

LIMERICK DEVELOPMENT PLAN 2022-2028

Volume 4

Appropriate Assessment Natura Impact Statement

Adopted June 2022



LIMERICK DEVELOPMENT PLAN 2022-2028

Volume 4

Appropriate Assessment Natura Impact Statement -
Draft Development Plan

ATLANTIC EDGE

LIMERICK
EUROPEAN EMBRACE



Comhairle Cathrach
& Contae **Luimnigh**

Limerick City
& County Council



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Section 1: Introduction

1.1 Background

This Natura Impact Report (NIR) has been prepared in support of the Appropriate Assessment (AA) of the Draft Limerick County Development Plan 2022-2028 in accordance with the requirements of Article 6(3) of Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (as amended) (hereafter referred to as the “Habitats Directive”).

This report is part of the ongoing AA process that is being undertaken alongside the preparation of the Plan. It will be considered, alongside other documentation prepared as part of this process, when Limerick City and County Council finalises the AA at adoption of the Plan.

1.2 Legislative Context

The Habitats Directive provides legal protection for habitats and species of European importance. The overall aim of the Habitats Directive is to maintain or restore the “favourable conservation status” of habitats and species of European Community Interest. These habitats and species are listed in the Habitats and Birds Directives (Council Directive 2009/147/EC on the conservation of wild birds) with Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) designated to afford protection to the most vulnerable of them. These two designations are collectively known as European Sites (also known as Natura 2000 sites).

Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Fauna and Flora, known as the ‘Habitats Directive’ - provides legal protection for habitats and species of European importance. Article 2 of the Directive requires the maintenance or restoration of habitats and species of European Community interest, at a favourable conservation status. Articles 3 - 9 provide the legislative means to protect habitats and species of Community interest through the establishment and conservation of an EU-wide network of sites known as Natura 2000 sites. Natura 2000 sites are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Conservation of Wild Birds Directive (79 / 409 / EEC). Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans or projects affecting Natura 2000 sites. Article 6(3) establishes the requirement for Appropriate Assessment: “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.” Article 6(4) deals with the steps that should be taken when it is determined, as a result of Appropriate Assessment, that a plan/project will adversely affect a European site. Issues dealing with alternative solutions, imperative reasons of overriding public interest and compensatory measures need to be addressed in this case. Article 6(4) states: “If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member States shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted. Where the site concerned hosts a priority natural habitat type and / or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest.” The requirements of Articles 6(3) and 6(4) of the Habitats Directive have been transposed into Irish legislation by means of the Habitats Regulations, 1997 (S.I. No. 94 of 1997) and the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 / 2011).

AA is required by the Habitats Directive, as transposed into Irish legislation by the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) and the Planning and Development Act 2000 (as amended). AA is an assessment of the potential for adverse or negative effects of a plan or project, in combination with other plans or projects, on the conservation objectives of a European Site. These sites consist of SACs and SPAs and provide for the protection and long-term survival of Europe’s most valuable and threatened species and habitats.

1.3 Approach

The AA is based on best scientific knowledge and has utilised ecological and hydrological expertise. In addition, a detailed online review of published scientific literature and grey literature was conducted. This included a detailed review of the National Parks and Wildlife (NPWS) website including mapping and available reports for relevant sites and in particular sensitive qualifying interests/special conservation interests described and their conservation objectives. The ecological desktop study completed for the AA of the Plan comprised the following elements:

- Identification of European Sites within the Plan boundary with identification of potential pathway links for specific sites (if relevant);
- Review of the NPWS site synopsis and conservation objectives for European Sites with identification of potential pathways from the Plan area; and
- Examination of available information on protected species.

There are four main stages in the AA process as follows:

Stage One: Screening - The process that identifies the likely impacts upon a European Site of a project or plan, either alone or in combination with other projects or plans and considers whether these impacts are likely to be significant.

Stage Two: Appropriate Assessment - The consideration of the impact on the integrity of the European Site of the project or plan, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts.

If adequate mitigation is proposed to ensure no significant adverse impacts on European Sites, then the process may end at this stage. However, if the likelihood of significant impacts remains, then the process must proceed to Stage Three.

Stage Three: Assessment of Alternative Solutions - The process that examines alternative ways of achieving the objectives of the project or plan that avoids adverse impacts on the integrity of the European Site.

Stage Four: Assessment - where no alternative solutions exist and where adverse impacts remain an assessment of compensatory measures where, in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that the project or plan should proceed.

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures. This approach aims to avoid any impacts on European Sites by identifying possible impacts early in the planmaking process and avoiding such impacts. Secondly, the approach involves the application of mitigation measures, if necessary, during the AA process to the point where no adverse impacts on the site(s) remain. If potential impacts on European Sites remain, the approach requires the consideration of alternative solutions. If no alternative solutions are identified and the plan/project is required for imperative reasons of overriding public interest, then compensation measures are required for any remaining adverse effect(s).

The assessment of potential effects on European Sites is conducted following a standard source- path-receptor model, where, in order for an effect to be established all three elements of this mechanism must be in place. The absence or removal of one of the elements of the model is sufficient to conclude that a potential effect is not of any relevance or significance.

In the interest of this report, receptors are the ecological features that are known to be utilised by the qualifying interests or special conservation interests of a European Site. A source is any identifiable element of the Plan provision that is known to interact with ecological processes. The pathways are any connections or links between the source and the receptor.

The AA exercise has been prepared taking into account legislation including the aforementioned legislation and guidance including the following:

- Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities, Department of the Environment, Heritage and Local Government, 2009;
- "Commission Notice: Managing Natura 2000 sites - The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC", European Commission 2018;
- "Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC", European Commission Environment DG, 2002; and
- "Managing Natura 2000 sites: The Provisions of Article 6 of the Habitats Directive 92/43/EEC", European Commission, 2000.

1.4 Limerick's Landscape

Limerick's natural heritage is an integral part of our inheritance and forms part of our sense of identity, providing resources of social, educational, recreational and aesthetic value. Heritage doesn't just include buildings, it includes our landscapes, rivers, woodlands, hedgerows, geology, plants and animals. There a number of designated sites throughout Limerick coupled with a number of ecologically sensitive sites. Limerick City Centre lies at the heart of Limerick and within the City, there are a number of sensitive sites. The significance of the Shannon Estuary and its importance forms the northern boundary of county, the River Shannon and Fergus Rivers Special Protection Areas is of significant importance in terms of providing a habitat for bird species.

Many of the natural heritage designations such as Special Areas of Conservation and Special Protection Areas have been designated by European legalisation and Natural Heritage Areas

by national legislation. Protection and conservation of our natural heritage assets is critical in terms of enhancing our natural resources, as well as protecting habitats and species in their natural environment. 13% of the land take of Limerick comprises of designated areas, including Special Areas of Conservation, Special Protection Areas and Natural Heritage Areas. Protection of biodiversity, which is threatened globally and locally by demands of people and increasingly by climate change is a significant challenge. Loss or damage to sites and places of biodiversity value caused by changes in land use practises and pressure for development is a constant battle. The draft Limerick Development Plan considers Limerick's natural heritage in its various forms, with all the diversity of habitats, which occur within Limerick, both urban and rural. Habitats ranging from those associated with the estuary in the north of the county, urban habitats, through to those in rural settings throughout the county and mountain habitats in the Galtee Mountains in the south east of Limerick.

In addition to SACs, SPAs and NHAs, other areas such as wildfowl sanctuaries will also be examined. One of the key ecological parameters is water quality and work carried out under the Water Framework Directive will be of particular importance. (The Local Authority Water Protection Office [LAWPRO] will be consulted on an ongoing basis during the plan preparation). Other areas will also need to be considered such as wetlands, peatlands and flood plains. In relation to peatlands, the Irish Peatland Conservation Council (IPCC) produces a list of peatlands in each county and has a list of Limerick bog and fen habitats. With wetlands and flood plains being considered there are obviously linkages with the Strategic Flood Risk Assessment being carried out as part of the Plan preparation process. There is the potential to link this with the provision of green infrastructure and ecological connectivity, ecological networks and zoning and this will be examined in the Environmental Report. Other potential considerations are:

- Important sites for Limerick's Flora, including Flora Protection Order (FPO) sites. There are many areas in and around Limerick City, which contain species such as the Triangular Club rush, which is located along the River Shannon and some of its tributaries, particularly around the city.
- Other sites of high biodiversity value or ecological importance, e.g. Bird Watch Ireland's 'Important Bird Areas' (Crowe et al., 2009). In Limerick City, Westfields and Coonagh would be important sites.

The conservation, protection and enhancement of these important sites are key to safeguarding the natural heritage of Limerick, while allowing the development of Limerick in line with the policies of the draft Development Plan.

1.5 Key Submissions received to the plan to date from an ecological perspective

Three submissions have particular relevance to the ecological issues in the plan. These submissions were from the Development Applications Unit (National Parks and Wildlife Service), Inland Fisheries Ireland and the Environmental Protection Agency. The importance of the submission from the NPWS through the Development application unit is stressed as follows: “the Department’s comments, if any, on a draft plan and the associated AA should be taken into account by the planning authority before the plan is adopted” (Department of Environment, Heritage and Local Government 2010, p. 56). The submissions are summarised below.

2.5.1 Development Applications Unit (DAU)

Government policy on nature conservation is clearly set out in the National Biodiversity Action Plan 2017-2021 (NBAP) and Ireland is fully committed to halting the loss of biodiversity and the degradation of ecosystem services as set out in the EU Biodiversity Strategy to 2020 and is a signatory to the United Nations (UN) Convention on Biological Diversity Strategic Plan for Biodiversity 2011-2020. These policies are reflected in Ireland’s vision for biodiversity.

Biodiversity in general is under threat at a global, national and local scale. There is therefore an urgent need to protect our natural resources for present and future generations. A Development Plan (DP) that has biodiversity embedded in its core policies will help build a county that is a healthy place for its people and visitors, and provide fully functioning and resilient ecosystems.

While it is important that the plan sets out the legislative requirements in relation to the protection of designated sites and protected species under both European (i.e. Birds and Habitats Directive) and national legislation (i.e. Wildlife Act 1976-2018), the plan should also ensure that legislative requirements and Government policy on biodiversity generally can be delivered and that account is taken of Objective 1 in the NBAP to “*Mainstream biodiversity into decision-making across all sectors*”. There are real opportunities to protect and enhance biodiversity when considered early in any development proposal and, in particular, at a strategic level during the plan-making process.

Reports under the Habitats and Birds Directives, respectively, have shown that even with strict protection habitats and species are continuing to deteriorate or decline. It is noted that Limerick City and County Council is committed to the protection of the designated sites across the county. It is important that the Plan recognises the potential for tourism and recreation related proposals to impact such sites. Many species listed for protection within European sites also depend on habitats and landscape features outside of the designated site boundaries. The loss of these features, due to development pressure can indirectly cause

disturbance and deterioration to the conservation status of internationally important species. It is important to ensure that these issues are addressed in both the Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA) for the Plan.

It is recommended that natural heritage objectives are clear and robust, and include an objective to protect, conserve and enhance biodiversity both within and outside protected sites. This is critical in ensuring that the Council meets its obligations in relation to nature conservation and biodiversity. Where development projects arising from the plan are not subject to the legal requirements to prepare either an Environmental Impact Assessment Report (EIAR) or Natura Impact Statement (NIS) the impacts to biodiversity may best be facilitated through the preparation of an Ecological Impact Assessment (EcIA), and it is recommended including this as an objective in the Plan.

A specific objective should be included in the Plan requiring that surveys for protected species under Annex IV of the habitats directive and other species protected under the Wildlife Acts, are included in all development proposals where there is a reasonable likelihood of these species being present and affected by the development.

It is also important that the Plan provides for unauthorised development to be addressed in a comprehensive manner to ensure that such development does not impact biodiversity in the county, including impacts to sites designated by law. The Plan should include an objective that will ensure appropriate restoration works will be required where impacts to biodiversity have occurred as a result of unauthorised development. Retention planning permission should not be granted where ecological damage has occurred without consideration of the need for either EIA or AA particularly where this involves a designated site.

It is recommended that 'Lighting' objectives are included within the plan both for town and rural areas where incorrect types or inappropriate use of LEDs can have an impact on bat species and other wildlife. It is recommended that specific objectives in relation to the containment and control of Invasive Alien Species in the context of development proposals are included in the plan with reference to the EC (Birds and Natural Habitats) Regulations, 2011.

The Department would welcome a commitment in the plan to the preparation of an overall green infrastructure (G.I.) strategy for the Limerick, as defined by the EU and would like to draw your attention to the EU definition of G.I. as an important link in the connectivity of European sites in the County. A clear distinction should be made between G.I. and Greenways, Blueways and tourist trails within the Plan. As advised in the National Greenway Strategy, greenways and other associated linear trails should be designed to take into account, and avoid where necessary, the sensitivities of natural heritage. Whilst the development of

Greenways, Blueways and tourist trails is generally welcomed, the same risks to biodiversity are associated with these type of trails, as with any other development.

Developments should avoid the fragmentation of landscape features, including ecological corridors which allow for the mobility of species in a changing climate. Hedgerows are essential wildlife corridors and of great ecological importance. Removal of hedgerows at key locations can lead to habitat fragmentation, thereby threatening the coherence of this important ecological network.

