

Limerick City and County Council

**Limerick City and Environs Green and
Blue Infrastructure Strategy**
Appropriate Assessment Screening and
Natura Impact Statement

Final report

Prepared by LUC

September 2022



Limerick City and County Council

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Infrastructure Strategy**
Appropriate Assessment Screening and Natura
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Chapter 1

Introduction

LUC was commissioned by Limerick City and County Council (LCCC) to undertake an Appropriate Assessment of the Limerick City and Environs Green and Blue Infrastructure (GBI) Strategy.

1.1 LCCC adopted the Limerick Development Plan 2022-2028 on 17th June 2022¹. The Limerick Development Plan (LDP) sets out objectives, policies, and land use zoning to guide future development within the city and county for the period 2022-2028. The Limerick City and Environs GBI Strategy will supplement and provide additional guidance on the implementation of and compliance with LDP policies in relation to creating / enhancing / maintaining GBI.

1.2 LCCC, as the competent body responsible for the GBI Strategy preparation, is also responsible for ensuring the GBI Strategy is prepared in compliance with the 'Habitats Directive'² and 'Birds Directive'³, as transposed into national legislation.

The requirement to undertake Appropriate Assessment of plans and projects

1.3 The 'Habitats Directive' (Directive 92/43/EEC) is the principal legislative instrument for the protection and conservation of biodiversity within the European Union and lists certain habitats and species that must be protected within wildlife conservation areas. The 'Birds Directive' (Directive 2009/147/EC) provides for a network of sites within the European Union which protect birds at their breeding, feeding, roosting and wintering areas. The Habitats Directive and the Birds Directive form the cornerstone of Europe's nature conservation policy.

¹ Limerick City and County Council (2022) Limerick Development Plan 2022-2028 (online) Available at:

<https://www.limerick.ie/council/services/planning-and-property/limerick-development-plan/development-plan>

² Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora. Available at:

https://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm

³ Council Directive 2009/147/EC on the Conservation of Wild Birds. Available at:

https://ec.europa.eu/environment/nature/legislation/birdsdirective/index_en.htm

1.4 The requirement for Appropriate Assessment is set out in Articles 6(3) and 6(4) of the Habitats Directive (92/43/EEC) which states:

“...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...”

1.5 The Habitats Directive and the Birds Directive are transposed into Irish legislation by the European Communities (Birds and Natural Habitats) Regulations 2011⁴, and Part XAB of the Planning and Development Act 2000, as amended⁵. Therefore, it is a requirement that each plan (or in this case strategy) or project in Ireland must undergo an assessment of its implications on any European site before any decision is made to allow that plan or project to proceed. This process is referred to as Appropriate Assessment (AA).

1.6 Paragraph 2.1.1 of the Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities⁶ provides the below definition of the type of plans that should be subject to AA:

“Plans include all statutory and non-statutory land use, framework and sectoral plans and strategies to the extent that they have the potential to have significant effects on a Natura 2000 site. This incorporates ‘plans and programmes’ covered by the SEA Directive, and other plans and strategies, including those that are designed or intended to benefit the environment or heritage, such as Heritage and Biodiversity plans, recreation/amenity plans or strategies, and River Basin Management Plans.”

1.7 Therefore, based on the above definition of a plan, the decision was made that the GBI Strategy should be subject to AA.

1.8 In Ireland, the Natura 2000 network of European sites comprise:

- Special Areas of Conservation (SAC) and candidate SAC designated under the Habitats Directive for particular habitat types (Annex I) and species (Annex II); and,
- Special Protection Areas (SPA) and proposed SPA designated under Article 4(1) of the Birds Directive for rare and vulnerable birds listed in Annex I, or Article 4(2) for regularly occurring migratory species not listed in Annex I.

1.9 Although not specifically required to be considered in the AA process, it is best practice to adopt the precautionary principle and to include Designated Wetlands of International Importance (known as Ramsar sites) (classified under the Ramsar Convention 1971⁷) in the assessment.

1.10 The overall purpose of AA is to conclude whether or not a plan or project would adversely affect the integrity of a European site. This is judged in terms of the implications of the plan or project for a site’s ‘qualifying interests’ (i.e. those Annex I habitats, Annex II species, and Annex I bird populations for which it has been designated); from these the ‘conservation objectives’ of the site are derived.

1.11 Significantly, AA is based on the precautionary principle. Where uncertainty or doubt remains, an adverse effect should be assumed.

Stages in the Appropriate Assessment process

1.12 AA is a four-stage process with tests at each stage, as illustrated in **Figure 1.1**. An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required.

1.13 The four stages in the AA process are discussed in more detail in **Chapter 2: Methodology**.

⁴ S.I. No. 477 of 2011 – European Communities (Birds and Natural Habitats) Regulations 2011

⁵ Planning and Development Act 2000, as amended

⁶ Department of Environment, Heritage and Local Government (2009, revised 2010) Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (pdf) Available at:

https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2009_AA_Guidance.pdf

⁷ The Convention on Wetlands of International Importance especially as Waterfowl Habitat, more commonly known as the Ramsar Convention, was ratified by Ireland in 1984.

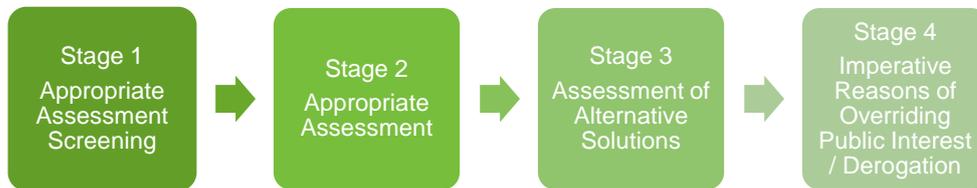


Figure 1.1: Four-stages in the AA process

1.14 It is normally anticipated that an emphasis on Stages 1 and 2 of this process will, through a series of iterations, help ensure that potential adverse effects are identified and eliminated through the avoidance of likely significant effects at Stage 1, and through AA at Stage 2 by the inclusion of mitigation measures designed to avoid or reduce effects. The need to consider alternatives could imply more onerous changes to a plan document. It is generally understood that ‘imperative reasons of overriding public interest’ (IROPI) are likely to be justified only very occasionally and would involve engagement with the Government.

This report combines both Stage 1 Screening and Stage 2 AA of the GBI Strategy.

Case law changes

1.15 This report has been prepared with regard to relevant rulings by the Court of Justice of the European Union (CJEU), the High Court, and the Supreme Court, including but not limited to the following rulings. The rulings have been grouped into relevant topics. A summary of the rulings is provided in **Appendix B**.

Interpretation of 'likely significant effects'

- European Court of Justice 7th September 2004 by Advocate General Kokott; Case C-127/02 Waddenzee - v- Secretary of State for Agriculture, Nature Conservation and Fisheries.

Interpretation of direct, indirect and in-combination effects

- European Court of Justice Opinion 22nd November 2012 by Advocate General Sharpston; Case C-258/11 Peter Sweetman and Others-v- An Bord Pleanála.
- European Court of Justice 7th November 2018; Case C 461/17; Holohan & Others v. An Bord Pleanála High Court Ruling 2nd December 2020 by Mr. Justice Denis McDonald; Neutral Citation [2020] IEHC 622; High Court Record No. 2020 238 JR; Highlands Residents

Association and Protect East Meath Limited -v- An Bord Pleanála, Ireland and The Minister for Culture Heritage and The Gaeltacht, Ireland and The Attorney General.

Application of the 'precautionary principle'

- European Court of Justice Judgement 11th April 2013 by the Third Chamber; Case C-258/11 Peter Sweetman and Others -v- An Bord Pleanála.

Application of mitigation / 'best practice measures'

- European Court of Justice Judgement 12th April 2018 by the Seventh Chamber; Case C 323/17; People Over Wind & Sweetman -v- Coillte Teoranta.
- European Court of Justice 19th April 2018; Case C 164/17; Grace & Sweetman -v- An Bord Pleanála.
- High Court Ruling 2nd February 2019 by Mr. Justice Barniville; Neutral Citation [2019] IEHC 84; High Court Record No. 2017 883 JR; Kelly -v- An Bord Pleanála & Anor.
- High Court Ruling 21st June 2019 by Mr. Justice Simons; Neutral Citation [2019] IEHC 450; High Court Record No. 2019 20 JR; Heather Hill Management Company clg & anor -v- An Bord Pleanála & Anor.
- High Court Ruling 31st January 2020 by Mr. Justice Denis McDonald; Neutral Citation [2020] IEHC 39; High Court Record No. 2019 33 JR; Peter Sweetman -v- An Bord Pleanála, Ireland and The Attorney General.

Appropriate Assessment

- High Court Ruling 25th July 2014 by Ms. Justice Finlay Geoghegan; Neutral Citation [2014] IEHC 400; High Court Record No. 2013 802 JR; Kelly -v- An Bord Pleanála.
- High Court Ruling 25th February 2016 by Mr. Justice Barton; Neutral Citation [2016] IEHC 134; High Court Record No. 2013 450 JR; Balz & Heubach -v- An Bord Pleanála.
- Supreme Court Ruling 17th July 2018 by Mr Justice Clarke; Neutral Citation [2018]; Supreme Court Record No. 2014/488 JR; Connelly -v- An Bord Pleanála

- European Court of Justice 7th November 2018; Case C 461/17; *Holohan & Others v. An Bord Pleanála*.

Developer's responsibilities

- European Court of Justice 7th November 2018; Case C 461/17; *Holohan & Others v. An Bord Pleanála*.

Structure of the report

1.16 This chapter has introduced the GBI Strategy; the requirement to undertake Screening, and if necessary AA, of the GBI Strategy, the stages in the AA process; and relevant case law. The remainder of this report is structured into the following sections:

- **Chapter 2** sets out the approach undertaken during the Screening and AA stages.
- **Chapter 3** sets out the Screening assessment of the GBI Strategy (Stage 1).
- **Chapter 4** details the Natura Impact Statement prepared as part of the AA (Stage 2).
- **Chapter 5** presents the conclusions of the assessments and describes the next steps to be undertaken.

1.17 The main report is supported by the following appendices:

- **Appendix A** contains a map of the relevant European sites.
- **Appendix B** details the relevant case law rulings by the Court of Justice of the European Union (CJEU), the High Court, and the Supreme Court.
- **Appendix C** sets out the screening assessment of the ten 'Priority Actions' within the GBI Strategy.
- **Appendix D** sets out the attributes of the relevant European sites.
- **Appendix E** sets out the review of other relevant plans and projects that might, in combination with the GBI Strategy, have the potential to adversely impact upon European sites.

Chapter 2

Methodology

This chapter sets out the approach used to undertake the Screening and AA of the Limerick City and Environs GBI Strategy. It has been undertaken to comply with the requirements of Articles 6(3) and 6(4) of the Habitats Directive.

Guidance documents

2.1 This report has been prepared with regard to the following European and national guidance documents. The list is ordered by publication date.

European

- Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on of Article 6(3) and (4) of the Habitats Directive 92/43/EEC⁸
- Guidance document on the strict protection of animal species of Community interest under the Habitats Directive⁹
- Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC¹⁰
- Commission guidance on streamlining environmental assessments conducted under Article 2(3) of the Environmental Impact Assessment Directive (Directive 2011/92/EU, as amended by Directive 2014/52/EU)¹¹

⁸ European Commission (2021) Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (pdf) Available at: https://ec.europa.eu/environment/nature/natura2000/management/pdf/methodological-guidance_2021-10/EN.pdf

⁹ European Commission (2021) Guidance document on the strict protection of animal species of Community interest under the Habitats Directive (online) Available at: <https://op.europa.eu/en/publication-detail/-/publication/a17dbc76-2b51-11ec-bd8e-01aa75ed71a1/language-en/format-PDF/source-search>

¹⁰ European Commission (2018) Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (online) Available at: <https://op.europa.eu/en/publication-detail/-/publication/11e4ee91-2a8a-11e9-8d04-01aa75ed71a1>

¹¹ European Commission (2016) Commission guidance document on streamlining environmental assessments conducted under Article 2(3) of the Environmental Impact Assessment Directive (Directive 2011/92/EU, as amended by Directive 2014/52/EU) (online) Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AQJ.C_2016.273.01.0001.01.ENG&oc=OJ%3AC%3A2016%3A273%3ATOC

- Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC. Clarification of the Concepts of: Alternative Solutions, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence, Opinion of the Commission¹²
- Communication from the Commission on the precautionary principle¹³

National

- OPR Practice Note PN01: Appropriate Assessment Screening for Development Management¹⁴
- Guidance on the strict protection of certain animal and plant species under the Habitats Directive in Ireland¹⁵
- Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities¹⁶
- Circular NPW 1/10 & PSSP 2/10. Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities¹⁷.
- Circular SEA 1/08 & NPWS 1/08. Appropriate Assessment of Land Use Plans¹⁸.
- Circular PD 2/07 & NPWS 1/07. Compliance conditions in respect of developments requiring (1) Environmental Impact Assessment (EIA); or (2) having potential impacts on Natura 2000 sites¹⁹.

Data sources

2.2 The following data sources were used to inform the baseline for the assessment:

- Limerick Development Plan 2022-2028²⁰.

- [National Parks and Wildlife Service Protected Sites map viewer.](#)
- [National Parks and Wildlife Service Protected Sites data](#), including Designated Sites boundary data, site-specific Conservation Objectives, SAC datasheets, and SPA datasheets.
- Various [Species Action Plans and Reports](#).
- Information on species records and distributions, obtained from the [National Biodiversity Data Centre](#).
- Information on waterbodies, catchment areas and hydrological connections obtained from the [Environmental Protection Agency](#)
- Information on bedrock, groundwater, aquifers and their statuses, obtained from [Geological Survey Ireland](#).
- Satellite imagery and mapping obtained from various sources and dates including Google and Ordnance Survey Ireland.
- Information on the existence of permitted developments, or developments awaiting decision, in the GBI Strategy area.

Overview of the Appropriate Assessment process

2.3 The AA process comprises four main stages as summarised in **Table 2.1** overleaf.

¹² European Commission (2007) Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC. Clarification of the Concepts of: Alternative Solutions, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence, Opinion of the Commission (pdf) Available at: https://ec.europa.eu/environment/nature/natura2000/management/docs/art6/guidance_art6_4_en.pdf

¹³ European Commission (2000) Communication from the Commission on the precautionary principle (online) Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52000DC0001>

¹⁴ Office of the Planning Regulator (2021) Appropriate Assessment Screening for Development Management OPR Practice Note PN01 (pdf) Available at: <https://www.opr.ie/wp-content/uploads/2021/03/9729-Office-of-the-Planning-Regulator-Appropriate-Assessment-Screening-booklet-15.pdf>

¹⁵ Department of Housing, Local Government and Heritage (2021) Guidance on the strict protection of certain animal and plant species under the Habitats Directive in Ireland (pdf) Available at: <https://www.npws.ie/sites/default/files/files/strict-protection-of-certain-animal-and-plant-species.pdf>

¹⁶ Department of Environment, Heritage and Local Government (2009, revised 2010) Appropriate Assessment of Plans and Projects in

Ireland – Guidance for Planning Authorities (pdf) Available at: https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2009_AA_Guidance.pdf

¹⁷ Department of Environment, Heritage and Local Government (2010) Circular NPW 1/10 & PSSP 2/10. Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities (pdf) Available at: <https://www.npws.ie/sites/default/files/general/Circular%20NPW1-10%20%26%20PSSP2-10%20Final.pdf>

¹⁸ Department of Environment, Heritage and Local Government (2008) Circular SEA 1/08 & NPWS 1/08 Appropriate Assessment of Land Use Plans (pdf) Available at: <https://www.npws.ie/sites/default/files/general/circular-sea-01-08.pdf>

¹⁹ Department of Environment, Heritage and Local Government (2007) Circular PD 2/07 & NPWS 1/07. Compliance conditions in respect of developments requiring (1) Environmental Impact Assessment (EIA); or (2) having potential impacts on Natura 2000 sites. (pdf) Available at: <https://www.npws.ie/sites/default/files/general/circular-pd-02-07.pdf>

²⁰ Limerick City and County Council (2022) Limerick Development Plan 2022-2028 (online) Available at: <https://www.limerick.ie/council/services/planning-and-property/limerick-development-plan/development-plan>

Table 2.1: The four-stage assessment process

Stage	Process	Tasks	Output
Stage 1: Screening	Identifies whether the plan or project is directly connected to, or necessary for, the management of a European site(s).	<ul style="list-style-type: none"> ■ Description of the GBI Strategy. ■ Identification of potentially affected European sites and their conservation objectives. ■ Assessment of likely significant effects of the GBI Strategy alone or in combination with other plans and projects, prior to consideration of avoidance or reduction ('mitigation') measures. ■ Screening Conclusion Statement. 	The output from this stage is a determination of not significant, significant, potentially significant, or uncertain effects. The latter two determinations will cause the plan or project to be taken forward to Stage 2.
Stage 2: Appropriate Assessment	Identifies whether the plan or project may have significant impact/s upon European site/s. either alone or in-combination with other plans or projects.	<ul style="list-style-type: none"> ■ Information gathering (GBI Strategy and data on European sites). ■ Impact prediction. ■ Evaluation of GBI Strategy impacts in view of conservation objectives of European sites. ■ Where impacts are considered to directly or indirectly affect qualifying interests of European sites, identify how these effects will be avoided or reduced ('mitigation'). ■ Appropriate Assessment Conclusion Statement. 	The output from this stage is a Natura Impact Statement (NIS). This document must include sufficient information for the competent authority to carry out the Appropriate Assessment. If the assessment is negative, i.e. adverse effects on the integrity of a site cannot be excluded despite incorporation of measures to avoid or reduce the adverse effects, then the process must consider alternatives (Stage 3).
Stage 3: Assessment of Alternative Solutions	Assesses alternative ways of achieving the objectives of the plan or project that avoid adverse impacts on the integrity of a European site. May be carried out concurrently with Stage 2 in order to find the most appropriate solution.	<ul style="list-style-type: none"> ■ Assessment of alternative solutions. 	If no alternatives exist or all alternatives would result in negative impacts to site integrity, then the process either moves to Stage 4 or the plan or project is abandoned.
Stage 4: Imperative Reasons of Overriding Public Interest / Derogation	Assesses whether there are imperative reasons of overriding public interest (IROPI) for allowing a plan or project that will have adverse effects on the integrity of a European site to proceed in cases where it has been established that no less damaging alternative solution exists.	<ul style="list-style-type: none"> ■ Identify and demonstrate 'imperative reasons of overriding public interest' (IROPI). NB: Prior consultation with Minister regarding IROPI. ■ Demonstrate no alternatives exist. ■ Identify potential compensatory measures. 	This stage should be avoided if at all possible. The test of IROPI and the requirements for compensation are extremely onerous.

