must integrate with built, cultural and natural heritage. The criteria to achieve the objective include "a major focus on improving walking and cycling routes, including continuous greenway networks, and investing in and enabling access to recreational facilities, including trails networks, designed and delivered with a strong emphasis on conservation."

NSO 8 shapes the investment priorities over the lifetime of the plan including more climate-resilient and environmentally sustainable methods. Greenways will contribute to a sustainable transport network.

The NPF notes the health and economic benefits of extensive cycle infrastructure along with the climate change benefits of same.

National Policy Objectives (NPOs) are also included; for example, NPO 22 encourages cycle networks through the facilitation of the development of a national greenways/ blueways strategy which prioritises developments on the basis of achieving maximum impact and connectivity at national and regional level and NPO 27 facilitates healthy communities through the provision of alternative means of transport to the car.

2.1.2 National Development Plan 2021-2030

The National Development Plan (NDP) 2021-2030 (DPE, 2021) sets out the Government's over-arching investment strategy and budget for the period 2021-2030. The NDP states that the Government is firmly committed to encouraging the use of walking, cycling and other active travel methods. The NDP commits to the investment of approximately €360 million per annum over the lifetime of the NDP to be invested in walking and cycling infrastructure in cities, towns and villages across the country, including Greenways.

2.1.3 National Investment Framework for Transport in Ireland

The National Investment Framework for Transport in Ireland (NIFTI), (DoT, 2021b), supports the consideration and prioritisation of future investment in land transport and "the delivery of the national

Feasibility Report

planning framework.” It supports achieving the National Strategic Outcomes set out in the NPF. The framework identifies four priorities for transport investment:

- Decarbonisation;
- Protection and renewal;
- Mobility of people and goods in urban areas; and
- Enhanced regional and rural connectivity.

NIFTI also provides a modal hierarchy and an intervention hierarchy. The order of preference for each is shown in Figure 2.1):

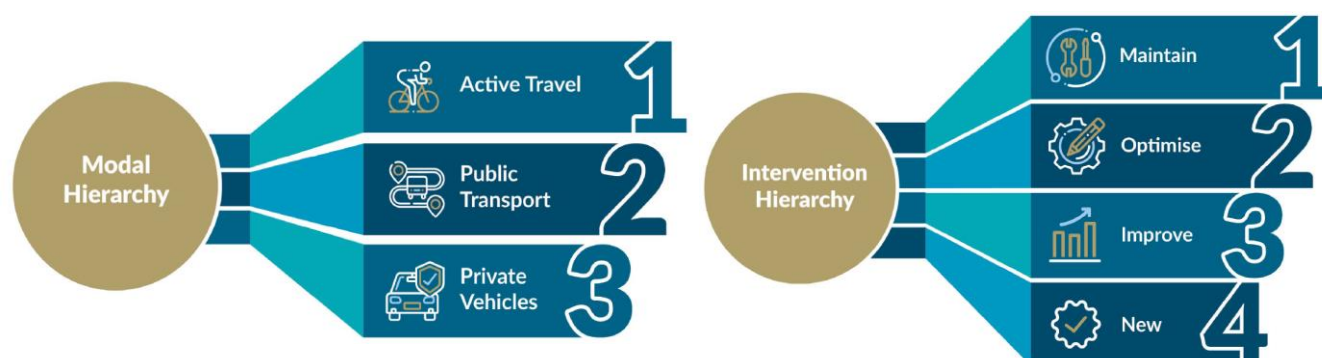


Figure 2.1 NIFTI Modal and Intervention Hierarchies

Under the Modal Hierarchy, active travel (of which Greenways form a part) is considered the most sustainable mode of transport. Increasing the share of active travel can reduce the carbon footprint of the transport sector, improve air quality, reduce urban congestion, and bring about positive health impacts as a result of increased physical activity.

The intervention hierarchy supports the

- Optimisation of existing infrastructure through enabling and encouraging more efficient behaviour and sustainable use of the network;
- Improvement of existing infrastructure, through increasing the standards of that infrastructure, or measures which shift existing capacity to more sustainable modes; and
- New infrastructure which encompasses all measures which entail significant increases to transport infrastructure capacity.

2.1.4 National Sustainable Mobility Policy

In 2022, the Department of Transport published the National Sustainable Mobility Policy (DoT, 2022). The policy sets out a strategic framework to 2030 for active travel and public transport to support Ireland’s overall requirement to achieve a 51% reduction in carbon emissions by the end of this decade. The policy contains a target to deliver at least 500,000 additional daily active travel and public transport journeys by 2030 in line with metrics for transport set out in the Climate Action Plan 2021. The principles and goals of the policy are set out alongside how the Kilbeggan to Mullingar Greenway will assist in meeting those goals in Table 2.1.

Table 2.1 National Sustainable Mobility Policy Principles and Goals

Principles	Goals	Kilbeggan to Mullingar Greenway
Safe and Green Mobility	1. Improve mobility safety.	Yes. The Greenway will be substantially segregated from vehicular traffic.
	2. Decarbonise public transport.	n/a

Feasibility Report

Principles	Goals	Kilbeggan to Mullingar Greenway
	3. Expand availability of sustainable mobility in metropolitan areas.	Yes. Greenway will link to Mullingar providing alternative and more sustainable transport options for locals and commuters.
	4. Expand availability of sustainable mobility in regional and rural areas.	Yes. Will benefit communities between Kilbeggan and Mullingar.
	5. Encourage people to choose sustainable mobility over the private car.	Yes. Provides alternative walking and cycling routes for local communities, tourists and commuters.
People Focused Mobility	6. Take a whole of journey approach to mobility, promoting inclusive access for all.	Yes. Greenway will be designed for all abilities and users of non-motorised transport.
	7. Design infrastructure according to Universal Design Principles and the Hierarchy of Road Users model.	Yes. Greenway will be designed for all abilities and users of non-motorised transport.
	8. Promote sustainable mobility through research and citizen engagement.	n/a
Better Integrated Mobility	9. Better integrate land use and transport planning at all levels.	Yes. The Greenway will link to other Greenways, public transport hubs, and the national road network.
	10. Promote smart and integrated mobility through innovative technologies and development of appropriate regulation.	n/a

2.1.5 Climate Action Plan 2023

The Kilbeggan to Mullingar Greenway has the potential to contribute to national policy on tackling climate change. The transport sector accounts for approximately 18% of Ireland's national Greenhouse Gas (GHG) emissions and is one of the most significant contributors. The Climate Action Plan 2023 (DECC, 2022) outlines a target of a 51% reduction in public sector greenhouse gas emissions by 2030 and to reach net-zero emissions by no later than 2050. This plan promotes a strong shift to sustainable travel modes which means reducing current overreliance on the private car.

The current mode share both locally and nationally indicates a strong reliance on private cars. From the Transport Trend 2021 Report, the way that people in Ireland travel continues to rely heavily on the private car, although recent years have seen increases in the use of public transport and active modes. Eurostat data from 2019 shows that 81.8% of journeys in Ireland were completed by car. A greenway will therefore provide alternative modes of transport for communities linked by the greenway, including cycling and walking, thereby contributing to a reduction in transport emissions.

2.1.6 Transport Appraisal Framework (TAF)

The Transport Appraisal Framework (TAF) provides appraisal and implementation guidance that aims to promote investment in the transport system which meets the needs of society, fulfils strategic policy objectives, and delivers value for money to develop a common framework for appraising transport investments in accordance with the Public Spending Code (PSC).

The TAF was published by the Department of Transport in June 2023 (DoT, 2023) and came into immediate effect. It replaces the Common Appraisal Framework (CAF) for Transport Projects and Programmes (published in 2016 and updated subsequently).

The changes facilitate the delivery of transport investment proposals through rigorous and proportionate appraisals, in compliance with PSC requirements, and by making the appraisal framework more accessible and user-friendly. It is designed to help assist and guide Sponsoring Agencies when developing transport business cases for proposed public investment.

2.1.7 Strategy for the Future Development of National and Regional Greenways

The Strategy for the Future Development of National and Regional Greenways (DTTaS, p.7, 2018) sets out how greenways are strategic infrastructure at both the national and regional levels. Greenways will be developed in appropriate locations and constructed to an appropriate standard in order to deliver a quality experience for all cycleway users. The objectives provide guidance for different scales and locations of cycleways such as:

- Greenways that provide a substantially segregated off-road experience linking places of interest, recreation and leisure in areas with beautiful scenery of different types with plenty to see and do.
- Greenways of scale and appropriate standard that have significant potential to deliver an increase in activity tourism to Ireland and are regularly used by overseas visitors, domestic visitors and locals thereby contributing to a healthier society through increased physical activity.
- Greenways that provide opportunities for the development of local businesses and economies.

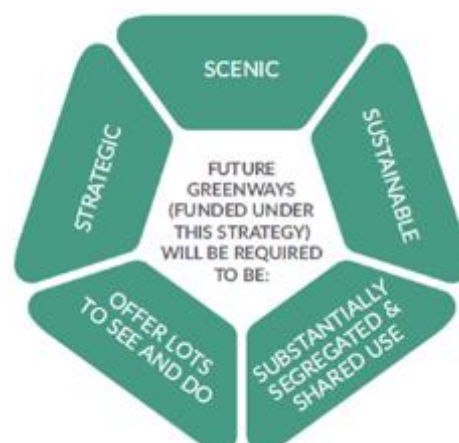
As stated in the Strategy (p.13), the preferred model for the development of greenways is to use lands already in the undisputed ownership or control of the State. Where privately-owned lands are to be used proposals and routes are to be developed in a consultative and proactive manner with the potentially affected landowners, that is sensitive to their needs, that maximises their support for, and goodwill towards, the proposed Greenway and is in line with the Code of Best Practice National and Regional Greenways (DoT, 2021a). In addition, where Greenways are planned in areas of private land, they should be designed to follow field boundaries and hedgelines to avoid severance where possible (ibid. p.7).

The Strategy also includes content on standards of width, gradient and surface condition and identifies that the greenways should be considered to be more than a transport route but an experience in themselves.

The development of options will be steered with reference to the Five S criteria as set out in the Strategy. These are:

- Scenic
- Sustainable
- Substantially segregated and shared use
- (Offer lots to) See and do
- Strategic

The proposed development will be considered in the context of the Strategy and how it can assist in meeting the objectives of same and its content on biodiversity protection and awareness of same will also be considered.



2.1.7.1 Scenic

The area between Kilbeggan and Mullingar has many scenic locations that can provide the type of memorable experience cycling and walking tourists look for. The area contains a lot of pleasant rolling countryside amongst which the centrepiece is Lough Ennell which is noted as a High Amenity Area and is highly regarded for its recreational value. Several historic demesnes with attractive wooded grounds are found in the area, for example Belvedere House.

To the west of the Old Rial Trail in the townland of Rathnew the ground rises towards the renowned Hill of Uisneach. Uisneach contains many surviving monuments and relics dating from the Neolithic (3700-2500 BC) and Bronze Ages (2500-500 BC) including barrows and burial mounds. It was the historic seat of the Kings of Meath in medieval times and includes some early medieval earthwork enclosures and other monuments.

Rest areas (trailheads) will be provided along the Kilbeggan to Mullingar Greenway where people can stop to view local wildlife and fauna, with a particular focus on Lough Ennell where practicable having regard to the various identified constraints.

Feasibility Report

It will be an objective in the planning of the Kilbeggan to Mullingar Greenway to route it through the more scenic areas where practicable (having regard to the various engineering, environmental and other constraints), while also providing a variety of landscapes and environments for the user to enjoy.

2.1.7.2 Sustainable

The Kilbeggan to Mullingar greenway will give those living within its locality an improved opportunity to enjoy walking and cycling. It will also aim to promote localised modal shift by way of providing an infrastructure that will link townlands along its route that will encourage a shift away from car usage.

The Kilbeggan to Mullingar greenway will also provide opportunities for the development of local businesses and other enterprises in the area. It will promote cycle tourism which is eco-friendlier and more sustainable than other forms of tourism. Part of the attraction in cycle tourism is the knowledge that it contributes to a reduction of carbon and transport emissions and promotes healthy lifestyles.

2.1.7.3 Substantially segregated and shared use

Under the National Strategy, greenways must be substantially segregated from vehicular traffic. This requirement is key to providing a good quality of service that ensures greenway users have a safe and enjoyable experience. The provision of segregated facilities is key to attracting international cyclists to Ireland. It is also essential to compete with other international greenways that are established as premier cycle holiday destinations.

It will be an objective in the planning of the Kilbeggan to Mullingar Greenway to provide a fully segregated route. However, it is recognised that it may be impractical to achieve full segregation over the entire route length, especially in urban areas.

2.1.7.4 (Offer lots to) See and do

Mullingar is an expanding town and an increasingly attractive tourist destination, not least due to the development of greenways and blueways in and around Mullingar and linking population centres such as Athlone, Longford and Maynooth for example.

Kilbeggan similarly offers lots to see and do. The Kilbeggan Distillery & Visitor centre is located within the town.

Bird watching facilities can also be included along the route with information on local wildlife. It is noted that some facilities along these lines are currently located a short distance north of Lough Ennell on the western banks of the River Brosna.

Section 4.4 of this report describes some of the substantial numbers of attractions that are located within the Study area including the Royal Canal, Lough Ennell, and Belvedere House and Gardens.

2.1.7.5 Strategic

The research also indicates that the scale of the project is very important in attracting international cycling tourists who will typically wish to partake in a weeklong holiday. Therefore, the minimum length required for a cycle route to be marketable internationally is 200 km and preferably 300 km. The greenway from Kilbeggan to Mullingar, by providing cross connection between the Grand Canal and Royal Canal Greenways, opens the prospect of long-distance looped greenway routes of the required scale to be attractive to both the international and domestic markets. For example, a Dublin – Mullingar – Kilbeggan – Tullamore – Dublin Loop would be greater than 200km in length.

2.1.8 Code of Best Practice National and Regional Greenways

The Code of Best Practice (DoT, 2021a) was prepared in accordance with the Strategy for the Future Development of National and Regional Greenways (DoT, 2018) Strategy) which committed to the development of a Code of Best Practice as part of Transport Infrastructure Ireland's (TII) work on the development of the Galway to Dublin Greenway.

The Code provides comprehensive information in relation to the process involved in planning, designing and constructing National and Regional Greenways. It includes an overview of the public consultation processes,

Feasibility Report

constraints study, route selection and statutory processes, as well as information about the use of State-owned lands and the acquisition of private lands for developing Greenways. The Code also outlines the relevant roles of the 'project promoter' which is comprised of the Department of Transport, Transport Infrastructure Ireland, local authorities and other specific stakeholders. The Code acknowledges the important role of farmers / landowners in the process and outlines the procedures to ensure that they are treated fairly and equitably.

2.1.9 Embracing Ireland's Outdoors: National Outdoor Recreation Strategy 2023-2027

This plan for outdoor recreation has been recently published to provide a strategic focus for investment in outdoor recreation facilities. It recognizes the growing network of trails and cycleways nationally as a sector opportunity.

2.1.10 National Cycle Network

The National Cycle Network (NCN) Plan was published by the Department of Transport and TII in January 2024. The NCN focuses on linking cities and towns of over 5,000 people with a safe, connected and inviting cycle network. It includes plans to create cycle routes to destinations such as transport hubs, centres of education, centres of employment, leisure and tourist destinations. Where possible, it will optimise the potential for people to cycle as part of their daily activities, such as work or educational commuting. It will also integrate with existing and proposed cycle infrastructure. Both road safety, and the safety and security of users, will be central to the development of the NCN.

The NCN builds on previous work completed by TII and aligns with the work being undertaken by the National Transport Authority (NTA) in developing urban and county level cycle networks. It integrates with other cycle routes and networks in various stages of development, including the EuroVelo routes, greenways and the Strategic Plan for Greenways in Northern Ireland. The NCN plan will complement these other cycling development projects and will provide a core spine that other networks and routes can connect to.

In the NCN Mullingar is identified as a "Primary Node" and Tullamore as a "Secondary Node". The NCN Plan includes a link between Mullingar and Tullamore (assessed as Corridor Option 57B and updated to Corridor No. 55 in the final plan).

2.1.11 CycleConnects

The NTA are developing proposals for a proposed safe, accessible and convenient cycle network for Ireland, CycleConnects. This should connect more people to more places and encourage sustainable travel. Cycling links are proposed in key cities, towns and villages in each county along with connections between settlements. The plan includes both existing and planned cycle routes including greenways and blueways. CycleConnects includes a map of proposed cycleways in County Westmeath. The Kilbeggan to Mullingar Greenway is included, albeit an indicative route only is shown.

2.1.12 Draft All-Island Strategic Rail Review

In July 2023 the draft All-Island Strategic Rail Review was published, a joint publication from the Department of Transport in Ireland and the Department for Infrastructure in Northern Ireland. The Review aims to inform policy and future strategy for the railways in both jurisdictions. It is anticipated that the final Review will be published in 2024.

The Review includes proposals to develop a new single track railway line between Athlone and Mullingar. This would involve reinstating the old railway line between these two towns. This line is currently occupied by the Old Rail Trail Cycleway which would have to be decommissioned to facilitate the construction of the new Athlone to Mullingar railway connection. As such, any greenway option linking Kilbeggan to Mullingar via the Old Rail Trail may have a limited operational timeframe.

2.2 Tourism

This project offers significant benefits to Westmeath and the broader Midlands and Eastern Region. Providing a cross connection between the Royal Canal and Grand Canal Greenways, the benefits could extend over an even wider area. This project has the potential for County Westmeath to further boost its image as an attractive location for sustainable tourism, by giving increased opportunities to showcase the natural beauty of the area for local people, domestic and international tourists. The Kilbeggan to Mullingar Greenway also gives an opportunity to increase visitor numbers to the extensive existing network of greenways and blueways in Westmeath such as the Old Rail Trail, Royal Canal Greenway and Grand Canal Greenway. It also opens the potential for future local greenway connections and access points to be developed in the broader region.

The Dublin to Galway Cycleway (to which the Kilbeggan to Mullingar Greenway will connect) will be a major national greenway and will be part of a trans-European network of long-distance cycle routes connecting and uniting the whole European Continent. It will form part of the EuroVelo 2 Capitals Route linking Moscow to Galway. A proportion of EuroVelo 2 users are likely to vary their trips to include the Kilbeggan to Mullingar Greenway and broader Grand Canal Greenway given the opportunity and what attractions they most wish to see. Such integrated greenways can help to maximise economic potential by attracting more multi-day trips.

An indication of the potential benefits to the local economy is provided by data in the National Development Plan 2021-2030 (DPE, 2021), which states (p.27) that the Waterford Greenway's economic benefits included the opening of one new hostel and eight new B&B's, eight new restaurants, five new bike hiring firms and approximately 139 new jobs.

In 2013, market research consultants were commissioned by Fáilte Ireland to undertake a Target Cycling Market Survey (Failte Ireland, 2013) in Germany, Britain, Netherlands, and France for cycling holidays to Ireland by overseas visitors. The research identified a core potential market of 19.5 million people with the largest segment from Germany. The key requirements of the target market both internationally and domestically were that the cycleway would run through scenic landscapes, offer traffic free cycling, and offer a high standard of safety.

According to Fáilte Ireland's Key Tourism Facts 2019 (Failte Ireland, 2021), overseas tourist participation in walking/ hiking and cycling activities had risen to 2.75 million people in 2019, while 51% of domestic holidaymakers engaged in similar activities. This represents a significant increase from figures recorded in 2013 (Failte Ireland, 2014) where an estimated 0.98 million overseas tourists engaged in walking/ hiking and cycling activities and 32% of domestic holidaymakers. These figures provide valuable information to support the need for the project.

The Target Cycling Market survey (Failte Ireland, 2013) shows that there is significant demand for cycle tourism in Ireland, including from international tourists. These tourists desire cycleway routes through attractive landscapes that have substantial off-road segregation with lots to see and do. This tourism market nationally and internationally has the potential to generate significant revenue. The research also indicates that the scale of the project is very important in attracting international cycling tourists who will typically wish to partake in a weeklong holiday. Therefore, the minimum length required for a cycle route to be marketable internationally is 200 km and preferably 300 km. The greenway from Kilbeggan to Mullingar, by providing cross connection between the Grand Canal and Royal Canal Greenways, opens the prospect of long-distance looped greenway routes of the required scale to be attractive to both the international and domestic markets. For example, a Dublin – Mullingar – Kilbeggan – Tullamore – Dublin Loop would be greater than 200 km in length.

Cycle tourism also brings other benefits. As noted in a Sustrans report (p.9, 2017) cycle tourism contributes to enhancing public health and fitness and improves facilities for local people leading to a reduction in pollution and traffic congestion.

2.3 Economic Benefits

Greenways can have a positive impact on economic development and regeneration in the local area. Locally, greenways provide improved access to the main towns and villages in the area, a pathway to schools and work for some children and adults and access to the local amenities such as sports fields, shops, bars, and restaurants. The local economy is also affected positively by the day trips and overnight stays in the area.

Feasibility Report

Greenways have proven to be successful for the local economy in other parts of the country especially the Waterford Greenway, with Waterford having a previously similar small tourism base. A survey carried out in the opening year of 2017 indicates that people spent an average of €16.90 per day on food, drink, bicycle hire, and accommodation; 54% of people responded that they had spent money in the area in connection with their greenway visit. Another scheme - The Great Western Greenway in Mayo attracted 484,000 users in 2016 and was worth €38.9m to the local economy, supporting 200 jobs and 710 indirect jobs.

In an economic impact case study of the Great Western Greenway (Failte Ireland, p.ii, 2011), the report finds that the Great Western Greenway contributed to an additional economic spend of €3.8m per annum in the local economy from the combination of domestic and international tourist visitors with the average spend by domestic tourists being €49.85 and for overseas tourists €50.71. In the U.K., Sustrans reported (p.8, 2017) that “long distance cycle routes, which are predominantly rural, can generate as much as £30 million per year to the local economy; enough to sustain over 600 full time equivalent jobs.” The report further states (p.9) that leisure based cyclists can spend £9.20 per day with overnight tourists spending £22.90 per day. This is very similar to the findings from the 2017 survey of the Waterford Greenway.

Research carried out by Tourism Ireland (2019) states that tourism in Ireland generated €8.9bn in revenue in 2019. This research also indicates that Ireland’s midlands areas, do not receive a large share of the tourist and holidaymakers to Ireland market. The research also surveyed the age demographic of visitors to Ireland. This showed that 83% of visitors were between the ages of 16 to 64. This is a demographic that could be expected to have good mobility and could be targeted by this type of greenway and potentially increase visitor numbers and the local economy.

2.4 Promoting Healthy Living

In the 2019, Healthy Ireland Summary Report produced by the Department of Health (Department of Health, p.7, 2019), only 46% percent of the population were achieving the minimum standard of physical activity (150 minutes per week) recommended by the national guidelines. Of those who were surveyed, 8% stated that they had participated in no physical activity in the last seven days.

The National Physical Activity Plan 2016 (Department of Health, 2016) set a target of increasing the highly active cohort of the population by 1% year on year. The plan endeavours to achieve this through policy, infrastructure, and marketing interventions. The plan places a strong emphasis on supporting investment in active travel infrastructure to encourage people to become active in their local areas. The National Physical Activity Plan Implementation Summary (Department of Health, 2020) notes that amenities such as greenways, blueways, cycle paths and parks can provide opportunities, choices and support for being more physically active.

Cancer, diabetes, and cardiovascular diseases can all be reduced through increased physical activity. Increased exercise also has benefits for wellbeing and mental health. The Covid-19 pandemic encouraged more people to take up exercise with almost 50% of the population exercising more frequently than before the pandemic (Barrett, Wyse & Forde, 2022). The provision of a local greenway, substantially segregated from road traffic, will provide further opportunities for locals to undertake physical activities, such as walking, running and cycling.

2.5 Preserving our History and Culture

Trails and greenways have the power to connect us to our cultural heritage by linking historic places, providing easier access to them and renewing interest in them.

Both the Royal Canal (Mullingar) and the Grand Canal (Kilbeggan Branch) are major industrial and transport heritage features in the area and they are of national cultural heritage importance. There are many other historic cultural sites within the study area including for example Belvedere House and Gardens, Lilliput, Lough Ennell, Tudenham. Section 4.4 lists more historical and cultural sites within the study area that could be linked with a greenway.

2.6 Regional and Local Drivers

2.6.1 Eastern & Midland Regional Spatial & Economic Strategy 2019-2031

The Eastern & Midland Regional Spatial & Economic Strategy (RSES) 2019-2031, provides a strategic plan and investment framework to shape future growth and to better manage regional planning and economic development throughout the Eastern Region, which includes County Westmeath.

The RSES notes that greenways and cycleways can enhance areas, contributing to liveable places and creating opportunities to be physically active.

In relation to Mullingar, the RSES notes (p.87) that the town “provides an essential role in supporting population and job growth and in this regard acts as a crucial centre for the surrounding hinterland.” Regional Policy Objectives from the RSES relevant to the development of the Kilbeggan to Mullingar Greenway are provided in Appendix A.

2.6.2 Westmeath County Development Plan 2021-2027

The Westmeath County Development Plan (WCDP) 2021-2027 guides the overall proper planning and sustainable development of County Westmeath over the plan period. The Plan includes Mullingar Key Town Economic Development Policy Objectives where CPO 5.18 aims to

“Support Mullingar’s role as a tourism hub having regard to its accessibility to key tourist destinations in the Region including proximity to natural amenities and recreational opportunities including the Galway to Dublin Greenway.”

Generally, the WCDP is very supportive of cycleway development (p.162):

“Westmeath County Council, working with strategic partners at a national, regional and local level, are strongly committed to greenway development, recognising their strong potential, particularly for generating tourism activity and the resulting economic impacts. In particular, Westmeath County Council have taken a strong role in the development of the Galway to Dublin Greenway and have invested significant levels of resources in this regard. Further resources are being committed on an ongoing basis to further develop and enhance the greenways and associated infrastructure, in order to maximize the tourism potential in this regard.

At a regional level, Westmeath County Council works closely with neighbouring local authorities and strategic agencies relevant to greenway development. A joint project with Offaly County Council, the ‘Royal Canal to Grand Canal’ greenway link from Kilbeggan to the Offaly County boundary to Ballycommon Co. Offaly has been recently completed with funding provided by the Department of Rural and Community Development.

Off-road looped walking trails are located at various locations in the county, including Mullaghmeen Forest, Portlick Millennium Forest, the Shannon Banks Walk, Belvedere House, Gardens and Park and St. Feichin’s Way in Fore. One long-distance National Waymarked Way exists from Mullingar to Kilbeggan called the Westmeath Way, however this is fragmented and requires some work to re-route and upgrade. Excellent high-quality parklands offering smaller trails for walking and cycling include Burgess Park in Athlone, Mullingar Town Park and Dún na Sí Amenity and Heritage Park.”

Furthermore, the Plan specifically refers to greenways around the Kilbeggan area, linking the Royal and Grand Canals (p.206):

“There are also a number of existing and proposed walking/cycling Greenway developments around Kilbeggan which offer further tourism potential. The Grand Canal connects Dublin City to the River Shannon with a Grand Canal spur from Ballycommon in County Offaly to the Canal Harbour located to the southeast of Kilbeggan. The ‘Royal Canal to Grand Canal’ greenway provides a link south of Kilbeggan to Ballycommon. A long-distance National Waymarked Way exists from Mullingar to Kilbeggan titled the “Westmeath Way”, however this is fragmented and requires some work to reroute and upgrade. There is potential to re-route the “Westmeath Way” from Aghyrassy along the River Brosna to Lilliput linking up with the existing “Westmeath Way” as far as Dysart. A new extension to the walkway along the Dysart River will provide for a connection to the “Old Rail Trail” greenway at Barrettstown.

Feasibility Report

In addition, potential exists for a cycle link from Kilbeggan to the “Old Rail Trail” greenway in Streamstown, providing a cycle connection to Mullingar and Athlone.”

The WCDP also contains policies and objectives relating to the natural environment and the protection of biodiversity that will be considered in the development of the Kilbeggan to Mullingar Greenway.

Relevant policy objectives in the Plan that support greenway development are provided in Appendix A.

2.7 Design Standards

The greenway project will be delivered in accordance with TII’s Project Management Guidelines PE-PMG-02041 and Project Manager’s Manual for Greenway Projects PE-PMG-02047 (TII, 2022). The design of the greenway shall comply with the published TII design standards, in particular the Rural Cycleway Design (Offline and Greenways) Standard DN-GEO-03047, as well as other publications such as the National Transport Authority’s Cycle Design Manual (NTA, 2023).

3 EXISTING CONDITIONS

3.1 Overview

This section considers the existing conditions (physical features) of the area within which the Kilbeggan to Mullingar Greenway will be situated. It examines the broad area that will form the basis for establishing a Study Area within which consideration will be given to constraints and opportunities.

The broad area for the Kilbeggan to Mullingar Greenway is situated in the midlands of Ireland with picturesque views and a variety of available recreational activities whether they be physical or leisure. At the heart of the area between Kilbeggan and Mullingar is Lough Ennell, a relatively underdeveloped area in terms of tourism facilities, and direct access to safe walking and cycling routes. Without adequate active transport links, tourists and locals often must travel by car to trails, cultural heritage attractions, amenities and to make use of the water-based activities occurring on Lough Ennell.

The Westmeath Way extends through much of the area on a broadly north south orientation, linking Mullingar and Kilbeggan, to the west of Lough Ennell. Much of this route is on road and is not continuous. A significant section of the waymarked trail is currently closed.

There is an existing on-road cycle route connecting Kilbeggan to the Old Rail Trail at Streamstown. This route does not provide segregation.

A greenway will provide an opportunity to link various transport modes through an active travel facility, providing connectivity for tourists and local seeking to visit attractions in the Kilbeggan to Mullingar area.

Key to understanding the existing conditions are the following:

- Start and end points of the greenway;
- Existing transport infrastructure and accessibility considerations for the greenway;
- Land ownership, and, in particular, state-owned lands; and
- Communities within the broad area.

3.2 Start and End Points

The main consideration for the start and end points for the Kilbeggan to Mullingar Greenway, is that they facilitate connectivity to the wider network of greenways/ cycleways, especially the Grand Canal Greenway (Kilbeggan Branch) as well as the Old Rail Trail and Royal Canal Greenway.

The start point for the Kilbeggan to Mullingar Greenway is therefore fixed at Kilbeggan Harbour, approximately 1km southeast of Kilbeggan. This is the start point of the Kilbeggan branch of the Grand Canal Greenway which continues south/ southeast toward Tullamore in County Offaly.

The purpose of the Kilbeggan to Mullingar Greenway is to link the two towns, with Mullingar ostensibly envisaged as the terminal point. However, in line with sustainability principles and national guidelines (e.g. NIFTI) re-using existing infrastructure must also be considered, and therefore a connection point to the existing Old Rail Trail, which directly connects to Mullingar, is also a reasonable consideration for the project. This may provide opportunities for improvements on the existing Old Rail Trail while still connecting to Mullingar.

3.3 Existing Transport Infrastructure and Accessibility

Existing transport infrastructure is an important consideration for the siting of greenways. They need to be readily accessible for all users and they should integrate with existing transport infrastructure to promote modal shift and sustainability principles. The area surrounding Kilbeggan and Mullingar offers excellent connectivity to transport infrastructure including: M6 Motorway, Grand Canal Greenway (Kilbeggan Branch), N52, Old Rail Trail, Royal Canal Greenway, and the Dublin to Sligo railway line.

Accessibility for local communities and visitors to the area will be an important part of the success of the Kilbeggan to Mullingar Greenway. Suitably designed access and egress points will be a vital component of the greenway design.

Feasibility Report

Key points of access can be provided at various locations as shown in Table 3-1. This list is indicative only and the final set of access points will be intrinsically linked to the preferred route selected in future phases of the project.

Table 3.1 Key Access Points to the Greenway

Access Point	Description
Kilbeggan	Access can be provided to the Kilbeggan to Mullingar Greenway at Kilbeggan Harbour. In addition, access points can be created at various points within urban areas to encourage use, by linking to either or both Old Rail Trail and/or the Royal Canal Greenway
Mullingar	There are a number of feasible connection points to Mullingar, depending on the approach of the Kilbeggan to Mullingar Greenway to the urban area around Mullingar. For example, to the west of the town, the Old Rail Trail provides an existing walking and cycling route into Mullingar, whereas to the south is the Westmeath Way (a waymarked trail). In addition, access points can be created at various points within urban areas to encourage use.
Old Rail Trail	The Old Rail Trail runs between Athlone and Mullingar to the west of Kilbeggan, Lough Ennell and Mullingar. It forms a natural western extent for a study area for the Kilbeggan to Mullingar Greenway. Access to the Old Rail Trail would provide opportunities to link to Athlone and Mullingar. It would also provide linkage to the Royal Canal Greenway (and eventually, when complete, the proposed Dublin to Galway Cycleway). However, as noted in Section 2.1.12, the reinstatement of the Athlone to Mullingar railway line (if it proceeds) will limit the lifetime of any greenway option that utilises the Old Rail Trail.
Royal Canal & Royal Canal Greenway	The Royal Canal Greenway meets the Old Rail Trail in Newbrook to the west of Mullingar. An access at this point would provide linkages to the national strategic greenways in the area. The Royal Canal continues west from Mullingar to Ballina/ Ballinea, where it then heads northwards. The Royal Canal provides a natural northern boundary for the Kilbeggan to Mullingar Greenway.
N52 National Road	The N52 is the only National Road within the wider area of the Kilbeggan to Mullingar Greenway and runs in a north/south direction to the east of Kilbeggan, Lough Ennell and Mullingar. It forms a natural eastern extent for a study area for this project. As a result it is not envisaged that there will be any crossing of the N52 required. However, if a route is chosen in close proximity to the N52 it would provide an opportunity for larger access facilities, e.g. a trail head.
R446 Regional Road	The R446 runs broadly east to west from Tyrrellspass through Kilbeggan and on through Horseleap. Kilbeggan Harbour, the start point for the Kilbeggan to Mullingar Greenway, is to the south of the R446. Therefore, a crossing of the R446 will be required at some location in or around Kilbeggan town.
M6 Motorway	The M6 Motorway passes to the south of Kilbeggan. The Kilbeggan to Mullingar Greenway will not connect to the motorway and therefore no access to/from the M6 motorway will be considered. The M6 Motorway provides a natural southern extent for a study area.
Regional and Local Road Crossing(s)	Where the route crosses an existing regional or local road, access points for local communities can be provided, subject to meeting safety and design standards. Care must be taken that access points do not attract unsafe or illegal parking. More minor access infrastructure, including signage and bike parking can also be provided at key locations.
Sligo to Dublin Railway Line	The Dublin to Sligo railway line connects through Mullingar. Given the location of the railway line it is not anticipated that there will be an interaction between it and the Greenway. The railway line provides a natural north-eastern extent for a study area.

As described in Table 3.1, there are five physical features within which a study area for the Kilbeggan to Mullingar Greenway can be considered:

- Royal Canal to the south and west of Mullingar, in the north of the broad area;
- Dublin to Sligo Railway through Mullingar, in the north and east of the broad area;
- M6 Motorway to the south of Kilbeggan, extending between Horseleap and Tyrrellspass;
- N52 to the east; and
- Old Rail Trail to the west.

3.4 Land Ownership

Most of the land holdings in the study area are privately owned. There are however some sizeable land holdings in the ownership of State bodies throughout the area, particularly those owned by Coillte and Westmeath County Council. The Minister for Housing, Local Government and Heritage owns some environmentally important areas of bog and smaller plots are owned by a variety of other entities e.g., the ESB, Irish Water etc. State owned land includes existing roads and rail lines within the general area. The areas of State-owned land were initially identified through the Land Development Agency (LDA) State Lands Database¹. A snapshot of the state owned lands is provided in Figure 3.1.

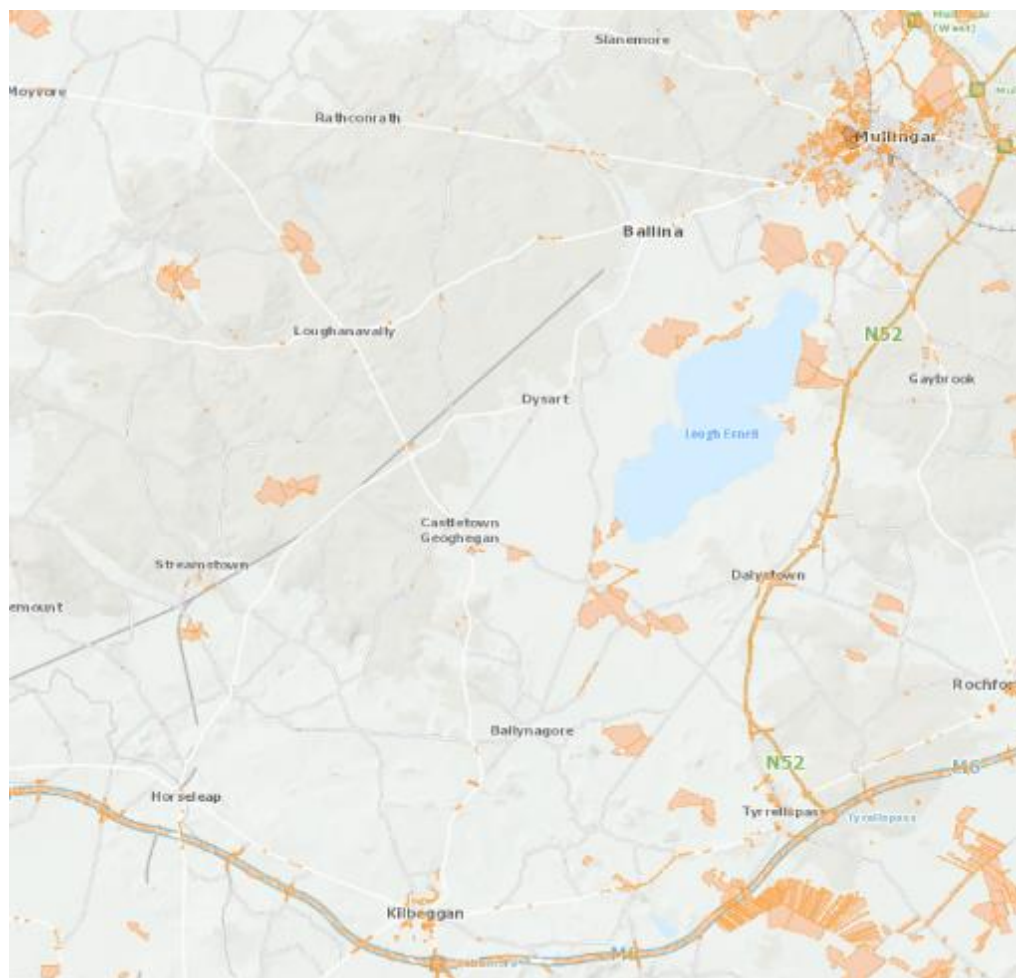


Figure 3.1 State Owned Lands in the Area

As can be seen in Figure 3.1, the majority of state-owned lands are within a broad south to north corridor between Kilbeggan and Mullingar, and either side of Lough Ennell. It should also be noted that the Old Rail Trail is also within state ownership.

3.5 Communities

It is important when looking at the existing conditions to consider communities in the study area who would benefit from close and direct access to the Kilbeggan to Mullingar Greenway.

All the options considered for the Kilbeggan to Mullingar Greenway will connect the Grand Canal Greenway (via the Kilbeggan Branch at Kilbeggan Harbour) to the Royal Canal Greenway and the Dublin – Galway Cycleway via the Old Rail Trail and by extension will connect Kilbeggan to Mullingar.

¹ Available: <https://lda.ie/public-lands/register-of-relevant-lands/map>

Feasibility Report

Within the broad area bounded by the natural features identified in the previous section, lie the following main agglomerations/ communities (south to north):

- Horseleap
- Tyrrellspass
- Ballynagore
- Streamstown
- Castletown Geoghegan
- Dalystown
- Dysart
- Ballina/ Ballinea

The majority of these (Ballynagore, Castletown Geoghegan, Dysart and Ballina/ Ballinea) lie along a more or less south to north orientation between Kilbeggan and Mullingar and to the west of Lough Ennell.

4 CONSTRAINTS & OPPORTUNITIES STUDY

4.1 Study Area

The study area for the project was defined based on the physical features and existing transport infrastructure, as described in Section 3. A joint site visit by Westmeath County Council and RPS project team members was undertaken on 17th April 2023, following which the study area was formally agreed. The study area is broadly bounded by the Old Rail Trail in the west, Mullingar to the north, the N52 to the east and an axis between Horseleap-Kilbeggan-Tyrrellspass to the south, as shown in Figure 4.1.

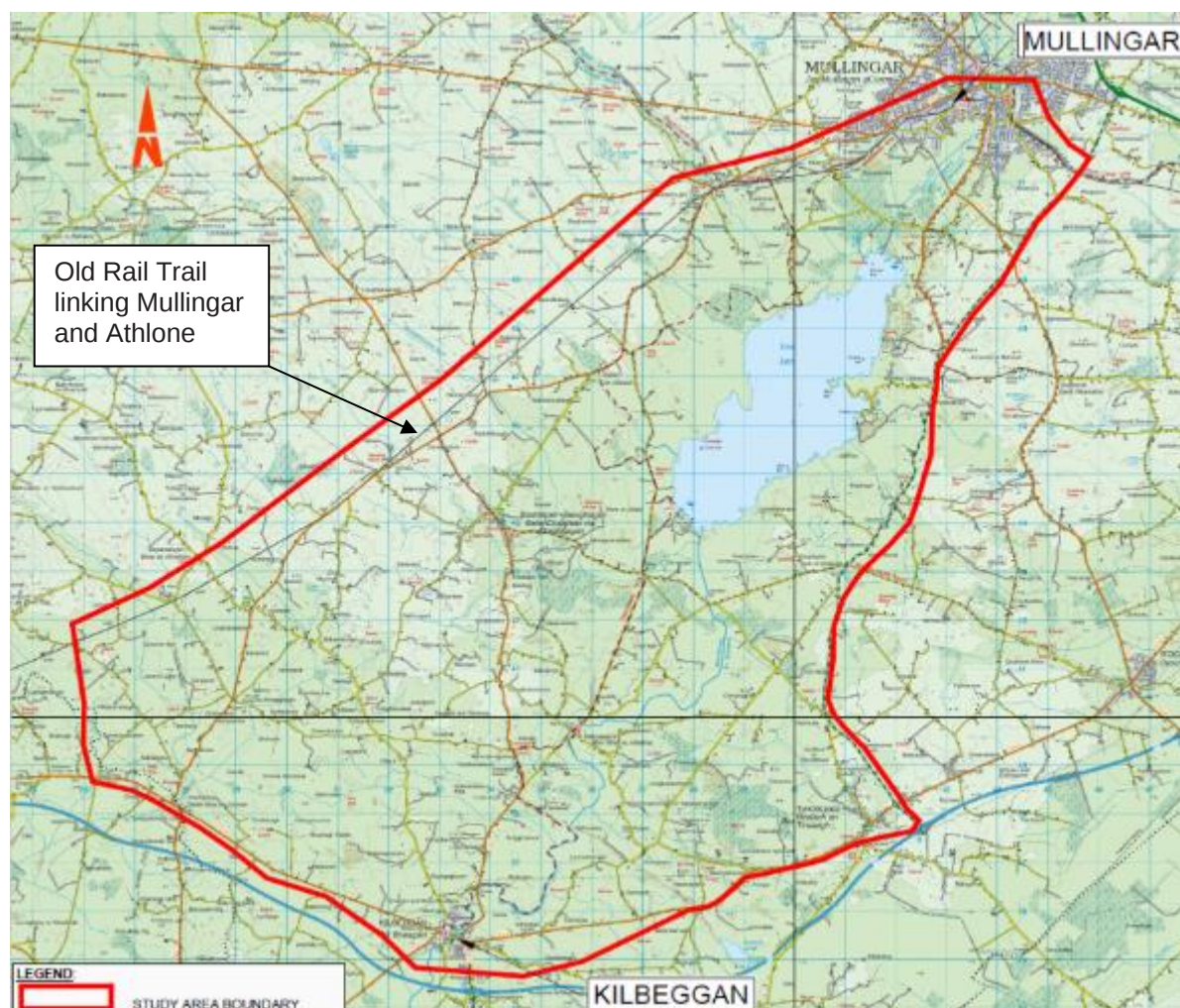


Figure 4.1 Kilbeggan to Mullingar Greenway Study Area

4.2 First Public Consultation: Study Area

In accordance with the Strategy for the Future Development of National and Regional Greenways (DoT, 2018), the first Public Consultation is on the Study Area for the project.

An in-person Public Consultation event was held in the Bloomfield House Hotel, Mullingar on the 18th May 2023 between 15:00 and 20:00. The event was extensively advertised on radio, on the internet, in the local press and via flyers.

There were 26 no. attendees at the event. A diverse range of views were expressed that were generally positive, with the exception of a couple of attendees who expressed concerns relating to potential security risks associated with a greenway development e.g. safety of users, safety and security of adjacent residents, specific funding for the Guards to patrol the greenways etc.

Feasibility Report

A considerable amount of local knowledge was gathered during the event, particularly in relation to local history e.g. the Viking sites on Lough Ennell and also in relation to historical engineering works in the area e.g. the OPW scheme in the 1950s to control the water levels in Lough Ennell. The historical information can help to assess sites and areas that would give prospective greenway users things to see and do. The OPW scheme lowered the water level in Lough Ennell by approximately 2.5m effectively creating substantial areas of new ground.

A total of two written submissions were received at the meeting. Both are in support of the proposed greenway and both advocate for a route to the west of Lough Ennell.

The consultation period ran for three weeks from the conclusion of the in-person event on 18th May 2023 until the 8th June 2023. The Project Website was established at the start of the consultation period and information on the project was available to interested parties. A number of brochures were also available from the Westmeath National Roads Office (WNRO) and several brochures were posted out to interested parties in response to requests received during the period.

A further two written submissions were received during the consultation period. One submission was in support of a greenway on the provision that the route went to the west of Lough Ennell (the respondent's address is to the west of the Lough). One submission relates to the change in water level in Lough Ennell and a local campaign to potentially return the lake levels to their original level and suggested that this possibility should be borne in mind as part of the route development process.

A total of 20 email submissions were received during the consultation period. Of these, three were also received in hardcopy format after the formal consultation period closed. Of the 20 submissions received 14 were positive, one was a request for further information and five were negative. Of the 14 positive responses, 13 advocated routes to the west of Lough Ennell and one did not express a preference.

A total of four written responses were received after the 8th June 2023. One response was in favour and advocated for a route to the west. Three responses expressed concerns relating to the possible use of Compulsory Purchase Order (CPO), security concerns, impact on farm viability due to severance and possible negative impacts on Belvedere. They advocate a shorter route from Kilbeggan to link to the Old Rail Trail as efficiently as possible. These submissions were also received via e-mail within the consultation period.

Statutory stakeholders were identified early in the project and were contacted and informed of the project as part of the consultation process and their opinions requested in relation to it. These stakeholders will continue to be informed of the project as it progresses. The following stakeholders have been consulted to date. Other stakeholders may be identified as the project progresses through Phases 2 to 4.

- Westmeath County Council
- Fáilte Ireland
- Eastern Regional Assembly
- National Parks & Wildlife Service
- Inland Fisheries Ireland
- Office of Public Works
- National Museum of Ireland
- Heritage Council
- An Taisce
- Sports Ireland
- Waterways Ireland
- Bord na Mona
- Coillte
- Irish Rail

Feedback from the first public consultation was considered as part of the development of reasonable options for the Kilbeggan to Mullingar Greenway, as described in Section 5.

4.3 Environmental Constraints & Opportunities

4.3.1 Protected Sites

There are some significant environmental constraints within the Study Area, particularly in respect of the protected sites. These can be protected under different legislation but can broadly be categorised as:

- Natural Heritage Areas (NHA) and proposed Natural Heritage Areas (pNHA).
- European Sites, which include the following:
 - a. candidate site of Community importance (cSCI),
 - b. site of Community importance (SCI),
 - c. candidate special area of conservation (cSAC),
 - d. special area of conservation (SAC),
 - e. candidate special protection area (cSPA),
 - f. special protection area (SPA)

The protected sites most relevant to the Kilbeggan to Mullingar Greenway are:

- Lough Ennell SAC (IE000685)
- Lough Ennell SPA (IE004044)
- Split Hills and Long Hill Esker SAC (IE001831)
- Nure Bog NHA (NHA) (001725)
- Cloncrow Bog (New Forest) NHA (000677)
- Grand Canal pNHA (002104)
- Lough Ennell pNHA (000685)
- Split Hills and Long Hill Esker pNHA (001831)

The starting point for the Kilbeggan to Mullingar Greenway is Kilbeggan Harbour which is located within the Grand Canal pNHA.

European Sites include Natura 2000 sites, the European network of SACs under the Habitats Directive and SPAs under the Birds Directive, provided for by Article 3(1) of the Habitats Directive. The EU Habitats Directive and EU Birds Directive have been transposed into Irish legislation by the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended). The sites can be protected for habitats and/ or species (collectively called the qualifying interests of the European site) and will have site specific conservation objectives.

The potential for impacts on protected sites is not only limited to within the boundaries marked on a map (in-situ). Habitats and species protected under Annex I and Annex II of the Habitats Directive can occur outside of protected sites (ex-situ) and are also protected. Similarly, habitats that support protected species must also be considered as any impacts on those habitats may indirectly impact on a protected species and therefore impact on the integrity of the European site.

Disturbance is similarly an issue. The European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) requires public authorities, in the exercise of their functions, to avoid disturbance of the species for which European Sites have been established, in so far as such disturbance could be significant in relation to the objectives of the Birds Directive or the Habitats Directive [Regulation 27(4)(c)]. Recreational amenities with an objective of providing scenic experiences with lots to see and do may bring users into or adjacent to European sites, increasing the risk of disturbance effects on protected species, particularly birds.

Consequently, it is important to carefully consider the routing of a greenway through or in close proximity to protected sites, and areas that have an affinity to the habitats and species associated with the protected sites.

Recent An Bord Pleanála decisions in relation to greenways has highlighted the need to carefully consider the options for projects, particularly where the construction and/or operation of a chosen route has the potential to adversely affect the integrity of a European site.

Feasibility Report

Other key considerations in terms of protected sites include the following objectives in Table 4.1 taken from the Westmeath County Development Plan.

Table 4.1 Protected Sites Related Policy Objectives from the Westmeath County Development Plan

Natural Heritage Policy Objectives	
CPO 12.1	Contribute as appropriate towards the protection of designated sites in compliance with relevant EU Directives and applicable national legislation.
CPO 12.4	Protect and conserve Special Areas of Conservation, candidate Special Areas of Conservation, Special Protection Areas and candidate Special Protection Areas, designated under the EU Birds and Habitats Directives respectively.
CPO 12.12	Require that new development proposals affecting designated sites have regard to the sensitivities identified in the SEA Environmental Report prepared in respect of this plan.
CPO 12.23	Seek to create and enhance ecological linkages and buffer zones from development.
CPO 12.24	Protect and where possible enhance biodiversity and ecological connectivity, including woodlands, trees, hedgerows, semi-natural grasslands, rivers, streams, natural springs, wetlands, geological and geo-morphological systems, other landscape features, natural lighting conditions, and associated wildlife where these form part of the ecological network and/or may be considered as ecological corridors or stepping stones in the context of Article 10 of the Habitats Directive. Appropriate mitigation and/or compensation to conserve biodiversity, landscape character and green infrastructure networks will be required where habitats are at risk or lost as part of a development.
CPO 12.37	Preserve and enhance the amenity and biodiversity value of the County, by promoting the protection of trees, groups of trees and ancient woodlands, of significant amenity value, especially native and broadleaf species.
CPO 12.39	Discourage the felling of mature trees and hedgerow, particularly species rich roadside and townland boundary hedgerows to facilitate development [...]
CPO 12.40	Protect and preserve existing hedgerows in new developments, particularly species rich roadside and townland boundary hedgerows, and where their removal is necessary during the course of road works or other works seek their replacement with new hedgerows of native species indigenous to the area.
CPO 12.61	Seek to manage any increase in visitor numbers in order to avoid significant effects including loss of habitat and disturbance, including ensuring that any new projects, such as greenways, are a suitable distance from ecological sensitivities, such as riparian zones.

4.3.2 Other Environmental Constraints and Opportunities

The environmental constraints within and in proximity to the Study Area were examined to inform the feasibility of the project. The following Table 4.2 is a synthesis of the detailed Constraints and Opportunities Study contained in Appendix B.

A drawing showing the environmental constraints including the protected (SAC, SPA, NHA), cultural heritage inventory is included in Appendix A (drawing ref: IE000653-RPS-00-XX-DR-Z-DG0004).

Following Table 4.2 is Figure 4.2 which illustrates the rich historic environment of archaeological and built heritage sites in the study area.

Feasibility Report

Table 4.2 Summary of Environmental Constraints & Opportunities

Category	Source	What is the Constraint/ Opportunity	How should the Constraint/ Opportunity be addressed	Relevance to the Kilbeggan to Mullingar Greenway
Legislative, Planning and Policy	EU and National Legislation National, Regional, County and Local Planning Policy	Compliance with the Water Framework Directive, Habitats Directive, Birds Directive, Directive on the Assessment and Management of Flood Risks and the EIA Directive will create constraints on the proposed measures to varying degrees depending on the final project and location of same. Archaeological and architectural heritage legislation pertaining to protected structures may constrain proposed structural works. Addressing likely legislative, planning and policy changes early in the process can reduce construction and operation costs.	Throughout the various stages of the process the requirements of the relevant legislation and policy should be adhered to including the constraints, option assessment, EIA, AA etc. Consultation with statutory bodies including the NPWS, IFI, OPW, National Monuments Service etc to ensure compliance with legislation.	As part of environmental assessment, consideration of procedural and legal issues which may arise during the design, construction and operation processes, must be considered at as early a stage as possible so as not to delay the timely completion of the Kilbeggan to Mullingar Greenway. On this basis the following should be noted at the appropriate stages: • European and Irish environmental legislation; • Amendments of and replacements to Local Authority Development Plans; • Guidelines on process and Codes of Practice relating to environmental and legal aspects of Cycleway design and construction; • EIAR and CPO format and procedures; • Requirements under Section 50 of the 1945 Arterial Drainage Act for the construction or alteration of any bridge or culvert over any watercourse; • Rights of statutory undertakers; • Wayleaves, public and private rights of way; and • Site investigation notices.
Population and Human Health	Central Statistics Office Westmeath County Development Plan (2021 – 2027)	Properties represent a constraint which should, where practicable, be avoided during the development of options. Residential houses generally represent a considerable constraint and avoidance of residential properties, where possible, is generally the considered best approach. Commercial properties also represent a considerable constraint and in most cases are best avoided. The greenway will provide an active travel mode for tourists and locals, increasing opportunities for physical activity, with health benefits..	The proposed study should have consideration of the zoning objectives set out in the County Development plan. It is recommended that the location of all properties / facilities, in particular health centres and schools, within the study area are considered to ensure services are not interrupted. The Greenway design should aim to be sympathetic to the existing land uses. It is necessary to ensure that the greenway will avail of the value and visual qualities of public amenities within the study area, and enhancement opportunities are implemented where appropriate.	The Greenway will provide an opportunity to link communities, towns and villages to active travel transport modes. This will provide added health benefits to commuters and an attractive opportunity for locals and visitors to cycle and walk recreationally. Increasing the levels of walking and cycling is regarded as beneficial because of the improvements in public health. Increasing modal shift away from vehicles will also improve air quality and reduce carbon emissions. Cognisance of the health benefits of a greenway will be had when looking at Kilbeggan to Mullingar Greenway options that can maximise local use.
Biodiversity	NPWS natural heritage database for designated areas and Rare and	The proximity of designated sites is a significant constraint to the proposed Greenway. Lough Ennell SAC (IE000685)	Avoidance of all designated sites and important ecological features should be prioritised where practicable. In the event that works are proposed within or in proximity to designated sites and ecological features appropriate	The European sites and designated sites within the study area are an important constraint on the Kilbeggan to Mullingar Greenway. There are 3 European sites and 4 designated sites within the study area. Lough Ennell itself

Feasibility Report

Category	Source	What is the Constraint/ Opportunity	How should the Constraint/ Opportunity be addressed	Relevance to the Kilbeggan to Mullingar Greenway
	Threatened Species Database	Lough Ennell SPA (IE004044)	mitigation measures should be implemented to avoid or minimise disturbance.	is an SAC, SPA and pNHA and is located quite centrally in the study area.
	NBDC, BSBI, New Atlas of the British and Irish Flora databases	Split Hills and Long Hill Esker SAC (IE001831)	Further surveys and assessments are required for terrestrial and aquatic habitats and species protected under the Wildlife Act, Annex II/IV/V of the EU Habitats Directive and Birds Directive.	All designated sites and other features of ecological interest should be considered in full when identifying suitable options for the Kilbeggan to Mullingar Greenway.
	GeoHive online mapping	Nure Bog NHA (001725)		
	EPA – water bodies and water quality, Catchments resource	Cloncrow Bog (New Forest) NHA (000677)		
	GSI – geology, soils and hydrogeology	Proposed Natural Heritage Area: Grand Canal (002104)	Further surveys for non-native invasive species will be required to inform the design and to identify potential interactions with the infected sites.	Some Japanese Knotweed is located at the north and east of Lough Ennell and in the vicinity of Tyrrellspass and may encroach on some options of the Kilbeggan to Mullingar Greenway.
	WFD website	Proposed Natural Heritage Area: Lough Ennell (000685)	Information signage can provide visitors with key environmental information and raise awareness of environmental issues.	Other invasive species noted in the study area include American Skunk Cabbage, Zebra Mussel, Cumberland Slider, Rhododendron and Yellow-bellied Slider.
	Status of EU Protected Habitats and Species in Ireland (NPWS, 2019a)	Proposed Natural Heritage Area: Split Hills and Long Hill Esker (001831)	Consideration should be given to issues such as “no-net loss” and “net gain” to offset potential negative impacts and effects on ecological features.	Native trees / hedges / shrubs should be planted along the Kilbeggan to Mullingar Greenway to promote Irish biodiversity and meet one of the project’s objectives to be sustainable.
	OSI maps and orthophotography	In addition to the habitats and species protected under designated sites, there are numerous records for rare and protected species which will require further assessments for habitats and protected flora species, Wildlife Act species or species listed Annex II/IV/V of the EU Habitats Directive, as well as protected bird species under the Birds Directive and important bird assemblages that are likely to be found within the study area.		
	Westmeath County Development Plan (2021 – 2027)	The removal of hedgerows and trees should be minimised to prevent negative impacts on ecological corridors.		
	Department of Housing, Planning, Community and Local Government	The greenway will provide an opportunity to bring tourists and locals alike to scenic areas to experience the natural environment and the outdoors, gaining a greater appreciation for environmental protection.		
Soils, Geology and Hydrogeology	Inland Fisheries Ireland	Biodiversity gain could be considered along the corridor to increase connectivity between natural features and ecological corridors.		
	Geological Survey of Ireland – geology, soils and hydrogeology	The CORINE landcover database indicates the dominant land use type within the Study Area is Pasture with a significant area of sparse mosaics of land principally occupied by agriculture, with significant areas of peat bogs (CORINE 2018 Code 412). The use of existing unused railway lines and trails in mixed forest areas may provide	Ground conditions within the study area will be identified through geotechnical investigation during the next stages of the project.	There are several Geological Heritage sites in the study area, most notably the Split Hill and Long Esker complex as well as several other eskers and a small turlough, which is a rarity east of the Shannon.
	EPA The Irish Soil Information System		Construction associated with soft and made ground will require adherences to best practice	There are also areas of bog, particularly at Nure Bog and Cloncrow Bog and extensive areas of cutover raised peat.

Feasibility Report

Category	Source	What is the Constraint/ Opportunity	How should the Constraint/ Opportunity be addressed	Relevance to the Kilbeggan to Mullingar Greenway
	Teagasc Groundwater Flooding Data Viewer GeoHive National Parks & Wildlife Service Census of Agriculture 2010 & 2020	diverse landscape for the greenway without impacting the landscape. There are no landfill sites located within the site study area. There are 7 Geological heritage sites within the study area. All sites need to be considered during the route selection process. The opportunity to highlight these 7 geological heritage sites to tourists and locals.	and construction standards to avoid potential negative impacts. Cognisance must be given to the constraints posed by the presence of the varied groundwater vulnerability areas, karstified nature of the landscape and poorly drained mineral soils of the study area, of which will require further assessments. Due consideration is to be given to any design and option selection process to avoid any negative adverse impacts to these receptors.	Opportunities exist to provide information and increase awareness of and appreciation for these features.
Water	OSI survey vector, six inch and 'discovery' series mapping The Office of Public Works River Basin Management Plan 2018-2021 WFD national website and Water Maps viewer EPA waterbody mapping	The study area is contained within the Lower Shannon catchment. The Lower Shannon (Brosna) catchment is divided into 12 subcatchments (Figure 4–19) with 62 river waterbodies, four lake waterbodies and 32 groundwater bodies. These will require the application of design standards and construction best practice to avoid degrading any surface or groundwater quality rating for the study area. For the 62 rivers waterbodies, 28 (45%) are At Risk, 15 (24%) are in Review and 19 (31%) are Not At Risk. For the four lake waterbodies, three (75%) are in Review and one (25%) is Not At Risk. The largest proportion of At-Risk waterbodies are found in river waterbodies, accounting for 28 (88%) of 32 At Risk waterbodies. Figure 4–21 details these waterbodies. Certain areas across the County are at risk of flooding from sources including groundwater, pluvial (resulting from high intensity rainfall events where run-off volume exceeds capacity of surface water net) and fluvial (watercourse capacity is exceeded or the channel is blocked and excess water spills from the channel onto adjacent floodplains.). There are various historic and predictive indicators of flood risk in the County, such as those along the River Brosna and surrounding the Lough Ennell.	The design and construction methodology for the study must be such that it does not jeopardise the waterbody-specific objectives of the Water Framework Directive The hydrology of all watercourses that might be impacted by the proposed project should be assessed to ensure that the WFD hydromorphological status is not affected by the study Suitable mitigation measures should be developed for the project in line with best practice measures to avoid negative impacts to water quality during the construction phase.	All options will traverse a variety of watercourses and the crossings will need to be designed to avoid any additional impact on flooding in the area. All options will traverse as least some flood prone areas and due regard will be had to this in the development of options.

Feasibility Report

Category	Source	What is the Constraint/ Opportunity	How should the Constraint/ Opportunity be addressed	Relevance to the Kilbeggan to Mullingar Greenway
		There are no surface waterbodies in the catchment identified as Drinking Water Protected Areas (DWPA) based on water abstraction data on the abstraction register and from other sources in 2018. All groundwater bodies nationally are identified as DWPA. DWPA layers can be viewed at https://gis.epa.ie/EPAMaps/Water .		
Air, Climate and Noise	EPA	The construction phase poses the greatest potential impact to air quality within the study area. However, these impacts will be temporary in nature and with the adherence of best practice construction measures will create minimal impact. Due to the nature of the works it is not envisaged that the operational phase will impact upon the surrounding air quality. The potential impacts associated with noise during the construction phase is not deemed a significant constraint provided best practice measures are implemented. The potential impacts to biodiversity from noise, vibration and air pollution will be assessed further as the project progresses. However, impacts to ecological receptors from these pollution sources are thought to be short term and localised. The greenway will provide for modal shift thereby reducing air and carbon emissions.	The study design should consider any air, noise/vibration sensitive receptors such as schools, retirement homes and biodiversity located in proximity to works associated with the scheme.	During construction, the main noise impacts associated with the project will be during the construction phase due to machinery movements. The impacts can be mitigated by avoiding noise sensitive receptors and by using light machinery. Noise during the construction phase is also temporary with minimal potential for noise and vibration to be an issue, particularly for sensitive receptors, where significant earthwork activities and engineering such as rock breaking are very unlikely for the Kilbeggan to Mullingar Greenway. Similarly, from an emission perspective, there will be airborne pollutants associated with the project during the construction phase. Vehicle and machinery emissions during this phase will contribute to greenhouse gas emissions and as such will have an impact on climate in terms of the macro scale.