It is recommended that clear policy objectives are included in the Plan to ensure that undesignated wetland areas are protected.

Qualifying interest species of the Lower River Shannon SAC include Atlantic Salmon and Lamprey species which are migratory, in addition, the European Eel is classified as critically endangered. Barriers to fish migration occur within the SAC and it is recommended that this issue is considered in the Plan. There may be scope for barrier removal or mitigation in conjunction with Local Authority projects and this should be explored with Inland Fisheries Ireland.

It is recommended that the requirements of the National Peatland Strategy and the National Raised Bog SACs Management Plan 2017-2022 are reflected in the policy in relation to peatlands in the Plan.

Limerick is fortunate to be one of only six counties in Ireland to have a Lesser Horseshoe Bat population, however there are significant concerns for the Limerick population and the forthcoming Plan could play a significant role in determining the future of the population. A major concern is the isolation of the population from other populations and the potential isolation of subpopulations within Limerick.

Barn owl is a protected species of threatened status (red-listed) at national level. Barn owls are attracted to feeding on the rough grass growing on the margins of motorways, and it is recommended that an objective is included in the Draft County Development Plan to support any emerging solution to reduce mortality of barn owls on motorways and large roads in co-operation with Transport Infrastructure Ireland and other stakeholders.

2.5.2 Inland Fisheries Ireland

The submission refers to the protection of habitats and outlines that current SEA must recognise that protection of the aquatic environment is not solely dependent on water quality but includes protection of the physical environment, hydrological processes and bio-diversity. Effects of diffuse pollution are often more destructive than individual point source pollution events. Sub-lethal pollution levels also have ecological effects.

Physical habitat is very important. The Water Framework Directive requires conservation of habitats for ecological communities and physical habitats should be protected as well as hydrological processes.

The submission notes that the SEA will be flawed if it does not recognise that protection of the aquatic environment/habitats not only requires the protection of water quality but also necessitates the protection and maintenance of physical habitats and hydrological processes.

Impacts of development can include destruction of in-stream habitats, interference with spawning and nursery areas, obstruction of passage and removal of pools and changes in flow regime and fragmentation of habitat.

Infrastructure provision should keep pace with development and in instances where it is not available planning permission should be refused on the grounds it is premature or constrained by appropriate conditions.

Areas adjacent to water courses should be managed which will lessen their effects on rivers and water courses. Riparian buffer zones are areas near water courses which help shade and protect them from the effects of nearby land use. They must be sufficiently wide to achieve this effect and can require a zone of 30m in width.

Inland Fisheries Ireland should be consulted on any proposed developments that could affect river ecosystems and associated habitat. IFI can provide guidance on the establishment and/or protection of riparian habitat.

Urban water courses are important fish and wildlife habitats and may also have an amenity value. It is essential that they are maintained in an environmentally sensitive manner. The publication "Planning for Watercourses in the Urban Environment" has much useful information on the topic.

The submission requests that the Development Plan provides for the maintenance and preservation of all watercourse and associated riparian habitats in urban areas and ensure that the amenity potential which watercourse provides in rural area is protected.

2.5.3 Environmental Protection Agency

The submission from the EPA outlines that the Plan should include specific actions/objectives and commitments to protect designated habitats and protected species (and associated ecological corridors/linkages) within, and adjacent to, the Plan area.

2.5.4 National Parks and Wildlife Service Submission

One of the species that was raised by the NPWS submission and for which policy was placed in the plan is the Lesser Horseshoe Bat (*Rhinolophus hipposideros*). There is one Special Area of Conservation site designated for this species in Limerick. This is in Curraghchase, where a colony is present in the cellars of the big house, in an out building nearby and in nearby Stone Hall.

Table 2.1: Curraghchase Woods SAC Site Qualifying Interests

Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, *Alnion incanae*, *Salicion albae*) [91E0]

Taxus baccata woods of the British Isles [91J0]

Vertigo moulinsiana (Desmoulin's Whorl Snail) [1016]

Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303]

Source: www.NPWS.ie



Figure 1.1: The hatched area indicated as (1) shows the Curraghchase Special Area of Conservation Site (000174). The other hatched areas are part of the Askeaton Fen Complex (002279). The two blue triangles indicate the locations of Lesser Horseshoe Bat roosts in Curraghchase and Stonehall respectively.



Figure 1.2: Lesser Horseshoe Bat (*Rhinolophus hipposideros*) from the Vincent Wildlife Trust Website

One of the main interests at Curraghchase House is the presence of a hibernation site of the Lesser Horseshoe Bat. The bats hibernate in the cellars of the former mansion of Curraghchase House, which is now in ruins. The entrance to the cellar is now grilled and all other access points blocked to prevent disturbance. In recent years bats have remained within the cellar throughout the year. A nearby building, which was part of the original Curraghchase building complex now plays host to bats, which use it as a maternity roost. There is another roost in Stonehall (Fig. 3)

The lesser horseshoe bat belongs to the Rhinolophidae family of bats, while the other resident bat species in Ireland belong to the [Vespertilionidae](#) family, often called the Vesper bats. These include other Irish species such as the Pipistrelle and Brown Long Eared. Horseshoe bats differ from the Vespertilionid bats in that they have a number of flaps or folds of skin around their nostrils, called a noseleaf that form a horseshoe shape. The lesser horseshoe hangs freely by its feet and wraps its wings around its body, the only Irish species to do so.

The range of the lesser horseshoe bat in Ireland is, for the most part, limited to six western counties – Clare, Cork, Galway, Kerry, Limerick and Mayo. The species has been recorded once in Roscommon and twice in Sligo. It roosts mainly in roofs of old houses or in outhouses, stables or old cottages. These are usually stone built and unoccupied by humans. In winter this species hibernates in caves, disused cellars, mines and souterrains. The lesser horseshoe bat's distribution in the west is strongly linked with broadleaved and mixed woodland and it usually forages in woodland and scrub.

The Limerick population is of particular importance in that there is a gap between the bat populations of Clare to the north and Kerry to the south. In Limerick, for the most part, it is in west Limerick although sightings have been obtained close to Lough Gur, in Barnagh close to Newcastlewest and in Ardagh and other scattered locations largely in the west of the County.

It is not a surprise that the species occurs in Curraghchase. It is a bat of woodland habitats (The woodland consists of both deciduous species and stands of commercial conifers. Beech (*Fagus sylvatica*) is the most frequent deciduous species, but Pedunculate Oak (*Quercus robur*), Ash (*Fraxinus excelsior*), Sycamore (*Acer pseudoplatanus*) and Hornbeam (*Carpinus betulus*) are also present. Spruce (*Picea* sp.) and Scots Pine (*Pinus sylvestris*) are the commonest conifers. Hazel (*Corylus avellana*) scrub and areas of wet woodland (*Salix* spp.) also occur. Broad leaved woodland is a particularly important foraging habitat for the Lesser Horseshoe Bat (Bontadina, Schofield and Naef-Daenzer, 2002).



Figure 1.3: Showing dense tree cover at the entrance to Curraghchase Forest Park. This is ideal habitat for a woodland bats such as the Lesser Horseshoe bat

The alluvial forest occurs in the southern part of the site and occupies low ground in a stream valley and some areas adjacent to a small lake. The dominant canopy species include Rusty Willow (*Salix cinerea* subsp. *oleifolia*), Alder (*Alnus glutinosa*), Downy Birch (*Betula pubescens*) and Ash. Exotics also occur, both conifer and broadleaved species, such as Beech and Horsechestnut (*Aesculus hippocastanum*). The Yew wood occurs as a stand on a limestone ridge above a stream valley. It is associated with an Oak-Ash wood, but also has a range of commercial planted species. Nevertheless, Yew is well represented and is readily regenerating. Other species present include Holly (*Ilex aquifolium*), Ash, Pedunculate Oak, Hazel and Hawthorn (*Crataegus monogyna*).

A series of small lakes and fens runs the length of the site. The presence of water based habitats also helps to promote a variety of insects that would serve as prey items for the bat. This draws attention to the need to maintain connectivity of habitats such as hedgerows, and water features in the wider countryside as it means that bats such as the Lesser Horseshoe would be better able to disperse from what are relatively restricted locations. There is a gap between the Lesser Horseshoe Bat population in Kerry and Clare, and enhancing the dispersion of the Limerick population may help bridge that gap. This would help maintain genetic diversity in the bat population and prevent the isolation of pockets of the Lesser Horseshoe Bat population.

The other species that has been mentioned specifically is the Barn Owl (*Tyto alba*). Though no designations are in place for the species in Limerick the conservation of this species is recognised by the Council. Barn Owls often forage on road verges and traffic collisions are a frequent cause of mortality. The issue of barn owl conservation has also been raised in other projects such as wind farms and the new development of solar farms. Within its typical range the Barn Owl requires substantial amounts of rough grassland, the tussocks providing habitats for prey items such as field mice and, in a Limerick context, bank voles. For populations to be sustainable Barn Owls require between 31-47ha of rough grassland (Hardy *et al* 2013, p. 192) within 2km of the nest. The largescale modification of grassland such as that involved in solar farms could, if not properly managed, have serious effects on local Barn Owl's foraging territory. Bearing in mind the vulnerability of the Barn Owl to traffic collision and its nature conservation concerns, a specific policy has been included in the plan.



Figure 1.4: Showing the Barn Owl nest box guide, taken from the Birdwatch Ireland website



Figure 1.5: Barn Owl in Flight Source: Bird Watch Ireland

Bearing in mind the vulnerability of the Barn Owl to traffic collision and its nature conservation concerns, a specific policy has been included in the plan.

Section 2: Draft Limerick Development Plan 2022-2028

The draft Limerick Development Plan is being prepared as part of the review of the existing Limerick County Development Plan 2010 – 2016 (as extended) and the Limerick City Development Plan 2010 – 2016 (as extended). The existing plans are in need of update and there has been significant change in the intervening years since the preparation of these plans. The draft Development Plan sets out the overall vision for Limerick to be a Green City Region on the Waterfront, and 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.

The Plan is required to set out a strategy for the growth and development of Limerick, consistent with national and regional spatial plans. The Plan must also be consistent with national development guidelines, local strategies and programmes, and must comply with both planning and environmental legislation. Since the adoption of the development plans for both Limerick City and Limerick County in 2010, there has been significant change in the local landscape of Limerick and in terms of planning nationally and regionally. In 2014, Limerick City Council and Limerick County Council merged to form Limerick City and County

Council. The merger has been the catalyst for significant change in Limerick, has seen significant investment in Limerick, with Limerick City at the focal point of this growth.

The Plan includes a Written Statement, that provides the development policies, Core Strategy and mandatory and discretionary objectives for different policy areas addressed by the Development Plan

The Plan consists of six volumes:

- Volume 1 consists of a written statement. The written statement comprises of 12 chapters setting out the overall draft plan policies and objectives for the growth of Limerick.
- Volume 2 sets out zoning maps for Limerick City and Environs and zoning maps for Level 4 Settlements and associated development objectives. It also sets out development boundaries for settlements in Level 5 and the location for growth to take place in Level 6. The key theme running through the draft plan is compact growth, consolidating the growth of Limerick City at the top of the settlement hierarchy and to revitalise towns and villages, in line with national and regional policy.
- Volume 3 sets out the Record of Protected Structures and the Architectural Conservation Areas.
- Volume 4 sets out the Natura Impact Statement and Strategic Environment Assessment and Strategic Flood Risk Assessment.
- Volume 5 sets out the Record of Monuments and Places and designated sites in Limerick including Special Areas of Conservation, Special Protection Areas, both with European Designations, and Natural Heritage Areas and proposed Natural Heritage Areas with national designations.
- Volume 6 sets out the Housing Strategy, Retail Strategy, Building Height Strategy, and Strategic Integrated Framework Plan for the Shannon Estuary and the Limerick 2030 – Spatial and Economic Plan for Limerick.

The Written Statement is divided into 12 separate chapters setting out various policies and objectives under the headings of:

1. Introduction, Vision and Strategic
2. Core Strategy
3. Settlement Strategy
4. A Strong Economy
5. Environment, Heritage, Landscape and Green Infrastructure
6. Sustainable Mobility and Transport
7. Infrastructure
8. Climate Action, Flood Risk and Transition to Low Carbon Economy
9. Sustainable Communities and Social Infrastructure

10. Compact Growth and Revitalisation
11. Development Management Standards
12. Implementation and Monitoring

The Plan's Strategic Vision is:

"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".