Stage 1: Screening

2.4 The purpose of the screening stage is to:

- Identify all aspects of the GBI Strategy that would have no effect on a European site. These can be eliminated from further consideration in respect of this and other plans.
- Identify all aspects of the GBI Strategy that would not be likely to have a significant effect on a European site (i.e. would have some effect because of links/connectivity but the effect is not significant), either alone or in combination with other aspects of the strategy or other plans or projects. These do not require Appropriate Assessment.
- Identify those aspects of the GBI Strategy where it is not possible to rule out the risk of significant effects on a European site, either alone or in combination with other plans or projects. This provides a clear scope for the parts of the strategy that will require Appropriate Assessment.

2.5 **Figure 2.1** illustrates the four steps for undertaking Screening of the GBI Strategy for AA.

Figure 2.1: The four steps in the Screening process



Step 1: Description of the Limerick City and Environs GBI Strategy and context

2.6 The first element of Screening is to provide the following information on the GBI Strategy (see **Chapter 3**):

- Background and context.
- Geographical area covered by the GBI Strategy.
- Purpose of the GBI Strategy.
- Content of the GBI Strategy including its aims and priority actions.
- Stage of the GBI Strategy.

Step 2: Identification of relevant European sites

2.7 When assessing impact, qualifying interests of conservation interest are only considered relevant where a credible or tangible source-pathway-receptor link exists between the plan or project and qualifying species or habitats. In order for an impact to occur, there must be a risk initiated by having a 'source' (e.g. construction works), a 'receptor' (e.g. a protected species, associated aquatic or riparian habitats), and an impact pathway between the source and the receptor (e.g. a watercourse which connects the plan or project to the site designated for the protection of a species). If there is no pathway or the qualifying interests of the European site are not vulnerable (either directly or indirectly) to any impact predicted from the plan or project, then a site should not be screened in.

2.8 In Ireland, the Natura 2000 network of European sites comprise:

- Special Areas of Conservation (SAC) and candidate SAC designated under the Habitats Directive for particular habitat types (Annex I) and species (Annex II); and;
- Special Protection Areas (SPA) and proposed SPA designated under Article 4(1) of the Birds Directive for rare and vulnerable birds listed in Annex I, or Article 4(2) for regularly occurring migratory species not listed in Annex I;
- Ramsar sites identified as internationally important wetland habitat under the 1971 Ramsar Convention are also considered in the assessment despite being at the wider international level.

Zone of Impact

2.9 The 'Zone of Impact' (Zoi) for a plan or project is the area over which ecological features may be subject to significant effects as a result of the proposed project and associated activities. This is likely to extend beyond the GBI

Strategy study area boundary, for example where there are ecological or hydrological links beyond the GBI Strategy boundary. The Zol will vary for different ecological features depending on their sensitivity to an environmental change²¹.

2.10 A distance of 15km is currently recommended by the NPWS in the case of plans as a potential Zol which is derived from UK guidance²². Therefore, a distance of 15km from the boundary of the strategy area has been used in the first instance to identify European sites with the potential to be affected by the GBI Strategy. Consideration has also been given to whether any more distant European sites may be connected to the strategy area via effects pathways, for example through hydrological links.

2.11 The assessment also takes into account areas that may be functionally linked to the European sites. The term 'functional linkage' is used to refer to the role or 'function' that land beyond the boundary of a European site might fulfil in terms of supporting the species populations for which the site was designated or classified. Such an area is therefore 'linked' to the site in question because it provides a (potentially important) role in maintaining or restoring a protected population at favourable conservation status.

2.12 While the boundary of a European site will usually be drawn to include key supporting habitat for a qualifying species, this cannot always be the case where the population for which a site is designated or classified is particularly mobile. Individuals of the population will not necessarily remain in the site all the time. Sometimes, the mobility of qualifying species is considerable and may extend so far from the key habitat that forms the SAC or SPA that it would be entirely impractical to attempt to designate or classify all of the land or sea that may conceivably be used by the species. Screening for AA therefore considers whether any European sites make use of functionally linked habitats, and the impacts that could affect those habitats.

2.13 Chapter 3 of this report identifies the relevant SACs / cSACs, SPAs / proposed SPAs, and Ramsar sites within 15km of the GBI Strategy study area. A map of the study area and the relevant European sites is provided in **Appendix A**. **Appendix C** sets out the screening assessment of the Priority Actions within the GBI Strategy. **Appendix D** characterises each of the qualifying interests and conservation objectives of the European sites in context of each of the sites' vulnerabilities.

Step 3: Assessment of 'Likely Significant Effects' of the GBI Strategy

2.14 A precautionary approach was adopted in the assessment of Likely Significant Effects. A conclusion of 'no Likely Significant Effect' therefore has only been reached where it is considered very unlikely, based on current knowledge and the information available, that the GBI Strategy would have a significant effect on the integrity of a European site. The screening assessment has been conducted without taking mitigation into account, in accordance with the 'People over Wind' judgment.

Types of potential effects

2.15 The European Commission's Appropriate Assessment Guidance²³ outlines the following potential changes that may occur at a designated site, which may result in adverse effects on the integrity and function of that site:

- Physical loss / reduction of habitat area.
- Habitat or species fragmentation (functionally linked land).
- Non-physical disturbance (noise, light, vibration).
- Recreation pressure.
- Changes to hydrology including water quality and quantity.

2.16 This thematic/impact category approach allowed for consideration to be given to the potential for cumulative effects of separate elements of the GBI Strategy. Each of the ten Priority Actions within the GBI Strategy were screened in to determine whether any Likely Significant Effects on European Sites.

Interpretation of 'Likely Significant Effects'

2.17 In the Waddenzee case²⁴, the CJEU ruled on the interpretation of Article 6(3) of the Habitats Directive, including that:

An effect should be considered 'likely', "if it cannot be excluded, on the basis of objective information, that it will have a significant effect on the site" (para 44). An effect should be considered 'significant', "if it undermines the conservation objectives" (para 48). Where a plan or project has an effect on a site "but is not likely to

²¹ CIEEM, 2016

²² Scott Wilson, Levett-Therivel Sustainability Consultants, Treweek Environmental Consultants and Land Use Consultants. 2006. Appropriate Assessment of plans. <http://www.landuse.co.uk/Downloads/AppropriateAG.pdf>

²³ European Commission (2021) Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on of Article

6(3) and (4) of the Habitats Directive 92/43/EEC (pdf) Available at: https://ec.europa.eu/environment/nature/natura2000/management/pdf/methodological-guidance_2021-10/EN.pdf

²⁴ European Court of Justice 7th September 2004 by Advocate General Kokott; Case C-127/02 Waddenzee -v- Secretary of State for Agriculture, Nature Conservation and Fisheries

undermine its conservation objectives, it cannot be considered likely to have a significant effect on the site concerned” (para 47).

2.18 A relevant opinion delivered to the Court of Justice of the European Union commented that:

“The requirement that an effect in question be ‘significant’ exists in order to lay down a de minimis threshold. Plans or projects that have no appreciable effect on the site are thereby excluded. If all plans or projects capable of having any effect whatsoever on the site were to be caught by Article 6(3), activities on or near the site would risk being impossible by reason of legislative overkill.”

2.19 This opinion (the ‘Sweetman’ case²⁵) therefore allows for the authorisation of plans and projects whose possible effects, alone or in combination, can be considered ‘trivial’ or de minimis; referring to such cases as those *“that have no appreciable effect on the site”*. In practice such effects could be screened out as having no Likely Significant Effect – they would be ‘insignificant’.

2.20 The Screening stage therefore considers whether the GBI Strategy could have Likely Significant Effects either alone or in combination.

Mitigation provided by the GBI Strategy

2.21 Some of the potential effects of the GBI Strategy could be mitigated through the implementation of other aspects of the GBI Strategy, policies in the Limerick Development Plan, or other regulatory mechanisms. Nevertheless, in accordance with the ‘People over Wind’ judgment, avoidance and reduction (‘mitigation’) measures cannot be relied upon at the Screening stage, and therefore, where such measures exist, they would be considered at the AA stage where Likely Significant Effects, either alone or in-combination, could not be ruled out.

Assessment of potential in-combination effects

2.22 Article 6(3) of the Habitats Directive requires Screening for AA where *“a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a Natura 2000 site in view of its conservation objectives”*. Therefore, where likely insignificant effects are identified for the GBI Strategy alone, it is necessary to consider whether

these may become significant effects in combination with other plans or projects.

2.23 Where the GBI Strategy is likely to have an effect on its own (due to impact pathways being present), but it is not likely to be significant, the in-combination assessment at Screening stage needs to determine whether there may also be the same types of effect from other plans or projects that could combine with the strategy to produce a significant effect. If so, this Likely Significant Effect arising from the strategy in combination with other plans or projects, would then need to be considered through the AA stage to determine if the impact pathway would have an adverse effect on integrity of the relevant European site.

2.24 Where the screening assessment has concluded that there is no impact pathway between the strategy and the conditions necessary to maintain qualifying interests of a European site, then there will be no in-combination effects to assess at the Screening or AA stage.

2.25 If impact pathways are found to exist for a particular effect but it is not likely to be significant from the strategy alone, the in-combination assessment will identify which other plans and programmes could result in the same impact on the same European site. This will focus on planned growth (including housing, employment, transport, minerals and waste) around the affected site, or along the impact corridor.

2.26 The potential for in-combination impacts would therefore focus on plans prepared by planning authorities that overlap with European sites that are within the scope of this report. The findings of any associated AA work for those plans would be reviewed where available. Where relevant, any strategic projects in the area that could have in-combination effects with the strategy would also be identified and reviewed.

2.27 In-combination effects must examine plans or projects that are²⁶:

- Projects completed.
- Projects approved but not started or uncompleted.
- Projects proposed, i.e. for which an application for approval or consent has been made, including refusals subject to appeal and not yet determined.
- Proposals in adopted plans.
- Proposals in finalised draft plans formally published or submitted for consultation or adoption.

²⁵ European Court of Justice Opinion 22nd November 2012 by Advocate General Sharpston; Case C 258/11 Peter Sweetman and Others-v- An Bord Pleanála

²⁶ Managing Natura 2000 sites – The provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC (updated 2018). https://ec.europa.eu/environment/nature/natura2000/management/doc/s/art6/Provisions_Art_6_nov_2018_en.pdf

2.28 Plans and projects that are not yet proposed do not generally have to be taken into account in the assessment of in-combination effects²⁷, even if they are part of an overarching masterplan²⁸.

2.29 The need for in-combination assessment also arises at the AA stage.

Step 4: Conclusion and Screening Statement

2.30 To support the decision-making of LCCC as the competent authority, a clear statement of the conclusion reached, and the basis upon which it was reached is provided in **Chapter 3**.

2.31 Screening of the GBI Strategy for AA would result in the following possible conclusions or outcomes, as defined in the Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities²⁹:

1. AA is not required.

- Screening, followed by consultation and agreement with the NPWS, establishes that the GBI Strategy is directly connected with or necessary to the nature conservation management of the potentially affected European sites.

2. No potential for significant effects / AA is not required

- Screening establishes that there is no potential for significant effects and the GBI Strategy can proceed as proposed.

3. Significant effects are certain, likely or uncertain.

- The plan or project must either proceed to Stage 2 (AA) or be rejected.

Stage 2: Appropriate Assessment

2.32 In undertaking an AA, there are two phases:

- a scientific evaluation of the Likely Significant Effects of the GBI Strategy on the relevant qualifying interests of a European site; and
- a conclusion based on outcomes of the scientific evaluation whether the integrity of a European site will be compromised.

2.33 The emphasis for AA is to prove that no adverse impacts due to the GBI Strategy will occur which would undermine a European site's conservation integrity.

Site integrity can be defined as:

“the coherence of its structure and function across its whole area that enables it to sustain the habitat, complex of habitats and / or the levels of populations of the species for which it was classified”³⁰

2.34 The assessment also takes into account any avoidance or additional measures which will be implemented to avoid or reduce the level of impact from the GBI Strategy. The competent authority may also consider the use of conditions or restrictions to help avoid Adverse Effects on Integrity (AEoI) of the European sites. The findings of Stage 2 are reported in a Natura Impact Statement (NIS) (**Chapter 4**). Following the completion of the AA, the competent authority must produce an AA Conclusion Statement (also detailed in **Chapter 4**) which identifies the potential adverse impacts of the GBI Strategy on the European sites and if possible, explains how those effects will be avoided through mitigation.

2.35 If the AA concludes that there will be an adverse effect on the integrity of a European site, or that there is uncertainty and a precautionary approach is taken, then consent can only be granted if there are no alternative solutions, Imperative Reasons of Overriding Public Interest (IROPI) is applicable and compensatory measures have been secured.

²⁷ Ratheniska v An Bord Pleanála [2015] IEHC 18

²⁸ 10 Fitzpatrick and Daly v An Bord Pleanála [2019] IESC 23 (the 'Apple Case')

²⁹ Department of Environment, Heritage and Local Government (2009, revised 2010) Appropriate Assessment of Plans and Projects in

Ireland – Guidance for Planning Authorities (pdf) Available at: https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2009_AA_Guidance.pdf

³⁰ European Communities (2000) Managing Natura 2000 sites - The provisions of Article 6 of the 'Habitats' Directive 92/43/CEE. EC

Chapter 3

Stage 1: Screening

This chapter sets out the Screening for Appropriate Assessment of the GBI Strategy.

Description of the Limerick City and Environs Green and Blue Infrastructure Strategy

Background and context of the GBI Strategy

3.1 LCCC adopted the Limerick Development Plan (LDP) 2022-2028 on 17th June 2022³¹. The GBI Strategy is being prepared to fulfil the Council's objective outlined in policy EH 013 (Blue Green Infrastructure Strategy) of the LDP which requires a GBI Strategy to be prepared to provide detailed guidance on the creation / maintenance / enhancement of GBI in Limerick City and Environs.

Geographical area covered by the GBI Strategy

3.2 Limerick City is the largest urban centre in Ireland's Mid-West and the country's third largest city. Limerick City and Environs has a population of 94,194 people and the entire City and County is home to 194,899 people, which is anticipated to increase to 246,000-256,500 people by 2031. Limerick City and Environs covers an area of approximately 63km². The study area of the GBI Strategy in relation to Limerick City and County is shown on **Figure 3.1** overleaf.

3.3 The GBI Strategy area is characterised by a wealth of green and blue assets, including a network of vibrant and diverse landscapes, a wide range of ecosystems and a unique built, natural and archaeological heritage. The River Shannon forms the principal blue infrastructure asset in the area, supplemented by a network of streams / rivers, canals, flood plains and wetlands which characterise the wider landscape. Rivers and waterways form an important aspect of Limerick culture, adding to amenity value and biodiversity whilst also proving to be a source of flood risk. Limerick also contains a range of parks, woodlands and open spaces, semi natural open space, hedgerows and agricultural lands. The GBI Strategy area has a network of sites designated for their

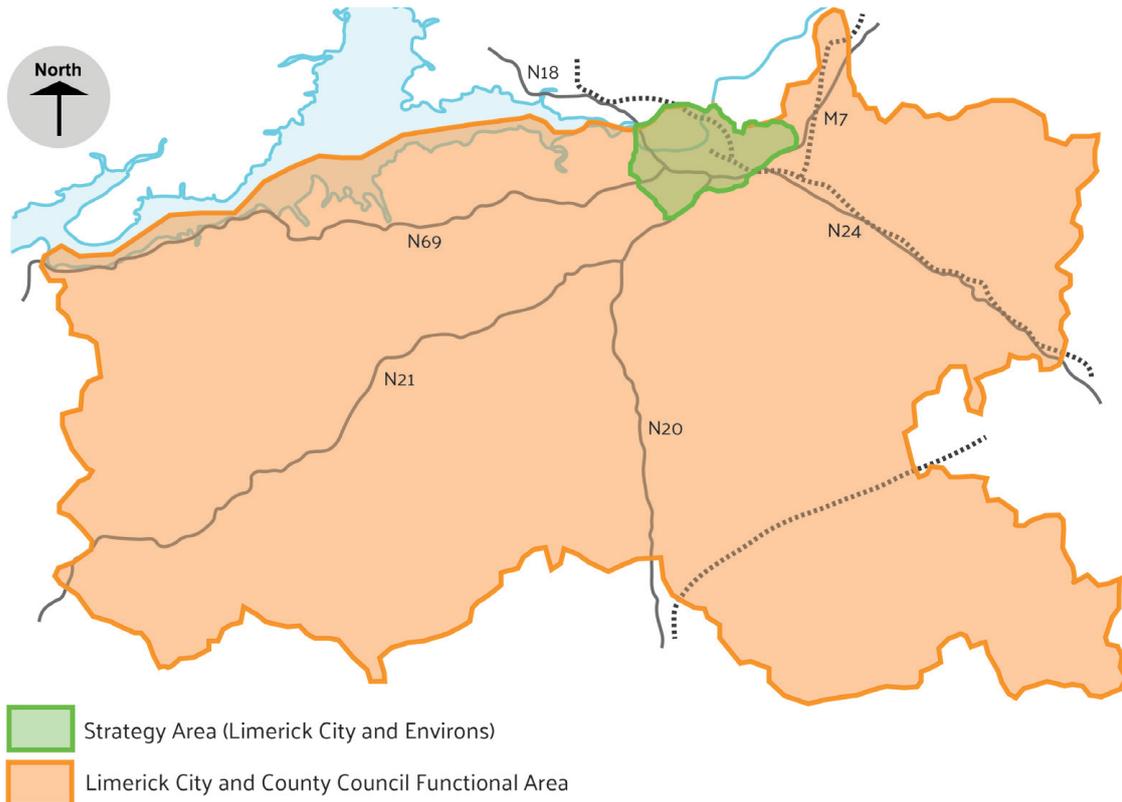
³¹ Limerick City and County Council (2022) Limerick Development Plan 2022-2028 (online) Available at:

<https://www.limerick.ie/council/services/planning-and-property/limerick-development-plan/development-plan>

conservation importance, including the eastern extents of the Lower River Shannon Special Area of Conservation (SAC) and the River Shannon and River Fergus Estuaries Special Protection Area (SPA). Additional designated sites include Fergus Estuary and Inner Shannon, North Shore, Inner

Shannon Estuary, South Shore, Knockalisheen Marsh and Loughmore Common Turlough Proposed Natural Heritage Areas (pNHAs).