Feasibility Report

Category	Source	What is the Constraint/ Opportunity	How should the Constraint/ Opportunity be addressed	Relevance to the Kilbeggan to Mullingar Greenway
Material Assets: Non-Agricultural	EPA online mapped Licensed facilities	The primary constraints within the study area are the utilities consisting of water supply networks, telecommunications, storm and foul sewers, electricity supply and gas pipelines.	Consultation with utility providers at the option selection stage is recommended.	Early consideration of how the Kilbeggan to Mullingar Greenway options can integrate with the existing material assets in the area is essential. The advantage of public land corridors includes certainty of permanent unrestricted access, clarity in relation to liability for any insurance claims and certainty of responsibility for maintenance and upkeep.
	TII Westmeath County Council website EPA Wastewater Discharge License Applications	Early consideration of how options can integrate with the existing material assets in the area is essential and will require engagement with service providers to ensure that utilities can be avoided and/ or modified to mitigate impacts. The greenway provides an opportunity to link existing sports and recreational facilities, schools, and communities in the study area.	It is recommended that Transport Infrastructure Ireland and Westmeath County Council be consulted in relation to any effects on the existing and proposed roads infrastructure in the study area. Map the relevant community facilities and identify opportunities to increase linkages.	
Material Assets: Agricultural	Census of Agriculture, 2010 & 2020	At this stage of the project there are no details on the extent of land ownership and therefore the size of any farms is not known. However, when the imagery was compared with the land registry on the Property Registration Authority website a better understanding, from a high level, of agricultural practices and the intensity at which they may be farmed was reached. Geodirectory information shall be cross-referenced against these criteria to further identify potential agricultural constraints.	At this stage of assessment, it is not anticipated that the proposed study will interact or result in any negative impacts caused to the material assets – agriculture receptors in proximity of the study area.	The various farming practises in the study area each have unique aspects that can potentially be impacted and will require careful consideration. Early consideration of how Kilbeggan to Mullingar Greenway options can integrate with the existing agricultural practises in the area will be essential and will be explored.
	CORINE (Co-Ordinated Information on the Environment) 2018 'Google Earth' Property Registration Authority of Ireland website Teagasc EPA Soil and Subsoil Mapping, 2006			
Cultural Heritage	National Monuments Service (NMS)	The study area is host to a variety of archaeological and architectural heritage assets and there is also potential for the presence of unrecorded archaeological and architectural sites within the area. There are 489 archaeological sites and monuments listed in the SMR for the study area. Of this total 9 No. are redundant records. There are approximately 280 No. Record of Protected Structures (RPS) sites, and	At this stage of the project, cognisance should be taken of all recorded archaeological monuments and protected structures including National Monuments, recorded archaeological monuments and protected structures should be avoided and, in respect of recorded archaeological monuments, their zones of notifications should be allowed as a buffer zone free from development.	The Kilbeggan to Mullingar Greenway study area contains a very rich historic environment of archaeological and built heritage sites (see Figure 4.2). These sites offer excellent potential as part of the things to see and do along the greenway and the potential exists to create interpretive points at key sites along the way, like those along the Wild Atlantic Way for example. Any option corridor evaluation process and subsequent environmental impact assessment, which will involve a desk study and field walkover inspection, will ensure that known
	Historic Environment Viewer (HEV) Database of Irish Archaeological Excavations Sites and Monuments Record (SMR)/Record of			

Feasibility Report

Category	Source	What is the Constraint/ Opportunity	How should the Constraint/ Opportunity be addressed	Relevance to the Kilbeggan to Mullingar Greenway
	Monuments and Places (RMP)	approximately 374 No. sites listed on the National Inventory of Architectural Heritage (NIAH).	The National Monuments Service, the Architectural Advisory Unit, the OPW, and the Department of Housing, Local Government and Heritage should be consulted when determining viable options and at further stages of study development and appropriate mitigation should be determined.	and extant cultural heritage sites and features are identified, and any potential likely impacts are measured, with mitigation measures detailed for same, as appropriate.
	National Inventory of Architectural Heritage (NIAH)	Both the NIAH and RPS sites are generally dispersed along the road network throughout the CSA, with high concentrations in and around the towns and villages.		
	Record of Protected Structures (RPS)	The opportunity exists to provide information and access to the recorded cultural heritage features, providing tourists and locals with an insight into Ireland's historic past.	Any alternatives/option design considered for the scheme and subsequent environmental impact assessment, which will involve a desk study and field walkover inspection of archaeological and built heritage receptors, will ensure that known and extant cultural heritage sites and features are identified, and any potential likely impacts are measured, with mitigation measures detailed for same, as appropriate.	
	Buildings of Ireland website		Specific mitigation requirements to address potential 'unknowns' can only be identified as items for review once the location of works options is defined. Additional non-intrusive archaeological surveys such as geophysical survey may be appropriate if a specific set of investigative questions require more detailed analyses at that stage.	
Landscape	Any national or other relevant strategies i.e., RSES	While the Landscape Character Areas have been long established in Westmeath, the National Landscape Strategy for Ireland (2015 – 2025) seeks to develop a National Landscape Character Assessment.	Landscape character areas and the associated recommendations under the Westmeath County Development Plan are identified in this report such that the design of the study can be empathetic to the sensitivity and value of the local landscape.	Availing of scenic views and an attractive rural landscape is important to the success of a greenway but it also needs to be carefully balanced against any substantial negative impacts of the development on the landscape itself.
	Westmeath County Development Plan 2021-2027	Relevant descriptive data from the published landscape character assessment is presented in Appendix B of this report for each Landscape Character Area (LCA) within the study area. This is followed by a review of the published recommendations regarding landscape management and future development and the implications of same regarding the Kilbeggan to Mullingar Greenway.	Minimise disturbance to hedgerows and stone walls.	
	Aerial photography		Ensure protection of scenic views and avail of them.	
	Google maps		Minimise impacts from adjoining landowners' views to the river from amenity, cultural or tourist areas that avail of them.	
			Incorporate the key aspect of the rivers/Lough Ennell to the surrounding hinterland i.e. users of the river including boating, kayaking etc.	

Feasibility Report

Category	Source	What is the Constraint/ Opportunity	How should the Constraint/ Opportunity be addressed	Relevance to the Kilbeggan to Mullingar Greenway
			Conserve and enhance the characteristics of the landscape that are important to tourism. Essential for this project - enhance scenic routes, driving routes, walking routes and cycling routes. Opportunities to enhance the amenity value of the area should be explored during detailed design. The design of the study must adapt to the receiving environment in any location in terms of materials, form, gradient, and new vegetation	
Other Constraints	Waste Management	There will be a requirement to handle, store, remove and dispose of waste material in accordance with the relevant waste management legislation. Waste material will be generated from two sources: Wastes resulting from general construction on-site; i.e., waste fuels, oils from machinery, cement and concrete from required masonry works and wastewater from sanitary facilities. Excess excavated materials generated from general site clearance and earthwork excavations that has no use and is to be discarded. Demolition waste from other construction activities.	The nature of the wastes generated from site clearance and earthworks will generally be man-made materials. Natural materials such as vegetation, topsoil, subsoil and stone are generally re-used on site and are not wastes. Where this material is to be stored on-site and reused it is important that it is not stored close to any watercourses or lakes. Any excavated material which is deemed unacceptable for re-use in the works will have to be removed off-site for disposal or for processing and as such may be required to be removed or disposed of under a waste permit or certificate of registration from the local authority. It is important to ensure that correct procedures for storage and disposal of wastes and excess materials are noted and implemented. That the location of a site compound is established.	During construction, the Kilbeggan to Mullingar Greenway will promote the principles of the circular economy in minimising waste going to landfill and maximise waste as a resource, with prevention, preparation for reuse, recycling and recovery prioritised in that order, over the disposal of waste.

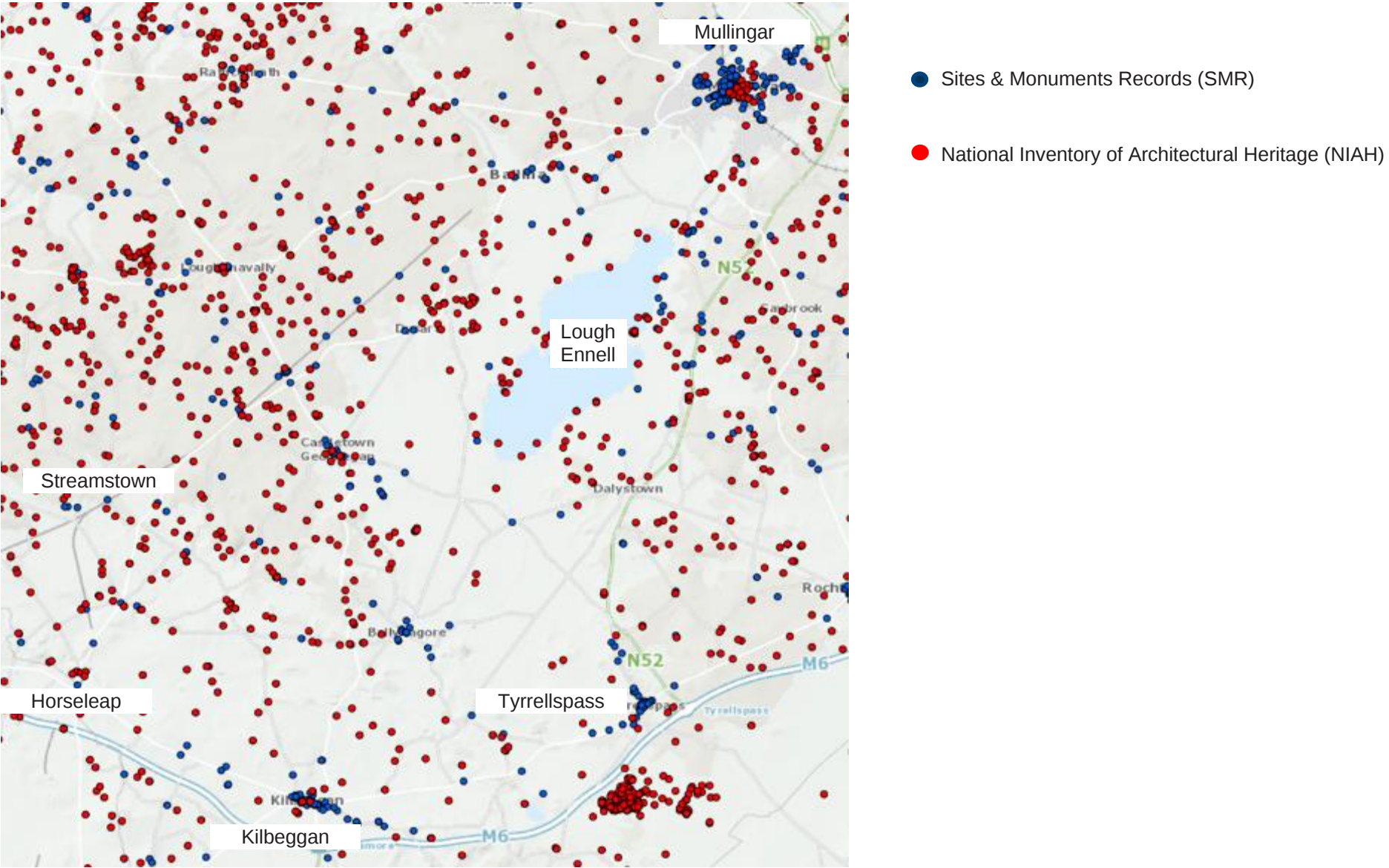


Figure 4.2 Archaeological and Architectural Constraints within the Study Area

4.4 Sample Attractions in the Study Area

There are a number of attractions, scenic locations, towns and villages within the study area. The location of the some of the attractions in the study area are illustration in Figure 4.3. These are a representative sample of attractions only, used to give an overall impression of the breadth and depth of attractions within the study area. Attractions provide opportunities and constraints – opportunities to increase access for walkers and cyclists, and constraints in terms of respecting their setting within the environment. These attractions can positively enhance the experience for the users of the greenway and contribute to the project's success.

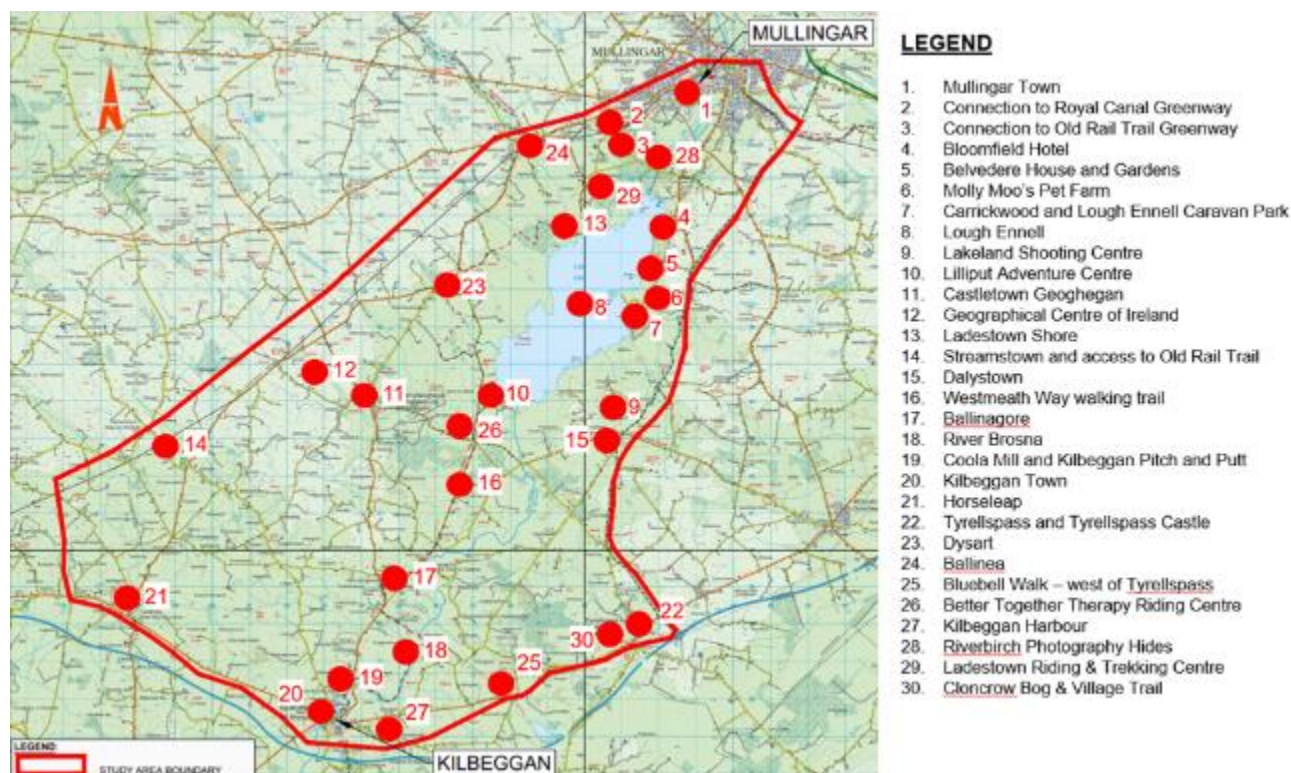


Figure 4.3 Destinations, Amenities, Scenic Locations and Main Population Centres

4.4.1 Sample Destinations²

4.4.1.1 Kilbeggan³

Kilbeggan (in Irish Cill Bheagáin) is the main town in the Barony of Moycashel in County Westmeath. The name signifies: The Church of [St] Becann. Kilbeggan, like Mullingar, is located on the River Brosna – here the river has been harnessed to power the water-wheel of the local distillery. The town lies south of Lough Ennell and quite close to the Offaly border with the nearest villages being Rahugh and Ballinagore. It lies approximately halfway between Horesleap to the west and Tyrellspass to the east and is connected to both through the R446 regional road. Kilbeggan is also on the line of the Esker Riada the great chain of eskers which were deposited across central Ireland after the last Ice-Age. Kilbeggan has a population of 1,909 according to the April 2022 census.

Kilbeggan became an important market town as evidenced by the substantial Market House which still survives in the Square though it is no longer used for its original purpose. The market was saved in 2006 and is held in the Square each Saturday morning.

² Images/ photos by kind permission of Fáilte Ireland.

³ Source: <http://www.westmeathcoco.ie/en/ourservices/library/explorewestmeath/inthepast/kilbeggan/>

Feasibility Report

The town of Kilbeggan is synonymous with the production of whiskey. The distillery which later became Locke's in Kilbeggan was founded in 1757. In more recent times the arrival of Cooley Distillers and Beam Inc has seen the Kilbeggan Distillery Experience become a major tourist attraction offering great insights into the world of distilling in Ireland.

Kilbeggan is also associated with horse-racing – the first races were held there in 1840. It is the only racecourse in Ireland where all the races are over jumps under the National Hunt Rules. Since 1992 the number of meetings has increased from three to eight. The Midlands National each July is the highlight of the season and is the biggest summer steeplechase outside the Galway Festival.

Kilbeggan holds a Knighthood Festival on the June Bank Holiday weekend to commemorate the 18th C knighting of Kilbeggan inn-keeper, Thomas Cuffe, by the then Lord Lieutenant of Ireland.



Figure 4.4 Images of Kilbeggan

4.4.1.2 Mullingar⁴

The name Mullingar (An Muileann gCearr) is derived from 'The wry or left-handed mill'. It is the county town of Westmeath and is located in the centre of the county. The river Brosna flows through Mullingar. Situated within Mullingar is the imposing renaissance style Roman Catholic Cathedral of Christ The King, which was completed in 1936. The cathedral has twin towers over 42.5 meters high surmounted by gilt bronze crosses. The area around Mullingar is surrounded by a number of fine limestone lakes including Loughs Ennel, Owel and Derravaragh. The town grew up around the monastery of Lynn and came into its own after the Anglo-Norman invasion when the manor of Mullingar was assigned to the Petit family. There are records of burgesses and grants of fairs going back to the early years of the 13th C indicating that it was becoming established as a town by that time.

In the nineteenth century two major infrastructural advances in Mullingar were the arrival of the Royal Canal (1806) and the arrival of the railway in 1848. The railway was initially connected to Galway via Athlone and subsequently to Longford.

⁴ Source: <http://www.westmeathcoco.ie/en/ourservices/library/explorewestmeath/inthepast/mullingar/>

Feasibility Report

Mullingar is the county town of Westmeath. It is the third most populous town in the Midland Region. Mullingar had a population of 22,512 as recorded in the April 2022 Census.



Figure 4.5 Images of Mullingar

4.4.2 Things to See & Do

4.4.2.1 The Old Rail Trail

The Old Rail Trail starts in Athlone and ends in Mullingar. The Old Rail Trail follows the route of the disused Great Western Railway between Mullingar and Athlone. The trail is a purpose built off-road shared pedestrian and cycleway trail, alongside the historic Midlands Great Western Railway track. Generally flat with smooth sealed surface and some gentle slopes. This trail is suitable for family groups of all ages and all types of bikes. The route traces the historic Midlands Great Western Railway track, past restored station houses and under arched bridges. It will eventually form part of the proposed Dublin to Galway Cycleway.



Figure 4.6 Images of the Old Rail Trail

4.4.2.2 Royal Canal Greenway

The Royal Canal Greenway is currently Ireland's longest greenway at 130km in length. It follows the level towpath, and is ideal for walkers, runners and cyclists of all ages and stages. The route commences in Maynooth and passes through Mullingar.



Figure 4.7 Images of the Royal Canal Greenway and Blueway

4.4.2.3 Westmeath Way

The Westmeath Way is a linear 33km route starting behind Kilbeggan Distillery Museum and finishing at the Harbour Bridge in Mullingar. From Kilbeggan, the route follows the banks of the River Brosna before heading west over the Split Hill Esker and the townland of Balrath before turning back to Ballynagore. From there it heads northwards to Lilliput, on the southern shore of Lough Ennell. Jonathan Swift is said to have stayed with friends on the lake's shore and used the name for his fantasy island in Gulliver's Travels. The route continues to Dysart to the west of Lough Ennell. The section north of Dysart, over the privately owned land from Keoltown to Ladestown is currently closed. From Ladestown the route goes north to join the Royal Canal at Bellmount Bridge and then follows the Royal Canal into Mullingar. Walkers and cyclists can join the Old Rail Trail to Athlone or the Royal Canal Greenway eastwards to Dublin or north westwards to Longford and the River Shannon from Mullingar.



Figure 4.8 Images of the Westmeath Way

Feasibility Report

4.4.2.4 Lough Ennell

Lough Ennell is a lake near the town of Mullingar, County Westmeath, Ireland. It is situated west of the N52 road, off the Mullingar/Kilbeggan road. The lake is part of the Lough Ennell Special Protection Area (SPA), Lough Ennell Special Area of Conservation (SAC) and Lough Ennell proposed Natural Heritage Area (pNHA). It is 6.5 km long by 2 km wide, with an area of about 12 km².



Figure 4.9 Images of Lough Ennell

4.4.2.5 River Brosna

The River Brosna is a river within the Shannon River Basin in Ireland, flowing through County Westmeath and County Offaly. It flows through both Mullingar and Kilbeggan. The river rises in Lough Owel north of Mullingar and is a tributary of the River Shannon. It meets the Shannon at Shannon Harbour. The River Brosna is approximately 80km in length



Figure 4.10 Images of the River Brosna

4.4.2.6 Lilliput Adventure Centre

Lilliput Adventure Centre is in Jonathan Swift Park, on the southern shores of Lough Ennell, approximately a 20 minute drive from Mullingar town by car. Walkers and cyclists can currently get to Lilliput from Mullingar by taking a section of the Old Rail Trail before leaving it south of Ballina/ Ballineae and heading toward Dysart on the R391 before turning off toward Nure and Lilliput. The journey would take approximately 1 hour for a cyclist. From Kilbeggan, the trip to Lilliput would take approximately 30 minutes for a cyclist following the R389 and L1122, L1120, and L1221 northwards. It is approximately a 10 minute drive following the same route.



Figure 4.11 Images of the Lilliput Adventure Centre

4.4.2.7 Castletown Geoghegan & the Geographical Centre of Ireland

Castletown Geoghegan is a village in Westmeath, located broadly north of Kilbeggan and south west of Mullingar. It lies southwest of Lough Ennell. Castletown Geoghegan is the Geographical Centre of Ireland according to an investigation and calculation carried out by the Official Irish Government Mapping Agency.



Figure 4.12 Images of the Castletown Geoghegan & the Geographical Centre of Ireland

4.4.2.8 Tyrrellspass Castle

Tyrrellspass Castle, dating back to circa 1411, is situated in the town of Tyrrellspass. It is the only remaining castle of the Tyrrells, who came to Ireland around the time of the Norman Invasion. The castle also houses a restaurant.



Figure 4.13 Images of Tyrrellspass Castle

4.4.2.9 Belvedere House and Garden

Belvedere House and Garden is a Georgian house and estate owned and operated by Westmeath County Council located approximately 8 kilometres from Mullingar, County Westmeath in Ireland on the north-east shore of Lough Ennell. Belvedere House and Garden is located within a 160-acre site. Visitors can enjoy a self-guided visit, with optional audio tour, around the period house, lakeshore walks, woodlands trails and Victorian Walled Garden. There is an entrance fee for the house and garden and the garden and park are open year round.



Figure 4.14 Images of the Belvedere House and Garden

4.4.2.10 Cloncrow Bog and Village Trail

The trail is located in Tyrrellspass and is a 3.5 km long looped walk and includes a section of boardwalk over raised bogland. The trail begins at Tyrrellspass Castle and passes through a range of diverse habitat types before looping back to Tyrrellspass. The village of Tyrrellspass has unique Architectural and Historic heritage to be explored.



Figure 4.15 Images of the Cloncrow Bog and Village Trail

4.4.2.11 Carrickwood and Lough Ennell Caravan Park

Carrickwood is a woodland consisting of 32 acres with picnic areas and forest walks just south of Tudenham on the eastern shores of Lough Ennell.

The Lough Ennell Caravan Park is in the heart of Westmeath, set in a sheltered and tranquil location. The park covers 18 acres of beautiful mature woodland rich in flora and fauna hugging the shores of Lough Ennell.



Figure 4.16 Images of Carrickwood and Lough Ennell Caravan Park

4.4.2.12 Kilbeggan Distillery Visitor Centre

Within the town of Kilbeggan is the famous Kilbeggan Distillery. The distillery was built c.1757. It closed in the 1950s but was subsequently reopened in the late 1980s as a heritage centre and working distillery museum.

4.4.2.13 Coola Mill and Bridge

Coola Mill is located just north of Kilbeggan town where the R389 road crosses the River Brosna. The corn mill complex was built c.1770. It is now derelict and out of use. There is a five-arch road bridge, built c.1780, carrying the Mullingar Road over the River Brosna and an adjacent millrace associated with Coola Mills

4.4.2.14 Kilbeggan Racecourse

Kilbeggan Racecourse is located just to the north of Kilbeggan and is accessed off the R389. The racecourse is a popular tourist venue in Westmeath. It is a notable summer track and stages the valuable Midlands National Handicap Chase which is a recognised trial for the Galway Plate and other major festival races. The vast majority of race meetings are held in the evening time.

4.4.2.15 Bluebell Walk

Tyrrellspass Bluebell walk also known as Esker Bluebell Trail, is a 3.2 km lightly trafficked out and back trail located near Kilbeggan. The trail shows a wide range of wildlife and is well known for its beautiful bluebells along the way. The trail is primarily used for hiking, trail running, and nature trips.

4.4.2.16 Lakeland Shooting Centre

Lakeland shooting centre in Mullingar offers clay pigeon shooting.

4.4.2.17 Bloomfield House Hotel

Bloomfield House Hotel overlooks Lough Ennell. The country house hotel is 1 km from Mullingar Golf Club and 4.6 km from Mullingar train station.

4.4.2.18 Molly Moo's Pet Farm

Molly Moo's Pet Farm is located near Rochfort Demesne, in Tudenham on the eastern side of Lough Ennell. The pet farm offers many visitors activities and amenities including picnic areas, crazy golf, shops, and go karting

4.4.2.19 Riverbirch Photography Hides

Located just to the south east of Mullingar, in Lynn, and northwest of Lough Ennell, Riverbirch Photography Hides provides opportunities for photographers to take wildlife photographs. There are two different hides on site: one woodland and one river hide.

4.4.2.20 Ladestown Riding and Trekking Centre

The Ladestown Riding Stables is a family run riding school offering horse & pony trekking to all ages, open seven days a week.

4.4.2.21 Better Together Therapy Riding Centre

The Better Together Therapy Riding Centre located in Castletown Geoghegan offers a therapeutic approach to equine therapy and equine assisted activities for children and adults.

5 CONSIDERATION OF OPTIONS AND ALTERNATIVES

5.1 Alternatives

In terms of alternatives to the creation of a greenway, there are no clear viable alternatives that would meet the objectives of the project which include, inter alia: increasing access to scenic areas with lots to see and do; increasing the attractiveness of the region for domestic and overseas tourists interested in active holidays; increasing opportunities for economic development and local employment; providing a safe, accessible and user-friendly walking and cycling trail; linking the Grand Canal and the Old Rail Trail/ Royal Canal Greenways; and encouraging modal shift from motorised vehicles to public transport and active travel modes.

One partial alternative that can be considered is the re-use of existing infrastructure within the Study Area. As such the Old Rail Trail, which connects Mullingar to Athlone, and is to the west of the Study Area, provides an option to create a spur linking it to Kilbeggan, thereby creating a greenway between Kilbeggan and Mullingar that incorporate a substantial length of the existing Old Rail Trail. The consideration of this alternative must however consider the overarching project objectives alongside the 5 S criteria for strategic national and regional greenways.

5.2 Phase 1 Long List of Options

5.2.1 Considerations in the Selection of Options

As the project is identified specifically as a greenway project to be developed in accordance with, inter alia, the Strategy for the Future Development of National and Regional Greenways (DoT, 2018) and the Code of Best Practice National and Regional Greenways (DoT, 2021), the development of a long list of options should provide for a new, substantially segregated cycling and walking facility to be developed in accordance with the relevant design standards and guidelines including TII's 'Rural Cycle Scheme Design' DN-GEO-03047, (TII, 2022b) and the recently updated National Transport Authority (NTA) Cycle Design Manual (NTA, 2023).

A long list of options has been developed having regard to the various constraints and opportunities identified to date as discussed in the previous section. The key factors considered when developing the long list include, but are not limited to the following:

- Gradients, i.e. the steepness of inclines/ declines in the greenway;
- Local attractions and places of interest;
- Local population centres;
- Landownership patterns including areas of publicly owned land;
- Environmentally designated areas in particular SACs; SPAs, NHAs and pNHAs;
- Scenic nature of the landscape and surrounds;
- Flood prone areas.

A total of nine options were considered for the long list. These are individually summarised in the following sections. The long list options are shown in the drawings in Appendix C.

5.2.2 Option Corridors

For the purposes of the long listing of options, it must be borne in mind that the options identified at this stage in the project are broad corridors that indicate potential routes. The long list options have been selected based on the desk-top information available at this Phase 1 of the process. There are no pre-determined or identified routes within these options and selection of a preferred option (in Phase 2 of the project) will take account of landowner engagement and further information from environmental surveys, preliminary design and other investigations.

Each of the long list of options will be appraised in a Preliminary Options Appraisal. This is described in detail in Section 5.3. Options that are deemed to satisfactorily meet the project objectives (step 1) and

Feasibility Report

subsequently the feasibility appraisal (step 2) will be brought forward to Phase 2 Option Selection. The Preliminary Options Assessment is presented in Section 6.

In Phase 2 Option Selection, there will be further engineering and environmental information gathered to inform the identification of a preferred option to be taken forward to Phase 3 Design and Environmental Evaluation. Also, there will be engagement with landowners, the public and other stakeholders to inform that decision making process. The preferred option to be selected in Phase 2 may be wholly within one of the option corridors, it may be partially inside and partially outside of a corridor, or it may be an amalgamation of two or more corridors. The ultimate aim of the future phases of the project will be to identify a preferred option that meets the project objectives alongside design standards, environmental constraints, and relevant policies and objectives.

5.2.3 Option 1: R446-Horseleap-MGWR Clara Branch-Streamstown

Option 1 begins at Kilbeggan Harbour. It passes through Kilbeggan town broadly in line with the R446. The corridor encompasses an area running parallel to the R446 westwards from Kilbeggan towards Horseleap. Given the need for greenways to be substantially segregated from the existing road network, the greenway would be located adjacent to or away from the R446 whilst also seeking to reduce the impact on landowners, hedgerows, treelines. At Horseleap, the corridor moves northwards and broadly follows the line of the disused Clara Branch of the Midlands Great Western Railway where it connects to the Old Rail Trail near Streamstown. The corridor then follows the Old Rail Trail to Mullingar.

Option 1 is approximately 14 km in length of new greenway construction with a further 18 km using the existing greenway.

This option is shown in Figure 5.1 and in the drawings in Appendix C.

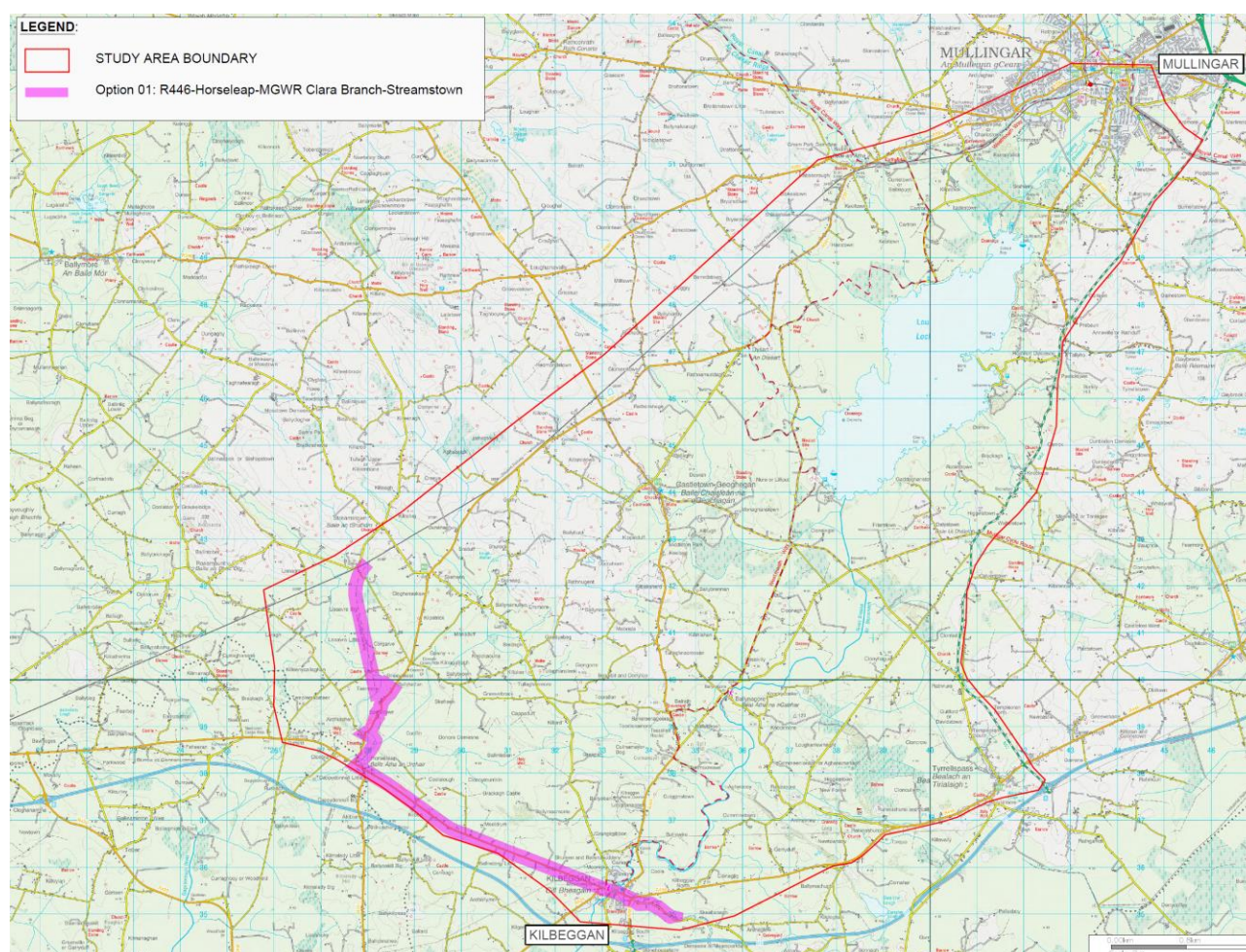


Figure 5.1 Option 1: R448-Horseleap-MGWR Clara Branch-Streamstown

Feasibility Report

5.2.4 Option 2: L1223-MGWR Clara Branch-Streamstown

Option 2 commences at Kilbeggan harbour and, heading north-westward, skirts around the east and north of Kilbeggan. It then follows a corridor centred on the L1223, the existing, marked, on-road cycleway linking Kilbeggan to the Old Rail Trail in Streamstown (approximately 10km). In the townland of Tullaghanmore (approximately halfway between Kilbeggan and Streamstown) Option 2 turns west and follows a corridor centred on the L-1222 to Skeheen (Nagle). It then continues broadly westward before connecting to the dismantled former Clara Branch of the Midlands Great Western Railway at Teermore which it then follows before connecting to the Old Rail Trail near Streamstown. The corridor then follows the Old Rail Trail to Mullingar.

Option 2 is approximately 15 km in length of new greenway construction with a further 19 km using the existing greenway.

This option is shown in Figure 5.2 and in the drawings in Appendix C.

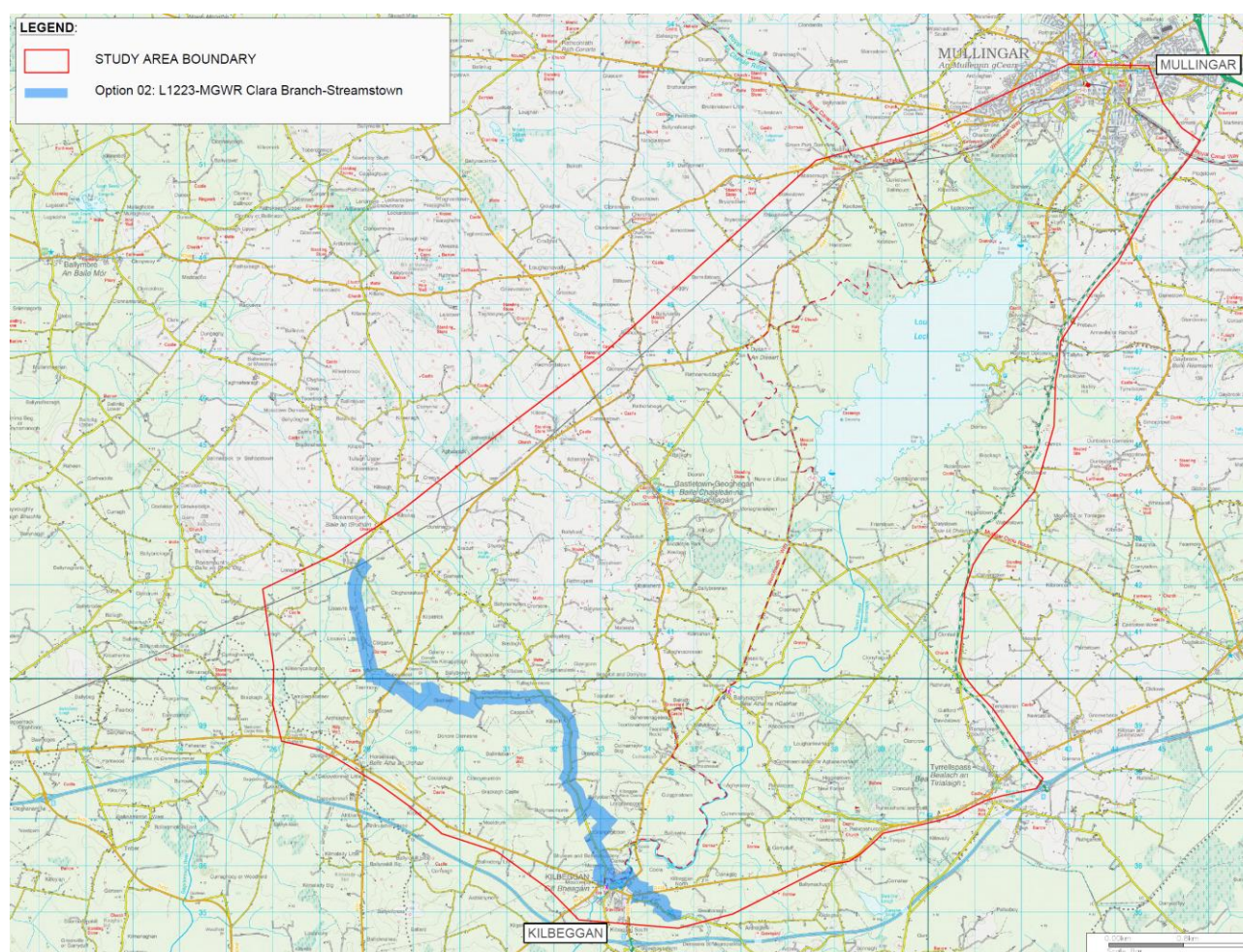


Figure 5.2 Option 2: L1223-MGWR Clara Branch-Streamstown

Feasibility Report

5.2.5 Option 3: L1223 to Streamstown

Option 3 follows the same corridor as Option 2 as far as Tullaghanmore L1223. From there it continues on a corridor centred on the L1223 as far as the junction with the R391, which links Ballina/ Ballinea, just southwest of Mullingar, to Dysart and Horseleap. Option 3 then follows a corridor centred on the L-1240 to connect to the Old Rail Trail just east of Streamstown.

Option 3 is approximately 11 km in length of new greenway construction with a further 19 km using the existing greenway.

This option is shown in Figure 5.3 and in the drawings in Appendix C.

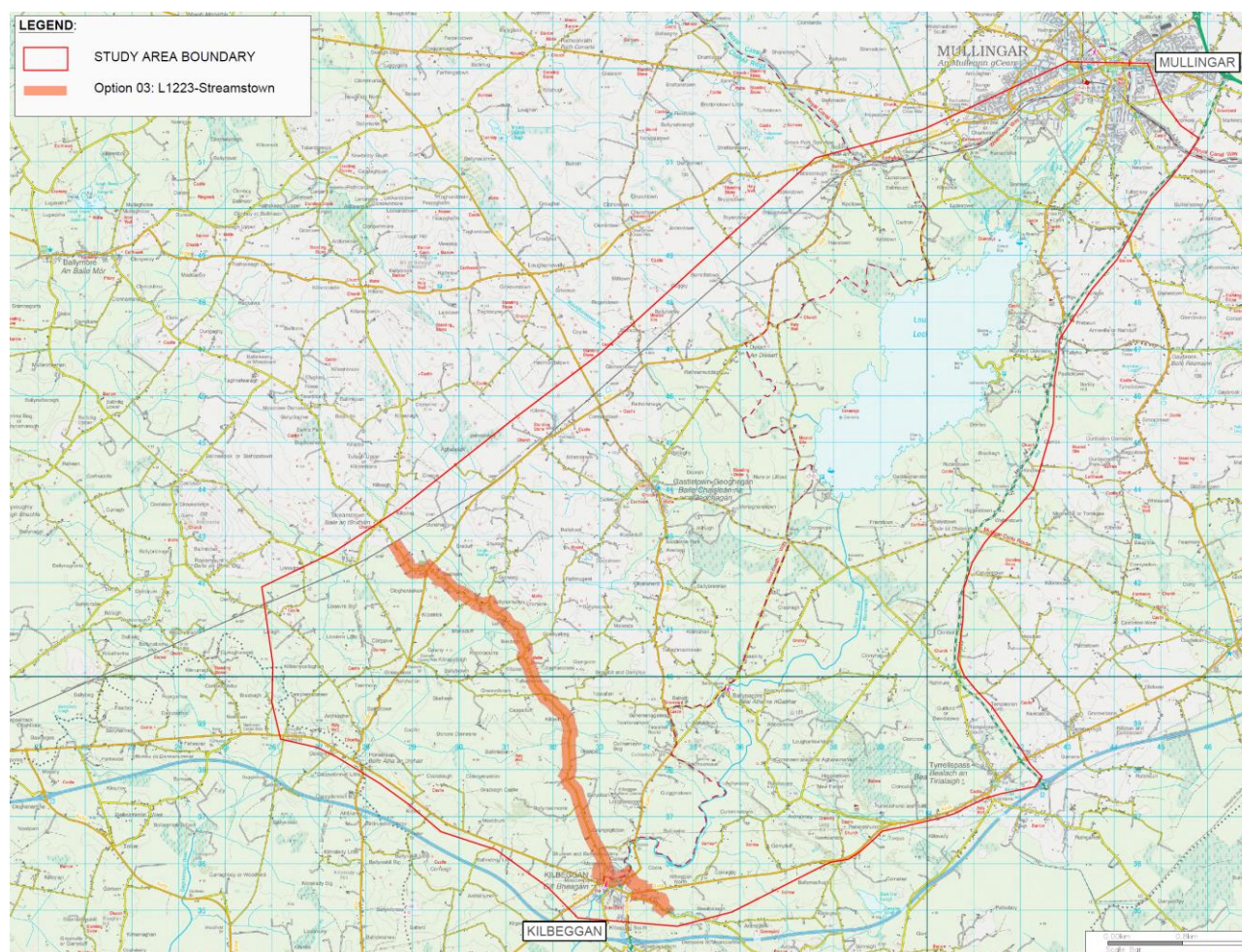


Figure 5.3 Option 3: L1223 to Streamstown

Feasibility Report

5.2.6 Option 4: Via Castletown Geoghegan

Option 4 commences at Kilbeggan harbour and, heading north-westward, skirts around the east and north of Kilbeggan until it meets the R389 road and the River Brosna. It follows the River Brosna north for a short distance before heading west around Kilbeggan Racecourse before rejoining the R389 where it goes through the Split Hills and Long Hill Esker SAC and pNHA. From there, the corridor goes in a northern direction past Balrath and Ballynagore to the townland of Clonsingle/ Monaghanstown (Clonsingle/ Monaghanstown crossroads on L-1120/ L1122), just south of Nure Bog NHA. It then follows a corridor centred on the northern bank of the Monaghanstown River and skirts around Castletown Geoghegan to the north. From Castletown Geoghegan it follows along a corridor centred on the R389 before connecting to the Old Rail Trail at Castletown Station. The option follows the Old Rail Trail to Mullingar.

Option 4 is approximately 20 km in length of new greenway construction with a further 13 km using the existing greenway.

This option is shown in Figure 5.4 and in the drawings in Appendix C.

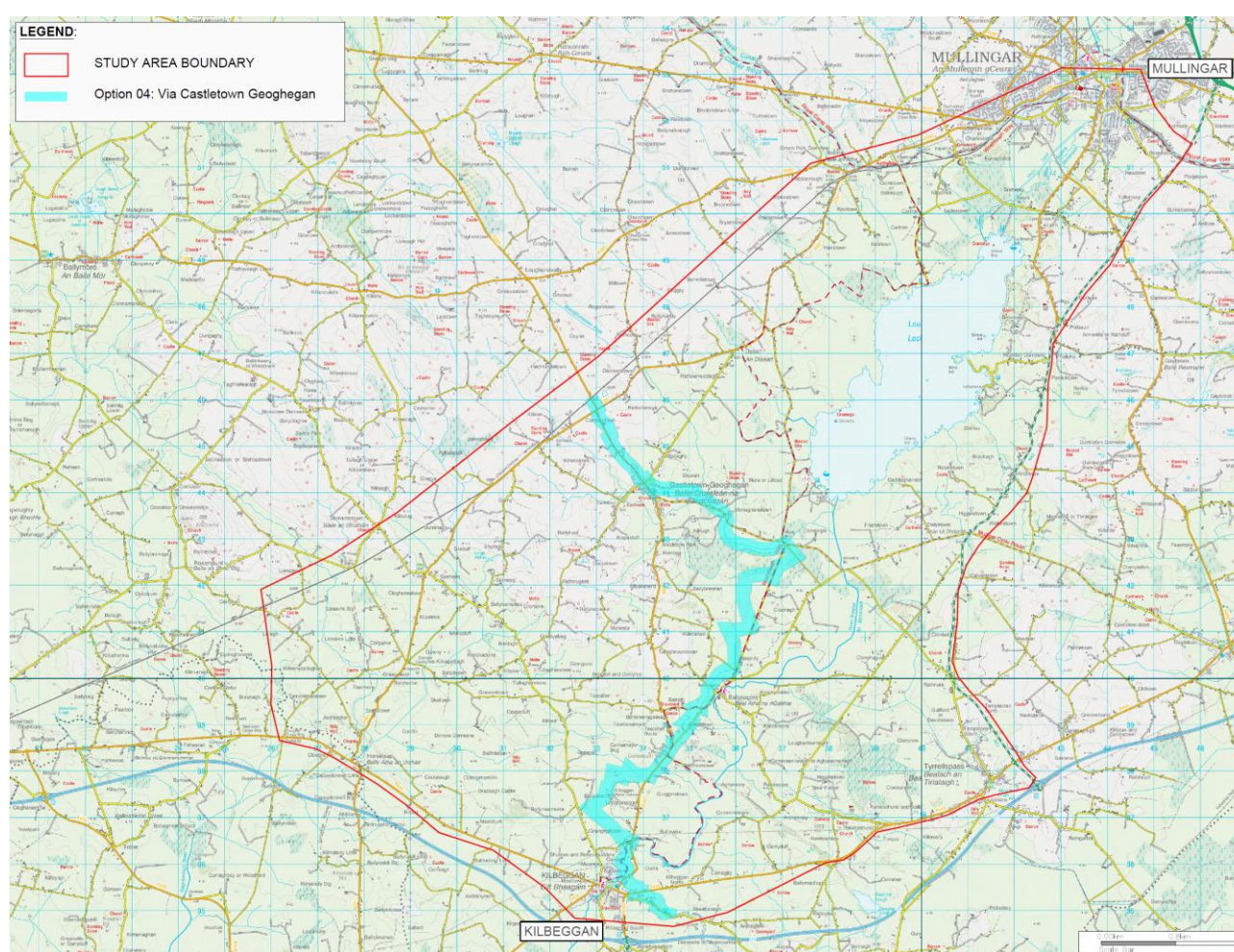


Figure 5.4 Option 4: Via Castletown Geoghegan

Feasibility Report

5.2.7 Option 5: Via Dysart Westmeath Way and Ladestown

This option follows the same corridor as Option 4 as far as Clonsingle from where it continues north running through Lilliput and Nure Bog NHA and adjacent to/ through Lough Ennell SAC, SPA and pNHA. Lough Ennell is to the east of the corridor. After Lilliput it follows the L-1221 until it crosses the Dysart Stream. From there the corridor follows the Dysart Stream to Dysart. Option 5 then follows a corridor centred on the route of the Westmeath Way from Dysart to Ladestown. Between Dysart and Kilpatrick the corridor is just to the west of Lough Ennell SAC, SPA and pNHA. After Ladestown, Option 5 travels broadly northward through Kilpatrick and intersects with Lough Ennell SAC, SPA and pNHA. After Kilpatrick, the option continues northwards through the townlands of Farranfolliot and finally Balnamona (or Charlestown) where it connects to the Old Rail Trail and on to Mullingar.

Option 5 is approximately 30 km in length of new greenway construction with a further 5 km using the existing greenway.

This option is shown in Figure 5.5 and in the drawings in Appendix C.

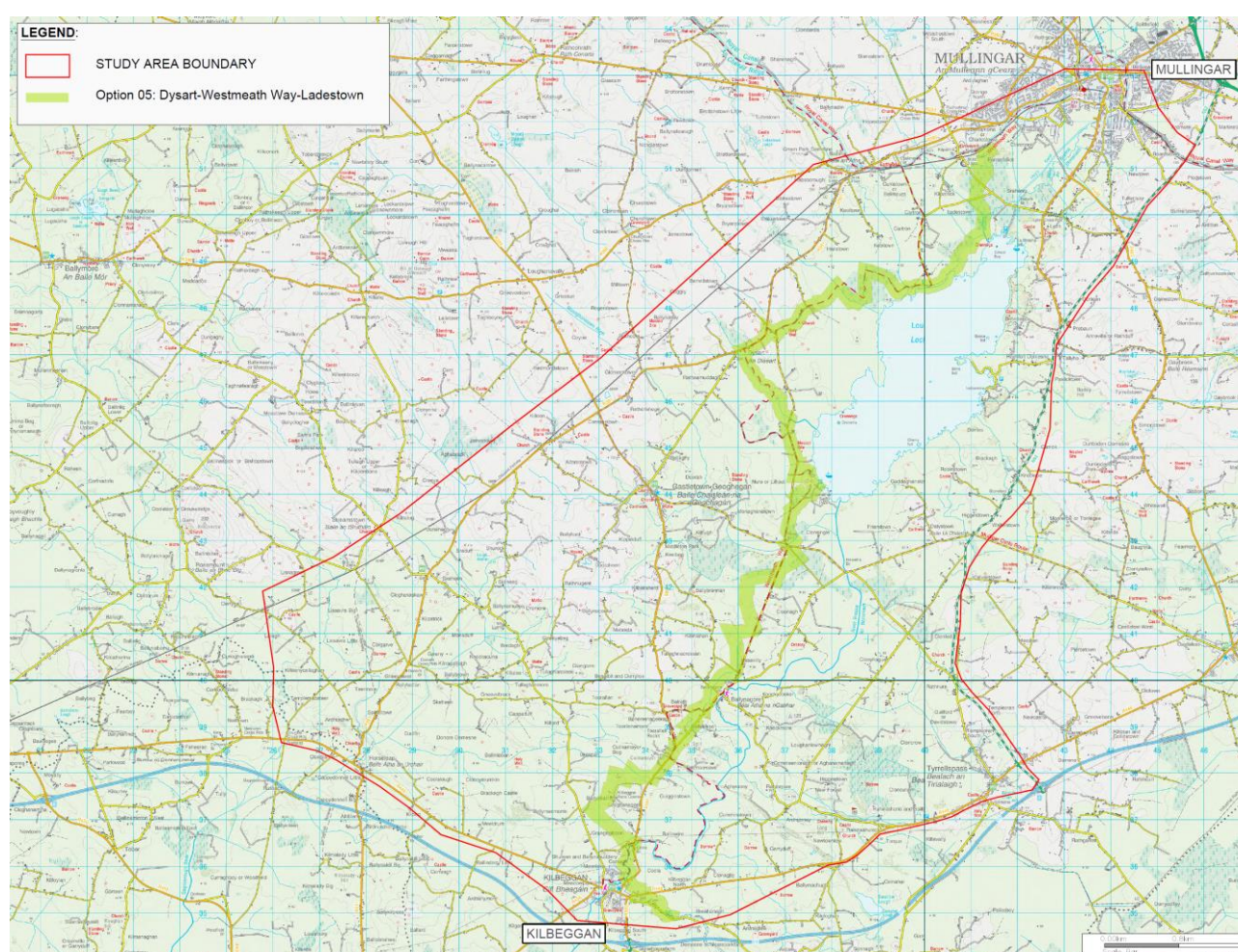


Figure 5.5 Option 5: Via Dysart and Ladestown

Feasibility Report

5.2.8 Option 6: Via Dysart and Ladestown along the Western Shore of Lough Ennell

Option 6 follows the same route as Option 5 as far as the crossing of the L-1221 and the Dysart Stream in the townland of Rathnamuddagh. From this point it broadly follows the shoreline of Lough Ennell between Lilliput and Ladestown. This is within the Lough Ennell SAC, SPA and pNHA. From Ladestown, Option 6 follows the same corridor as Option 5 to link to the Old Rail Trail and on to Mullingar.

Option 6 is approximately 27 km in length of new greenway construction with a further 2 km using the existing greenway.

This option is shown in Figure 5.6 and in the drawings in Appendix C.

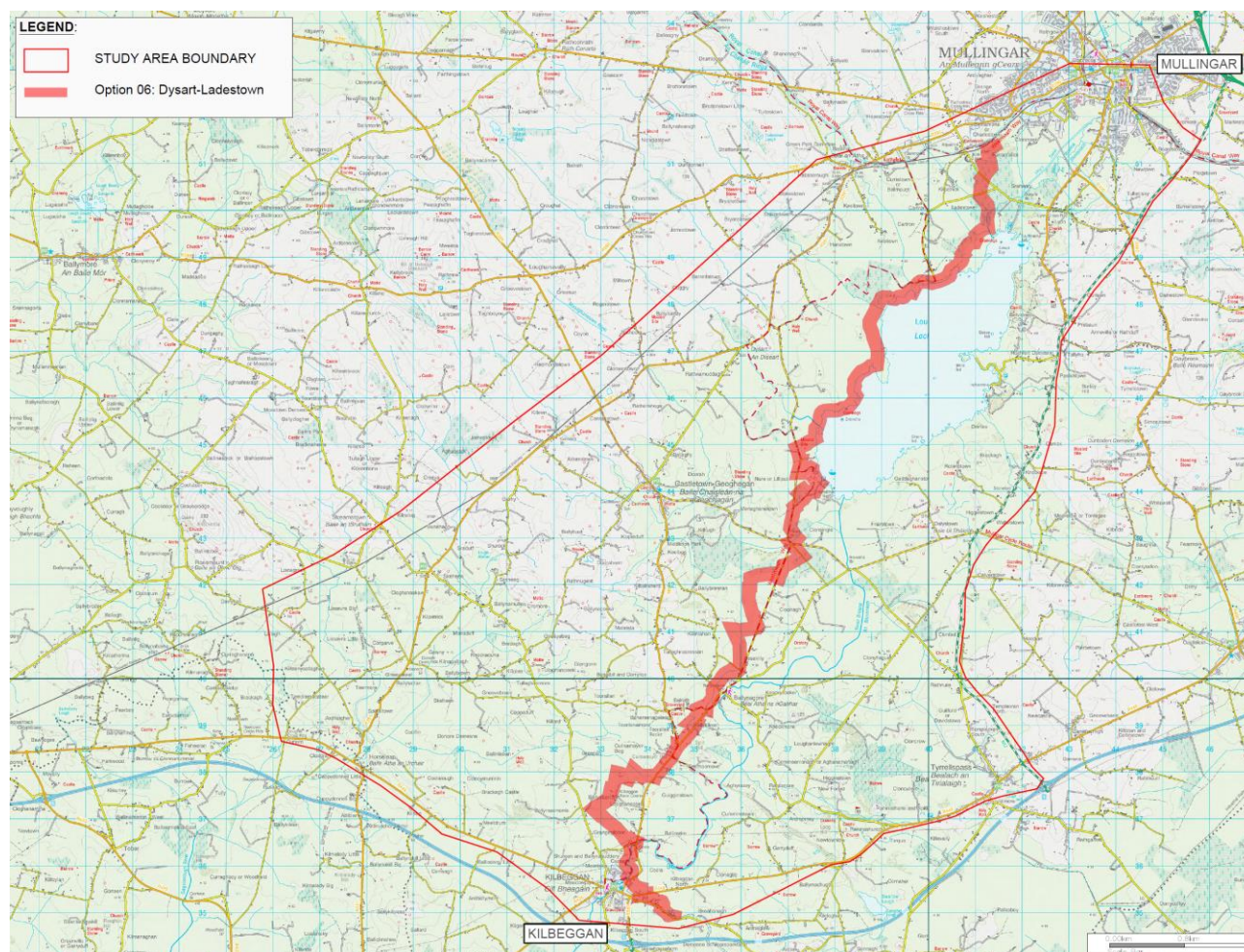


Figure 5.6 Option 6: Along Western Shore of Lough Ennell

Feasibility Report

5.2.9 Option 7: Along River Brosna-Old N52-Belvedere

Option 7 commences at Kilbeggan harbour and follows the same corridor as Options 4, 5 and 6 to just north of Kilbeggan town to where the R389 crosses the River Brosna. From there, Option 7 follows a corridor centred on the River Brosna meandering through Ballynagore as far as the townland of Cloonagh. Along the way it passes through the Split Hills and Long Hill Esker SAC and pNHA. At Cloonagh, either side of the L1122 local road, there is a section of Coillte forestry which is state-owned land. From Cloonagh, Option 7 then proceeds north-eastwards toward Calverstown and Dalystown. Thereafter it follows a corridor centred on the L-1118 (formerly the N52) to Rochfort Demesne. The corridor then turns westward and continues to the Lough Ennell shoreline just to the north of Carrickwood. From there it runs northward along the shoreline of Lough Ennell (within/ adjacent to the Lough Ennell SAC, SPA and pNHA) past Belvedere House and Gardens to the southern boundary of the Bloomfield House Hotel turning eastward and connecting to the L-1136 a short distance from the entrance to the hotel. It then follows a corridor centred on the L-1136 north to Lynn Cross where it turns west and runs alongside the L-1137 to Kilpatrick and then turns north to connect to the Old Rail Trail at Balmamona (or Charlestown) just southwest of Mullingar.

Option 7 is approximately 30 km in length of new greenway construction with a further 1 km using the existing greenway.

This option is shown in Figure 5.7 and in the drawings in Appendix C

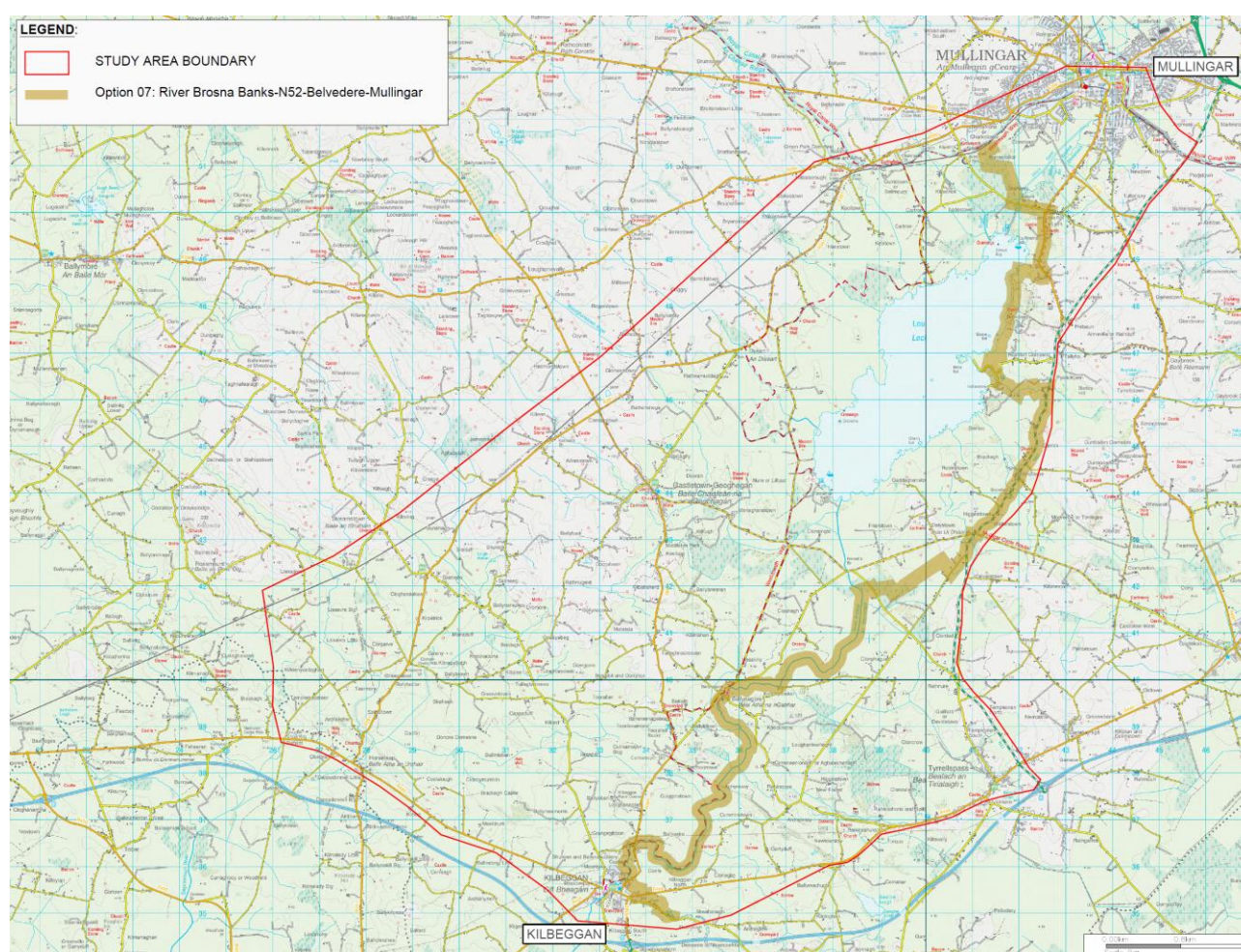


Figure 5.7 Option 7: Along River Brosna-Old N52-Belvedere

Feasibility Report

5.2.10 Option 8: Along River Brosna and Eastern Shore of Lough Ennell

Option 8 follows the same corridor as Option 7 from Kilbeggan Harbour north to Dalystown. It then continues north along a corridor on the River Brosna to Lilliput before turning east to skirt around the southern and eastern shores of Lough Ennell (within/ adjacent to the Lough Ennell SAC, SPA and pNHA). It then follows the shoreline of Lough Ennell as far north as Lynn. From there, Option 8 follows the River Brosna and Lacy's Canal as far north as the R394. It then turns west following the R394 before connecting to the Old Rail Trail adjacent to the Newbrook Roundabout in Mullingar.

Option 8 is approximately 30 km in length of new greenway construction with a further 1 km using the existing greenway.

This option is shown in Figure 5.8 and in the drawings in Appendix C

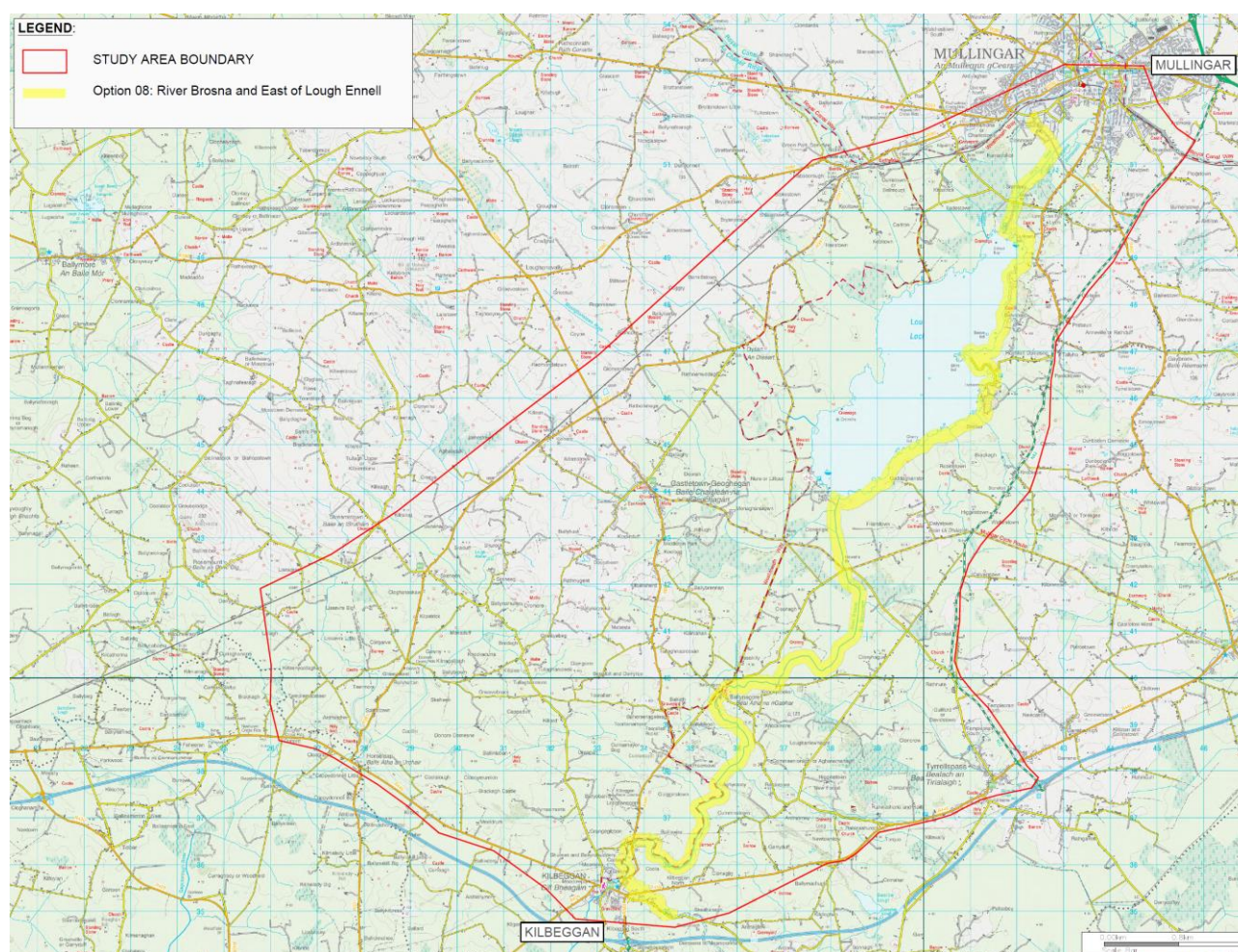


Figure 5.8 Option 8: Along River Brosna and Eastern Shore of Lough Ennell

Feasibility Report

5.2.11 Option 9: R446-Tyrellspass-N52

Option 9 commences at Kilbeggan harbour and follows the same corridor to the junction with the R446 where it then turns east toward Tyrellspass. The corridor is centred on the R446 to Tyrellspass, skirts around to the north of Tyrellspass. The corridor passes within/ adjacent to Cloncrow Bog (New Forest) NHA at Tyrellspass. From here, Option 9 continues northward to the west of the N52 as far as the Tullaniskey townland/ Tullaniskey Roundabout where it then goes west along a corridor centred on the R400 to the Bloomfield Roundabout. It then runs along the R394 before connecting to the Old Rail Trail adjacent to the Newbrook Roundabout in Mullingar.