The following are the interlinked strategic objectives of the Draft Plan:

1. Grow Limerick's economy and create opportunity through maximising the potential for development through the promotion and enhancement of the competitive advantages of Limerick, including its strategic location, connectivity and accessibility to international markets, a skilled workforce and a high quality of life.
2. Transition to an environmentally sustainable carbon neutral economy.
3. Ensure new residential development is of the highest quality, enabling life cycle choices and physical, community, recreation and amenity infrastructure are provided in tandem, to create sustainable, healthy, inclusive and resilient communities.
4. Protect the unique character of Limerick. Support and facilitate revitalisation and consolidation of the City, towns and villages, through public realm and placemaking initiatives. Address vacancy and dereliction to create compact attractive, vibrant and safe environments in which to live, work, visit and invest. Ensure the highest quality of public realm and urban design principles are applied to all new developments, including the construction of landmark buildings in appropriate locations.
5. Create a competitive environment in which to do business. Promote, support and enable sustainable and economic development, enterprise and employment generation. Focus in particular on areas which are accessible by public and sustainable modes of transport. Enable settlements and rural areas to become self-sustaining through innovation and diversification of the rural economy.
6. Reduce car dependency and promote and facilitate sustainable modes of transport. Prioritise walking, cycling and public transport. Provide an appropriate level of road infrastructure, road capacity and traffic management, to support existing and future development and enhance connectivity.
7. Protect, enhance and ensure the sustainable use of Limerick's key infrastructure, including water supplies and wastewater treatment facilities, energy supply including renewables, broadband and transportation.
8. Protect, enhance and connect areas of natural heritage, green infrastructure and open space for the benefits of quality of life, biodiversity, protected species and habitats, while having the potential to facilitate climate change adaptation and flood risk measures.

9. Protect, conserve and enhance the built and cultural heritage of Limerick, through promoting awareness, utilising relevant heritage legislation and ensuring good quality urban design principles are applied to all new developments. The principle that well planned and integrated development enhances the sustainability, attractiveness and quality of an area should be at the centre of any proposal.

10. Support growth in the tourism sector in Limerick and capture key opportunities to grow the sector based around four key drivers - Waterways, Activities, Heritage, Arts and Culture, in an urban and a rural environment

Section 3: Screening for Appropriate Assessment

3.1 Introduction

This stage of the process identifies any potential significant effects to European Sites from a project or plan, either alone or in combination with other projects or plans.

An important element of the AA process is the identification of the “conservation objectives”, “Qualifying Interests” (QIs) and/ or “Special Conservation Interests” (SCIs) of European Sites requiring assessment. QIs are the habitat features and species listed in Annexes I and II of the Habitats Directive for which each European Site has been designated and afforded protection. SCIs are wetland habitats and bird species listed within Annexes I and II of the Birds Directive. It is also vital that the threats to the ecological / environmental conditions that are required to support QIs and SCIs are considered as part of the assessment.

The following NPWS Generic Conservation Objectives have been considered in the screening:

- 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 selected; and
- For SPAs, to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA. Where available, Site-Specific Conservation Objectives (SSCOs) designed to define favourable conservation status for a particular habitat or species at that site have been considered.

3.2 Identification of Relevant European Sites

The Department of the Environment (2009) Guidance on AA recommends a 15 km buffer zone to be considered. A review of all sites within this zone has allowed a determination to be made that in the absence of significant hydrological links, the characteristics of the Plan will not impose effects beyond the County boundary.

Details of European Sites that occur within the Plan area listed in Table 2.1. European Sites and are also mapped in Figure 2.1 and 2.2 below. Information on QIs, SCIs and site-specific vulnerabilities have been considered and are available on www.npws.ie.

The NPWS list the following 15 Natura 2000 sites in Limerick:

Site Name: Askeaton Fen Complex SAC (002279)

Site Name: Ballyhoura Mountains SAC (002036)

Site Name: Barrigone SAC (000432)

Site Name: Blackwater River (Cork/Waterford) SAC (002170)

Site Name: Carrigeenamronety Hill SAC (002037)

Site Name: Clare Glen SAC (000930)

Site Name: Curraghchase Woods SAC (000174)

Site Name: Galtee Mountains SAC (000646)

Site Name: Glen Bog SAC (001430)

Site Name: Glenstal Wood SAC (001432)

Site Name: Lower River Shannon SAC (002165)

Site Name: River Shannon and River Fergus Estuaries SPA (004077)

Site Name: Slievefelim to Silvermines Mountains SPA (004165)

Site Name: Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (004161)

Site Name: Tory Hill SAC (000439)

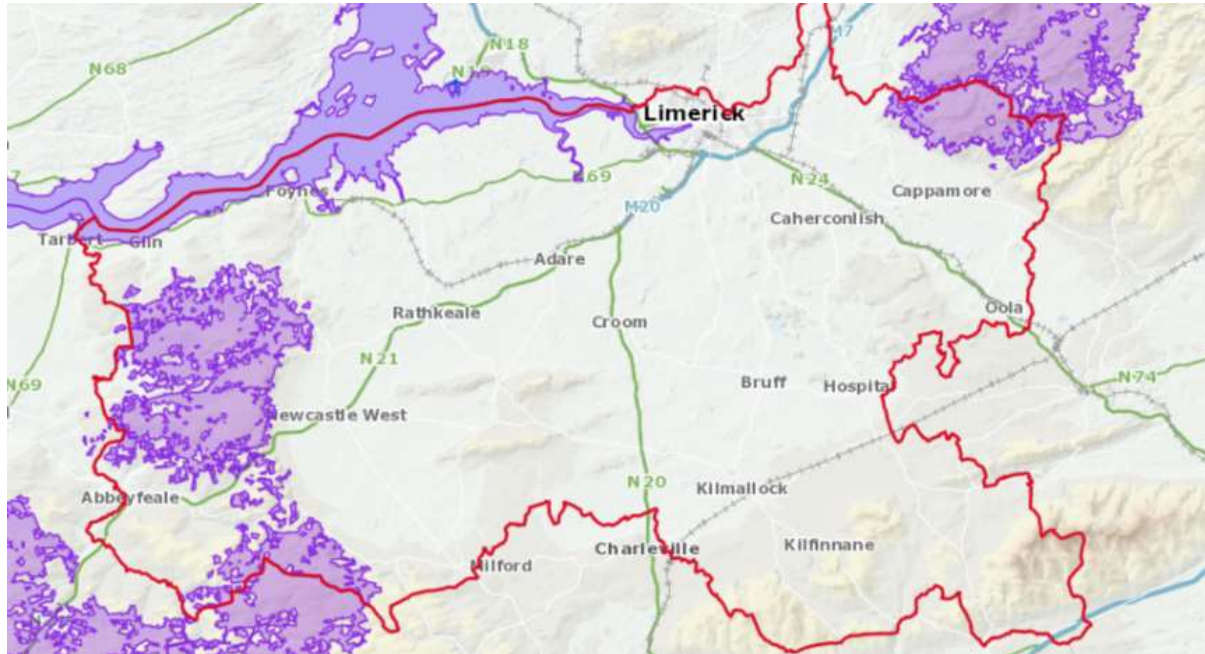
Figure 3.1 Special Areas of Conservation (SAC)

Source: NPWS



Figure 3.2 Special Protection Areas (SPA)

Source: NPWS



3.3 Assessment Criteria and Screening

3.3.1 Is the Plan Necessary to the Management of European Sites

The overarching objective of the Plan is not the nature conservation management of the sites, but to coordinate and plan the future development of County Limerick. Therefore, the Plan is not considered to be directly connected with or necessary to the management of European Sites.

3.3.2 Elements of the Draft Plan with Potential to Give Rise to Effects

The Plan provides a framework for the sustainable development of Limerick City and County. The Plan elements that could potentially affect the integrity of European Sites include:

- Provisions for sectors such as transport, urbanisation, streetscape works, community facilities, utilities, natural resource, coastal, tourism and recreation development that introduce sources for effects through construction phase such as habitat destruction, light pollution, hydrological interactions and disturbance effects; and
- Loading pressures from the operational phase of developments – these sources could result in habitat loss, disturbance effects, interactions with water quality and/habitat fragmentation.

The elements of the Draft Plan with the highest potential to give rise to the effects indicated above are generally associated with construction phase elements of the implementation of the Plan. The operational phase elements of the Plan are generally consistent with the existing condition of the area; however, these will also need to be carefully considered. All policies and objectives are considered in this assessment with respect to the ecological integrity of each of the European Sites identified. The assessment considers the

sensitivities/vulnerabilities of the QIs and SCIs in relation to all potential sources for effects and potential pathways for such effects. Where sources and pathways for effects are identified, potential effects are assessed in relation to the SSCOs.

3.3.3 Screening of Sites

Table 3.1 examines whether there is potential for effects on European Sites. Sites are screened based on one or a combination of the following criteria:

- The existence of potential for pathways for significant effects, such as hydrological links, Plan proposals and the site to be screened;
- The distance of the relevant site from the County boundary; and
- The existence of a link between identified threats or vulnerabilities at a site to potential impacts that may arise from the Plan

Table 3.1: Screening for European Site

Site Code	European Site	Distance (km)	Qualifying Features (Qualifying Interest and Special Conservation Interests)	Potential effects	Potential Pathway for Significant effects	Potential for in combination effects
0002279	Askeaton Fen Complex SAC	0 – within	Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> [7210] Alkaline fens [7230]	This plan provides a framework for land use development and activities with potential construction and operations source effect throughout the County. As this is within the County boundary there are pathways for potential direct effects to the ecological integrity of the site and consideration at stage 2 AA is required.	Yes	Yes
002036	<u>Ballyhoura Mountains SAC</u>	0 – within	Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010] European dry heaths [4030] Blanket bogs (* if active bog) [7130]	This plan provides a framework for land use development and activities with potential construction and operations source effect throughout the County. As this is within the County boundary there are pathways for potential direct effects to the ecological integrity of the site and consideration at stage 2 AA is required	Yes	Yes
00432	<u>Barrigone SAC</u>	0 – within	<i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130] Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites) [6210] Limestone pavements [8240]	This plan provides a framework for land use development and activities with potential construction and operations source effect throughout the County. As this is within the County boundary there are pathways for potential direct effects to the ecological integrity of the site and consideration at stage 2 AA is required	Yes	Yes

			Euphydryas aurinia (Marsh Fritillary) [1065]			
00217	Blackwater River (Cork/Waterford) SAC	0 – 4.3km	<p>Estuaries [1130]</p> <p>Mudflats and sandflats not covered by seawater at low tide [1140]</p> <p>Perennial vegetation of stony banks [1220]</p> <p>Salicornia and other annuals colonising mud and sand [1310]</p> <p>Atlantic salt meadows (Glauco-Puccinellietalia maritima) [1330]</p> <p>Mediterranean salt meadows (Juncetalia maritimi) [1410]</p> <p>Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation [3260]</p> <p>Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]</p> <p>Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0]</p> <p>Margaritifera margaritifera (Freshwater Pearl Mussel) [1029]</p>	There are no provisions in the Plan that introduce any sources for effects to the land use of the SAC and there are no hydrological pathways between the Plan boundary and the European site. As there are no sources with pathways for effects, no further assessment is required. Given the distances between the SAC and the Plan boundary, there are no sources for effects identified that would result in significant effects to the ecological integrity of the SAC	No	No

			<p>Austropotamobius pallipes (White-clawed Crayfish) [1092]</p> <p>Petromyzon marinus (Sea Lamprey) [1095]</p> <p>Lampetra planeri (Brook Lamprey) [1096]</p> <p>Lampetra fluviatilis (River Lamprey) [1099]</p> <p>Alosa fallax fallax (Twaite Shad) [1103]</p> <p>Salmo salar (Salmon) [1106]</p> <p>Lutra lutra (Otter) [1355]</p> <p>Trichomanes speciosum (Killarney Fern) [1421]</p>			
002037	Carrigeenamro nety Hill SAC	0 – within	<p>European dry heaths [4030]</p> <p>Trichomanes speciosum (Killarney Fern) [1421]</p>	This plan provides a framework for land use development and activities with potential construction and operations source effect throughout the County. As this is within the County boundary there are pathways for potential direct effects to the ecological integrity of the site and consideration at stage 2 AA is required	Yes	Yes
000930	Clare Glen SAC	0 – within	Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]	This plan provides a framework for land use development and activities with potential construction and operations source effect throughout the County. As this is within the County boundary there	Yes	Yes

			Trichomanes speciosum (Killarney Fern) [1421]	are pathways for potential direct effects to the ecological integrity of the site and consideration at stage 2 AA is required		
000174	Curraghchase Woods SAC	0 – within	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, <i>Alnion incanae</i> , <i>Salicion albae</i>) [91E0] Taxus baccata woods of the British Isles [91J0] Vertigo moulinsiana (Desmoulin's Whorl Snail) [1016] Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303]	This plan provides a framework for land use development and activities with potential construction and operations source effect throughout the County. As this is within the County boundary there are pathways for potential direct effects to the ecological integrity of the site and consideration at stage 2 AA is required	Yes	Yes
000646	Galtee Mountains SAC	0 – within	Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010] European dry heaths [4030] Alpine and Boreal heaths [4060] Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) [6230] Blanket bogs (* if active bog) [7130] Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>) [8110]	This plan provides a framework for land use development and activities with potential construction and operations source effect throughout the County. As this is within the County boundary there are pathways for potential direct effects to the ecological integrity of the site and consideration at stage 2 AA is required	Yes	Yes