Figure 3.1: Geographical area covered by the GBI Strategy



Purpose of the GBI Strategy

3.4 The purpose of the GBI Strategy is to supplement and provide additional guidance on the implementation of and compliance with LDP policies in relation to creating / enhancing / maintaining GBI.

Content of the GBI Strategy

3.5 The GBI Strategy is underpinned by the strategic vision outlined in the LDP:

Limerick – A Green City Region on the Waterfront

“By 2030, Limerick will become a green City region on the Shannon Estuary connected through people and places. This will be achieved through engagement, innovation and resilient urban development and self-sustaining rural communities”.

3.6 The aim of the GBI Strategy is to inform and guide the planning and management of a network of multi-functional green and blue spaces within Limerick City and its Environs, helping to drive the transition to a low carbon and climate resilient society. The GBI Strategy provides cross-cutting, strategic guidance and identifies ten ‘Priority Actions’ for GBI in Limerick City and Environs during the LDP period.

GBI Strategy Priority Actions

1. Embed GBI in the implementation of public and private projects.
1. Enhance existing open space provision with the Strategy Area.
2. Create new formal parks and natural & semi-natural parks to address green space deficiencies.
3. Protect, value and enhance amenity green space by applying an appropriate management approach.

4. Enhance, protect and develop the network of blueways.
5. Integrate GBI in the delivery of the network of active travel routes.
6. Enhance recreational access to the River Shannon and tributaries.
7. Develop Tree and Biodiversity Strategies for the Strategy Area.
8. Promote community engagement and raise public awareness of the development of GBI.
9. Incorporate smart mechanisms of connecting GBI initiatives with the public.

Stage of the GBI Strategy

3.7 The Draft GBI Strategy, and this accompanying Screening and AA Report, will be published for consultation from 17th September to 18th October 2022. The Final GBI Strategy is anticipated to be prepared by Q4 2022.

Identification of relevant European sites

3.8 **Table 3.1** identifies the European sites within the 15km ZoI. Note there are no Ramsar sites, cSACs, or proposed SPAs within the ZoI. A map of the study area and the relevant European sites is provided in **Appendix A**.

Table 3.1: European sites identified within the ZoI

European site	Site code	Closest distance / Location from GBI Strategy area
Special Protected Areas (SPAs)		
River Shannon and River Fergus Estuaries SPA	004077	Partly falls within the GBI Strategy area to the west.
Slievefelim to Silvermines Mountains SPA	004165	8.13km east
Special Areas of Conservation (SACs)		
Lower River Shannon SAC	002165	Partly falls within the GBI Strategy area.
Glenomra Wood SAC	001013	7.82km north
Tory Hill SAC	000439	8.12km south
Glenstal Wood SAC	001432	8.56km west
Clare Glen SAC	000930	9.93km east
Ratty River Cave SAC	002316	10.4km north west
Askeaton Fen Complex SAC	002279	10.8km west
Danes Hole, Poulnalecka SAC	000030	12.1km north
Curraghchase Woods SAC	000174	12.3km west
Slieve Bernagh Bog SAC	002312	13.9 km north east
Kilkishen House SAC	002319	14.3 km north west

Qualifying interests of the European sites

3.9 **Appendix D** characterises in detail each of the qualifying interests and conservation objectives of the

European sites in context of each of the sites' vulnerabilities. However, a synopsis of the qualifying interests for the relevant European sites is provided in **Table 3.2**.

Table 3.2: Qualifying interests and conservation objectives for the relevant European sites

Site name	Qualifying interest(s)
River Shannon and River Fergus Estuaries SPA	<p>Cormorant (<i>Phalacrocorax carbo</i>) [A017] Whooper Swan (<i>Cygnus cygnus</i>) [A038] Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Shelduck (<i>Tadorna tadorna</i>) [A048] Wigeon (<i>Anas penelope</i>) [A050] Teal (<i>Anas crecca</i>) [A052] Pintail (<i>Anas acuta</i>) [A054] Shoveler (<i>Anas clypeata</i>) [A056] Scaup (<i>Aythya marila</i>) [A062] Ringed Plover (<i>Charadrius hiaticula</i>) [A137] Golden Plover (<i>Pluvialis apricaria</i>) [A140] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Lapwing (<i>Vanellus vanellus</i>) [A142] Knot (<i>Calidris canutus</i>) [A143] Dunlin (<i>Calidris alpina</i>) [A149] Black-tailed Godwit (<i>Limosa limosa</i>) [A156] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] Curlew (<i>Numenius arquata</i>) [A160] Redshank (<i>Tringa totanus</i>) [A162] Greenshank (<i>Tringa nebularia</i>) [A164] Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] Wetland and Waterbirds [A999]</p>
Slievefelim to Silvermines Mountains SPA	<p>Hen Harrier (<i>Circus cyaneus</i>) [A082]</p>
Lower River Shannon SAC	<p>Sandbanks which are slightly covered by sea water all the time [1110] Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Coastal lagoons [1150] Large shallow inlets and bays [1160] Reefs [1170] Perennial vegetation of stony banks [1220] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]</p>

Site name	Qualifying interest(s)
	<p>Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260]</p> <p>Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinia caerulea</i>) [6410]</p> <p>Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0]</p> <p><i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029]</p> <p><i>Petromyzon marinus</i> (Sea Lamprey) [1095]</p> <p><i>Lampetra planeri</i> (Brook Lamprey) [1096]</p> <p><i>Lampetra fluviatilis</i> (River Lamprey) [1099]</p> <p><i>Salmo salar</i> (Salmon) [1106]</p> <p><i>Tursiops truncatus</i> (Common Bottlenose Dolphin) [1349]</p> <p><i>Lutra lutra</i> (Otter) [1355]</p>
Glenstal Wood SAC	Richomanes speciosum (Killarney Fern) [1421]
Glenomra Wood SAC	Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]
Tory Hill SAC	<p>Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210]</p> <p>Calcareous fens with Cladium mariscus and species of the Caricion davallianae [7210]</p> <p>Alkaline fens [7230]</p>
Askeaton Fen Complex SAC	<p>Calcareous fens with Cladium mariscus and species of the Caricion davallianae [7210]</p> <p>Alkaline fens [7230]</p>
Curraghchase Woods SAC	<p>Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0]</p> <p>Taxus baccata woods of the British Isles [91J0]</p> <p>Vertigo moulinsiana (Desmoulin's Whorl Snail) [1016]</p> <p>Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303]</p>
Danes Hole, Poulnalecka SAC	<p>Caves not open to the public [8310]</p> <p>Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]</p> <p>Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303]</p>
Slieve Bernagh Bog SAC	<p>Northern Atlantic wet heaths with Erica tetralix [4010]</p> <p>European dry heaths [4030]</p> <p>Blanket bogs [7130]</p>
Ratty River Cave SAC	<p>Caves not open to the public [8310]</p> <p>Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303]</p>
Kilkishen House SAC	Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303]
Clare Glen SAC	<p>Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]</p> <p>Trichomanes speciosum (Killarney Fern) [1421]</p>

Conservation objectives of the European sites

The overall aims of the Habitats Directive and Birds Directive are to maintain or restore the favourable conservation status of habitats and species of community interest:

- For SACs, to maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been designated; and
- For SPAs, to maintain or restore the favourable conservation condition of the bird species listed in Annex I, for which the SPA has been designated.

3.10 According to the Habitats Directive, the conservation status of a natural habitat will be taken as 'favourable' within its biogeographic range when:

- its natural range and areas it covers within that range are stable or increasing;
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and,
- the conservation status of its typical species is favourable as defined below.

3.11 According to the Habitats Directive, the conservation status of a species means the sum of the impacts acting on the species concerned that may affect the long-term distribution and abundance of its populations. The conservation status will be taken as 'favourable' within its biogeographic range when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and,
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

3.12 The specific conservation objectives for each European site were derived from the NPWS website and were consulted on and reviewed at the time of preparing this report in September 2022.

3.13 Generic conservation objectives apply to the following European sites:

- Glenstal Wood SAC

- Glenomra Wood SAC
- Tory Hill SAC
- Askeaton Fen Complex SAC

3.14 Where available, site-specific conservation objectives designed to define favourable conservation status for a particular habitat or species at that site have been considered. Site-specific / more detailed conservation objectives were available for the following sites:

- River Shannon and River Fergus Estuaries SPA
- Lower River Shannon SAC
- Slievefelim to Silvermines Mountains SPA
- Curraghchase Woods SAC
- Danes Hole, Poulnalecka SAC
- Slieve Bernagh Bog SAC
- Ratty River Cave SAC
- Kilkishen House SAC
- Clare Glen SAC

3.15 Management plans were not available for any of the sites.

Screening assessment of Likely Significant Effects

AA Screening of provisions of the GBI Strategy

No 'Likely Significant Effect' predicted

3.16 Each Priority Action was appraised to determine the Likely Significant Effects on European Sites. The results of the screening assessment are contained within **Appendix C**. Where relevant, these other plans and projects will, themselves, be subject to AA under the Habitats Directive. The following Priority Actions are not expected to result in Likely Significant Effects on any European site:

- 1. Priority Action 1:** Embed GBI in the implementation of Public and Private Projects.
- 1. Priority Action 2:** Enhance existing open space provision within the Strategy Area.
- 2. Priority Action 3:** Create new formal parks and natural & semi-natural parks to address green spaces deficiencies.
- 3. Priority Action 4:** Protect, value and enhance amenity green space by applying an appropriate management approach.

4. **Priority Action 5:** Enhance, protect and develop the network of blueways.
8. **Priority Action 8:** Develop Tree and Biodiversity Strategies for the Strategy Area.
5. **Priority Action 9:** Promote community engagement and raise public awareness in the development of GBI.
6. **Priority Action 10:** Incorporate smart mechanisms of connecting GBI initiatives with the public.

In-combination assessment

3.17 Article 6(3) of the Habitats Directive requires Screening for AA where “a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a Natura 2000 site in view of its conservation objectives”. Therefore, where likely insignificant effects are identified for the GBI Strategy alone, it is necessary to consider whether these may become significant effects in combination with other plans or projects.

In order to be realised, projects proposed in the GBI Strategy will have to comply, as relevant, with various legislation, policies, plans and programmes (including requirements for lower-tier Appropriate Assessment, Environmental Impact Assessment and other licencing requirements, as appropriate) that form the statutory decision-making and consent granting framework.

3.18 Appendix E outlines a selection of plans or projects that may interact with the Priority Actions listed above to cause in-combination effects to European sites. These plans and programmes were considered throughout the assessment.

3.19 In-combination effects from the implementation of the above Priority Actions are unlikely as there are no impact pathways and therefore there is no mechanism by which a non-effect could interact to create an in-combination effect.

Likely Significant Effects predicted

3.20 The following Priority Actions are highlighted as having potential impact pathways to European sites and Likely Significant Effects cannot be ruled out:

6. **Priority Action 6: Integrate GBI in the delivery of the network of active travel routes.** This Priority Action supports the development of well-connected, safe and green active travel corridors suitable for a range of users. The Priority Action encourages 'activating' the riverside of the River Shannon for walking and cycling, and outlines the potential to create a Shannon Blue Green Loop, which would comprise a 7km long accessible riverside multi-user trail along the River Shannon.

1. **Priority Action 7: Enhance recreational access to the River Shannon.** This Priority Action supports the enhancement of the River Shannon as a centre for water-based and waterfront recreation by providing access/egress points, parking and slipways.

3.21 The potential impacts from Priority Actions 6 and 7 on European sites are as follows:

- Direct loss or degradation of sensitive habitats, including habitats which are the interest features of designated sites, from the development of new active travel corridors and access/egress points for recreational use to the River Shannon;
- Indirect loss, habitat fragmentation and severance from new active travel corridors proposed along the River Shannon;
- Disturbance to protected species due to noise, light and human presence;
- Disturbance to protected species from recreational activities; and
- Degradation of aquatic habitats and disturbance to water dependant qualifying interests from the development of recreational facilities on the River Shannon (e.g. slipways, access points, etc.).

3.22 Whilst it is likely that any adverse effects could be successfully avoided through sensitive design and mitigation, there would need to be a commitment to this within the GBI Strategy to provide certainty. As a result, Likely Significant Effects are predicted and require consideration at the AA stage to determine whether, in light of mitigation and avoidance, they would result in AEoI either alone or in-combination.

AA Screening of impacts on European sites.

3.23 For some types of impacts, screening for Likely Significant Effects was determined on a proximity basis, using GIS data to determine the distance of potential development locations to the European sites that were the subject of the assessment. However, there are many uncertainties associated with using set distances as there are very few standards available as a guide to how far impacts will travel. Therefore, during the Screening stage a number of assumptions were applied in relation to assessing the Likely Significant Effects on European sites that may result from the plan. These are described, where relevant, in the following paragraphs.

Physical damage / loss (onsite)

3.24 Any development resulting from the GBI Strategy would take place within the GBI study area; therefore, only European

sites within the boundary of the GBI Strategy area could be affected through physical damage or loss of habitat from within the site boundaries. All other European sites were screened out of the assessment as they are not within the GBI study area and are unlikely to experience onsite physical damage / loss.

River Shannon & River Fergus Estuaries SPA

3.25 The River Shannon and River Fergus Estuaries SPA is within the GBI study area and comprises a large estuarine habitat which is the most important coastal wetland site in the country, regularly supporting in excess of 50,000 wintering waterfowl.

On the above basis, there is potential for Likely Significant Effects to occur in relation to physical damage / loss (onsite) of the River Shannon & River Fergus Estuaries SPA and therefore it requires further consideration at Appropriate Assessment.

Lower River Shannon SAC

3.26 The Lower River Shannon SAC is within the GBI study area and stretches along the Shannon valley from Killaloe in Co. Clare to Loop Head/ Kerry Head, a distance of some 120 km. The site encompasses the Shannon, Feale, Mulkear and Fergus estuaries, the freshwater lower reaches of the River Shannon (between Killaloe and Limerick), the freshwater stretches of much of the Feale and Mulkear catchments and the marine area between Loop Head and Kerry Head.

On the above basis, there is potential for Likely Significant Effects to occur in relation to physical damage / loss (onsite) of the Lower River Shannon SAC and therefore it requires further consideration at Appropriate Assessment.

Loss of functionally linked habitat

3.27 Habitat loss from development in areas outside of the European site boundaries may result in Likely Significant Effects where that habitat contributes towards maintaining the interest feature for which the European site is designated. This includes land that may provide offsite movement corridors or foraging and sheltering habitat for mobile species such as birds, bats and fish. European sites susceptible to the indirect effects of habitat loss are restricted to those sites with qualifying species that rely on offsite habitat. These were identified as:

- River Shannon and River Fergus Estuaries SPA
- Lower River Shannon SAC

- Curraghchase Woods SAC
- Danes Hole, Poulnalecka SAC
- Ratty River Cave SAC
- Kilkishen House SAC

3.28 A recognised distance for the consideration of offsite functionally linked land is generally 2km, but for certain species, including most notably, golden plover and lapwing, a greater distance of 15km may be appropriate.

3.29 Following the source-receptor-pathways model, there is no potential for significant adverse effects from the implementation of the GBI Strategy that could affect the qualifying interests of the following designations. Their qualifying interests, the Lesser Horseshoe Bats, are known to commute up to 4km from their roost sites to forage at night which removes them from the Zone of Influence:

- Curraghchase Woods SAC – The site is 12.3km west of the study area.
- Danes Hole, Poulnalecka SAC - The site is 12.1km north of the study area.
- Ratty River Cave SAC – The site is 10.4km north west of the study area.
- Kilkishen House SAC – The site is 14.3km north west of the study area.

3.30 As a result, no Likely Significant Effects are predicted as a result of the loss of functionally linked habitat for these European sites.

3.31 All other European sites were screened out of the assessment as they do not support qualifying interests that are reliant on offsite functionally linked habitat.

River Shannon and River Fergus Estuaries SPA

3.32 This European site is within the study area and regularly supports in excess of 50,000 wintering waterfowl, including golden plover and lapwing, which rely on functional offsite habitat many kilometres from the European site.

On the above basis, there is potential for Likely Significant Effects to occur in relation to the loss of functionally linked habitat for the qualifying interests of the River Shannon & River Fergus Estuaries SPA and therefore it requires further consideration at Appropriate Assessment.

Non-physical disturbance (noise, light, vibration)

3.33 Noise and vibration effects are most likely to disturb bird species and thus are a key consideration with respect to

potential effects on European sites where birds are the qualifying interests. Artificial lighting at night has the potential to affect species where it occurs in close proximity to key habitat areas, such as key roosting sites of SPA birds or SAC bats.