Option 9 is approximately 27 km in length of new greenway construction with a further 2 km using the existing greenway.

This option is shown in Figure 5.9 and in the drawings in Appendix C

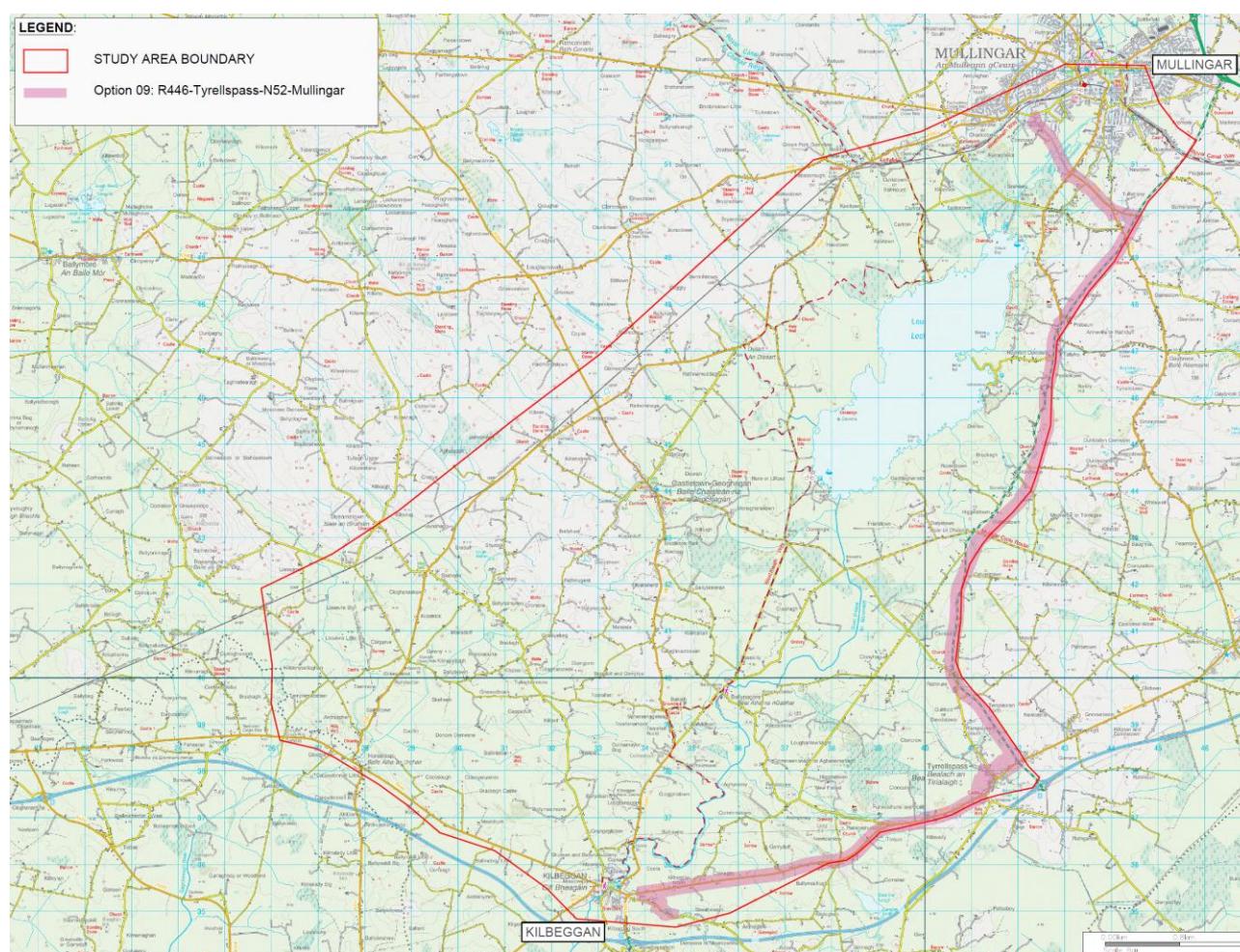


Figure 5.9 Option 9: R446-Tyrellspass-N52

5.3 Methodology for Preliminary Options Appraisal

The project is being delivered in accordance with published guidelines, design and technical standards including:

- Strategy for the Future Development of National and Regional Greenways (DoT, 2018).
- The TII suite of project guidelines including the Project Management Guidelines (PMGs), Project Appraisal Guidelines (PAGs) and Project Manager's Manual for Greenway Projects.

As per the TII Project Manager's Manual for Greenway Projects (p.18), the development of options will be steered with reference to the Five S criteria. The appraisal of the options will be in accordance with:

- Project Manager's Manual for Greenway Projects, PE-PMG-02047, (TII, 2022);
- Transport Appraisal Framework (DoT, 2023); and
- PAG Unit: 13.0 Appraisal of Active Modes, PE-PAG-02036, (TII, 2023a).

Option Selection is a structured appraisal process that aims to objectively select from the long list of options to identify a short list of feasible options that will be brought forward to Phase 2 Option Selection where a preferred option will be identified. In Phase 1 Feasibility, the appraisal focusses on the identification of the long list of options (as summarised in the previous section) and then appraising them against (i) the project objectives and (ii) feasibility criteria in a staged process as set out below.

The purpose of the Phase 1 Long List Options Appraisal is to identify and determine that there is at least one feasible option. It is a pass/fail assessment as to whether an option and/or alternative is reasonable, i.e. accomplishes the project objectives in a satisfactory manner and is feasible (in terms of technical, economic, political and other relevant criteria). It is not an assessment for the purpose of ranking options.

The sifting of the long list of options is a two-step process as described below:

1. Step 1 Project Objectives: Does an option accomplish the project objectives in a satisfactory manner?

As set out in Section 1.2, there are seven overarching project objectives with 15 sub-objectives. The Step 1 appraisal is carried out using the five categories listed in Table 5.1 ranging from "Strong alignment with project objective" to "Poor alignment with project objective."

Table 5.1 Alignment with Project Objectives

Strong alignment with Project Objective
Satisfactory alignment with Project Objective
Somewhat meets Project Objective
Unsatisfactory alignment with Project Objective
Poor alignment with Project Objective

Each of the nine long list options is appraised independently against each of the 15 project sub-objectives using the categories in Table 5.1. The performance of each option in the appraisal is then reviewed. Where an option has a high number of "Strongly" and "Satisfactory" alignments then it should be considered to be brought forward to Step 2. However, where an option also has a high number of "Somewhat", "Unsatisfactory" and "Poor" alignments then it should not be considered further as it clearly does not satisfactorily meet the project objectives.

2. Step 2 Feasibility: Appraisal to identify feasible options.

Each of the options brought forward to step 2 is appraised against feasibility criteria namely:

- 5 Ss:
 - Scenic
 - Sustainable
 - Substantially segregated and Shared use
 - (Offers lots to) See and do

Feasibility Report

- Strategic
- Engineering:
 - Length
 - Gradient
 - Estimated road crossings
 - Watercourse crossings
 - Flooding
- Environment:
 - Population & Human Health
 - Biodiversity
 - Water
 - Land, Soils & Geology
 - Air Quality, Noise & Vibration
 - Climate
 - Landscape & Visual
 - Material Assets (Non-agricultural)
 - Material Assets (Agricultural)
 - Cultural Heritage
- Economy:
 - Estimated construction cost
- Political (policies and objectives):
 - NPF/ NDP
 - NIFTI
 - Westmeath County Development Plan.

The Step 2 appraisal is carried out using the five categories listed in Table 5.2 ranging from “Strong alignment with criterion” to “Poor alignment with criterion.”

Table 5.2 Alignment with Project Feasibility Criterion

Strong alignment with Criterion
Satisfactory alignment with Criterion
Somewhat meets Criterion
Unsatisfactory alignment with Criterion
Poor alignment with Criterion

Each of the Step 2 options is appraised independently against each of the 24 project feasibility criteria listed above using the categories in Table 5.2. The performance of each option in the appraisal is then reviewed. Where an option has a high number of “Strongly” and “Satisfactory” alignments then it should be considered to be brought forward to Phase 2 Option Selection for further detailed assessment. However, where an option also has a high number of “Somewhat”, “Unsatisfactory and “Poor” alignments then it should not be considered further as it clearly does not satisfactorily meet the feasibility criteria.

6 PRELIMINARY OPTIONS APPRAISAL

6.1 Step 1 Project Objectives: Does an option accomplish the project objectives in a satisfactory manner?

6.1.1 Appraisal

Using the 15 sub-objectives set out in Section 1.2, each option was independently appraised to determine whether or not it satisfactorily meets the project objectives. The following sections provide a summary of the appraisal in relation to each option. Further detail is provided in Appendix D.

6.1.1.1 Option 1: R446-Horseleap-MGWR Clara Branch-Streamstown

Option 1 is strongly aligned with three sub-objectives, SA1, SA2 and EN1. This is primarily due to the relatively short length of new-build greenway and re-use of the Old Rail Trail for a substantial length from near Streamstown to Mullingar. This route also avoids any European sites or other sites of environmental sensitivity.

However, Option 1 scores poorly in its alignment with seven sub-objectives EC1, EC2, AC2, SO1, SO2, LU2 and EN2. The option does not link to many of the attractions, areas of interest and population centres within the study area. It therefore scores poorly in terms of providing substantial opportunities to increase tourism, economic growth, access to communities not already connected with a greenway, encouraging modal shift, and access to areas of interest (e.g. attractions, scenery, etc.)

Given its overall poor alignment with the project objectives, Option 1 will not be considered further.

6.1.1.2 Option 2: L1223-MGWR Clara Branch-Streamstown

Option 2 is strongly aligned with three sub-objectives, SA1, SA2 and EN1. This is primarily due to the relatively short length of new-build greenway and re-use of the Old Rail Trail for a substantial length from near Streamstown to Mullingar. This route also avoids any European sites or other sites of environmental sensitivity.

However, Option 2 scores poorly in its alignment with seven sub-objectives EC1, EC2, AC2, SO1, SO2, LU2 and EN2. The option does not link to many of the attractions, areas of interest and population centres within the study area. It therefore scores poorly in terms of providing substantial opportunities to increase tourism, economic growth, access to communities not already connected with a greenway, encouraging modal shift, and access to areas of interest (e.g. attractions, scenery, etc.)

Given its overall poor alignment with the project objectives, Option 2 will not be considered further.

6.1.1.3 Option 3: L1223 to Streamstown

Option 3 is strongly aligned with three sub-objectives, SA1, SA2 and EN1. This is primarily due to the relatively short length of new-build greenway and re-use of the Old Rail Trail for a substantial length from near Streamstown to Mullingar. This route also avoids any European sites or other sites of environmental sensitivity.

However, Option 3 scores poorly in its alignment with seven sub-objectives EC1, EC2, AC2, SO1, SO2, LU2 and EN2. The option does not link to many of the attractions, areas of interest and population centres within the study area. It therefore scores poorly in terms of providing substantial opportunities to increase tourism, economic growth, access to communities not already connected with a greenway, encouraging modal shift, and access to areas of interest (e.g. attractions, scenery, etc.)

Given its overall poor alignment with the project objectives, Option 3 will not be considered further.

6.1.1.4 Option 4: Via Castletown Geoghegan

Option 4 is not strongly aligned with any sub-objectives. It is satisfactorily aligned with six sub-objectives, LU1, SA1, SA2, CC1, EN1 and EN3. This is primarily due to the relatively short length of new-build greenway and re-use of the Old Rail Trail for a substantial length from near Castletown Geoghegan to Mullingar. This route also avoids many of the European sites or other sites of environmental sensitivity.

Option 4 does not have poor alignment with any of the sub-objectives. However, it is unsatisfactorily aligned with five sub-objectives EC2, AC1, SO1, SO2 and EN2 and only somewhat aligned with a further four sub-objectives EC1, AC1, LU2 and LU3. This option does not provide any new greenway infrastructure north of Castletown Geoghegan toward Mullingar and therefore will not provide these communities with increased opportunities for tourism, provide economic growth, provide access to communities not already connected with a greenway, encourage modal shift, or provide access to areas of interest (e.g. attractions, scenery, etc.)

Given its overall unsatisfactory and only somewhat alignment with the project objectives, Option 4 will not be considered further.

6.1.1.5 Option 5: Via Dysart Westmeath Way and Ladestown

Option 5 is strongly aligned with nine sub-objectives, EC1, EC2, AC1, AC2, SO1, SO2, LU1, LU2 and LU3. It is satisfactorily aligned with three sub-objectives, SA1, SA2 and EN2. This is primarily due to the length of new-build greenway that links communities between Kilbeggan and Mullingar and which can be substantially segregated from existing roads. This option also passes close to a number of scenic areas, attractions within the area as well as its proximity to European sites.

Option 5 does not have poor alignment with any of the sub-objectives. It is unsatisfactorily aligned with two sub-objectives CC1 and EN1 and only somewhat aligned with one sub-objective, EN3. This is primarily due to the length of the option which has only very limited re-use of existing greenway infrastructure which will result in carbon emissions both during construction and operation. Option 5 is also in close proximity to the European sites and wetlands. Although this provides benefits in terms of attractiveness it increases the potential for negative environmental impacts on the European sites and wetlands during construction and operation.

Overall, Option 5 is considered to be substantially aligned with the project objectives and will be considered further.

6.1.1.6 Option 6: Via Dysart and Ladestown along the Western Shore of Lough Ennell

Option 6 is strongly aligned with eight sub-objectives, AC1, AC2, SO1, SO2, LU1, LU2, LU3 and EN2. It is satisfactorily aligned with four sub-objectives, EC1, EC2, SA1, and SA2. This is primarily due to the length of new-build greenway that links communities between Kilbeggan and Mullingar and which can be substantially segregated from existing roads. This route also passes close to a number of scenic areas, attractions within the area as well as its proximity to European sites.

Option 6 is poorly aligned with one sub-objective, EN1 and unsatisfactorily aligned with two sub-objectives CC1 and EN3. This is primarily due to the length of the option which has only very limited re-use of existing greenway infrastructure which will result in carbon emissions both during construction and operation. Option 6 is also within and in close proximity to the European sites and wetlands. Although this provides benefits in terms of attractiveness it increases the potential for negative environmental impacts on the European sites and wetlands during construction and operation.

Overall, Option 6 is considered to be substantially aligned with the project objectives and will be considered further.

6.1.1.7 Option 7: Along River Brosna-Old N52-Belvedere

Option 7 is strongly aligned with eight sub-objectives, EC1, EC2, AC2, SO1, SO2, LU2, LU3 and EN2. It is satisfactorily aligned with four sub-objectives, AC1, LU1, SA1, and SA2. This is primarily due to the length of new-build greenway that links communities between Kilbeggan and Mullingar and which can be substantially

Feasibility Report

segregated from existing roads. This route also passes close to a number of scenic areas, attractions within the area as well as its proximity to European sites.

Option 7 does not have poor alignment with any of the sub-objectives. It is unsatisfactorily aligned with two sub-objectives CC1 and EN1 and only somewhat aligned with one sub-objective, EN3. This is primarily due to the length of the option which has only very limited re-use of existing greenway infrastructure which will result in carbon emissions both during construction and operation. Option 7 is also in close proximity to the River Brosna, European sites and wetlands. Although this provides benefits in terms of attractiveness it increases the potential for negative environmental impacts on the European sites and wetlands during construction and operation.

Overall, Option 7 is considered to be substantially aligned with the project objectives and will be considered further.

6.1.1.8 Option 8: Along River Brosna and Eastern Shore of Lough Ennell

Option 8 is strongly aligned with eight sub-objectives, EC1, EC2, AC2, SO1, SO2, LU2, LU3 and EN2. It is satisfactorily aligned with four sub-objectives, AC1, LU1, SA1, and SA2. This is primarily due to the length of new-build greenway that links communities between Kilbeggan and Mullingar and which can be substantially segregated from existing roads. This route also passes close to a number of scenic areas, attractions within the area as well as its proximity to European sites.

Option 8 is poorly aligned with one sub-objective, EN1 and is unsatisfactorily aligned with two sub-objectives CC1 and EN3. This is primarily due to the length of the option which has only very limited re-use of existing greenway infrastructure which will result in carbon emissions both during construction and operation. Option 8 is also in close proximity to the River Brosna, European sites and wetlands. Although this provides benefits in terms of attractiveness it increases the potential for negative environmental impacts on the European sites and wetlands during construction and operation.

Overall, Option 8 is considered to be substantially aligned with the project objectives and will be considered further.

6.1.1.9 Option 9: R446-Tyrellspass-N52

Option 9 is not strongly aligned with any sub-objectives. It is satisfactorily aligned with six sub-objectives, AC1, AC2, LU1, LU2, SA1 and SA2. This is primarily due to the length of new-build greenway that links communities between Kilbeggan and Mullingar and which can be substantially segregated from existing roads. This route also passes close to a number of scenic areas, attractions within the area as well as some protected sites.

Option 9 does not have poor alignment with any of the sub-objectives. However, it is unsatisfactorily aligned with two sub-objectives CC1 and EN1 and only somewhat aligned with a further seven sub-objectives EC1, EC2, SO1, SO2, LU3, EN2 and EN3. Although this option does provide a new greenway between Kilbeggan and Mullingar, it is a long option that goes eastwards towards Tyrellspass before following a line adjacent to the old and existing N52 roads. This adjacency to a national road is not ideal and will not provide the level of service expected of rural greenways.

Given its overall unsatisfactory and somewhat alignment with the project objectives, Option 9 will not be considered further.

6.1.1.10 Step 1 Appraisal Summary

Options 5, 6, 7, and 8 have been deemed to satisfactorily align with the project objectives and will therefore be brought forward to the Step 2 Feasibility appraisal (see Section 6.2).

Options 1, 2, 3, 4, and 9 do not satisfactorily align with the project objectives and will not be considered further as reasonable options.

The options that will be brought forward are:

- Option 5: Via Dysart Westmeath Way and Ladestown.
- Option 6: Via Dysart and Ladestown along the Western Shore of Lough Ennell.
- Option 7: Along River Brosna-Old N52-Belvedere.

Feasibility Report

- Option 8: Along River Brosna and Eastern Shore of Lough Ennell.

A summary of the performance of each of the long list of options against each of the sub-objectives is provided in Table 6.1. The number of occurrences of each appraisal category for each option is provided in Table 6.2. A more detailed appraisal is presented in Appendix D.

Feasibility Report

Table 6.1 Alignment of the Long List of Options against the Project Objectives

Objective	Ref	Sub-objective	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8	Option 9
Transport User Benefits and Other Economic Impacts - Support connectivity and economic growth in the local and regional area.	EC1	To increase the economic contribution of tourism to the regional and local economy, by increasing the numbers of domestic and international visitors to the area through the delivery of a greenway that is scenic and attractive.									
	EC2	To create local employment and increase economic opportunities for new and expanded enterprises.									
Accessibility Impacts – Enhance accessibility to existing amenities, services and facilities.	AC1	To increase the number of people who choose to take part in physically active outdoor recreation and leisure activities.									
	AC2	To connect to other tourist activities or attractions within the region, such as historic and cultural heritage sites, and recreational activities.									
Social Impacts – Enhance social inclusion and promote healthier communities through linking communities and disadvantaged areas.	SO1	To be attractive to people of all age groups and abilities, with multiple accesses to the route allowing use for long or short distances.									
	SO2	To benefit local communities through promotion of inclusive accessibility for all to existing amenities, services and facilities.									
Land Use Impacts – Support and facilitate the implementation of national, regional and local policy.	LU1	To connect to existing transport infrastructure including greenways, cycleways, rail, canals, roads, and public transport.									
	LU2	To encourage modal shift to more sustainable modes, i.e. walking and cycling, by facilitating connections to places of employment, schools, recreational hubs and urban centres, where possible.									

Feasibility Report

Objective	Ref	Sub-objective	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8	Option 9
	LU3	To facilitate the implementation of the National Cycle Network (NCN) through connecting the population centres of Mullingar and Kilbeggan.									
Safety Impacts - Provide safe and accessible infrastructure that improves safety and security for vulnerable road users	SA1	To provide Greenway infrastructure that is substantially segregated from motorised traffic.									
	SA2	To provide Greenway infrastructure that is a safe and secure environment for all users, regardless of age or ability.									
Climate Change Impacts - Contributes to the offsetting/ reduction in GHG emissions and is robust and resilient to negative climate change effects.	CC1	To ensure consideration of sustainable development principles and measures to minimise effects on the environment to support the government's Climate Action Plan.									
Local Environment Impacts - Increase public appreciation of the natural environment while protecting and enhancing natural assets and biodiversity.	EN1	To minimise the impact to the natural environment, especially habitats in ecologically sensitive areas.									
	EN2	To increase public appreciation of the natural environment by encouraging people to experience the countryside through prioritising scenic and environmentally diverse routes.									
	EN3	To protect and where possible enhance biodiversity and ecological connectivity.									

Feasibility Report

Table 6.2 Summary of the Step 1 Project Objectives Appraisal

Adherence to Project Objectives	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8	Option 9
Strong alignment with Project Objective	3	3	3	0	9	8	8	8	0
Satisfactory alignment with Project Objective	2	2	2	6	3	4	4	4	6
Somewhat meets Project Objective	2	2	2	4	1	0	1	0	7
Unsatisfactory alignment with Project Objective	1	1	1	5	2	2	2	2	2
Poor alignment with Project Objective	7	7	7	0	0	1	0	1	0
Totals*	15	15	15	15	15	15	15	15	15

*A total of 15 project sub-objectives are set out in Table 1.1 in Section 1.2 of this report.

6.2 Step 2 Feasibility: Evaluation to identify feasible options

The options that will undergo evaluation under the feasibility process are:

- Option 5: Via Dysart Westmeath Way and Ladestown.
- Option 6: Via Dysart and Ladestown along the Western Shore of Lough Ennell.
- Option 7: Along River Brosna-Old N52-Belvedere.
- Option 8: Along River Brosna and Eastern Shore of Lough Ennell.

6.2.1 5 S's Appraisal

6.2.1.1 Scenic

Each of the options were appraised in terms of the scenic areas that it either passed by or in close proximity to. The scenic areas include areas of natural beauty in and around the Grand Canal (Kilbeggan Branch), Kilbeggan, Lough Ennell, the River Brosna, Ladestown, Bloomfield, Belvedere House & Gardens, towns and villages along the corridors, Cloncrow Bog & Village Trail, and the Royal Canal. All of the options are equally strong in this criterion as they all are of a similar length linking similar areas of scenic beauty in and around the study area and in particular, Lough Ennell. A summary of the scenic appraisal is provided in Table 6.3.

Feasibility Report

Table 6.3 Scenic Appraisal

Option Number	Scenic areas
5	Option 5 links to areas of diverse scenery, particularly those around Lough Ennell and villages in the area: e.g. Kilbeggan Harbour; Kilbeggan; River Brosna; Coola Mill; Ballinagore; Lough Ennell; Ladestown; Royal Canal; Mullingar;.
6	Option 6 links to areas of diverse scenery, particularly those around Lough Ennell and villages in the area: e.g. Kilbeggan Harbour; Kilbeggan; River Brosna; Coola Mill; Ballinagore; Lough Ennell; Ladestown; Royal Canal; Mullingar;.
7	Option 7 links to the most number of attractions and diverse areas of scenic beauty: e.g. Kilbeggan Harbour; Kilbeggan; River Brosna; Coola Mill; Ballinagore; Lough Ennell; Belvedere House & Gardens, Bloomfield; Royal Canal; Mullingar.
8	Option 8 links to attractions and diverse areas of scenic beauty: e.g. Kilbeggan Harbour; Kilbeggan; River Brosna; Coola Mill; Ballinagore; Lough Ennell; Belvedere House & Gardens, Bloomfield; Royal Canal; Mullingar;

6.2.1.2 Sustainable

Each of the options were appraised in terms of the sustainability of construction and operation. In terms of construction, it is likely that all options will require the same or similar landtake per kilometre length. Therefore, the main differentiator is the length of new greenway that is required to be constructed and operated. The longer the length of new greenway created the higher the carbon emissions from construction and operation will be. There are also carbon emissions associated with impacts on environmentally sensitive areas and areas prone to flooding.

Connections to existing infrastructure is also a consideration in terms of sustainability. The NIFTI Intervention Hierarchy lists the preferences for addressing transport need which are, in order of preference: “Maintain”, “Optimise”, “Improve”, “New” (see Section 2.1.3).

TII’s published guidance on the Circular Economy in Greenways and Rural Cycleways (TII, 2023c) establishes the 9Rs. Of most relevant to this appraisal at this stage of project maturity are:

- R1 Refuse: requires that project promoters ensure a clear need is demonstrated for new greenways or rural cycleways, that alternatives are considered in detail, and the use of existing infrastructure is maximised.
- R2 Rethink: requires that there is an intensified use of existing infrastructure.
- R4 Re-use: requires the re-use of assets, components, and materials within greenway or cycleway development.
- R9 Recycling: requires the incorporation of recycled materials into greenway and cycleway development.

A summary of the sustainable appraisal is provided in Table 6.4.

Table 6.4 Sustainability Appraisal

Option Number	Sustainability considerations
5	30 km in length and will have associated GHG emissions during construction. It incorporates 5 km of existing greenway. Option 5 is in proximity to and within many of the protected sites around Lough Ennell but avoids a large section of them to the west of Lough Ennell. May be prone to small areas of flooding along tributaries to Lough Ennell.
6	27 km in length and will have associated GHG emissions during construction. It incorporates 2 km of existing greenway. Option 6 is a more direct route than other options. However, it has a greater potential for impacts on protected sites around Lough Ennell, including wetlands, and will be difficult to avoid significant impacts. May be prone to small areas of flooding along tributaries to Lough Ennell.
7	30 km in length and will have associated GHG emissions during construction. It incorporates 1 km of existing greenway. Option 7 is in proximity to and within many of the protected sites around Lough Ennell, including wetlands and the River Brosna riparian zone, but avoids a large section of

Feasibility Report

Option Number	Sustainability considerations
	European sites to the southeast of Lough Ennell. It also passes close to the River Brosna so may be impacted by flooding.
8	30 km in length and will have associated GHG emissions during construction. It incorporates 1 km of existing greenway. Option 8 is a more direct route than other options. However, it has a greater potential for impacts on protected sites around Lough Ennell, including wetlands and the River Brosna riparian zone, and will be difficult to avoid significant impacts. It also passes close to the River Brosna so may be impacted by flooding.

6.2.1.3 Substantially Segregated/ Shared Use

All greenway options can be designed to be substantially segregated and shared use. All of the options are equally strong in this criterion.

6.2.1.4 (Offers lots to) See and do

Each of the options was appraised in terms of the number of attractions that it either passes by or in close proximity to. The attractions used in the appraisal are as illustrated in Figure 4.3. A summary of the (offers lots to) see and do appraisal is provided in Table 6.5.

Table 6.5 (Offers lots to) See and do Appraisal

Option Number	Scenic areas
5	Option 5 links to or in proximity to 14 out of 30 sample attractions in Figure 4.3.
6	Option 6 links to or in proximity to 13 out of 30 sample attractions in Figure 4.3.
7	Option 7 links to or in proximity to 18 out of 30 sample attractions in Figure 4.3.
8	Option 8 links to or in proximity to 17 out of 30 sample attractions in Figure 4.3.

6.2.1.5 Strategic

All greenway options are strategic in that they all connect Kilbeggan to Mullingar including the Grand Canal Greenway (Kilbeggan Branch) and the Royal Canal Greenway. They all also connect to the Old Rail Trail Greenway which will form part of the Galway to Dublin Cycleway. All of the options are equally strong in this criterion.

6.2.1.6 5 Ss Appraisal Summary

Each option was appraised individually in terms of the 5S criteria described above. The results are summarised in Table 6.6.

Table 6.6 5 Ss Appraisal

Sub-criteria	Option 5	Option 6	Option 7	Option 8
Scenic	Strong alignment with Criterion	Strong alignment with Criterion	Strong alignment with Criterion	Strong alignment with Criterion
Sustainable	Satisfactory alignment with Criterion	Somewhat meets Criterion	Satisfactory alignment with Criterion	Somewhat meets Criterion
Substantially Segregated & Shared Use	Strong alignment with Criterion	Strong alignment with Criterion	Strong alignment with Criterion	Strong alignment with Criterion
(Offers Lots to) See & Do	Satisfactory alignment with Criterion	Satisfactory alignment with Criterion	Strong alignment with Criterion	Strong alignment with Criterion
Strategic	Strong alignment with Criterion	Strong alignment with Criterion	Strong alignment with Criterion	Strong alignment with Criterion

6.2.2 Engineering Appraisal

All options are feasible from an engineering perspective but there are some considerations that will provide engineering challenges to be overcome during design and construction, and which may also have an impact on the operation and maintenance of the greenway. Typical engineering issues are:

- The length of the options which can impact on the types and nature of soils/ rock encountered and earthworks quantities (i.e. achieving a cut/fill balance).
- Gradients (vertical alignment) can impact on the usability of the greenway with a desirable maximum of 3%. Similarly, bends (horizontal alignment) can affect speeds, forward visibility and landtake.
- The number of road crossings, which may impact on the safety of all road users and require complex junction designs.
- The number of structures required to cross watercourses (rivers and streams), e.g. piped or box culverts, bridges, etc.
- Areas prone to flooding that can impact on design, construction and operation and maintenance activities.

6.2.2.1 Lengths

The length of new construction for each greenway are all relatively similar from approximately 27km for Option 6 to approximately 30 km for the other three options. Once the preferred route is identified (which will seek to maximise the use of state-owned land and prevent severance in private landholdings) there may be very little difference in terms of length. It is expected that much of the construction will be at-grade or close to it meaning a cut/fill balance is likely to be achievable. The main issue will be where poor ground is likely to be encountered. This is likely more prevalent in reclaimed land closer to the shores of Lough Ennell, particularly the western shore. Similarly, wetlands along the western and northern shores could provide engineering challenges.

6.2.2.2 Gradients

In terms of gradients there is not much difference across the options. All options pass through the esker ridge which is a European Site: Split Hills and Long Hill Esker SAC. The design standard for greenways seeks to achieve a 3% maximum desirable vertical gradient. It is anticipated that this will be achievable on all options, although there may need to be short sections exceeding this desirable maximum at localised areas, e.g. the eskers. The horizontal alignment will be influenced by bends and corners in the preferred route, particularly where it is required to follow land boundaries. At this stage it is not anticipated that there will be significant issues for the horizontal alignment, or at least they will be very similar across all of the options.

6.2.2.3 Estimated Road Crossings

The estimated number of road crossings for each option corridor is presented in Table 6.7. This only includes roads that are Regional and Local. There are other unnamed roads and private roads that will also likely be crossed by the greenway.

Table 6.7 Estimates Road Crossings

Named Roads	Type	Option 5	Option 6	Option 7	Option 8
R446	Regional	✓	✓	✓	✓
R389	Regional	✓	✓	✓	✓
L5224	Local	✓	✓	✓	✓
R389	Regional	✓	✓	✓	✓
L1122	Local	✓	✓		✓
L1120	Local	✓	✓		
L1121	Local	✓			
R391	Regional	✓			

Feasibility Report

Named Roads	Type	Option 5	Option 6	Option 7	Option 8
L1121	Local	✓			
L1137	Local	✓	✓	✓	✓
L1216	Local			✓	✓
L5117	Local			✓	
L1127	Local			✓	
L1118	Local			✓	
L1136	Local			✓	✓
R394	Regional				

Option 6 has the fewest number of road crossings at seven, followed by Option 8 which has eight. Option 5 and Option 7 have the most road crossings at ten. Option 5 may have four Regional Road crossings while the other options have three each.

In overall terms, the number and type of road crossings are not considered significant as there are clear design standards for the interaction of greenways with local and regional roads, particularly with regard to sightlines, and measures to slow cycleway traffic such as gates/ bollards and jug-handle junctions. Given the relative similarity in all options it is considered that all options are satisfactorily aligned with the road crossing criterion.

6.2.2.4 Estimated Watercourse Crossings

The estimated number of watercourse (river and stream) crossings for each option corridor is presented in Table 6.8.

Table 6.8 Estimated River and Stream Crossings

Rivers/ Streams Crossings	Stream Order (EPA)	Option 5	Option 6	Option 7	Option 8
River Brosna (Lough Ennell to Kilbeggan)	4	✓	✓	✓✓	✓✓
Ballinlaban Stream	1	✓	✓		
Loughanagore	1			✓	✓
Toorlisnamore 25	1	✓	✓	✓	✓
Teernacreeve 25	2			✓	✓
Killinlahan	1	✓✓	✓✓	✓	✓
Monaghanstown	3	✓	✓		✓
Dysart (Stream)	1	✓	✓		
Barrettstown Stream	1	✓	✓		
Stokestown 25	1	✓	✓		
Curristown or Bellmount	1	✓	✓		
Kilpatrick 25	1	✓	✓		
Grange_South	2	✓	✓		
Dalystown 25	2			✓	
Robinstown 25	1				✓
Rochfort_Demesne	3			✓	✓
Higginstown 25	1			✓	
Dunboden Park Stream	1			✓	✓
River Brosna (Mullingar to Lough Ennell - south of Srahenry)	4			✓	
River Brosna (Mullingar to Lough Ennell - north of Srahenry)	3			✓	✓✓
Sarsanstown	1			✓	

Feasibility Report

The EPA Stream Orders are an important consideration as they can indicate the importance of the river/ stream including the size of the river. The higher the Order number the more likely it is that the river is an important watercourse.

Both Option 5 and Option 6 have 12 crossings with one Order 4 crossing of the River Brosna near Kilbeggan, one crossing each on both an Order 3 and Order 2 watercourse and nine Order 1 crossings.

Option 7 has an estimated 13 river/ stream crossings where three of these are anticipated to be on the Order 4 River Brosna (two between Kilbeggan and Lough Ennell and one between Lough Ennell and Mullingar). There are anticipated to be two Order 3, two Order 2 and six of Order 1 crossings.

Option 8 also has an estimated 12 river/ stream crossings where two of these are anticipated to be on the Order 4 River Brosna (between Kilbeggan and Lough Ennell). There are anticipated to be four Order 3, one Order 2 and five of Order 1 crossings.

Both Options 5 and 6 will require fewer crossings of the Order 4 River Brosna than Options 7 and 8. They also have a significantly higher proportion of Order 1 stream crossings that are likely to be simple pipe or box culverts as opposed to bridge structures that would be more likely on Order 3 and Order 4 crossings. For these reasons, Option 5 and 6 are considered to satisfactorily align with the watercourse crossing criterion while Option 7 and 8 are considered to somewhat meet the watercourse crossing criterion.

6.2.2.5 Flooding

Flooding in the study area is predominantly associated with Lough Ennell, the River Brosna and its tributaries. Figure 6.1 illustrates predicted flood levels from the OPW⁵ and shows the Annual Exceedance Probability (AEP) of low (0.1% = 1 in 1000 year), medium (1% = 1 in 100 year) and high (10% = 1 in 10 year) probabilities of flooding. It also shows recorded flood events (warning triangles).

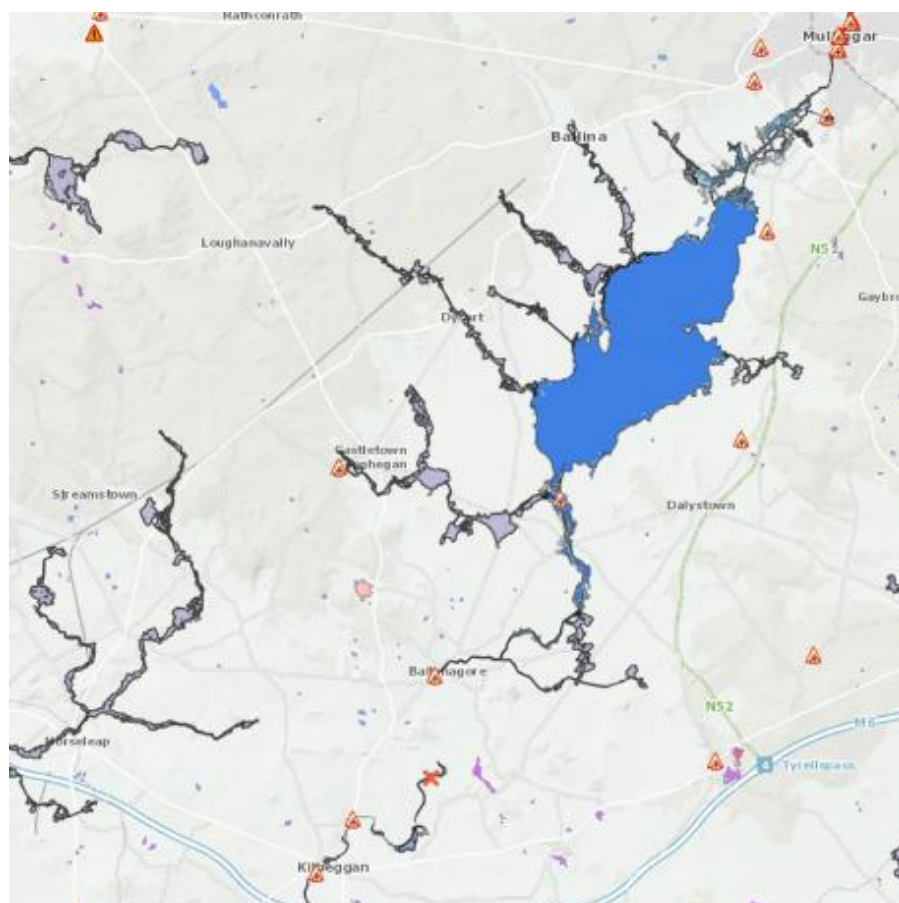


Figure 6.1 Areas Prone to Flooding between Kilbeggan and Mullingar

⁵ <https://www.floodinfo.ie/map/floodmaps/>

Feasibility Report

As can be seen, the options to the west of Lough Ennell are more likely to encounter areas prone to flooding, particularly Option 6 along the western shore of the lake. Options 7 and 8 follow the River Brosna for much of the corridor to the south of Lough Ennell and may therefore be prone to flooding depending on their proximity to the riverbank. To the north of Lough Ennell, near wetland areas around the River Brosna, all options may encounter flooding. In summary it is anticipated that Option 6 will likely be the most affected by flooding associated with Lough Ennell and its tributaries, with Options 5, 7 and 8 being prone to localised flooding near rivers/ streams.

6.2.2.6 Engineering Appraisal Summary

Each option was appraised individually in terms of the engineering topics described above. The results are summarised in Table 6.9.

Table 6.9 Engineering Appraisal

Sub-criteria	Option 5	Option 6	Option 7	Option 8
Length	Strong alignment with Criterion	Strong alignment with Criterion	Strong alignment with Criterion	Strong alignment with Criterion
Gradient	Strong alignment with Criterion	Strong alignment with Criterion	Strong alignment with Criterion	Strong alignment with Criterion
Road Crossings	Satisfactory alignment with Criterion	Satisfactory alignment with Criterion	Satisfactory alignment with Criterion	Satisfactory alignment with Criterion
River Stream Crossings	Satisfactory alignment with Criterion	Satisfactory alignment with Criterion	Somewhat meets Criterion	Somewhat meets Criterion
Flooding	Satisfactory alignment with Criterion	Unsatisfactory alignment with Criterion	Somewhat meets Criterion	Unsatisfactory alignment with Criterion

6.2.3 Environmental Appraisal

6.2.3.1 Population & Human Health

Population and Human Health examine the impacts of a project on the demographics, population distributions, and the human health impacts within the community and wider population. It is anticipated that all options will provide no appreciable (likely significant) impacts on population. It is also anticipated that they will all have similar benefits in terms of human health. All of the options are equally strong in this criterion.

6.2.3.2 Biodiversity

The impact on environmental constraints is estimated based on the corridor locations and the potential for there to be likely significant environmental effects. Of particular importance is the presence of protected sites such as Lough Ennell SAC, SPA and pNHA within or in close proximity to the options. The issues with protected sites are discussed in more detail in Section 4.3.1 of this report. They are a critical factor in the appraisal of feasible options to be taken forward to Phase 2. As such, careful consideration must be given to short listing any option that has the potential for likely significant effects on the protected sites when other alternative options have been considered that may not have such an impact.

At this stage in the project lifecycle each option is only considered in terms of a wide corridor as routes have not been identified. In terms of biodiversity, the corridors may overlap directly on a European site or other sensitive sites. As the project develops and more information becomes available, it may be possible to develop a route within or adjacent to a corridor which may avoid or reduce significantly the potential for likely significant effects on the environment.

Table 6.10 summarises the distances that each option corridor overlaps with a protected site and the percentage that that distance is relative to the overall length of the option. As noted, the stated distances are related to each individual protected site. Many of these site designations overlap with each other and therefore distances should not be added together.

Feasibility Report

Refer to the drawings in Appendix C for the proximity of the routes to the European sites.

Table 6.10 Length inside Protected Sites and Percentage of Approximate Option Length

Site/ Issue	Option 5		Option 6		Option 7		Option 8	
	Length* (km)	% of 30km	Length* (km)	% of 27 km	Length* (km)	% of 30 km	Length* (km)	% of 30 km
pNHA	1.4	4.7%	6.2	23.0%	0.7	2.3%	8.3	27.7%
NHA	1.3	4.3%	1.3	4.8%	0.0	0.0%	0.0	0.0%
SPA	2.9	9.7%	7.2	26.7%	2.5	8.3%	11.0	36.7%
SAC	3.6	12.0%	8.4	31.1%	2.6	8.7%	12.4	41.3%
Alkaline Fen (Annex I Habitat)	0.0	0.0%	2.5	9.3%	0.0	0.0%	1.1	3.7%

*Note: the stated distances are related to each particular protected site. Many of these sites overlap and therefore distances should not be added together.

All four options provide access for greenway users to experience nature and biodiversity, enjoying fresh air, and the countryside between Kilbeggan and Mullingar. The proximity of the options to Lough Ennell will also provide some opportunities for bird watching.

The corridors for Options 6 and 8 have the largest footprint within the Lough Ennell SAC, SPA and pNHA. There is therefore an increased risk that they have the potential for likely significant environmental impacts, particularly with regard to the Annex I Habitat Alkaline (Rich) Fens (7239) on both sides of Lough Ennell. Similarly, given the proximity of both options to the shoreline of Lough Ennell, there is a significant risk of disturbance effects on bird species both within and outside the SPA as well as other protected species (e.g. bats, otter). There are also extensive wetlands surrounding Lough Ennell as illustrated in Figure 6.2 (Lauder & Cussen, 2021). That report (ibid., p.19) identifies six areas which present opportunities for enhancement and these are within the corridors for Option 6 and 8 (and partially Option 7).

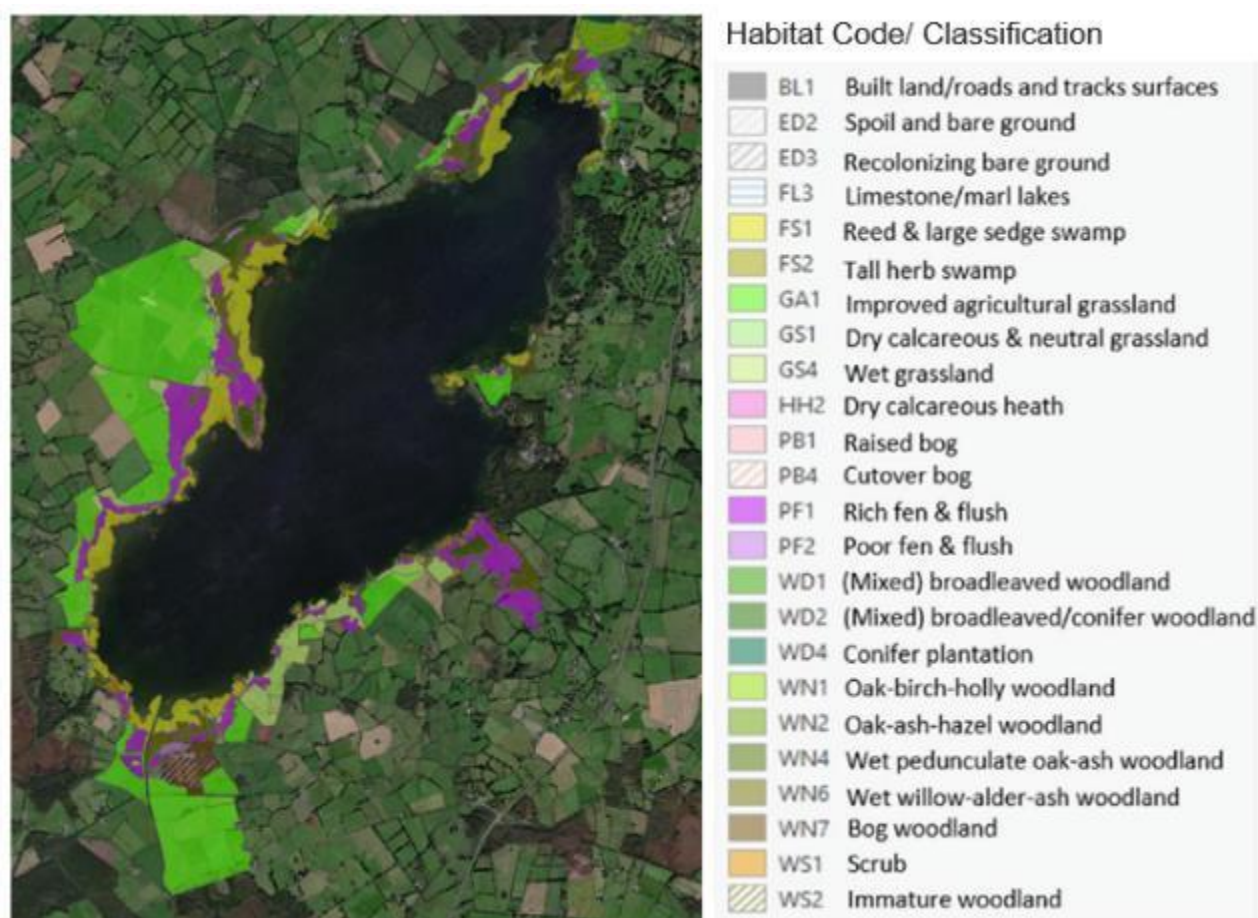


Figure 6.2 Lough Ennell Wetlands (Lauder & Cussen, 2021)

Feasibility Report

The corridors for Option 5 and Option 7 are the furthest distant from the European sites and their corridors have a much reduced overlap with the footprint of the European sites and wetlands. Given this, it may be possible to find a route within or close to these corridors that can avoid likely significant effects on the environment while taking into consideration land-ownership boundaries. They are also less constrained in terms of the length of the corridor that is adjacent to the shoreline of Lough Ennell. Option 5 and Option 7 may provide opportunities for biodiversity enhancement measures outside of sensitive sites that could be used to expand, protect and provide a buffer to the sensitive areas. For these reasons, Option 5 and Option 7 are deemed to somewhat meet the biodiversity criterion.

Given the likely constraints of land-ownership boundaries, the shoreline of Lough Ennell, and the proximity and overlap with the protected sites, Options 6 and 8 pose a risk of having likely significant effects on the environment. For this reason Options 6 and 8 are rated as having a poor alignment with the biodiversity criterion.

6.2.3.3 Water Quality

As outlined in Section 6.2.2.4, all options cross a similar number of water courses. The proposed greenway has the potential to impact on the biology, water quality, hydrology, and morphology of watercourses. Where required, suitable mitigation measures will be developed for the project in line with best practice measures in order to avoid negative impacts to water quality.

The corridors for Option 5 and Option 6 pass over and close to the River Brosna and its tributaries to the south and to the west of Lough Ennell. As shown in the previous Figure 6.1, there are some areas of flooding associated with these tributaries. Therefore, clear-span bridges and culverts may be required in order to avoid or reduce impacts on water quality.

The corridors for Option 7 and Option 8 follow the general route of the River Brosna from Kilbeggan toward Lough Ennell. As the corridor options are broad, it may be possible to avoid the riparian zones closest to the river which would assist in avoiding the potential for impacts on water quality. However, it may prove more challenging to find a route that avoids the riparian zone while also following land-ownership boundaries to prevent severance. As shown in the previous Figure 6.1, there are some areas of flooding along the River Brosna whereas most of the area to the east of Lough Ennell is relatively free from flooding.

With the implementation of mitigation measures it is not anticipated that any of the options will have a significant impact on water quality. However, Option 7 and Option 8 may prove more challenging given that the proximity to the River Brosna. Therefore Option 5 and Option 6 are considered to satisfactorily align with the water criterion while Option 7 and Option 8 are considered to somewhat meet the water criterion.

6.2.3.4 Land, Soils & Geology

The vast majority of the study area is dominated by Regionally Important and Locally Important Aquifers. Cognisance must be given to the constraints posed by the presence of the varied groundwater vulnerability areas, the karstified nature of the landscape and poorly drained mineral soils, which will require further assessments.

The greenway is expected to be largely at-grade and as such, there should not be a likelihood for significant effects on the majority of land types and soils, except where the options are close to or within sensitive sites such as wetlands particularly the western shore and to the north of Lough Ennell. This directly impacts on Options 6, 7 and 8.

Option 5 is considered to satisfactorily align with the land, soils and geology criterion while Option 6, Option 7 and Option 8 are considered to somewhat meet the land, soils and geology criterion.

6.2.3.5 Air Quality, including Noise & Vibration

The construction stage is likely to result in the greatest potential for impacts to air quality, noise and vibration e.g., dust, traffic, machinery movements, excavations. The impacts can be mitigated by avoiding noise sensitive receptors and by using lighter machinery. Noise during the construction phase is also temporary with minimal potential for noise and vibration to be an issue, particularly for sensitive receptors, and where significant earthwork activities and engineering such as rock breaking are very unlikely.

It is not envisaged that the operational phase will contribute negatively towards the local air quality. There is the potential for air quality improvements if commuters near and within the urban fringes of Kilbeggan and

Feasibility Report

Mullingar shift from driving to walking and/or cycling as a means of accessing the urban centres. No anticipated likely significant effects from noise and vibration are anticipated as users will be primarily walkers and cyclists.

Each of the four options is considered to satisfactorily align with the air quality, including noise and vibration criterion.

6.2.3.6 Climate

The construction stage is likely to result in the greatest potential for impacts to climate through the release of greenhouse gases (GHG), e.g., through the combustion of fuels in machinery. Similarly, materials used in the construction process, e.g. concrete, steel, plastics, all have associated carbon footprints. In terms of Ireland's annual national emissions, the likely impact on climate is anticipated to be small and localised. As all options are of a similar length, it is not anticipated that there will be a significant difference in terms of likely carbon emissions.

Due to the nature of the Kilbeggan to Mullingar Greenway development it is not envisaged that the operational phase will contribute significantly towards climate emissions. There will be positive effects from the modal shift from vehicles to walking and cycling. This is particularly relevant to areas near the urban centres of Kilbeggan and Mullingar where the greenway may provide an alternative commuting route thereby removing cars from the urban environment with consequent reductions in GHG emissions and improved air quality. However, it will also attract more tourists to the area (domestic and international) with a consequent increase in emissions associated with their travel to/from the greenway and associated activities. Therefore, in an overall sense, the greenway is likely to contribute to more GHG emissions than it is likely to offset through modal shift.

Each of the four options is considered to somewhat meet the climate criterion.

6.2.3.7 Landscape and Visual

The area through which the options traverse is an area of High landscape value that includes the *South Westmeath Eskers* and the *Lough Ennell and Southeastern Corridor* as shown in Figure 6.3.

Opportunities to enhance the amenity value of the area are presented from all options. The greenway is likely to be at-grade for most of its length and therefore should not be too visually intrusive. The visual impact of the greenway will also be mitigated through landscape planting and proximity to field boundaries/hedgerows. The greenway may bring a positive contribution to the landscape in that it will provide opportunities for users to experience the different types of landscape within the area and gain an appreciation of the importance of these landscapes.

The likely greatest impact visually, will be where new bridges are required over rivers. At this stage in the project it is too early to determine the size or shape of any required structures. However, based on the analysis of river and stream crossings presented in Section 6.2.2.4, Options 7 and 8 are more likely to have the greatest number of river crossings, especially on the larger Order 3 and Order 4 watercourses.

Option 5 and Option 6 are considered to satisfactorily align with the landscape and visual criterion while Option 7 and Option 8 are considered to somewhat meet the landscape and visual criterion.

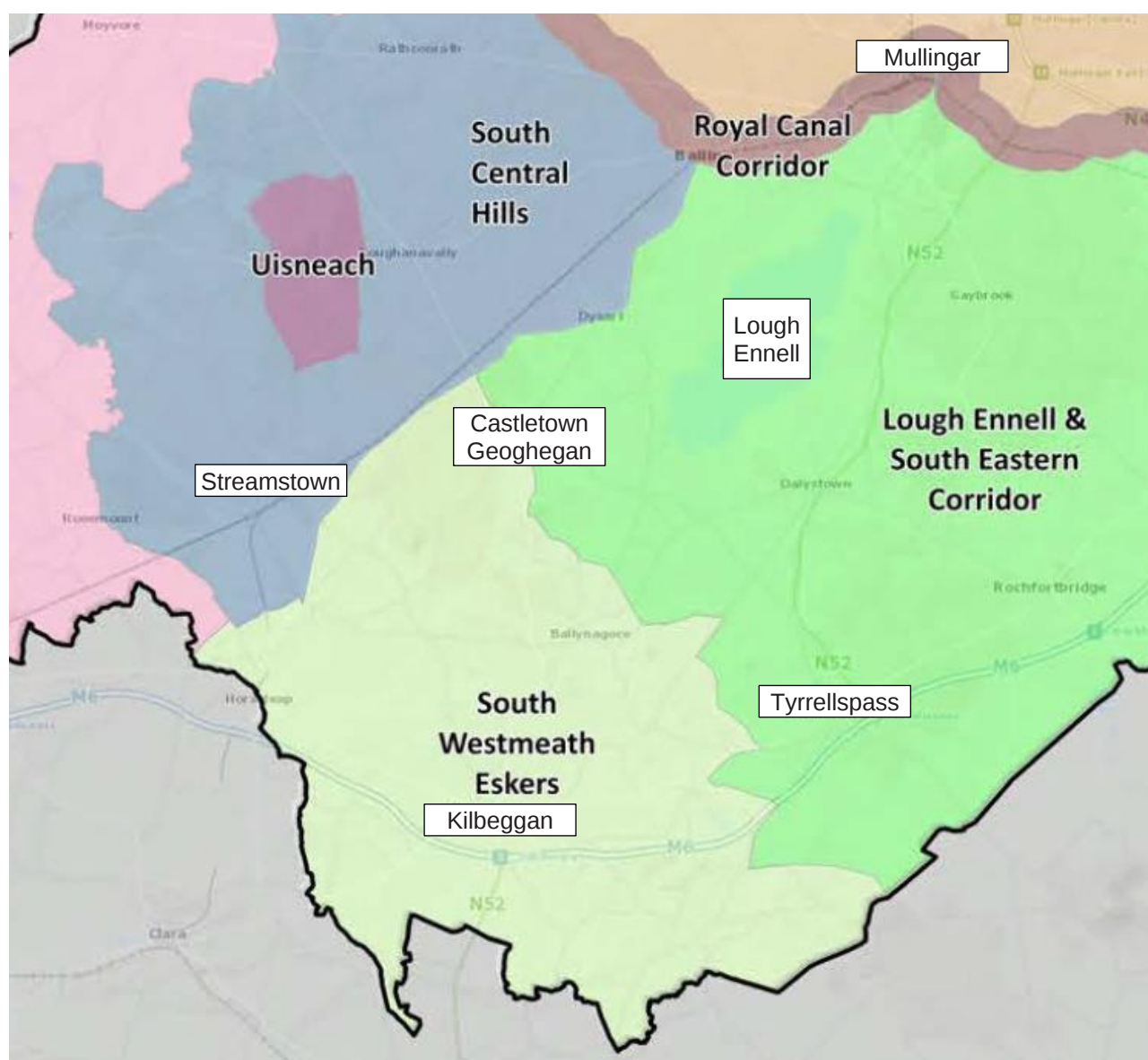


Figure 6.3 Landscape Character Areas from Westmeath County Development Plan (Map 68, 2021)

6.2.3.8 Material Assets (non-agricultural)

Material Assets considers the impact on physical assets such as tourism and community facilities, utilities, services, waste infrastructure, land-uses (other than agricultural), quarries, and transport infrastructure. As discussed in other sections, the greenway will link to communities along its route, and provide greater access to tourism and recreational facilities. Given the nature of the greenway it is unlikely to result in a significant impact on utilities, although some diversions may be necessary close to urban centres, such as Kilbeggan and Mullingar. All options provide good access to existing transport infrastructure including greenways, waterways, train station, motorways, national and regional roads. Option 7 and Option 8 provide access to more attractions on the east side of Lough Ennell.

Option 5 and Option 6 are considered to satisfactorily align with the material assets (non-agricultural) criterion while Option 7 and Option 8 are considered to strongly align with the material assets (non-agricultural) criterion.

6.2.3.9 Material Assets (agricultural)

The current greenway strategy outlines utilising state-owned lands where possible. It must be noted that there is very limited availability of state-owned lands in the study area. Therefore, the majority of each option

Feasibility Report

will be required to be routed through privately-owned lands. Where this land is used for agricultural purposes it will have an impact on landholdings. The degree of impact will depend on the length of land to be re-purposed to the greenway. All negotiations with landowners will be undertaken in accordance with the Code of Best Practice National and Regional Greenways (DoT, 2021a) including the Sustainability Payment mechanisms.

Greenways may typically require a land-take of between 6m and 10m. Taking a mid-range value of 8m wide, then every 100m of land requires 0.08 hectares, which equates to just under 0.2 acres.

Option 6 and Option 8 are the options that run the closest to the shoreline of Lough Ennell. As such they are more likely to encounter more marginal and unproductive agricultural land than Options 5 and 7. However, they are constrained in terms of the proximity to the shoreline and as such may lead to severance of landholdings in order to avoid environmental impacts, particularly on biodiversity.

In contrast, Option 5 and Option 7 will impact on better agricultural land. However, as the corridors are relatively unconstrained, there is more scope to route a greenway around land-boundaries thereby minimising severance.

Overall, all four options are considered to somewhat meet the material assets (agricultural) criterion.

6.2.3.10 Cultural Heritage

Cultural Heritage includes archaeological and architectural features within the study area. At this stage in the project, a high-level review of the Irish [historic environmental viewer](#) was undertaken and those features that may be of interest and accessible were reviewed, as illustrated in Figure 4.2. There is a wide distribution of cultural heritage features throughout the study area, particularly along the corridors of the four options forming part of this appraisal. This includes many sites that are on the National Inventory of Architectural Heritage (NIAH). During later phases of the project it may be desirable to link to some of those features while other features may have to be avoided. It is anticipated that this can be accommodated within the alignment design of the greenway.

The cultural heritage features cover a range of sites some of which are either no longer or only partially visible on the landscape. Others, particularly those associated with architectural heritage (country houses, demesnes, mills, industrial heritage sites) are the most visible on the landscape and may be themselves attractions in the area, e.g. Belvedere House & Gardens, Kilbeggan Distillery. The features of cultural heritage interest include sites in and around Kilbeggan and Mullingar, Belvedere House and Gardens, Coola Mill, Carrick House, Rochfort Mill, Tudenham Park, Lilliput House Demesne, crannogs located around Lough Ennell, the Royal Canal, and the Grand Canal.

The corridors for all options contain or are in proximity to a number of these cultural heritage features. However, the majority are located on the east shore of Lough Ennell and therefore Option 7 and Option 8 better meet this criterion. For this reason, Option 7 and Option 8 are considered to have a strong alignment with the cultural heritage criterion while Option 5 and Option 6 are considered to have a satisfactory alignment with the cultural heritage criterion.

6.2.3.11 Environmental Appraisal Summary

Each option was appraised individually in terms of the environmental topics described above. The results are summarised in Table 6.11.

Overall, all four options perform well against the majority of the environmental criterion. However, as can be seen in Table 6.11, and as described in Section 6.2.3.2, Option 6 and Option 8 are both considered to be poorly aligned with the biodiversity criterion. Their corridors are within or in very close proximity to the European sites at Lough Ennell. Similarly, they intersect with the wetland areas around the lake and areas that have been identified for enhancement (Lauder & Cussen, 2021). In trying to avoid a route within the European sites, both options are significantly constrained in terms of the shoreline of Lough Ennell. Ex-situ effects on European sites are also potentially a significant constraint whereby lands immediately adjacent to the European sites may support the Qualifying Interests (habitats and species) of those sites and as such are afforded strict protection.

The corridors for both Option 5 and Option 7 are similarly within or in very close proximity to the European sites at Lough Ennell, but to a much lesser extent than Option 6 and Option 8. Their corridors also provide a greater degree of flexibility for route selection as they are less constrained. This should make it easier to avoid and/or minimise likely significant effects during later phases of the project.

Feasibility Report

Table 6.11 Environmental Appraisal

Sub-criteria	Option 5	Option 6	Option 7	Option 8
Population & Human Health	Strong alignment with Criterion	Strong alignment with Criterion	Strong alignment with Criterion	Strong alignment with Criterion
Biodiversity	Somewhat meets Criterion	Poor alignment with Criterion	Somewhat meets Criterion	Poor alignment with Criterion
Water	Satisfactory alignment with Criterion	Satisfactory alignment with Criterion	Somewhat meets Criterion	Somewhat meets Criterion
Land, Soils & Geology	Satisfactory alignment with Criterion	Somewhat meets Criterion	Somewhat meets Criterion	Somewhat meets Criterion
Air Quality, Noise &Vibration	Satisfactory alignment with Criterion	Satisfactory alignment with Criterion	Satisfactory alignment with Criterion	Satisfactory alignment with Criterion
Climate	Somewhat meets Criterion	Somewhat meets Criterion	Somewhat meets Criterion	Somewhat meets Criterion
Landscape & Visual	Satisfactory alignment with Criterion	Satisfactory alignment with Criterion	Somewhat meets Criterion	Somewhat meets Criterion
Material Assets (Non-ag)	Satisfactory alignment with Criterion	Satisfactory alignment with Criterion	Strong alignment with Criterion	Strong alignment with Criterion
Material Assets (Ag)	Unsatisfactory alignment with Criterion	Somewhat meets Criterion	Unsatisfactory alignment with Criterion	Somewhat meets Criterion
Cultural Heritage	Satisfactory alignment with Criterion	Satisfactory alignment with Criterion	Strong alignment with Criterion	Strong alignment with Criterion

Options that have the potential for likely significant effects on biodiversity may pose significant challenges in future phases of the project. Case law in Ireland, the European Court of Justice as well as recent decisions by An Bord Pleanála, particularly in relation to greenways, has highlighted the significant project risks in advancing options that have the potential for likely significant effects on biodiversity. Furthermore, the recent publication of the Transport Appraisal Framework (TAF), Module 7, Section 7.2.9 (DoT, p.18, 2023) states:

“[...] It should also be noted that biodiversity appraisal requirements are becoming more stringent, reflected in the growing case law in this area, and there is a risk to the delivery of projects if provision is not made at the outset of investment decisions to ensure that transport projects are compliant with biodiversity and ecology obligations. Particular consideration should be given to the following:

- Potential to affect protected areas including European Sites (SAC, SPA and RAMSAR), National Sites (NHAs, pNHAs) and other sites of regional or local importance (Areas of Special Scientific Interest (ASSI), Areas of Outstanding Natural Beauty (AONBs), Nature Reserves, National Heritage Sites, Wildlife Reserves).
- Potential to impact biodiversity in non-designated areas.
- Potential to spread invasive species during construction work.”

On the basis of the biodiversity risks associated with Option 6 and 8 it is recommended that they not be considered further as feasible options.