			<p>Calcareous rocky slopes with chasmophytic vegetation [8210]</p> <p>Siliceous rocky slopes with chasmophytic vegetation [8220]</p>			
001430	Glen Bog SAC	0 – within	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]	This plan provides a framework for land use development and activities with potential construction and operations source effect throughout the County. As this is within the County boundary there are pathways for potential direct effects to the ecological integrity of the site and consideration at stage 2 AA is required	Yes	Yes
001432	Glenstal Wood SAC	0 – within	<i>Trichomanes speciosum</i> (Killarney Fern) [1421]	This plan provides a framework for land use development and activities with potential construction and operations source effect throughout the County. As this is within the County boundary there are pathways for potential direct effects to the ecological integrity of the site and consideration at stage 2 AA is required	Yes	Yes
002165	Lower River Shannon SAC	0 – within	<p>Sandbanks which are slightly covered by sea water all the time [1110]</p> <p>Estuaries [1130]</p> <p>Mudflats and sandflats not covered by seawater at low tide [1140]</p> <p>Coastal lagoons [1150]</p>	This plan provides a framework for land use development and activities with potential construction and operations source effect throughout the County. As this is within the County boundary there are pathways for potential direct effects to the ecological integrity of the site and consideration at stage 2 AA is required	Yes	Yes

			<p>Large shallow inlets and bays [1160]</p> <p>Reefs [1170]</p> <p>Perennial vegetation of stony banks [1220]</p> <p>Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]</p> <p>Salicornia and other annuals colonising mud and sand [1310]</p> <p>Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>) [1330]</p> <p>Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]</p> <p>Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260]</p> <p>Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</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>		
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			<p>Petromyzon marinus (Sea Lamprey) [1095]</p> <p>Lampetra planeri (Brook Lamprey) [1096]</p> <p>Lampetra fluviatilis (River Lamprey) [1099]</p> <p>Salmo salar (Salmon) [1106]</p> <p>Tursiops truncatus (Common Bottlenose Dolphin) [1349]</p> <p>Lutra lutra (Otter) [1355]</p>			
004077	River Shannon and River Fergus Estuaries SPA	0 – within	<p>Cormorant (Phalacrocorax carbo) [A017]</p> <p>Whooper Swan (Cygnus cygnus) [A038]</p> <p>Light-bellied Brent Goose (Branta bernicla hrota) [A046]</p> <p>Shelduck (Tadorna tadorna) [A048]</p> <p>Wigeon (Anas penelope) [A050]</p> <p>Teal (Anas crecca) [A052]</p> <p>Pintail (Anas acuta) [A054]</p> <p>Shoveler (Anas clypeata) [A056]</p> <p>Scaup (Aythya marila) [A062]</p>	This plan provides a framework for land use development and activities with potential construction and operations source effect throughout the County. As this is within the County boundary there are pathways for potential direct effects to the ecological integrity of the site and consideration at stage 2 AA is required	Yes	Yes

			<p>Ringed Plover (<i>Charadrius hiaticula</i>) [A137]</p> <p>Golden Plover (<i>Pluvialis apricaria</i>) [A140]</p> <p>Grey Plover (<i>Pluvialis squatarola</i>) [A141]</p> <p>Lapwing (<i>Vanellus vanellus</i>) [A142]</p> <p>Knot (<i>Calidris canutus</i>) [A143]</p> <p>Dunlin (<i>Calidris alpina</i>) [A149]</p> <p>Black-tailed Godwit (<i>Limosa limosa</i>) [A156]</p> <p>Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]</p> <p>Curlew (<i>Numenius arquata</i>) [A160]</p> <p>Redshank (<i>Tringa totanus</i>) [A162]</p> <p>Greenshank (<i>Tringa nebularia</i>) [A164]</p> <p>Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]</p> <p>Wetland and Waterbirds [A999]</p>			
004165	Slievefelim to Silvermines Mountains SPA	0 – within	Hen Harrier (<i>Circus cyaneus</i>) [A082]	This plan provides a framework for land use development and activities with potential construction and operations	Yes	Yes

				source effect throughout the County. As this is within the County boundary there are pathways for potential direct effects to the ecological integrity of the site and consideration at stage 2 AA is required		
004161	Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA	0 – within	Hen Harrier (<i>Circus cyaneus</i>) [A082]	This plan provides a framework for land use development and activities with potential construction and operations source effect throughout the County. As this is within the County boundary there are pathways for potential direct effects to the ecological integrity of the site and consideration at stage 2 AA is required	Yes	Yes
000439	Tory Hill SAC	0 – within	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]	This plan provides a framework for land use development and activities with potential construction and operations source effect throughout the County. As this is within the County boundary there are pathways for potential direct effects to the ecological integrity of the site and consideration at stage 2 AA is required	Yes	Yes

3.4 Other Plans and Programmes

Article 6(3) of the Habitats Directive requires an assessment of a plan or project to consider other plans or programmes that might, in combination with the plan or project, have the potential to adversely affect European Sites. Section 6.0 below outlines a selection of plans or projects that may interact with the Plan to cause in-combination effects to European Sites. These plans, programmes, strategies etc. were considered throughout the assessment. All projects within the Draft Plan area and receiving environment will be considered in combination with any and all lower tier projects that may arise due to the implementation of the Plan. Given the uncertainties that exist with regard to the scale and location of developments facilitated by the Draft Plan, it is recognised that the identification of in-combination effects is limited and that the assessment of in-combination effects will need to be undertaken in a more comprehensive manner at the project level.

3.5 AA Screening Conclusion

The effects that could arise from the Plan have been examined in the context of several factors that could potentially affect the integrity of any European Site. On the basis of the findings of this Screening for AA, it is concluded that the Plan:

- Is not directly connected with or necessary to the management of any European Site; and
- May, if unmitigated, have significant effects on 14 (no.) European Sites.

Therefore, a Stage 2 AA is required for the Plan (see Section 4 of this report).

Section 4: Stage 2 Appropriate Assessment

4.1 Introduction

The Stage 2 AA assesses whether the Plan alone, or in-combination with other plans, programmes, and/or projects, would result in adverse impacts on the integrity of the 14 European Sites brought forward from screening (those considered on Table 3.1 for which there is “Potential Pathway for Significant Effects” and/or “Potential for In-Combination Effects”), with respect to site structure, function and/or conservation objectives.

4.2 Characterisation of European Sites Potentially Affected

The AA Screening identified 14 European Sites with pathway receptors for potential effects arising from the implementation of the Plan. Table 3.1 above sets out each of the qualifying features of the 14 European Sites brought forward from Stage 1. Each of these site characterisations were taken from the NPWS website.

4.3 Identifying and Characterising Potential Significant Effects

The following parameters can be used when characterising impacts¹:

Direct and Indirect Impacts - An impact can be caused either as a direct or as an indirect consequence of a Plan/Project.

Magnitude - Magnitude measures the size of an impact, which is described as high, medium, low, very low or negligible.

Extent - The area over that the impact occurs – this should be predicted in a quantified manner.

Duration - The time that the effect is expected to last prior to recovery or replacement of the resource or feature.

- Temporary: Up to 1 Year;
- Short Term: The effects would take 1-7 years to be mitigated;
- Medium Term: The effects would take 7-15 years to be mitigated;
- Long Term: The effects would take 15-60 years to be mitigated; and
- Permanent: The effects would take 60+ years to be mitigated.

Likelihood – The probability of the effect occurring taking into account all available information.

- Certain/Near Certain: >95% chance of occurring as predicted;
- Probable: 50-95% chance as occurring as predicted;
- Unlikely: 5-50% chance as occurring as predicted; and
- Extremely Unlikely:<5% chance as occurring as predicted.

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.

The Habitats Directive requires the focus of the assessment at this stage to be on the integrity of the site as indicated by its Conservation Objectives. It is an aim of NPWS to draw up conservation management plans for all areas designated for nature conservation. These plans will, among other things, set clear objectives for the conservation of the features of interest within a site. Site-Specific Conservation Objectives (SSCOs) have been prepared for a number of European Sites. These detailed SSCOs aim to define favourable conservation condition for

¹ These descriptions are informed by publications including: Chartered Institute of Ecology and Environmental Management (2016) "Guidelines for ecological impact assessment"; Environmental Protection Agency (2002) "Guidelines on the Information to be contained in Environmental Impact Statements"; and National Roads Authority (2009) "Guidelines for Assessment of Ecological Impacts of National Roads Schemes".

the qualifying habitats and species at that site by setting targets for appropriate attributes that define the character habitat. The maintenance of the favourable condition for these habitats and species at the site level will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level

Favourable conservation status of a species can be described as being achieved when: ‘population data on the species concerned indicate that it is maintaining itself, and the natural range of the species is neither being reduced or 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’.

Favourable conservation status of a habitat can be described as being achieved when: ‘its natural range, and area it covers within that range, is stable or increasing, and the ecological factors that 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’.

Conservation Objective for SACs:

- To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species that the SAC has been selected.

Conservation Objective for SPAs:

- To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.

4.3.1 Assessment of likely Significant Effects on Designated Sites

Assessment of potential impacts on European Sites is conducted utilising a standard source-path-receptor model. The 2001 European Commission AA guidance outlines the following potential changes that may occur at a designated site, which may result in effects on the integrity and function of that site: loss/reduction of habitat area; habitat or species fragmentation; disturbance to key species; reduction in species density; changes in key indicators of conservation value (water quality etc.); and climate change.

4.3.1.1 Loss/Reduction of Habitat Area

The Plan provides a framework for granting consent for land use developments and activities across the whole County. Potential effects arising from developments and activities include land take, habitat destruction, disturbance effects, light pollution, dust, hydrological interactions, airborne pollution and excessive noise. All 14 sites occurring within or partially within the County have the potential to be impacted. Various measures have been integrated

into the Plan with the objective of ensuring that there are no significant effects on the ecological integrity of any European Site (relevant policies and objectives are expanded on in Section 5.0 below) as a result of loss of habitat or supporting habitat for species that are necessary to maintain the ecological integrity of European Sites.

4.3.1.2 Habitat or species Fragmentation

The Plan provides a framework for granting consent for land use developments and activities across various sectors. Potential effects arising from developments and activities include the fragmentation of habitat and or species through, for example, light pollution, habitat loss or removal of stepping stone habitats. The Plan includes measures to minimise potential fragmentation and to facilitate the enhancement of ecological corridors such as riparian zones, planting of native tree species, management of habitats such as woodlands and minimising inappropriate lighting (relevant policies and objectives are expanded on in Section 5.0).

Further to the above, there are provisions related to non-designated sites and specific ecological resources and/or habitats such as waterways, wetlands and peatlands that will ensure that habitat or species fragmentation does not occur in relation to the connectivity of the ecological resources necessary to maintain the ecological integrity of European Sites.

4.3.1.3 Disturbance to Key Species

The Plan provides a framework for granting consent for land use developments and activities across various sectors. Disturbance effects are caused by any activity or development that has potential to alter the movement patterns or distribution of species, for example direct disturbance through human activity/movement as a result of recreation/tourism or noise pollution. Relevant policies and objectives are expanded on in Section 5.0.

Other disturbance effects could relate to a reduction in habitat quality for species. Policies to ensure the protection of habitat quality have been built into the plan as identified below.

4.3.1.4 Reduction in species density

Species densities are reliant on species distributions, habitat condition, connectivity of ecological resources and availability of resources such as prey/food. The Plan introduces potential sources for effects to affect these four determinant factors for species densities in the form of construction phase effects such as habitat destruction, light pollution, hydrological interaction or operational effects such as disturbance effects, habitat encroachment and trampling. However, the Plan contains provisions to enhance biodiversity, landscape and the environment within Limerick. The Plan includes provisions related to non-

designated sites and specific ecological resources and/or habitats such as waterways, wetlands and peatlands that will ensure that habitat or species fragmentation does not occur in relation to the connectivity of the ecological resources necessary to maintain the ecological integrity of European Sites. Measures relating to light pollution, noise pollution, habitat loss and fragmentation are addressed below including policies and objectives within the draft plan. Measures are also included that will help protect and improve water quality interactions, which can influence species densities, including those relating to water services infrastructure, protective buffer zones and water quality standards.

4.3.1.5 Changes of Indicators of Conservation Value

Indicators of conservation value are identified as key ecological resources such as water quality, air quality, habitat quality, population health of ecosystem engineers or 'keystone species' etc. The protection of these resources is a key focus of the Plan. The Plan contains many robust policies and objectives to ensure the protection of both ground and surface water quality. Development within the vicinity of groundwater or surface water dependent European Sites will not be permitted where there is potential for a significant impact upon the groundwater or surface water supply to the European Sites. Additionally, various other policies provide broader scope to ensure the protection of the wider landscape associated with riparian zones and habitats sensitive to hydrological interactions. These are outlined in section 5.0 below.

4.3.1.6 Climate change

The Plan includes provisions that potentially conflict with climate mitigation and provisions that will help to contribute towards climate mitigation. Greenhouse gas emissions arising from the Plan will not affect changes projected to arise from climate change to the degree that it would affect the QIs or SCIs of the European Sites considered.

The draft Limerick Development Plan is a land use plan and it is not intended for the purposes of managing Natura 2000 sites. The primary legislation behind the preparation of a development plan is the Planning and Development Act 2000 (as amended) and Section 28 Guidelines. It is these that inform the policy content of the plan. The policy content of the plan guides development and land use in Limerick, and it is through this that effects can occur on Natura 2000 sites. This Natura Impact Statement (NIS) presents the results of the assessment of the effects of the plan policies on the Natura 2000 site network. It also sets out mitigation and monitoring measures.