3.34 It has been assumed that the effects of noise, vibration and light are most likely to be significant within a distance of 500m from the source. There is also evidence of 300m being used as a distance up to which certain bird species can be disturbed by the effects of noise; however, it has been assumed (on a precautionary basis) that the effects of noise, vibration and light pollution are capable of causing an adverse effect if development takes place within 500 m of a European site with qualifying interests sensitive to these disturbances.

3.35 All European sites, with the exception of the River Shannon & River Fergus Estuary SPA, were screened out of the assessment as they are not within 500m of the study area. The Lower River Shannon SAC is within the study area but was screened out as bats are not a qualifying interest of the site.

River Shannon and River Fergus Estuaries SPA

3.36 This European site is located within the study area and supports qualifying bird species, which are susceptible to disturbance from noise, vibration and increased lighting.

On the above basis, there is potential for Likely Significant Effects to occur in relation to non-physical disturbance of the qualifying interests of the River Shannon & River Fergus Estuaries SPA and therefore it requires further consideration at Appropriate Assessment.

Recreation pressure

3.37 Recreational activities and human presence can result in significant effects on European sites. European sites with qualifying bird species are likely to be particularly susceptible to recreational disturbances from walking, dog walking, angling, illegal use of off-road vehicles and motorbikes, wildfowling, and water sports. In addition, recreation can physically damage habitat as a result of erosion, trampling, fire or vandalism.

3.38 European sites within the study area are most likely to be affected by an increase in recreational pressure as a result of the implementation of the GBI Strategy. All other European sites were screened out of the assessment as they are unlikely to experience significant effects as a result of the implementation of the GBI Strategy or are not susceptible to, or at risk from, recreational effects.

River Shannon and River Fergus Estuaries SPA

3.39 The [River Shannon & River Fergus Estuaries SPA Conservation Objectives Supporting Document](#) details existing recreational 'disturbance events', of which the most disturbing activities for the qualifying interests are walking including dog walking, powerboating and water skiing, and wildfowling/shooting.

On the above basis, there is potential for Likely Significant Effects to occur in relation to impacts from recreation on the River Shannon & River Fergus Estuaries SPA and therefore it requires further consideration at Appropriate Assessment.

Lower River Shannon SAC

3.40 The Lower River Shannon SAC's Annex I qualifying interests of large shallow inlets and bays, estuaries, mudflats, sandbanks, salt meadows, vegetated sea cliffs and reefs, and the Annex II species Freshwater Pearl Mussel, Sea Lamprey, Brook Lamprey, River Lamprey, Salmon, Common Bottlenose Dolphin and Otter, are vulnerable to recreational pressure.

On the above basis, there is potential for Likely Significant Effects to occur in relation to impacts from recreation on the Lower River Shannon SAC and therefore it requires further consideration at Appropriate Assessment.

Changes to hydrology (water quality and water quantity)

3.41 Changes to hydrology have the potential to negatively impact habitats and reduce prey availability for the qualifying interests of European sites. Depending on the qualifying features and particular vulnerabilities of the European sites, this could result in Likely Significant Effects; for example, due to changes in environmental or biotic conditions, water chemistry and the extent and distribution of preferred habitat conditions.

3.42 Given the distance and lack of direct hydrological connectivity, no Likely Significant Effects were considered in relation to the following European sites:

- Slievefelim to Silvermines Mountains SPA;
- Glenstal Wood SAC;
- Glenomra Wood SAC;
- Tory Hill SAC;
- Askeaton Fen Complex SAC;
- Curraghchase Woods SAC;
- Danes Hole, Poulnalecka SAC;

- Slieve Bernagh Bog SAC;
- Ratty River Cave SAC;
- Kilkishen House SAC; and
- Clare Glen SAC.

River Shannon and River Fergus Estuaries SPA

3.43 Wetland habitats (marshes, fens, bogs, wet grasslands, wet woodland) are particularly vulnerable to changes in hydrodynamics (the movement of water through and from a wetland), or flooding. The structure and function of these habitats will be compromised if there is too much or too little water is available. The River Shannon and River Fergus Estuaries SPA is within the GBI study area and comprises a large estuarine habitat. The site's Conservation Objectives identify that it is particularly vulnerable to changes in hydrodynamics.

On the above basis, there is potential for Likely Significant Effects to occur in relation to changes to hydrology on the River Shannon & River Fergus Estuaries SPA and therefore it requires further consideration at Appropriate Assessment.

Lower River Shannon SAC

3.44 The water dependant qualifying interest species and habitats of the Lower River Shannon SAC are particularly at risk from increased sedimentation and a reduction in water quality that might result from stripping of topsoil and particulates or pollutants washed into watercourses. Construction near (e.g. slipways, access points) or within the Lower River Shannon SAC present a risk to water dependant qualifying interests and may create barriers to fish migration.

On the above basis, there is potential for Likely Significant Effects to occur in relation to changes to hydrology on the Lower Reiver Shannon SAC and therefore it requires further consideration at Appropriate Assessment.

Summary of findings of Screening assessment

3.45 Table 3.3 summarises the Screening conclusions reached in this Screening for AA. Impact types for which a conclusion of No Likely Significant Effect (LSE) was reached are shown with no colour. Those potential impacts where LSEs cannot be ruled out are shown in orange and these are considered in more detail at the Appropriate Assessment stage in **Chapter 4**.

Table 3.3: Summary of screening assessment

European site	Physical damage / loss (onsite)	Loss of functionally linked habitat	Non-physical disturbance	Recreation pressure	Changes to hydrology (water quality & quantity)
River Shannon and River Fergus Estuaries SPA	Potential LSE	Potential LSE	Potential LSE	Potential LSE	Potential LSE
Slievefelim to Silvermines Mountains SPA	No LSE	No LSE	No LSE	No LSE	No LSE
Lower River Shannon SAC	Potential LSE	No LSE	No LSE	Potential LSE	Potential LSE
Glenstal Wood SAC	No LSE	No LSE	No LSE	No LSE	No LSE
Glenomra Wood SAC	No LSE	No LSE	No LSE	No LSE	No LSE
Tory Hill SAC	No LSE	No LSE	No LSE	No LSE	No LSE
Askeaton Fen Complex SAC	No LSE	No LSE	No LSE	No LSE	No LSE

European site	Physical damage / loss (onsite)	Loss of functionally linked habitat	Non-physical disturbance	Recreation pressure	Changes to hydrology (water quality & quantity)
Curraghchase Woods SAC	No LSE	No LSE	No LSE	No LSE	No LSE
Danes Hole, Poulnalecka SAC	No LSE	No LSE	No LSE	No LSE	No LSE
Slieve Bernagh Bog SAC	No LSE	No LSE	No LSE	No LSE	No LSE
Ratty River Cave SAC	No LSE	No LSE	No LSE	No LSE	No LSE
Kilkishen House SAC	No LSE	No LSE	No LSE	No LSE	No LSE
Clare Glen SAC	No LSE	No LSE	No LSE	No LSE	No LSE

Screening conclusion

3.46 An initial screening of the GBI Strategy, using the precautionary principle (without the application of mitigation measures) and the Source/Pathway/Receptor links between the GBI Strategy and European sites with the potential to result in significant effects on the conservation objectives and features of interest of the European sites was carried out in **Table 3.3**.

3.47 Based on best scientific knowledge and objective information and assessment, the possibility of significant effects caused by the GBI Strategy was excluded for the following European sites:

- Slievefelim to Silvermines Mountains SPA
- Glenstal Wood SAC
- Glenomra Wood SAC
- Tory Hill SAC
- Askeaton Fen Complex SAC
- Curraghchase Woods SAC
- Danes Hole, Poulnalecka SAC
- Slieve Bernagh Bog SAC
- Ratty River Cave SAC

- Kilkishen House SAC
- Clare Glen SAC

3.48 An Appropriate Assessment is required for the River Shannon & River Fergus Estuary SPA and Lower River Shannon SAC as the implementation of the GBI Strategy has the potential to result in the following impacts:

- Physical damage / loss (onsite).
- Loss of functionally linked habitat.
- Non-physical disturbance (noise, light, vibration).
- Recreation pressure.
- Changes to hydrology including water quality and quantity.

Screening Statement

In line with the Screening Statements defined in the 'Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities'³², it is concluded that **there is potential for significant effects / Appropriate Assessment is required for the GBI Strategy.**

³² Department of Environment, Heritage and Local Government (2009, revised 2010) Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (pdf) Available at:

https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2009_A_A_Guidance.pdf

Chapter 4

Stage 2: Appropriate Assessment

This chapter comprises the Natura Impact Statement (NIS) which sets out the Appropriate Assessment of the GBI Strategy.

4.1 The Stage 2 Appropriate Assessment assesses whether the GBI Strategy alone, or in-combination with other plans or projects, would result in adverse impacts on the integrity of the two European sites brought forward from Screening (see **Table 3.3**), with respect to site structure, function and/or conservation objectives.

Characterisation of European sites potentially affected

4.2 The AA Screening identified Source/Pathway/Receptor links between the GBI Strategy and two European sites:

- The River Shannon and River Fergus Estuaries SPA.
- The Lower River Shannon SAC.

4.3 **Appendix D** characterises each of the qualifying interests of the European sites brought forward from Stage 1 in context of each of the site's vulnerabilities.

Identifying and characterising potential significant effects

4.4 **Table 4.1** outlines the parameters used to characterise impacts on European sites from the implementation of the GBI Strategy.

Table 4.1: Characterising potential significant effects

AA Assessment Criteria	Breakdown and Description
Direct and indirect impacts	An impact can be caused either as a direct or as an indirect consequence of a plans or projects
The likelihood and duration of the impacts	<p><u>Likelihood</u> Low – Not likely to have an impact Medium High – Highly likely to have an impact</p> <p><u>Duration</u> Temporary – up to one year Short-term – up to 2025 Medium-term – up to 2030 (GBI Strategy period)</p>

AA Assessment Criteria	Breakdown and Description
	Long-term – beyond 2030 (beyond GBI Strategy period)
The magnitude of the impacts	<u>Magnitude</u> High – High proportion of the receptor affected Medium Low – Low proportion of the receptor affected
Ecologically significant impact	An impact (negative or positive) on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographic area.
Integrity of a site	The coherence of its ecological structure and function, across its whole area, which enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified.

4.5 Likely Significant Effects arising from the GBI Strategy, either alone or in-combination, were identified for the following sites and impact types:

- **Physical damage / loss (onsite)** – in relation to the River Shannon and River Fergus Estuaries SPA and Lower River Shannon SAC.
- **Loss of functionally linked land** - in relation to the River Shannon and River Fergus Estuaries SPA.
- **Non-physical disturbance (noise, light, vibration)** – in relation to the River Shannon and River Fergus Estuaries SPA.
- **Recreation pressure** – in relation to the River Shannon and River Fergus Estuaries SPA and Lower River Shannon SAC.
- **Changes to hydrology including water quality and quantity** – in relation to the Lower River Shannon SAC.

4.6 Appropriate Assessment has been undertaken for these European sites to determine whether the GBI Strategy will result in Adverse Effects on Integrity (AEoI) for these European sites.

4.7 The Appropriate Assessment focuses on those impacts that are judged likely to have a significant effect on the qualifying interests of a European site, or where insufficient certainty regarding this remained at the screening stage. As described in **Chapter 2**, a conclusion needs to be reached as to whether or not a Priority Action in the GBI Strategy would adversely affect the integrity of a European site. To reach a conclusion, consideration was given to whether the predicted impacts of the Priority Actions (either alone or in-combination) have the potential to:

- Delay the achievement of conservation objectives for the site.
- Interrupt progress towards the achievement of conservation objectives for the site.

- Disrupt factors that help to maintain the favourable conditions of the site.
- Interfere with the balance, distribution and density of key species that are the indicators of the favourable condition of the site.

4.8 The conservation objectives for the above European sites are to ensure that the integrity of the site is maintained or restored as appropriate, and to ensure that the site contributes to achieving the 'favourable conservation status' of its qualifying interests by maintaining or restoring:

- The extent and distribution of qualifying natural habitats.
- The structure and function (including typical species) of qualifying natural habitats.
- The supporting processes on which qualifying natural habitats rely.
- The structure and function of the habitats of qualifying species.
- The populations of qualifying species.
- The distribution of qualifying species within the site.

Physical loss / reduction of habitat area

4.9 The AA Screening identified that the GBI Strategy has the potential to result in physical loss / reduction of habitat area in relation to the River Shannon and River Fergus Estuaries SPA and Lower River Shannon SAC.

4.10 The River Shannon and River Fergus Estuaries SPA is a large estuarine habitat and is the most important coastal wetland site in the country, regularly supporting in excess of 50,000 wintering waterfowl. The site has vast expanses of intertidal flats which contain a diverse macroinvertebrate community. Salt marsh vegetation frequently fringes the mudflats and this provides important high tide roost areas for the wintering birds. Elsewhere in the site the shoreline

comprises stony or shingle beaches. The site has internationally and nationally important populations of Light-bellied Brent Goose, Dunlin, Black-tailed Godwit, Redshank, and Cormorant.

4.11 The Lower River Shannon SAC stretches along the Shannon valley from Killaloe in Co. Clare to Loop Head/ Kerry Head, a distance of some 120 km. The site thus encompasses the Shannon, Feale, Mulkear and Fergus estuaries, the freshwater lower reaches of the River Shannon (between Killaloe and Limerick), the freshwater stretches of much of the Feale and Mulkear catchments and the marine area between Loop Head and Kerry Head. The site's qualifying interests, including freshwater pearl mussel, salmon, otters and bottlenose dolphins, are vulnerable to habitat loss.

4.12 The GBI Strategy, and in particular Priority Actions 6 and 7 which aim to support the development of new active travel corridors and access/egress points for recreational use to the River Shannon, may result in physical damage and loss of habitat areas in these European sites.

Mitigation

4.13 To provide certainty that any physical loss / reduction of habitat area will not adversely affect the integrity of the River Shannon and River Fergus Estuaries SPA and Lower River Shannon SAC, it is recommended that the following safeguard measures are included in the GBI Strategy:

- **Any site-specific initiative must demonstrate through Appropriate Assessment Screening that the proposal will not lead to Likely Significant Effects on the integrity of a European site, either alone or in combination with other plans / projects. Where this cannot be ruled out, a full Appropriate Assessment will be required to be undertaken.**
- Amend the 'Potential challenges and risks to delivery' for Priority Action 6 and 7 are updated to include **'safeguarding the integrity of the qualifying interests and conservation objectives of the River Shannon and River Fergus Estuaries SPA and Lower River Shannon SAC'**.
- Amend the 'Prepare supporting documents' section of the 'GBI Checklist' outlined in Chapter 5 of the GBI Strategy to include the following question: **'Has an Appropriate Assessment and/or Environmental Impact Assessment been completed, where appropriate?'**

4.14 Policies in the Limerick Development Plan provide safeguards and mitigation measures from physical damage and loss of habitats, specifically:

- **Policy Objective EH O1: Designated Sites and Habitats Directive** which requires plans or projects likely to have significant effects on European Sites (either individually or in combination with other plans or projects) to be subject to an AA and will not be permitted under the LDP unless they comply with Article 6 of the Habitats Directive. The Council, will through the planning enforcement process where applicable, seek to restore the ecological functions of designated sites, where they have been damaged through inappropriate development.

Conclusion

Providing the above mitigation measures are implemented successfully, Adverse Effects on the Integrity (AEoI) of the River Shannon and River Fergus Estuaries SPA and Lower River Shannon SAC, as a result of damage and loss of habitat will be avoided.

Loss of functionally linked habitat

4.15 The AA Screening identified that the GBI Strategy has the potential to result in the loss of functionally linked habitat in relation to the River Shannon and River Fergus Estuaries SPA. This European site is within the study area and regularly supports in excess of 50,000 wintering waterfowl, including golden plover and lapwing, which rely on functional offsite habitat many kilometres from the European site.

4.16 The GBI Strategy, and in particular Priority Actions 6 and 7 which aim to support the development of new active travel corridors and access/egress points for recreational use to the River Shannon, may result in the loss of functionally linked habitat for the qualifying interests of the SPA.

Mitigation

4.17 To provide certainty that any loss of functionally linked habitat will not adversely affect the integrity of the River Shannon and River Fergus Estuaries SPA, it is recommended that the GBI Strategy is updated to include a statement outlining that site-specific initiatives are required to demonstrate through AA Screening that Likely Significant Effects on the integrity of a European site will not occur and where this cannot be ruled out, a full AA will be required (exact wording to be included in the GBI Strategy is provided in the mitigation section of 'physical loss/ reduction of habitat).

4.18 Policies in the Limerick Development Plan provide safeguards and mitigation measures from the loss of functionally lined habitat, specifically:

- **Policy Objective EH O3: Ecological Impact Assessment** which requires all developments where there are species of conservation concern, to submit an

ecological assessment of the effects of the development on the site and nearby designated sites, suggesting appropriate mitigation measures and establishing, in particular, the presence or absence of the following species: otter, badger, bats, lamprey and protected plant species such as the Triangular Club Rush, Opposite Leaved Pond Weed and Flora Protection Order Species generally.

- **Policy Objective EH O5: New Infrastructure Projects** which requires new infrastructure and linear developments in particular, to demonstrate at design stage sufficient measures to assist in the conservation of and dispersal of species and to demonstrate a high degree of permeability for wildlife, to allow the movement of species and to prevent the creation of barriers to wildlife and aquatic life in the wider countryside.

Conclusion

Providing the above mitigation measures are implemented successfully, Adverse Effects on the Integrity (AEoI) of the River Shannon and River Fergus Estuaries SPA, as a result of loss of functionally linked habitat will be avoided.