6.2.4 Economic Appraisal (Option Comparison Estimate)

6.2.4.1 Construction Cost Estimates

Cost estimates have been prepared for each option and are summarised in Table 6.12. The costs are heavily linked to the length of new build route involved with an estimated construction cost of €1.235m per kilometre.

At this early stage in project development it is considered that all options will be constructed using standard processes with no non-standard construction techniques foreseen.

Table 6.12 Estimated Construction Costs

Option	Estimated Construction Cost (€m)	Option Length
Option 5: Via Dysart Westmeath Way and Ladestown	€ 37 m	30 km
Option 6: Via Dysart and Ladestown along the Western Shore of Lough Ennell	€ 33 m	27 km
Option 7: Along River Brosna-Old N52-Belvedere	€ 37 m	30 km
Option 8: Along River Brosna and Eastern Shore of Lough Ennell	€ 37 m	30 km

6.2.4.2 Economic Appraisal Summary

Overall, all four options are considered to be strongly aligned with the economic criterion, as summarised in Table 6.13.

Table 6.13 Economic Appraisal

Sub-criteria	Option 5	Option 6	Option 7	Option 8
Economic	Strong alignment with Criterion	Strong alignment with Criterion	Strong alignment with Criterion	Strong alignment with Criterion

At later stages of the project more accurate cost estimates will be calculated based on length, design, junctions, number of structures, land-take requirements, ancillary infrastructure, trail heads, etc. Similarly, the economic benefits of the greenway will be calculated and a Cost Benefit Analysis (CBA) undertaken in accordance with TII guidance. The CBA involves the monetisation of benefits associated with increased levels of walking and cycling (such as health, emissions reductions etc.) and comparing these against the project/programme costs. TII have developed a 'Tool for Economic appraisal of Active Modes' (TEAM) which will be applied during later Phases of the project.

6.2.5 Policies Appraisal

6.2.5.1 National Development Plan and National Planning Framework

The Kilbeggan to Mullingar Greenway, no matter which option, is in line with a number of the National Strategic Outcomes (NSO) set out in the NPF, including:

- NSO 1: Compact Urban Growth.
- NSO 3: Strengthened Rural Economies and Communities.
- NSO 4: Sustainable Mobility.
- NSO 7: Enhanced Amenity and Heritage.
- NSO 8: Transition to a Low Carbon and Climate Resilient Society.

Similarly, it will achieve some of the National Policy Objectives (NPOs). For example

Feasibility Report

- NPO 11: [...] presumption in favour of development that can encourage more people and generate more jobs and activity within existing cities, towns and villages [...]
- NPO 14: Protect and promote the sense of place and culture and the quality, character and distinctiveness of the Irish rural landscape that make Ireland's rural areas authentic and attractive as places to live, work and visit [...]
- NPO 22 encourages cycle networks through the facilitation of the development of a national greenways/blueways strategy which prioritises developments on the basis of achieving maximum impact and connectivity at national and regional level and
- NPO 27: 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.

6.2.5.2 NIFTI

The Kilbeggan to Mullingar Greenway delivers on the investment priorities as set out in the NIFTI by addressing the modal and intervention hierarchies.

The Greenway is an active travel measure and therefore meets the primary modal hierarchy.

In terms of the intervention hierarchies, the Kilbeggan to Mullingar Greenway will optimise the existing infrastructure by linking the Royal Canal, Old Rail Trail and Grand Canal Greenways. It will improve on the existing infrastructure by providing segregated transport options for walkers and cyclists. This will improve the safety on the local road networks for vulnerable road users. It will also provide new infrastructure to support the delivery of the NPF National Strategic Outcomes 1, 4, 7 and 8.

6.2.5.3 Westmeath County Development Plan 2021-2027

All options meet a number of the Westmeath County Development Plan (CDP) policy objectives including those related to Greenways, Cycling and Walking (Chapter 6), Healthy Placemaking (Chapter 7), Tourism (Chapter 8), Transport and Infrastructure (Chapter 10), and Natural Heritage (Chapter 12). Details on the most relevant objectives are included in Appendix A. Of particular relevance are the following policy objectives:

- CPO 6.61 Support the re-routing and upgrade of the Westmeath Way walking trail, bringing it offroad and link to scenic areas where possible, ensuring its status as an accredited National Waymarked way in the long term and exploring options such as the Walks Scheme for future maintenance.
- CPO 6.64 Support the provision of a greenway link from Mullingar to the Lough Ennell shoreline and to Belvedere House, Gardens and Park, subject the protection of environmentally sensitive areas and the requirements of the Habitats Directive; and

Option 5 and 6 will assist in achieving policy objective CPO 6.61 while Option 7 and 8 will assist in achieving policy objective CPO 6.64.

However, as noted in Section 6.2.3.2 on biodiversity, Option 6 and 8 will pose significant issues from an ecological perspective and achieving the Natural Heritage Policy Objectives and Sites of Biodiversity Value and Non-designated Sites Policy Objectives of the CDP.

For these reasons, Option 5 and 7 are considered to be strongly aligned with the policy objectives of the Westmeath County Development Plan while Option 6 and 8 are considered to be somewhat aligned with the policy objectives of the Westmeath County Development Plan.

6.2.5.4 Policy Appraisal Summary

All options are relatively similar in terms of adherence to national and regional policies as summarised in Table 6.13. Overall, Option 5 and Option 7 are considered to be strongly aligned with policy while Option 6 and Option 8 and satisfactorily aligned with policy.

Feasibility Report

Table 6.14 Economic Appraisal

Sub-criteria	Option 5	Option 6	Option 7	Option 8
NPF/ NDP	Strong alignment with Criterion	Strong alignment with Criterion	Strong alignment with Criterion	Strong alignment with Criterion
NIFTI	Strong alignment with Criterion	Strong alignment with Criterion	Strong alignment with Criterion	Strong alignment with Criterion
Westmeath County Development Plan	Strong alignment with Criterion	Somewhat meets Criterion	Strong alignment with Criterion	Somewhat meets Criterion

6.2.6 Overall Feasibility Evaluation Summary

Table 6.15 summarises the appraisal of each option against each of the feasibility criteria as described in the previous sections. Table 6.16 then collates this information to present an overall picture in terms of the four options.

Based on the assessment of each of the options against the feasibility criteria, it can be clearly seen that all four options perform well in terms of the number of strong and satisfactory alignments with the criteria. However, Option 6 and Option 8 both have one poor alignment and one unsatisfactory alignment with the feasibility criteria. As discussed previously, both Option 6 and Option 8 have significant biodiversity risks given their proximity to the European sites and wetlands around Lough Ennell. As noted in the environmental appraisal summary in Section 6.2.3.11, it is recommended that they not be considered further as feasible options.

It can therefore be concluded that Options 6 and 8 should not be considered further given the potential for likely significant effects on European sites.

Options 5 and 7 are the options to be shortlisted and brought forward to Phase 2 Option Selection.

Feasibility Report

Table 6.15 Feasibility Criteria Summary

Criteria	Sub-criteria	Option 5	Option 6	Option 7	Option 8
5 Ss	Scenic				
	Sustainable				
	Substantially Segregated & Shared Use				
	(Offers Lots to) See & Do				
	Strategic				
Engineering	Length				
	Gradient				
	Road Crossings				
	River Stream Crossings				
	Flooding				
Environment	Population & Human Health				
	Biodiversity				
	Water				
	Land, Soils & Geology				
	Air Quality, Noise &Vibration				
	Climate				
	Landscape & Visual				
	Material Assets (Non-ag)				
	Material Assets (Ag)				
	Cultural Heritage				
Econ.	Economic				
Policy	NPF/ NDP				
	NIFTI				
	Westmeath County Development Plan				

Feasibility Report

Table 6.16 Summary of the Step 2 Feasibility Appraisal

Adherence to Project Objectives	Option 5	Option 6	Option 7	Option 8
Strong alignment	10	9	13	12
Satisfactory alignment	11	8	3	2
Somewhat meets	3	5	8	8
Unsatisfactory alignment	0	1	0	1
Poor alignment	0	1	0	1
Totals*	24	24	24	24

7 DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

7.1 Discussion on Shortlisted Options

An examination of both Option 5 and Option 7 shows that they have four “nodes” in common around which a preferred option can be developed, namely:

- Kilbeggan Harbour
- Ballynagore
- Cloonagh (just south of Lough Ennell)
- Mullingar

These nodes provide opportunities to identify an emerging preferred option in Phase 2 that is an amalgamation of one or more sections between the nodes.

Further information on constraints (engineering and environmental) will be collected in Phase 2 in addition to the commencement of landowner consultations. The additional information and consultations will help identify an emerging preferred option within which a route for the Kilbeggan to Mullingar Greenway can be identified. This may require deviations from the corridors for Option 5 and Option 7 to accommodate inter alia: landowner consultations, field boundaries, reduce severance, and avoid or reduce the potential for significant effects on the environment. The consultation area for Phase 2 will therefore be broader than the Option 5 and Option 7 corridors to facilitate this. The consultation area for Phase 2 is illustrated in Figure 7.1 and incorporates the corridors for Option 5 and Option 7 and the four nodes.

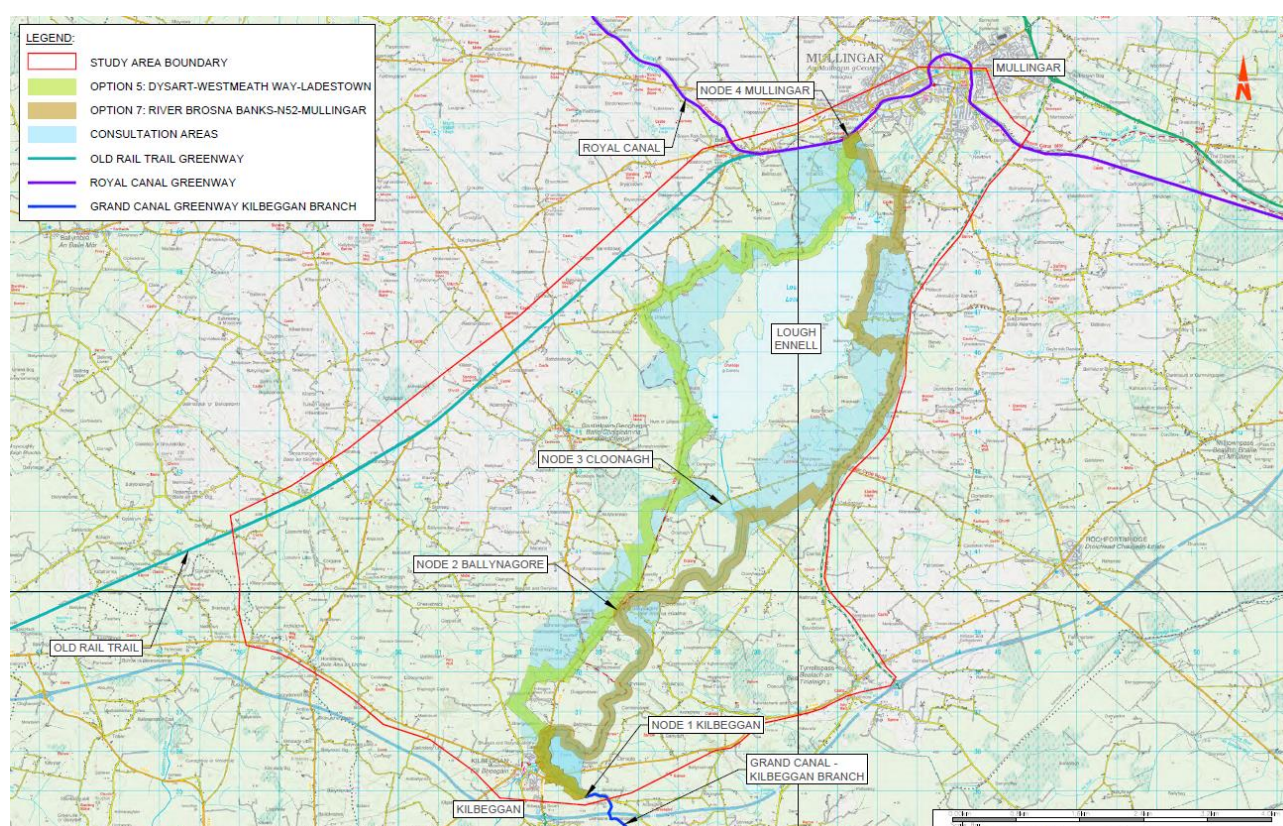


Figure 7.1 Consultation Areas to be Brought Forward to Phase 2

7.2 Conclusions

This report concludes that:

- The objectives of the project have been set to maximise the benefits for the creation of the Kilbeggan to Mullingar Greenway.
- There is a need for the proposed Kilbeggan to Mullingar Greenway.
- The project is supported by national, regional and county policies and objectives.
- An appropriate study area was developed for the project.
- The Study Area Public Consultation was completed in accordance with the Strategy for the Future Development of National and Regional Greenways.
- A long list of nine options were identified within the study area.
- Four of the long list options were deemed to satisfactorily meet the project objectives and were brought forward for feasibility assessment. These are Options 5, 6, 7 and 8.
- Following the feasibility evaluation of the four options, two options have been identified that satisfactorily meet the feasibility criteria. These are Options 5 and 7.
- Four “nodes” have been identified that are common to both shortlisted options.
- A consultation area incorporating the shortlisted options and nodes has been identified which will form the basis for landowner consultations and collating further information (engineering and environmental) in Phase 2.

7.3 Recommendations

This report recommends that the Kilbeggan to Mullingar Greenway Project should proceed to Phase 2 Option Selection.

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Appendix A

Planning Policies and Objectives

EU & International Policies & Objectives

EU & International

2030 Agenda for Sustainable Development

The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States including Ireland in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future.

The 2030 Agenda for Sustainable Development is framed around the 17 Sustainable Development Goals (SDGs) which are an urgent call for action by all countries. The Government of Ireland has aligned key national policy with the SDGs, including the National Planning Framework and the National Development Plan.

The development of the Kilbeggan to Mullingar Greenway would contribute towards efforts to achieve the following SDGs:

- 1 SDG 3 Good Health and Well-Being: Ensure healthy lives and promote well-being for all at all ages
- 2 SDG 8 Decent Work and Economic Growth: Promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all
- 3 SDG 9 Industry, Innovation and Infrastructure: Build resilient infrastructure, promote inclusive and sustainable industrialisation, and foster innovation
- 4 SDG 11 Sustainable Cities and Communities: Make cities and human settlements inclusive, safe, resilient, and sustainable
- 5 SDG 13 Climate Action: Take urgent action to combat climate change and its impacts

European Union Green Deal (European Commission, 2020)

The EU aims to be climate neutral in 2050. The European Green Deal (2020) provides an action plan to achieve this by boosting the efficient use of resources by moving to a clean, circular economy, restoring biodiversity, and cutting pollution. The plan outlines investments needed and financing tools available and explains how to ensure a just and inclusive transition.

For the transport sector, the EU Green Deal targets the roll out of “cleaner, cheaper and healthier forms of private and public transport”. Fostering alternative tourism is also part of the EU’s commitment to creating a sustainable economy through the European Green Deal. The Kilbeggan to Mullingar Greenway is aligned with these commitments and targets under the Green Deal.

National Policies & Objectives

National	
Strategy for the Future Development of National & Regional Greenways 2018	The objective of this Strategy is to “assist in the strategic development of nationally and regionally significant greenways in appropriate locations constructed to an appropriate standard in order to deliver a quality experience for all greenway users. It also aims to increase the number and geographical spread of greenways of scale and quality around the country over the next 10 years with a consequent significant increase in the number of people using greenways as a visitor experience and as a recreational amenity”. To achieve these objectives, the Department of Transport, Tourism and Sport will ensure that future greenways are to deliver on: • A Strategic Greenway Network of national and regional routes, with a number of high capacity flagship routes that can be extended and/or link with local greenways and other cycling and walking infrastructure • Greenways of scale and appropriate standard that have significant potential to deliver an increase in activity tourism to Ireland and are regularly used by overseas visitors, domestic visitors and locals thereby contributing to a healthier society through increased physical activity • Greenways that provide a substantially segregated offroad experience linking places of interest, recreation and leisure in areas with beautiful scenery of different types with plenty to see and do • Greenways that provide opportunities for the development of local businesses and economies • Greenways that are developed with all relevant stakeholders in line with an agreed code of practice.
Greenways and Cycle Routes Ancillary Infrastructure Guidelines 2018	These guidelines support the national Strategy for the Future Development of National and Regional Greenways. The purpose of these guidelines is to “Support the development and enhancement of greenways and other cycle routes by identifying and sharing ancillary infrastructure best practice amongst route designers and ensure route designers provide a pleasant, coherent, and consistent route user experience”.
Project Ireland 2040 – Final National Development Plan 2021-2030	Under the Outcome, for Tourism, it states “<i>Priority areas identified for tourism capital investment include the development and enhancement of tourist attractions as well as activity-based tourism, in order to provide the type and quality of experience that visitors are seeking</i>”, It also states; <i>“It also includes amenities in rural areas, such as national and forest parks, activity-based tourism and trails such as greenways, blueways and peatways. This is linked to and must integrate with our built, cultural and natural heritage, which has intrinsic value in defining the character of urban and rural areas and adding to their attractiveness and sense of place.”</i> This Kibeggan to Mullingar Greenway aligns with this Plan well.
Climate Action Plan 2023	Ireland is committed to achieving a 51% reduction in GHG emissions from 2021 to 2030, and to achieving net-zero emissions no later than 2050; with legally binding requirements to achieve these

National

objectives set out in legislation. The plan contains the following actions;

TR/23/25 – LAs to identify roads and streets suitable for road space reallocation.

TR/23/26 – Guidelines for Local Authority Climate Action Plans to include specific actions and indicators in respect of accessibility, modal shift and active travel.

TR/23/28 – Review of road traffic policy and legislation to prioritise the safety of walking and cycling. TR/23/29 – Advance roll-out of 1,000 km walking/cycling infrastructure.

TR/23/30 – Advance roll-out of National Cycle and Greenway Networks.

The Government's Tourism Policy Statement People, Place and Policy Growing Tourism to 2025

This Statement states "The Tourism Policy statement highlights the importance of sustainable development of tourism and recognises the contribution of facilities for activity-based holidays to Ireland's positive image and its attractiveness as a tourist destination. It also notes the Government's support for the development and improvement of our physical visitor attractions, visitor infrastructure and facilities for visitor activities, including the development of Greenways."

The National Physical Activity Plan for Ireland – Get Ireland Active

This Plan states "physical inactivity is a demonstrated clear risk to health and wellbeing in Ireland. Physical inactivity and sedentary behaviours are associated with numerous chronic diseases. With people no longer as physically active as they should be, there are many threats to our health and wellbeing from being inactive". Greenways provide an excellent opportunity for Irish people to participate in a healthy outdoor activity. Evidence from the Waterford Greenway has shown that 50% of users are walkers, this is a hugely important element and shows that Greenways can play a vital part in addressing physical inactivity.

Eastern & Midland Regional Spatial & Economic Strategy 2019-2031

Regional Policy Objectives

Mullingar Key Town

- RPO 4.64 Support Mullingar's role as a tourism hub having regard to its accessibility to key tourist destinations in the region including proximity to natural amenities and recreational opportunities including the Galway to Dublin Greenway.

Natural and Cultural Tourism Assets

- RPO 6.17 Support the maintenance of, and enhanced access to state and semi-state lands such as National Parks, Forest Parks, Waterways, etc., together with Monuments and Historic Properties, for recreation and tourism purposes. Access should be planned and managed in a sustainable manner that protects environmental sensitivities, ecological corridors, and the ability of local infrastructure to support increased tourism.

Tourism

- RPO 6.19 Support the local strategies that are already in place to link the River Shannon Blueway, The Royal and Grand Canal Greenways and the proposed Barrow Blueway right across the Midlands, incorporating the towns of Longford, Athlone, Mullingar, Tullamore and Portarlinton.

Green Infrastructure

- RPO 7.23 Support the further development of Green Infrastructure policies and coordinate the mapping of strategic green infrastructure in the region.
- RPO 7.24 Promote the development of a sustainable strategic greenway network of national and regional routes, with a number of high capacity flagship routes that can be extended and/or linked with local greenways and other cycling and walking infrastructure, notwithstanding that capacity of a greenway is limited to what is ecologically sustainable.
- RPO 7.25 Support local authorities and state agencies in the delivery of sustainable strategic greenways, blueways and peatways projects in the region under the Strategy for the Future Development of National and Regional Greenways.

Riparian Setbacks

- RPO 7.26 Support the development of guidance for assessment of proposed land zonings in order to achieve appropriate riparian setback distances that support the attainment of high ecological status for waterbodies, the conservation of biodiversity and good ecosystem health, and buffer zones from flood plains.

Westmeath County Development Plan 2021-2027

Westmeath County Development Plan 2021-2027, Policy Objectives

Greenways, Cycling and Walking Policy Objectives

CPO 6.56	Continue to augment the visitor experience on the county's greenways, through the provision of ancillary infrastructure as required, having regard to the DTTAS 'Greenways and Cycle Routes Ancillary Infrastructure Guidelines', along with high quality signage and links to nearby visitor attractions and places of interest.
CPO 6.57	Support the provision of visitor services within existing towns and villages, such as cafes, accommodation etc, by providing linkages with greenways, trails etc where appropriate.
CPO 6.59	Support increased opportunities for off-road walking, including looped walks and longer distance trails, taking account of 'positive control points' in trail design, such as areas of natural beauty, lakeshores or rivers, bogs, built heritage and archaeological features and with links to towns and villages where services may be provided for walkers and hikers. In designing walking trails, the Sport Ireland Guide to Planning and Developing Recreational Trails will be consulted.
CPO 6.60	Continue to maintain and further enhance the County's walking and cycling trails, striving to achieve National Trails accreditation and other standards as set by Sport Ireland, in partnership with local communities and land owners.
CPO 6.61	Support the re-routing and upgrade of the Westmeath Way walking trail, bringing it off-road and link to scenic areas where possible, ensuring its status as an accredited National Waymarked way in the long term and exploring options such as the Walks Scheme for future maintenance.
CPO 6.62	Support the provision of visitor interpretation along walking and cycling trails, including storyboards, artworks and other media, to create a greater sense of place, connecting and immersing visitors in our local heritage and stories.
CPO 6.63	Support the provision of services for visitors using walking and cycling trails which are appropriate to the location and activity, including bike service points, picnic benches at scenic locations, public toilets in remote areas etc
CPO 6.64	Support the provision of a greenway link from Mullingar to the Lough Ennell shoreline and to Belvedere House, Gardens and Park, subject the protection of environmentally sensitive areas and the requirements of the Habitats Directive.
CPO 6.67	Promote the principles of 'Leave no Trace' in all trail information panels, promotional materials and events and use all statutory procedures to deter negative environmental impact resulting from use of our trails and outdoor recreation amenities.

Healthy Placemaking Policy Objectives

CPO 7.3	Encourage transition towards sustainable and low carbon transport modes through the promotion of alternative modes of transport and 'walkable communities' whereby a range of facilities and services will be accessible within short walking or cycling distance.
CPO 7.6	Promote the development of healthy and attractive places by ensuring: • [...] • The provision of open space considers different types of recreation and amenity uses with connectivity by way of safe, secure walking and cycling routes. • [...]

Kilbeggan – Tourism Policy Objectives

CPO 8.71	Seek to facilitate the development of an off-road cycling link from Kilbeggan to the Old Rail Trail at Streamstown (See Map 7, Volume 2).
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Feasibility Report

Westmeath County Development Plan 2021-2027, Policy Objectives

Transport and Infrastructure Policy Objectives – Greenways

- | | |
|-----------|--|
| CPO 10.18 | Continue to develop an integrated and connected network of sustainable greenways and green routes within Westmeath and to adjoining counties, in accordance with the “Strategy for the Future Development of National and Regional Greenways”. |
| CPO 10.23 | Maximise both pedestrian and cycle connectivity to the network of existing greenways within the County. |

Natural Heritage Policy Objectives

- | | |
|-----------|--|
| CPO 12.1 | Contribute as appropriate towards the protection of designated sites in compliance with relevant EU Directives and applicable national legislation. |
| CPO 12.3 | Support the implementation of the Westmeath Biodiversity Action Plan 2014-2020 and any revisions made thereto. |
| CPO 12.4 | Protect and conserve Special Areas of Conservation, candidate Special Areas of Conservation, Special Protection Areas and candidate Special Protection Areas, designated under the EU Birds and Habitats Directives respectively. |
| CPO 12.12 | Require that new development proposals affecting designated sites have regard to the sensitivities identified in the SEA Environmental Report prepared in respect of this plan. |
| CPO 12.16 | Apply the precautionary principle in relation to development proposals in areas identified as being of national nature conservation interest, by requiring a Scientific/ Ecological Risk Assessment to ensure that the development will not impact on the integrity and habitat value of the site. |
| CPO 12.18 | Consult with the National Parks and Wildlife Service (NPWS) in regard to any developments (those requiring permission and those not requiring planning permission) which the Council proposes to carry out within pNHAs, NHAs, SACs, SPAs, and other important ecological sites. |
| CPO 12.20 | Protect and conserve NHAs and pNHAs including NHAs that become designated and notified to the Local Authority during the lifetime of the Plan and seek to develop linkages between designated sites, where feasible and as resources permit. |

Sites of Biodiversity Value and Non-designated Sites Policy Objectives

- | | |
|-----------|--|
| CPO 12.23 | Seek to create and enhance ecological linkages and buffer zones from development. |
| CPO 12.24 | Protect and where possible enhance biodiversity and ecological connectivity, including woodlands, trees, hedgerows, semi-natural grasslands, rivers, streams, natural springs, wetlands, geological and geo-morphological systems, other landscape features, natural lighting conditions, and associated wildlife where these form part of the ecological network and/or may be considered as ecological corridors or stepping stones in the context of Article 10 of the Habitats Directive. Appropriate mitigation and/or compensation to conserve biodiversity, landscape character and green infrastructure networks will be required where habitats are at risk or lost as part of a development. |
| CPO 12.25 | Recognise that nature conservation is not just confined to designated sites and acknowledge the need to protect non-designated habitats and landscapes and to conserve the biological diversity. |

Geological Heritage Policy Objectives

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|-----------|--|
| CPO 12.36 | Consider in consultation with the NPWS, Offaly County Council and the Geological Survey of Ireland the potential designation of the south Westmeath esker landscape as a UNESCO geo-park, to promote the unique geological heritage of the area. |
|-----------|--|

Westmeath County Development Plan 2021-2027, Policy Objectives

Tree, Woodlands and Hedgerows Policy Objectives

- | | |
|-----------|--|
| CPO 12.37 | Preserve and enhance the amenity and biodiversity value of the County, by promoting the protection of trees, groups of trees and ancient woodlands, of significant amenity value, especially native and broadleaf species. |
| CPO 12.39 | Discourage the felling of mature trees and hedgerow, particularly species rich roadside and townland boundary hedgerows to facilitate development and seek Tree Management Plans to ensure that trees are adequately protected during development and incorporated into the design of new developments. |
| CPO 12.40 | Protect and preserve existing hedgerows in new developments, particularly species rich roadside and townland boundary hedgerows, and where their removal is necessary during the course of road works or other works seek their replacement with new hedgerows of native species indigenous to the area. |

Waterways Policy Objectives

- | | |
|-----------|---|
| CPO 12.61 | Seek to manage any increase in visitor numbers in order to avoid significant effects including loss of habitat and disturbance, including ensuring that any new projects, such as greenways, are a suitable distance from ecological sensitivities, such as riparian zones. |
|-----------|---|

Green Infrastructure Policy Objectives

- | | |
|-----------|---|
| CPO 12.81 | Support and increase investment in the provision and on-going maintenance of existing green infrastructure and support the provision of new public parks, greenway and blueway corridors and other public open spaces to create green, healthy settlements throughout Westmeath by accessing relevant EU funding mechanisms and national funding opportunities including tourism related funding. |
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Greenways Policy Objectives

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|-----------|---|
| CPO 12.82 | Support the development of an integrated Strategic Greenway Network of national and regional routes and maximise connectivity to existing greenways and link with cycling and walking infrastructure. |
| CPO 12.83 | Support the delivery of sustainable strategic greenways, blueways and peatways projects in the County in accordance with the Strategy for the Future Development of National and Regional Greenways. |
| CPO 12.85 | Support the development of implementation plans for greenways throughout the county together with supporting environmental assessments. |

Appendix B

Constraints and Opportunities Study

APPENDIX B

B. CONSTRAINTS AND OPPORTUNITY STUDY

B.1 Environmental Constraints

B.1.1 Population & Human Health

Population

In the 2016¹ Census recorded a population of 88,770 in Westmeath consisting of 44,688 females and 44,082 males, an increase of 3% since the previous census in 2011. The updated 2022 Census Summary Results recorded a population of 95,840 in Westmeath consisting of 48,318 females and 47,522, an increase of 8% since the previous census recorded in 2016.

During the period 2011-2016 the two main towns, Athlone and Mullingar, experienced a population increase of 5.9% (20,153 to 21,349) and 4.1% (20,103 to 20,928) respectively.

The Draft Westmeath County Council Development Plan 2021 – 2027 designates a hierarchy of the County's settlements as follows:

- Regional Growth Centre (Athlone);
- Key towns (Mullingar);
- Self-sustaining growth towns (Castlepollard, Kilbeggan, Kinnegad and Moate);
- Self-sustaining towns (Killucan/Rathwire and Rochfortbridge);
- Towns and villages (Clonmellon, Delvin and Tyrrellspass); and
- Rural (serviced) (Ballinalack, Ballymore, Ballynacarrigy, Castletown – Geoghegan, Collinstown, Glasson, Milltownpass, and Multyfarnham).

Study Area Characteristics

Mullingar as the key town in County Westmeath is a large economically active service and/or county towns that provide employment for their surrounding areas and with high-quality transport links and the capacity to act as growth drivers to complement the Regional Growth Centres.

Mullingar is the largest town in the Study Area and represents the northern end of the Kilbeggan to Mullingar Greenway

Situated on the River Brosna in the south of the County approximately 31km from Mullingar, Kilbeggan is located in close proximity to the M6 motorway and is well served with transport links to the main service centres of Mullingar, Athlone and Tullamore. According to the 2016 census, the population of the settlement was 1,288 residents, up 7.4% from the previous census and greater than the county average of 3% for the same period. Census data between the period 2002 and 2016 disclosed that the population of the town has increased by 98%, compared to the county average of 23.5%. This growth in population reflects the town's attractiveness in terms of its proximity to the previously designated linked gateway of Athlone/Tullamore/Mullingar, and to Dublin by way of the M6 motorway.

Settlement Hierarchy

In the Westmeath County Council Development Plan Settlement Hierarchy, Mullingar is identified as being a "Key Town", defined as *"large economically active service and/or county towns that provide employment for their surrounding areas and with high-quality transport links and the capacity to act as growth drivers to complement the Regional Growth Centres."* Kilbeggan is identified as a *"Self-Sustaining Growth Town with a moderate level of jobs and services – includes sub-county market towns and commuter towns with good transport links and capacity for continued commensurate growth to become more self-sustaining."*

¹ Not all results and data have been released for the 2022 census.

APPENDIX B



Figure B-1 details the location of the main urban areas within the Study Area.

APPENDIX B



Figure B-1: Settlement Hierarchy

APPENDIX B

Settlements & Census Data

The primary towns and villages in Westmeath within and surrounding the Study Area are listed below in Table B-1, with population figures obtained from the CSO 2016 Census.

Table B-1: Study Area Settlement Populations

Name	2011 Population	2016 Population	Percentage Change in Population
Athlone, Westmeath	N/A	21349	N/A
Ballinalack, Westmeath	137	137	0
Ballymore, Westmeath	433	483	11.5
Ballynacargy, Westmeath	287	277	-3.5
Baylin, Westmeath	244	240	-1.6
Castlepollard, Westmeath	1042	1163	11.6
Castletown Geoghegan, Westmeath	150	141	-6
Clonmellon, Westmeath	634	664	4.7
Collinstown, Westmeath	336	356	6
Delvin, Westmeath	697	740	6.2
Glassan, Westmeath	198	207	4.5
Kilbeggan, Westmeath	1199	1288	7.4
Killucan-Rathwire, Westmeath	1226	1370	11.7
Kinnegad, Westmeath	2662	2745	3.1
Moate, Westmeath	2731	2763	1.2
Mullingar, Westmeath	N/A	20928	N/A
Multyfarnham, Westmeath	376	420	11.7
Raharney, Westmeath	227	221	-2.6
Rathowen, Westmeath	N/A	150	0
Rochfortbridge, Westmeath	1494	1473	-1.4
Tyrrellspass, Westmeath	506	483	-4.5

Source: [E2016 - Population and Actual and Percentage Change 2011 to 2016 \(cso.ie\)](#)

APPENDIX B

Population Density

Athlone and Mullingar are both accessible by rail and are positioned on the Galway / Dublin / Westport and the Dublin/Sligo rail lines respectively. Trains operate on each route several times daily. Currently there are no other train stations operating within the County although a disused station is located at Killucan on the Dublin/Sligo line

Due to its strategic location in the middle of the country, Westmeath and its main urban centres are particularly well served by a hierarchy of roads including sections of motorways, national roads, regional roads, local roads and urban roadways. Westmeath has a total public road network accounting for 2,332 km in length of which approximately 193 km comprise of National Primary and Secondary roads. The M6/N6, M4/N4, N51, N52, N55 and N62 traverse the County providing important linkages and networks within, into and out of the County. In relation to the study area, the N52 is most prominent. In terms of integration for the scheme, it is important for users to have the option to access the Greenway by road and bus transport.

The area contains a rich cultural landscape offering a variety of amenities and attractions. The county itself however has been outperforming some of neighboring counties, due to several strong visitor attractions and a critical mass of visitor services concentrated in the towns of Athlone and Mullingar.

Figure B-2 details settlement density in the Study Area which has been extracted from the CSO Census 2016 population statistics.

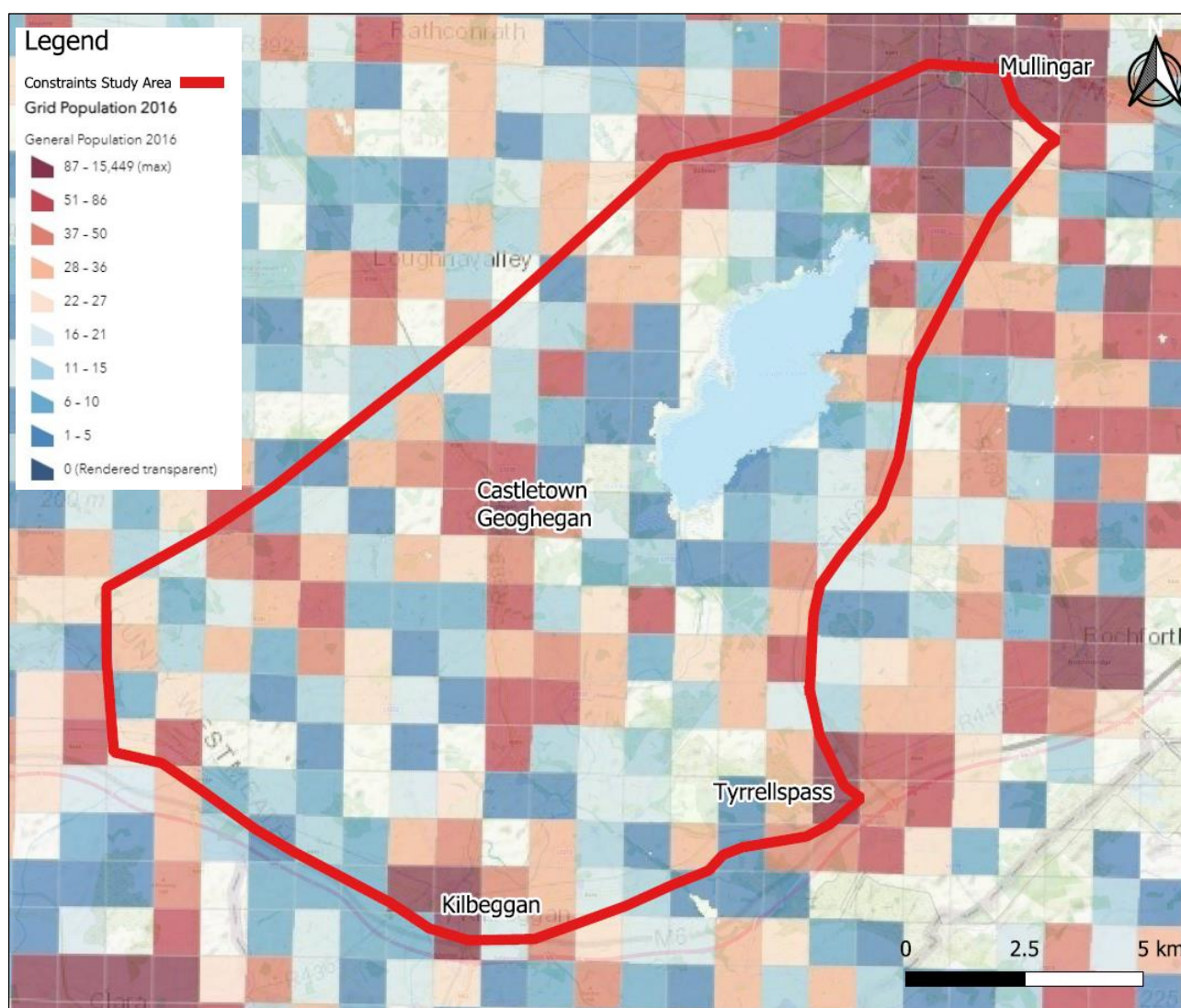


Figure B-2: Study Area Settlements (CSO Census 2016 - Population Statistics)

APPENDIX B

Human Health

Human health has the potential to be impacted upon by environmental vectors (i.e., environmental components such as air, water or soil through which contaminants or pollutants, which have the potential to cause harm, can be transported so that they come into contact with human beings). Hazards or nuisances to human health can arise as a result of exposure to these vectors arising from incompatible adjacent land uses for example. These factors have been considered with regard to the description of the baseline of each environmental component; and the identification and evaluation of the likely significant environmental effects of implementing the Plan.

One of the principal health benefits of the project is the provision of an alternative mode of transport for commuters. Increasing the levels of walking and cycling is widely regarded as beneficial because of the improvements in public health. This is as a result of the increased levels of physical activity and because of a modal shift from private motorised forms of transport that reduces congestion and environmental pollution.

From a user's perspective, options which run adjacent to the existing roads could be considered to have a more negative impact in terms health, as it exposes users to more air pollution.

Identified Constraints

Settlements and population densities have been identified in the Study Area. Potential routes to these towns and villages will be considered as part of the development of the Phase 2 Options Selection process. The settlement distributions across the Study Area have a range of population densities ranging from rural to urban settings. Socio-economic and community facilities will be identified in the scheme area. Considerations of the location of these facilities will be considered as part of the development.

Cognisance of the health benefits to populated areas is to be considered when considering potential Greenway options that can maximise local use. Route options should be located away from busy existing roads as much as possible to avoid exposure for Greenway users to traffic pollution.

B.1.2 Biodiversity

Introduction

The principal legislation, planning policy and supplementary guidance in Ireland relating to natural heritage and relevant to the Kilbeggan to Mullingar Greenway are set out below. The context and application of the legislation, planning policy and guidance are explained in the relevant sections of this report.

- **International Directives**
 - Council Directive on the Conservation of Natural Habitats of Wild Fauna and Flora (92/43/EEC) (The Habitats Directive)
 - Council Directive on the Conservation of Wild Birds (2009/147/EC) (The Birds Directive)

- **Irish Legislation**

S.I. No. 355 of 2015 provides that the following shall be construed together as one:

- Wildlife Act 1976;
 - Wildlife (Amendment) Acts of 2000, 2010 and 2012;
 - European Communities (Birds and Natural Habitats) (Restrictions of the Use of Poison Bait) Regulations 2010;
 - European Communities (Birds and Natural Habitats) Regulations 2011;
 - European Communities (Birds and Natural Habitats) (Amendment) Regulations of 2013, 2015; and
 - Wildlife Amendment Bill 2016.
- **Planning Policy**
 - Westmeath County Development Plan 2021-2027

APPENDIX B

Westmeath County Development Plan 2021-2027

The WCDP have set out a total of 3 natural heritage policy objective to help protect and preserve the natural environmental and biodiversity of the county. The natural policy objectives are detailed below:

CPO 12.1 – Contribute as appropriate towards the protection of designated sites in compliance with relevant EU Directives and applicable national legislation.

CPO 12.2 – Support the implementation of any relevant recommendations contained in the National Biodiversity Plan, the All-Ireland Pollinator Plan and the National Peatlands Strategy.

CPO 12.3 – Support the implementation of the Westmeath Biodiversity Action Plan 2014-2020 and any revisions made thereto.

Existing Environment

Natura 2000 Sites

With the introduction of the Habitats Directive (Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora) came the obligation to establish the Natura 2000 network of Sites of Community Interest (SCIs), comprising a network of areas of highest biodiversity importance for rare and threatened habitats and species across the European Union (EU).

The Natura 2000 network of sites comprises Special Areas of Conservation (SACs, including candidate SACs) designated under legislation transposing the obligations under Directive 92/43/EEC, and Special Protection Areas (SPAs, including proposed SPAs) classified under the Birds Directive (Directive 2009/147/EC on the conservation of wild birds) and designated under Irish legislation. SACs and SPAs make up the pan-European network of Natura 2000 sites in Ireland and they are referred to as European sites.

SACs are designated for the conservation of Annex I habitats (including priority types which are in danger of disappearance) and Annex II species (other than birds). SPAs are designated for the conservation of Annex I birds and other regularly occurring migratory birds and their habitats. The annexed habitats and species for which each site is designated correspond to the Qualifying Interests (QIs) of the sites in the case of SACs and Special Conservation Interests (SCIs) of the sites in the case of SPAs. From these qualifying features, the Conservation Objectives (COs) of the site are derived.

European

Such sites form part of an EU network of ecologically important and protected sites known as the Natura 2000 network and comprise:

Special Areas of Conservation (SACs) - These sites are designated for the conservation and protection of plants, animals (other than birds) and wildlife habitats that are of importance to the EU. The sites are designated for habitats and species listed in Annex I and Annex II of the EU Habitats Directive (1992) respectively.

Special Protection Area (SPAs) – These sites are designated for the conservation and protection of birds and their habitats designated under the EU Birds Directive 2009 (first adopted by Member States in 1979), which was implemented in Ireland through the Conservation of Wild Birds Regulations (Statutory Instrument 291 of 1985). These sites are for the protection and conservation of rare and threatened bird species and their habitats.

There are a total of 25 Natura 2000 sites in County Westmeath, as detailed in The most recently made available (web-published or otherwise) QIs, SCIs, COs and SSCOs (where applicable) for these European sites are summarised in Table B.2 and have been used for the purpose of a screening exercise. The Kilbeggan - Mullingar Greenway must be screened against the QIs, SCIs and COs for these European sites to determine if pathways of effect can be reasonably established between the receptor and the source of effect and thus if the project is likely to have a significant effect on the site.

For European Designations please refer to figures Biodiversity 01 – 03.

(Designated Sites) below. The boundaries of protected areas may change and/or new sites may be proposed for designation during the lifetime of this Plan. Up- to-date information on boundaries, and details, of designated sites is available on the National Parks and Wildlife Service website (www.npws.ie).

APPENDIX B

National

Natural Heritage Areas (NHAs) are sites that support elements of our natural heritage which are unique, or of outstanding importance at the national level. Any development in, near or adversely affecting a Natural Heritage Area should avoid any significant adverse impact on the features for which the site has been designated. There are currently 9 Natural Heritage Areas in County Westmeath. There are many more proposed NHAs in County Westmeath which will be designated on a phased basis

Lough Ennell

Lough Ennell is a large, limestone lake, located 3 km south of Mullingar in Co. Westmeath. Much of the lake is shallow with a marl deposit. The River Brosna flows into the lake from the north at Butler's Bridge, and out from the south. Lough Ennell is a very good example of a marl lake with stonewort and cyanobacterial crust vegetation. The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive summarised in Table B.2. The SAC is a 1398ha wetland site.

Lough Ennell is also designated as a Special Protection Area (SPA) for 4 no. species of overwintering or breeding birds and wetlands (Special Conservation Interests or SCIs). Lough Ennell is a large, limestone lake located south of Mullingar in Co. Westmeath. It has a length of approximately 6.5 km along its long axis and is mostly about 2 km wide. The River Brosna is the principal inflowing and outflowing river. It is a relatively shallow lake, with a maximum depth of c. 30 m. The SPA is a 1398ha wetland site.

The most recently made available (web-published or otherwise) QIs, SCIs, COs and SSCOs (where applicable) for these European sites are summarised in Table B.2 and have been used for the purpose of a screening exercise. The Kilbeggan to Mullingar Greenway must be screened against the QIs, SCIs and COs for these European sites to determine if pathways of effect can be reasonably established between the receptor and the source of effect and thus if the project is likely to have a significant effect on the site.

Raised Bog Habitats

In Ireland, the identification of active raised bog (ARB) is made at ecotope level based on the vegetation classification developed by Kelly (1993) and Kelly & Schouten (2002). Raised bog vegetation communities are grouped into a series of community complexes and these complexes are then amalgamated into a series of ecotopes characterised by different physical characteristics using the approach outlined by Kelly & Schouten (2002). The main ecotopes that community complexes are grouped into are:

- Central ecotope
- Sub-central ecotope
- Active flushes and soaks
- Sub-marginal ecotope
- Marginal ecotope
- Inactive flushes
- Face-bank ecotope

Actively accumulating peat conditions occur within the sub-central and central ecotopes, which are the wettest on the bog and an indication of good quality ARB. Active flushes and soaks are also dominated by Sphagnum mosses and typically have wet conditions. These features are included in ARB and contribute to the overall diversity of the habitat.

The adjacent surrounding marginal, sub-marginal, and face-bank bog areas typically have a supporting function for the central and sub-central communities but are not peat accumulating. These drier ecotopes may or may not correspond to the Annex I habitat DRB, as it depends on whether they are capable of regeneration

APPENDIX B

to ARB within 30 years as defined in EC (2013). Other drier ecotopes recorded on the high bog that do not correspond to ARB include 'inactive flushes' which typically have a low Sphagnum cover.

The Annex I habitat Rhynchosporion depressions [7150] typically occurs along pool edges and on flats underlain by deep, wet and quaking peat. Typical plant species include *Rhynchospora alba*, *Drosera anglica*, *Narthecium ossifragum*, *Sphagnum cuspidatum*, *S. denticulatum*, *S. magellanicum*, *S. papillosum*, *Menyanthes trifoliata*, and *Eriophorum angustifolium*.

The priority Annex I habitat bog woodland is also actively peat-forming and overlaps with the ARB habitat. Such woodlands are usually dominated by *Betula pubescens* with a characteristic ground cover of Sphagnum moss species which often form deep carpets, usually with *Polytrichum* mosses and occasional lichens. Woodland areas are occasionally found on raised bogs that have an absence of the characteristic moss layer and are not regarded as peat forming. Such areas do not correspond to the Annex I habitat.

APPENDIX B

Table B-2: Qualifying Interests, Special Conservation Interests and Conservation Objectives of the European sites being considered

Qualifying Interest	Comment
Lough Ennell (IE000685)	
Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. [3140] Alkaline fens [7230]	Lough Ennell is a large, limestone lake, located 3 km south of Mullingar in Co. Westmeath. Much of the lake is shallow with a marl deposit. The River Brosna flows into the lake from the north at Butler's Bridge, and out from the south. Lough Ennell is a very good example of a marl lake with stonewort and cyanobacterial crust vegetation. Lough Ennell supports a specialist and diverse aquatic flora, dominated by stoneworts. A total of 13 stonewort species has been recorded, including two Red Data Book species. Alkaline fen is also found on the lake shore, with species such as Grass-of-parnassus (<i>Parnassia palustris</i>), Marsh Pennywort (<i>Hydrocotyle vulgaris</i>) and Bottle Sedge (<i>Carex rostrata</i>). In wet marshy patches along the shore Marsh-marigold (<i>Caltha palustris</i>), Brookweed (<i>Samolus valerandi</i>) and Lesser Water-plantain (<i>Baldellia ranunculoides</i>) are common. This site shares an internationally important Greenland White-fronted Goose flock with Loughs Iron, Glen and Owel. The numbers of geese which visit Lough Ennell are lower than for the other lakes: 91 birds (3-year average peak).
Lough Ennell SPA (IE004044)	
Pochard (<i>Aythya ferina</i>) [A059] Tufted Duck (<i>Aythya fuligula</i>) [A061] Coot (<i>Fulica atra</i>) [A125] Wetland and Waterbirds [A999]	The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Pochard, Tufted Duck and Coot. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. Lough Ennell is one of the most important Midland lakes for wintering waterfowl, with nationally important populations of Pochard (738), Tufted Duck (1,303) and Coot (433) - all figures are mean peaks for the 5 winters 1995/96-1999/2000. The population of Tufted Duck represents over 3% of the all-Ireland population. The site is also utilised by an internationally important population of non-migratory Mute Swan (340). Other species which occur include Golden Plover (1,000 in 1998/99), Lapwing (673), Mallard (93), Little Grebe (30), Great Crested Grebe (24) and Goldeneye (22). Lough Ennell is of ornithological significance for wintering waterfowl, with three migratory species having populations of national importance. The occurrence of Golden Plover in the vicinity of the lake is of note as this species is listed on Annex I of the E.U. Birds Directive. Lough Ennell is a Ramsar Convention Site.
Split Hills and Long Hill Esker SAC (IE001831)	
Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (*important orchid sites) [6210]	Split Hills and Long Hill Esker is a 5 km long site which crosses the main Galway/Dublin road mid-way between Kilbeggan and Tyrrellspass in Co. Westmeath. It is a prominent feature on the local landscape. The main habitat at this site is semi-natural woodland dominated by Hazel (<i>Corylus avellana</i>), Ash (<i>Fraxinus excelsior</i>) and Hawthorn (<i>Crataegus monogyna</i>). Pedunculate Oak (<i>Quercus</i>

APPENDIX B

robur), Wych Elm (*Ulmus glabra*) and Irish Whitebeam (*Sorbus hibernica*) are other important constituents. There are very fine examples of these trees throughout the site, with some of the Hazel trees, in particular, being impressive. The ground flora is species-rich and includes Primrose (*Primula vulgaris*), Enchanter's nightshade (*Circaea lutetiana*), Golden-saxifrage (*Chrysosplenium oppositifolium*), Bluebell (*Hyacinthoides non-scripta*), Ground-ivy (*Glechoma hederacea*), Sanicle (*Sanicula europaea*) and other typical woodland plants. The scarce woodland grass, Wood Fescue (*Festuca altissima*), is present, and the scarce Bird's-nest Orchid (*Neottia nidus-avis*) has also been recorded here. The presence of Wych Elm is interesting in view of its decline due to Dutch elm disease. Several areas of species-rich calcareous grassland occur, with typical calcicole species such as Yellow-wort (*Blackstonia perfoliata*), Carlina Thistle (*Carlina vulgaris*), Mountain Everlasting (*Antennaria dioica*) and Early-purple Orchid (*Orchis mascula*). These occur on unstable old and active quarry faces, and on cleared woodland areas. Areas of scrub with Blackthorn (*Prunus spinosa*) and Gorse (*Ulex europaeus*) occur, and regenerating Hazel scrub exists in some areas where woodland has been cleared. Other habitats in the site include a small lake and freshwater marsh with Slender Sedge (*Carex lasiocarpa*). Narrow-leaved Bitter-cress (*Cardamine impatiens*) occurs among the woodland flora at this site. It is an annual or biennial, whose populations are known to 'disappear' in some years only to 'reappear' again. The species is protected under the Flora (Protection) Order, 1999, and this is its only known location in Ireland. Another legally protected species, Red Hemp-nettle (*Galeopsis angustifolia*), occurs on more open ground on the esker

Nure Bog NHA (001725)

Peatlands [4]

Nure Bog NHA is located 11 km south-west of Mullingar, mainly in the townlands of Lilliput (Nure) and Monaghanstown in Co. Westmeath. The site comprises a raised bog that includes both areas of high bog and cutover bog and adjoins Lough Ennell to the east.

This raised bog was originally part of a larger area that has now been mostly cutover and reclaimed for agriculture. Although this bog has no pools there are hummocks throughout the high bog. Cutover is found all around the high bog and there is an area of coniferous forestry on the cutover in the south of the site.

Much of the high bog has vegetation typical of a Midland Raised bog, consisting of Ling Heather (*Calluna vulgaris*), Cottongrass (*Eriophorum sp.*), Cranberry (*Vaccinium oxycoccos*) and Bog-rosemary (*Andromeda polifolia*).

Current landuses on the site include peat-cutting, forestry, agriculture and shooting. Currently very little active peat-cutting is taking place in the east and south of the site but there are reports of more cutting being planned for the site. There is coniferous forestry on the cutover in the south of the site.

Nure Bog NHA is a site of considerable conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. This site supports a good diversity of raised bog microhabitats, including hummocks and directly adjoins Lough Ennell cSAC (685). Ireland has a high proportion of the total E.U. resource of this habitat type (over 50%) and so has a special responsibility for its conservation at an international level.

Cloncrow Bog (New Forest) NHA (000677)

APPENDIX B

Peatlands [4]

Cloncrow Bog (New Forest) NHA is situated approximately 1 km west of Tyrellspass, in the townlands of Cloncrow and Tyrellspass in Co. Westmeath.

The site comprises a raised bog that includes both areas of high bog and cutover bog. The site consists of a raised bog which has developed in a basin. The bog has good hummock/hollow microtopography, pools, quaking areas, a swallow hole, a small flush and forestry on high bog. The cutover supports humid grassland, improved grassland, small areas of Downy Birch (*Betula pubescens*) woodland and scrub, and forestry. Much of the high bog has vegetation typical of a Midlands Raised Bog and supports such species as Ling Heather (*Calluna vulgaris*), Common Cottongrass (*Eriophorum angustifolium*), White Beak-sedge (*Rhynchospora alba*), Bog Asphodel (*Narthecium ossifragum*) and a range of bog mosses including *Sphagnum imbricatum*, *S. pulchrum*, *S. fuscum* and *S. cuspidatum*. Midland Raised Bog indicator species include Bogrosemary (*Andromeda polifolia*) and Cranberry (*Vaccinium oxycoccos*).

Current landuses on the site comprise active peat-cutting to the east of the high bog margin and afforestation on both the high bog and the cutover. Areas of cutover have been reclaimed for agricultural purposes around the site. The grassland is used for grazing. Damaging activities associated with these landuses include drainage and burning of the high bog. These are all activities that have resulted in loss of habitat and damage to the hydrological status of the site and pose a continuing threat to its viability. Cloncrow Bog (New Forest) NHA is a site of considerable conservation significance, comprising as it does, a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. The site supports a good diversity of raised bog microhabitats, including pools, quaking areas, hummock/hollow complexes, a swallow hole and a small flush, as well as a number of scarce plant species. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level.

Proposed Natural Heritage Area: Lough Ennell (000685)

Proposed Natural Heritage Area: Lough Ennell (000685)	Proposed Natural Heritage Area: Lough Ennell (000685)
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Proposed Natural Heritage Area: Split Hills And Long Hill Esker (001831)

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The most recently made available (web-published or otherwise) QIs, SCIs, COs and SSCOs (where applicable) for these European sites are summarised in Table B.2 and have been used for the purpose of a screening exercise. The Kilbeggan - Mullingar Greenway must be screened against the QIs, SCIs and COs for these European sites to determine if pathways of effect can be reasonably established between the receptor and the source of effect and thus if the project is likely to have a significant effect on the site.

For European Designations please refer to figures Biodiversity 01 – 03.

Alien Invasive Species

A search of National Biodiversity Data Centre (NBDC) online database was conducted for records of invasive species listed on the Third Schedule to the EC Birds and Natural Habitats Regulations 2011, as amended. Under Regulation 49(2) of the 2011 Regulations, it is an offence to plant, disperse, allow or cause to disperse, spread or otherwise cause to grow in any place, any plant included in Part 1 of the Third Schedule without a licence from the Minister for Arts, Heritage and the Gaeltacht.

Invasive species recorded on for Japanese Knotweed are detailed in Figure B-3 below.

APPENDIX B

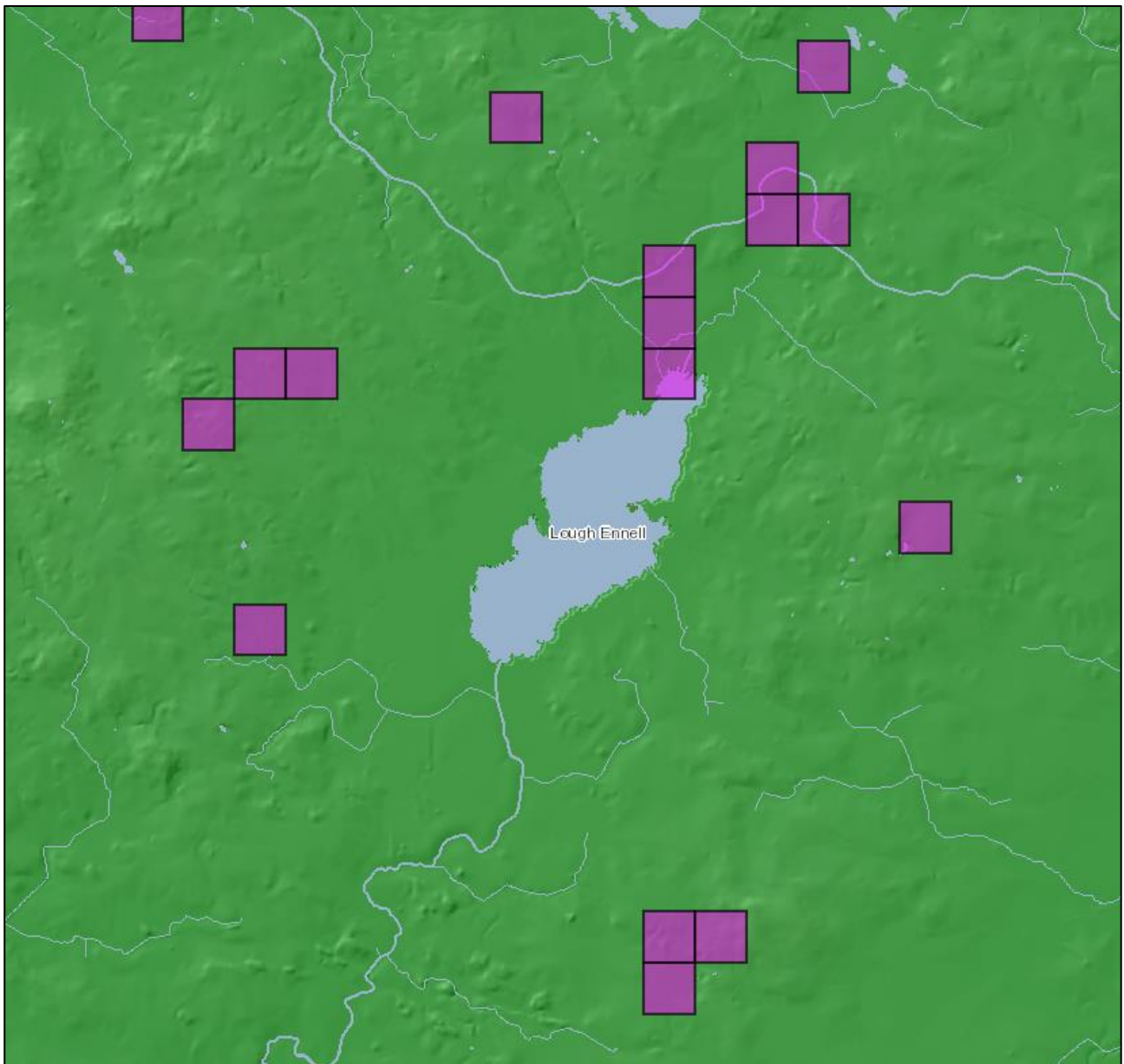


Figure B-3 – Japanese Knotweed locations in close proximity to the study area

In summary, infestations of Japanese knotweed (*Fallopia japonica*) are found at Lough Ennell/Lacy's Canal and Butlers Bridge. During the route option stage and associated options assessment refinement of assessment will be undertaken in relation to all potential invasive species.

APPENDIX B

The Habitats Directive

Article 6(3) of the Habitats Directive requires that–

“Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site’s conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and if appropriate, after having obtained the opinion of the general public.”

Thus, Article 6(3) provides a two-stage process:

- The first stage involves a screening for appropriate assessment; and
- The second stage arises where, having screened the proposed development, the competent authority determines that an appropriate assessment is required, in which case it must then carry out that appropriate assessment.

Appropriate Assessment Guidelines for Planning Authorities have been published by the Department of the Environment, Heritage and Local Government (DEHLG, 2010a). In addition to the advice available from the Department, the European Commission has published a number of documents which provide a significant body of guidance on the requirements of Appropriate Assessment, most notably including, ‘Assessment of Plans and Projects Significantly Affecting Natura 2000 sites - Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC’ (EC, 2001), which sets out the principles of how to approach decision making during the process.

These principal national and European guidelines have been followed in the preparation of this report. The following list identifies these and other pertinent guidance documents:

- Communication from the Commission on the Precautionary Principle., Office for Official Publications of the European Communities, Luxembourg (EC, 2000);
- Estuaries and Coastal Zones within the Context of the Birds and Habitats Directives - Technical Supporting Document on their Dual Roles as Natura 2000 Sites and as Waterways and Locations for Ports. European Commission (EC, 2009);
- Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government, Dublin (DEHLG, 2010a);
- Department of Environment Heritage and Local Government Circular NPW 1/10 and PSSP 2/10 on Appropriate Assessment under Article 6 of the Habitats Directive – Guidance for Planning Authorities (DEHLG, 2010b);
- Guidance document on the implementation of the birds and habitats directive in estuaries and coastal zones with particular attention to port development and dredging. European Commission (EC, 2011a);
- European Commission Staff Working Document ‘Integrating biodiversity and nature protection into port development’ (EC, 2011b);
- European Commission Notice C (2018) 7621 ‘Managing Natura 2000 Sites: the provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC’, Office for Official Publications of the European Communities, Luxembourg (EC, 2019);
- Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC. Office for Official Publications of the European Communities, Brussels (EC, 2021).

APPENDIX B

Irish legislation

For the purposes of applications for planning permission, Part XAB of the Planning and Development Act 2000, and as amended (“the PDA”) implement the obligations under Article 6(3) into Irish law. In relation to other consent regimes, the provisions of the European Communities (Birds and Natural Habitats) Regulations 2011, as amended (“the 2011 Regulations”), transpose those obligations.

This report has been drafted in support of an application for planning permission, and as such the provisions of the PDA apply.

Screening for an Appropriate Assessment

Section 177U of the PDA requires inter alia that a screening for appropriate assessment of an application for consent for proposed development shall be carried out by the competent authority to assess, in view of best scientific knowledge, if that proposed development, individually or in combination with other plans or projects is likely to have a significant effect on a European site.

While the provisions of section 177U adopt the terminology used in Article 6(3) of the Habitats Directive in terms of the test for screening, section 177U expands on this in light of the interpretation given in decisions of the Court of Justice of the European Union. Thus, section 177U gives effect to the requirement to screen an application for development consent for appropriate assessment by assessing whether the proposed development is likely to have a significant effect on a European site by considering whether such a significant effect can or cannot be excluded.

Appropriate Assessment

Section 177V of the PDA requires inter alia that an appropriate assessment carried out by the competent authority shall include a determination under Article 6(3) of the Habitats Directive as to whether or not a proposed development would adversely affect the integrity of a European site and an appropriate assessment shall be carried out by the competent authority where it has made a determination under section 177U(4) that an appropriate assessment is required, before consent is given for the proposed development.

Stepwise procedure

According to European Commission guidance documents ‘Assessment of plans and projects significantly affecting Natura 2000 sites’ (EC, 2001) and the ‘Managing Natura 2000 sites: The Provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC’ (EC, 2019), the obligations arising under Article 6 establish a step-wise procedure for Habitats Regulations Appraisal as follows, and as illustrated in Figure B-4.

The first part of this procedure consists of a pre-assessment stage (‘screening’) to determine whether, firstly, a plan or project is directly connected with or necessary to the management of the site, and secondly, whether it is likely to have a significant effect on the site either alone or in combination with other plans or projects; it is governed by the first sentence of Article 6(3).

The second part of the procedure, governed by the second sentence of Article 6(3), relates to the appropriate assessment and the decision of the competent national authorities.

A third part of the procedure (governed by Article 6(4)) comes into play if, despite a negative assessment, it is proposed not to reject a plan or project but to give it further consideration. In this case Article 6(4) allows for derogations from Article 6(3) under certain conditions.

The extent to which the sequential steps of Article 6(3) apply to a given plan or project depends on several factors, and in the sequence of steps, each step is influenced by the previous step. The order in which the steps are followed is therefore essential for the correct application of Article 6(3).

Each step determines whether a further step in the process is required. If, for example, the conclusion at the end of a Stage 1 screening appraisal is that significant effects on European sites can be excluded, there is no requirement to proceed to the next step.