5.0 Assessment of Draft Development Plan Policy Content

5.1 Introduction

Each strategic policy and objective proposed in the draft Limerick Development Plan was assessed for its possible ecological impact. The Draft Limerick Development Plan contains both policies which reflect strategic goals and also objectives which often relate to specific issues. These are listed below with a commentary based on their possible ecological effect when considered against the qualifying interests of the Natura 2000 sites within the plan boundary. The policy content in the plan is presented in term of an overarching strategic policy, followed by the objectives which relate to more specific areas.

In the subsequent section, comments on Chapter 3 onwards, policies and objectives are presented in an abbreviated form. Policies and objectives are shown by their codes in a table with remaining columns commenting on the policies and objectives, from an ecological perspective.

5.2 Amendments to the Pre-Draft Plan

A Chief Executive's draft plan was circulated to the Elected Members in May 2021. This was considered and amended by the Members at a series of meetings. At the final meeting on the 17th June 2021 it was deemed to be the Draft Plan.

The section sets out the amendment made by the elected members at a special council meeting on the 14th of June and adjourned to the 16th and 17th of June which was held to specifically discuss the Draft Limerick Development Plan.

1. Amendments to the Draft Retail Strategy:

Amend Section 6 in relation to 'future pipeline supply' as follows:

- (a) In Section 6.14, remove the floor area associated with planning reference 20311, which refers to a convenience unit in Shannon with a floor area of 1,837 sqm. This is to be removed as planning permission was recently refused for this development and it is therefore not appropriate that its included in pipeline figures. Tables 6.20, 6.21 and 6.22 to be amended to reflect the above, with 1837sqm distributed across the metro area.
- (b) Amendments to the following objectives in order to ensure clarity in terms of future interpretation and to avoid duplication.

Objective LCC15: The Council shall require that applications for new supermarkets on Local Centre sites shall be accompanied by a Retail Impact Assessment. ~~Only new food stores~~

~~that provide for sustainable upgrade of neighbourhood centres, that are not reliant on car-based customers and integrate with mixed use development will be permitted.~~

Objective MASP01: Convenience Retail Floor Space

It is an objective of the council to ensure emphasis remains to attract high quality convenience retail to the city centre. However, there is a demand for new convenience floor space within established residential areas and within ~~to~~ neighbourhood areas with growing residential communities and regeneration sites. This shall include:

City Centre

Moyross

Ballysimon

Southern Environs

Reason: In the interest of clarity.

Environmental comment: no significant effects result as it clarifies policy content within already zoned areas many of which are previously modified.

2. Amend the Zoning Matrix as follows:

- Under Enterprise and Employment zoning change Public House to 'generally not permitted' rather than 'open for consideration'.
- Under Agricultural zoning change the Boarding Kennels Footnote to "No.1 Ancillary to Primary Use" rather than "No. 2 Except for Local/Neighbourhood Centers in Tier 4 Settlements"
- Under Open Space zoning remove the Conference Centre Footnote "No. 5 Except Thomond Park"
- Under Agricultural zoning change the Garden Centre Footnote to "No.1 Ancillary to Primary Use" rather than "No. 2 Except for Local/Neighbourhood Centers in Tier 4 Settlements"
- Under Local/Neighbourhood Centre zoning change Vehicles Sales Outlet Footnote to "No. 10 Except in Settlements" rather than "No. 11 Except in Settlements".

Reason: These were typographical errors.

Environmental Comments: No effects text changes only for the purposes of clarity.

3. Include additional objectives as follows in Section (Broadband):

Insertion of additional text into Chapter 7 Infrastructure under Section 7.4.2

Telecommunications Support Structures, Antennae and Domestic Satellite Dishes:

Objective IN O4: Insertion of a) and b) highlighted below.

Objective IN O4 - Telecommunication Support - It is an objective of the Council to:

- a) Promote shared telecommunications infrastructure in all new developments to facilitate multiple network providers. Shared infrastructure should be made available to all broadband service providers on a non-exclusive basis to both suppliers and users of the new infrastructure.
- b) Work closely with the telecommunications industry during the development and deployment phase of telecommunications infrastructure to carefully manage Limerick's road networks and minimise future road infrastructure works.

Reason: To provide for the most up to date policy.

Environmental comments: Expected to be beneficial as shared infrastructure makes maximum use of existing resources and minimises visual disruption. Reducing the amount of work required also has beneficial effects in reducing the amounts of run off and habitats disturbance that might result from potential works.

4. Change of zoning at Bruree:

Relocation of zoning, to take account of a permission granted with no increase in overall zoning.

Reason: To take into account existing grant of permission at The Paddocks, Bruree.

Environmental Comments: see map below which indicates no expansion of plan boundaries. The alteration is to reflect the situation as it exists on site and will not lead to additional overloading of treatment systems or other infrastructure. As such it will not have any additional effects.

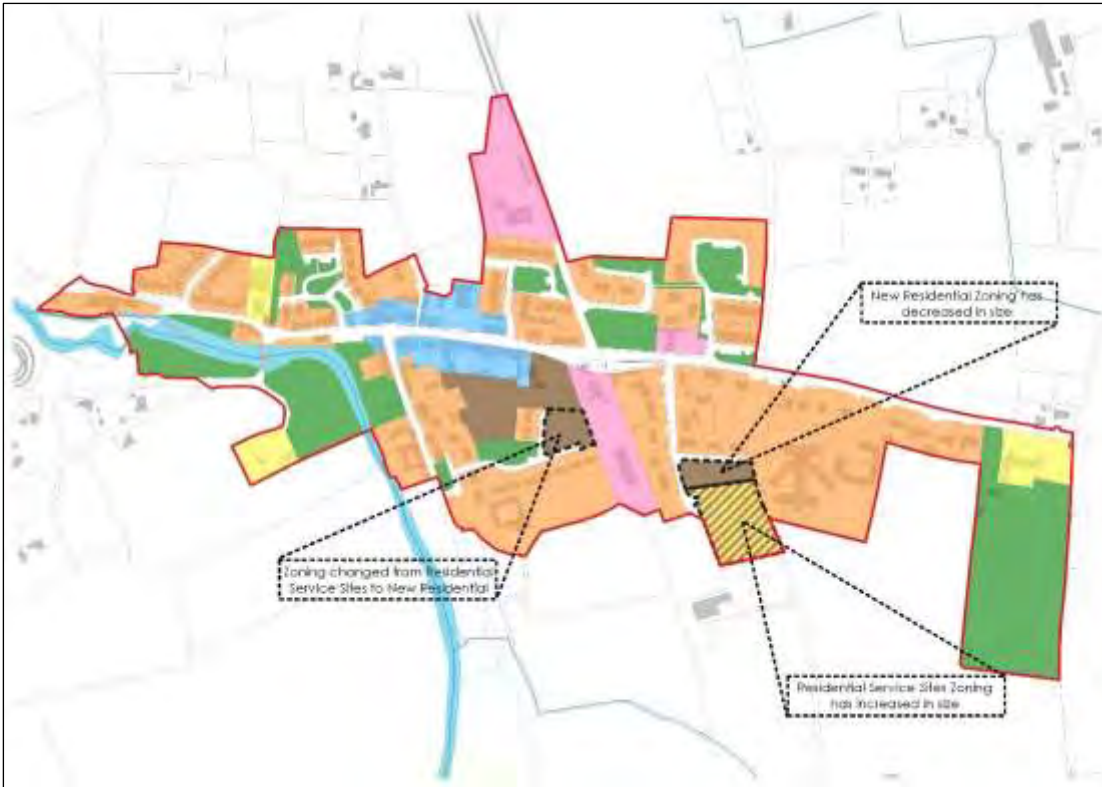


Figure 4.1: Showing the situation in Bruree with no expansion to the development boundary

5. Limerick 2030 Plan:

A review and update of the Limerick 2030 plan is currently underway and is expected to be completed within the next week. This draft plan should be placed on public display with the draft Development Plan in order to allow the public an opportunity to input into it.

Reason: To facilitate public consultation on the review of the Limerick 2030 Plan.

Environmental comments: as mentioned elsewhere in this document initiatives such as the Limerick 2030 plan and the Colbert Quarter Initiative have a huge role to play in the development of strategic areas in Limerick. The role of the Limerick Development Plan is to provide planning guidance and direction for these, while they concentrate on the detail of developing specific sites. Based on discussion with Development Management Planners, it is anticipated that the capacity of the Bunlickey WWTP will be increased in time to keep pace with these developments. This is based on preplanning meetings from March 2021.

The updated plan focuses on revitalisation of the City centre in particular and encourages the development of brownfield sites which will result in maximising the use of the existing built environment. Proposals are based on and are consistent with the zoning pattern set out in the Draft Development Plan.

As most of the areas, particularly the City centre areas are brown field sites the effects of development are expected to be limited, involving re-development of an existing heavily modified environment.

6. Rural housing policy:

Replace text in Section 3.6 with the following:

Limerick can be divided into two broad categories, in terms of defining the Rural Settlement Strategy as follows:

- Rural Housing Category 1 - Areas under Strong Urban Influence
- Rural Housing Category 2 – Rural Areas Elsewhere

Objective SS O17 – Areas under Strong urban influence

It is an objective of the Council to consider a single dwelling for the permanent occupation of an applicant, in the area under Strong Urban Influence, subject to demonstrating compliance with ONE of the criteria below:

1. Persons with a demonstrable economic need to live in the particular local rural area;

Persons who have never owned a house in the rural area and are employed in rural-based activity such as farming/bloodstock, horticulture or other rural-based activity, in the area in which they wish to build or whose employment is intrinsically linked to the rural area in which they wish to build, or other persons who by the nature of their work have a functional need to reside permanently in the rural area close to their place of work (within 10km). (Minimum farm size shall be 12 hectares for farming or bloodstock).

The applicant must demonstrate that they have been actively engaged in farming/bloodstock/horticulture or other rural activity, at the proposed location for a continuous period of not less than 5 years, prior to making the application. In the event of newly acquired land demonstrate that the proposed activity would be of a viable commercial scale, and a detailed 5 year business plan will be required to demonstrate this.

2. Persons with a demonstrable social need to live a particular local rural area;

Persons who have never owned a house in the rural area and who wish to build their first home on a site that is within 10km of where they have lived for a substantial period of their lives in the local rural area (Minimum 10 years). The local rural area is defined as the area outside all settlements identified in Level's 1 – 4 of the Settlement Hierarchy.

3. Persons with a demonstrable local exceptional need to live in a particular local rural area, examples include:
 - a. Returning emigrants who have never owned a house in the rural area, in which they lived for a substantial period of their lives (Minimum 10 years), then moved away or abroad and who now wish to return to reside in the local rural area (within 10km of where they lived for a substantial period of their lives). The local rural area is defined as the area outside all settlements identified in Level's 1 – 4 of the Settlement Hierarchy.
 - b. A person who has lived a substantial period of their lives in the local rural area, (at least 10 years), that previously owned a home and is no longer in possession of that home due to the home having been disposed of following legal separation/divorce/repossession and can demonstrate a social or economic need for a new home in the rural area.

Objective SS O18 – Rural Areas Elsewhere

It is an objective of the Council that to help stem the decline and strengthen Rural Areas Elsewhere, in general demand for permanent residential development should be accommodated, subject to meeting normal planning and environmental criteria.

In all cases the consideration of individual sites, for rural housing will be subject to normal siting and design considerations, which will include, but not necessarily be limited to the following:

- Any proposed vehicular access would not endanger public safety by giving rise to a traffic hazard,
- That any proposed on-site waste water disposal system is designed, located and maintained in a way which protects water quality,
- That the siting and design of new dwellings takes account of and integrates appropriately with its physical surroundings and other aspects of the natural and cultural heritage and,
- That the proposed site otherwise accords with the objectives of the Draft Development Plan in general.
- The Planning Authority shall have regard to the viability of smaller towns and rural settlements in the implementation of the rural housing policy.
- Climate action measures shall be submitted as part of any proposed application, to support a transition to a low carbon economy.

Reason: The change proposed is in compliance with the NPF, RSES for the southern region and the 2005 Sustainable Rural Housing Guidelines.

Economic Comment: there are sufficient environmental safeguards built into the policy changes to ensure that no significant environmental effect would occur. Landscaping guidance mentioned in Chapter 11 of the Plan also emphasis the issues of native species use which affords an opportunity for increased native planting. The New plan has also included reference to the new EPA guidance document from 2021 in relation to waste water systems for single houses.

7. Change to Volume 2: Hospital:

An amendment to change zoning of lands identified as New Residential in Hospital, to Existing Residential and to zone additional lands in lieu of these lands to New Residential, as identified in the attached Map.