Non-physical disturbance (noise, light, vibration)

4.19 The AA Screening identified that the GBI Strategy has the potential to result in non-physical disturbance (noise, light, vibration) in relation to the River Shannon and River Fergus Estuaries SPA.

4.20 Priority Actions 6 and 7 aim to support the development of new active travel corridors and access/egress points for recreational use to the River Shannon. Disturbance to key species of the SPA will be short-term and temporary during construction of these facilities, however, there is potential for effects from disturbance via noise, vibration, lighting and human presence as a result of development and use of these facilities.

Mitigation

4.21 To provide certainty that non-physical disturbance will not adversely affect the integrity of the River Shannon and River Fergus Estuaries SPA, it is recommended that the GBI Strategy is updated to include a statement outlining that site-specific initiatives are required to demonstrate through AA Screening that Likely Significant Effects on the integrity of a European site will not occur and where this cannot be ruled out, a full AA will be required (exact wording to be included in the GBI Strategy is provided in the mitigation section of 'physical loss/ reduction of habitat).

4.22 Policies in the Limerick Development provide safeguards and mitigation measures from non-physical disturbance, specifically:

- **Policy Objective EH O3: Ecological Impact Assessment**
- **Policy Objective EH O21: Noise and Vibration during Construction and at Open Sites** which seeks to protect the quality of the environment against the effects of noise and vibration, by implementing site appropriate mitigation measures during the construction and demolition phases of development.
- **Policy Objective EH O24: Light Pollution** which seeks to ensure that the design of external lighting schemes minimise the incidence of light spillage or pollution in the immediate surrounding environment. In this regard, developers shall submit lighting elements as part of any design, with an emphasis on ensuring that any lighting is carefully directed, not excessive for its purpose and avoids light spill outside the development and where necessary will be wildlife friendly in design.

Conclusion

Providing the above mitigation measures are implemented successfully, Adverse Effects on the Integrity (AEoI) of the River Shannon and River Fergus Estuaries SPA, as a result of non-physical disturbance will be avoided.

Recreation pressure

4.23 The AA Screening identified that the GBI Strategy has the potential to result in recreation pressure in relation to the River Shannon and River Fergus Estuaries SPA and Lower River Shannon SAC.

4.24 The River Shannon & River Fergus Estuaries SPA Conservation Objectives Supporting Document details existing recreational 'disturbance events', of which the most disturbing activities for the qualifying interests are walking including dog walking, powerboating and water skiing, and wildfowling/shooting.

4.25 The Lower River Shannon SAC's Annex I qualifying interests of large shallow inlets and bays, estuaries, mudflats, sandbanks, salt meadows, vegetated sea cliffs and reefs, and the Annex II species Freshwater Pearl Mussel, Sea Lamprey, Brook Lamprey, River Lamprey, Salmon, Common Bottlenose Dolphin and Otter, are vulnerable to recreational pressure.

4.26 Priority Actions 6 and 7 aim to support the development of new active travel corridors and access/egress points for recreational use to the River Shannon which is likely to result

recreational disturbances from walking, dog walking, cycling, water sports, as well as physical damage a result of trampling and erosion.

Mitigation

4.27 To provide certainty that recreation pressure will not adversely affect the integrity of the River Shannon and River Fergus Estuaries SPA and Lower River Shannon SAC, it is recommended that the GBI Strategy is updated to include a statement outlining that site-specific initiatives are required to demonstrate through AA Screening that Likely Significant Effects on the integrity of a European site will not occur and where this cannot be ruled out, a full AA will be required (exact wording to be included in the GBI Strategy is provided in the mitigation section of 'physical loss/ reduction of habitat).

4.28 The GBI Strategy requires proposals to be sensitively designed and measures to be taken to enhance and protect environmentally sensitive locations, in consultation with the National Parks and Wildlife Service. Mitigation will also be required at a project specific level which may include (1) wardening (2) education and interpretation, (3) physical measures to access restrictions, (4) seasonal restrictions.

4.29 Policies in the Limerick Development provide safeguards and mitigation measures from recreation pressure, specifically:

- **Policy Objective EH O1: Designated Sites and Habitats Directive**
- **Policy Objective EH O3: Ecological Impact Assessment**
- **Policy Objective EH O5: New Infrastructure Projects**
- **Policy Objective EH O18: Riparian Buffers** which seeks to maintain riverbank vegetation along watercourses and ensure protection of a 20m riparian buffer zone on greenfield sites and sites are maintained free from development.

4.30 It is recommended that Limerick City and County Council coordinate proposals proposed along the River Shannon, helping to avoid the most sensitive areas of these European sites.

4.31 The mitigation provided above is considered to be sufficient to avoid significant adverse effects on the integrity of the European sites, however, as an additional mitigation measure, Limerick City and County Council could consider preparing a Recreational Access Management and Monitoring Strategy for the European sites on the River Shannon. This Strategy could propose the following measures to avoid and mitigate for impacts arising from increased recreational pressure in the GBI Strategy study area:

- Access management and zoning to avoid sensitive locations.
- Engagement and education with visitors to alter attitudes and behaviours.
- Improvement of onsite signage.
- Online and information campaigns.
- On-going visitor and bird monitoring surveys.

Conclusion

Providing the above mitigation measures are implemented successfully, Adverse Effects on the Integrity (AEoI) of the River Shannon and River Fergus Estuaries SPA and Lower River Shannon SAC, as a result of recreation pressure will be avoided.

Changes to hydrology including water quality and quantity

4.32 The AA Screening identified that the GBI Strategy has the potential to result in changes to hydrology (water quality and quantity) in relation to the River Shannon and River Fergus Estuaries SPA and Lower River Shannon SAC.

4.33 Priority Action 6 supports the development of new active travel corridors which may affect the hydrodynamics of the wetland habitat (the movement of water through and from a wetland). Priority Action 7 supports the development of slipways and access points to the River Shannon for recreational use which presents a risk to water dependant qualifying interests of the Lower River Shannon SAC and may create barriers to fish migration.

Mitigation

4.34 To provide certainty that changes to hydrology will not adversely affect the integrity of the River Shannon and River Fergus Estuaries SPA and Lower River Shannon SAC, it is recommended that the GBI Strategy is updated to include a statement outlining that site-specific initiatives are required to demonstrate through AA Screening that Likely Significant Effects on the integrity of a European site will not occur and where this cannot be ruled out, a full AA will be required (exact wording to be included in the GBI Strategy is provided in the mitigation section of 'physical loss/ reduction of habitat).

4.35 Policies in the Limerick Development provide safeguards and mitigation measures from changes to hydrology, specifically:

- **Policy Objective EH O5: New Infrastructure Projects** which requires new infrastructure and linear developments in particular, to demonstrate at design

stage sufficient measures to assist in the conservation of and dispersal of species and to demonstrate a high degree of permeability for wildlife, to allow the movement of species and to prevent the creation of barriers to wildlife and aquatic life in the wider countryside.

Conclusion

Providing the above mitigation measures are implemented successfully, Adverse Effects on the Integrity (AEol) of the River Shannon and River Fergus Estuaries SPA and Lower River Shannon SAC, as a result of changes to hydrology will be avoided.

In-combination effects

4.36 As described in **Chapter 2**, it is necessary to consider the potential for the GBI Strategy to have significant effects in combination with other plans and projects, as well as

individually. **Appendix E** outlines a selection of plans or projects that may interact with the GBI Strategy to cause in-combination effects to European sites. Crucially, all of the potential Likely Significant Effects identified at the Screening Stage, can be avoided entirely through the application of the mitigation measures specified. Indeed, the GBI Strategy has the potential to contribute to the strengthening of the River Shannon sites conservation objectives, and therefore in-combination effects which could lead to Adverse Effects on Integrity will not occur.

Summary of Appropriate Assessment

4.37 Table 4.2 summaries the conclusions of the Appropriate Assessment. The European sites that are shown as screened out with no colour indicate sites that were considered to have no Likely Significant Effect at the screening stage. The European sites highlighted as having no AEol in grey were found to have no AEol providing the mitigation measures detailed in this chapter are implemented.

Table 4.2: Summary of the conclusion of the Appropriate Assessment

European site	Physical loss / reduction of habitat	Loss of functionally linked habitat	Non-physical disturbance	Recreation pressure	Changes to hydrology (water quality & quantity)
River Shannon and River Fergus Estuaries SPA	No AEol	No AEol	No AEol	No AEol	No AEol
Slievefelim to Silvermines Mountains SPA	Screened out	Screened out	Screened out	Screened out	Screened out
Lower River Shannon SAC	No AEol	Screened out	Screened out	No AEol	No AEol
Glenstal Wood SAC	Screened out	Screened out	Screened out	Screened out	Screened out
Glenomra Wood SAC	Screened out	Screened out	Screened out	Screened out	Screened out
Tory Hill SAC	Screened out	Screened out	Screened out	Screened out	Screened out
Askeaton Fen Complex SAC	Screened out	Screened out	Screened out	Screened out	Screened out
Curraghchase Woods SAC	Screened out	Screened out	Screened out	Screened out	Screened out
Danes Hole, Poulnalecka SAC	Screened out	Screened out	Screened out	Screened out	Screened out
Slieve Bernagh Bog SAC	Screened out	Screened out	Screened out	Screened out	Screened out
Ratty River Cave SAC	Screened out	Screened out	Screened out	Screened out	Screened out
Kilkishen House SAC	Screened out	Screened out	Screened out	Screened out	Screened out
Clare Glen SAC	Screened out	Screened out	Screened out	Screened out	Screened out

AA Conclusion Statement

4.38 An initial screening of the GBI Strategy, using the precautionary principle (without the application of mitigation measures) and the Source/Pathway/Receptor links between the GBI Strategy and European sites with the potential to result in significant effects on the conservation objectives and features of interest of the European sites was carried out in **Chapter 3**. Based on best scientific knowledge and objective information and assessment, the possibility of significant effects caused by the GBI Strategy was excluded for the following European sites:

- Slievefelim to Silvermines Mountains SPA
- Glenstal Wood SAC
- Glenomra Wood SAC
- Tory Hill SAC
- Askeaton Fen Complex SAC
- Curraghchase Woods SAC
- Danes Hole, Poulnalecka SAC
- Slieve Bernagh Bog SAC
- Ratty River Cave SAC
- Kilkishen House SAC
- Clare Glen SAC

4.39 The findings of the Screening for AA determined that the GBI Strategy could result in the following Likely Significant Effects:

- **Physical damage / loss (onsite)** – in relation to the River Shannon and River Fergus Estuaries SPA and Lower River Shannon SAC.
- **Loss of functionally linked land** - in relation to the River Shannon and River Fergus Estuaries SPA.
- **Non-physical disturbance (noise, light, vibration)** – in relation to the River Shannon and River Fergus Estuaries SPA.
- **Recreation pressure** – in relation to the River Shannon and River Fergus Estuaries SPA and Lower River Shannon SAC.
- **Changes to hydrology including water quality and quantity** – in relation to the River Shannon and River Fergus Estuaries SPA and Lower River Shannon SAC.

4.40 The Appropriate Assessment stage identified whether the above Likely Significant Effects will, in light of mitigation and avoidance measures, result in Adverse Effects on Integrity (AEol) of the European sites either alone or in-

combination with other plans or projects. The findings of the Appropriate Assessment are detailed below.

4.41 It can be concluded that no Adverse Effect on Integrity will occur for the European sites subject to the provision of safeguarding and mitigation measures as detailed in Chapter 4. The following text summarises the safeguarding and mitigation measures:

- It is recommended that the following safeguard measures are included in the GBI Strategy:
 - **Any site-specific initiative must demonstrate through Appropriate Assessment Screening that the proposal will not lead to Likely Significant Effects on the integrity of a European site, either alone or in-combination with other plans / projects. Where this cannot be ruled out, a full Appropriate Assessment will be required to be undertaken.**
 - Amend the 'Potential challenges and risks to delivery' for Priority Action 6 and 7 to include **'safeguarding the integrity of the qualifying interests and conservation objectives of the River Shannon and River Fergus Estuaries SPA and Lower River Shannon SAC'**.
 - Amend the 'Prepare supporting documents' section of the 'GBI Checklist' outlined in Chapter 5 of the GBI Strategy to include the following question: **'Has an Appropriate Assessment and/or Environmental Impact Assessment been completed, where appropriate?'**
- The GBI Strategy requires proposals to be sensitively designed and measures to be taken to enhance and protect environmentally sensitive locations, in consultation with the National Parks and Wildlife Service. **It is recommended that Limerick City and County Council coordinate proposals proposed along the River Shannon, helping to avoid the most sensitive areas of these European sites.**
- The successful implementation of policies in the Limerick Development Plan, specifically:
 - Policy Objective EH O1: Designated Sites and Habitats Directive
 - Policy Objective EH O3: Ecological Impact Assessment
 - Policy Objective EH O5: New Infrastructure Projects
 - Policy Objective EH O18: Riparian Buffers
 - Policy Objective EH O21: Noise and Vibration during Construction and at Open Sites

– Policy Objective EH O24: Light Pollution

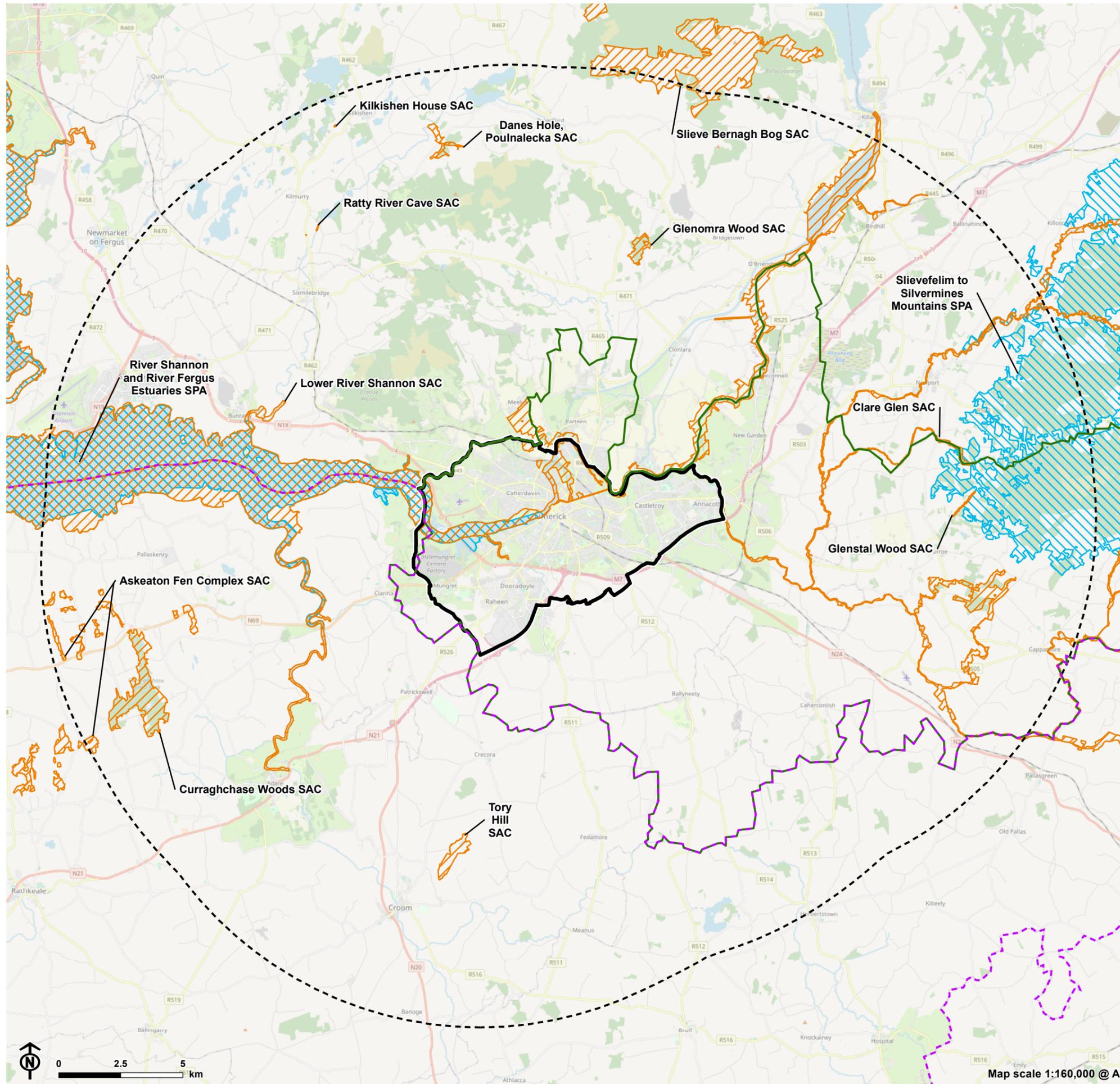
4.42 The mitigation provided above is considered to be sufficient to avoid significant adverse effects on the integrity of the European sites, however, as an additional mitigation measure, Limerick City and County Council could consider preparing a Recreational Access Management and Monitoring Strategy for the European sites on the River Shannon.

4.43 In-combination effects from interactions with other plans or projects were considered in the assessment and the mitigation measures incorporated into the GBI Strategy allow a conclusion to be arrived at that there will be no Likely Significant Effects as a result of the implementation of the GBI Strategy, either alone or in-combination with other plans or projects.

Appendix A

Map of European Sites

A.1 European sites within 15km of the GBI Strategy



- Limerick Council boundary
- Limerick City Council boundary
- Limerick City and Environs
- Limerick City and Environs 15km buffer
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)



Map scale 1:160,000 @ A3

Appendix B

Case law

Interpretation of 'Likely Significant Effects'

- European Court of Justice 7th September 2004 by Advocate General Kokott; Case C-127/02 Waddenzee - v- Secretary of State for Agriculture, Nature Conservation and Fisheries – The CJEU ruled on the interpretation of Article 6(3) of the Habitats Directive:
 - An effect should be considered 'likely', if it cannot be excluded, on the basis of objective information, that it will have a significant effect on a European site.
 - An effect should be considered 'significant' if it undermines the conservation objectives of a European site.
 - Where a plans or projects has an effect on a site but is not likely to undermine its conservation objectives, it cannot be considered likely to have a significant effect on a European site.