APPENDIX B

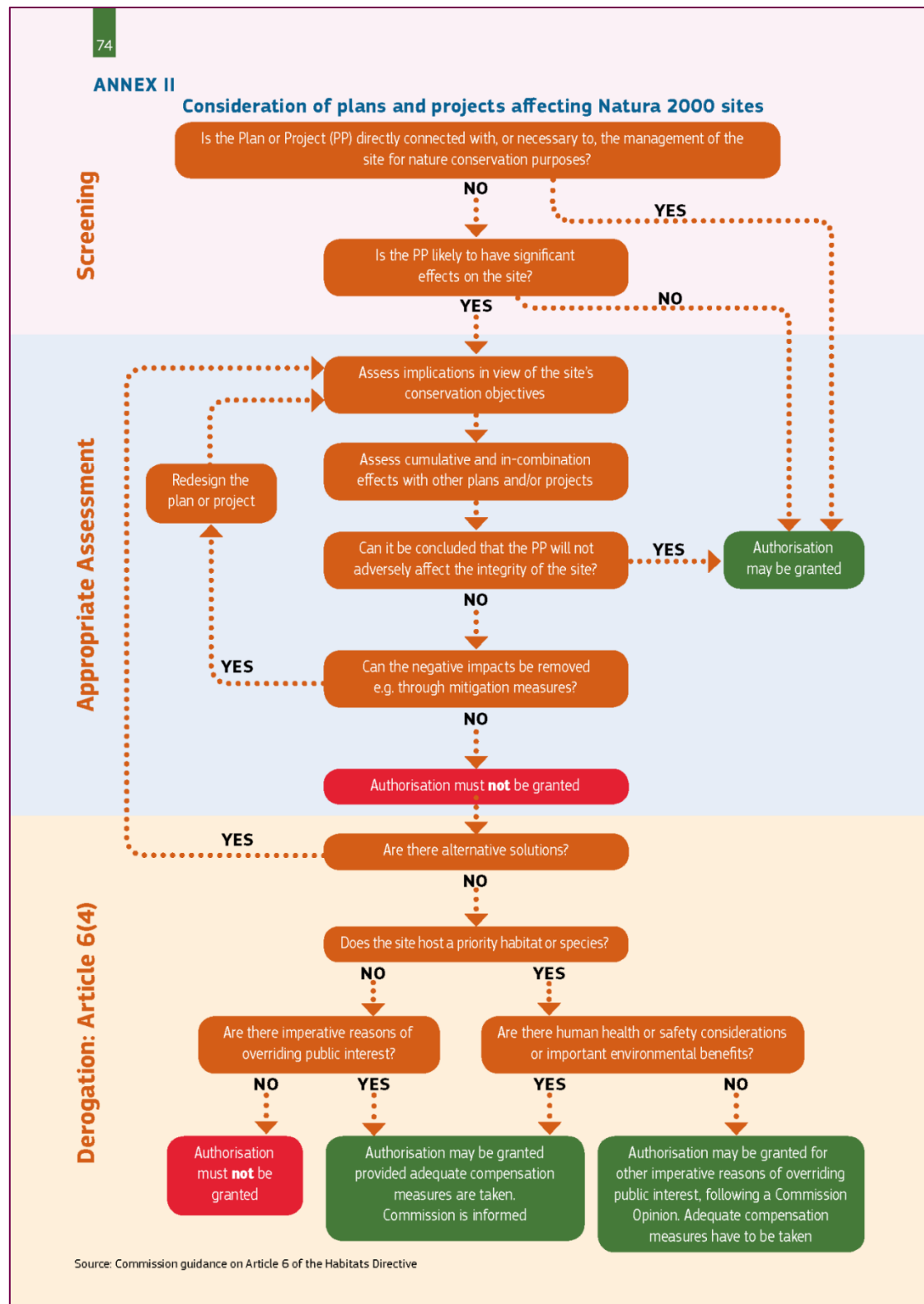


Figure B-4 - Stepwise procedure of Article 6 of the Habitats Directive

This methodology will be employed in the assessment of the preferred alignment for the Kilbeggan to Mullingar Greenway.

APPENDIX B

B.1.3 Lands, Geology & Soils

Introduction

This section provides an overview of the land cover and baseline geological and hydrogeological conditions to identify any constraints which may influence the development of the project. The online databases of the Geological Survey of Ireland (GSI) – <https://www.gsi.ie>, the Environmental Protection Agency (EPA) – <http://gis.epa.ie/Envision>, the Irish Soil Information System <http://gis.teagasc.ie/soils/map.php> and www.catchments.ie, were consulted for information on the following:

- Soils and subsoils;
- Bedrock geology;
- Aquifer classification;
- Groundwater vulnerability;
- Groundwater well information;
- Orthophotography;
- Corine dataset;
- SACs, NHAs and geoheritage sites;
- Water Framework Directive (WFD) data.

A detailed desktop assessment was undertaken to identify areas of constraint in relation to land, soils, geology and hydrogeology within the study area. The European Commission, in February 2012 published the Soil Thematic Strategy which was a proposal for European Law for the protection of soil. In May 2014, the Commission withdrew the proposal for a Soil Framework Directive. Thus, other than geological heritage sites (which include proposed Geological Natural Heritage Areas and County Geological Sites and are identified in County Development Plans and County Heritage Plans), geological features (soils and bedrock) in Ireland are not afforded legal protection.

There is a statutory requirement placed on local authorities to have due regard for conservation of geological heritage features such as under the following legislation:

- Planning and Development Act 2000, as amended;
- Planning and Development Regulations 2001, as amended; and
- Wildlife (Amendment) Act 2000 [enabling Natural Heritage Areas].

Since 2000, water management in the EU has been directed by the Water Framework Directive 2000/60/EC (WFD). It requires that all member states implement the necessary measures to prevent a deterioration of the status of all waters, these being surface, ground, estuarine and coastal, and to protect, enhance and restore all waters with the aim of achieving ‘good status’ by 2015. River Basin Management Plans are required to be produced under the WFD. The first cycle RBMP covered the period 2009–2015. Due to delays in developing a second cycle, this second cycle covers the period 2018–2021. The third cycle plan for 2022 to 27 found that overall, 38% of water bodies are currently at ‘good or better’ status with the proposal to maintain 70% of all water bodies at ‘good or better’ status by 2027.

In terms of hydrogeology WFD objectives were set for the effective management of Groundwater Bodies (GWB’S), which are the management units for groundwater under the WFD. The main Irish and EU protection for groundwater is established under the following legislation:

- European Communities Environmental Objectives (Groundwater) Regulations, 2010 (S.I. No. 9 of 2010) and
- Groundwater Directive (2006/118/EC)

The following publicly available data sources were reviewed to obtain information on the land, soils, geology, hydrology and hydrogeology of the study area:

- Geological Survey of Ireland Spatial Viewer (<https://dcenr.maps.arcgis.com>);
- Groundwater Flooding Data Viewer (<https://dcenr.maps.arcgis.com>);

APPENDIX B

- Environmental Protection Agency (EPA) (<http://gis.epa.ie/Envision>);
- EPA Catchments (<https://www.catchments.ie/>);
- National Parks & Wildlife Service (<http://www.npws.ie/>);
- Teagasc – (<http://gis.teagasc.ie/soils/>); and
- Census of Agriculture 2010 (<https://www.cso.ie/en/statistics/agriculture/censusofagriculture2010/>)

Existing Environment – Land Cover

The CORINE 2018 landcover map shown in Figure B-5 and is dominated by pastures (CORINE 2018 Code 231). The remainder of the CORINE 2018 landcover for the study area consists of sparse mosaics of land principally occupied by agriculture, with significant areas of peat bogs (CORINE 2018 Code 412), inland marshes (CORINE 2018 Code 411), coniferous forest (CORINE 2018 Code 312), transitional woodland shrub (CORINE 2018 Code 324), mixed-leaved forest (CORINE 2018 Code 313), discontinuous urban fabric (CORINE 2018 Code 112), Land principally occupied by agriculture, with significant areas of natural vegetation (CORINE 2018 Code 243), and Non-irrigated arable land CORINE 2018 Code 211).

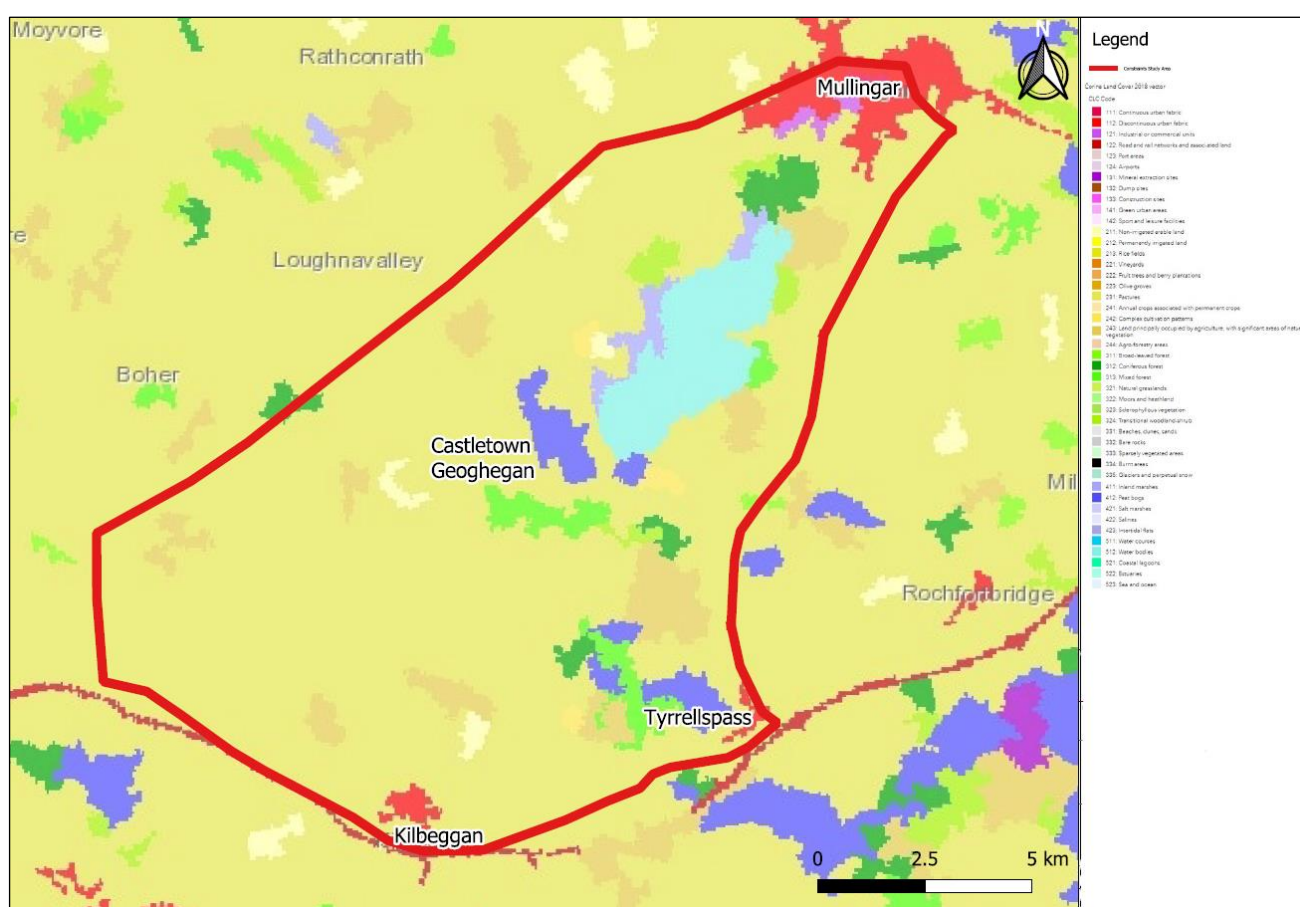


Figure B-5: Corine 2018 Land Cover

The Corine Land Cover database for Ireland has been updated for the reference year 2018. The CORINE 2018 25ha landcover dataset is one of three deliverables of the CORINE 2018 project. The main objective of the project was the detection, identification and mapping of all land cover status above 25 ha. Satellite image from April 2017 – March 2018 served as the basis for image interpretation. The Irish CORINE 2018 project follows on from the semi-automated production methodology which was designed during the CORINE 2012 project. This approach uses national in-situ geo-spatial information on agriculture, forestry and water bodies from the Department of Agriculture, Food and the Marine (DAFM), the Forest Service, Coillte and the EPA. These data sources were used alongside remote sensing-based interpretation of satellite imagery (Sentinel 2, Landsat, SPOT and IRS) to identify landcover status and landcover change.

APPENDIX B

Existing Environment – Soils and Subsoils

Quaternary Sediments and subsoil mapping within the study area are illustrated in Figure B-6 and Figure B-7.

The dominant soil within the study area is Till. In general, the Study Area contains unsorted material deposited directly by glacial ice and showing no stratification. Till is sometimes called boulder clay because it is composed of clay, boulders of intermediate sizes, or a mixture of these. The rock fragments are usually angular and sharp rather than rounded, because they are deposited from the ice and have undergone little water transport. Cutover peat (Cut) is heavily featured within the study area with large bogs on the northern peripheries. Smaller pockets of cutover peat spreads across the east, mid and northern sections of the study area.

The main types of soils and subsoils are:

- Peat (brown)
- Mullabane (1100q) Coarse loamy drift with limestones
- Elton (1000a) Fine loamy drift with limestones
- Baggotstown (1150a) Coarse loamy over calcareous gravels
- Rathowen (1030b) Fine loamy drift with limestones
- Light blue Sand and gravel Basic Esker
- Grey bedrock close to or at the surface

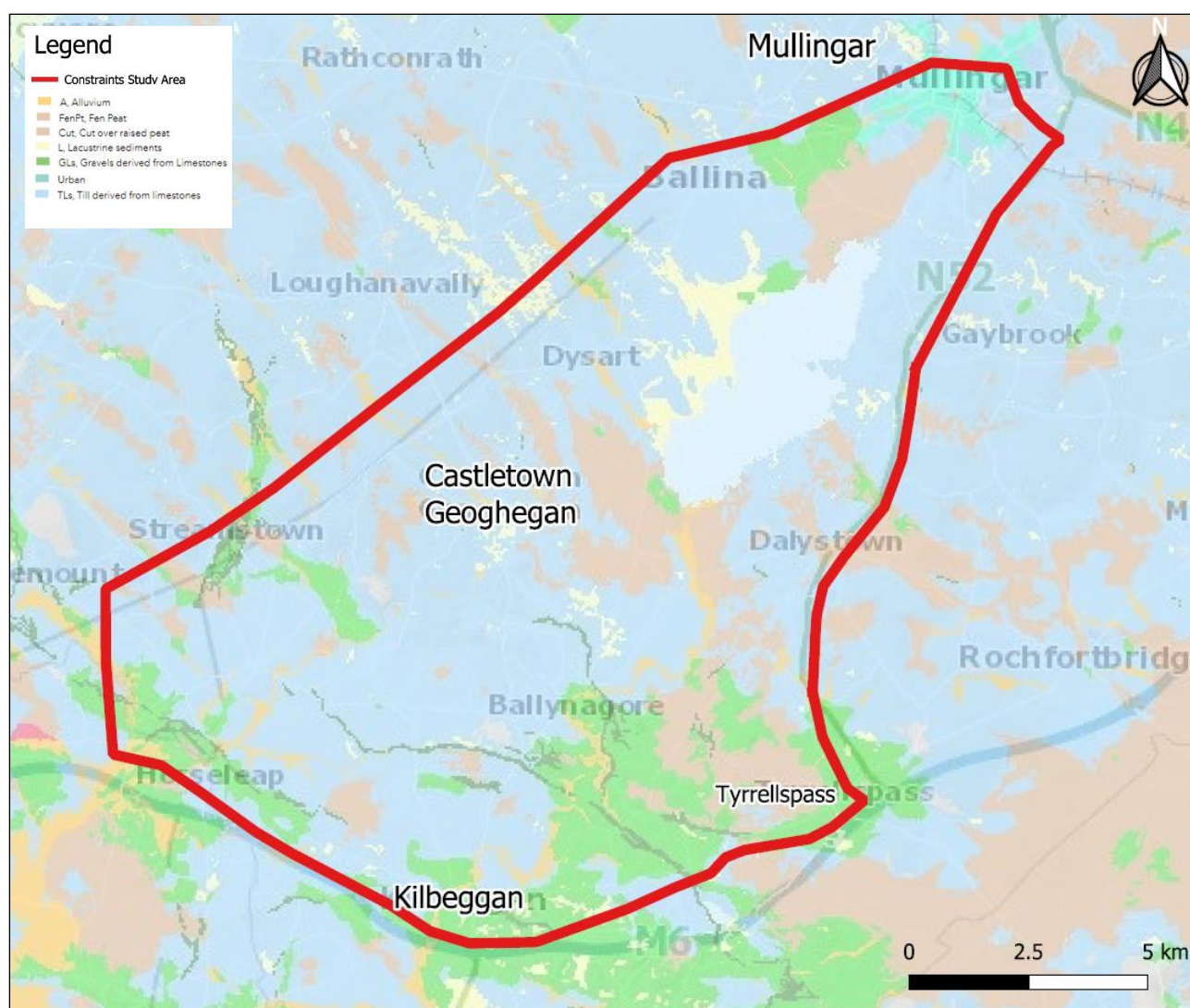


Figure B-6 – Quaternary Sediments

APPENDIX B

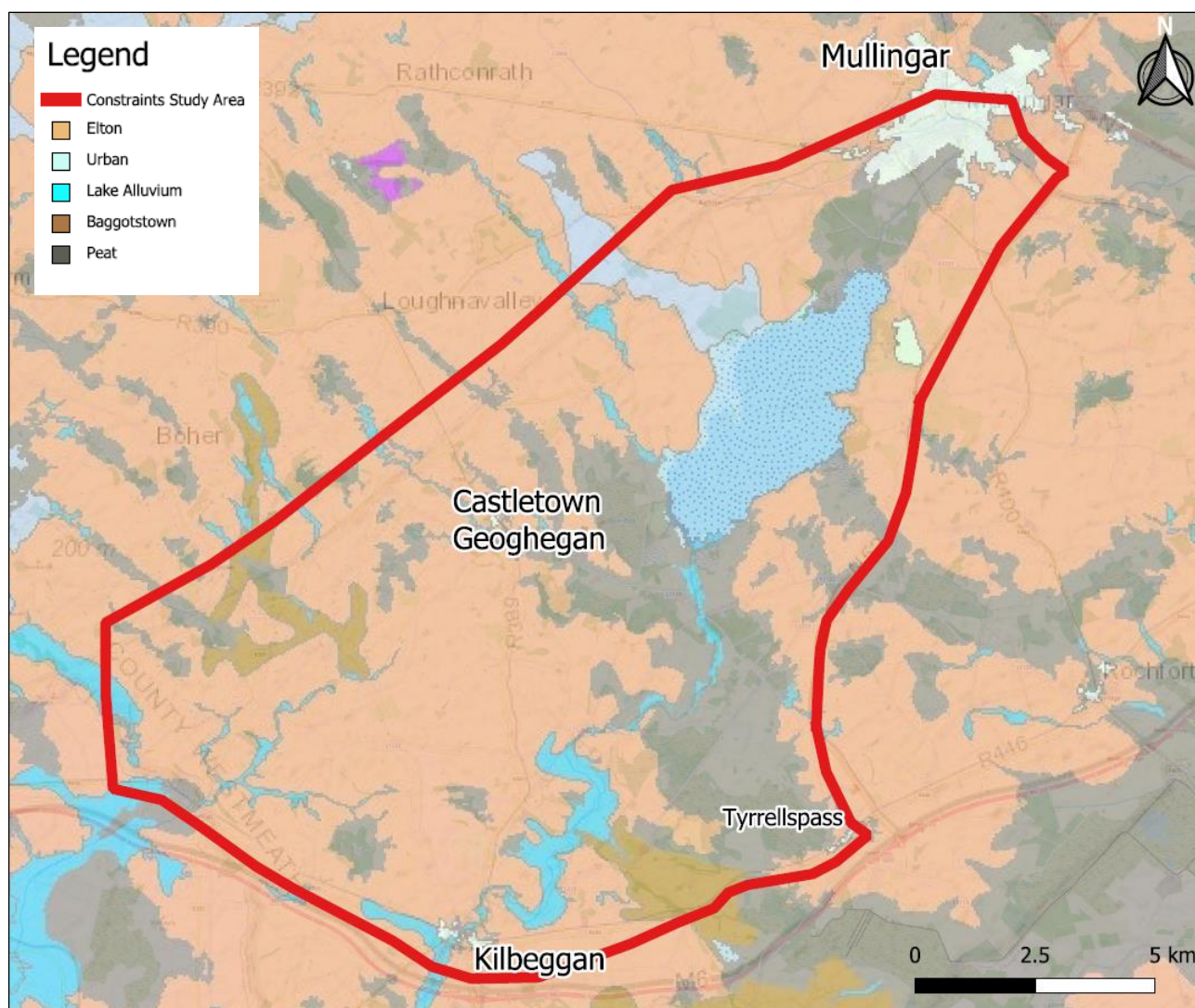


Figure B-7: Teagasc Subsoils Map

The Teagasc Subsoils map classifies the subsoils of Ireland into 16 themes, using digital stereo photogrammetry supported by field work. Produced by Teagasc (Kinsealy), EPA and GSI.

A national dataset of subsoils was required to assist in implementing the Water Framework Directive River Basin Management Plans. It describes and maps subsoils in the Republic of Ireland based on the GSI Quaternary sediment types.

The dominant subsoil type within the Study Area includes Elton, Baggotstown, Peat, Lake Alluvium, and Urban.

APPENDIX B

Existing Environment – Bedrock Geology

The bedrock geology map for the study area is shown in Figure B-8. The dominant bedrock types in the study area are dark limestone and shale ('calp), dark limestone and shale (Calp"), massive, unbedded lime-mudstone, thick-bedded limestone (locally peloidal) and dark muddy limestone and shale. This section is not discussed in detail as the bedrock is not a constraint for this project.

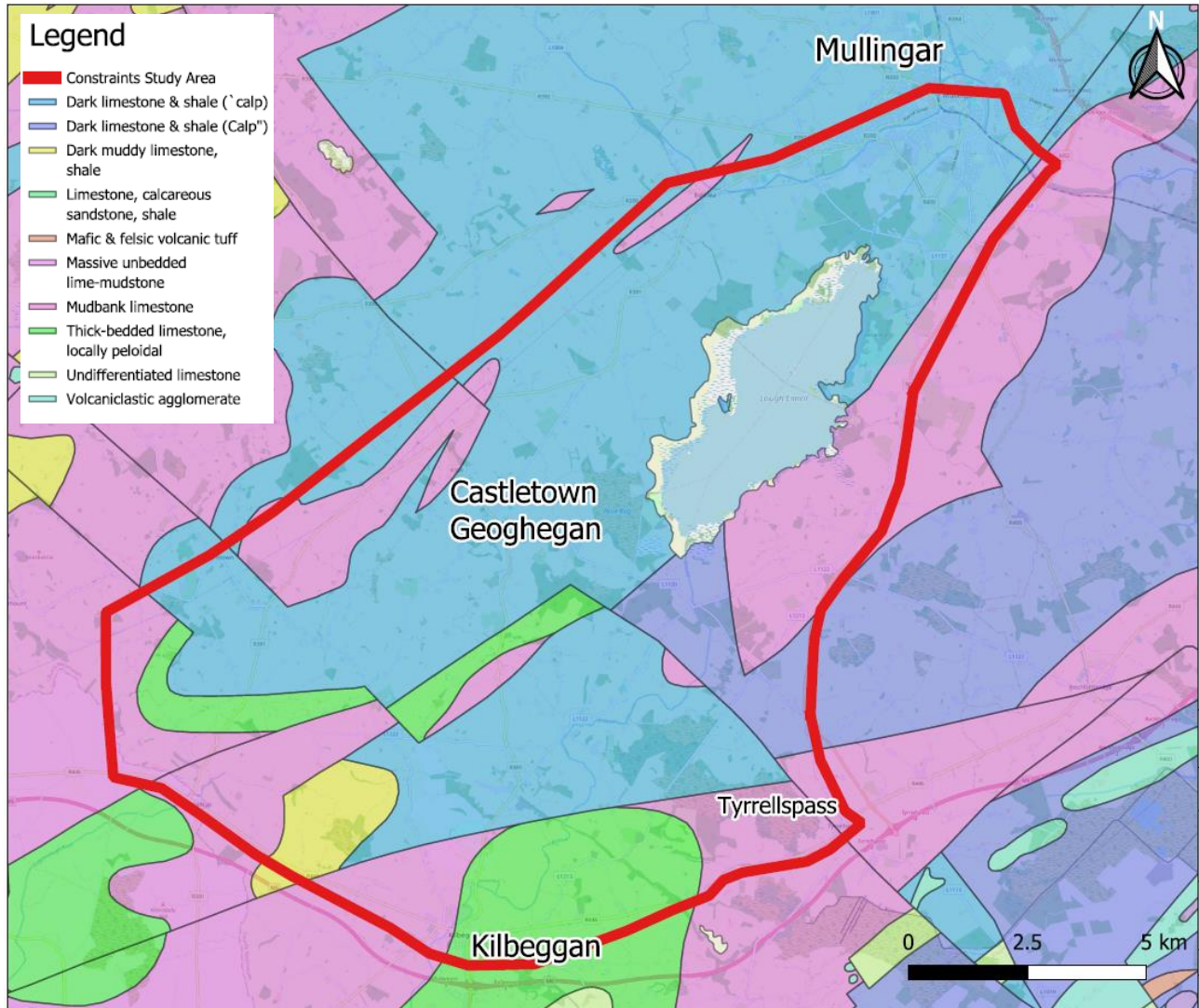


Figure B-8: Bedrock Geology

APPENDIX B

Existing Environment – Hydrogeology

There are four primary aquifers within the study area, as shown in Figure B-9. The majority of the study area are underlain with a regionally important aquifer-bedrock which is moderately protective only in local zones. The follow types dominate the study area:

- Locally Important Aquifer – Karstified,
- Locally Important Aquifer - Bedrock, which is Moderately Productive only in Local Zones,
- Regionally Important Aquifer - Karstified (diffuse), and;
- Sand and Gravel.

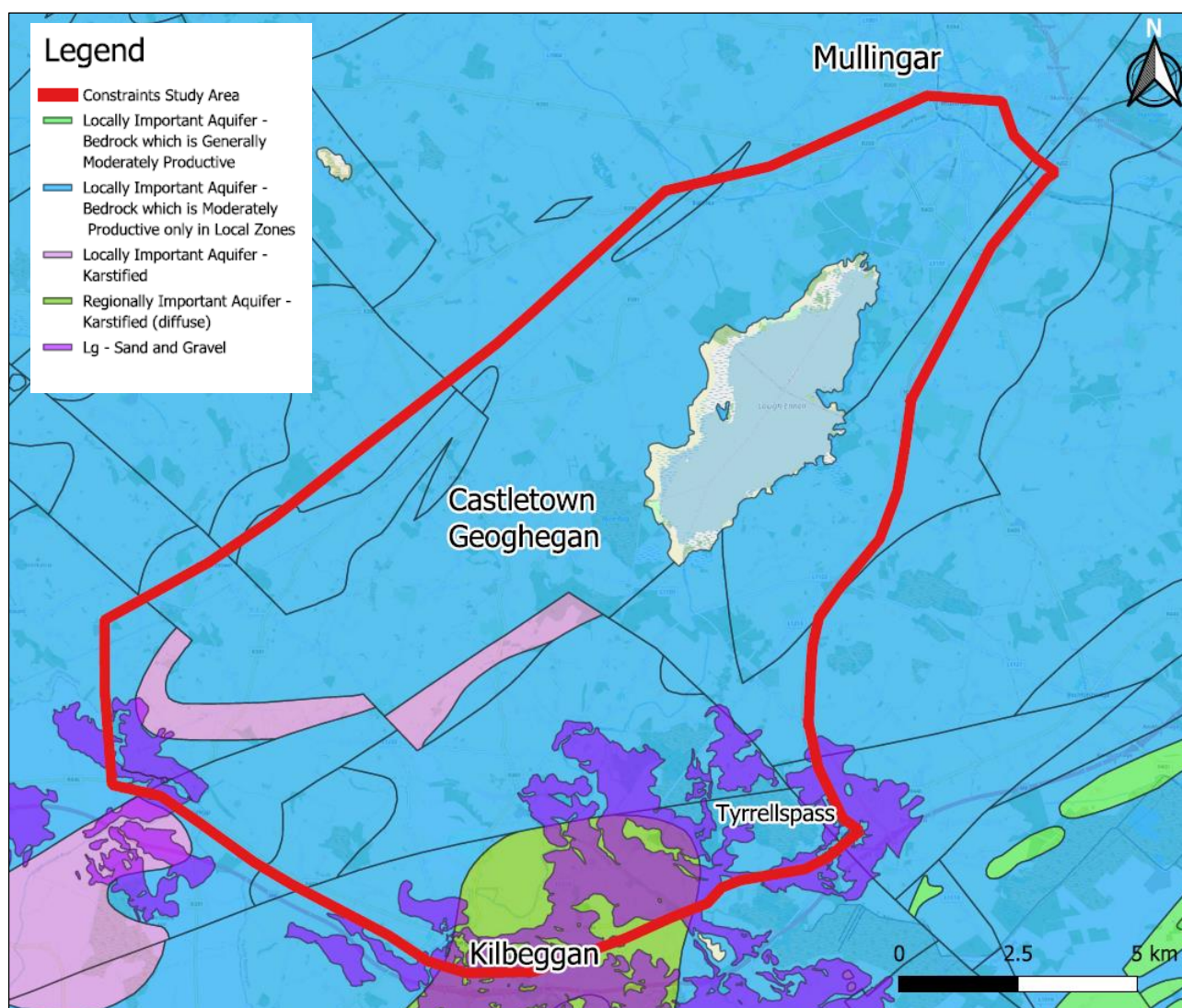


Figure B-9: Groundwater Resources

APPENDIX B

Existing Environment – Landfills & Licensed Facilities

There are no landfill sites located within the site Study Area, however the Marlinstown Landfill Facility (W0071) is located approx. 1.6km from the northern boundary of the Study Area. this landfill facility is located adjacent to the Mullingar Bypass (N4) and is an EPA Licensed site.

The Ballydonagh Landfill Facility (W0028) is located approx. 16.52km to the west of the Study Area, along the R446 Road. This landfill site is an EPA Licensed site.

The location of these waste facilities has been illustrated in Figure B-10.

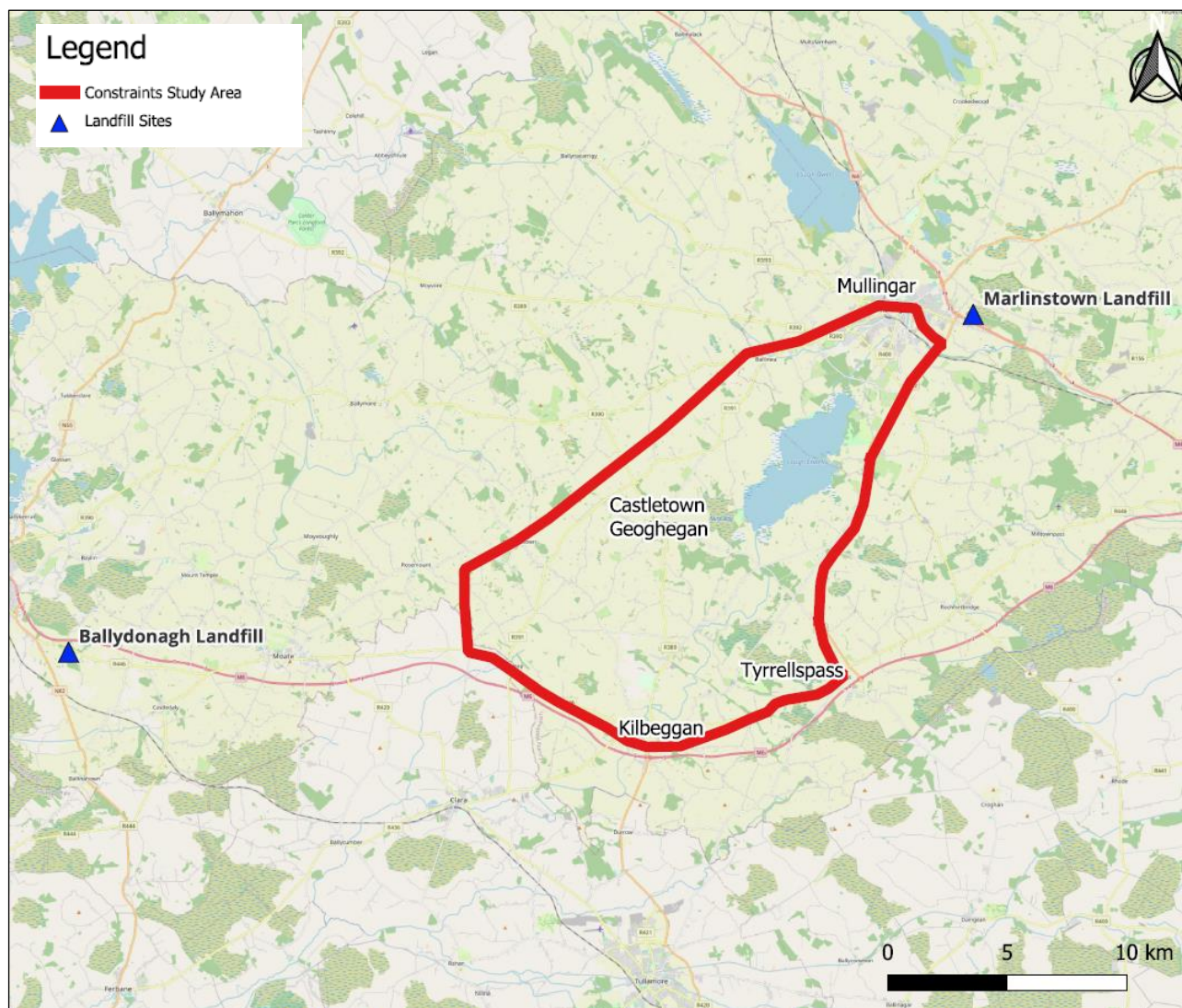


Figure B-10: Landfill Site Location

Other waste facilities within the Study Area includes Mulleady's Limited Waste Transfer Station (W0197-02) and Soltec Limited Hazardous Waste Facility (W0115-01). These facilities are licensed and located within Mullingar town.

APPENDIX B

Existing Environment – Geological Heritage

The GSI and the Irish Geological Heritage programme (IGH) are in partnership with the NPWS of the Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media to identify and select important geological and geomorphological sites throughout the country for designation as NHAs (Natural Heritage Areas). The Geological Survey of Ireland (GSI) has identified some of these areas as County Geological Sites (CGS-surveyed and audited sites of national or local geological importance) as part of their Irish Geological Heritage Programme and this data is available to view on the GSI's online spatial resources viewer. CGS, though not protected under statutory conditions, are noted as the most significant sites which will be recommended for designation as NHAs in the future.

The audit of County Geological Sites in Co Westmeath was completed in 2019. The audit was carried out by Robert Meehan, Ronan Hennessy, Matthew Parkes and Siobhán Power. The Westmeath Geological Heritage Project was supported by Geological Survey Ireland, Westmeath County Council and The Heritage Council. The resulting report is a contribution to the County Westmeath Heritage Plan 2018-2023 and to the County Westmeath Biodiversity Action Plan 2014-2020. The report identified twenty-eight County Geological Sites with many of these sites being considered to be of national importance as best representative examples of particular geological formations or features

Westmeath County Council have 5 objectives in relation to geology, these are:

- **P-GEO 1:** To consult the Geological Survey Ireland when undertaking, approving or authorising developments which are likely to impact on County Geological Sites or involve significant ground excavations,
- **P-GEO 2:** To protect and enhance the geological and geomorphological heritage of the county,
- **P-GEO 3:** To protect geological NHAs as they become designated during the lifetime of the plan,
- **P-GEO 4:** To encourage and promote, where appropriate, public access to geological and geomorphological sites and avoid inappropriate development through consultation with the Geological Survey Ireland, subject to environmental and habitats assessment. It is anticipated that this will also encourage the creation of heritage awareness in the county, and;
- **P-GEO 5:** To undertake an audit of the Geological Sites of the County in partnership with the Geological Survey Ireland, in order to document sites of geological interest in which protection measures would be applied

Within the Study Area there are 7 no. CGS identified and an additional 4 within close proximity to the site boundary. The location of these CGS areas is illustrated in Figure B-11.

Hill of Uisneach: The hill is cored by limestones of Lower Carboniferous age, formed around 340 million years ago. The hill has been blanketed by a veneer of glacial till sediments and many erratic boulders which are Quaternary in age, having been smeared and/or dropped across the top of the hill by ice between 15,000 and 20,000 years ago.

Knockastia Hill and Quarry: The quarry worked Waulsortian Carboniferous Limestone is comprised of massive carbonate mudmounds and coalesced banks. There are also exposed natural weathered outcrops of the same limestone on the summit of Knockastia Hill.

Streamstown Esker: The Streamstown Esker comprises a long, linear series of esker sand and gravel segments deposited under the ice sheet as the ice withdrew northwards across north Westmeath at the end of the last Ice Age.

Horseleap Esker: Horseleap esker comprises a 4km long esker system exhibiting classic esker ridge morphology. The esker comprises about nine individual segments. A quarry at Ardnurcher exposes the esker sands, gravels and boulders. The glaciofluvial sediments were deposited in tunnels at the base or margin of the ice sheet that covered this region during the end of the glaciation

Lough Lom: The bedrock under the site is pure bedded, Lower Carboniferous limestone, but the turlough feature itself is post-glacial, formed in the last 11,000 years. The feature reflects the interaction of the groundwater table with the land surface and is a seasonal lake. There are many erratics of pure limestone around the base of the turlough, many of which are moss covered up to a certain elevation. Such moss provides a watermark which allows an approximation of the high-water level when the turlough is in flood to be gleaned.

APPENDIX B

Kilbeggan Racecourse Esker: The Kilbeggan Racecourse Esker is formed within an area dominated by bedrock of Lower Carboniferous limestone. Glaciofluvial processes deposited this high but relatively short ridge of sands and gravels during deglaciation at the end of the last Ice Age. Meltwater flow in tunnels beneath the ice sheet covering the Midlands was of high energy and carried large loads of sediments accumulated in the ice from its erosive work as it moved. Changes in the dynamics of the meltwater channels would lead to rapid accumulation of gravels in sinuous ridges, often with beads.

Kilbeggan Esker: The Kilbeggan Esker is a single segment ridge of subglacial tunnel fill sediments and is completely surrounded by deglacial sands and gravels of ice marginal genesis. Approximately 1.5km in length, covering around 9 hectares, the feature is orientated WNWSE, stretching from Kilbeggan town almost as far as the M6 motorway

Split Hill and Long Hill Esker Complex: A prominent and scenic feature on the landscape, the esker ridge is host to fine exposures of glaciofluvial deposits, semi-natural woodland, pastureland, and a large sand and gravel pit. This is a fine example of a long, straight, single crested esker that includes two esker systems (Split Hills and Long Hill) and is herein considered as one esker for the purposes of geological heritage conservation.

Tyrrellspass Kettle Hole: The Tyrrellspass Kettle Hole is a deep, concave hollow which assumes a bowl shape, a few hundred metres northeast of the centre of Tyrrellspass Village. A kettle hole is a shallow, sediment-filled hollow formed by retreating glaciers. The kettles are formed as a result of blocks of ice calving from glaciers and becoming submerged in the sediment on the outwash plain. When the block of ice melts, the depression it leaves behind is the 'kettle hole'.

Rahugh Ridge: The Rahugh Ridge is a 3 km long southwest to northeast oriented esker separated into two segments by a road that bisects the esker at Rahugh Roman Catholic Church. The Rahugh Ridge forms part of the larger Ballyduff Esker-Rahugh Ridge Esker System, which extends into County Offaly to the southwest. There are three small sand and gravel pits on the southern segment, two of which are accessible from public roads.

South Westmeath Hummocks: The South Westmeath hummocks comprises a large accumulation of sands and gravels deposited at the edge of the westward-retreating ice margin at the end of the last Ice Age, in south Westmeath and approximately 7 kilometres east-southeast of Kilbeggan. The South Westmeath hummocks are formed on bedrock of Lower Carboniferous limestone, but the features comprising the hummocks themselves are Quaternary in age, deposited at the end of the last Ice Age, about 14,000 years ago.

APPENDIX B

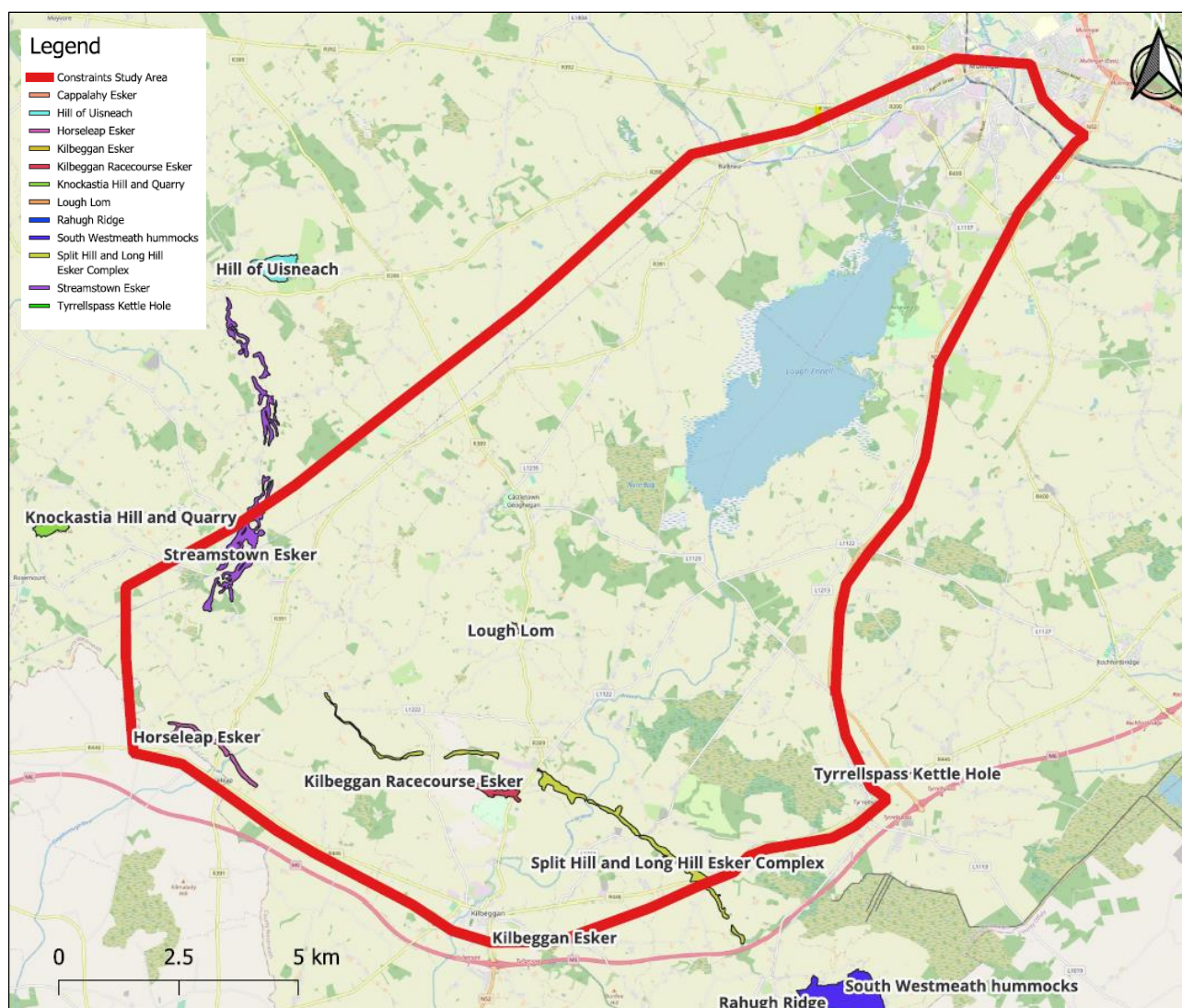


Figure B-11: Geological Heritage

Existing Environment – Geohazards

Geohazards are natural earth processes that pose a risk to human life. They can range from geological hazards such as landslides, bog-bursts, coastal erosion and subsidence to hydrometeorological hazards like floods and high tides. Soft ground areas are also considered to be geo-hazards. Such hazards are identified as part of this constraints assessment and will be considered throughout each stage of the scheme development.

Landslides

The Geological Survey Ireland has been compiling national data on landslides in the past decade, although there were no events recorded in Westmeath.

Flooding

There are two types of flooding which need consideration. River flooding occurs inland when the rainfall exceeds the capacity of the ground to absorb moisture, and the river channels cannot adequately discharge it to the sea. Karstic flooding can occur when underground passages are unable to absorb high rainfall events. The Carboniferous limestone bedrock in County Westmeath is karstified but hydrogeological regimes are heavily modified by glacial tills and sand and gravel deposits.

APPENDIX B

Radiation

Radioactive minerals and gases at higher concentrations can be carcinogenic. Radon can seep into homes and workplaces and can be carried in water supplies. A map showing the areas predicted to be at particular risk from radon in Ireland, called High Radon Areas, can be seen below in Figure B-12.

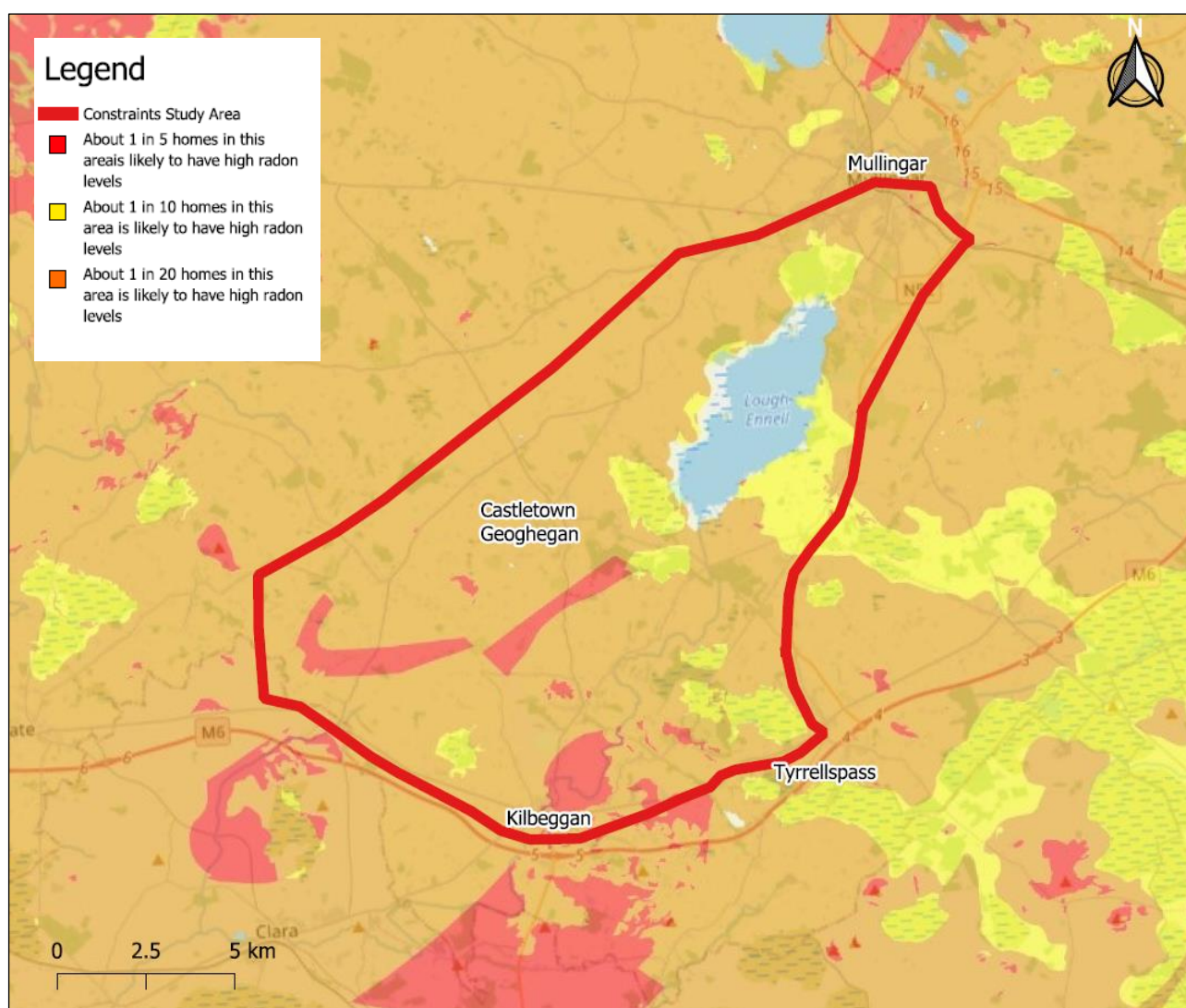


Figure B-12: Radon Risk Map

Groundwater Pollution

Whilst not such an obvious hazard as physical collapses, flooding and landslides, the pollution of groundwater supplies carries a serious risk to human health. Westmeath is a county quite dependent on groundwater supplies, and therefore the risk is more serious than for most other counties. As the groundwater is often contained within limestone, it should be noted that karstic springs are especially vulnerable to pollution since the flow is mainly within fissure conduits allowing rapid transmission of pollution from source to water supply. The opportunity for microbial attenuation of pollutants is far less in limestone fissures (as there are no natural barriers to stop pollutants) than it would be in granular deposits, which act as natural filters. Groundwater vulnerability within and around the Study Area is shown in Figure B-13.

APPENDIX B

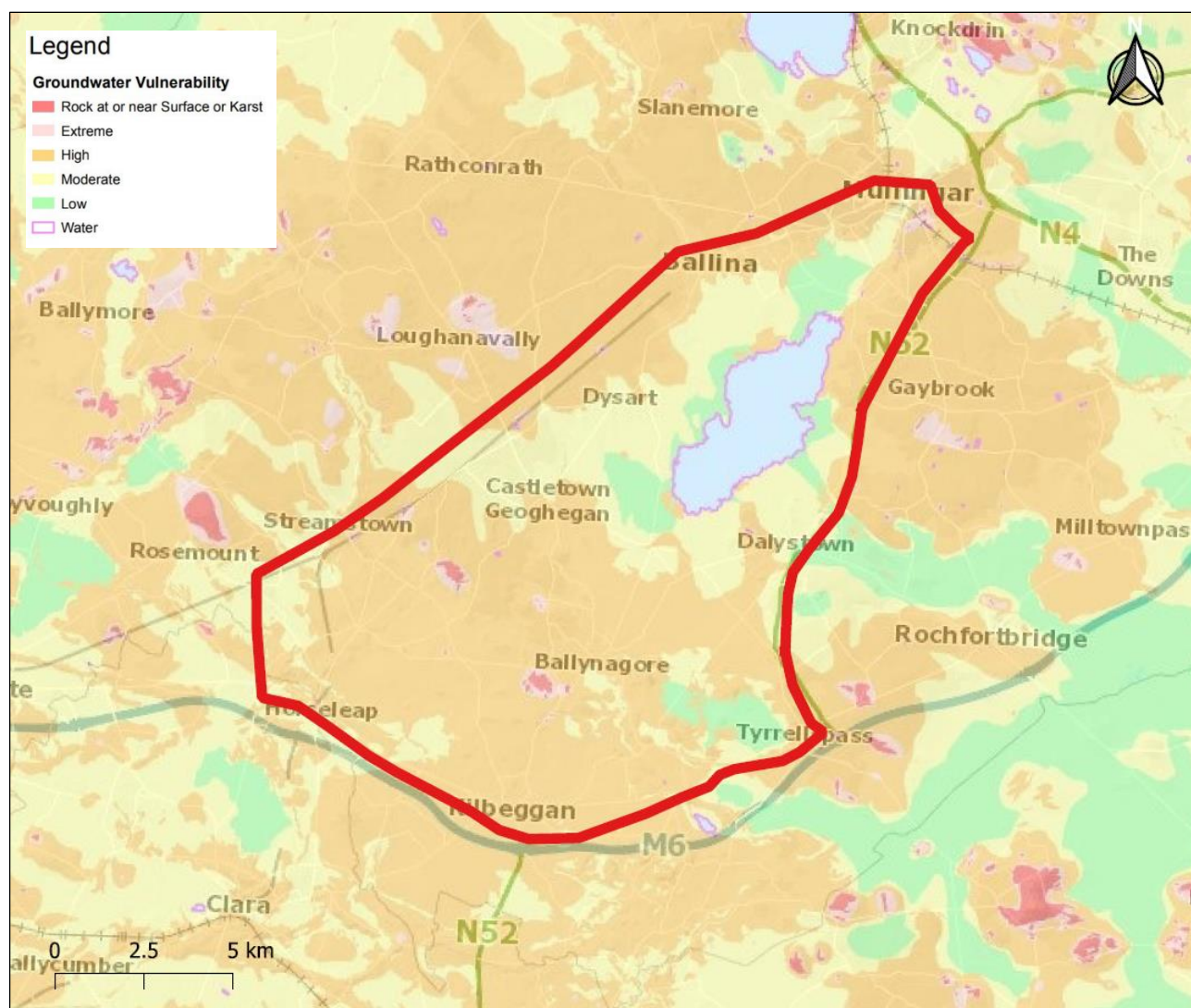


Figure B-13: Groundwater Vulnerability

Lands, Geology & Soils – Constraints Identified

The CORINE 2018 landcover indicates the dominant land use type is Pasture with a significant area of raised peat bogs (CORINE 2018 Code 412). The remainder of landcover for the study area consists of sparse mosaics of land principally occupied by agriculture, inland marshes, coniferous forest, transitional woodland shrub, mixed-leaved forest, discontinuous urban, Land principally occupied by agriculture, with significant areas of natural vegetation, and Non-irrigated arable land CORINE 2018 Code 211),

There are no landfill sites located within the site Study Area, however the Marlinstown Landfill Facility (W0071) is located approx. 1.6km from the northern boundary of the Study Area, and The Ballydonagh Landfill Facility which is located approx. 16.52km to the west of the Study Area.

Within the Study Area there are 7 no. CGS identified and an additional 4 within close proximity to the site boundary. These CGS sites include Hill of Uisneach, Knockastia Hill and Quarry, Streamstown Esker, Horseleap Esker, Lough Lom, Killbeggan Racecourse Esker, Killbeggan Esker, Split Hill and Long Hill Esker Complex, Tyrrellspass Kettle Hole, Rahugh Ridge, and South Westmeath Hummocks.

Construction associated with soft and made ground soil types will require adherences to best practice and construction standards to avoid any potential negative impacts. Interaction with potential (unknown) contaminated ground must also be considered as part of the scheme.

The bedrock geology of the area is composed of karstic limestones with significant areas of volcanic intrusions to the northern peripheries. The vast majority of the study area is dominated by Regionally Important Aquifer, Locally Important Aquifer, Locally Important Aquifer, and Sand and Gravel.

APPENDIX B

Cognisance must be given to the constraints posed by the presence of the varied groundwater vulnerability areas, karstified nature of the landscape and poorly drained mineral soils, which will require further assessments. Due consideration is to be given to any design and option selection process to avoid any negative adverse impacts to these receptors.

B.1.4 Water

This section identifies the key constraints within the study area relating to water resources including hydrology and drainage. This section should be read in conjunction with the assessments presented within the Biodiversity, Soils/ Geology, and Hydrogeology sections of this report.

The hydrological and drainage features of the study area were determined by consulting the following data sources:

- OS survey vector, six inch and 'discovery' series mapping; Aerial photography;
- The Office of Public Works (<https://www.floodinfo.ie/>);
- Water Framework Directive (WFD) national website and Water Maps viewer; (www.wfdireland.ie); and
- Environmental Protection Agency, (<https://www.epa.ie/>).

Westmeath County Development Plan – Inland Water Bodies

Westmeath has a number of large lakes including Lough Ree, most of which are part of the River Shannon catchment which includes the Rivers Inny and Brosna. In addition, Lough Lene, a limestone lake is situated in the Upper Boyne catchment in the County. Many of the water resources have been afforded protection as National Heritage Areas, Special Areas of Conservation or Special Protection Areas. The Royal Canal passes through the county while the Kilbeggan branch of the Grand Canal exists as a dry bed. There are nine County Policies in relation to inland water bodies, these are detailed below:

CPO 12.54 – Seek the continued improvement of water quality, bathing facilities and other recreational opportunities in waterways and to protect the ecology and wildlife thereof.

CPO 12.55 – Provide for public access to waterways where feasible and appropriate, in partnership with the National Parks and Wildlife Service (NPWS), Waterways Ireland and other relevant stakeholders, whilst maintaining them free from inappropriate development, subject to Ecological Impact Assessment and Appropriate Assessment, as appropriate.

CPO 12.56 – Protect the biodiversity of rivers, streams and other water courses and maintain them in an open state and discourage culverting and realignment.

CPO 12.57 – Consult with Waterways Ireland and the National Parks and Wildlife Service, Government, Inland Waterways Association of Ireland and local communities on development proposals that may affect inland waterways, rivers, lakes, canals or water courses.

CPO 12.58 – Ensure that the County's watercourses are retained for their biodiversity and flood protection values and to conserve and enhance where possible, the wildlife habitats of the County's rivers and riparian zones, lakes, canals and streams which occur outside of designated areas to provide a network of habitats and biodiversity corridors throughout the county.

CPO 12.59 – Consult, as appropriate, with Inland Fisheries Ireland in relation to any development that could potentially impact on the aquatic ecosystems and associated riparian habitats.

CPO 12.60 – Ensure that run off from a proposed development does not result in a deterioration of downstream watercourses or habitats.

CPO 12.61 – Seek to manage any increase in visitor numbers in order to avoid significant effects including loss of habitat and disturbance, including ensuring that any new projects, such as greenways, are a suitable distance from ecological sensitivities, such as riparian zones.

CPO 12.62 – Have regard to the Inland Fisheries guidelines "Planning for watercourses in the Urban Environment" in relation to nature-based surface water management.

CPO 12.63 – Protect waterbodies and watercourses from inappropriate development, including rivers, streams, associated undeveloped riparian strips, wetlands and natural floodplains. This will include the

APPENDIX B

preservation habitat features/structure, such as treeline density, and protection buffers in riverine and wetland areas, as appropriate.

Catchments & Sub-Catchments

The study area is contained within the Lower Shannon catchment. Details of this catchments are:

Lower Shannon (Code: 25A) – This catchment covers an area of 1,248km² and is characterised by relatively flat topography with much of the low-lying areas in the catchment covered in thick deposits of peat (Figure B–14). The majority of the catchment is underlain by impure limestones with some purer karstified limestone located from Tyrrellspass to Kilcormac. There are extensive sand and gravel deposits running through the catchment from Moate to Tyrrellspass and in isolated pockets in the south of the catchment that form productive groundwater aquifers. The southern tip of the catchment comprising part of the Slieve Bloom Mountains is underlain by old red sandstones.

The Sub-Catchments in the study area are:

- Brosna_SC_020 (25A_7)
- Brosna_SC_030 (25A_9)
- Brosna_SC_010 (25A_10)

The Lower Shannon (Brosna) catchment is divided into 12 subcatchments (Figure B–14) with 62 river waterbodies, four lake waterbodies and 32 groundwater bodies.

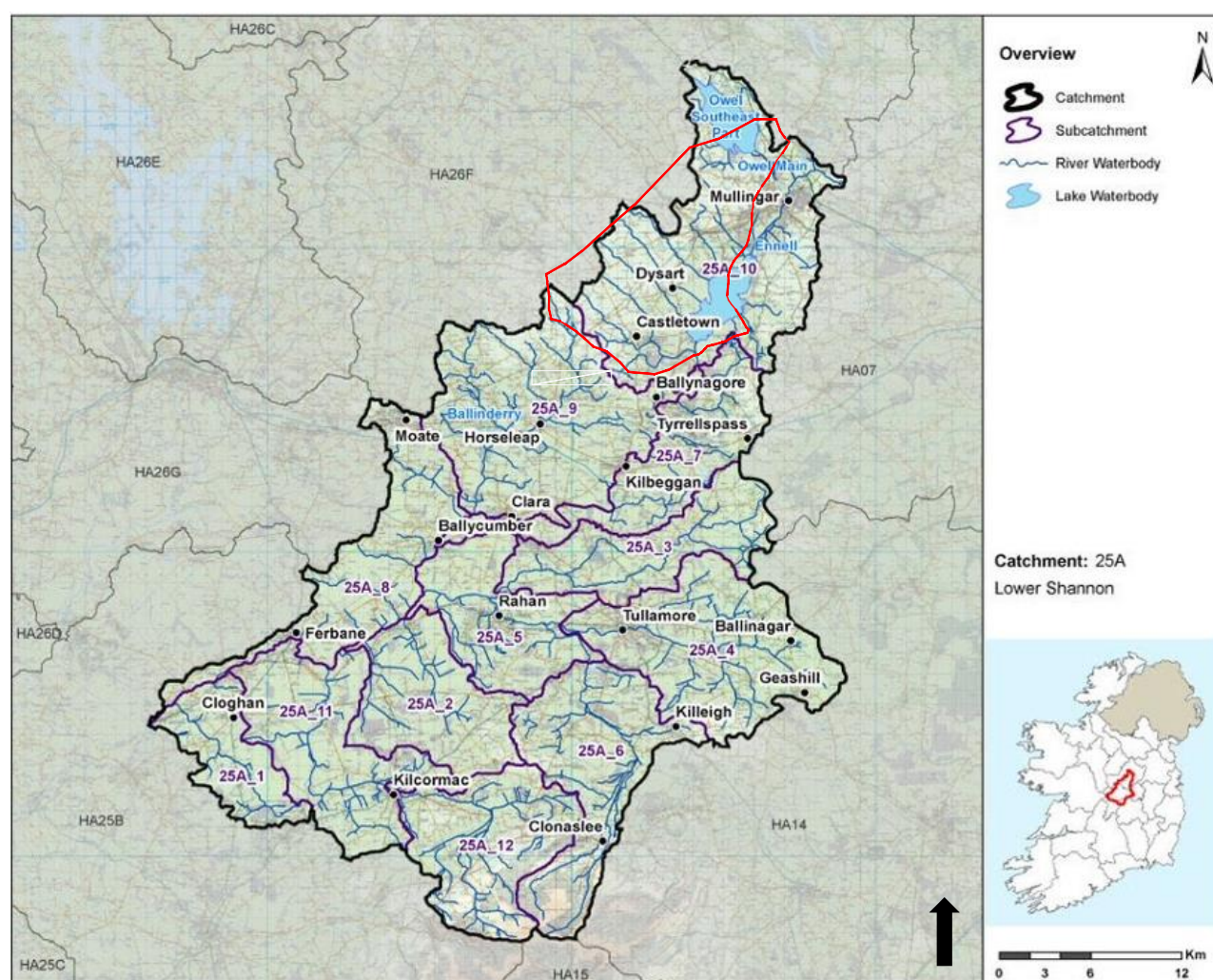


Figure B–14 – Overview of sub catchments in the Lower Shannon (Brosna) catchment

APPENDIX B

Drinking Water

There are no surface waterbodies in the catchment identified as Drinking Water Protected Areas (DWPA) based on water abstraction data on the abstraction register and from other sources in 2018. All groundwater bodies nationally are identified as DWPA. DWPA layers can be viewed at <https://gis.epa.ie/EPAMaps/Water>.

Bathing Waters

There is one bathing area located in the centre of the constraints study area, on the southwest shore of Lough Ennell known as Lilliput. The bathing area is used by the adventure centre to teach children participating in summer camps about water safety and canoeing. The Mullingar Swimming Club hold an annual swim event at the bathing site. The bathing area extends over an area of approximately 55 meters wide and 100 meters long (c.0.50Ha). The bathing season water quality of Lilliput is 'Excellent', with the most recent sample date being 20th June 2023².

Shellfish Areas

There are no designated shellfish areas in the catchment.

Natura 2000 Sites

Many of the habitats and species listed for protection in the Birds and Habitats Directives are water dependent. The Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) with water dependent habitats or species in this catchment, along with waterbodies designated as salmonid waters (S.I. No. 293 of 1988) and waterbodies with Fresh Water Pearl Mussel habitat, were identified.

There are 10 SACs in this catchment, nine of which have water dependent habitats or species. The waterbodies within these SACs were assessed for associated water dependent habitats and species and if they met the supporting requirements for habitats and species using their 2013-2018 WFD status. For the purposes of the assessment, it was assumed that Good ecological status is adequate to meet the supporting conditions of all habitats and species with the exception of the Freshwater Pearl Mussel, which has additional requirements for supporting conditions set out in the Freshwater Pearl Mussel Regulations (S.I. No 296 of 2009) for macroinvertebrates, filamentous algae, phytobenthos, macrophytes and siltation.

Please also refer to the Biodiversity section in this report for further details.

Water Quality & the Water Framework Directive (WFD)

Directive 2000/60/EC (the Water Framework Directive) was adopted by the European Parliament and Council in 2000. The Water Framework Directive (WFD) establishes a legal framework for the protection, improvement and sustainable management of inland surface waters, transitional waters, coastal waters and groundwater. The aim of the WFD is to prevent the deterioration in the existing status of waters (including the maintenance of "High Status" where it exists) and to ensure that all waters, with some limited exceptions, achieve at least "Good Status", see Figure B-15 below.