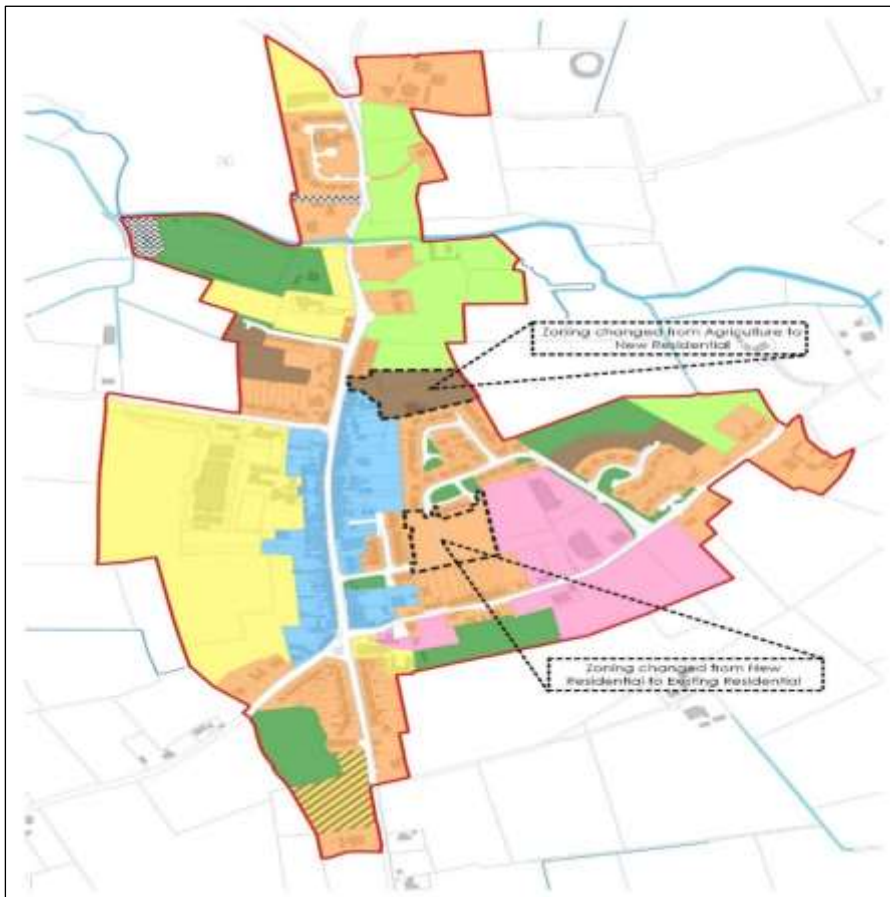


Figure 4.2: Showing zoning changes in Hospital

Reason: Works have commenced and are advancing at pace on the lands, which are identified as New Residential and these lands shall now be considered Existing Residential. The zoning of additional lands is to ensure that there is sufficient lands to cater for the

growth of Hospital, in line with the Core Strategy, projected growth over the life time of the Draft Development Plan, subject to the much needed upgrade of infrastructure in the village.

Environmental Comment: the change reflects the situation as it stands in Hospital following the grant of planning permission and by changing the designation to existing residential indicates that the area is in the process of being developed. The rezoning is also towards the centre of the settlement reflecting the importance of the development of the settlement core. The idea of compact settlement and centre out development is still being promoted by the changes.

8. Changes to Chapter 2:

Elected Members proposed the re - designation of Kilmallock as a Key Town on Level 2 of the Settlement Hierarchy for Limerick, set out in the Draft Limerick Development Plan 2022 – 2028 and directed that the settlement hierarchy be revised to reflect this change.

Reason: Kilmallock is currently a Tier 2 settlement as determined by the Limerick County Development Plan 2010 – 2016 (as extended). It is the largest town in south-east of Limerick and is a key market and service provider for a large catchment extending into the rural hinterland, providing a large number of services for the inhabitants.

The town is also an important tourism hub for south and east Limerick, the town itself was an important monastic centre in medieval times, and has retained much of its historical features, which contributes to the tourist potential of the town.

The town has consistently grown from 1,231 in 1996 to 1,668 in 2016 – growth of 35%. There has been extensive development of the town in the last ten years. Development includes: the development of a new wastewater treatment plant with design capacity for 4,000 persons equivalent, a new public realm plan, and redevelopment of a new Municipal District Office and Library building completed in 2009. The town's post primary school benefitted from a recent major expansion and a new primary school was constructed in recently.

Kilmallock has benefitted from its current location in the settlement hierarchy, in terms of seeking and securing funding for the town and the wider area. The retention of Kilmallock as a key town is critical for securing investment and delivery of growth for the town and the wider region.

The level of public infrastructure development and investment in Kilmallock over the past decade has been made on the basis of a national, regional and local policy that identified Kilmallock as a key growth centre for Limerick. Having already made the public investment in public realm, sewage capacity, schools, a library, a fire station, administration headquarters etc to accommodate local population growth to 4,000 people, it makes no sense, from a public policy perspective or a value for money perspective, to now reduce the importance of Kilmallock and limit the growth of the town to well within its immediate development capacity, particularly at a time when Ireland needs housing and development to provide for a rising population. It is bad policy to plan for town infrastructure priorities and investment decisions across short term periods of time and very poor policy implementation to change such priorities on an ongoing basis.

Environmental Comment: the town of Kilmallock is the largest town within the largest municipal area of Co. Limerick and by altering the designation to that of a Tier 2 town it reflects the importance of the town in Limerick context. This is crucial for it to maintain its position and compete against towns just outside the boundary such as nearby Charleville in Co Cork. As indicated above the Town is of considerable heritage significance and is a member of the Irish walled towns Network and has benefitted from funding received from this source which further adds to its attraction for sensitive tourism development. The change does not result in any increase in population allocation to the town over the plan period, in the core strategy.

9. Change to Chapter 4: Shopfront Design Guides:

Propose the inclusion of a new objective in Chapter 4 - Section 4.6.12, as follows:

It is an objective of the Council to prepare Shopfront Design Guidelines, within the lifetime of the Development Plan and ensure implementation of these guidelines on completion.

Reason: The inclusion of this objective is to ensure a high quality design and coherence in the development of shopfronts throughout Limerick.

Environmental Comments: this is entirely consistent with the aim of improving surroundings in the City and towns and villages of Limerick and ensuring the preservation of the rich heritage of shopfront design within the City and County. From both a heritage and urban design perspective it is considered that the effects can only be beneficial.

10. Change to Chapter 4: Night Time Economy:

Propose the inclusion of a new Section be included in Chapter 4 after Section 4.6, called Night time economy as follows:

The Council recognise the importance of the night time economy throughout Limerick, which is an important form of economic activity that occurs after 5pm and includes dining, nightlife, arts, music, theatre, entertainment, festivals, events, activities and tourist attractions that are open at night.

It is an objective to support the development of night time economy throughout Limerick and to prepare a night time strategy and ensure the implementation of this strategy on completion.

Reason: The inclusion of this objective is to support and enhance the night time economy throughout Limerick.

Environmental Comments: the idea of a strategy to guide the night-time economy is welcomed, not just as its potential to guide economic development in this field but also to ensure higher quality development of both events and buildings and structures to minimise nuisance to existing residents and to ensure the integration of the night time economy into daily life.

11. Change to Chapter 4:

Propose an amendment to Objective ECON O23 Data Centres to include the following:

Promote co-location of data centres with renewable energy sources at appropriate locations subject to proper planning and sustainable development considerations.

Reason: To ensure that Data Centres, as significant consumers of energy are located close to renewable energy sources.

Environmental comments: the establishment of data centres requires careful consideration of the origins and amount of energy that they consume and the effects that their operation might have on energy supply to other enterprises. The amendment of ECON023 draws attention to this important factor.

12. Change to Volume 2: Tournafulla:

Propose an amendment to the settlement boundary for the village of Tournafulla, Level 5 Settlement, as identified in the attached Map:

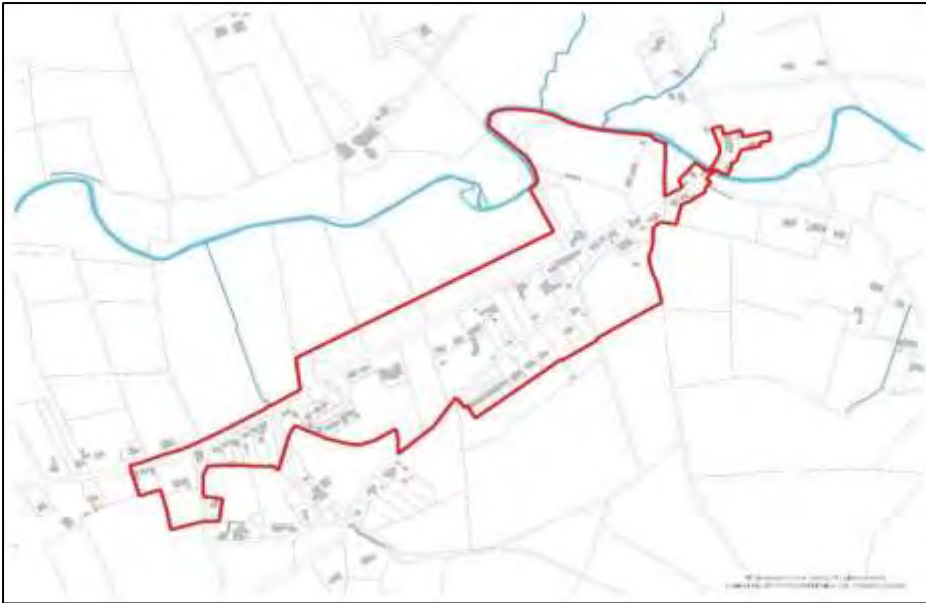


Figure 4.3: Showing zoning changes in Tournafulla

Reason: To reflect the actual village core, that exists on the ground and to concentrate development within the village core.

Environmental Comment: this is a reflection of the idea of compact development as the revised boundary has been altered to incorporate lands in the village core, while lands at the outset have been removed. This is consistent with good planning practice.

13. Change to Volume 2, Chapter 2 and 3:

Propose the inclusion of Ballybrown as a Level 6 settlement, in the Settlement Hierarchy and in Volume 2 of the Draft Limerick Development Plan 2022 – 2028, including the text and Map below.

Ballybrown is situated eight kilometres west of Limerick City off the N69. Ballybrown has approximately 11 dwellings. The settlement is served by a public water supply however, there is no sewerage scheme in the settlement. The village provides a range of services including: a community resource centre, a primary school, a local food store. Sports facilities including a soccer club and a GAA Club, are shared with the adjoining village of Clarina.



Figure 4.4: Showing centre point of Ballybrown

Reason: Ballybrown has a number of existing community facilities, which provides essential infrastructure and services to the settlement.

Environmental Comment: this is consistent with the approach taken towards Tier 6 settlements elsewhere in the plan, with such settlements having a number of facilities around which development could be concentrated. They will, as per Development Management guidance, have to rely in the interim at least on individual treatment systems.

14. Changes to Volume 2 - City and Environs Zoning Map and Chapter 3:

Propose to re zone lands shown on map from Enterprise and Employment to New Residential, local centre and open Space / recreation and show indicative link to access Enterprise and Employment land.

Also proposed to add to Objective SS O5 in Section 3.3.3, Chapter 3 to ensure that the proposed change in zoning does not contravene the Core Strategy:

The additional households permitted within each settlement shall not exceed the growth identified in the Core Strategy Table in Chapter 3.

Reason: The population of Limerick is expected to grow significantly in accordance with the NPF. To facilitate this growth it is essential that there are adequate lands available for residential development within the City and Environs. These lands are serviceable within the life time of the plan, adjacent to the Technical University of the Shannon and will benefit the university by offering residential lands within walking and cycling distance.



Figure 4.5: Showing the lands in question

Environmental Comment: By ensuring that Objective SS05 is altered to ensure compliance with the Core Strategy this ensures that the amendment is in line with higher tier plans and guidance, through not exceeding core strategy figures.

15. Change City and Environs Zoning map and Tiered Approach to Zoning:

Propose a change to zoning of site on Dock Road from Agricultural to Enterprise and Employment.



Figure 4.6: Showing the site in question with land use change from agricultural to Enterprise and Employment

Reason: “(Roches Feeds) currently operate on the Dock Road. They purchased 4.6 hectares of industrial zoned land in 2017 to facilitate the extension of their business and the construction of new warehousing and grain drying facilities in Limerick City. The new facility is being developed to advance the company’s Green Agenda and will use GM free raw materials to deliver a niche product to the farming community. The provision of such a niche product requires a separate production facility.

The development will be accessed off the existing service road providing access to the Wastewater Treatment Facility. Traffic volumes will be low (circa 20 HGV movements onto and from the site per day during a 12 hour period) and the safety, capacity and efficiency of the N69 Dock Road and N18 /N69 Interchange will be maintained and protected in accordance with the Spatial Planning & National Road Guidelines.

Additional employment will be created for 15 – 20 people when operational. A development proposal is well advanced for the site and pre planning meetings were held with the planning authority. However, to date Brexit and Covid 19 challenges have hindered progress on the site.

There is no other alternative site available in Limerick City. Although planning permission for the facility was previously secured on land adjoining the existing Roches Feeds operation on the Dock Road in 2013 (P13/770158), ultimately that land could not be acquired. There is no land for expansion within the current operational site as Roches Feeds over the years has lost land to the construction of the Racecourse Road and roundabout and provision of land (wayleave) to accommodate Limerick Main Drainage. Relocating the development to a potential alternative site outside of Limerick City will result in greater traffic movements, commuting and dispersed urban growth.