Interpretation of direct, indirect and in-combination effects

- European Court of Justice Opinion 22nd November 2012 by Advocate General Sharpston; Case C-258/11 Peter Sweetman and Others-v- An Bord Pleanála – The CJEU ruled that in determining whether a project or plan has an adverse effect on the integrity of a site (to which Article 6(3) of the Habitats Directive applies), an effect which is permanent or long lasting must be regarded as an adverse effect.
- European Court of Justice 7th November 2018; Case C 461/17; Holohan & Others v. An Bord Pleanála – The CJEU ruled that:
 - all the habitats and species for which a European site is protected must be catalogued.
 - Assessment must identify and examine the implications of the proposed project for species present on the European site, including species for which the site has been listed and those for which it has not, provided those implications are liable to affect the conservation objectives of the site.
 - Assessment must identify and examine the implications of the proposed project for species and habitats outside the boundaries of the European

site, provided those implications are liable to affect the conservation objectives of the site.

- High Court Ruling 2nd December 2020 by Mr. Justice Denis McDonald; Neutral Citation [2020] IEHC 622; High Court Record No. 2020 238 JR; Highlands Residents Association and Protect East Meath Limited -v- An Bord Pleanála, Ireland and The Minister For Culture Heritage and The Gaeltacht, Ireland and The Attorney General – The High Court ruled that An Bord Pleanála (the competent authority) erred in law in screening out (in the course of the Stage 1 screening exercise carried out by the competent authority) the possibility of significant effects on four European sites in relation to potential risk arising from the mobilisation of silt and pollutants from the development site in this particular Strategic Housing Development application, where the relevant application documentation (Environmental Impact Assessment Report, AA, CEMP) referenced protection of the River Boyne within the context that the proposed development site has a relatively close hydrological connection to the four relevant European sites.

Application of the 'precautionary principle'

- European Court of Justice Judgement 11th April 2013 by the Third Chamber; Case C-258/11 Peter Sweetman and Others -v- An Bord Pleanála - The CJEU ruled that Article 6(3) of the Habitats Directive must be interpreted as meaning that a project not directly linked to it is not immediately necessary for the management of a site to prejudice the integrity of that site if it is likely to prevent the preservation of the constituent characteristics of the site concerned in relation to the presence of a natural priority habitat whose purpose is to maintain gave the reason for registering that site in the list of sites of Community importance within the meaning of that directive. Therefore, the precautionary principle must be applied throughout.

Application of mitigation / 'best practice measures'

- European Court of Justice Judgement 12th April 2018 by the Seventh Chamber; Case C 323/17; People Over Wind & Sweetman -v- Coillte Teoranta - The CJEU ruled that measures intended to avoid or reduce the harmful effects of a proposed project on a European site may no longer be taken into account by competent authorities at the Stage 1 screening stage when judging whether a proposed plans or projects is likely to have a significant effect on the integrity of a European designated site.
- European Court of Justice 19th April 2018; Case C 164/17; Grace & Sweetman -v- An Bord Pleanála – The

CJEU ruled there is a “distinction to be drawn between protective measures forming part of a project and intended [to] avoid or reduce any direct adverse effects that may be caused by the project in order to ensure that the project does not adversely affect the integrity of the area, which are covered by Article 6(3), and measures which, in accordance with Article 6(4), are aimed at compensating for the negative effects of the project on a protected area and cannot be taken into account in the assessment of the implications of the project”. The CJEU held that it is only when it is sufficiently certain that a measure will make an effective contribution to avoiding harm, guaranteeing beyond all reasonable doubt that the project will not adversely affect the integrity of the area, that such a measure may be taken into consideration when the appropriate assessment is carried out under Article 6(3). Article 6 of the Habitats Directive must be interpreted as meaning:

"Where it is intended to carry out a project on a site designated for the protection and conservation of certain species, of which the area suitable for providing for the needs of a protected species fluctuates over time, and the temporary or permanent effect of that project will be that some parts of the site will no longer be able to provide a suitable habitat for the species in question, the fact that the project includes measures to ensure that the part of the site that is likely to provide a suitable habitat will not be reduced and may actually be enhanced may not be taken into account for the purpose of the appropriate assessment under Article 6(3)."

- High Court Ruling 2nd February 2019 by Mr. Justice Barniville; Neutral Citation [2019] IEHC 84; High Court Record No. 2017 883 JR; Kelly -v- An Bord Pleanála & Anor- The High Court ruled that Sustainable Drainage Systems (SuDS) are not mitigation measures which a competent authority is precluded from considering at the Stage 1 Screening stage.
- High Court Ruling 21st June 2019 by Mr. Justice Simons; Neutral Citation [2019] IEHC 450; High Court Record No. 2019 20 JR; Heather Hill Management Company clg & anor -v- An Bord Pleanála & Anor – The High Court ruled that a competent authority is not entitled to rely on 'best practice measures' for the purposes of a Stage 1 screening determination where the legal test is whether measures are intended to avoid and/or reduce a potential harmful effect on a European site.
- High Court Ruling 31st January 2020 by Mr. Justice Denis McDonald; Neutral Citation [2020] IEHC 39; High Court Record No. 2019 33 JR; Peter Sweetman -v- An Bord Pleanála , Ireland and The Attorney General – The High Court ruled that the competent authority was not

entitled to take the measures described in the Construction Environmental Management Plan (CEMP) to protect the Blackwater River SAC into account in carrying out the Screening exercise in this particular solar farm development case.

Appropriate Assessment

- High Court Ruling 25th July 2014 by Ms. Justice Finlay Geoghegan; Neutral Citation [2014] IEHC 400; High Court Record No. 2013 802 JR; Kelly -v- An Bord Pleanála – The High Court ruled that for Assessment to be lawfully conducted it:
 - Must identify, in the light of the best scientific knowledge in the field, all aspects of the plans or projects which can, by itself or in-combination with other plans or projects, affect a European site in the light of its conservation objectives. This requires both examination and analysis.
 - Must contain complete, precise and definitive findings and conclusions and may not have lacunae or gaps. The requirement for precise and definitive findings and conclusions appears to require analysis, evaluation and decisions. Further, the reference to findings and conclusions in a scientific context requires both findings following analysis and conclusions following an evaluation each in the light of the best scientific knowledge in the field.
 - May only include a determination that the proposed development will not adversely affect the integrity of any relevant European site where upon the basis of complete, precise and definitive findings and conclusions made the Board decides that no reasonable scientific doubt remains as to the absence of the identified potential effects.
- High Court Ruling 25th February 2016 by Mr. Justice Barton; Neutral Citation [2016] IEHC 134; High Court Record No. 2013 450 JR; Balz & Heubach -v- An Bord Pleanála – The High Court ruled that an assessment made under Article 6(3) of the Habitats Directive cannot be regarded as appropriate if it contains gaps and lacks complete, definitive and precise findings, and conclusions capable of removing all reasonable scientific doubt as to the effects of the plans or projects on a European site.
- Supreme Court Ruling 17th July 2018 by Mr Justice Clarke; Neutral Citation [2018]; Supreme Court Record No. 2014/488 JR; Connelly -v- An Bord Pleanála – The Supreme Court ruled with the decision of the High Court that An Bord Pleanála (ABP) had breached its obligations regarding the recording of the Screening stage, the Assessment itself and the EIA in its decision to grant planning permission for the wind farm. The Assessment was found to be invalid due to the failure of ABP to make complete, precise and specific scientific findings which justified its conclusion. The Supreme Court found that the decision by ABP nor the materials referred to in ABP's decision could be “*shown to contain the sort of complete, precise and definitive findings which would underpin a conclusion that no reasonable scientific doubt remained as to the absence of any identified potential detrimental effects on a protected site having regard to its conservation objectives*”.
- European Court of Justice 7th November 2018; Case C 461/17; Holohan & Others v. An Bord Pleanála – The CJEU ruled that:
 - where the competent authority rejects the findings in a scientific expert opinion recommending that additional information be obtained, Assessment must include an explicit and detailed statement of reasons capable of dispelling all reasonable scientific doubt concerning the effects of the work envisaged on the site concerned.

Developer's responsibilities

- European Court of Justice 7th November 2018; Case C 461/17; Holohan & Others v. An Bord Pleanála – The CJEU ruled that:
 - the competent authority may grant consent for a plans or projects that leaves the developer free to determine certain parameters relating to the construction phase, such as the location of the construction compound and haul routes, if the competent authority is certain (i.e., no reasonable scientific doubt) that the development consent granted establishes conditions that are strict enough to guarantee that those parameters will not adversely affect the integrity of the site.
 - Article 5(1) and (3) of, and Annex IV to, Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment, must be interpreted as meaning that the developer is obliged to supply information that expressly addresses the significant effects of its project on all species identified in the statement that is supplied pursuant to those provisions.
 - Article 5(3)(d) of Directive 2011/92/EU must be interpreted as meaning that the developer must supply information in relation to the environmental impact of both the chosen option and of all the main

alternatives studied by the developer, together with the reasons for his choice, taking into account at least the environmental effects, even if such an alternative was rejected at an early stage.

Appendix C

Screening assessment of Priority Actions

Table C.1: Screening assessment of Priority Actions

GBI Priority Action	Likely effect on European site/s if Priority Action is implemented	European site/s potentially affected	AA Screening Conclusion
1. Embed GBI in the implementation of Public and Private Projects	None – The purpose of this action is to ensure that all new development, public and private, including strategic projects, integrate urban greening as a fundamental element of site and building design.	N/A	No LSE
1. Enhance existing open space provision within the Strategy Area	None – The purpose of this action is to enhance the network of multifunctional green spaces which accommodate a range of uses and provide for the diverse needs of the wider community.	N/A	No LSE
2. Create new formal parks and natural & semi-natural parks to address green spaces deficiencies	None – The purpose of this action is to support the improvement and creation of green spaces to address localised deficiencies in the accessibility of open space across the Strategy Area.	N/A	No LSE
3. Protect, value and enhance amenity green space by applying an appropriate management approach	None – The purpose of this action is to direct a change in management and maintenance practices to encourage more diverse and visually interesting urban greenspaces.	N/A	No LSE
4. Enhance, protect and develop the network of blueways	None - The purpose of this action is to support the development of local catchment management plans and a greater focus on public participation and engagement of key stakeholders and sectors at a local and regional level.	N/A	No LSE

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Screening assessment of Priority Actions

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GBI Priority Action	Likely effect on European site/s if Priority Action is implemented	European site/s potentially affected	AA Screening Conclusion
<p>5. Integrate GBI in the delivery of the network of active travel routes</p>	<p>The purpose of this action is to support the provision and promotion of active travel corridors. This has the potential to result in the following impacts:</p> <ul style="list-style-type: none"> ■ Physical loss / reduction of habitat area. ■ Loss of functionally linked habitat. ■ Non-physical disturbance (noise, light, vibration). ■ Recreational pressure. 	<ul style="list-style-type: none"> ■ River Shannon & River Fergus Estuary SPA ■ Lower River Shannon SAC 	<p>Potential LSEs</p>
<p>6. Enhance recreational access to the River Shannon</p>	<p>The purpose of this action is to support the enhancement of the River Shannon as a centre for water-based and waterfront recreation by providing access/egress points, parking and slipways. This has the potential to result in the following impacts:</p> <ul style="list-style-type: none"> ■ Physical loss / reduction of habitat area. ■ Loss of functionally linked habitat. ■ Non-physical disturbance (noise, light, vibration). ■ Recreational pressure. ■ Changes to hydrology including water quality and quantity. 	<ul style="list-style-type: none"> ■ River Shannon & River Fergus Estuary SPA ■ Lower River Shannon SAC 	<p>Potential LSEs</p>
<p>7. Develop Tree and Biodiversity Strategies for the Strategy Area</p>	<p>None – The purpose of this action is to help develop a deliverable, area-wide Tree Strategy to encompass all trees on publicly-owned land.</p>	<p>N/A</p>	<p>No LSE</p>
<p>8. Promote community engagement and raise public awareness in the development of GBI</p>	<p>None – The purpose of this action is to build capacity with community groups, Limerick’s Tidy Town’s network, Limerick’s PPN and educational institutions etc. to empower individuals to implement green blue infrastructure and nature-based solutions in their local communities.</p>	<p>N/A</p>	<p>No LSE</p>

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Screening assessment of Priority Actions

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GBI Priority Action	Likely effect on European site/s if Priority Action is implemented	European site/s potentially affected	AA Screening Conclusion
9. Incorporate smart mechanisms of connecting GBI initiatives with the public	None – The purpose of this action is to support opportunities to utilise web-based solutions and digital technologies to promote GBI and enhance the public’s engagement with their natural environment.	N/A	No LSE

Appendix D

Attributes of European sites

River Shannon and River Fergus Estuaries SPA

Table D.1: Attributes of River Shannon and River Fergus Estuaries SPA

Site name	Qualifying interests	Conservation objectives	Key vulnerabilities
<p>River Shannon and River Fergus Estuaries SPA - The site comprises the entire estuarine habitat from Limerick City westwards as far as Doonaha in Co. Clare and Dooneen Point in Co. Kerry. The site has vast expanses of intertidal flats which contain a diverse macroinvertebrate community. Salt marsh vegetation frequently fringes the mudflats and this provides important high tide roost areas for the wintering birds. Elsewhere in the site the shoreline comprises stony or shingle beaches. It is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. 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. The site is the most important coastal wetland site in the country and regularly supports in excess of 50,000 wintering waterfowl, a concentration easily of international importance. The site has internationally important populations of Light-bellied Brent Goose (494), Dunlin (15,131), Black-tailed Godwit (2,035) and Redshank (2,645). A further 17 species have populations of national importance. The site also supports a nationally important breeding population of Cormorant. Apart from the wintering birds, large numbers of some species also pass through the site whilst on migration in spring and/or autumn. The River Shannon and River Fergus Estuaries SPA is an internationally important site that supports an assemblage of over 20,000 wintering waterbirds.</p>			
River Shannon and River Fergus Estuaries SPA	<p><i>Qualifying interests:</i></p> <ul style="list-style-type: none"> – Cormorant (<i>Phalacrocorax carbo</i>) [A017] – Whooper Swan (<i>Cygnus cygnus</i>) [A038] – Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] – Shelduck (<i>Tadorna tadorna</i>) [A048] – Wigeon (<i>Anas penelope</i>) [A050] – Teal (<i>Anas crecca</i>) [A052] – Pintail (<i>Anas acuta</i>) [A054] – Shoveler (<i>Anas clypeata</i>) [A056] – Scaup (<i>Aythya marila</i>) [A062] – Ringed Plover (<i>Charadrius hiaticula</i>) [A137] 	<p><i>Conservation Objectives:</i></p> <p>To maintain the favourable conservation condition of:</p> <ul style="list-style-type: none"> – Cormorant (<i>Phalacrocorax carbo</i>) [A017] – Whooper Swan (<i>Cygnus cygnus</i>) [A038] – Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] – Shelduck (<i>Tadorna tadorna</i>) [A048] – Wigeon (<i>Anas penelope</i>) [A050] – Teal (<i>Anas crecca</i>) [A052] – Pintail (<i>Anas acuta</i>) [A054] – Shoveler (<i>Anas clypeata</i>) [A056] 	<p>Wetland habitats (marshes, fens, bogs, wet grasslands, wet woodland) and QI Birds - Particularly vulnerable to changes in hydrodynamics (the movement of water through and from a wetland), or flooding. The structure and function of the habitats will be compromised if there is too much or too little water is available. The construction of highways and facilities and associated drainage (e.g. ditches) and embankments could block surface and sub-surface flows and change the water chemistry. Ecological (as well as hydrological) connectivity to similar habitats is important and regard should be had to the capacity of new infrastructure to divide wetlands or alter surrounding land use. Wetlands are also critical habitat for migratory birds and waterfowl and assessments should capture the potential indirect effects of habitat loss on birds for which the SPA is designated. Roads by wetlands and ponds typically have the highest roadkill rates (Forman et al, 1998) so the impact of traffic rates on roads adjacent to wetlands should be considered also. It should also be noted that qualifying interest bird species may utilise habitats outside European sites for foraging. These supporting</p>

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Site name	Qualifying interests	Conservation objectives	Key vulnerabilities
	<ul style="list-style-type: none"> - Golden Plover (<i>Pluvialis apricaria</i>) [A140] - Grey Plover (<i>Pluvialis squatarola</i>) [A141] - Lapwing (<i>Vanellus vanellus</i>) [A142] - Knot (<i>Calidris canutus</i>) [A143] - Dunlin (<i>Calidris alpina</i>) [A149] - Black-tailed Godwit (<i>Limosa limosa</i>) [A156] - Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] - Curlew (<i>Numenius arquata</i>) [A160] - Redshank (<i>Tringa totanus</i>) [A162] - Greenshank (<i>Tringa nebularia</i>) [A164] - Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] - Wetland and Waterbirds [A999] 	<ul style="list-style-type: none"> - Scaup (<i>Aythya marila</i>) [A062] - Ringed Plover (<i>Charadrius hiaticula</i>) [A137] - Golden Plover (<i>Pluvialis apricaria</i>) [A140] - Grey Plover (<i>Pluvialis squatarola</i>) [A141] - Lapwing (<i>Vanellus vanellus</i>) [A142] - Knot (<i>Calidris canutus</i>) [A143] - Dunlin (<i>Calidris alpina</i>) [A149] - Black-tailed Godwit (<i>Limosa limosa</i>) [A156] - Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] - Curlew (<i>Numenius arquata</i>) [A160] - Redshank (<i>Tringa totanus</i>) [A162] - Greenshank (<i>Tringa nebularia</i>) [A164] - Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] - Wetland habitat 	<p>habitats are functionally linked to the SPAs. Impacts on these areas as a result of development could result in adverse effects on site integrity.</p>