² https://www.beaches.ie/find-a-beach/#/beach/IESHBWL25_188_0100

APPENDIX B

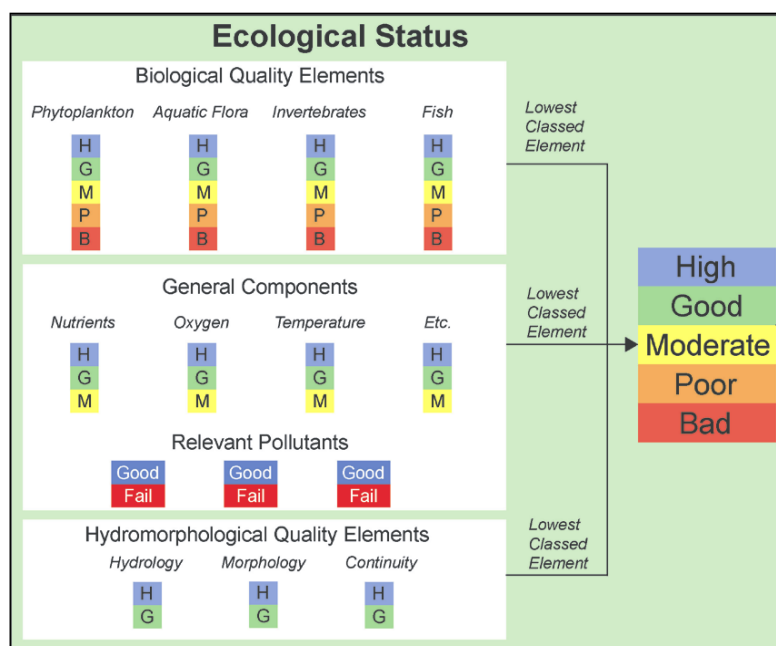


Figure B-15 – Ecological Status

The WFD status of most of the rivers and lakes within the County is classified as moderate, good and high; however, within the constraints study area Lough Ennell is classified as 'Good'. Within the county Lake Sheelin and Lake Lene are classified as Moderate. Rivers including Shannon (Upper), Moate Stream, Dungolman, Ballynagrenia Stream, Castlejordan, Kinnegad, Riverstown, Brosna, Gaine, Killynan, Yellow (Castlepollard), Inny, Glore, Fershill and Coolnagun Stream are identified as poor due to unsatisfactory ecological/biological and/or physio-chemical status. The rivers located within the constraints study area that are classified as 'Poor' are the Brosna 030, with the rest being mostly moderate. An exception is the Brosna 060 and Gageborough 020 which are classified as 'Good'.

Waterbody Risk

A waterbody that is *At Risk* means that either the waterbody is currently not achieving its Water Framework Directive (WFD) environmental objective of Good or High Ecological Status or that there is an upward trend in nutrients or ammonia and if this trend continues the waterbody Status will decline by the end of Cycle 3³ and will fail to meet its environmental objective.

A waterbody can be considered as Review for the following three reasons:

- The waterbody does not have status assigned to it yet, it is referred to as an unassigned waterbody, and therefore there is not enough evidence to determine if it is At Risk or Not At Risk.
- The waterbody has shown some slight evidence or improvement, but more evidence is needed before it can be considered as Not At Risk.
- Measures are planned or have already been implemented for the waterbody and no further measures should be applied until there is enough time to assess if these measures are working.

In total there are 98 waterbodies in the Lower Shannon Catchment and 32 (33%) are currently At Risk, 22 (22%) in Review and 44 (45%) are Not At Risk.

For the 62 rivers waterbodies, 28 (45%) are At Risk, 15 (24%) are in Review and 19 (31%) are Not At Risk. For the four lake waterbodies, three (75%) are in Review and one (25%) is Not At Risk. The largest proportion of At-Risk waterbodies are found in river waterbodies, accounting for 28 (88%) of 32 At Risk waterbodies. Figure B-16 details these waterbodies.

³ Catchment Assessments based on the Cycle 3 characterisation and assessment were published in August 2021.

APPENDIX B

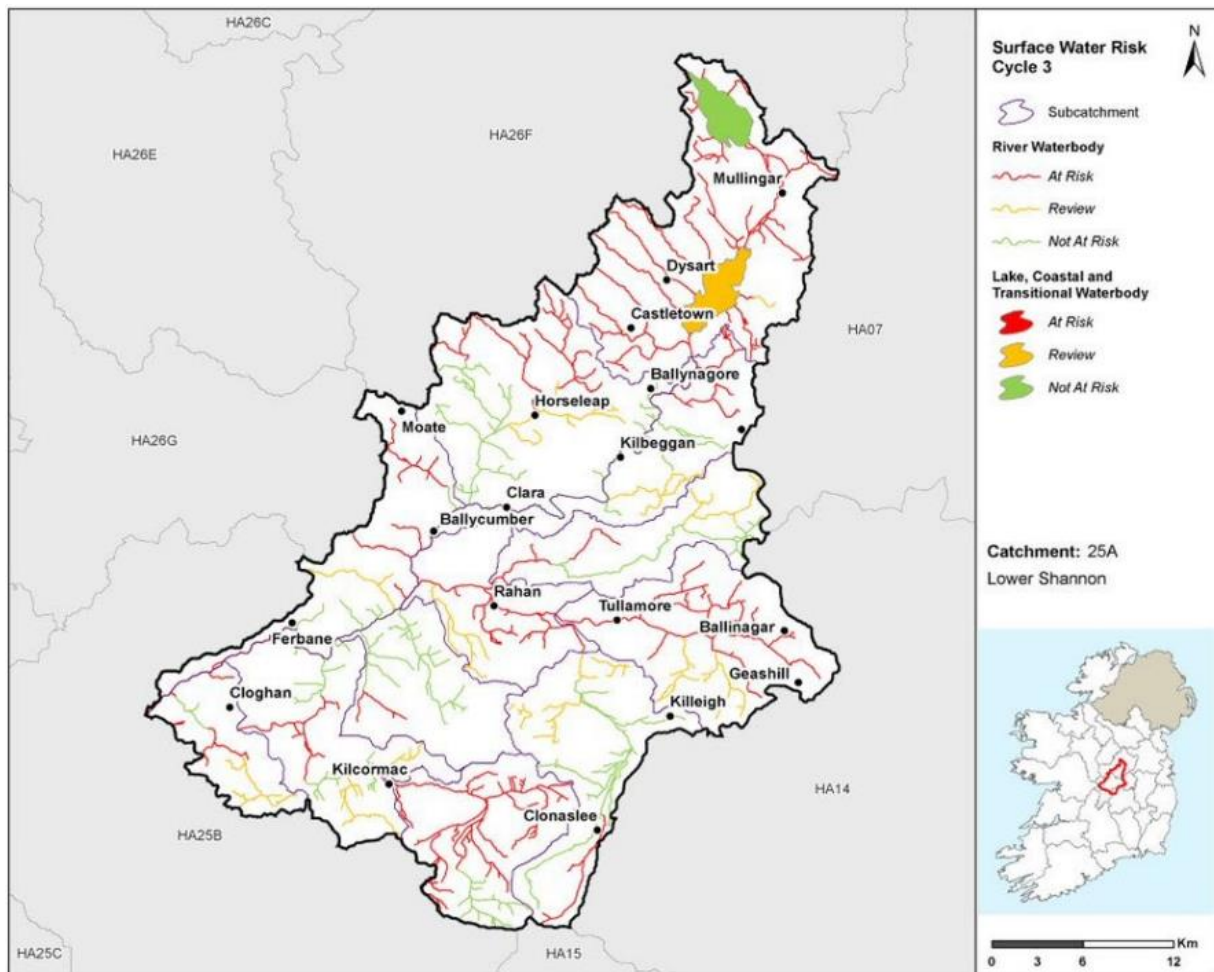


Figure B-16 – Surface Water Risk Cycle 3

Overall, there is an increase in three At Risk waterbodies and 9 Not At-Risk waterbodies, and a decrease of 10 in Review waterbodies between Cycle 2 and Cycle 3. Surface waterbodies that have experienced a change in risk between Cycle 2 and Cycle 3 are shown in Figure B-17.

APPENDIX B

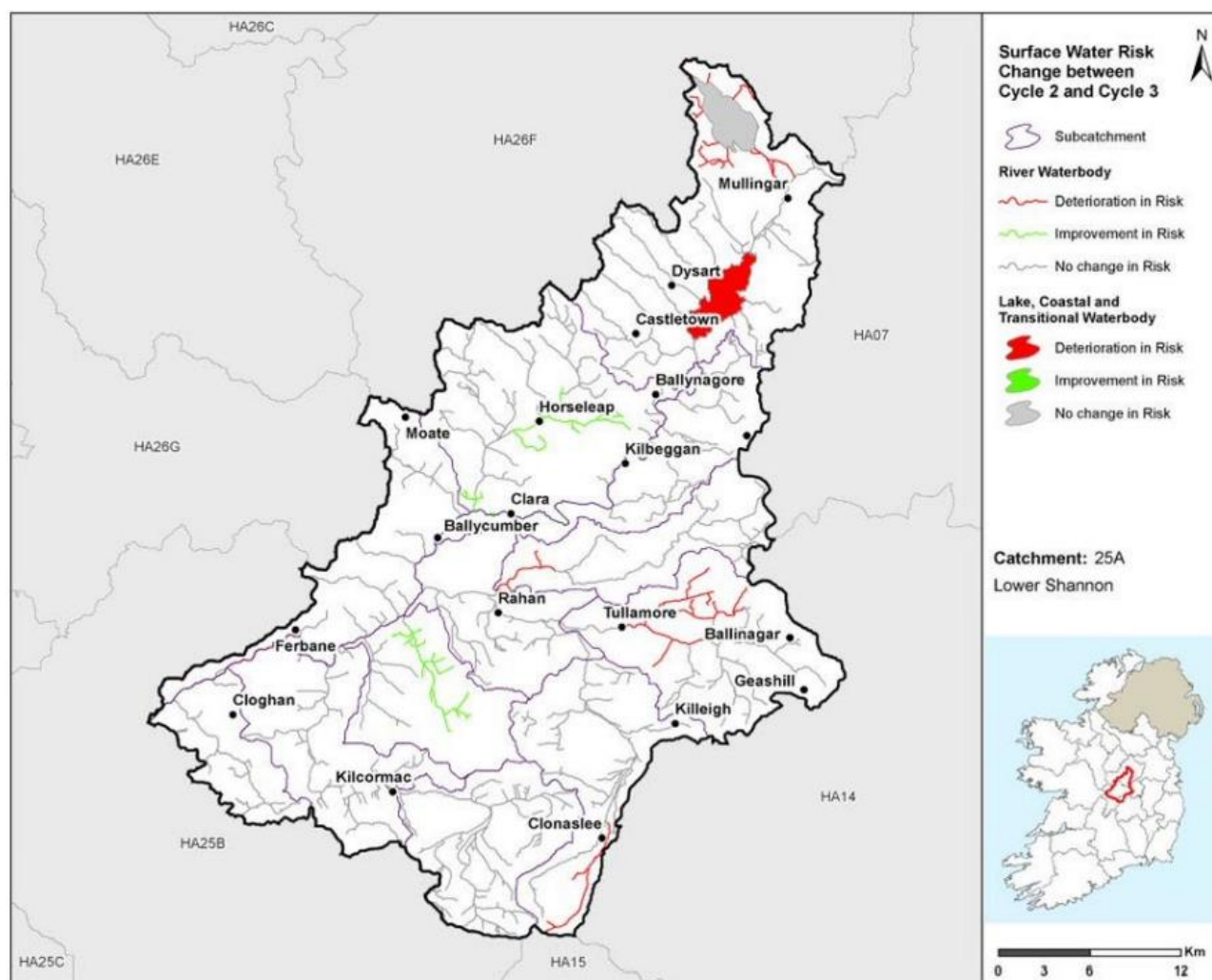


Figure B-17 – Surface Water Risk Change between Cycle 2 and Cycle 3

Groundwater Risk

For the 32 groundwater bodies, four (13%) are At Risk (Athboy, GWDTE-Clara Bog (SAC000572), Derravarragh and Tullamore), four (13%) are in Review and 24 (75%) are Not At Risk. In Cycle 2, there were three groundwater bodies (Waste Facility (W0071-02), GWDTE-Clara Bog (SAC000572) and Derravarragh) At Risk in this catchment, 14 in Review and 15 Not At Risk.

Heavily Modified Waterbodies

There are no HMWBs in the catchment. There may be changes to HMWB designation once the Cycle 3 HMWB assessment has been completed and consulted on for the 3rd Cycle Final RBMP.

Artificial Waterbodies

There are two artificial waterbodies in the Lower Shannon (Brosna) Catchment, Grand Canal Main Line (Lower Shannon) and Royal Canal Main Line (Lower Shannon). Both of these artificial waterbodies are Not At Risk

Flooding & Flood Risk

Certain areas across the County are at risk of flooding from sources including groundwater, pluvial (resulting from high intensity rainfall events where run-off volume exceeds capacity of surface water net) and fluvial (watercourse capacity is exceeded or the channel is blocked and excess water spills from the channel onto

APPENDIX B

adjacent floodplains.). There are various historic and predictive indicators of flood risk in the County, such as those along the River Brosna and surrounding the Lough Ennell.

Locations within and adjacent to the County that were identified by the Office of Public Works (OPW) in 2012 as requiring detailed assessment of flood risk (Areas for Further Assessment) include: Athlone and Kilbeggan. Detailed predictive flood risk mapping is now available for these areas. A Strategic Flood Risk Assessment (SFRA), as required by 'The Planning System and Flood Risk Management Guidelines for Planning Authorities' (DEHLG and OPW, 2009), has been undertaken alongside the preparation of the SEA and the preparation of the Plan. This assessment considers available and emerging information on historical and predictive flood risk indicators.

The OPW flood maps website (www.floodinfo.ie) show numerous numbers of flood prone areas within the subject study area. The low-lying flood plains of the Rivers Inny, Brosna and Boyne and further details of these flood events can be found in the OPW www.floodinfo.ie website. The OSI Historical Mapping dataset was also consulted to investigate any flood prone areas within the study area.

Certain lands within the county have the potential to be vulnerable to flooding and this vulnerability could be exacerbated by changes in both the occurrence of severe rainfall events and associated flooding. Site-specific Flood Risk Assessments (FRA) are required for all planning applications in areas at risk of flooding and should quantify the risks, the effects of selected mitigation and the management of any residual risks

Historic Flooding

There is historic and predictive evidence of elevated levels of flood risk from fluvial sources at various locations across the County. Figure B–18 details the historic flooding (These are further detailed below in Table B-3) identified in www.floodinfo.ie and as shown there are quite a number of incidents within Mullingar town. Groundwater flooding details are shown in Figure B–19 and probability from river flooding is detailed in Figure B–20.

Table B-3: Summary of Historic Flooding Incidents within the Study Area

Flood Event ID	Flood Event	Record Type	Flood Source
ID-2680	Brosna Brosna View Kilbeggan	Recurring Flood	River
ID-2687	Brosna Coola Bridge, Kilbeggan	Recurring Flood	River
ID-2689	Brosna Clonsingle	Recurring Flood	River
ID-2690	Castletown Geoghegan	Recurring Flood	River
ID-2696	Carrick, Dalystown	Recurring Flood	River
ID-2697	Tyrrellspass	Recurring Flood	Low lying land
ID-2698	Brosna Ballinagore	Recurring Flood	River
ID-2706	Brosna Canal Aqueduct Mullingar	Recurring Flood	River
ID-2707	Brosna Gaol Hill, Mullingar	Recurring Flood	River
ID-2708	Brosna Austin Friar Pearse St Mullingar	Recurring Flood	River

APPENDIX B

Flood Event ID	Flood Event	Record Type	Flood Source
ID-2709	Ballinderry, Mullingar	Recurring Flood	River
ID-2710	Grange, Mullingar	Recurring Flood	River
ID-2711	Clonmore, Mullingar	Recurring Flood	River
ID-2712	N52 at Bloomfield Hotel, Mullingar	Recurring Flood	Low lying land
ID-2842	Dunard	Recurring Flood	River
ID-5322	Brosna Pearse St Mullingar Nov 1965	Dated Flood - 16/11/1965	River
ID-5323	Springfield Aqueduct Mullingar Nov 1965	Dated Flood - 16/11/1965	River
ID-5324	Bleach Yard Lynnsbury Tce Mullingar Nov 1965	Dated Flood - 16/11/1965	River
ID-11331	Brosna, Regional Hospital car park Mullingar 16th Aug 2008	Dated Flood - 15/08/2008	null

APPENDIX B

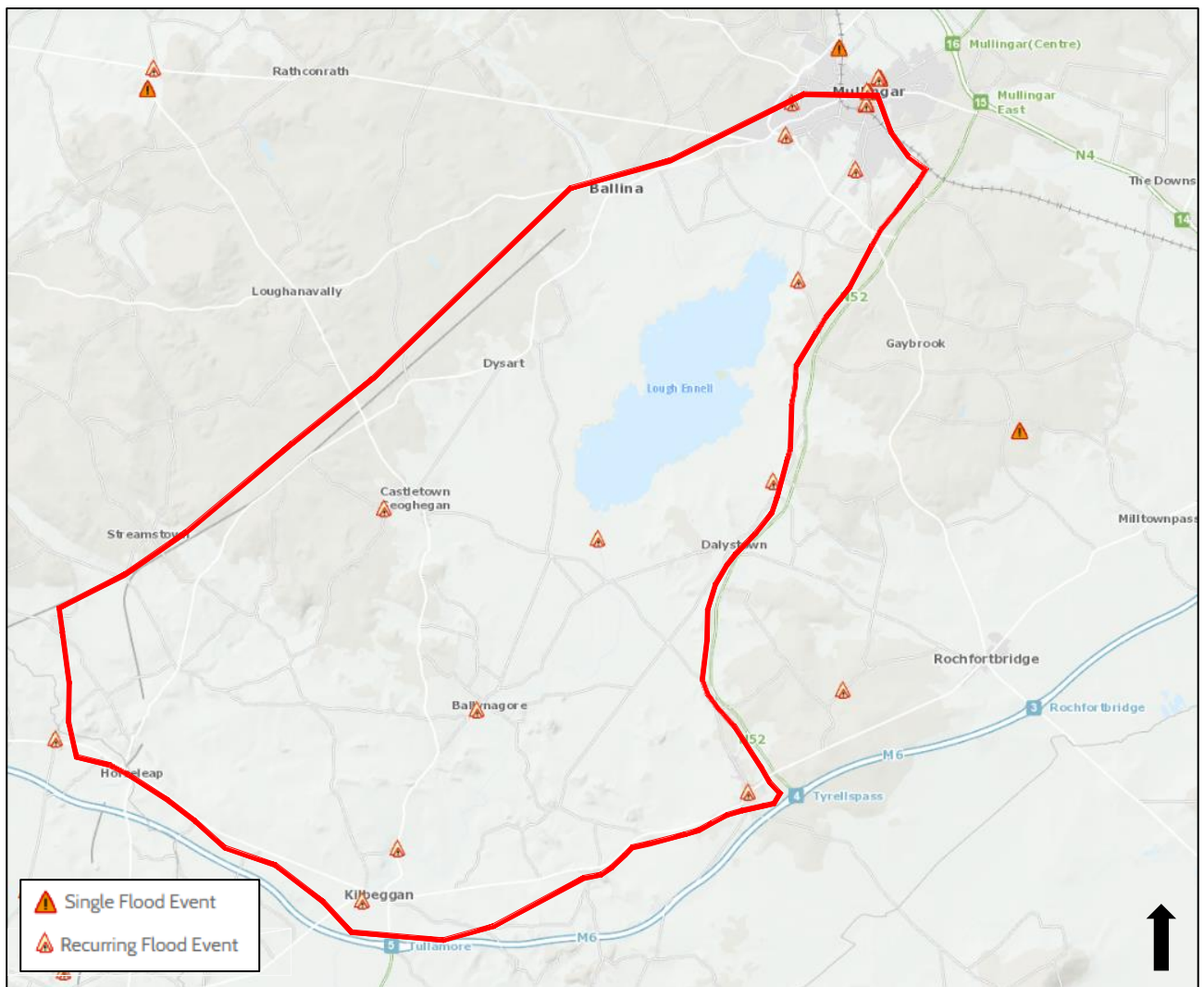


Figure B-18 – Historic Flooding

APPENDIX B

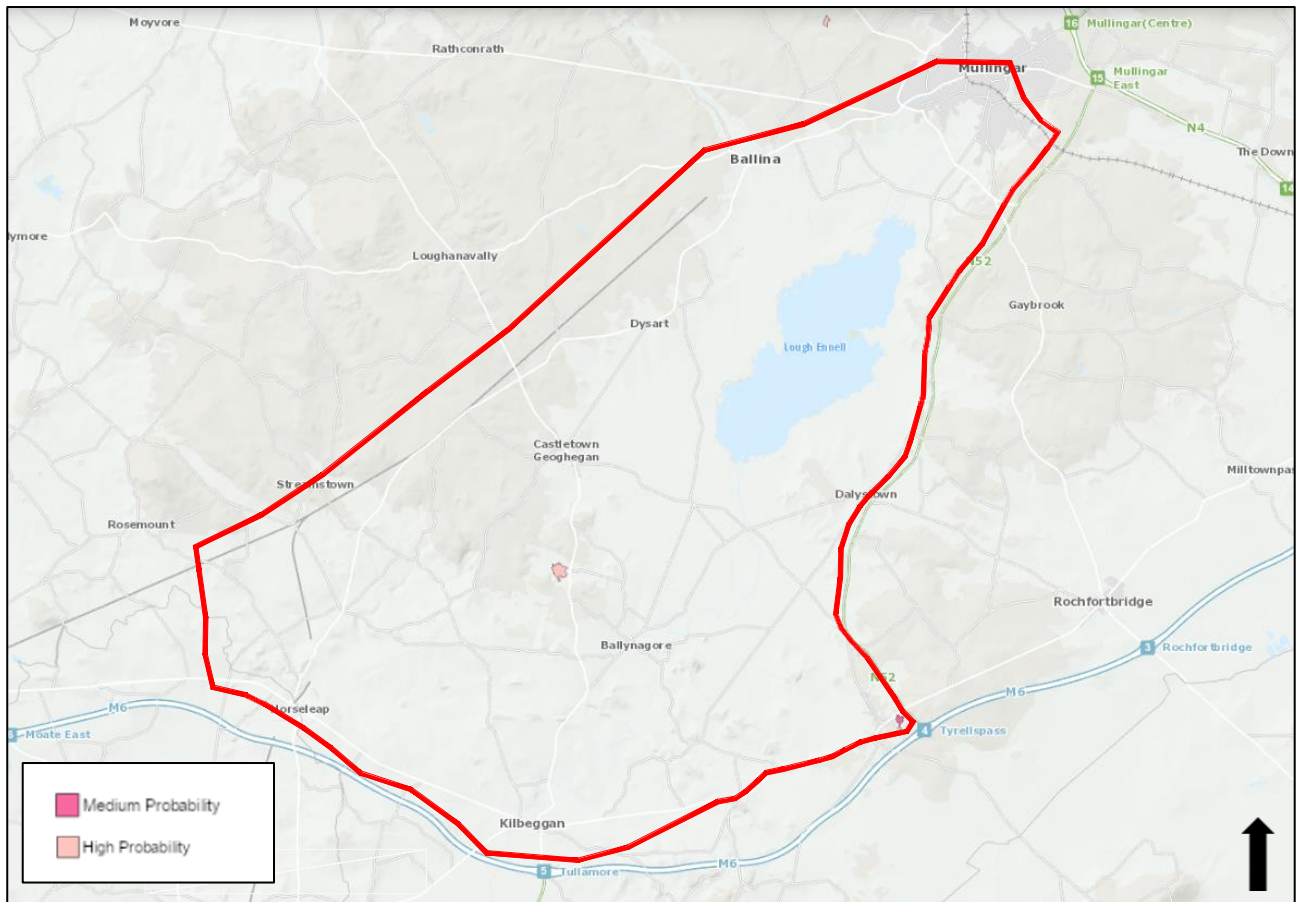


Figure B-19 – Groundwater Flooding

APPENDIX B

**Figure B-20 – River Probability Flooding**

APPENDIX B

Summary of Key Constraint Water Quality

Westmeath has a number of large lakes including Lough Ree, most of which are part of the River Shannon catchment which includes the Rivers Inny and Brosna. In addition, Lough Lene, a limestone lake is situated in the Upper Boyne catchment in the County. Many of the water resources have been afforded protection as National Heritage Areas, Special Areas of Conservation or Special Protection Areas. The Royal Canal passes through the county while the Kilbeggan branch of the Grand Canal exists as a dry bed.

The WFD status of most of the rivers and lakes within the County is classified as moderate, good and high; however, within the constraints study area Lough Ennell is classified as 'Good'. The rivers located within the constraints study area that are classified as 'Poor' are the Brosna 030, with the rest being mostly moderate. An exception is the Brosna 060 and Gageborough 020 which are classified as 'Good'.

These will require the application of design standards and construction best practice in order to avoid degrading any surface or groundwater quality rating for the scheme area.

There are 10 SACs in this catchment, nine of which have water dependent habitats or species. The waterbodies within these SACs were assessed for associated water dependent habitats and species and if they met the supporting requirements for habitats and species using their 2013-2018 WFD status. Those that are located within the scheme area therefore have potential for likely significant effects to these European sites must be assessed and demonstrated that significant adverse effects will not occur as a result of any proposed greenway.

There is one bathing area located in the centre of the constraints study area, on the southwest shore of Lough Ennell known as Lilliput. Measures will need to be taken to ensure that construction work does not impact upon the integrity of this bathing source.

The proposed greenway has the potential impact on the biology, water quality, hydrology, and morphology of watercourses. Where required, suitable mitigation measures must be developed for the project in line with best practice measures in order to avoid negative impacts to water quality.

APPENDIX B

B.1.5 Air, Climate & Noise

This section identifies the constraints aspects of the Kilbeggan to Mullingar Greenway in relation to air, climate and noise. Identifying the potential sensitive receptors at this stage in the process allows them to be considered in the design process to avoid or minimise adverse impact on sensitive receptors. This assessment has been carried out by means of a desktop review of available mapping representing the Kilbeggan to Mullingar Greenway and the designated area of study with reference to potential constraints. The procedure outlined in the TII document “Guidance for the treatment of Air Quality During the Planning and Construction of National Road Schemes” has been consulted as part of the constraints study.

Existing Environment

Air Quality

Constraints with regard to Air and Climate for a development project are largely concerned with the potential for impacts to sensitive receptors. The TII document: “*Guidance for the Treatment of Air Quality During the Planning and Construction of National Road Schemes*” outlines recommended steps in the process of constraints assessment for Air Quality. This document also states that where local air quality monitoring data is not available, reference should be made to measurements or studies in other comparable areas. In the assessment of constraints, the sensitive receptor locations for Air Quality include areas of residential housing, schools, hospitals, places of worship, sports centres and shopping areas; i.e., locations where members of the public are likely to be regularly present.

Under the Clean Air for Europe Directive (2008/50/EC) EU Member States must designate “Zones” for the purpose of managing air quality. For Ireland, four Zones have been defined in the Air Quality Standards Regulations (2011); A, B, C and D. These zones are largely categorised based on population counts derived from 2011 CSO Census as follows:

- **Zone A:** Dublin
- **Zone B:** Cork
- **Zone C:** Other cities and large towns comprising Limerick, Galway, Waterford, Drogheda, Dundalk, Bray, Navan, Ennis, Tralee, Kilkenny, Carlow, Naas, Sligo, Newbridge, **Mullingar**, Wexford, Letterkenny, Athlone, Celbridge, Clonmel, Balbriggan, Greystones, Leixlip and Portlaoise.
- **Zone D:** Rural Ireland; i.e., the remainder of the State excluding Zones A, B and C.

Air quality is classified using a four-band scale of; Good, Fair, Poor, and Very Poor.

Part of the study area is located in Zone C, in Mullingar, while the remaining majority of the study area is located within Zone D. There are two close air quality monitoring locations in Mullingar and Tullamore, as shown in Figure B-21.

The Mullingar site is located in Mullingar town centre. Monitoring at this site is a local network and it monitors for PM₁₀ and PM_{2.5}. The air quality for this location was classified as “Good”.

The Tullamore site is located in Tullamore town centre. Monitoring at this site is a local network and monitors for particulate matters PM₁₀ and PM_{2.5}. The air quality for this location was classified as “Good”.

All greenway route options to be considered will have an equally neutral to positive impact on air quality of the surrounding environment due to the implementation of the scheme. All routes serve to increase sustainable transport modes and decrease the use of motorised vehicles.

However, from a user’s perspective, options which run adjacent to the existing roads could be considered to have a more negative impact in terms of air quality, as it exposes users to more traffic pollution.

APPENDIX B

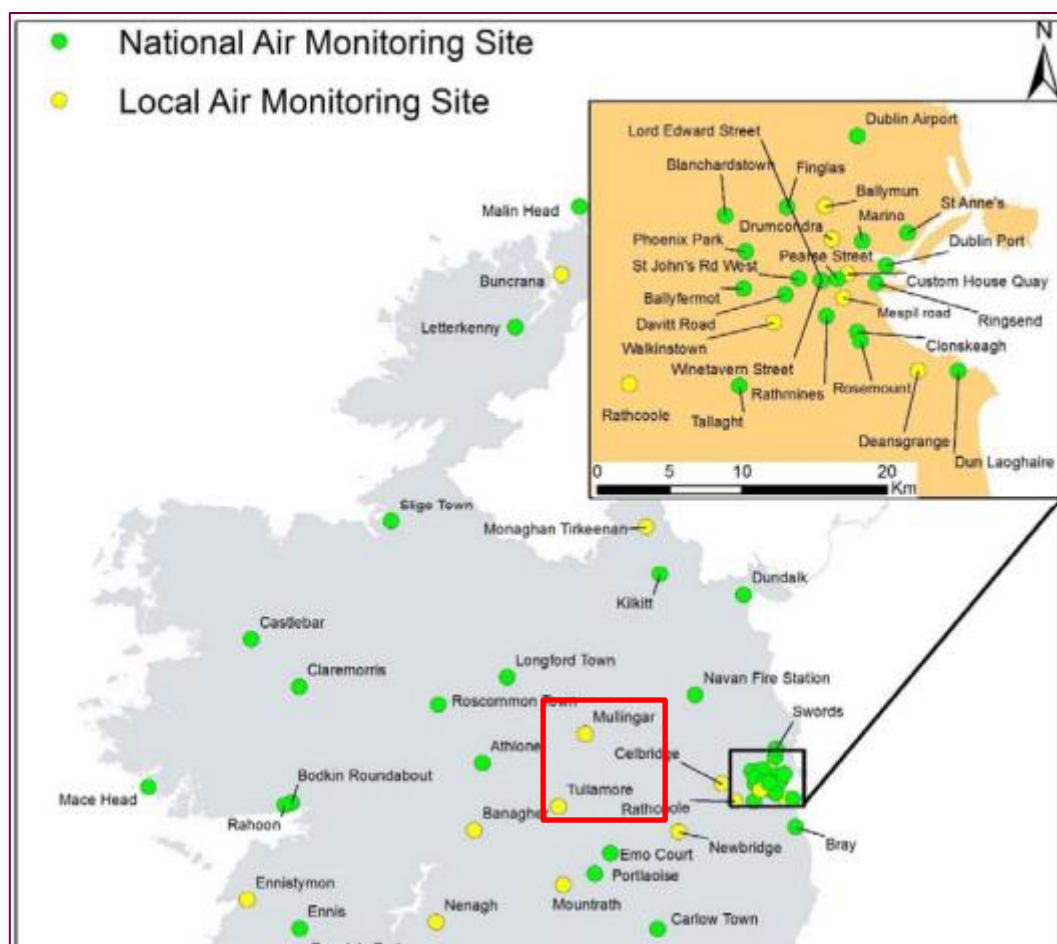


Figure B-21: EPA Monitoring Sites (EPA, 2020)

Climate

In May 2019, the Irish Government declared a Climate and Biodiversity Emergency and subsequently committed to Ireland transitioning to a low carbon, climate resilient and environmentally sustainable economy by 2050.

The Climate Action Plan (2019), set out the national commitment to achieving a net zero carbon energy systems objective for Irish society and in the process, create a resilient, vibrant and sustainable country.

The Government declaration of a national Climate and Biodiversity Emergency represents the significance of the challenge facing this country in seeking to reduce its carbon dioxide emissions. In aiming to address this emergency, the mitigation measures identified at national level are outlined through two principal components.

The first component aims to reduce carbon dioxide emissions in electricity generation, the built environment and transport by 80% by 2050, relative to 1990 levels. The second component aims to provide for carbon neutrality in terms of activities related to agriculture, land use and forestry for the same period.

The Climate Action Plan 2023 (CAP23) is the second annual update to Ireland's Climate Action Plan 2019. This plan is the first to be prepared under the Climate Action and Low Carbon Development (Amendment) Act 2021, and following the introduction, in 2022, of economy-wide carbon budgets and sectoral emissions ceilings.

The plan implements the carbon budgets and sectoral emissions ceilings and sets out a roadmap for taking decisive action to halve emissions by 2030 and reach net zero no later than 2050, as committed to in the Programme for Government. Climate Action Plan 2023 sets out how Ireland can accelerate the actions that are required to respond to the climate crisis, putting climate solutions at the centre of Ireland's social and economic development.

APPENDIX B

As stated in the Westmeath County Development Plan 2021-2027, Westmeath County Council has developed a five-year Westmeath Climate Change Adaptation Strategy (WCHAS) (2019-2024), which sets out a vision for the county to undertake appropriate actions to address climate change.

The WCHAS establishes both strategic goals and adaption goals, along with targeted objectives across six operational themes:

- Theme 1: Local Adaptation, Governance and Business Operations
- Theme 2: Infrastructure and Built Environment
- Theme 3: Land use and Development
- Theme 4: Drainage and Flood Management
- Theme 5: Natural Resources and Cultural Infrastructure
- Theme 6: Community Health and Wellbeing

Flooding is one of the most evident impacts of climate change experienced in County Westmeath. In Westmeath the change in rainfall pattern is particularly evident both in the number of days with heavy rainfall increasing and the amount of extreme flooding events rising significantly within the last 10 years. High and low temperature events have also become far more common in County Westmeath. This was witnessed recently in 2018 moving from a Status Red weather warning for snow in February to one of the hottest summers on record during June and July of the same year. Flooding can occur through fluvial (rivers and watercourses) and pluvial (rainfall) flood events. It is clear that such events have increased in frequency in recent years, as a direct consequence of climate change.

Green infrastructure, such as greenways, play a functional role in helping to prevent flooding. Hard surfaces generally contribute to flooding, as surface water runs off these areas more quickly. Green areas can absorb and attenuate this water, and this is referred to as a more 'sustainable urban drainage system' (SUDS). These systems aim to reduce the rate of surface water runoff and thus contribute towards mitigating the impact of flooding as well as providing green spaces in built up areas.

All greenway route options to be considered will have an equally neutral to positive impact on carbon emissions to the surrounding environment. Routes will promote an increase in sustainable transport modes and decrease the use of motorised vehicles for commuters in the area.

Noise

Rock breaking and large earth moving works are not expected during construction of the greenway and so will not have a significant noise impact to local areas. Potential greenway route options will all serve to reduce noise impacts due to the reduction in traffic congestion realised by the scheme, as they all equally promote a more sustainable transport mode.

Similar to above, options which run adjacent to the existing roads could be considered less favourable in terms of noise quality, as it exposes users of the scheme to more traffic noise. Strategic noise data of the area from TII is shown in Figure B-22 and Figure B-23 below, which detail the following datasets:

- The strategic noise mapping of roads, which were identified as those roads exceeding the flow threshold of 3 million passages per year, in the form of noise contours for the Lden (day) and Lnight (night) periods for Dublin and Cork agglomerations and the major roads outside of the agglomerations. The Db Value represents the average decibel value during the day and night-time.
- The strategic noise mapping of rail, which were identified as those rails exceeding the flow threshold of 30,000 vehicle passages per year, in the form of noise contours for the Lden (day) and Lnight (night) period for Dublin and Cork agglomerations and the major roads outside of the agglomerations. The Db Value represents the average decibel value during the day and night-time.
- The strategic noise mapping of airports, in the form of noise contours for the Lden (day) and Lnight (night) periods for Dublin and Cork agglomerations airports. The Db Value represents the average decibel value during the day and night-time.

APPENDIX B

The strategic noise mapping of the major roads across Ireland was undertaken by the National Roads Authority⁴ with the support of the local authorities within whose functional areas the major roads were located. They provide supplementary information relating to the Noise Action Plans developed in 2013 for the major roads in Ireland as part of the second round of the implementation of the EC Directive 2002/49/EC. The Directive was transposed in Ireland as Statutory Instrument, S.I. 1401 of 2006, Environmental Noise Regulation 2006.

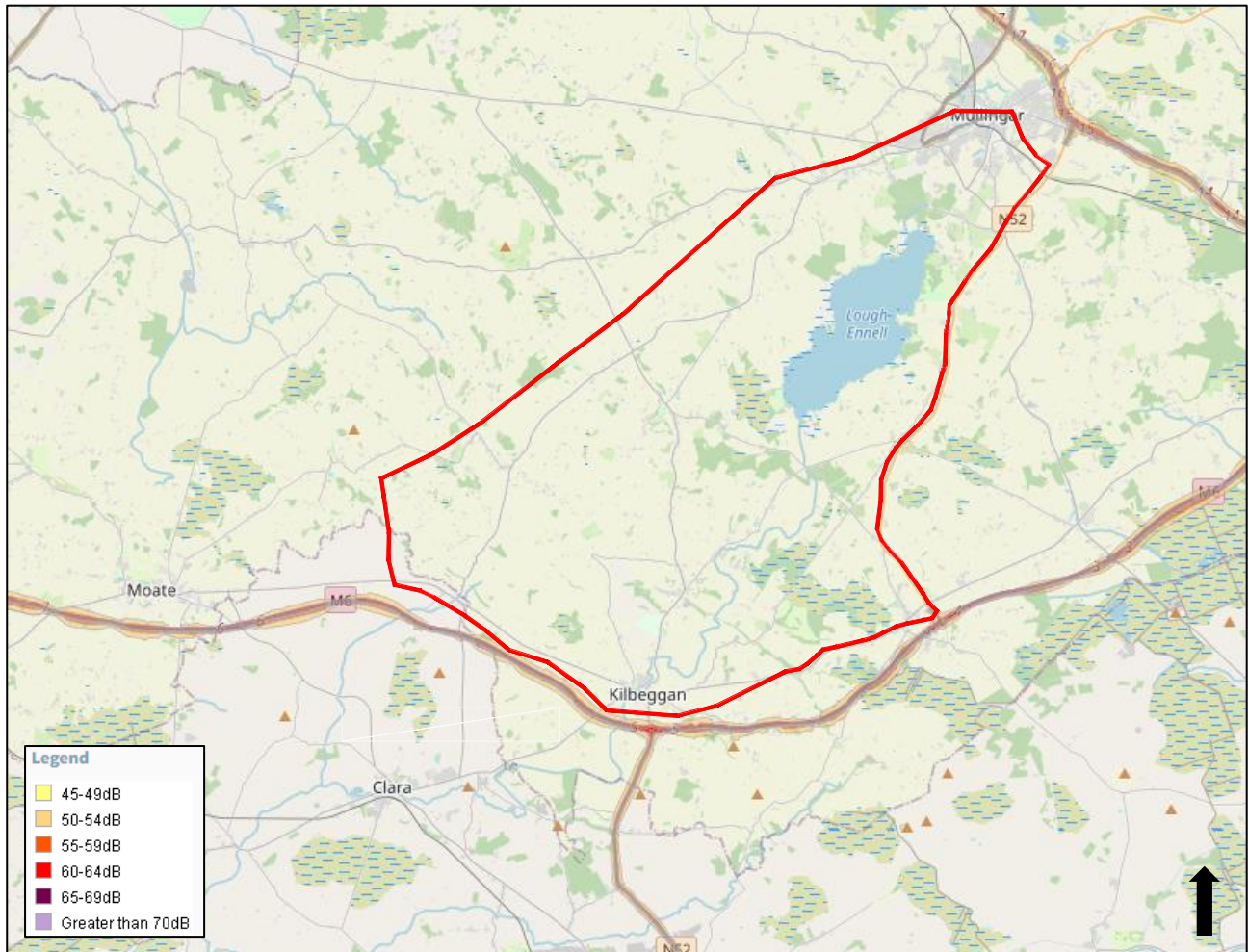


(National Roads Authority)

Figure B-22: Daytime Noise Map (TII Strategic Noise Data)

⁴ <https://gis.epa.ie/EPAMaps/>

APPENDIX B



(National Roads Authority)

Figure B-23: Night-time Noise Map (TII Strategic Noise Data)

APPENDIX B

Air, Climate and Noise Identified Constraints

The construction stage provides the greatest opportunity for potential impacts to the air and climate through the potential release of emissions e.g., dust. Vehicle and machinery emissions during this phase will contribute to greenhouse gas emissions and as such will have an impact on climate in terms of the macro scale.

Due to the nature of the Kilbeggan to Mullingar Greenway development it is not envisaged that the operational phase will contribute negatively towards the local air and climate quality.

At the constraints study stage air quality is considered in terms of the current or baseline condition. Where feasible, it may be necessary to route potential route corridors away from sources of poor air quality. For greenway users and the protection of human health, a suitable buffer may be required from a road within which a sensitive receptor may experience an air quality impact.

The main noise impacts associated with the project will be during the construction phase due to machinery movements. The impacts can be mitigated by avoiding noise sensitive receptors and by using light machinery. Noise during the construction phase is also temporary with minimal potential for noise and vibration to be an issue, particularly for sensitive receptors, where significant earthwork activities and engineering such as rock breaking are very unlikely.

APPENDIX B

B.1.6 Material Assets – Non-Agricultural

B.1.6.1 Introduction

The primary constraints within the study area are the existing utilities and existing transport infrastructure. Early consideration of how options can integrate or avoid with the existing material assets in the area is essential and will require engagement with service providers to ensure that utilities can be avoided and/ or modified to mitigate impacts.

Regard must also be had to future changes that are likely to take place in the study area e.g., through the Water Services Investment Programme, investment by Transport Infrastructure Ireland, Irish Rail, EirGrid etc.

Material assets can be defined as economic assets of natural and human origin, or cultural assets of a physical and social type. This section identifies the constraints aspects of the proposed study in relation to material assets with particular reference to transport infrastructure, utilities and non-agricultural land use. It identifies the existing material assets and aims to ascertain any key proposals for future development of material assets within the study area, i.e., new roads, water mains etc. that may pose a constraint to works associated with the Kilbeggan to Mullingar Greenway in the future.

B.1.6.2 Existing Environment

Publicly Owned Land

The preferred model for future Greenways is to use lands already available in the undisputed ownership or control of the State, either through Government Agencies, Government Departments or Local Authorities.

The public lands within the Study Area were identified using landownership data obtained from the Property Registration Authority (PRAI). This data was interrogated and the main state bodies in the area include Coillte, Iarnród Éireann, Transport Infrastructure Ireland and the ESB. A large proportion of the lands are privately owned.

Tourism and Community Facilities

The Study Area offers a variety of amenities and attractions. These were mapped using information from Fáilte Ireland, the National Inventory of Architectural Heritage, and the Sites and Monuments Records. Fáilte Ireland have developed a number of regional tourism brands, in the Study Area.

These brands are used to promote and market tourism in the regions both nationally and internationally. The brands capitalise on the particular strengths and attractions of the area.

County Westmeath is rich in history and heritage, and benefits from a range of popular attractions such as the Dun na Si Heritage and Amenity Park, the Hill of Uisneach, Belvedere House, Gardens & Park, Kilbeggan Distillery, Tullyally Castle Gardens, Mullingar Cathedral and Fore Abbey, attracting both national and international visitors.

The area contains a rich cultural landscape offering a variety of amenities and attractions. The county itself however has been outperforming some of neighbouring counties, due to a number of strong visitor attractions and a critical mass of visitor services concentrated in the towns of Athlone and Mullingar. Their rural hinterland is characterized by attractive if unspectacular scenery, generally small farmsteads, dispersed rural dwellings and historic market towns.

The vibrant market town of Mullingar is known as the birthplace of Fleadh Cheoil na hÉireann and for the many talented musicians who have originated there. This musical heritage is considered to be a significant growth enabler for visitors into the future and is a great source of pride for the local community. Belvedere House, Gardens and Park is a visitor attraction of regional importance, combining heritage with natural lakeshore scenery. Mullingar is almost encircled by the Royal Canal Greenway and Blueway, creating an off-road link to Longford in the west and Maynooth to the east, with a section to Dublin city nearing completion. Since 2015, Mullingar and Athlone are linked by the Old Rail Trail Greenway, soon to be part of the larger scale Galway to Dublin Route.

In 2018 Fáilte Ireland launched Ireland's Hidden Heartlands regional tourism brand. Working with Ireland's Hidden Heartlands, Westmeath County Council will build on the tourism assets of the county to create key visitor experiences and unique tourism offerings for the visitor. The implementation of the Shannon Tourism Master Plan will enable the development of these two key resources within the wider region.

APPENDIX B

Road Network

Due to its strategic location in the middle of the country, Westmeath and its main urban centres are particularly well served by a hierarchy of roads including sections of motorways, national roads, regional roads, local roads and urban roadways. Westmeath has a total public road network accounting for 2,332 km in length of which approximately 193 km comprise of National Primary and Secondary roads. The M6/N6, M4/N4, N51, N52, N55 and N62 traverse the County providing important linkages and networks within, into and out of the County. In relation to the study area, the N52 is most prominent. In terms of integration for the scheme, it is important for users to have the option to access the Greenway by road and bus transport.

Planned National Secondary Road Projects

For the N52 in particular there is planned road improvements that is in the planning and design phase. The most relevant proposals to the proposed development are detailed below:

- **N52 Ardee Bypass-** The N52 is a national secondary road connecting the M7 motorway from just south of Nenagh in Tipperary to the N2 North of Ardee. This project consists of 4.5km of Type 2 Single Carriageway and comprises six road junctions, including a proposed roundabout on the N2, and two river bridge structures. The project facilitates the western bypass of the town of Ardee. A judicial review has been submitted in relation to the decision on environmental impact and appropriate assessment screening.

The N52 is critical to enhancing regional accessibility and improving connectivity to Border counties. The bypass of Ardee will provide greater capacity for passenger and freight traffic on the route which will support economic expansion of the region. In addition, the project supports road-based public transport integration.

Public Transport

Athlone and Mullingar are both accessible by rail and are positioned on the Galway / Dublin / Westport and the Dublin/Sligo rail lines respectively. Trains operate on each route several times daily. Currently there are no other train stations operating within the County although a disused station is located at Killucan on the Dublin/Sligo line. The full breakdown of public transport systems for County Westmeath is illustrated in Figure B-24.

In the longer-term, electrification of key routes including the Dublin to Galway line is promoted. It is also envisaged that capacity will be increased through double tracking the line from Portarlinton to Athlone and from Mullingar to Maynooth to cater for hourly services between Galway and Connolly Station (alternative to Heuston). This would serve to further strengthen public transport interconnectivity by connecting the Galway/Mayo rail line with the Sligo rail line and potentially provide an additional line option for the Galway-Dublin service.

The Dublin/Sligo line is a dominant feature in the study area. In terms of integration for the scheme, it is important for users to have the option to access the Greenway by rail. Bus Eireann operate regional and local bus services, as well as the School Bus Service, which travel on the N52 through the study area. It is also important for users to have the option to access the Greenway by public transport.

APPENDIX B

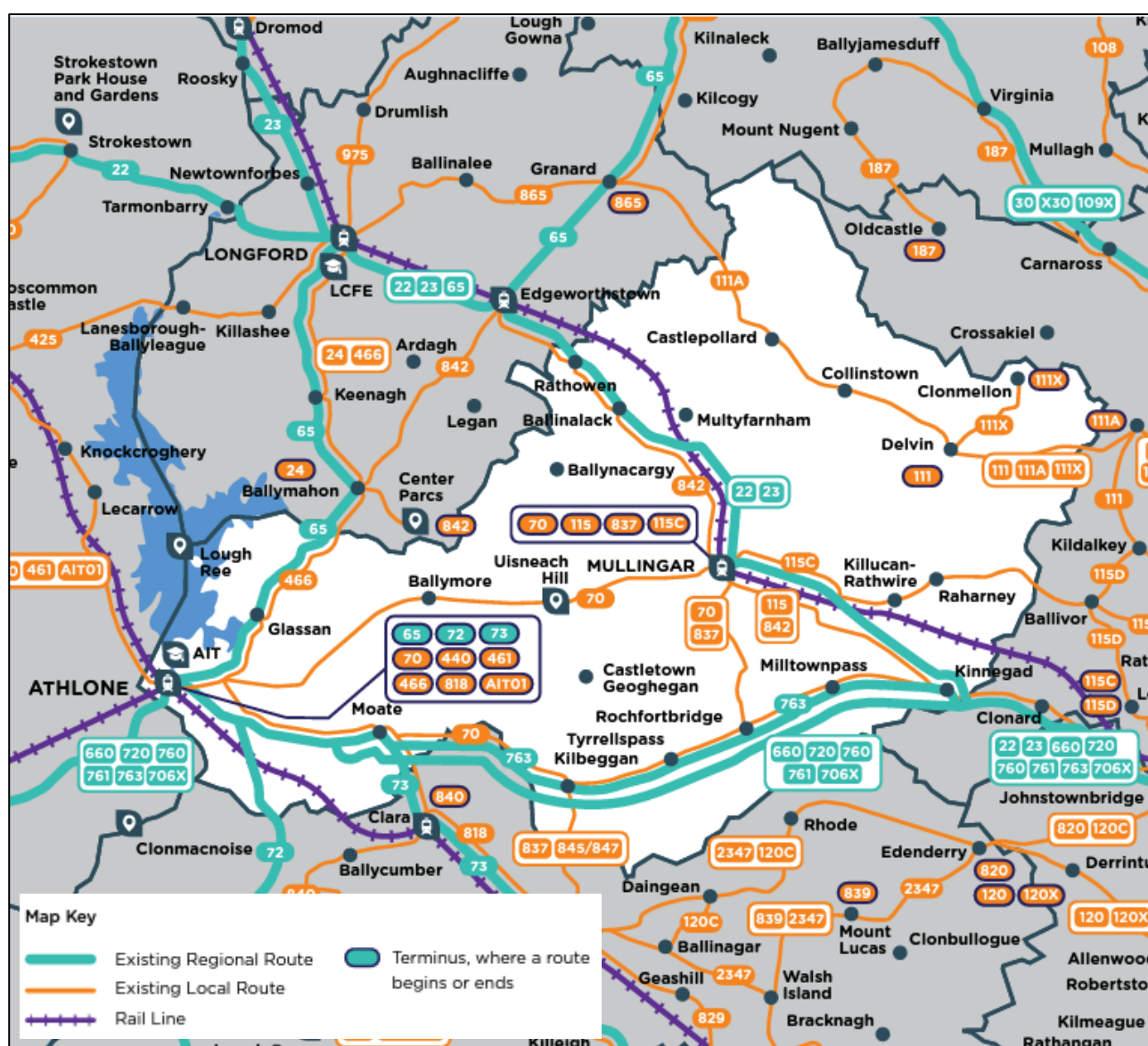


Figure B-24: Westmeath Public Transport Network

Walking and Cycling facilities

Off-road looped walking trails are located at various locations in the county, including Mullaghmeen Forest, Portlick Millennium Forest, the Shannon Banks Walk, Belvedere House, Gardens and Park and St. Feichin's Way in Fore. One long-distance National Waymarked Way exists from Mullingar to Kilbeggan called the Westmeath Way; however, this is fragmented and requires some work to re-route and upgrade. Excellent high-quality parklands offering smaller trails for walking and cycling include Burgess Park in Athlone, Mullingar Town Park and Dún na Sí Amenity and Heritage Park. The national trail routes relevant to the study area have been detailed in Material Assets Non – Agriculture 01 - 02

The Mullingar Cycle Hub Loop 2 is approximately 48km long and is the longest route and makes a tour of the countryside between Lough Owel and Lough Ennell. The Mullingar Cycle Hub Loop 2 is approximately 48km long and makes a circuit of Lough Ennell with opportunities to visit the lake at both Lilliput and Belvedere. Westmeath Way is a 33km-long low-level linear walking route from the town of Kilbeggan to the town of Mullingar. The route follows a section of the River Brosna and then public roads northwards to the townland of Lilliput on the shores of Lough Ennell.

Within County Westmeath, a total of 89km of greenways have been developed for the enjoyment of walkers and cyclists. The Royal Canal Greenway traverses the county via Mullingar and Old Rail Trail Greenway links Mullingar and Athlone. Both greenways interconnect in Mullingar and will form part of the Galway to Dublin,

APPENDIX B

Coast to Coast Greenway and EuroVélo 2, an international-scale tourism offering, when complete in the coming years.

A number of tourism development policy objectives identified in the WCDP relation to greenways, cycling and walking facilitates and are detailed below:

- **CPO 6.56** - Continue to augment the visitor experience on the county's greenways, through the provision of ancillary infrastructure as required, having regard to the DTTAS 'Greenways and Cycle Routes Ancillary Infrastructure Guidelines', along with high quality signage and links to nearby visitor attractions and places of interest.
- **CPO 6.57** - Support the provision of visitor services within existing towns and villages, such as cafes, accommodation etc, by providing linkages with greenways, trails etc where appropriate.
- **CPO 6.58** - Continue to support the development of the Galway to Dublin Cycleway, completing the connection to the west of the River Shannon in Athlone and working with neighbouring counties and national bodies to complete and promote the entire route. The development of the cycleway shall comply with the provisions of the Habitats Directive and the Department of Transport, Tourism and Sport's "Dublin to Galway Greenway Plan 2017" and associated measures relating to environmental management and sustainable development.
- **CPO 6.59** - Support increased opportunities for off-road walking, including looped walks and longer distance trails, taking account of 'positive control points' in trail design, such as areas of natural beauty, lakeshores or rivers, bogs, built heritage and archaeological features and with links to towns and villages where services may be provided for walkers and hikers. In designing walking trails, the Sport Ireland Guide to Planning and Developing Recreational Trails will be consulted.
- **CPO 6.60** - Continue to maintain and further enhance the County's walking and cycling trails, striving to achieve National Trails accreditation and other standards as set by Sport Ireland, in partnership with local communities and landowners.
- **CPO 6.61** - Support the re-routing and upgrade of the Westmeath Way walking trail, bringing it off-road and link to scenic areas where possible, ensuring its status as an accredited National Waymarked way in the long term and exploring options such as the Walks Scheme for future maintenance.
- **CPO 6.62** - Support the provision of visitor interpretation along walking and cycling trails, including storyboards, artworks and other media, to create a greater sense of place, connecting and immersing visitors in our local heritage and stories.
- **CPO 6.63** - Support the provision of services for visitors using walking and cycling trails which are appropriate to the location and activity, including bike service points, picnic benches at scenic locations, public toilets in remote areas etc
- **CPO 6.64** - Support the provision of a greenway link from Mullingar to the Lough Ennell shoreline and to Belvedere House, Gardens and Park, subject the protection of environmentally sensitive areas and the requirements of the Habitats Directive.
- **CPO 6.65** - Seek to improve and upgrade signage and trail infrastructure at Portlick Millennium Forest and Mullaghmeen Forest and promote these scenic looped walks.
- **CPO 6.66** - Support the delivery of a River Shannon walking and / or trail, from Athlone to Clonmacnoise in collaboration with local communities and Offaly County Council and from Athlone to the Royal Canal at Ballymahon in collaboration with Longford County Council.
- **CPO 6.67** - Promote the principles of 'Leave no Trace' in all trail information panels, promotional materials and events and use all statutory procedures to deter negative environmental impact resulting from use of our trails and outdoor recreation amenities.

Public Rights of Way

Existing public rights of way constitute an important amenity and they enable the enjoyment of high-quality landscapes, providing a valuable link to natural assets and places of natural beauty such as the lakes, bogs and forests to those that live and visit the County. There are a number of public accesses to the lakes within the county. Westmeath County recognises the importance of protecting the rights of way in order to encourage the greater use of frequently associated amenity areas.

APPENDIX B

There are several walking routes throughout the County through publicly owned lands including the Royal Canal Way and Coillte forests such as Mullaghmeen and Slí Na Sláinte. There are other pedestrian rights of way within the County such as mass paths, which have existed for centuries but not all of which are readily identifiable.

There are 3 public rights of way in or close to the study area. These are detailed in Figure Material Assets Non – Agriculture 03:

1. Royal Canal

11. Cloncrow Bog

13. Mullingar Town

- Piper's Boreen;
- Hillside Drive to Ballinderry;
- Millmount to Ballinderry;
- Lynn Avenue to Ballinderry;
- Lynn Road to Newlands; and
- Auburn Avenue

It is a policy objective of Westmeath County Council to:

- **CPO 12.88** - Cooperate with Coillte in the establishment of access ways, nature trails etc. with a view to opening up state forests for recreational use, compatible with forestry requirements.
- **CPO 12.89** - Review and protect existing public rights of way for the common good and bring forward proposals for the creation of public rights of way (including access to historical sites and graveyards). Where appropriate, links to established public rights of way in adjoining counties will be identified.
- **CPO 12.89** - Ensure that Public Rights of Way are well marked and signposted.

Utilities

Utilities in the study area include water supply networks, telecommunications, storm and foul sewers, electricity supply and gas pipelines. The potential for conflict with such utilities will be investigated during assessment of viable options and study design.

The electricity infrastructure across the study area was examined, which showed that within Mullingar town centre there was predominately 110kV Overhead Lines. There is also a 110kV station in Mullingar and a sub-station facility in Lanesborough, as illustrated in Figure B-25. Any potential interruptions to services are unlikely.

APPENDIX B

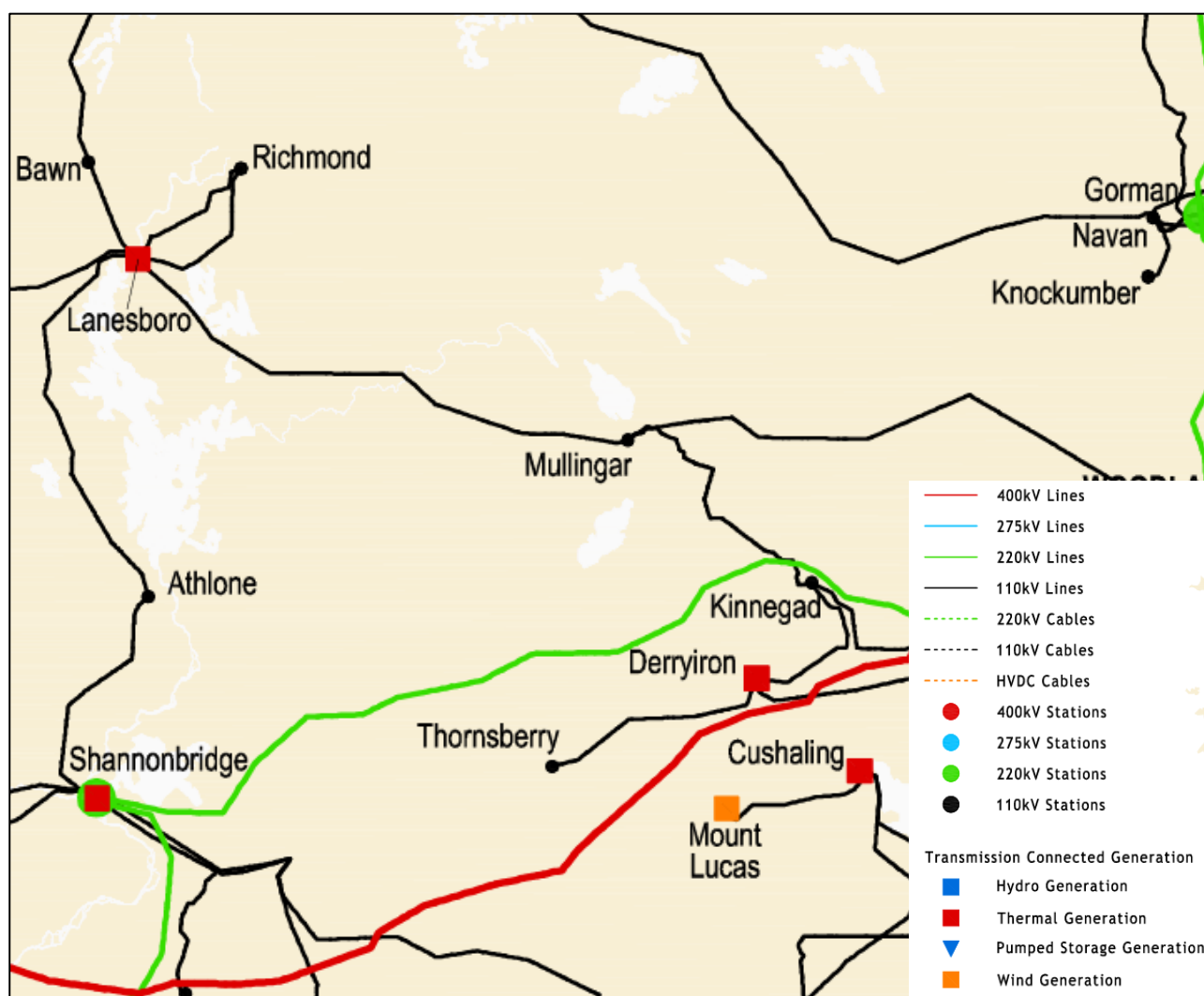


Figure B-25: Electricity infrastructure across the study area

Waste Management

There will be a requirement to handle, store, remove and dispose of waste material in accordance with the relevant waste management legislation. Waste material will be generated from two sources:

- Wastes resulting from general construction on-site; i.e., waste fuels, oils from machinery, cement and concrete from required masonry works and wastewater from sanitary facilities.
- Any excess excavated materials generated from general site clearance and earthwork excavations, including, where necessary, bridge abutments, as well as construction and demolition waste from proposed bridge works and other construction activities.

The nature of the waste generated from site clearance and earthworks will generally be vegetation and topsoil. Where this material is to be stored on-site and reused it is important that it is not stored close to any watercourses or lakes. Any excavated material which is deemed unacceptable for re-use in the works will have to be removed off-site for disposal or for processing and as such may be required to be removed or disposed of under a waste permit or certificate of registration from the local authority.

Telecommunications

The telecommunications policy for the county is based on the Guidelines for Planning Authorities with regard to Telecommunications Antennae and Support Structures and any revisions. A review of the outdoor mobile

APPENDIX B

phone coverage for one of Ireland's leading service providers shows good coverage for the majority of the Study Area. Some areas of poor phone coverage were noted around La Mancha, Prebawn, Ballinagore, and Castletown. It is essential for Greenway users to have phone coverage in the event of an emergency when using the route. Data from the Commission of Communications Regulation for outdoor phone service is shown in Figure B-26 below.

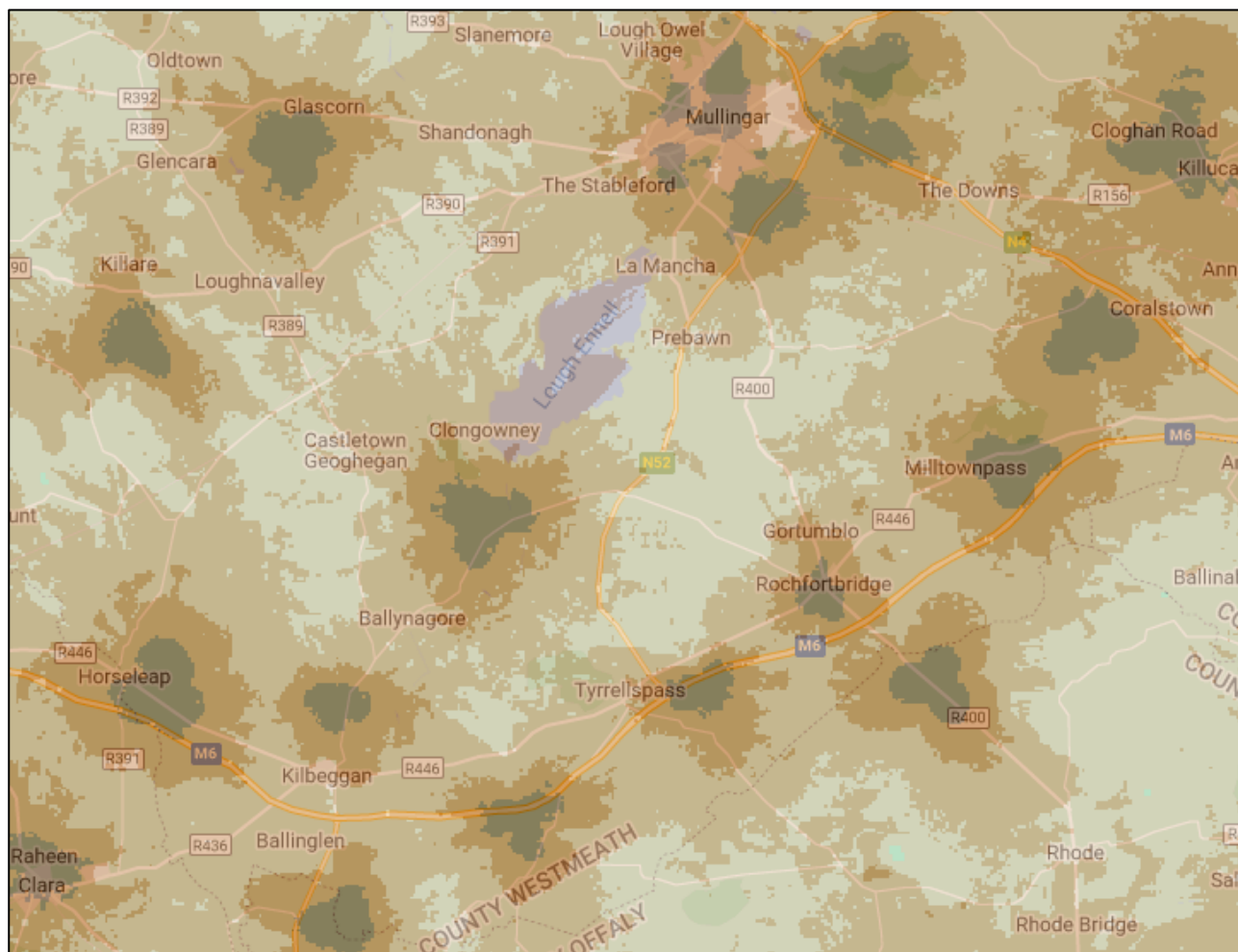


Figure B-26: Average Mobil Network Coverage

APPENDIX B

B.1.7 Material Assets – Agricultural

B.1.7.1 Introduction

The following information was considered during the assessment of agricultural constraints in the study area;

- Census of Agriculture, 2010;
- Census of Agriculture 2020 - Detailed Results;
- CORINE (Co-Ordinated Information on the Environment) Landcover 2018;
- Google Earth;
- Westmeath County Development Plan 2021 – 2027; and
- Teagasc EPA Soil & Subsoil Mapping.