Development on the site will facilitate compact growth in line with the requirements of the National Planning Framework (NPF) and the Regional & Economic Spatial Strategy for the Southern Region (RSES).”

The Elected Members submitted the following Development Plan justification test with the proposed amendment:

Justification Test to support zoning of lands to Enterprise and Employment in the Dock Road	
The urban settlement is targeted for growth under the National Planning	The Limerick Shannon Metropolitan Area is targeted for growth under the National

<p>Framework regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act 2000, as amended.</p>	<p>Planning Framework and Regional Spatial and Economic Strategy for the Southern Region. The NPF envisages Limerick as the principal focus within the Mid-West Region, with the potential to generate and be the focus of significant employment and housing growth. The RSES includes a Metropolitan Area Strategic Plan (MASP) for the Limerick Shannon area. The MASP supports the NPF's ambitious growth targets to enable Limerick City to grow by at least 50% to 2040 and to enhance its significant potential to become a City of scale.</p>
<p>The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the town and in particular:</p>	
<p>(i) Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement</p>	<p>Limerick's Dock Road has been identified as a key employment and enterprise location under the MASP, which acknowledges the significant potential of this area of the City for economic development. The lands at the Dock Road subject of Flood Zone A & B were identified as essential to support the expansion of industries, associated with Limerick Port and Docks. Having regard to their location next to the Docks, these lands are also considered essential for the provision of lands for employment uses which cannot be accommodated in the City centre (warehousing, logistics etc.). Within the Metropolitan Area, the area zoned as Limerick's "City Centre" would correspond with the centre of the settlement. The undeveloped area of the Dock Road consolidates the existing built up area contiguous to the City Centre. These greenfield and brownfield lands are</p>

	therefore essential to facilitate expansion and compact growth of Limerick City.
(ii) Comprises significant previously developed and/or under-utilised lands	The Dock Road area has had a long history of development and as such has particular importance in both employment and service provision. These are undeveloped greenfield lands which would consolidate the existing built up area contiguous to the City centre.
(iii) Is within or adjoining the core of an established or designated urban settlement	The Dock Road is a designated key employment location adjoining the core of the Limerick Shannon Metropolitan Area, as identified in the RSES.
(iv) Will be essential in achieving compact or sustainable urban growth	The delivery of development on these lands is essential to allow consolidation of the existing built up area of the Dock Road, achieve compact growth and enable Limerick to fulfil its economic development role in the Mid-West Region.
(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement	Suitable alternative lands are not available for development within and adjoining the core of the City, on which enterprise and employment uses which cannot be accommodated in the City Centre can be facilitated.
A flood risk assessment to an appropriate level of detail has been carried out as part of the Strategic Environmental Assessment as part of the development plan preparation process, which demonstrates that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere.	The flood zones show the site within Flood Zone A and B extents. Any future development should be subject to a Site Specific Flood Risk Assessment, which should address the following and an objective included in this regard: <ul style="list-style-type: none"> - Apply sequential approach should be applied through site planning and should avoid encroachment onto, or loss of, the flood plain,

	<ul style="list-style-type: none"> - Highly Vulnerable Development shall not be permitted in Flood Zone A or B, - Should address climate change scenarios in relation to FFLs and potential mitigation measures, - Finished floor levels should be above the 0.1% or 1% AEP level where appropriate, - Proposals should not impede existing flow paths or cause flood risk impacts to the surrounding areas, and - Emergency evacuation plan and defined access / egress routes should be developed for extreme flood events. Any Site Specific Flood Risk Assessment should be cognisant of the identified proposed flood defences adjacent to the site. Any development shall also be required to be built in accordance with SuDS principles and in compliance with the surface water and drainage policies as set out in the Draft Development Plan.
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Environmental comment: Limerick’s Dock Road has been identified as a key employment and enterprise location under the MASP, which acknowledges the significant potential of this area of the City for economic development. The Chief Executives Draft Plan, that issued to the Elected Members in April 2021 identified lands at the Dock Road which are subject of Flood Zone A & B as essential to support the expansion of industries, associated with Limerick Port and Docks. The Flood justification submitted by the Elected Member on this site considered the location next to the Docks and the lands that were previously justified, and stated that they are essential for the provision of lands for employment uses which cannot be accommodated in the City centre (warehousing, logistics etc.).

There are no suitable alternative lands within the City centre to accommodate this type of development. The draft plan also includes an objective requiring a site specific flood risk assessment for any future development on this site.

A justification test for this site appears in the Strategic Flood Risk Assessment which is part of the plan documentation.

16. Change Record of Protected Structures – Newcastle West Municipal Area:

Propose to update the Record of Protected Structures for the Newcastle West Municipal District, as these structures have already been removed at Municipal District level and draft plan was not updated accordingly.

RPS No. 52 Quilty's – Ballinruane, Kilmeedy



RPS No. 153 Flynn's – Balliniska, Feohanagh



Reason: RPS No. 52 and RPS No. 153 have already been removed at Municipal District level

RPS No. 51 Fitzgibbon's – Ballinruane, Kilmeedy



2009



2021

Reason: No longer in place

RPS No. 271 Lane's – Cloncrippa, Feenagh



Reason: No longer in place

RPS No. 409 – Glengort School, Knockinadiha



Reason: No longer of architectural merit

RPS No. 445 – Sexton's – Gortskagh, Castlemahon



2009



2021

Reason: No longer of architectural merit

RPS No. 1162 – Woodfield House – Woodfield, Dromcolliher



Reason: No longer of architectural merit and the building is structurally unsound

RPS No. 1174 Gayers – Feenagh



2009



2021

Reason: No longer of architectural merit

Remove RPS No. 702 Elm Hill

Reason: structure is in a dangerous condition and discussion were held with Limerick City and County Council Conservation officer, who agreed that its removal was warranted.

Environmental Comment: In many cases these buildings have already been demolished or deteriorated to such a degree that they are no longer of architectural merit. Their removal reflects the current situation of each building and emphasises the need to regularly update the RPS, both for additions and deletions of buildings. It has been over ten years since the last plan was prepared which has been double the length of time that would normally occur. It has been even longer since the NIAH listing has been completed. This emphasises the need for regular updating of the RPS.

17. Change to Chapter 4:

Propose an amendment to Objective ECON O36 as follows:

g) To work with Waterways Ireland and Fáilte Ireland to develop the water activity sector in Limerick by exploring the potential for increased accessibility to Limerick's waterways ~~and the potential of the former Fisheries building at Browne's Quay~~ for water based tourism activity (refer also to Chapter 9 and Chapter 11).

Reason: Insufficient public engagement.

Environmental comments: the non-use of a building is not likely to have any environmental implications.

18. Change to Chapter 11:

Propose an amendment to 11.3.9 Trees as follows:

After 4th sentence include the following text, *Any proposals to remove mature trees shall be done as part of the Planning application process, in order to prevent mature trees being removed on lands zoned for development in advance of a planning application being submitted, where there is an intention to develop the lands.*

Reason: To safeguard trees.

Environmental comment: while well intentioned and would have undisputed Ecological benefits, this would be difficult to enforce and may fall under Forest Service Guidance and legislation as it relates to tree felling and felling licence application.

19. Change to Chapter 5:

Proposed the inclusion of text and objective from the existing City Development Plan to be inserted in Chapter 5 as follows:

Historic Gardens & Designed Landscapes

The DEHLG have undertaken a 'Survey of Historic Gardens & Designed Landscapes' where this inventory includes over 6000 records of historic gardens and designed landscapes throughout Ireland. Phase One and Two (Historic Ordinance Surveys and Aerial Photography) desktop surveys are complete for Limerick City with Phase three (field surveys) yet to be complete. Within Limerick City, some of these historic gardens include: -Castlepark House (Moyross) Reference: LI-65-R-561597, Grid Reference: 561597; -Corbally House (Corbally) forming grounds of St Munchin's College, Grid Reference: LI-65-R584590; -Clonmacken House: LI-65-R-548568, Grid Reference: 548568

It is the policy of the Council to protect and maintain surviving remnants of Historic Gardens, Designed Landscapes and surrounding Parklands including form and patterns of hard and soft landscaping and all mature trees and vegetation as highlighted in the DEHLG 'Survey Of Historic Gardens & Designed Landscapes' Inventory.

Reason: Many of the gardens/landscapes identified still possess a level of natural heritage importance, which needs to be recognised and protected, where possible.

Environmental comment: this objective recognises the natural history present in such gardens and parklands and their particular importance in an urban context. They also contain many older trees which, with more complex structures and potential for bats and bird roosts, have an ecological value, sometimes greater than younger tree species which cannot be used for these purposes as they often lack the cracks and fissures which these older trees possess. Many of the tree species are ornamental trees and species other than Ash will assume greater importance in the future as Ash die back, which will take its toll on the country's tree stock. Remnants of walls and other buildings and structures offer similar opportunities for roosts. These remnants of gardens and parks are also historic features in the landscape and objectives for their preservation is useful from both an historic and natural history perspective.

20. Change to Chapter 5:

Propose to include an objective in Chapter 5 as follows:

The parkland characteristics and mature trees in the area surrounding Castle Park House which is zoned for enterprise and employment use shall be retained as part of any new development.

Reason: To safeguard the mature trees, high nature value and in order to retain the old Parkland layout.

Environmental Comment: this is expected to be beneficial in that it seeks to retain trees and parkland layout. See also comment on previous amendment, as this amendment also recognises the historical aspect of these parkland remnants,

21. Change to Chapter 4:

Propose the inclusion of the following text in the Section below:

“To successfully build resilience and revitalise a sustainable City centre, the key themes in this plan aiming to improve Limerick City’s offer and attractiveness include:

1. Ensuring a critical density of residential and workforce population in the city centre;
2. Ease of mobility, particularly walkability and perceptions of safety;
3. Perception of the attractiveness of retail, commercial and leisure activities in the city centre;
4. The strength of the City centre as a destination for work and doing business;
5. The use and quality of public spaces in the City centre, **including the provision of public facilities such as public toilets, drinking water fountains and seating.**”

Reason: For the purpose of increasing footfall, dwell time and spend.

Environmental comments: as human health is part of the concern of SEA, the inclusion of an objective supporting the provision of such facilities is welcomed.

22. Change to Chapter 9:

Proposed the inclusion of the following locations in the following sentence. The Public Rights of Ways in Limerick are identified on Map 9.1 and 9.2 below and include:

- Westfields;
- North Circular Road;
- Park Canal;
- Lucas Lough/Shannon Fields (Athlunkard);
- Monabraher/Longpavement;
- Kings Island (St Mary’s Park);
- Corbally;
- Ballinacurra Creek -Vance Lands;
- Ballinacurra Creek - Baggot Estate;
- Clare Glens;
- **Coonagh;**
- **Condell Road;**
- **Barringtons pier.**

Reason: In the Interests of clarity.

Environmental Comments: the inclusion of rights of way in the plan may encourage more pedestrian use which would have benefits for human health. These can also provide a network of routes which may contribute to a green infrastructure strategy.

23. Change to Chapter 11:

Proposed the following change to Section 11.4.1.4:

In addition to the minimum apartment storage requirements, apartment schemes should provide external storage for bulky items outside individual units (i.e. at ground or basement level). These storage units should provide for accessible and secure storage, allocated to each individual apartment unit. **Each storage room shall provide appropriate electric points for the purpose of charging electric bikes/scooters.**

Reason: To enable modal shift.

Environmental comments: This amendment to the Development Management Guidelines is intended to promote more sustainable transport practices so it is anticipated that there would be environmental benefits.

24. Change to Chapter 4:

Propose the inclusion of the following objective in Chapter 4 in Section 3, relation to harnessing the potential of Limerick's heritage within the Towns and Villages:

It is objective of the Council to recognise the heritage value of Limerick's towns and villages such as Adare, Kilmallock and Askeaton and seek opportunities to enhance their tourism potential.

Reason: To strengthen the tourism opportunities within County Limerick.

Environmental Comments: Sensitively carried out this has the potential to ensure that heritage assets and built structures of these towns are conserved sensitively while contributing to tourism development.

25. Changes to Chapter 8:

Propose that the area to the south of the proposed Foynes to Limerick Road Scheme, indicated in green hatching in the attached map, be designated as open for consideration for wind energy in the Draft Limerick Development Plan 2022 – 2028.



Figure 4.7: Hatched area in green south of proposed Limerick to Foynes roadway to be designated as open for consideration for wind energy

Reason: The proposal will assist in addressing climate mitigation and the delivery of additional renewable energy supply to meet the targets at national level. Any proposals for wind energy in the area, will be guided by appropriate ecological assessments which will inform the siting, design and layout of wind energy developments.

Environmental Comment: the areas north of the roadway is to be designated as not open for consideration due to the reliance of wintering wild fowl. Discussion with those who have carried out recent studies (Winter 2020 to date) have indicated that this area is widely used by wildfowl many of whom are part of the Qualifying interests of the River Shannon and Fergus Special Protection Areas. Collision Risk Modelling has indicated that, even with one species, the Lesser Black Backed Gull that mortality would increase by 10% which would be unacceptable. The areas to the south of the roadway is not used to anything like the same extent by wildfowl. Part of the reason for this might be the number of quarry developments in the area, which have a deterrent effect on wild fowl usage. Much of this area is also further from the estuary which would reduce the incidence of bird usage.