Lower River Shannon SAC

Table D.2: Attributes of Lower River Shannon SAC

Site name	Qualifying interests	Conservation objectives	Key vulnerabilities
<p>Lower River Shannon SAC - This very large site stretches along the Shannon valley from Killaloe in Co. Clare to Loop Head/ Kerry Head, a distance of some 120 km. The site thus encompasses the Shannon, Feale, Mulkear and Fergus estuaries, the freshwater lower reaches of the River Shannon (between Killaloe and Limerick), the freshwater stretches of much of the Feale and Mulkear catchments and the marine area between Loop Head and Kerry Head. Rivers within the sub-catchment of the Feale include the Galey, Smearlagh, Oolagh, Allaughaun, Owveg, Clydagh, Caher, Breanagh and Glenacarne. Rivers within the sub-catchment of the Mulkear include the Killeenagarrieff, Annagh, Newport, the Dead River, the Bilboa, Glashacloonaraveela, Gortnageragh and Cahernahallia.</p>			
<p>Lower River Shannon SAC</p>	<p><i>Qualifying interests:</i></p> <ul style="list-style-type: none"> - Sandbanks which are slightly covered by sea water all the time [1110] - Estuaries [1130] - Mudflats and sandflats not covered by seawater at low tide [1140] - Coastal lagoons [1150] - Large shallow inlets and bays [1160] - Reefs [1170] - Perennial vegetation of stony banks [1220] - Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] - Salicornia and other annuals colonising mud and sand [1310] 	<p><i>Conservation Objectives:</i></p> <p>To restore the favourable conservation condition of:</p> <ul style="list-style-type: none"> - Margaritifera margaritifera (Freshwater Pearl Mussel) [1029] - Petromyzon marinus (Sea Lamprey) [1095] - Salmo salar (Salmon) [1106] - Coastal lagoons - Atlantic salt meadows (Glaucopuccinellietalia maritimae) - Lutra lutra (Otter) [1355] - Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) <p>To maintain the favourable conservation condition of:</p>	<p>Disturbance - Disturbance related impacts are a key vulnerability for sites hosting mobile species as disturbance, due to noise, vibration or light pollution could deter designated species important habitat areas. Construction or operational activities (e.g. traffic) within and outside the sites boundaries could result in disturbance. Disturbance and displacement from artificial lighting (e.g. along roads or in new development areas) is a key sensitivity for lesser horseshoe bats. This species is known to commute up to 4km from their roost sites to forage at night. Commuting routes are important features of the landscape for lesser horseshoe bats as they generally avoid flying across open spaces. The same tree line, woodland or hedgerow can be used by the same population year on year. Lighting exposure could permanently affect behaviour and possibly use of flight lines to feeding areas).</p> <p>Visitor pressure - Recreational pressure e.g. availability of alternative/new recreation spaces could lead to disturbance related impacts.</p> <p>Habitat loss - Direct or indirect habitat loss or degradation, particularly pasture and woodland (for bats) and habitats</p>

Site name	Qualifying interests	Conservation objectives	Key vulnerabilities
	<ul style="list-style-type: none"> - Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] - Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] - Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation [3260] - Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) [6410] - Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0] - <i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029] - <i>Petromyzon marinus</i> (Sea Lamprey) [1095] - <i>Lampetra planeri</i> (Brook Lamprey) [1096] - <i>Lampetra fluviatilis</i> (River Lamprey) [1099] - <i>Salmo salar</i> (Salmon) [1106] 	<ul style="list-style-type: none"> - <i>Lampetra planeri</i> (Brook Lamprey) [1096] - <i>Lampetra fluviatilis</i> (River Lamprey) [1099] - Sandbanks which are slightly covered by sea water all the time [1110] - Estuaries - Mudflats and sandflats not covered by seawater at low tide - Large shallow inlets and bays - Reefs - Perennial vegetation of stony banks - Vegetated sea cliffs - <i>Salicornia</i> and other annuals colonizing mud and sand - <i>Tursiops truncatus</i> (Common Bottlenose Dolphin) [1349] - Mediterranean salt meadows (<i>Juncetalia maritimi</i>) - Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation - Molinia meadows on calcareous, peaty or clayey-silt laden soils (<i>Molinion caeruleae</i>) 	<p>supporting prey could result in the loss of foraging resource for designated bird, bat or otter species. Loss of habitat between feeding and roosting sites could have a significant impact on Lesser horseshoe bats. Direct physical loss is unlikely unless projects occur within site boundaries. However, consideration must be made to the potential for loss of non-designated habitat beyond site boundaries (e.g. commuting habitat for bats, otter etc.), while increased nitrogen deposition associated with vehicular traffic outside a European site could potentially impact on sensitive habitats within a European site (e.g. heathland/bog habitats).</p> <p>Fragmentation - proposals for new roads that might sever the landscape. The loss, damage or fragmentation of bat commuting routes (e.g. due to new roads) could result in significant impacts which could have a long-term effect on viability.</p> <p>Aquatic Species - Water dependant qualifying interest species and habitats, including freshwater pearl mussel, Atlantic salmon, lamprey spp. and otter are present within the study area. Such species are particularly at risk from increased sedimentation and a reduction in water quality that might result from stripping of topsoil and particulates or pollutants washed into watercourses. Construction near (e.g. water crossing) or within waterbodies linked to the River Shannon present a risk.</p>

Site name	Qualifying interests	Conservation objectives	Key vulnerabilities
	<ul style="list-style-type: none"> - <i>Tursiops truncatus</i> (Common Bottlenose Dolphin) [1349] - <i>Lutra lutra</i> (Otter) [1355] 		

Slievefelim to Silvermines Mountains SPA

Table D.3: Attributes of Slievefelim to Silvermines Mountains SPA

Site name	Qualifying interests	Conservation objectives	Key vulnerabilities
Slievefelim to Silvermines Mountains SPA	<p><i>Qualifying interests:</i></p> <ul style="list-style-type: none"> - Hen Harrier (<i>Circus cyaneus</i>) [A082] 	<p><i>Conservation objectives:</i></p> <p>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:</p> <ul style="list-style-type: none"> - Hen Harrier (<i>Circus cyaneus</i>) [A082] 	<p>Disturbance - Disturbance related impacts are a key vulnerability for sites hosting mobile species as disturbance, due to noise, vibration or light pollution could deter designated species important habitat areas. Construction or operational activities (e.g. traffic) within and outside the sites boundaries could result in disturbance. Disturbance and displacement from artificial lighting (e.g. along roads or in new development areas) is a key sensitivity for lesser horseshoe bats. This species is known to commute up to 4km from their roost sites to forage at night. Commuting routes are important features of the landscape for lesser horseshoe bats as they generally avoid flying across open spaces. The same tree line, woodland or hedgerow can be used by the same population year on year. Lighting exposure could permanently affect behaviour and possibly use of flight lines to feeding areas).</p>

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Site name	Qualifying interests	Conservation objectives	Key vulnerabilities
			<p>Visitor pressure - Recreational pressure e.g. availability of alternative/new recreation spaces could lead to disturbance related impacts.</p> <p>Habitat loss - Direct or indirect habitat loss or degradation, particularly pasture and woodland (for bats) and habitats supporting prey could result in the loss of foraging resource for designated bird, bat or otter species. Loss of habitat between feeding and roosting sites could have a significant impact on Lesser horseshoe bats. Direct physical loss is unlikely unless projects occur within site boundaries. However, consideration must be made to the potential for loss of non-designated habitat beyond site boundaries (e.g. commuting habitat for bats, otter etc.), while increased nitrogen deposition associated with vehicular traffic outside a European site could potentially impact on sensitive habitats within a European site (e.g. heathland/bog habitats).</p> <p>Fragmentation - proposals for new roads that might sever the landscape. The loss, damage or fragmentation of bat commuting routes (e.g. due to new roads) could result in significant impacts which could have a long-term effect on viability.</p> <p>Wetland habitats (marshes, fens, bogs, wet grasslands, wet woodland) and QI Birds - Particularly vulnerable to changes in hydrodynamics (the movement of water through and from a wetland), or flooding. The structure and function of the habitats will be compromised if there is too much or too little water is available. The construction of highways and facilities and associated drainage (e.g. ditches) and embankments could block surface and sub-surface flows and change the water</p>

Site name	Qualifying interests	Conservation objectives	Key vulnerabilities
			chemistry. Ecological (as well as hydrological) connectivity to similar habitats is important and regard should be had to the capacity of new infrastructure to divide wetlands or alter surrounding land use. Wetlands are also critical habitat for migratory birds and waterfowl and assessments should capture the potential indirect effects of habitat loss on birds for which the SPA is designated. Roads by wetlands and ponds typically have the highest roadkill rates (Forman et al, 1998) so the impact of traffic rates on roads adjacent to wetlands should be considered also. It should also be noted that qualifying interest bird species may utilise habitats outside European sites for foraging. These supporting habitats are functionally linked to the SPAs. Impacts on these areas as a result of development could result in adverse effects on site integrity.

Glenstal Wood SAC

Table D.4: Attributes of Glenstal Wood SAC

Site name	Qualifying interests	Conservation Objectives	Key vulnerabilities
<p>Glenstal Wood SAC - Glenstal Wood, which is associated with Glenstal Abbey, lies in the western foothills of the Slievefelim Mountains, about 8 km north-west of Cappamore, Co. Limerick. The glen has been cut into Old Red Sandstone and runs in a north-easterly direction for about 2 km, eventually becoming a steep-sided rocky ravine.</p>			
Glenstal Wood SAC	<p><i>Qualifying interests:</i></p> <ul style="list-style-type: none"> – <i>richomanes speciosum</i> (Killarney Fern) [1421] 	<p><i>Conservation objectives:</i></p> <p>To maintain the favourable conservation condition of Killarney Fern.</p>	<p>Woodland - Policy measures to promote sustainable transport might be regarded as beneficial to these SACs. In city development is unlikely to impact areas of woodland. However, any factors that increase the isolation of woodlands, such as new roads that further fragment this already fragmented feature or contribute to environmental stresses such as reduced air or soil quality (deposition of traffic pollutants could easily cause</p>

Site name	Qualifying interests	Conservation Objectives	Key vulnerabilities
			<p>impacts even at low levels (Woodland Trust, 2000). Any physical loss of woodland within a European site to accommodate new infrastructure is likely to cause significant effects and adversely affect site integrity.</p> <p>Killarney fern is particularly sensitive to desiccation because it is not adapted to control water loss (Rumsey, 1994 cited in NPWS, 2008) Modifications to local hydrology, woodland clearance or measures that lead an increase in visitor pressure and human disturbance (trampling) have a detrimental effect on a population (NPWS, 2008). Impacts would only occur if within the European site.</p>

Glenomra Wood SAC

Table D.5: Attributes of Glenomra Wood SAC

Site name	Qualifying interests	Conservation Objectives	Key vulnerabilities
Glenomra Wood SAC - Glenomra Wood is a deciduous woodland located in south-east Co. Clare, about 10 km north of Limerick city.			
Glenomra Wood SAC	<p><i>Qualifying interests:</i></p> <ul style="list-style-type: none"> Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] 	<p><i>Conservation Objectives:</i></p> <p>To maintain the favourable conservation condition of Old sessile oak woods with Ilex and Blechnum in the British Isles.</p>	<p>Woodland - Policy measures to promote sustainable transport might be regarded as beneficial to these SACs. In city development is unlikely to impact areas of woodland. However, any factors that increase the isolation of woodlands, such as new roads that further fragment this already fragmented feature or contribute to environmental stresses such as reduced air or soil quality (deposition of traffic pollutants could easily cause impacts even at low levels (Woodland Trust, 2000). Any physical loss of woodland within a European site to</p>

Site name	Qualifying interests	Conservation Objectives	Key vulnerabilities
			accommodate new infrastructure is likely to cause significant effects and adversely affect site integrity.

Tory Hill SAC

Table D.6: Attributes of Tory Hill SAC

Site name	Qualifying interests	Conservation Objectives	Key vulnerabilities
<p>Tory Hill SAC - Tory Hill is an isolated, wooded limestone hill situated about 2 km north-east of Croom, Co. Limerick. It represents an important feature of the surrounding countryside and is a prime example of a limestone hill set amongst a region of volcanic intrusions of differing shape and geology. The hill is of geomorphological interest for the end-moraine, left by retreating ice, on its northern flanks and for icemarks that are clearly visible on the solid rock. The site includes Lough Nagirra and its associated wetland vegetation, located to the north and north-east of Tory Hill.</p>			
Tory Hill SAC	<p><i>Qualifying interests:</i></p> <ul style="list-style-type: none"> – Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites) [6210] – Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> [7210] – Alkaline fens [7230] 	<p><i>Conservation Objectives:</i></p> <p>To restore the favourable conservation condition of Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>).</p> <p>To maintain the favourable conservation condition of:</p> <ul style="list-style-type: none"> – Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>. – Alkaline fens 	<p>Fern Complexes - Fen sites are highly sensitive to changes in the quality and quantity of water supply and its seasonal availability. The ecohydrological function of the individual wetland must be maintained, including the chemistry and nutrient status of the wetland. Fens are vulnerable to the impact of nutrients (EC, 2008). Road or infrastructure development with connectivity to a designated fen complex must ensure regulation of water sources. E.g. drainage and potential run-off from highway surfaces, the interruption of ground and surface water flows factors that increase flood risk or contamination of habitats may occur from a number of sources on or off site and may be toxic or non-toxic. Assessments should also consider the impact of changes in land-use on surrounding land and the deposition of airborne pollutants.</p>

Askeaton Fen Complex SAC

Table D.7: Attributes of Askeaton Fen Complex SAC

Site name	Qualifying interests	Conservation Objectives	Key vulnerabilities
<p>Askeaton Fen Complex SAC - Askeaton Fen Complex consists of a number of small fen areas to the east and southeast of Askeaton in Co. Limerick. This area has a number of undulating hills, some of which are quite steep, and is underlain by Lower Carboniferous Limestone. At the base of the hills a series of fens/reedbeds/loughs can be found, often in association with marl or peat deposits. At the south-east of Askeaton, both Cappagh and Ballymorisheen fens are surrounded by large cliff-like rocky limestone outcrops.</p>			
<p>Askeaton Fen Complex SAC</p>	<p><i>Qualifying interests:</i></p> <ul style="list-style-type: none"> - Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> [7210] - Alkaline fens [7230] 	<p><i>Conservation Objectives:</i></p> <p>To maintain the favourable conservation condition of:</p> <ul style="list-style-type: none"> - Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> - Alkaline fens 	<p>Fen Complexes - Fen sites are highly sensitive to changes in the quality and quantity of water supply and its seasonal availability. The ecohydrological function of the individual wetland must be maintained, including the chemistry and nutrient status of the wetland. Fens are vulnerable to the impact of nutrients (EC, 2008). Road or infrastructure development with connectivity to a designated fen complex must ensure regulation of water sources. E.g. drainage and potential run-off from highway surfaces, the interruption of ground and surface water flows factors that increase flood risk or contamination of habitats may occur from a number of sources on or off site and may be toxic or non-toxic. Assessments should also consider the impact of changes in land-use on surrounding land and the deposition of airborne pollutants.</p>

Curraghchase Wood SAC

Table D.8: Attributes of Curraghchase Woods SAC

Site name	Qualifying interests	Conservation Objectives	Key vulnerabilities
<p>Curraghchase Woods SAC - This site is situated approximately 7 km east of Askeaton in Co. Limerick. The area is characterised by glacial drift deposits over Carboniferous limestone. The site consists largely of mixed woodland and a series of wetlands.</p>			
<p>Curraghchase Woods SAC</p>	<p><i>Qualifying interests:</i></p> <ul style="list-style-type: none"> - Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae) [91E0] - <i>Taxus baccata</i> woods of the British Isles [91J0] - <i>Vertigo moulinsiana</i> (Desmoulin's Whorl Snail) [1016] - <i>Rhinolophus hipposideros</i> (Lesser Horseshoe Bat) [1303] 	<p><i>Conservation Objectives:</i></p> <p>To restore the favourable conservation condition of:</p> <ul style="list-style-type: none"> - Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae) - <i>Taxus baccata</i> woods - Lesser Horseshoe Bats 	<p>Disturbance - Disturbance related impacts are a key vulnerability for sites hosting mobile species as disturbance, due to noise, vibration or light pollution could deter designated species important habitat areas. Construction or operational activities (e.g. traffic) within and outside the sites boundaries could result in disturbance. Disturbance and displacement from artificial lighting (e.g. along roads or in new development areas) is a key sensitivity for lesser horseshoe bats. This species is known to commute up to 4km from their roost sites to forage at night. Commuting routes are important features of the landscape for lesser horseshoe bats as they generally avoid flying across open spaces. The same tree line, woodland or hedgerow can be used by the same population year on year. Lighting exposure could permanently affect behaviour and possibly use of flight lines to feeding areas).</p> <p>Visitor pressure - Recreational pressure e.g. availability of alternative/new recreation spaces could lead to disturbance related impacts.</p> <p>Habitat loss - Direct or indirect habitat loss or degradation, particularly pasture and woodland (for bats) and habitats supporting prey could result in the loss of foraging resource for designated bird, bat or otter species. Loss of habitat between feeding and roosting sites could have a significant impact on</p>