B.1.7.2 Existing Environment

Agricultural practices within the study area are typical of the Border, Midlands and Western (BMW) region as a whole.

The Census of Agriculture (2010) figures recorded 3,459 farms within County Westmeath. The total area of farmed land excluding commonage was approximately 128,371 hectares, with an average farm size of approximately 37.1 hectares.

Figures presented in Table B-4 below have been extracted from the Census of Agriculture (2010) data. The Study Area falls within the following 20 different Electoral Division (ED) EDs (although it does not make up the entirety of all 20 EDs);

- Ardnagglew
- Ballinagore
- Belvidere
- Carrick
- Castletown
- Churchtown
- Clonfad
- Dysart
- Greenpark
- Hopestown
- Jamestown
- Kilbeggan
- Kilcumreragh
- Lauree
- Middleton
- Mullingar North Urban
- Mullingar Rural
- Mullingar South Urban
- Newtown
- Streamstown

APPENDIX B

Although we have identified EDs the data presented is within Westmeath. Further data will be obtained in relation to EDs in the Option Appraisal Stage.

In total, grassland for pastoral grazing and silage/hay are the dominant land uses of the total farmed area in County Westmeath, as detailed in Table B-4. These grasslands are abundant right across the study area.

Table B-4: Farming Practices within County Westmeath (2020 Census of Agriculture)

County	Type of Crop	Size (Hectares)
Westmeath	Average Area farmed (AAU)	38.1
	Commonage	4
	Pasture	64,952
	Hay	3,141
	Grass silage	27,448
	Other crops fruit and horticulture	2,636
	Total cereals	4,539
	Rough grazing in use	5,781
	All grassland	123,744

These land use patterns are also evident from the CORINE 2018 database. The CORINE (Co-Ordinated Information on the Environment) land cover mapping was generated and is maintained by the European Community (EC). The impetus for this mapping was to provide a comparable and standardised data source of geo-spatial information across the European environment, with the most recent iteration of the land use and habitat classification data series made available in 2018 (Referred to in this report as CORINE 2018). Land cover distributions across the study areas. These areas correlated well with the aerial photography and with the available soil mapping.

Table B-5 below shows the total number of livestock recorded in Westmeath in the 2010 and 2020 census of agriculture. As the census of agriculture 2020 is only preliminary some of the results are approximate and some are not available at the time of writing.

Table B-5- Livestock Types within County Westmeath (Census of Agriculture 2010 and 2020)

Livestock Type	Total Number of Animals per Census Year	
	2010	2020
Cattle	206,745	231,955
Sheep	116,809	146,883
Pigs	79,490	62,765
Farmed Deer	19	N/A
Horses and Ponies	2,653	N/A
Poultry	58,239	71,400

This data correlates well with the land use breakdown in Table B-5. The principal land use (pasture) would primarily support the number of sheep within the study area as sheep would also be heavily dependent upon pastoral grazing and mountainous breeds would also be accustomed to rough grazing. Cattle would also rely heavily on pasture. Equine stock would also rely on pastoral grazing, but given the nature of the equestrian industry, horses and ponies are largely kept in equestrian centres, stables, stud farms and other specialist farm types, where their diets would be supplemented with other food sources.

At this stage of the project there is an understanding of the average farm size. Farm sizes can also be observed from the aerial photography from and from information available on the Property Registration Authority web site. These together were combined to give a greater understanding, from a high level, of agricultural practices and the intensity at which they may be farmed. Further consideration of these features will be undertaken during the Phase 2 Option Selection process.

Census 2022 published results recorded a total of 7,362 persons identifying their occupation being in the industrial category of 'agriculture, fisheries and forestry' within the Midlands region. On a national level, the Census of Agriculture (2020) detailed results indicates that more than half (57.11%) of all farm holders in 2020 were aged 55 years or older. Comparatively in 2010, more than a half (51.4%) of all farm holders were aged over 55 years. More than half (50.3%) of all farm holders in Westmeath in 2010 were aged 55 years or older and the number of holders aged less than 35 years represents just 5.9%.

APPENDIX B

Consideration was also taken of the soils within the study area by reviewing the Teagasc EPA Soil & Subsoil Mapping included in section B.1.3 Lands, Geology & Soils.

The well-drained soil would be considered the better soils in the region and coincide well with tillage and good grassland seen in the aerial photography. Areas of bogs within the study area would be considered the poorer quality land, with impaired drainage, and coincide with the smaller field patterns, forestry and poor grassland/scrub seen in the CORINE 2018 mapping and aerial photography.

B.1.7.3 Potential Impact

The development of any new greenway in Ireland has the potential to impact agriculture as this is the most common land use. The level of impact will be a function of the following factors.

- Area of lands acquired (temporary and permanent) for the construction and operation;
- Area and orientation of lands (and facilities) severed;
- Farm enterprises;
- Intensity of farming practices; and
- Current management systems.

At this early stage of the project the area of private lands required is not known. Therefore, only a high-level examination of agriculture practices was undertaken in the study area to identify aspects of agriculture that could represent a constraint to the development of a new greenway within these areas.

The following are the farming practices considered in this constraints study and the unique aspects of these practices that can potentially be impacted:

- Dairy Farming – This is one of the more profitable farming enterprises. These farms require stock to be moved to and from the place of milking to the grazing area twice daily. Due to this frequency of movement difficulties, such as accessing grazing areas that may be affected by a greenway, will cause some inconvenience on these holdings. Where possible dairy farms, particularly the paddocks used by the dairy herd for daily grazing, should be avoided if possible. Avoidance of the areas used for silage, hay or the areas used for grazing replacement stock, while desirable, would have a much lower significance if affected by linear developments.
- Horse Facilities – Horses, particularly thoroughbred horses are of a more nervous disposition than other stock types and are prone to stress caused by irregular noise from pedestrians and cyclists, which may arise from the close proximity of the greenway to the grazing area. These fields may be less suitable for grazing with equine stock due to an increased risk of injury.
- Poultry/ Pig Units – These are intensive agricultural facilities and while the footprint occupied by these facilities may be small, they can be particularly sensitive to disturbance which is reflected in reduced productivity. Furthermore, and of particular note, these facilities have very strict disease control protocols and should be avoided entirely if identified in the study area.
- Drystock – Enterprises such as beef and sheep are generally less affected than dairy farms. Stock on these farms are not moved from field to field as frequently as on a dairy farm. Although there may be an impact, the farming practices on these farms may be adapted to mitigate the overall impact and therefore these farms are better able to absorb potential impacts from new linear developments.
- Tillage – This farm enterprise is generally less severely affected than livestock farms. Machinery can easily move from one land parcel to another although there are additional costs involved especially where the remaining areas are of a less regular shape. However, it is unlikely the greenway will impact significantly on the size of the remaining which should remain suited to operate large machinery and therefore avoid any change in enterprise type.
- Forestry – Forestry within the study areas is mostly associated with the state organisation Coillte. However, there is some private forestry in the area. Regardless of the ownership severance of commercial

APPENDIX B

forestry is not likely. Removing the outer trees from a forestry block or exposing inner trees can considerably increase the effects of wind blow and should be avoided.

- Farm Buildings – Severance of farm buildings may cause some impact on the day-to-day management of a farm and in the case of dairy farms may make the operation of the enterprise difficult.

B.1.7.4 Material Assets: Agriculture Identified Constraints

The current greenway strategy outlines utilising state-owned lands where possible (albeit limited in this instance). Despite best efforts that will be made in routing decisions to avoid the necessity of purchasing land to complete the network, arrangements with private landowners will be required.

Based on this high-level assessment, a good understanding of the farming practises and profiles has been obtained. The various farming practises in the study area each have unique aspects that can potentially be impacted and will require careful consideration. Early consideration of how options can integrate with the existing agricultural practises in the area will be essential and will be fully explored.

APPENDIX B

B.1.8 Cultural Heritage

Introduction

UNESCO define the term 'Cultural Heritage' as encompassing several aspects of tangible assets (immovable: archaeological sites and monuments, architectural heritage buildings; movable: artefacts; and underwater: shipwrecks and ruins) and intangible assets (e.g., folklore, oral tradition and language). Broadly, 'Cultural Heritage' includes the designated and non-designated heritage categories of (i) archaeology (known and unknown), (ii) architectural (built) heritage and (iii) history and folklore.

A desk-based identification of all recorded archaeological monuments, architectural heritage structures, surveyed gardens/demesnes and significant cultural heritage features within the Constraints Study Area (CSA), and the legal status of same is presented below. Summarised archaeological and historical overview of the CSA is provided, along with discussion of key significant constraints and identifiable areas of heritage note.

Legal Framework

There are a number of mechanisms under the *National Monument Act 1930* (as amended), the *Heritage Act 1995* and relevant provisions of the *National Cultural Institutions Act 1997*, that are applied to secure the protection of archaeological remains, which are held to include all man-made structures of whatever form or date except buildings habitually used for ecclesiastical purposes.

The *National Monuments Act 1930* (as amended) secures designation of sites of national significance as National Monuments, enters archaeological sites onto the Register of Historic Monuments (RHM) and the Sites and Monuments Record (SMR); and includes sites in the Record of Monuments and Places (RMP). All RMP sites receive statutory protection under the Act. The Act also allows for the placing of Preservation Orders and Temporary Preservation Orders on endangered sites, which secures designation protection as that for National Monuments. There are approximately 489 No. SMR sites located within the CSA.

Section 3 of the *National Monuments (Amendment) Act 1987* as amended by the Section 18 of the *National Monuments (Amendment) Act 1994* makes specific provision for underwater archaeological objects, including that a person shall not dive on, damage, or generally interfere with, any wreck or archaeological object, except in accordance with a licence issued by the Minister of DCHG under Section 3 (5) of the Act.

Protection of the architectural heritage in Ireland is provided for through a range of legal instruments that include the *Heritage Act 1995*, the *Architectural Heritage (National Inventory) and National Monuments (Misc. Provisions) Act 1999*, and the *Planning and Development Act 2000*. Under the *Planning and Development Act 2000* all Planning Authorities are obliged to keep a 'Record of Protected Structures' (RPS) of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest. The relevant development plan pertaining to the CSA at the time of writing is the *Westmeath County Development Plan 2021-2027*. There are approximately 280 No. RPS structures located within the CSA.

The National Inventory of Architectural Heritage (NIAH) was established to record architectural heritage structures within the State and to advise local authorities in relation to structures of architectural heritage significance within their administrative areas. There are approximately 374 No. NIAH structures located within the CSA.

Methodology

This study has been compiled based on the Guidelines for the Assessment of Archaeological Heritage Impacts of National Road Schemes and Guidelines for the Assessment of Architectural Heritage Impacts of National Road Schemes as published (2005) by Transport Infrastructure Ireland (TII) together with due cognisance of the Code of Practice for Archaeology agreed between the Minister for Arts, Heritage, Regional, Rural and Gaeltacht Affairs and Transport Infrastructure Ireland (TII) (2017). The objective of the constraints study is to identify all known archaeological monuments, protected (architectural) structures and other features of cultural

APPENDIX B

heritage significance within the defined CSA including the legal status, if any, of these features. Ultimately this shall serve to inform the Design Team of all relevant heritage constraints, including sites vulnerable to impact.

A desk-top study of recorded heritage datasets and documentary survey records was undertaken in order to identify all recorded archaeological, architectural and local historical heritage sites within the CSA. The collated information shall provide a cursory insight into the historical development of the CSA over time and shall assist in an overall evaluation of potential presence of hitherto unrecorded cultural heritage sites.

Data Sources

Detailed below are relevant data sources utilised for this Cultural Heritage Constraints Report:

- Sites and Monuments Record (SMR) and Record of Monuments and Places (RMP) for county Westmeath as published by the Archaeological Survey of Ireland (SMR dataset exports from Historic Environment Viewer⁵ and a review of published (1998) RMP inventories).
- Record of Protected Structures (RPS) for Co. Westmeath per relevant current County Development Plan: *Westmeath County Development Plan 2021-2027*.
- National Inventory of Architectural Heritage (NIAH) Buildings Survey for Co. Westmeath per dataset downloads from Historic Environment Viewer.

Topography and Landscape Character

Westmeath is known as the Lakeland County, but its landscape includes a diversity of landscape types, ranging from rolling hills and lakes to peatlands, grasslands, woodlands, eskers and wetlands. The range of different landscapes found in Westmeath each have varying visual and amenity values, topography, exposure and contain a variety of habitats. Each landscape type also has a varying capacity to absorb development relative to its overall sensitivity.

The Landscape Character Assessment for Westmeath defines 11 Landscape Character Areas (LCAs) within the County as follows:

- Northern Hills and Lakes
- Inny River Lowlands
- River Deel Lowlands
- Central Hills and Lakes
- Royal Canal Corridor
- Lough Ree/Shannon Corridor
- Western Lowlands
- South Central Hills
- Uisneach
- Lough Ennell and South-eastern Corridor
- South Westmeath Eskers

The Constraints Study Area (CSA) is in the surrounding area of Lough Ennell, east of Tyrrellspass with Mullingar town centre to the north and Kilbeggan to the south.

The dominant topographical features of the CSA are the Lough Ennell shoreline, the N52 Ardee Bypass to the east and the M6 motorway to the south. The existing live Dublin – Sligo railway line resides to the north of the Study Area.

⁵ Available at: <https://webgis.archaeology.ie/historicenvironment/>

APPENDIX B

The CSA is comprised of a number of Landscape Character Areas as documented in the *Landscape Character Assessment of County Westmeath* within the *Westmeath County Development Plan 2021-2027*.

The *Landscape Character Assessment of County Westmeath* within the *Westmeath County Development Plan 2021-2027* sets this portion of the CSA within the following Landscape Character Areas:

- LCA 4 - Central Hills & Lakes;
- LCA 5 - Royal Canal Corridor;
- LCA 8 - South Central Hills;
- LCA 10 - Lough Ennell & South-eastern Corridor; and
- LCA 11 - South Westmeath Eskers.

The CSA is characterised predominantly with areas of pastureland of mixed productivity. Lough Ennell is situated to the western side of this Landscape Character Area (LCA) and is designated as an Area of High Amenity, SPA and SAC. A number of preserved views are listed from the R446 between Tyrrellspass and Rochfortbridge.

The area around Lough Ennell and particularly to the south of the lake is characterised by scrub land with a mixture of marsh, bog and poor pastureland. There is also a large tract of bog to the east of Rochfortbridge and Milltownpass along the county boundary. The bog areas in this LCA are mainly exploited but some have been left intact. This area has a large number of old demesnes, which are easily recognisable in the landscape with the existence of fine mature hardwood trees and estate walls in some cases. Settlements within this landscape have developed mainly along the main road network. These include Kinnegad, Milltownpass, Rochfortbridge, and Tyrrellspass along the former N6. Recreational areas have been developed on the shores of Lough Ennell including Ladestown, Lilliput and Tudenham. The M6 traverses the southern part of the LCA. The N52 By-Pass has also added to the transport corridor around Mullingar.

Archaeological Heritage

There are approximately 489 archaeological site SMR records located within the CSA, as shown in Figure Cultural Heritage 01. Of this total 9 No. are redundant records.

APPENDIX B

Architectural Heritage

There are approximately 280 No. Record of Protected Structures (RPS) sites within the CSA, as show in Figure B–27 below and approximately 374 No. sites listed on the National Inventory of Architectural Heritage (NIAH), as shown in Figure Cultural Heritage 02, located within the CSA.

Both the NIAH and RPS sites are generally dispersed along the road network throughout the CSA, with high concentrations in and around the towns and villages.

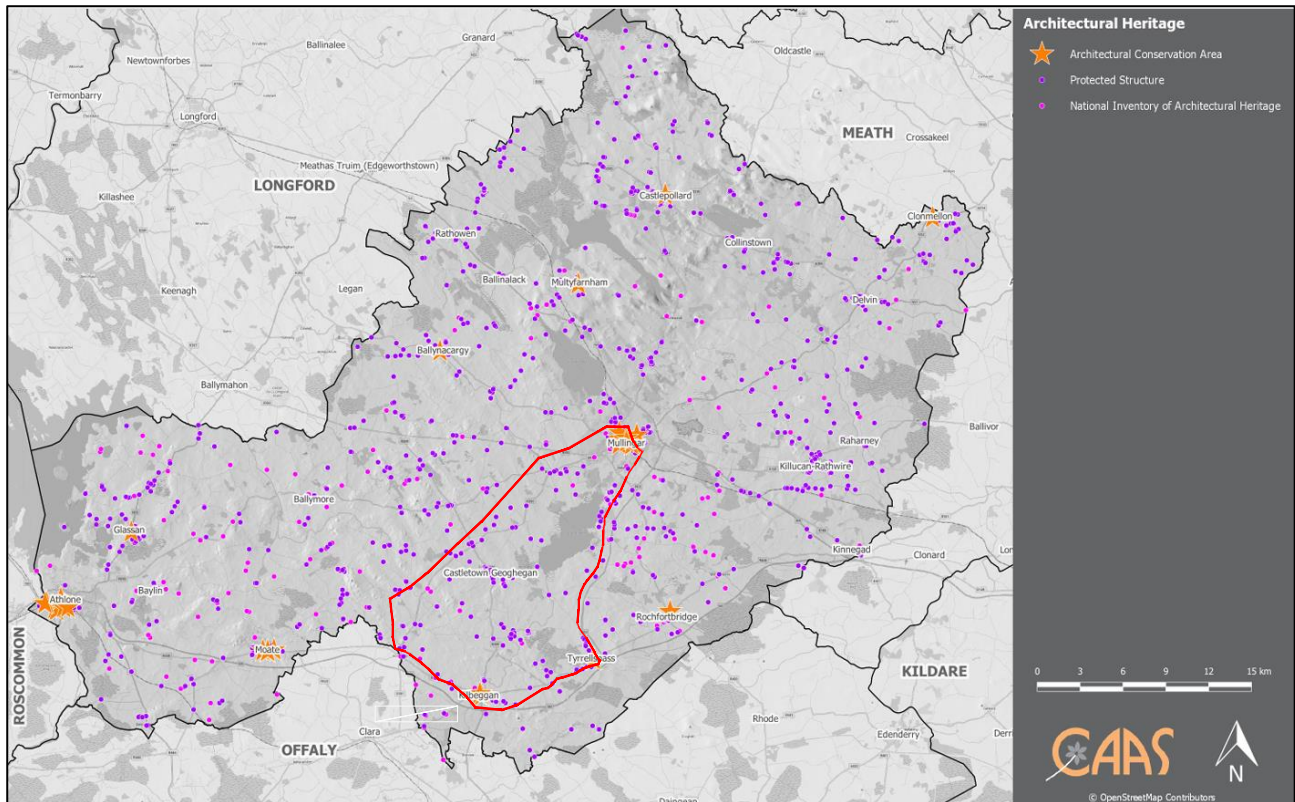


Figure B–27: Record of Protected Structures (RPS) sites

APPENDIX B

B.1.9 Landscape

This section of the report presents the constraints and opportunities pertaining to landscape and visual amenity that are relevant to the Killbeggan to Mullingar Greenway.

The approach to the reporting of constraints was guided by the following:

- Landscape Institute and Institute of Environmental management and Assessment, Guidelines for Landscape and Visual Impact Assessment, 3rd Edition, (2013);
- TII, Landscape character assessment (LCA) and landscape and visual impact assessment (LVIA) of proposed national roads: Standards Document, PE-ENV-01105, Draft January 2019; and
- TII, Landscape character assessment (LCA) and landscape and visual impact assessment (LVIA) for Specified Linear Infrastructure Projects: Overarching Technical Document, PE-ENV-01104, Draft January 2019.

The constraints study and comparative assessment was informed by the following data sources:

- Westmeath County Development Plan (WCDP) 2021-2027;
- Ordnance survey maps at varying scales; and
- OS Maps and Aerial photography.

Study Area

A Study Area was identified for the constraints and opportunities study across all environment disciplines and this area includes the southern part of County Westmeath. The study area comprises an extensive landscape in which, a range of landscape elements and features are located, and which require consideration in regard to developing a route that is scenic without undue effects on sensitive receptors.

Policy Landscape and Visual Amenity

Westmeath County Development Plan (2021 – 2027)

A review was undertaken of the County Development Plan (CDP) to establish if there are any relevant landscape-related designations that may influence the assessment within the study area. The Landscape character of the county is classified according to its visual sensitivity and ability to absorb new development without compromising the scenic character of the area.

Policies and objectives of relevance to this project in the current CDP are as follows.

Policy Objective CPO 13.1:

“Support the implementation of the National Landscape Strategy.”

Policy Objective CPO 13.2:

“Protect the distinctiveness, value and sensitivity of County Westmeath’s landscapes and lakelands by recognising their capacity to sustainably integrate development.”

Policy Objective CPO 13.3:

“Support and implement objectives contained in any Regional Landscape Character Assessment.”

Policy Objective CPO 13.4:

“Conserve and enhance the high nature conservation value of the Landscape Character Areas in order to create/protect ecologically resilient and varied landscapes”

Policy Objective CPO 13.5:

“Identify and integrate new green and blue infrastructure networks within the existing landscape character areas in the interests of biodiversity and climate change and in recognition of the tourism potential of these assets.”

APPENDIX B

Policy Objective CPO 13.6:

“Require that development is sensitively designed, so as to minimise its visual impact on the landscape, nature conservation, archaeology and groundwater quality.”

Landscape Character Type

Landscape Character Types are distinct landscapes that are relatively homogeneous in character. They are generic in nature in that they may occur in different areas in different parts of the country, but wherever they occur they broadly share similar combinations of geology, topography, drainage patterns, vegetation, historical land use and settlement pattern. For example, drumlins and mountain moorlands are recognisable and distinct landscape character types.

They are generic in nature in that they may occur in different areas in different parts of the county, but wherever they occur they broadly share similar combinations of geology, topography, drainage patterns, vegetation, historical land use and settlement pattern.

Landscape Character Areas

Landscape Character Areas are unique, geographically specific areas of a particular landscape type. Each has its own individual character and identity, even though it shares the same generic characteristics with other areas of the same type. This distinction is reflected in the naming of types and areas - Landscape Character Types have generic names, while Landscape Character Areas are based on the names of specific places.

The published county landscape character assessment identifies 11 landscape character areas of which 5 of these occur within the study area. Each landscape character area is assigned a ranking in terms of value in accordance with four classes, these being Exceptional Value, Very High Value, High Value and Moderate Value.

Views

The scenic views contained within the CSA are illustrated in Landscape Figure 01. A number of different and distinctive types of scenic routes categorised as both roads based, and off road have been identified as follows:

- Lough Ree Driving Route
- Mullingar Cycling Hub
- The Táin Trail
- Old Rail Trail/ Greenway
- Royal Canal Way
- Fore Walking Routes
- Westmeath Way

Policies and objectives of relevance to this project in the current CDP are as follows.

Policy Objective CPO 13.81:

“Protect and sustain the established appearance and character of views listed in Appendix 5 of this plan that contribute to the distinctive quality of the landscape from inappropriate development.”

Policy Objective CPO 13.82:

“Provide and maintain facilities, including safe pedestrian access and/or car parking, and where appropriate, associated seats and signs in the immediate vicinity of views that are identified in this plan.”

Policy Objective CPO 13.83:

“Support the restoration of derelict sites and removal of derelict structures adjacent to scenic and tourist routes, using mechanisms such as the Derelict Sites Act 1990.”

APPENDIX B

Constraints and Opportunities

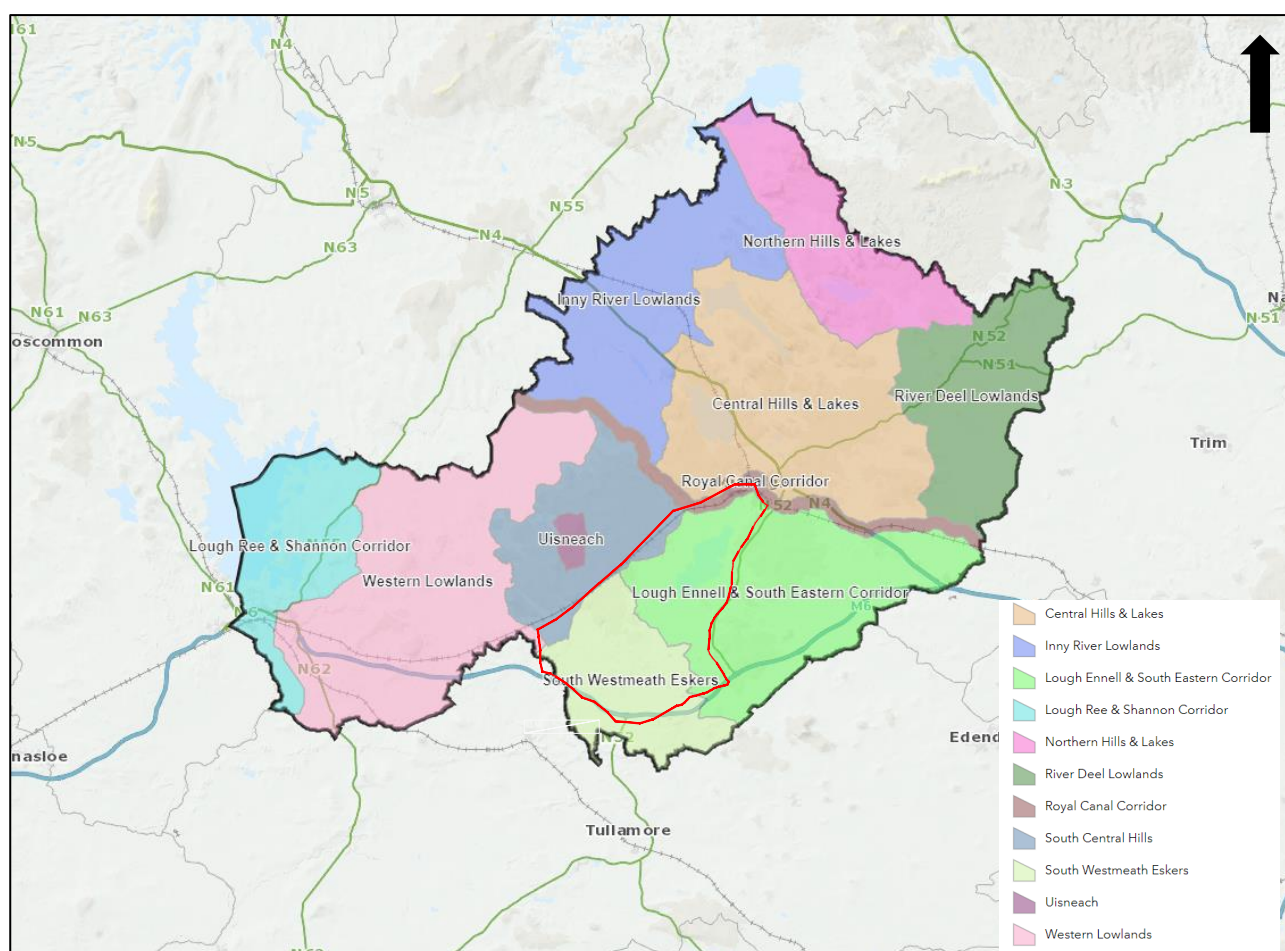
Landscape Value and Sensitivity Rankings

The LCAs within Westmeath that occur within the study area are tabulated in Table B-6 together with the value rankings as documented the published landscape character assessment.

Table B-6 Westmeath Landscape Character Areas within the Study Area

Westmeath Landscape Character Areas within the Study Area	Value
Landscape Character Area	Landscape Value
4. Central Hills and Lakes	High Value
5. Royal Canal Corridor	High Value
8. South Central Hills	High Value
10. Lough Ennell and Southeastern Corridor	High Value
11. South Westmeath Eskers	High Value

The LCAs that exist within the study area are shown in Figure B–28 below.



(Westmeath County Development Plan 2021-2027)

Figure B–28: Landscape Character Area Map

Landscape Character

Relevant descriptive data from the published landscape character assessment is presented below for each Landscape Character Area (LCA) within the study area. The Landscape Character Assessment does not make

APPENDIX B

any reference to overhead power lines and does not evaluate the sensitivity/vulnerability of the character areas. Within the Landscape Character Assessment each of the Landscape Character Areas is briefly described followed by a list of policies, the following of which were found to be relevant to this report:

Area 4. - Central Hills and Lakes

The landscape is described as follows:

“The Central Hills and Lakes Character Area is located to the north of the centre of the county. This area is typified by undulating hills and lakes, the most prominent of which are Lough Derravaragh and Lough Owel. These lakes are designated Areas of High Amenity, SAC and SPA. A number of fens occur throughout the area, the most notable being Scragh Bog which is of international importance. The high scenic quality and amenity value of this area is reflected by the high number of preserved views. There are a number of demesne landscapes in the area and associated valuable areas of semi-natural woodland, including oak on some upland areas, such as around Lough Derravaragh at Knockeyon and Crookedwood.

This area has a number of small settlements such as Crookedwood, Multyfarnham and the larger settlement of Castlepollard. The Character Area reflects the historic landscape from Bronze Age Sites on Lough Derravaragh and Frewin Hill at Lough Owel to the monastic associations of Portloman Abbey and the Franciscan Friary at Multyfarnham. The lake edges are attractive locations for recreation and amenity.”

Area 5. - Royal Canal Corridor

The landscape is described as follows:

“The Royal Canal has been a historic feature of the Westmeath landscape since the early 1800’s, flowing east to west through the county and is an important amenity feature. The canal flows through low-lying areas with the surrounding corridor typified by grassland, peatland and some areas of conifer plantation. The canal corridor is largely rural in nature, apart from the urban centre of Mullingar. To the west of Mullingar, the canal traverses a rural landscape of high scenic quality with undulating landform and a mature vegetation cover of hedgerows and trees. Some large conifer plantations border the canal towpath and dominate the visual corridor where present.

The canal corridor includes features of vernacular architecture and industrial heritage such as stone bridges, lock keeper’s cottages, lock gates and milestones which enhance the waterway. Westmeath County Council in cooperation with Waterways Ireland and funding from the Department of Transport, Tourism and Sport have developed a 47.6km length of the Royal Canal towpath as a walking and cycling route which extends to the County boundaries of Meath and Longford.”

Policy CPO 13.15 – Landscape Character Area 5: Continue to work with Waterways Ireland to enhance and protect the visual corridor of the Royal Canal, by incorporating a visual buffer zone on each side of the bank of the canal.

Area 8. - South Central Hills

The landscape is described as follows:

“This Character Area includes the hilly pastureland that exists to the east of Ballymore, stretching almost as far as Lough Ennell, north as far as the Royal Canal Corridor and is bounded to the south by an area predominantly characterised by esker systems. The area is typified by smooth, gentle hills and undulating pastures, with occasional northwest, south-east ridges. The highest point within this area is 200 metres, which is at Knockastia, Coolatore, a volcanic outcrop just south of the Hill of Uisneach, which also has the steepest slopes in the Landscape Character area.

This hilltop allows panoramic views across neighbouring counties and the approach to the hill, particularly from the Ballymore Road offers impressive opportunities to appreciate its scale. The Character Area also includes part of a system of eskers at Streamstown, which are displayed though a series of low ridges traversing the landscape in a northerly direction, resulting in a rural feel to these local roads as the land rises on either side. The area contains a number of small villages and clustered settlements but has remained quite rural in nature.”

Area 10. - Lough Ennell and South-eastern Corridor

The landscape is described as follows:

APPENDIX B

“This Character Area comprises pastureland of mixed productivity. Lough Ennell is situated to the western side of this Landscape Character Area (LCA) and is designated as an Area of High Amenity, SPA and SAC. A number of preserved views are listed from the R446 between Tyrrellspass and Rochfortbridge. The area around Lough Ennell and particularly to the south of the lake is characterised by scrub land with a mixture of marsh, bog and poor pastureland. There is also a large tract of bog to the east of Rochfortbridge and Milltownpass along the county boundary. The bog areas in this LCA are mainly exploited but some have been left intact. This area has a large number of old demesnes, which are easily recognisable in the landscape with the existence of fine mature hardwood trees and estate walls in some cases.

Settlements within this landscape have developed mainly along the main road network. These include Kinnegad, Milltownpass, Rochfortbridge, and Tyrrellspass along the former N6. Recreational areas have been developed on the shores of Lough Ennell including Ladestown, Lilliput and Tudenham. The M6 traverses the southern part of the LCA. The N52 By-Pass has also added to the transport corridor around Mullingar.”

Area 11. - South Westmeath Eskers

The landscape is described as follows:

“This landscape type occupies the southernmost area of the County and is distinguished by the prevalence of esker ridges. The area extends from Castletown-Geoghegan to Ballinagore, Rahugh and Horseleap. The area is bisected by the former N6 and the M6. Apart from the N6/M6 and the Ballynagore - Kilbeggan road, the area is traversed by a network of tertiary roads which in places run parallel to the esker ridges and create an enclosed and intimate landscape.”

Areas of High Amenity

Relevant descriptive data from the published landscape character assessment is presented below for each Areas of High Amenity within the study area.

Lough Ennell

“Lough Ennell along with Lough Owel is one of the closest lakes to Mullingar. Lough Ennell is well established in terms of recreational development and is a particularly important angling resource. There is a significant range of recreational infrastructure in place including Belvedere House, Park and Gardens, caravan and camping facilities and the Lilliput Adventure Centre with potential to be further consolidated and linked via recreational greenways.

It is Council policy to connect Mullingar to Belvedere and Lough Ennell. Belvedere House and Gardens typically attract c.160,000 visitors per annum and has c.2,280 members. Currently access to this attraction is typically by car, therefore, the provision of a Greenway from Mullingar town would boost visitor numbers and would provide an invaluable amenity for residents and tourists alike.

Given the ecological sensitivity of Lough Ennell, the Council has commissioned a habitat management plan for Council owned lands at Belvedere, Tudenham, Ladestown, Butler’s Bridge and Lilliput, which will form the foundation for enhancing the amenity value of Lough Ennell.”

Policy CPO 13.68 – Support the implementation of the Habitat Management Plan prepared for Council owned lands at Belvedere, Ladestown, Lilliput.

Policy CPO 13.69 – Prepare and implement a Lough Ennell Interpretive Plan to develop a consistent brand and messaging about the Lough and its wildlife, including the identification of a viewing hide for wildlife.

Policy CPO 13.70 – Support the preparation and implementation of a visitor management destination plan for Lilliput Adventure Centre taking account of the existing Habitat Management Plan prepared for Lough Ennell.

Policy CPO 13.71 – Continue to enhance use of the Lilliput Amenity Area and Adventure Centre, providing activities accessible to general visitors in addition to pre-booked groups, subject to the requirements of the Habitats Directive and the protection of sensitive environments.

Policy CPO 13.72 –Sustain the established appearance and character of views of Lough Ennell from the N52, Butler’s Bridge and La Mancha.

APPENDIX B

Summary of Constraints

Cognisance of the sensitive landscape areas present within the scheme area will be required during the option selection process in order not to significantly impact the characteristic features of the landscape character areas present. Opportunities to enhance the amenity value of the area should be explored during detailed design. A summary of the key constraints are as follows:

- The designation of a greenway route within the vicinity of Mullingar Town will allow users to appreciate the character of Mullingar Town, as well as potentially contribute to its development.
- Areas of commercial coniferous forestry are least desirable in terms of viewer interest and users' enjoyment of the surrounding landscape.
- A potential greenway route could be aligned to take advantage of views of the Scenic View on the R446 between Tyrrellspass and Rochfortbridge, as a form of low impact passive tourism.
- Nature designations to be avoided however greenway route could follow existing minor roads where this takes the users through habitat or landscape of interest.
- A route along an existing track could be developed as a scenic route with available views of the lough.
- The low impact nature of a greenway route should ensure there is no significant development that will adversely impact the surrounding landscape character.
- A potential greenway route could be aligned to take advantage of views of the hills, as a form of low impact passive tourism, that would not impact the open views of this landscape.
- Greenway route to be routed for the visual enjoyment where the user can attain long range views of the open landscape, bogs, lake views and areas of broad leaf woodland including seasonal autumn colour.

APPENDIX B

B.1.10 External Parameters

Existing Infrastructure and Cycleway Network

Situated on the River Brosna in the south of the County approximately 31km from Mullingar, Kilbeggan is located in close proximity to the M6 motorway and is well served with transport links to the main service centres of Mullingar, Athlone and Tullamore. There are other Regional and Local Roads, linking villages and townlands such as Castletown Geoghegan, Ballinacree, Sragh and Tyrrellspass. However, there is no route which caters for vulnerable road users, and no segregated facilities provided between these destinations.

Existing Journey Times

Cycle journey times in the area are presumed to be normal, with no specific data available for those using on road routes.

Existing Traffic Conditions

Vehicular traffic flows within the corridor are primarily concentrated on the N52 National Secondary Road. These routes have high traffic volumes with lower volumes generally dispersed throughout the Local Road Network.

Currently there are no counters for pedestrian or cyclist data available to indicate volumes in the area.

Required Quality of Service

The Quality of Service for cyclists is defined in the National Cycle Manual and is a measurement of the degree to which the attributes and needs of the cyclist (Pavement condition, Number of adjacent cyclists, Number of conflicts per 100m of route, Journey time delay, HGV influence) are met.

There are five levels of Quality of Service (A+, A, B, C, D) and the range of values of the five needs of the cyclist that correspond with each level of service. This is developed taking into account current international best practice and provides an optimal balance of provision between the various competing transport modes along the corridor and at junctions, whilst ensuring that the users' experience is safe, comfortable and reasonably free flowing. The five needs of cyclists are summarised under the five headings below.

Safety

Cycle networks need to be safe with a good quality surface and adequate segregation in place to avoid any conflicts. Any perception of a lack of safety for users could act as a deterrent to cyclists. There are existing road safety issues for cyclists between Kilbeggan and Mullingar, predominantly caused by a lack of suitable cycle infrastructure and no / limited segregation and high volumes of agricultural and commercial vehicles based on observed movements.

Coherence

Cycle networks should be logical and continuous with links to main destination centres. Continuity of the route is important on existing infrastructure through junctions, with clear and obvious layouts for cyclists. The level of coherence for cyclists is low between Kilbeggan and Mullingar with minimal dedicated cycle facilities in place.

Directness

Cycle networks for commuters need to be as direct as possible with minimal delays or detours. A positive advantage in terms of journey times should be clear when compared to other modes of transport. For leisure cyclists, this is much less important. There are indirect and unsegregated links for cyclists between Kilbeggan and Mullingar using the National Road Network.

APPENDIX B

Attractiveness

The environment along a cycle route should be interesting and attractive for both commuter and leisure cyclists. Ancillary facilities such as shelters are important to avoid over exposure to the elements for cyclists. Litter control and continual maintenance to ensure the route is fully clear of debris along with adequate lighting (where needed) are also important factors in providing an attractive route for cyclists. The environment and scenery between Kilbeggan and Mullingar are attractive but there are no dedicated ancillary facilities in place for cyclists.

Comfort

Anything that causes discomfort, or a disproportionate amount of effort is likely to result in a cycle facility not being used. Sufficient cycling comfort is achieved through providing effective widths, gradients, drainage and a smooth surface that has minimal interaction with motorists. The level of comfort for cyclists between Kilbeggan and Mullingar currently is low without any segregation from motorists.

B.1.10.1 Design Standards

TII Rural Cycleway Design Standard and the NTA National Cycle Manual outline design standards for cycle facilities that need to be considered for both rural and urban areas. The main principles within the TII and NTA standards are in line with the EuroVélo standards in relation to the provision of safe, coherent, direct, convenient, comfortable, attractive and accessible facilities. The scheme is to adhere to these standards when determining parameters such as Cycleway widths, gradients and design speeds. However, carefully judged deviations may be permitted, particularly in constrained areas, where it is judged that the performance of the Cycleway would not be reduced.

The TII Project Appraisal Guidelines will also be used to guide Cycleway designers and the decision makers through the process of ensuring that the best choices are made and the best value for money is obtained on this national road project.

B.1.10.2 Access Control

The scheme has potential to create positive benefits for accessibility within the area. The Kilbeggan to Mullingar Greenway will provide key linkage to various communities, giving access for vulnerable road users and locals alike. Access control measures will be required to prevent access to the Greenway by any motorised or other unpermitted users. Access control measures will be key to provide a safe environment for both cyclists and pedestrians.

B.1.10.3 Policy Document

This scheme is well supported by policies at all levels. Tourism is strongly emphasised as a source for economic development in the region. Internationally there is now an ever growing need to support more sustainable forms of transport and tourism, that contribute to the reduction of emissions and combat climate change.

The project is proposed in the context of a planning structure that underpins the proposal in terms of planning objectives and policies. The project will be considered with respect to all relevant policies including the National Planning Framework, National Cycle Framework, EuroVélo policy, Governments Strategy for the Future Development of National and Regional Greenways, Meath County Development Plan (2013-2019), Westmeath County Development Plan (2014-2020) and other relevant local area plans. Further details of how the proposed project meets the objectives of these plans and policies is outlined in the Project Brief.

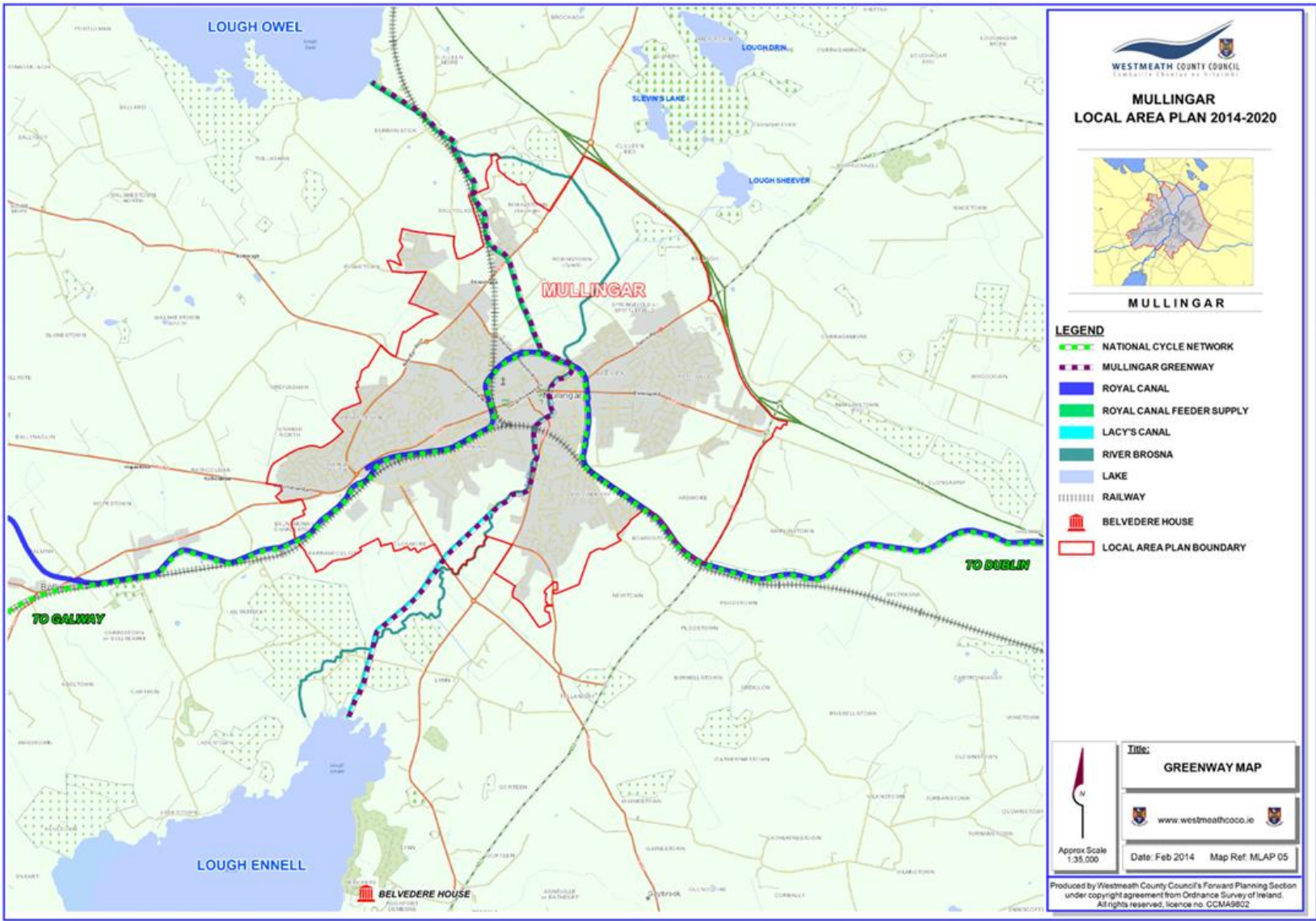
B.1.10.4 Previous County Development Plan 2014 - 2020

Local Area Plans

There are a number of Local Area Plans which set out strategies and frameworks for future developments within the study area. The strategic goals and policies of the LAPs offer an opportunity for the greenway to support the vision of these urban plans. Local Area Plans (LAP) This is a legal document and is a public statement of planning policies, prepared in consultation with the local community and members of the public. It sets out a strategy for the proper planning and sustainable development of an area, for example, village/town/district. The Plan seeks to provide a framework for how a settlement can develop.

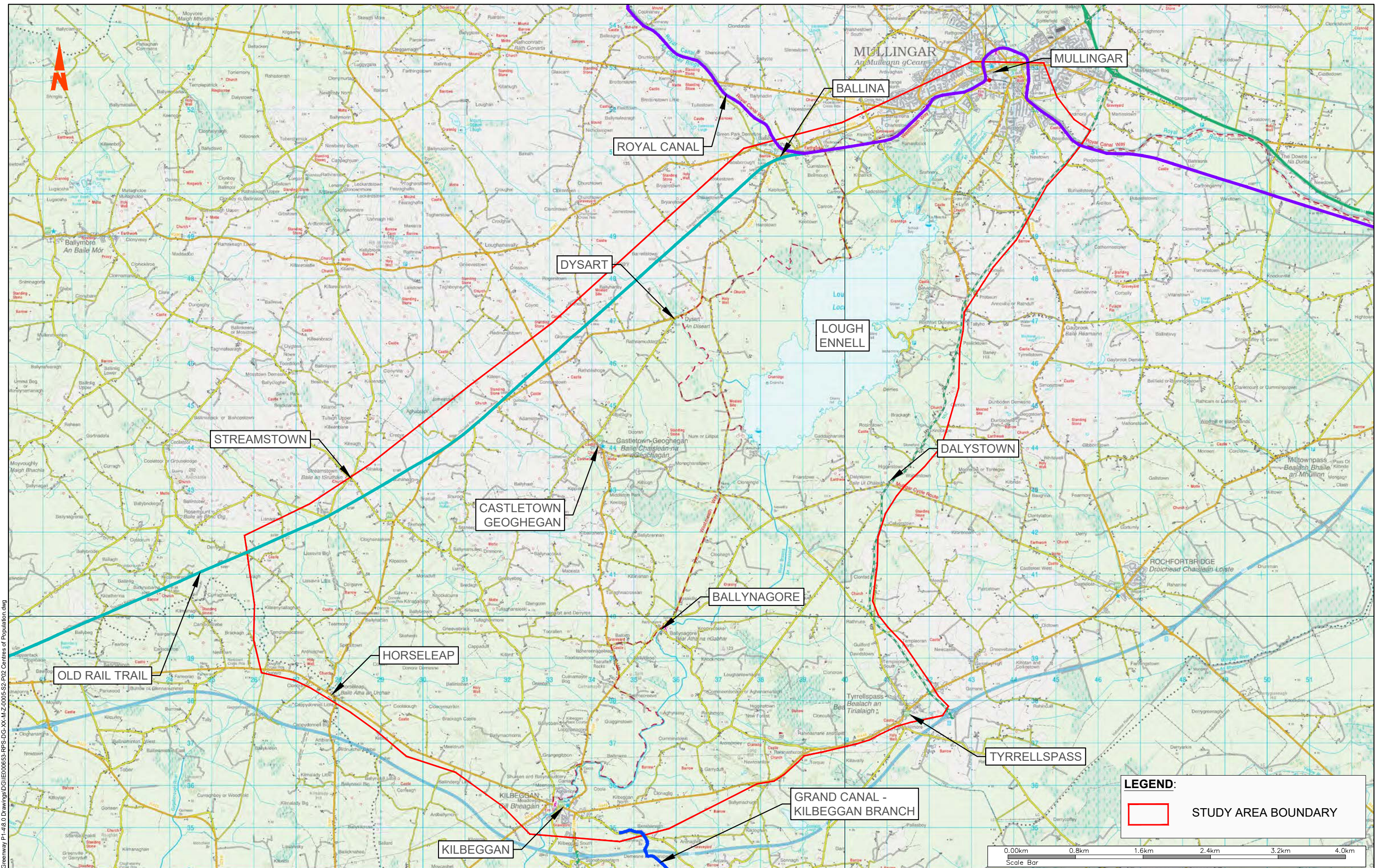
APPENDIX B

Mullingar Local Area Plan (2014 - 2020)



Appendix C

Drawings



Client



General Notes

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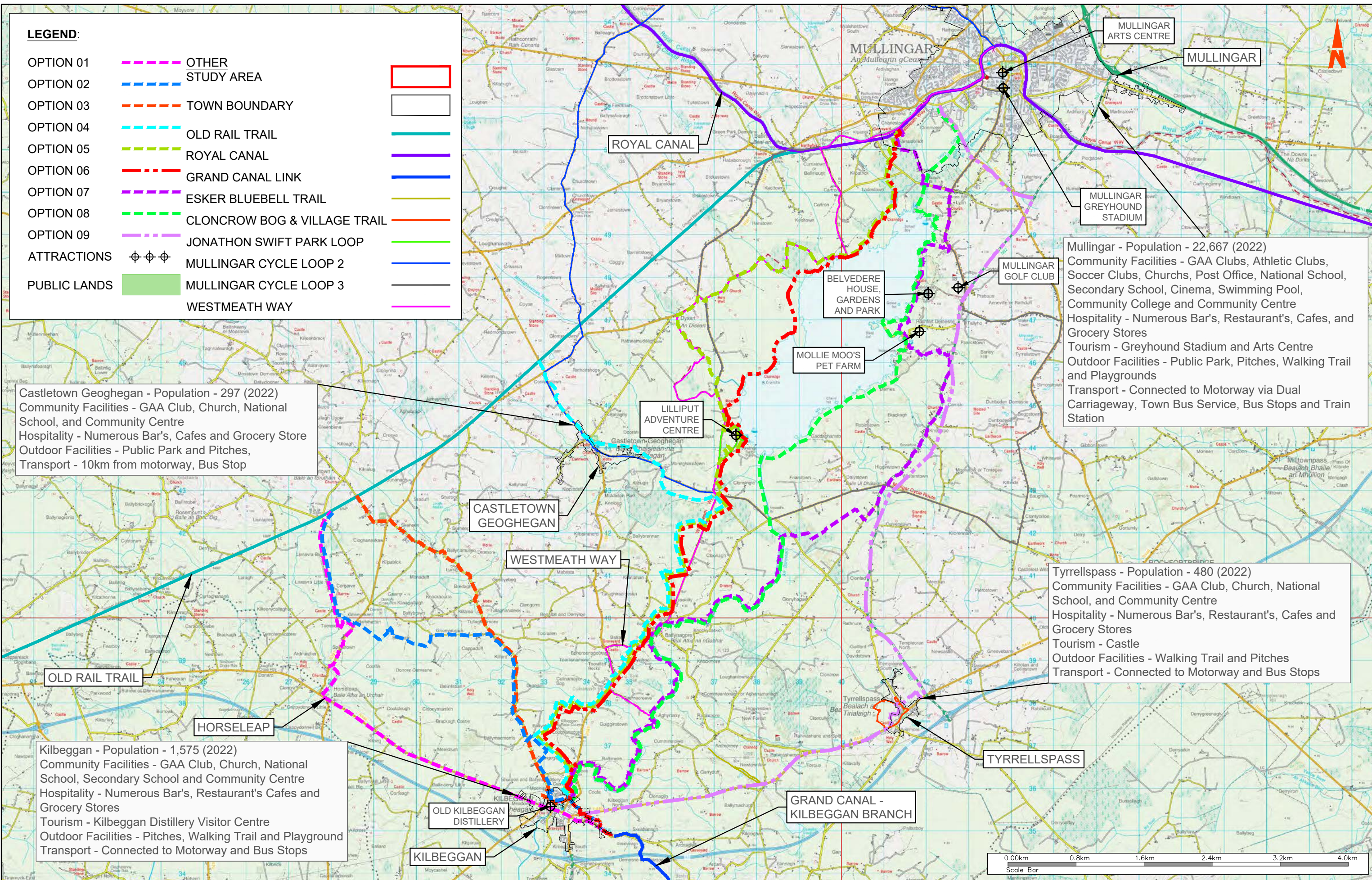
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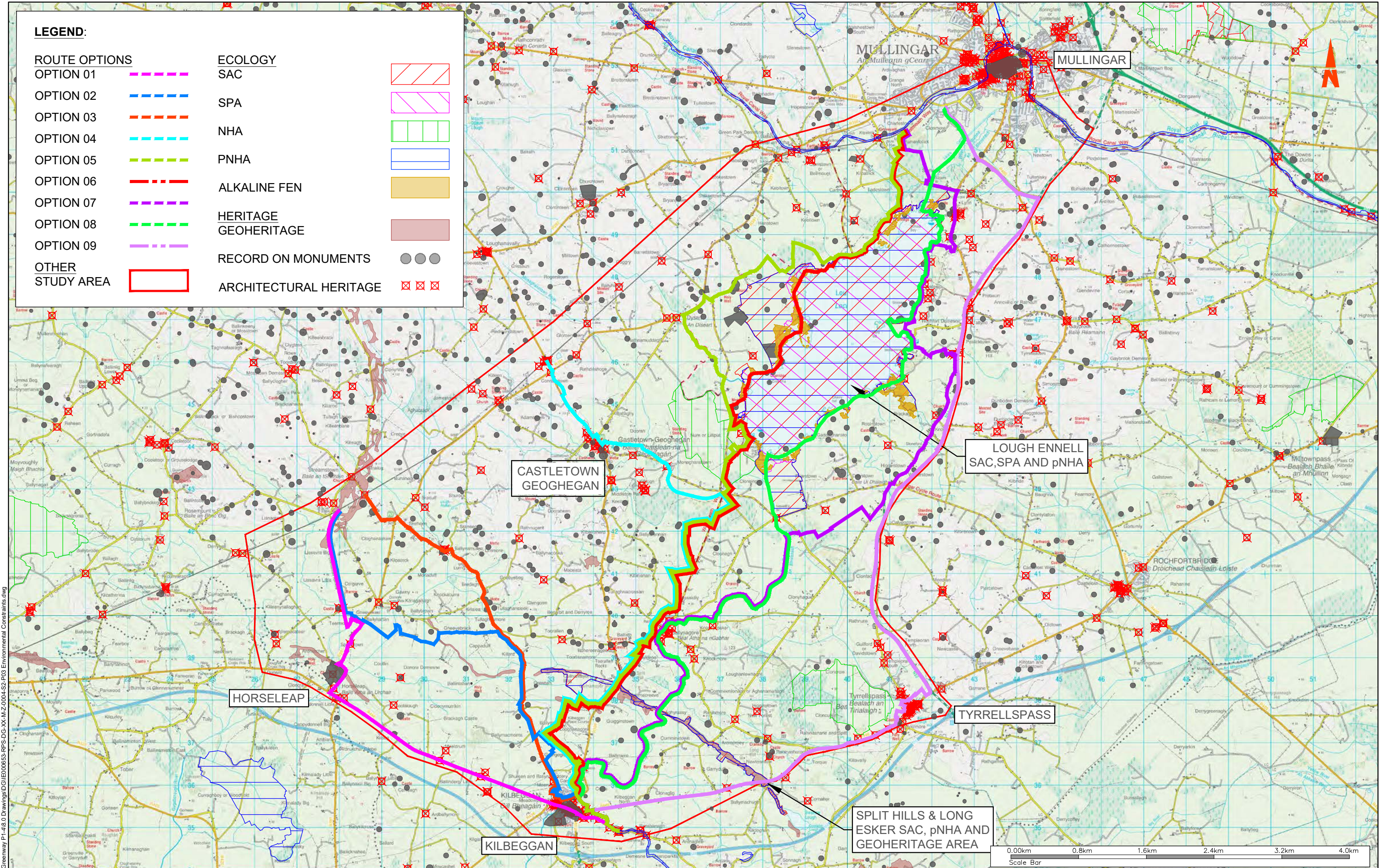
(iv) Information including topographical survey, geotechnical investigation and utility detail used in the design have been provided by others.

(v) All Levels refer to Ordnance Survey Datum, Malin Head.