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Site name	Qualifying interests	Conservation Objectives	Key vulnerabilities
			<p>Lesser horseshoe bats. Direct physical loss is unlikely unless projects occur within site boundaries. However, consideration must be made to the potential for loss of non-designated habitat beyond site boundaries (e.g. commuting habitat for bats, otter etc.), while increased nitrogen deposition associated with vehicular traffic outside a European site could potentially impact on sensitive habitats within a European site (e.g. heathland/bog habitats).</p> <p>Fragmentation - proposals for new roads that might sever the landscape. The loss, damage or fragmentation of bat commuting routes (e.g. due to new roads) could result in significant impacts which could have a long-term effect on viability.</p> <p>Woodland - Policy measures to promote sustainable transport might be regarded as beneficial to these SACs. In city development is unlikely to impact areas of woodland. However, any factors that increase the isolation of woodlands, such as new roads that further fragment this already fragmented feature or contribute to environmental stresses such as reduced air or soil quality (deposition of traffic pollutants could easily cause impacts even at low levels (Woodland Trust, 2000). Any physical loss of woodland within a European site to accommodate new infrastructure is likely to cause significant effects and adversely affect site integrity.</p>

Danes Hole, Poulnalecka SAC

Table D.9: Attributes of Danes Hole, Poulnalecka SAC

Site name	Qualifying interests	Conservation Objectives	Key vulnerabilities
<p>Danes Hole, Poulnalecka SAC - This site consists of a small fossil cave in the banks of the Ahaclare River situated within a wood approximately 4 km west of Broadford, Co. Clare. It is a winter hibernation site and also a mating site of the Lesser Horseshoe Bat. A nearby summer roost for the bat and the commuting routes between the two are also included.</p>			
<p>Danes Hole, Poulnalecka SAC</p>	<p><i>Qualifying interests:</i></p> <ul style="list-style-type: none"> - Caves not open to the public [8310] - Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] - <i>Rhinolophus hipposideros</i> (Lesser Horseshoe Bat) [1303] 	<p><i>Conservation Objectives:</i></p> <p>To maintain the favourable conservation condition of Old sessile oak woods with Ilex and Blechnum.</p> <p>To restore the favourable conservation condition of Lesser Horseshoe Bat.</p>	<p>Disturbance - Disturbance related impacts are a key vulnerability for sites hosting mobile species as disturbance, due to noise, vibration or light pollution could deter designated species important habitat areas. Construction or operational activities (e.g. traffic) within and outside the sites boundaries could result in disturbance. Disturbance and displacement from artificial lighting (e.g. along roads or in new development areas) is a key sensitivity for lesser horseshoe bats. This species is known to commute up to 4km from their roost sites to forage at night. Commuting routes are important features of the landscape for lesser horseshoe bats as they generally avoid flying across open spaces. The same tree line, woodland or hedgerow can be used by the same population year on year. Lighting exposure could permanently affect behaviour and possibly use of flight lines to feeding areas).</p> <p>Visitor pressure - Recreational pressure e.g. availability of alternative/new recreation spaces could lead to disturbance related impacts.</p> <p>Habitat loss - Direct or indirect habitat loss or degradation, particularly pasture and woodland (for bats) and habitats supporting prey could result in the loss of foraging resource for designated bird, bat or otter species. Loss of habitat between feeding and roosting sites could have a significant impact on</p>

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Site name	Qualifying interests	Conservation Objectives	Key vulnerabilities
			<p>Lesser horseshoe bats. Direct physical loss is unlikely unless projects occur within site boundaries. However, consideration must be made to the potential for loss of non-designated habitat beyond site boundaries (e.g. commuting habitat for bats, otter etc.), while increased nitrogen deposition associated with vehicular traffic outside a European site could potentially impact on sensitive habitats within a European site (e.g. heathland/bog habitats).</p> <p>Fragmentation - proposals for new roads that might sever the landscape. The loss, damage or fragmentation of bat commuting routes (e.g. due to new roads) could result in significant impacts which could have a long-term effect on viability.</p> <p>Woodland - Policy measures to promote sustainable transport might be regarded as beneficial to these SACs. In city development is unlikely to impact areas of woodland. However, any factors that increase the isolation of woodlands, such as new roads that further fragment this already fragmented feature or contribute to environmental stresses such as reduced air or soil quality (deposition of traffic pollutants could easily cause impacts even at low levels (Woodland Trust, 2000). Any physical loss of woodland within a European site to accommodate new infrastructure is likely to cause significant effects and adversely affect site integrity.</p>

Slieve Bernagh Bog SAC

Table D.10: Attributes of Slieve Bernagh Bog SAC

Site name	Qualifying interests	Conservation Objectives	Key vulnerabilities
<p>Slieve Bernagh Bog SAC - Slieve Bernagh Bog is situated to the west of Lough Derg, in the south-east of Co. Clare. The site comprises the Slieve Bernagh mountain range, with the highest peaks at Moylussa (532 m) and Cragnamurragh (526 m), and the surrounding peatlands that flank its northern slopes.</p>			
<p>Slieve Bernagh Bog SAC</p>	<p><i>Qualifying interests:</i></p> <ul style="list-style-type: none"> - Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010] - European dry heaths [4030] - Blanket bogs [7130] 	<p><i>Conservation Objectives:</i></p> <p>To restore the favourable conservation condition of:</p> <ul style="list-style-type: none"> - Northern Atlantic wet heaths with <i>Erica tetralix</i>. - European dry heaths - Blanket bogs 	<p>Wetland habitats (marshes, fens, bogs, wet grasslands, wet woodland) and QI Birds - Particularly vulnerable to changes in hydrodynamics (the movement of water through and from a wetland), or flooding. The structure and function of the habitats will be compromised if there is too much or too little water is available. The construction of highways and facilities and associated drainage (e.g. ditches) and embankments could block surface and sub-surface flows and change the water chemistry. Ecological (as well as hydrological) connectivity to similar habitats is important and regard should be had to the capacity of new infrastructure to divide wetlands or alter surrounding land use. Wetlands are also critical habitat for migratory birds and waterfowl and assessments should capture the potential indirect effects of habitat loss on birds for which the SPA is designated. Roads by wetlands and ponds typically have the highest roadkill rates (Forman et al, 1998) so the impact of traffic rates on roads adjacent to wetlands should be considered also. It should also be noted that qualifying interest bird species may utilise habitats outside European sites for foraging. These supporting habitats are functionally linked to the SPAs. Impacts on these areas as a result of development could result in adverse effects on site integrity.</p>

Ratty River Cave SAC

Table D.11: Attributes of Ratty River Cave SAC

Site name	Qualifying interests	Conservation Objectives	Key vulnerabilities
<p>Ratty River Cave SAC - This site lies approximately 2.5 km north of Sixmilebridge in Co. Clare. It consists of a cave, and also an important winter roost and a breeding site of the Lesser Horseshoe Bat.</p>			
<p>Ratty River Cave SAC</p>	<p><i>Qualifying interests:</i></p> <ul style="list-style-type: none"> - Caves not open to the public [8310] - <i>Rhinolophus hipposideros</i> (Lesser Horseshoe Bat) [1303] 	<p><i>Conservation Objectives:</i></p> <p>To restore the favourable conservation condition of Lesser Horseshoe Bat in Ratty River Cave SAC.</p>	<p>Disturbance - Disturbance related impacts are a key vulnerability for sites hosting mobile species as disturbance, due to noise, vibration or light pollution could deter designated species important habitat areas. Construction or operational activities (e.g. traffic) within and outside the sites boundaries could result in disturbance. Disturbance and displacement from artificial lighting (e.g. along roads or in new development areas) is a key sensitivity for lesser horseshoe bats. This species is known to commute up to 4km from their roost sites to forage at night. Commuting routes are important features of the landscape for lesser horseshoe bats as they generally avoid flying across open spaces. The same tree line, woodland or hedgerow can be used by the same population year on year. Lighting exposure could permanently affect behaviour and possibly use of flight lines to feeding areas).</p> <p>Visitor pressure - Recreational pressure e.g. availability of alternative/new recreation spaces could lead to disturbance related impacts.</p> <p>Habitat loss - Direct or indirect habitat loss or degradation, particularly pasture and woodland (for bats) and habitats supporting prey could result in the loss of foraging resource for designated bird, bat or otter species. Loss of habitat between feeding and roosting sites could have a significant impact on</p>

Site name	Qualifying interests	Conservation Objectives	Key vulnerabilities
			<p>Lesser horseshoe bats. Direct physical loss is unlikely unless projects occur within site boundaries. However, consideration must be made to the potential for loss of non-designated habitat beyond site boundaries (e.g. commuting habitat for bats, otter etc.), while increased nitrogen deposition associated with vehicular traffic outside a European site could potentially impact on sensitive habitats within a European site (e.g. heathland/bog habitats).</p> <p>Fragmentation - proposals for new roads that might sever the landscape. The loss, damage or fragmentation of bat commuting routes (e.g. due to new roads) could result in significant impacts which could have a long-term effect on viability.</p>

Kilkishen House SAC

Table D.12: Attributes of Kilkishen House SAC

Site name	Qualifying interests	Conservation Objectives	Key vulnerabilities
<p>Kilkishen House SAC - Kilkishen House is an 18th century, two-storey over basement mansion situated approximately 7 km north of Sixmilebridge in Co. Clare. It contains an important winter roost of the Lesser Horseshoe Bat.</p>			
Kilkishen House SAC	<p><i>Qualifying interests:</i></p> <ul style="list-style-type: none"> – <i>Rhinolophus hipposideros</i> (Lesser Horseshoe Bat) [1303] 	<p><i>Conservation Objectives:</i></p> <p>To restore the favourable conservation condition of Lesser Horseshoe Bat.</p>	<p>Disturbance - Disturbance related impacts are a key vulnerability for sites hosting mobile species as disturbance, due to noise, vibration or light pollution could deter designated species important habitat areas. Construction or operational activities (e.g. traffic) within and outside the sites boundaries could result in disturbance. Disturbance and displacement from artificial lighting (e.g. along roads or in new development areas)</p>

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Site name	Qualifying interests	Conservation Objectives	Key vulnerabilities
			<p>is a key sensitivity for lesser horseshoe bats. This species is known to commute up to 4km from their roost sites to forage at night. Commuting routes are important features of the landscape for lesser horseshoe bats as they generally avoid flying across open spaces. The same tree line, woodland or hedgerow can be used by the same population year on year. Lighting exposure could permanently affect behaviour and possibly use of flight lines to feeding areas).</p> <p>Visitor pressure - Recreational pressure e.g. availability of alternative/new recreation spaces could lead to disturbance related impacts.</p> <p>Habitat loss - Direct or indirect habitat loss or degradation, particularly pasture and woodland (for bats) and habitats supporting prey could result in the loss of foraging resource for designated bird, bat or otter species. Loss of habitat between feeding and roosting sites could have a significant impact on Lesser horseshoe bats. Direct physical loss is unlikely unless projects occur within site boundaries. However, consideration must be made to the potential for loss of non-designated habitat beyond site boundaries (e.g. commuting habitat for bats, otter etc.), while increased nitrogen deposition associated with vehicular traffic outside a European site could potentially impact on sensitive habitats within a European site (e.g. heathland/bog habitats).</p> <p>Fragmentation - proposals for new roads that might sever the landscape. The loss, damage or fragmentation of bat commuting routes (e.g. due to new roads) could result in significant impacts which could have a long-term effect on viability.</p>

Clare Glen SAC

Table D.13: Attributes of Clare Glen SAC

Site name	Qualifying interests	Conservation objectives	Key vulnerabilities
<p>Clare Glen SAC - Clare Glen lies on the Limerick - Tipperary border, in the western foothills of the Slievefelim Mountains, about 10 km north-west of Cappamore. The glen was formed by the action of the Clare River cutting into the Old Red Sandstone. The site comprises the wooded river valley about 2 km above the Clare Bridge.</p>			
<p>Clare Glen SAC</p>	<p><i>Qualifying interests:</i></p> <ul style="list-style-type: none"> - Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] - <i>Trichomanes speciosum</i> (Killarney Fern) [1421] 	<p><i>Conservation Objectives:</i></p> <p>To restore the favourable conservation condition of Old sessile oak woods with Ilex and Blechnum.</p> <p>To maintain the favourable conservation condition of Killarney Fern.</p>	<p>Woodland - Policy measures to promote sustainable transport might be regarded as beneficial to these SACs. In city development is unlikely to impact areas of woodland. However, any factors that increase the isolation of woodlands, such as new roads that further fragment this already fragmented feature or contribute to environmental stresses such as reduced air or soil quality (deposition of traffic pollutants could easily cause impacts even at low levels (Woodland Trust, 2000). Any physical loss of woodland within a European site to accommodate new infrastructure is likely to cause significant effects and adversely affect site integrity.</p> <p>Killarney fern is particularly sensitive to desiccation because it is not adapted to control water loss (Rumsey, 1994 cited in NPWS, 2008) Modifications to local hydrology, woodland clearance or measures that lead an increase in visitor pressure and human disturbance (trampling) have a detrimental effect on a population (NPWS, 2008). Impacts would only occur if within the European site.</p>

Appendix E

Other relevant plans and programmes

National

- The Project Ireland 2040 National Planning Framework (NPF) and National Development Plan (NDP) 2018-2027 recognise the value of planning for GBI, such as greenways and blueways, in the same way as other infrastructure, to provide long term benefits. National Policy Objective 58 of the NPF relates to planning for GBI and ecosystem services in the preparation of statutory land use plans, and highlights the importance of considering interrelationships between biodiversity, natural heritage, landscape and green spaces.
- The National Marine Planning Framework (NMPF) sets out to develop an integrated network of greenways and blueways as a mechanism to promote sustainable and active travel modes.
- National Adaptation Framework and the suite of sectoral Climate Change Adaptation Plans³³ recognise the role GBI plays in enhancing the resilience of communities, biodiversity, landscapes, the historic and built environment, and the water environment.
- The Climate Action and Low Carbon Development (Amendment) Act 2021 sets a target for Ireland to reduce greenhouse gas emissions by 51% by 2030 and to reach net-zero no later than 2050. How this will be achieved is set out in the Climate Action Plan 2021 which includes actions relating to expanding the cycling and walking network, including the construction of an additional 1,000km of cycling and walking infrastructure, to enable a modal shift to more sustainable travel.
- The Strategy for the Future Development of National & Regional Greenways and the National Physical Activity Plan for Ireland support the delivery of multi-user, active travel infrastructure including a strategic Greenway Network throughout Ireland.
- Tourism Policy Statement People, Place and Policy – Growing Tourism to 2025 recognises the contribution the GBI network makes to Ireland’s tourism offering.

³³ Nine Climate Change Sectoral Adaptation Plans have been prepared under the National Adaptation Framework for the following sectors: Agriculture, Forestry and Seafood; Biodiversity; Built and

Archaeological Heritage; Transport Infrastructure; Electricity and Gas Networks; Communications Networks; Flood Risk Management; Water Quality and Water Services Infrastructure; and Health.

Regional

- The Southern Regional Spatial and Economic Strategy (RSES) supports the growth and improvement of strategic scale GBI. Regional Policy Objectives (RPOs) 124 and 125 seek co-ordination across local authority boundaries to protect and enhance GBI. RPOs 200 and 201 support the development of greenways, blueways and peatways throughout the region. The RSES also includes the Limerick-Shannon Metropolitan Area Strategic Plan (LSMASP) (p.270-307) which supports the preparation of a GBI Strategy to guide the delivery of parks, active travel routes, and high quality public open spaces in the Limerick-Shannon Metropolitan Area.
- The Mid-West Area Strategic Plan 2012-2030 seeks to reduce car dependency and supports the provision of high-quality active travel routes linking residential, commercial and employment areas throughout Limerick and the Mid-West Region.
- The Limerick Shannon Metropolitan Area Transport Strategy focuses on reducing car dependency by creating active travel routes through the Limerick-Shannon Metropolitan Area.
- The Shannon Tourism Masterplan sets out a bold and integrated framework for sustainable tourism development along the Shannon and Shannon Erne Waterway repositioning the region as a key tourism destination. Limerick is identified as one of four of the most significant settlements (Shannon Hub Towns) along the Shannon River which should act as a focal point for tourism and experience development in a number of areas such as expanding visitor infrastructure and improving public realm to support better integration with the river.

Local

- The Limerick Development Plan 2022-2028 sets out the statutory framework for land use planning and sustainable development in Limerick for the period up to 2028. The LDP supports the protection and enhancement of the GBI network throughout Limerick; promotes connecting corridors for the movement of species; supports the integration of GBI into the preparation of Local Area Plans; and requires proposals to demonstrate how GBI has been considered in the design of developments. Projects which would be detrimental to the existing GBI network will not be permitted. The LDP refers to the GBI Strategy and it will be used by the Council to inform and guide the planning and management of GBI within Limerick City and Environs.

- The Limerick Climate Change Adaptation Strategy 2019 - 2024 focuses on addressing the effects of climate change, including flooding and temperature change. One of the adaptation actions directly refers to the role of GBI in tackling climate change: *"Encourage the implementation of ecosystem and catchment-based approaches to protect against impacts of climate change. Green infrastructure is to be an integral part of this approach"*.
- The Limerick City Council Biodiversity Plan supports the development and enhancement of wildlife corridors.
- Limerick Metropolitan Cycle Network Study supports the development of a 'Green Route Network' by extending the existing greenway routes and creating new greenway routes.
- Limerick Tourism Development Strategy 2019-2023 recognises the opportunity for Limerick to develop blueways and provide greater accessibility to the water.
- Limerick City and Environs Flood Relief Scheme – Application referred to An Bord Pleanala in January 2022. As well as a flood relief scheme for Limerick, greenways and pedestrian/cycle routes will be developed in conjunction with the flood defence and where appropriate, nature-based solutions and green infrastructure will be incorporated into the scheme.
- King's Island Flood Relief Scheme – Application approved by An Bord Pleanala in May 2021. The scheme comprises of a series of flood relief measures around the perimeter of King's Island including new and upgraded flood defence walls. Lighting, landscaping and public realm improvements are also part of the scheme, which will allow people to walk, jog or cycle the perimeter of the island.
- Local plans including the Mungret Masterplan, Cleaves Riverside Masterplan, and the Shannon Tourism Masterplan.