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Client		General Notes		C01 09.02.24 P03 18.12.23 P02 24.11.23 P01 24.10.23		FINAL FOR INFORMATION FOR INFORMATION FOR INFORMATION		GME GME GME GME		Model File Identifier IE000653-RPS-DG-XX-M-Z-0003		Scale 1:40000 @ A1 1:80000 @ A3 Created on 24.10.23 Sheets 1 of 1		Project KILBEGGAN TO MULLINGAR GREENWAY Title LONG LIST OPTIONS OPPORTUNITIES		File Identifier IE000653-RPS-DG-XX-M-Z- 0003-01		Status A1		Rev C01	
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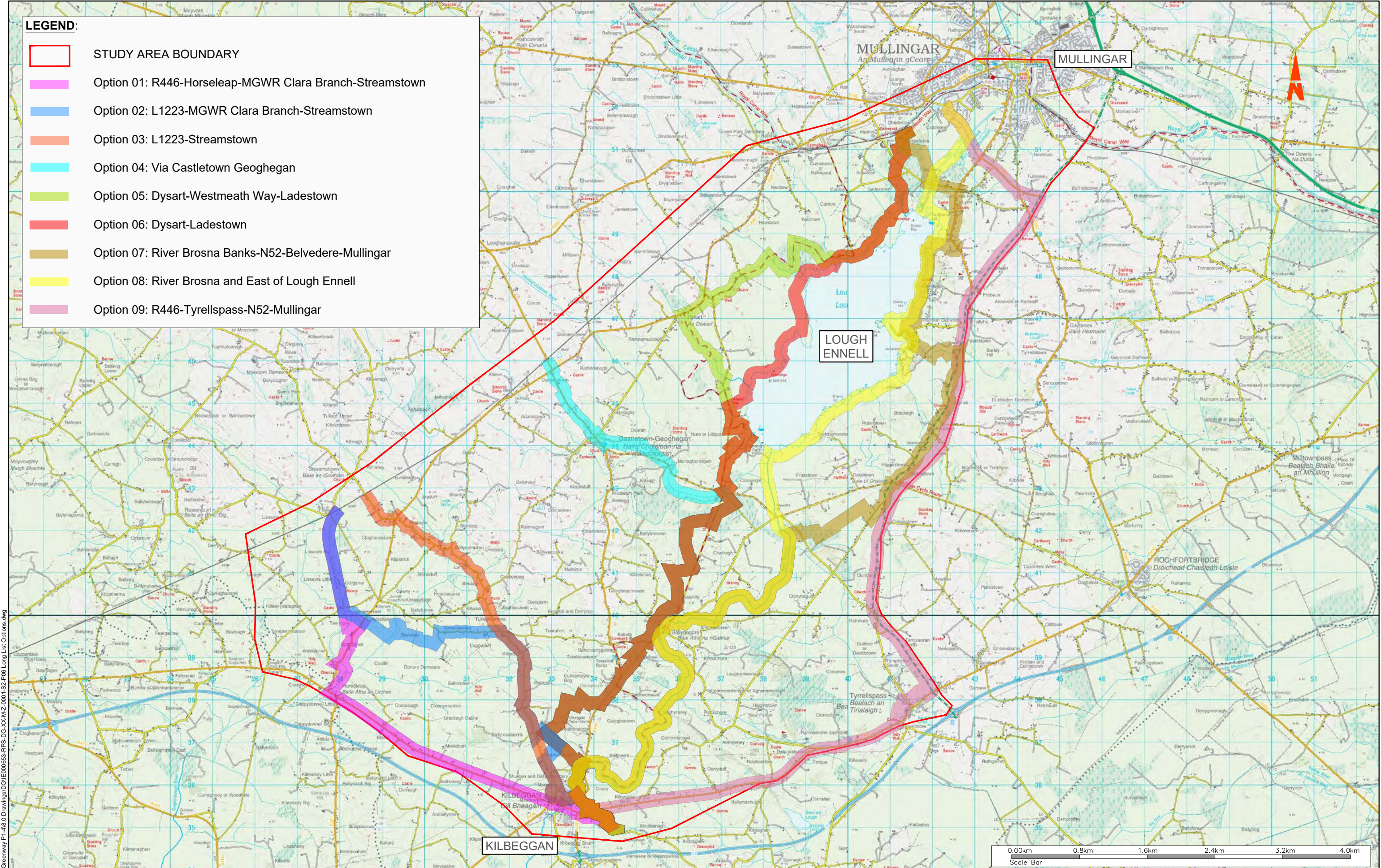
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P02	28.11.23	Mc Ghee	FOR INFORMATION
P01	24.10.23	Mc Ghee	FOR INFORMATION
Rev	Date	Dn Cnk	Amendment / Issue

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Model File Identifier
IE000653-RPS-DG-XX-M-Z-0004

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Created on 20.04.23	Title LONG LIST OPTIONS ENVIRONMENTAL CONSTRAINTS
Sheets 1 of 1	File Identifier IE000653-RPS-DG-XX-M-Z- 0004-01
Status A1	Rev C01



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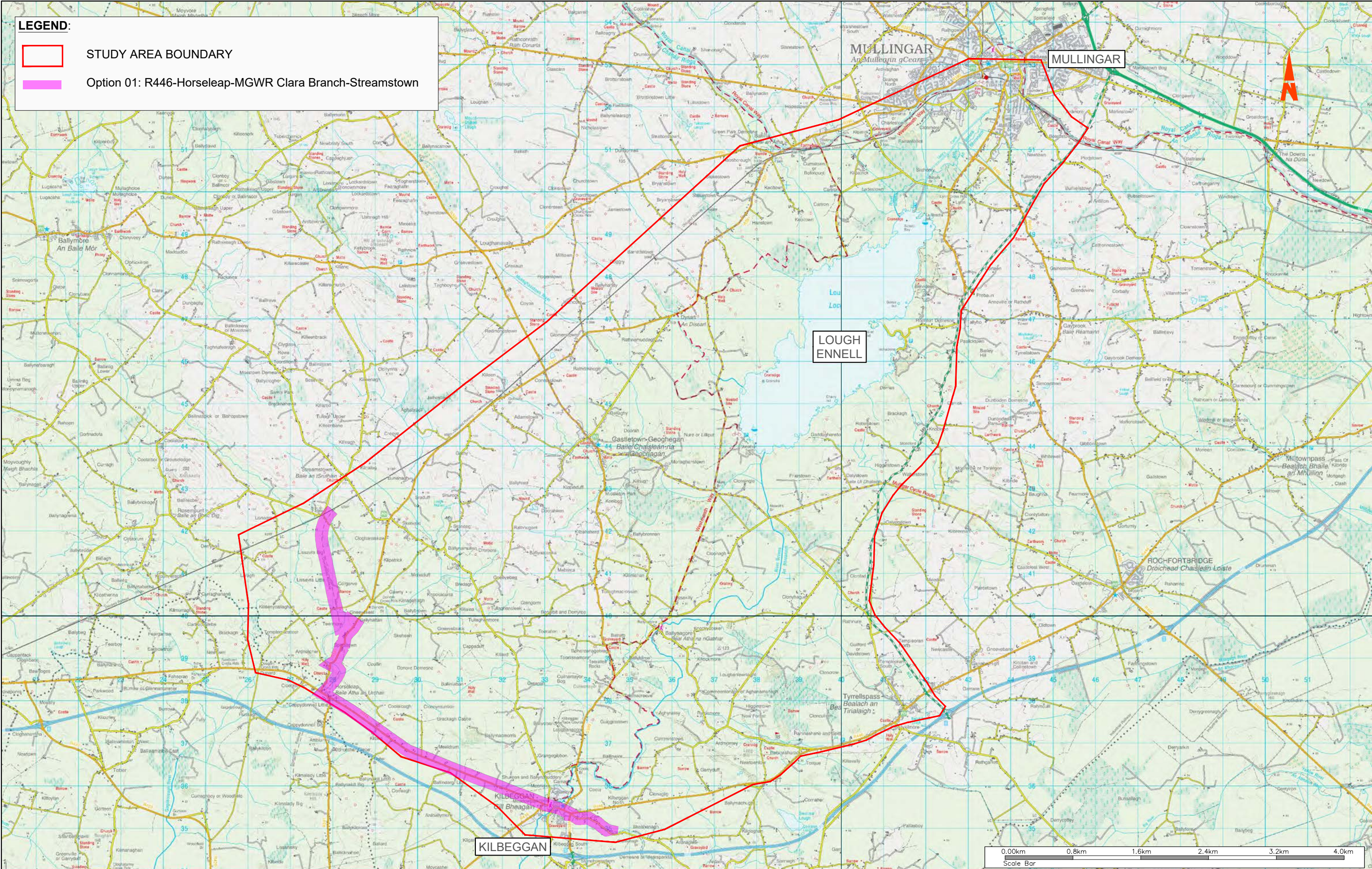


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P05	28.11.23	Mc GME	FOR INFORMATION	Mc GME
P04	22.08.23	Mc GME	OPTIONS 5 & 7 ADDED	Mc GME
Rev	Date	Dn Cnk	Amendment / Issue	App



Client	Project	KILBEGGAN TO MULLINGAR GREENWAY
Scale	1:40,000 @ A1 1:80,000 @ A3	Title
Created on	23.06.23	LONG LIST OPTIONS ALL CORRIDORS
Sheets	1 of 10	
Model File Identifier	IE000653-RPS-XX-M-Z-0001	File Identifier
IE000653-RPS-XX-M-Z-0001-01		Status
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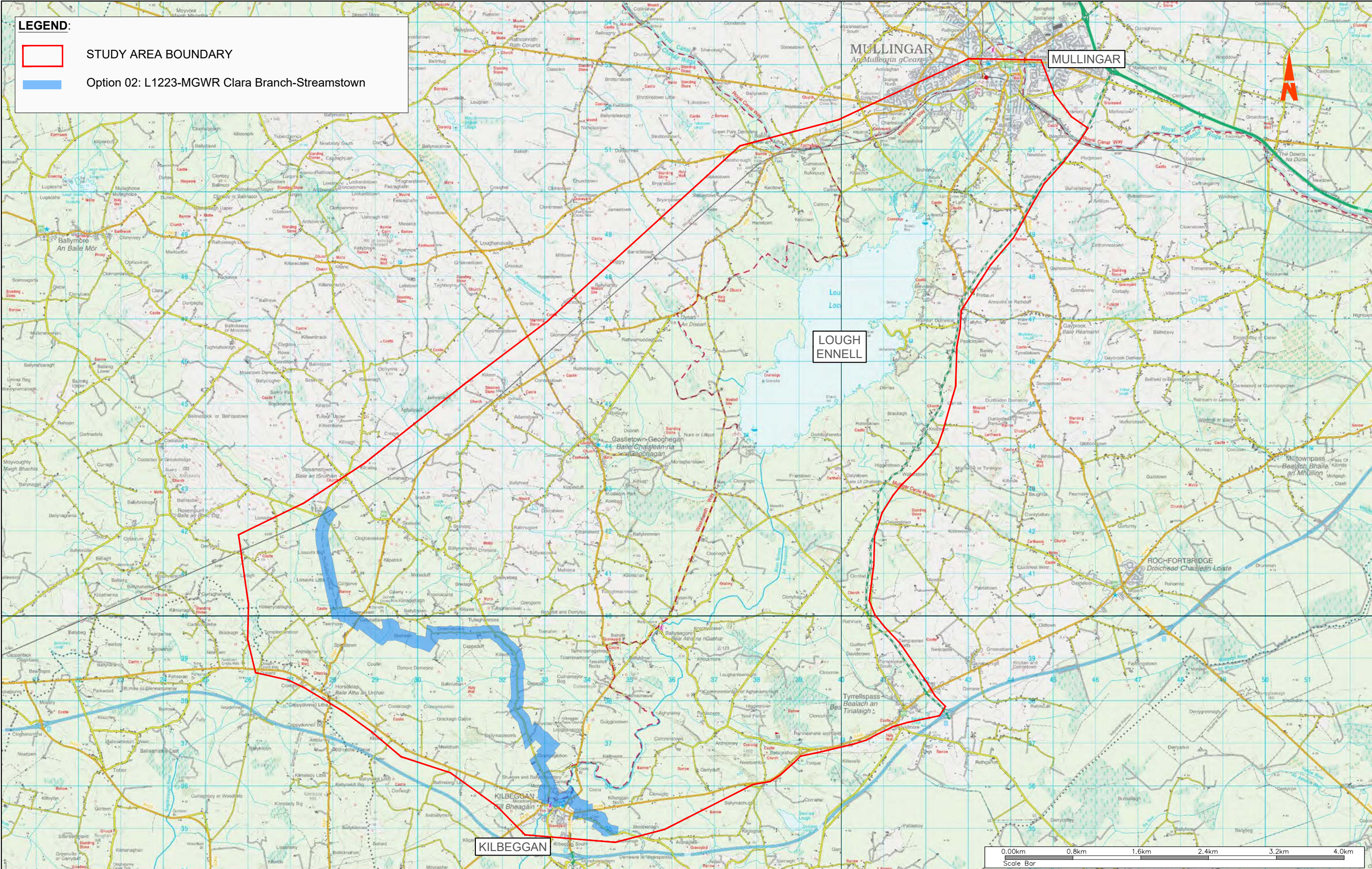
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Rev	Date	Dn Cnk	Amendment / Issue	App

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Model File Identifier
IE000653-RPS-XX-M-Z-0001

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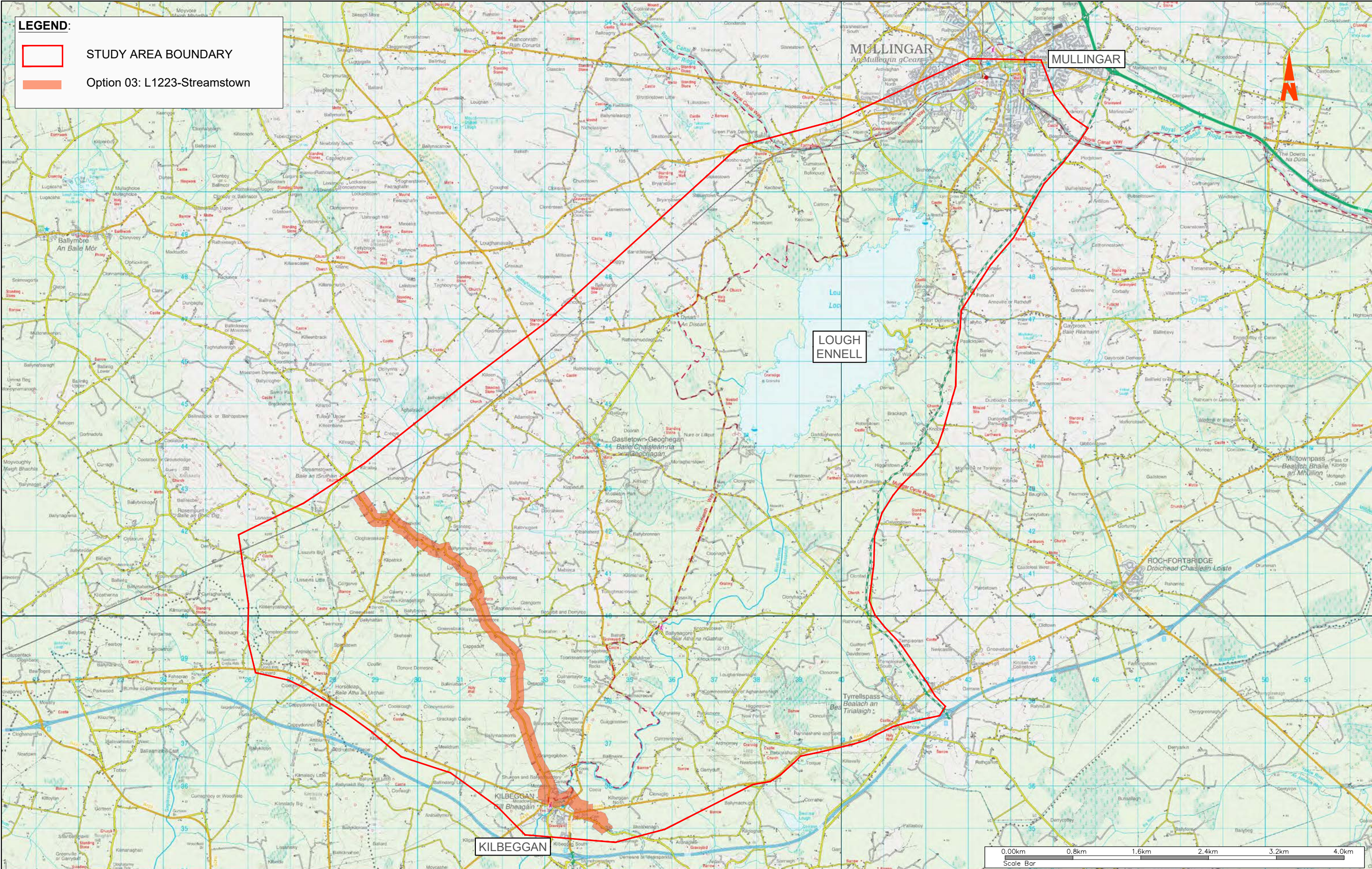
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P04	22.08.23	Mc GME	OPTIONS 5 & 7 ADDED	Mc GME
Rev	Date	Dn Cnk	Amendment / Issue	App



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Client



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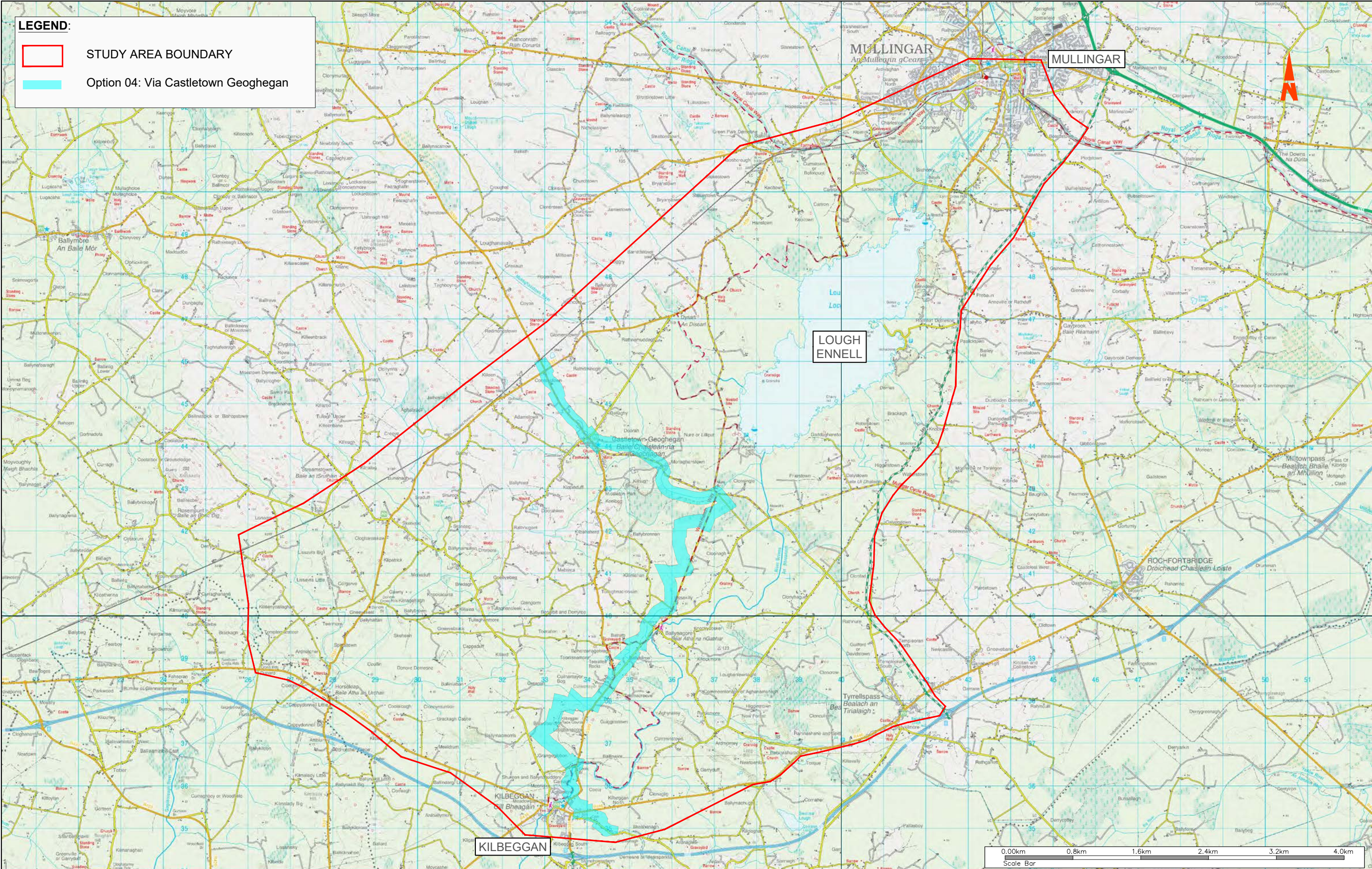
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Rev	C01

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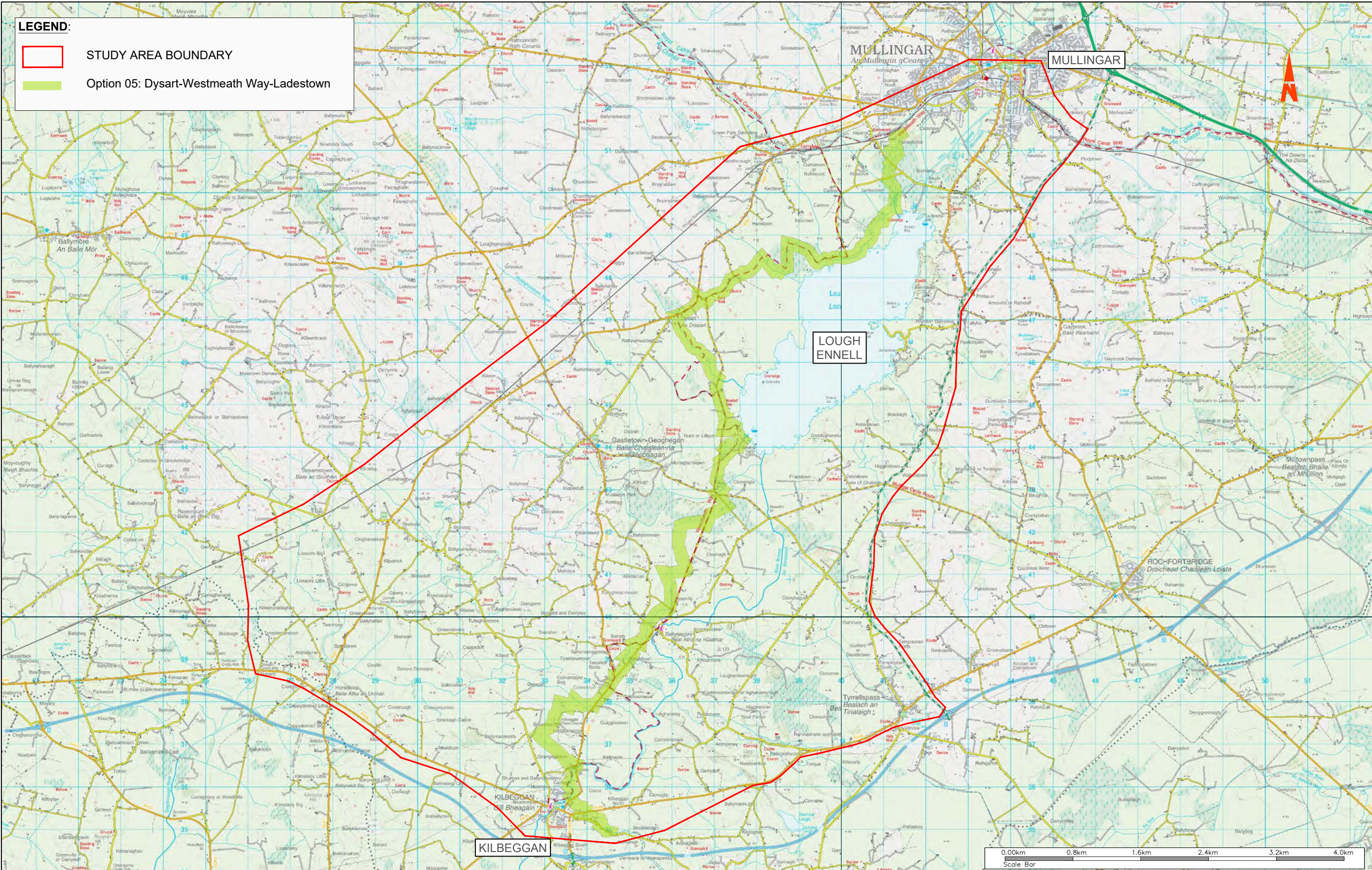
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Title	LONG LIST OPTIONS OPTION 04
Status	A1
Rev	C01

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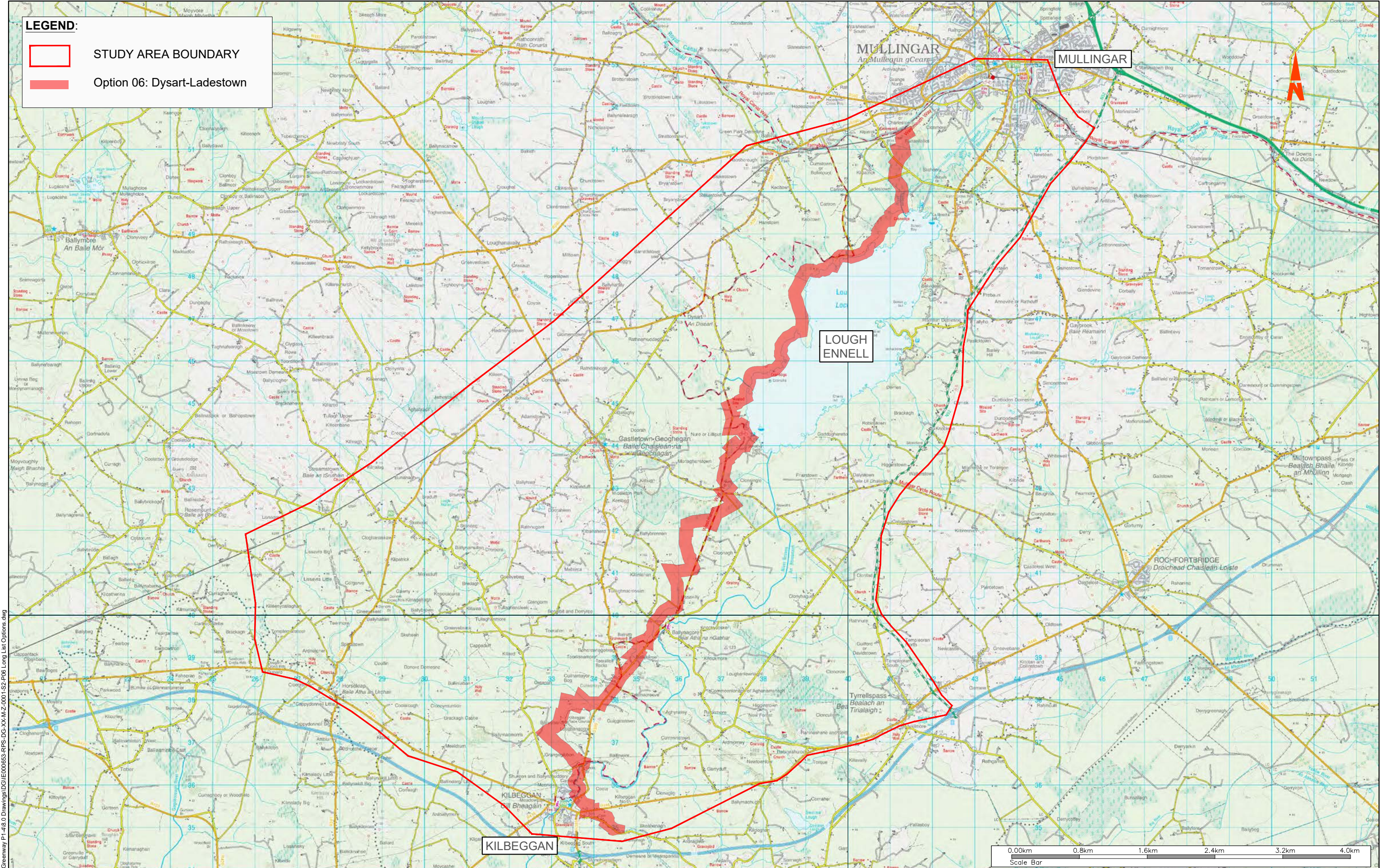


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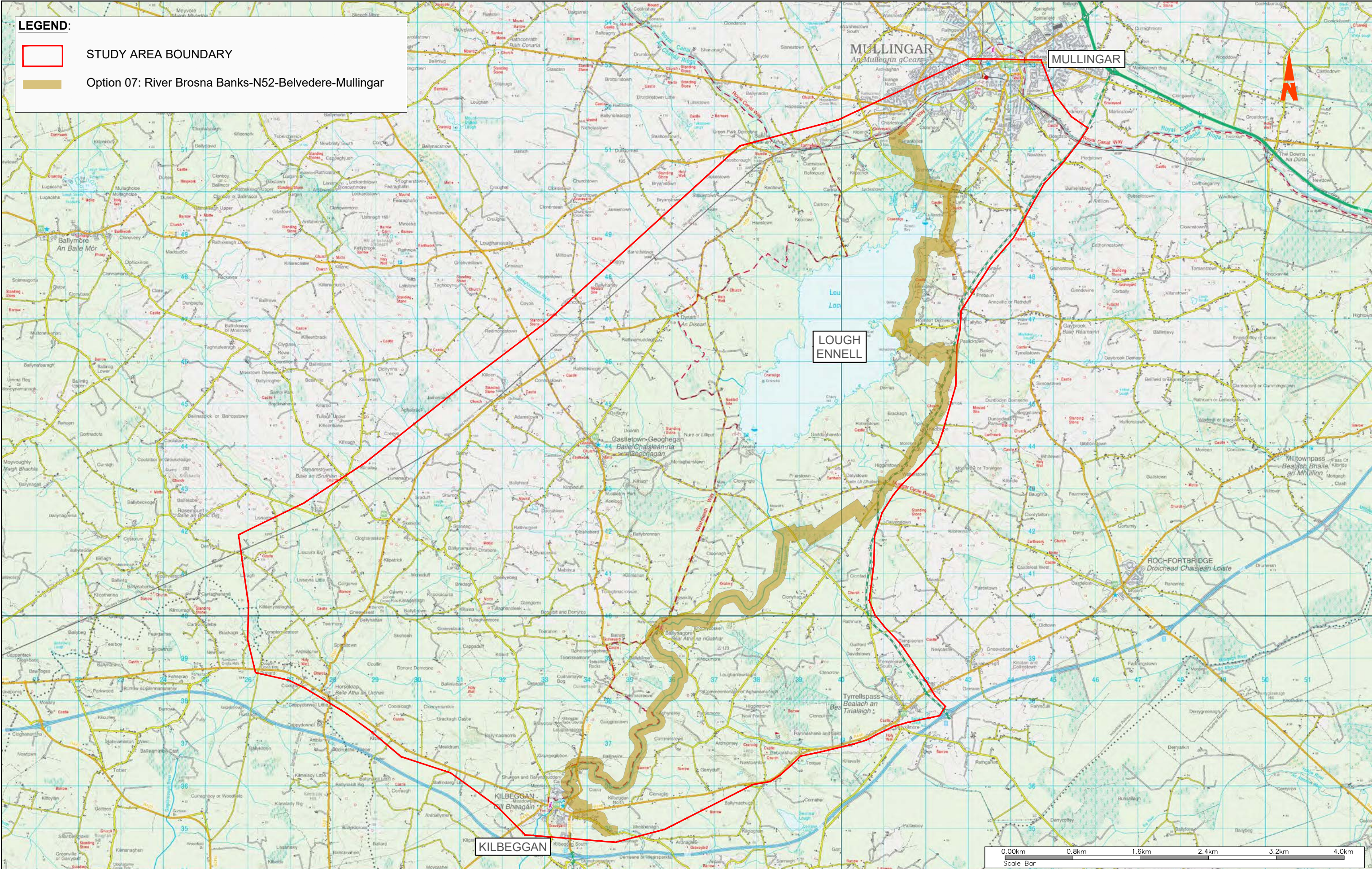


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Model File Identifier
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Created on	23.06.23
Sheets	7 of 10

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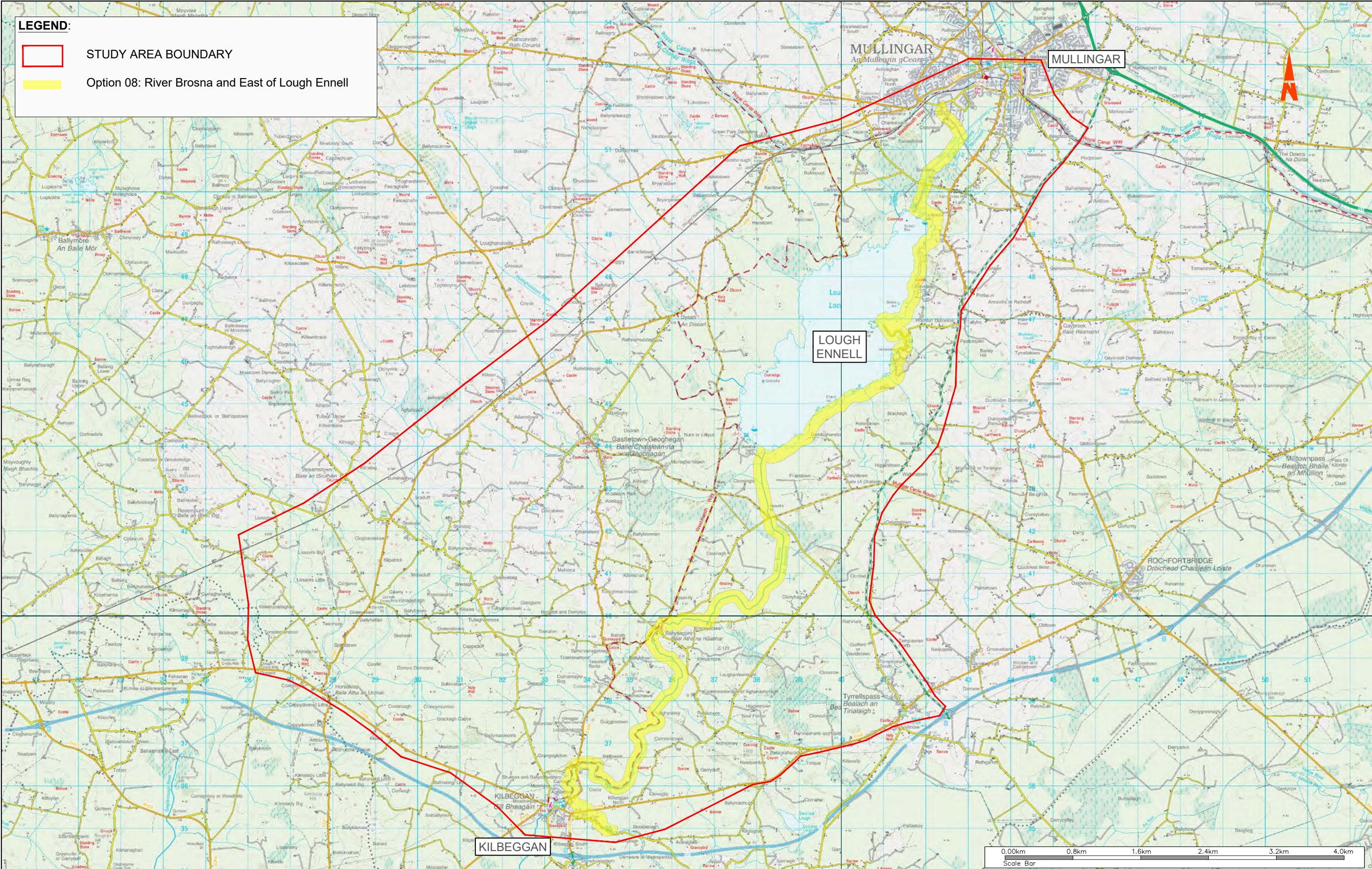
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Rev	Date	Dn Cnk	Amendment / Issue	App

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Client



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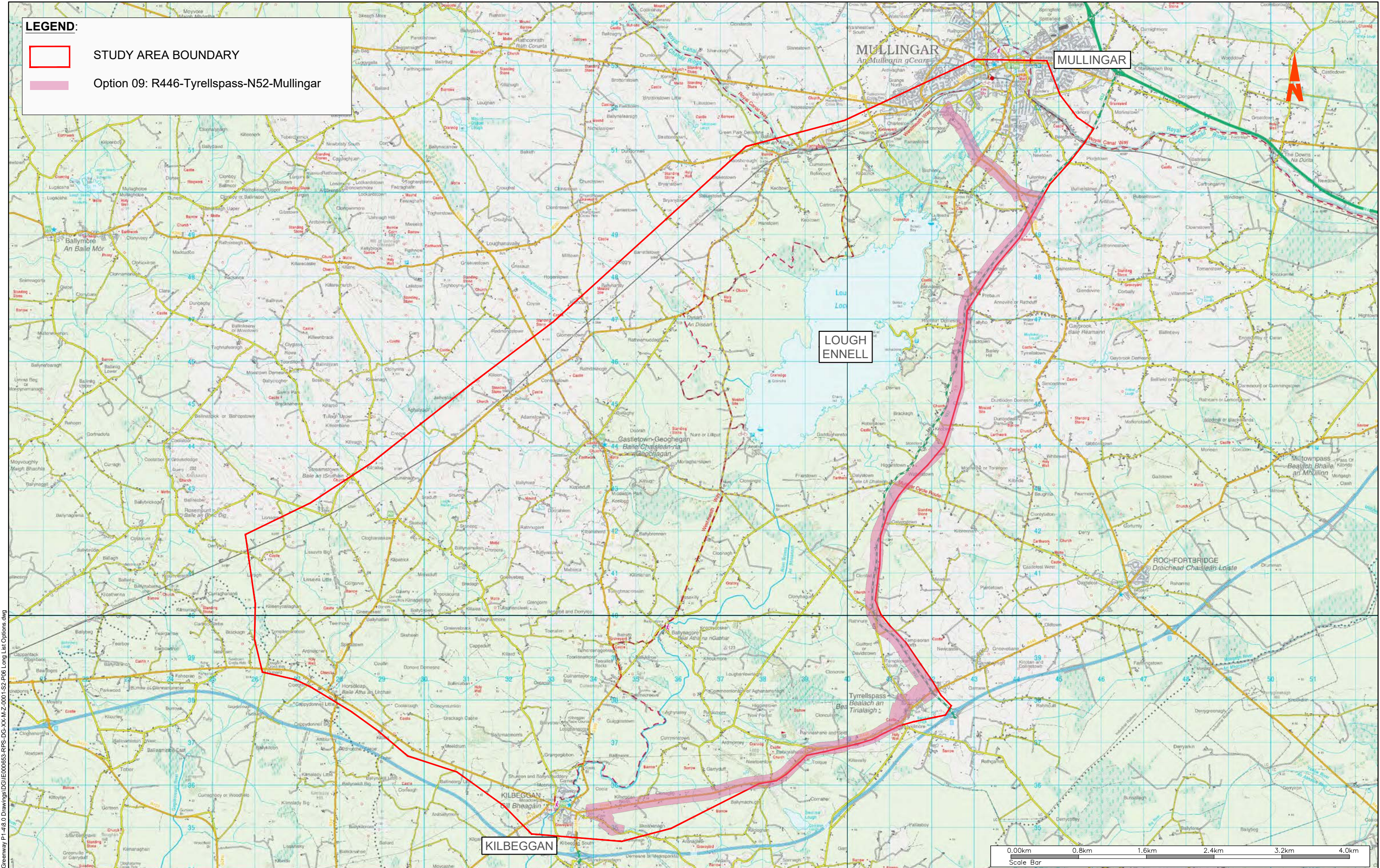
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Sheets	9 of 10
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Title	LONG LIST OPTIONS OPTION 08
Status	A1
Rev	C01

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(v) All Levels refer to Ordnance Survey Datum, Malin Head.

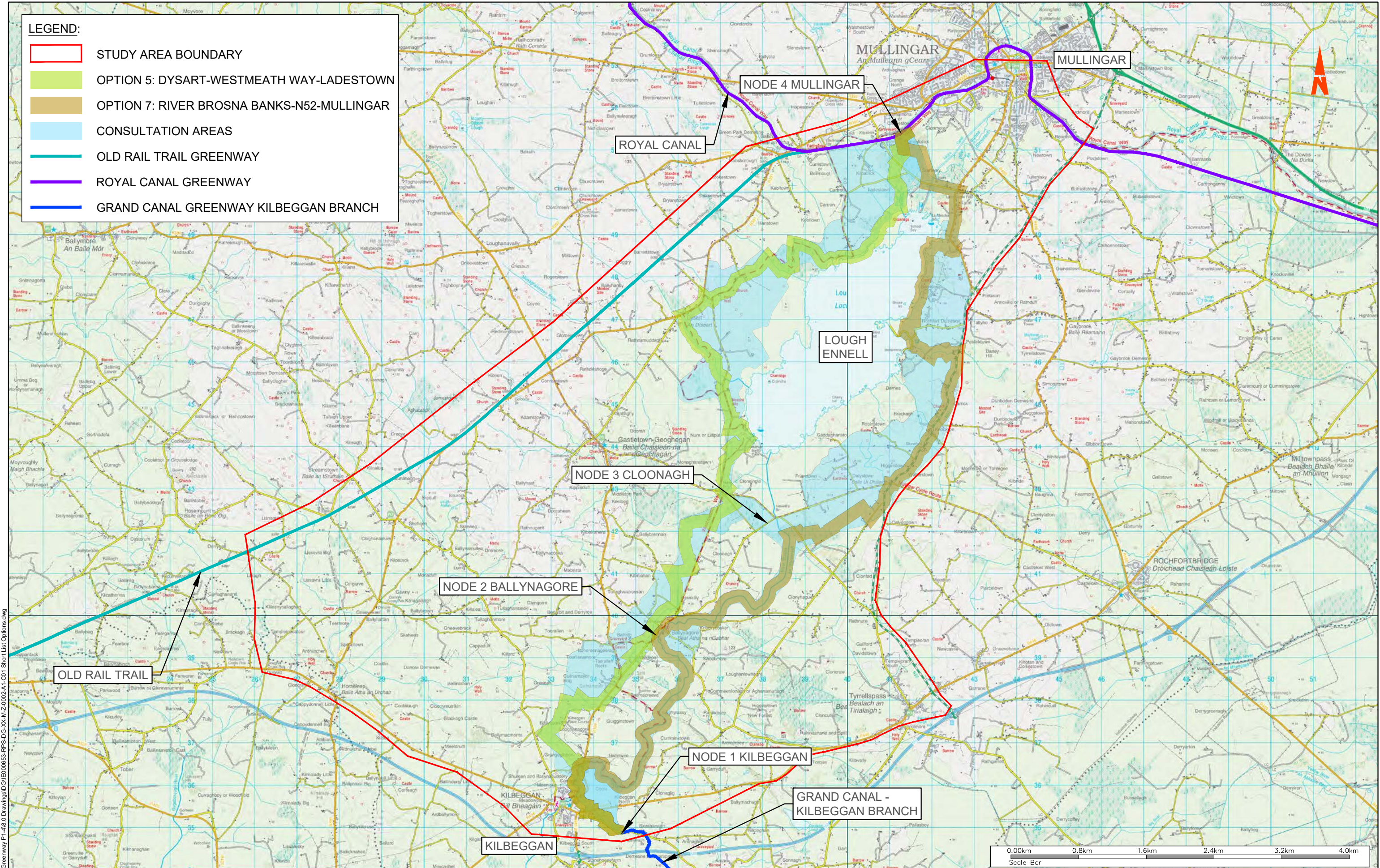
C01	09.02.24	Mc GME	FINAL	GMCE
P06	14.12.23	Mc GME	FOR INFORMATION	GMCE
P05	28.11.23	Mc GME	FOR INFORMATION	GMCE
P04	22.08.23	Mc GME	OPTIONS 5 & 7 ADDED	JMcH
Rev	Date	Dn Cnk	Amendment / Issue	App



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Model File Identifier
IE000653-RPS-XX-M-Z-0001

Scale	1:40,000 @ A1 1:80,000 @ A3	Project	KILBEGGAN TO MULLINGAR GREENWAY		
Created on	23.06.23	Title	LONG LIST OPTIONS OPTION 08		
Sheets	10 of 10	File Identifier	IE000653-RPS-DG-XX-M-Z- 0001-10	Status	A1
		Rev			C01



T:\IE000653 - Mullingar Kibbegan Greenway P1-48.0 Drawings\ID\IE000653-RPS-DG-XX-M-Z-0002-A1-C01 Short List Options.dwg

Client



General Notes

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(iv) Information including topographical survey, geotechnical investigation and utility detail used in the design have been provided by others.

(v) All Levels refer to Ordnance Survey Datum, Malin Head.

C01	09.02.24	Mc GME	FINAL	GMCE
P05	14.12.23	Mc GME	FOR INFORMATION	GMCE
P04	04.12.23	Mc GME	FOR INFORMATION	GMCE
P03	28.09.23	Mc GME	Possible Alternative Links Added	JMcH
Rev	Date	Dn Cnk	Amendment / Issue	App



A TETRA TECH COMPANY

Model File Identifier
IE000653-RPS-DG-XX-M-Z-0002

Scale	1:40,000 @ A1 1:80,000 @ A3
Created on	16.08.23
Sheets	1 of 1

Project	KILBEGGAN TO MULLINGAR GREENWAY
Title	PHASE 1 FEASIBILITY REPORT SHORT LIST OPTIONS ALL CORRIDORS
File Identifier	IE000653-RPS-DG-XX-M-Z- 0002-01
Status	A1
Rev	C01

Appendix D

Performance of Options Against Project Objectives

Objective	Ref	Sub-objective	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8	Option 9
Transport User Benefits and Other Economic Impacts - Support connectivity and economic growth in the local and regional area.	EC1	To increase the economic contribution of tourism to the regional and local economy, by increasing the numbers of domestic and international visitors to the area through the delivery of a greenway that is scenic and attractive.	Limited increase in attractiveness given shorter length and use of existing greenway infrastructure. Limited number of things to see and do. Will not provide much in the way of additional areas of scenery not already connected by the Old Rail Trail.	Limited increase in attractiveness given shorter length and use of existing greenway infrastructure. Limited number of things to see and do. Will not provide much in the way of additional areas of scenery not already connected by the Old Rail Trail .	Limited increase in attractiveness given shorter length and use of existing greenway infrastructure. Limited number of things to see and do. Will not provide much in the way of additional areas of scenery not already connected by the Old Rail Trail.	Provides connectivity to communities between Kilbeggan and Castletown Geoghegan and then connects to Old Rail Trail. Does not connect new communities north of Castletown Geoghegan and does not include scenic areas around Lough Ennell.	One of the longest options and takes in many communities along its route. It also provides access to varying scenic areas and attractions to the west of Lough Ennell.	One of the longest options. While it takes in many communities along its route, there are fewer along the shores of Lough Ennell. Provides access to varying scenic areas and attractions to the west of Lough Ennell.	One of the longest options and takes in many communities along its route. It also provides access to varying scenic areas and attractions to the east of Lough Ennell.	One of the longest options. While it takes in many communities along its route, there are fewer along the shores of Lough Ennell. Provides access to varying scenic areas and attractions to the east of Lough Ennell.	One of the longest options and takes in many communities along its route. Fewer scenic areas and attractions given its proximity to the N52.
			Poor alignment with Project Objective	Poor alignment with Project Objective	Poor alignment with Project Objective	Somewhat meets Project Objective	Strong alignment with Project Objective	Satisfactory alignment with Project Objective	Strong alignment with Project Objective	Strong alignment with Project Objective	Somewhat meets Project Objective
	EC2	To create local employment and increase economic opportunities for new and expanded enterprises.	Links fewer communities with new greenway creating fewer opportunities to create local employment and new/ expanded enterprises.	Links fewer communities with new greenway creating fewer opportunities to create local employment and new/ expanded enterprises.	Links fewer communities with new greenway creating fewer opportunities to create local employment and new/ expanded enterprises.	Links communities between Kilbeggan and Castletown Geoghegan where it meets the Old Rail Trail. No communities linked with new greenway north of this providing little opportunities to create local employment and new/ expanded enterprises.	Links Kilbeggan to Mullingar connecting many communities along the west of Lough Ennell and also is within close proximity to the existing Old Rail Trail for connectivity.	Links Kilbeggan to Mullingar connecting many communities along the west of Lough Ennell. Proximity to the shores of Lough Ennell may restrict future developments.	Links Kilbeggan to Mullingar connecting many communities along the east of Lough Ennell and also is within close proximity to the existing areas of employment (Belvedere, Bloomfield, caravan park) and also the N52.	Links Kilbeggan to Mullingar connecting many communities along the east of Lough Ennell and also is within close proximity to the existing areas of employment (Belvedere, Bloomfield, caravan park) and also the N52.	Links Kilbeggan to Mullingar connecting many communities along the east of Lough Ennell and also is within close proximity to the existing areas of employment (Belvedere, Bloomfield, caravan park) and also the N52. However, proximity to N52 may restrict the potential for future developments.
			Poor alignment with Project Objective	Poor alignment with Project Objective	Poor alignment with Project Objective	Unsatisfactory alignment with Project Objective	Strong alignment with Project Objective	Satisfactory alignment with Project Objective	Strong alignment with Project Objective	Strong alignment with Project Objective	Somewhat meets Project Objective
	AC1	To increase the number of people who choose to take part in physically active outdoor recreation and leisure activities.	Relatively short length of new greenway between Kilbeggan and Old Rail Trail means there is limited opportunities to increase physically active outdoor recreation and leisure activities.	Relatively short length of new greenway between Kilbeggan and Old Rail Trail means there is limited opportunities to increase physically active outdoor recreation and leisure activities.	Relatively short length of new greenway between Kilbeggan and Old Rail Trail means there is limited opportunities to increase physically active outdoor recreation and leisure activities.	Links communities between Kilbeggan and Castletown Geoghegan where it meets the Old Rail Trail. No communities linked with new greenway north of this providing little opportunities to increase physically active outdoor recreation and leisure activities.	Links Kilbeggan to Mullingar connecting many communities along the west of Lough Ennell providing excellent opportunities to increase physically active outdoor recreation and leisure activities.	Links Kilbeggan to Mullingar connecting many communities along the west of Lough Ennell providing excellent opportunities to increase physically active outdoor recreation and leisure activities.	Links Kilbeggan to Mullingar connecting many communities along the east of Lough Ennell. Some limitations along River Brosna. Overall provides very good opportunities to increase physically active outdoor recreation and leisure activities.	Links Kilbeggan to Mullingar connecting many communities along the east of Lough Ennell. Some limitations along River Brosna. Overall provides very good opportunities to increase physically active outdoor recreation and leisure activities.	Links Kilbeggan to Mullingar connecting many communities along the east of Lough Ennell. However, the proximity to the N52 may not be attractive to some users.
			Unsatisfactory alignment with Project Objective	Unsatisfactory alignment with Project Objective	Unsatisfactory alignment with Project Objective	Somewhat meets Project Objective	Strong alignment with Project Objective	Strong alignment with Project Objective	Satisfactory alignment with Project Objective	Satisfactory alignment with Project Objective	Satisfactory alignment with Project Objective
		To connect to other tourist activities or attractions within the region, such as historic and cultural heritage sites, and recreational activities.	Relatively short length of new greenway between Kilbeggan and Old Rail Trail means there is limited opportunities to connect to attractions in the region not already connected to a greenway.	Relatively short length of new greenway between Kilbeggan and Old Rail Trail means there is limited opportunities to connect to attractions in the region not already connected to a greenway.	Relatively short length of new greenway between Kilbeggan and Old Rail Trail means there is limited opportunities to connect to attractions in the region not already connected to a greenway.	Links attractions between Kilbeggan and Castletown Geoghegan where it meets the Old Rail Trail. No new attractions linked north of Castletown Geoghegan not already linked by Old Rail Trail.	Links Kilbeggan to Mullingar connecting many attractions and interesting sites along the west of Lough Ennell providing excellent opportunities to link these areas together.	Links Kilbeggan to Mullingar connecting many attractions and interesting sites along the west of Lough Ennell providing excellent opportunities to link these areas together.	Links Kilbeggan to Mullingar connecting many attractions and interesting sites along the east of Lough Ennell providing excellent opportunities to link these areas together.	Links Kilbeggan to Mullingar connecting many attractions and interesting sites along the east of Lough Ennell providing excellent opportunities to link these areas together.	Links Kilbeggan to Mullingar connecting many attractions and interesting sites along the east of Lough Ennell. However, proximity to N52 avoids some of the more attractive locations closer to the shores of Lough Ennell.
			Poor alignment with Project Objective	Poor alignment with Project Objective	Poor alignment with Project Objective	Unsatisfactory alignment with Project Objective	Strong alignment with Project Objective	Strong alignment with Project Objective	Strong alignment with Project Objective	Strong alignment with Project Objective	Satisfactory alignment with Project Objective

Objective	Ref	Sub-objective	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8	Option 9
Social Impacts – Enhance social inclusion and promote healthier communities through linking communities and disadvantaged areas.	SO1	To be attractive to people of all age groups and abilities, with multiple accesses to the route allowing use for long or short distances.	Relatively short length of new greenway between Kilbeggan and Old Rail Trail means there is limited opportunities to increase access to greenways for people in the study area.	Relatively short length of new greenway between Kilbeggan and Old Rail Trail means there is limited opportunities to increase access to greenways for people in the study area.	Relatively short length of new greenway between Kilbeggan and Old Rail Trail means there is limited opportunities to increase access to greenways for people in the study area.	Links communities between Kilbeggan and Castletown Geoghegan providing good access for communities on this route. However, no new communities will have access to a greenway north of Castletown Geoghegan not already linked by Old Rail Trail.	Links Kilbeggan to Mullingar connecting many communities along the west of Lough Ennell providing excellent access opportunities for long or short distances.	Links Kilbeggan to Mullingar connecting many communities along the west of Lough Ennell providing excellent access opportunities for long or short distances.	Links Kilbeggan to Mullingar connecting many communities along the east of Lough Ennell providing excellent access opportunities for long or short distances.	Links Kilbeggan to Mullingar connecting many communities along the east of Lough Ennell providing excellent access opportunities for long or short distances.	Links Kilbeggan to Mullingar connecting many communities along the east of Lough Ennell providing excellent access opportunities for long or short distances. However, proximity to N52 avoids some of the more attractive locations closer to the shores of Lough Ennell.
			Poor alignment with Project Objective	Poor alignment with Project Objective	Poor alignment with Project Objective	Unsatisfactory alignment with Project Objective	Strong alignment with Project Objective	Strong alignment with Project Objective	Strong alignment with Project Objective	Strong alignment with Project Objective	Somewhat meets Project Objective
	SO2	To benefit local communities through promotion of inclusive accessibility for all to existing amenities, services and facilities.	Relatively short length of new greenway between Kilbeggan and Old Rail Trail means there is limited opportunities to increase inclusive accessibility for all to existing amenities, services and facilities.	Relatively short length of new greenway between Kilbeggan and Old Rail Trail means there is limited opportunities to increase inclusive accessibility for all to existing amenities, services and facilities.	Relatively short length of new greenway between Kilbeggan and Old Rail Trail means there is limited opportunities to increase inclusive accessibility for all to existing amenities, services and facilities.	Links communities between Kilbeggan and Castletown Geoghegan providing good access for communities on this route. However, no new communities will have access to a greenway north of Castletown Geoghegan not already linked by Old Rail Trail. There is limited opportunities to increase inclusive accessibility for all to existing amenities, services and facilities.	Links Kilbeggan to Mullingar connecting many communities along the west of Lough Ennell providing excellent opportunities to increase inclusive accessibility for all to existing amenities, services and facilities..	Links Kilbeggan to Mullingar connecting many communities along the west of Lough Ennell providing excellent opportunities to increase inclusive accessibility for all to existing amenities, services and facilities..	Links Kilbeggan to Mullingar connecting many communities along the west of Lough Ennell providing excellent opportunities to increase inclusive accessibility for all to existing amenities, services and facilities..	Links Kilbeggan to Mullingar connecting many communities along the west of Lough Ennell providing excellent opportunities to increase inclusive accessibility for all to existing amenities, services and facilities..	Links Kilbeggan to Mullingar connecting many communities along the east of Lough Ennell providing excellent opportunities to increase inclusive accessibility for all to existing amenities, services and facilities. However, proximity to N52 avoids some of the more attractive existing amenities, services and facilities.
			Poor alignment with Project Objective	Poor alignment with Project Objective	Poor alignment with Project Objective	Unsatisfactory alignment with Project Objective	Strong alignment with Project Objective	Strong alignment with Project Objective	Strong alignment with Project Objective	Strong alignment with Project Objective	Somewhat meets Project Objective
	LU1	To connect to existing transport infrastructure including greenways, cycleways, rail, canals, roads, and public transport.	Good connections to existing infrastructure at Kilbeggan, Old Rail Trail and on to Mullingar. Limited connection to existing road network in the wider study area.	Good connections to existing infrastructure at Kilbeggan, Old Rail Trail and on to Mullingar. Limited connection to existing road network in the wider study area.	Good connections to existing infrastructure at Kilbeggan, Old Rail Trail and on to Mullingar. Limited connection to existing road network in the wider study area.	Good connections to existing infrastructure at Kilbeggan, Old Rail Trail and on to Mullingar. Limited connection to existing road network in the wider study area.	Excellent connections to existing infrastructure at Kilbeggan, Old Rail Trail and on to Mullingar. Also passes numerous regional and local roads in the wider study area.	Excellent connections to existing infrastructure at Kilbeggan, Old Rail Trail and on to Mullingar. Also passes numerous regional and local roads in the wider study area.	Very good connections to existing infrastructure at Kilbeggan, Old Rail Trail and Mullingar. Access limited in some areas along River Brosna. Also passes numerous regional and local roads in the wider study area.	Very good connections to existing infrastructure at Kilbeggan, Old Rail Trail and Mullingar. Access limited in some areas along River Brosna. Also passes numerous regional and local roads in the wider study area.	Very good connections to existing infrastructure at Kilbeggan, Tyrrellspass, N52 and on to Mullingar. Also passes numerous regional and local roads in the wider study area. However, it avoids some of the main tourist areas along Lough Ennell and is very close to the N52.
			Somewhat meets Project Objective	Somewhat meets Project Objective	Somewhat meets Project Objective	Satisfactory alignment with Project Objective	Strong alignment with Project Objective	Strong alignment with Project Objective	Satisfactory alignment with Project Objective	Satisfactory alignment with Project Objective	Satisfactory alignment with Project Objective
Land Use Impacts – Support and facilitate the implementation of national, regional and local policy.	LU2	To encourage modal shift to more sustainable modes, i.e. walking and cycling, by facilitating connections to places of employment, schools, recreational hubs and urban centres, where possible.	One of the shortest options of new greenway. Therefore provides fewer opportunities to increase modal shift for communities in the wider study area.	One of the shortest options of new greenway. Therefore provides fewer opportunities to increase modal shift for communities in the wider study area.	One of the shortest options of new greenway. Therefore provides fewer opportunities to increase modal shift for communities in the wider study area.	Links communities between Kilbeggan and Castletown Geoghegan providing good opportunities for increasing modal shift south of Lough Ennell. However, there will be no new linkages north of Castletown Geoghegan.	Links Kilbeggan to Mullingar connecting many communities along the west of Lough Ennell providing excellent opportunities for modal shift.	Links Kilbeggan to Mullingar connecting many communities along the west of Lough Ennell providing excellent opportunities for modal shift.	Links Kilbeggan to Mullingar connecting many communities along the east of Lough Ennell providing excellent opportunities for modal shift.	Links Kilbeggan to Mullingar connecting many communities along the east of Lough Ennell providing excellent opportunities for modal shift.	Links Kilbeggan to Mullingar connecting many communities along the east of Lough Ennell providing very good opportunities to increase modal shift. However, it avoids some of the main tourist areas along Lough Ennell and is very close to the N52.
			Poor alignment with Project Objective	Poor alignment with Project Objective	Poor alignment with Project Objective	Somewhat meets Project Objective	Strong alignment with Project Objective	Strong alignment with Project Objective	Strong alignment with Project Objective	Strong alignment with Project Objective	Satisfactory alignment with Project Objective

Objective	Ref	Sub-objective	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8	Option 9
	LU3	To facilitate the implementation of the National Cycle Network (NCN) through connecting the population centres of Mullingar and Kilbeggan.	Kilbeggan to Mullingar Greewnay will complete the NCN between Mullingar and Tullamore. However this option is not direct to Mullingar as it goes from Kilbeggan to Streamstown and the Old Rail Trail.	Kilbeggan to Mullingar Greewnay will complete the NCN between Mullingar and Tullamore. However this option is not direct to Mullingar as it goes from Kilbeggan to Streamstown and the Old Rail Trail.	Kilbeggan to Mullingar Greewnay will complete the NCN between Mullingar and Tullamore. However this option is not direct to Mullingar as it goes from Kilbeggan to Streamstown and the Old Rail Trail.	Kilbeggan to Mullingar Greewnay will complete the NCN between Mullingar and Tullamore. However this option is not direct to Mullingar as it goes from Kilbeggan to Castletown Geoghagan and the Old Rail Trail.	Kilbeggan to Mullingar Greewnay will complete the NCN between Mullingar and Tullamore. Option links Kilbeggan to Mullingar via west side of Lough Ennell.	Kilbeggan to Mullingar Greewnay will complete the NCN between Mullingar and Tullamore. Option links Kilbeggan to Mullingar via west side of Lough Ennell.	Kilbeggan to Mullingar Greewnay will complete the NCN between Mullingar and Tullamore. Option links Kilbeggan to Mullingar via east side of Lough Ennell.	Kilbeggan to Mullingar Greewnay will complete the NCN between Mullingar and Tullamore. Option links Kilbeggan to Mullingar via east side of Lough Ennell.	Kilbeggan to Mullingar Greewnay will complete the NCN between Mullingar and Tullamore. However this option is not direct to Mullingar as it goes from Kilbeggan to Tyrrellspass and the N52.
			Somewhat meets Project Objective	Somewhat meets Project Objective	Somewhat meets Project Objective	Somewhat meets Project Objective	Strong alignment with Project Objective	Strong alignment with Project Objective	Strong alignment with Project Objective	Strong alignment with Project Objective	Somewhat meets Project Objective
Safety Impacts - Provide safe and accessible infrastructure that improves safety and security for vulnerable road users	SA1	To provide Greenway infrastructure that is substantially segregated from motorised traffic.	Can be designed to be substantially segregated from motorised traffic. Use of Old Rail Trail ensures majority of length is fully segregated.	Can be designed to be substantially segregated from motorised traffic. Use of Old Rail Trail ensures majority of length is fully segregated.	Can be designed to be substantially segregated from motorised traffic. Use of Old Rail Trail ensures majority of length is fully segregated.	Can be designed to be substantially segregated from motorised traffic. Use of Old Rail Trail ensures approximately half of length is fully segregated.	Can be designed to be substantially segregated from motorised traffic. There will be a number of crossings of regional and local roads required and some sections of shared use.	Can be designed to be substantially segregated from motorised traffic. There will be a number of crossings of regional and local roads required and some sections of shared use.	Can be designed to be substantially segregated from motorised traffic. There will be a number of crossings of regional and local roads required and some sections of shared use.	Can be designed to be substantially segregated from motorised traffic. There will be a number of crossings of regional and local roads required and some sections of shared use.	Can be designed to be substantially segregated from motorised traffic. There will be a number of crossings of regional and local roads required and some sections of shared use.
			Strong alignment with Project Objective	Strong alignment with Project Objective	Strong alignment with Project Objective	Satisfactory alignment with Project Objective	Satisfactory alignment with Project Objective	Satisfactory alignment with Project Objective	Satisfactory alignment with Project Objective	Satisfactory alignment with Project Objective	Satisfactory alignment with Project Objective
	SA2	To provide Greenway infrastructure that is a safe and secure environment for all users, regardless of age or ability.	Can be designed to be safe and secure. Use of Old Rail Trail ensures majority of length is already safe and secure.	Can be designed to be safe and secure. Use of Old Rail Trail ensures majority of length is already safe and secure.	Can be designed to be safe and secure. Use of Old Rail Trail ensures majority of length is already safe and secure..	Can be designed to be safe and secure. Use of Old Rail Trail ensures approximately half of length is already safe and secure.	Can be designed to be safe and secure.	Can be designed to be safe and secure.	Can be designed to be safe and secure.	Can be designed to be safe and secure.	Can be designed to be safe and secure.
			Strong alignment with Project Objective	Strong alignment with Project Objective	Strong alignment with Project Objective	Satisfactory alignment with Project Objective	Satisfactory alignment with Project Objective	Satisfactory alignment with Project Objective	Satisfactory alignment with Project Objective	Satisfactory alignment with Project Objective	Satisfactory alignment with Project Objective
Climate Change Impacts - Contributes to the offsetting/ reduction in GHG emissions and is robust and resilient to negative climate change effects.	CC1	To ensure consideration of sustainable development principles and measures to minimise effects on the environment to support the government's Climate Action Plan.	One of the shortest options that maximises re-use of existing infrastructure (Old Rail Trail). May encourage modal shift but limited due to shortest length of new greenway.	One of the shortest options that maximises re-use of existing infrastructure (Old Rail Trail). May encourage modal shift but limited due to shortest length of new greenway.	One of the shortest options that maximises re-use of existing infrastructure (Old Rail Trail). May encourage modal shift but limited due to shortest length of new greenway.	A medium distance option that re-uses a significant portion of existing infrastructure (Old Rail Trail). May encourage modal shift as it connects to large population centres south of Castletown Geoghegan.	One of the longest options. May encourage modal shift. Limited re-use of existing infrastructure (Westmeath Way) and Old Rail Trail near Mullingar. Excavations in boggy/ marshy ground may release more GHGs.	One of the longest options. May encourage modal shift. Limited re-use of existing infrastructure (Westmeath Way) and Old Rail Trail near Mullingar. Excavations in boggy/ marshy ground may release more GHGs.	One of the longest options. May encourage modal shift. Limited re-use of existing infrastructure of Old Rail Trail near Mullingar. Excavations in boggy/ marshy ground may release more GHGs.	One of the longest options. May encourage modal shift. Limited re-use of existing infrastructure of Old Rail Trail near Mullingar. Excavations in boggy/ marshy ground may release more GHGs.	One of the longest options. May encourage modal shift. Limited re-use of existing infrastructure of Old Rail Trail near Mullingar. Excavations in boggy/ marshy ground may release more GHGs.
			Satisfactory alignment with Project Objective	Satisfactory alignment with Project Objective	Satisfactory alignment with Project Objective	Satisfactory alignment with Project Objective	Unsatisfactory alignment with Project Objective	Unsatisfactory alignment with Project Objective	Unsatisfactory alignment with Project Objective	Unsatisfactory alignment with Project Objective	Unsatisfactory alignment with Project Objective

Objective	Ref	Sub-objective	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8	Option 9
Local Environment Impacts - Increase public appreciation of the natural environment while protecting and enhancing natural assets and biodiversity.	EN1	To minimise the impact to the natural environmental, especially habitats in ecologically sensitive areas.	Avoids protected sites and has one of the smallest footprints thereby reducing overall ecological impact.	Avoids protected sites and has one of the smallest footprints thereby reducing overall ecological impact.	Avoids protected sites and has one of the smallest footprints thereby reducing overall ecological impact.	Largely avoids protected sites. Larger footprint than the shorter options but still much less potential for significant ecological impact(s) than the longer options.	Close proximity to protected sites including Nure Bog NHA, and Lough Ennell AC, SPA and pNHA. However, this is not as significant as other options. One of the largest footprints which will result in loss of hedgerows/ trees.	Large footprint within designated sites. Traverses wetlands around Lough Ennell. Also one of the longest options and therefore the potential for significant effects is increased. Also likely to result in disturbance effects given proximity to Lough Ennell SPA.	Close proximity to some protected sites, particularly to the northeast of Lough Ennell. However, this is not as significant as other options. One of the largest footprints given option length.	Large footprint within designated sites. Also one of the longest options and therefore the potential for significant effects is increased. Also likely to result in disturbance effects given proximity to Lough Ennell SPA.	Largely avoids protected sites, except perhaps Cloncrow Bog NHA. One of the largest footprints which will result in loss of hedgerows/ trees.
			Strong alignment with Project Objective	Strong alignment with Project Objective	Strong alignment with Project Objective	Satisfactory alignment with Project Objective	Unsatisfactory alignment with Project Objective	Poor alignment with Project Objective	Unsatisfactory alignment with Project Objective	Poor alignment with Project Objective	Unsatisfactory alignment with Project Objective
	EN2	To increase public appreciation of the natural environment by encouraging people to experience the countryside through prioritising scenic and environmentally diverse routes.	Does not link to any significant environmental features or attractions.	Does not link to any significant environmental features or attractions.	Does not link to any significant environmental features or attractions.	Links to some features but not as many as other options.	Links to most scenic and interesting environmental features in the Study Area but to a lesser extent than other options.	Links to most scenic and interesting environmental features in the Study Area.	Links to most scenic and interesting environmental features in the Study Area.	Links to most scenic and interesting environmental features in the Study Area.	Links to a limited number of interesting environmental features in the Study Area due to its proximity to the existing road network.
			Poor alignment with Project Objective	Poor alignment with Project Objective	Poor alignment with Project Objective	Unsatisfactory alignment with Project Objective	Satisfactory alignment with Project Objective	Strong alignment with Project Objective	Strong alignment with Project Objective	Strong alignment with Project Objective	Somewhat meets Project Objective
	EN3	To protect and where possible enhance biodiversity and ecological connectivity.	Avoids protected sites and has one of the smallest footprints thereby reducing overall ecological impact. Minimal opportunities to improve ecological connectivity but likely less removal of hedgerows and trees.	Avoids protected sites and has one of the smallest footprints thereby reducing overall ecological impact. Minimal opportunities to improve ecological connectivity but likely less removal of hedgerows and trees.	Avoids protected sites and has one of the smallest footprints thereby reducing overall ecological impact. Minimal opportunities to improve ecological connectivity but likely less removal of hedgerows and trees.	Largely avoids protected sites. Larger footprint than the shorter options but still much less potential for significant ecological impact(s) than the longer options. Some opportunities to improve ecological connectivity and likely less removal of hedgerows and trees than other options.	Close proximity to protected sites including Nure Bog NHA, and Lough Ennell SAC, SPA and pNHA. However, this is not as significant as other options. One of the largest footprints which will result in more loss of hedgerows/ trees. Option provides opportunities to enhance biodiversity and ecological connectivity.	Large footprint within designated sites. Traverses wetlands around Lough Ennell. Also one of the longest options and therefore the potential for significant effects is increased. Also likely to result in disturbance effects given proximity to Lough Ennell SPA. Option provides opportunities to enhance biodiversity and ecological connectivity.	Close proximity to some protected sites, particularly to the northeast of Lough Ennell. However, this is not as significant as other options. One of the largest footprints which will result in more loss of hedgerows/ trees. Option provides opportunities to enhance biodiversity and ecological connectivity.	Large footprint within designated sites. Traverses wetlands around Lough Ennell. Also one of the longest options and therefore the potential for significant effects is increased. Also likely to result in disturbance effects given proximity to Lough Ennell SPA. Option provides opportunities to enhance biodiversity and ecological connectivity.	Largely avoids protected sites, except perhaps Cloncrow Bog NHA. One of the largest footprints which will result in more loss of hedgerows/ trees.
			Satisfactory alignment with Project Objective	Satisfactory alignment with Project Objective	Satisfactory alignment with Project Objective	Satisfactory alignment with Project Objective	Somewhat meets Project Objective	Unsatisfactory alignment with Project Objective	Somewhat meets Project Objective	Unsatisfactory alignment with Project Objective	Somewhat meets Project Objective