This area would not have the same issues associated with it that arose in the case of a 2013 planning application for wind energy in the area to the north of the roadway where issues

such as encroachment on the SAC and SPA arose, while wild fowl flight routes and usage of the site were also an issue. See also the Natura impact Statement which is part of the plan documentation.

From the point of view of residential amenity the area north of the proposed route way would have very little areas suitable for wind energy development if the requirement of the buffer distances from wind energy development are taken into account.

26. Change to Chapter 9:

Propose an amendment to Chapter 9, under section 9.6, Childcare facilities add the following text after 4th bullet point

- *“In or within close proximity of schools and educational facilities including catchment area of rural schools”*

Reason: In the interests of clarity.

Environmental Comment: No effects anticipated. The provision of child care is regarded as being part of human health which is concern of the SEA process. Adherence to normal development management standards would ensure that any environmental effects would be minor in nature should they occur.

27. Change to Chapter 9:

Propose the inclusion of an objective in Chapter 9, as follows:

It is an objective of the Council to prepare a Leisure Strategy for Limerick City Centre, within the lifetime of the Development Plan and seek to deliver the strategy on completion, subject to resources.

Reason: To strengthen and promote the City Centre as a destination for leisure.

Environmental Comment: This is consistent with the principle of centre out development and will assist in delivering vibrant City centres. This is consistent with the provisions of the RSES for the southern region.

28. Changes to Chapter 10:

Propose an amendment to Chapter 10 in **Objective M 01- Moyross**

To amend M 01 (e)(iv) to read: Provide a new **road** connection between Moyross Avenue and Cratloe Road;

Reason: In the interest of clarity and a road connection has been agreed with residents:
To amend M 01 (e)(v) to read: Create a new **road** connection between LIT and the District Centre at Watch House Cross.

Reason: A road connection has been agreed with residents.

Environmental Comment: Subject to adequate environmental assessment and within the urban area it is not likely that such a roadway would have major environmental effects.

29. Changes to Chapter 10:

Propose an amendment to insert a new section (g) under objective M 01 - Moyross:

(g) To ensure sufficient land zoning around the Coonagh /Knockalisheen Road capable of delivering a Northside Business campus as referred to in the RSES, to attract and enhance job creation and economic investment in the area.

Reason: A Northside Business campus is outlined in RSES and zoning of sufficient and suitable lands with direct access to the Coonagh Knockalisheen Road is essential. The aim of the Coonagh/Knockalisheen Road was to improve connectivity and attract employment to Moyross as set out in the Regeneration framework.

Environmental Comment: the provision of an adequate amount of zoned lands within the urban boundary for business use is entirely consistent with good planning practice and the provisions of the RSES.

30. Changes to Chapter 6:

Amend Objective TR 017 - Enhanced Public Transport as follows: It is an objective of the Council to support and encourage public transport providers to enhance the provision of public transportation **and frequency of** services throughout Limerick, including the provision of enhanced accessibility from the City Centre to Shannon Airport.

Reason: To enhance the frequency of public transport services, which continues to be a barrier and contributes to isolation, particularly for people living in rural areas and the outer City suburbs.

Environmental Comments: improving the efficiency of public transport would serve to present it as an increasingly effective alternative to private transport. This would help reduce

the amount of vehicle movement and use of vehicles which would have environmental benefits.

31. Amendment to Chapter 9 as follows:

Policy SCS1 025 Playgrounds. Which states - Support play policies to address the play and recreation needs of children and you people with specific consideration given to the needs of children and young adults with Disabilities.

Reason: in support of inclusivity.

Environmental Comments: as outlined elsewhere one of the concerns of SEA is Human health. Provision of play and recreation facilities for all reflects the needs of many with disabilities and is an important consideration.

32. Changes to Chapter 11:

Proposed an amendment to include the following text in 11.5 Community facilities:

That this Council recognise and provide the need for an all-purpose facility to support the various Suicide Prevention and Search and Rescue Groups in the City and County.

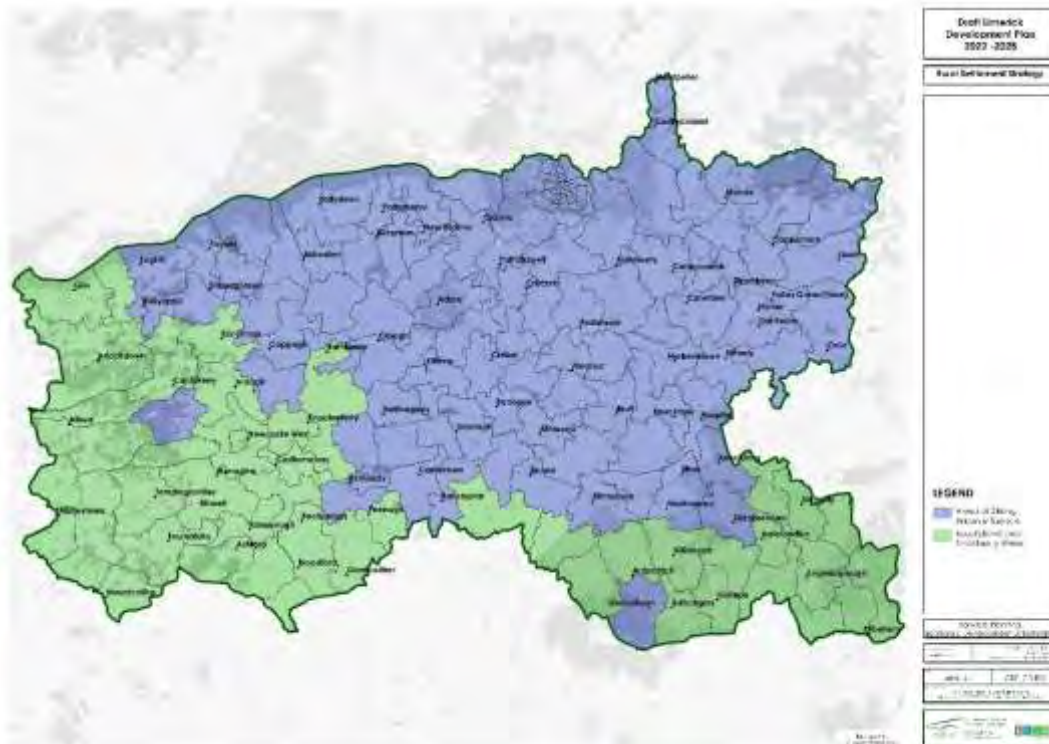
Reason: To support this important service.

Environmental Comments: one of the concerns of SEA is Human health. Provision of facilities for such a facility reflects the needs of many and is an important consideration.

33. Change to Chapter 3 Amend first paragraph on page 3-12:

“The NPF and RSES make a distinction between areas under urban influence i.e. those within the commuter catchment of cities and large towns and centres of employment, (which includes Electoral Divisions where at least 15% of their workforce commute to a City ~~or Key town~~) and rural areas outside these catchments, where a more flexible approach to rural housing will apply”.

34. Replace the Rural Settlement Strategy Map with the following map:



Reason: Section 5.3 in the National Planning Framework states that it is “*important to differentiate, on the one hand, between rural areas located within the commuter catchment of the five cities and our largest towns and centres of employment and on the other hand rural areas located outside these catchments*”.

The Draft Plan that issued to the Elected Members in April 2021 considered the commuting catchment to Limerick City and also Newcastle West.

‘Largest towns and centres of employment’ are defined in appendix 4 of the National Planning Framework, under References, as towns with a population of more than 10,000 people or more than 2,500 jobs. In Appendix 2 of the NPF the population for Newcastle West in 2016 is stated as 6,619 and the total jobs is 2,413.

As both population and jobs in Newcastle West is below the threshold set out in the NPF and the Regional Spatial and Economic Strategy for the Southern Region the rural settlement strategy map should be based on the criteria of 15% of the workforce employed in Limerick City only and should exclude Newcastle West.

Environmental comment: the proposed amendment is in line with the contents of both RSES and the NPF and the threshold figures for “largest towns and Centres of employment”

as set out therein. It reflects policy as put forward in those documents and as such is entirely consistent with higher tier plans and consistent with EPO HTP1.

5.3 Draft Development Plan – Policies and Objectives Overview

5.3.1 Overview of Chapter 1

Chapter 1: Introduction

Chapter 1: Introduction outlines the Strategic objectives of the Development Plan in S1.2. These are outlined in section 2 above.

Comment: The contents of strategic objectives 7, 8 and 9 are welcomed as is objective 2 to promote an environmentally sustainable carbon neutral economy. This is consistent with the higher tier plans and from the outset provides for compliance with the content of both the National Planning Framework (NPF) and the Regional Spatial and Economic Strategy for the Southern Region (RSES). This is important because these new higher-level plans have updated environmental and planning policy content and will through allocation of population figures directly affect the population targets of the Plan. It should be noted that both the NPF and the RSES place a very strong emphasis on development of existing brownfield areas and have a strong climate action content. In relation to climate resilience and the use of natural features (8 above) this should not be at the expense of their ecological integrity and should be subject to appropriate ecological assessment.

5.3.2 Overview of Chapter 2

Chapter 2: Core Strategy

This chapter presents population targets taken from both the National Planning Framework (NPF) and the Regional Economic and Spatial Plan. This defines zoning and residential patterns in the county and is consistent with higher tier plans.

The most important Core Strategy Policy from an SEA perspective is:

Policy CSP 02: Compact Growth - It is Council policy to support the compact growth of Limerick City Metropolitan area, towns and villages by prioritising housing and employment development in locations within and contiguous to existing city and town footprints where it can be served by public transport, walking and cycling to ensure that development proceeds sustainably and at an appropriate scale, density and sequence and in line with the Core Strategy Table.

Closely related to the Core Strategy is the settlement strategy which outlines the settlement hierarchy for Limerick. This is presented in Table 2.4 of the plan. One of the major changes that has taken place is the movement of Kilmallock to Level 2 in the settlement hierarchy. This

has been presented earlier in the first section of this chapter. This reflects the importance of Kilmallock in the context of Limerick. It is the key town in the largest metropolitan area, has recorded continuous population growth over the last number of census periods and has benefited from investment in infrastructure and facilities. It has also benefitted from investment in archaeological and architectural heritage and has considerable potential for heritage based tourism. It also functions as a tourist hub in the south east of Limerick. Part of the investment has been in a wastewater treatment plant which ensures that any development can be appropriately serviced without overloading the plant.

One other change to the settlement strategy has been the inclusion of Ballybrown within the level 6 rural clusters. This has been done in such a fashion as to not interfere with Core strategy figures, but emphasises the range of facilities available, which include a school, community centre, church and shop.

Comment: In general as concentrated development would be more easily served and less dispersed this would be beneficial from an environmental perspective which reduces pressure on the wider countryside and environmental resources. It also reflects the content of the NPF and the RSES, the higher tier plans from which the Plan has formed its policies. The RSES in particular has been subject to appropriate assessment. The changes to the settlement strategy outlined above emphasise centralised development, which can be more easily serviced.

5.3.3 Overview of Chapter 3 Settlement Strategy

The Settlement Strategy presents the policy of the council in relation to settlement in the Plan area. The policy content is in two forms, higher tier policies that reflect national and regional guidance, with emphasis on Limerick and the objectives that follow them. The objectives are more detailed as they seek to offer planning guidance suited for development control purposes. As noted above, the policies and objectives are presented in abbreviated form in the tables that follow. To view them in their non-abbreviated form please consult chapter 3 of the draft Plan. An overall commentary follows each table. See above for comments on changes to the settlement strategy as presented in Table 2.4 of the plan.

A brief summary of the anticipated environmental effects of the policy or objective is included in the column. These are as follows:

+ Positive

= Neutral

- Negative

- - Highly negative

Table 4.1: Settlement Strategy Policies and Objectives

Settlement Strategy Policy/Objectives	Comments	Ecological Effects	Recommendations
Settlement Strategy Policy SS P1	Stresses the importance of the NPF and RSES in the core strategy and revised settlement hierarchy	+	Clearly reflects the requirement of higher tier NPF and RSES policy. No additional recommendation necessary.
Settlement Strategy Policy SS P2	Reflects the importance of Core Strategy and Settlement hierarchy in informing development decisions.	+	Reflects the importance of coherent development patterns.
Settlement Strategy Objectives SS 01 to SS 05	Adheres to RSES and NPF and clearly outlines a tiered settlement strategy, informed by Core Strategy and its population figures.	+	<p>Clearly reflects the requirement of higher tier NPF and RSES policy. No additional recommendation necessary.</p> <p>The emphasis on compact growth and infill of development may reduce development of green field sites, which will reduce pressure on undeveloped sites. Objective SS 01 Compact growth is particularly strong in this regard.</p> <p>SS04 refers to the need to avoid urban sprawl, which would</p>

			<p>reduce development pressure on the wider countryside and rural habitats. It would also mean that it would be easier to service more concentrated development patterns.</p> <p>No additional recommendation.</p>
Settlement Strategy Policy SS P3	Adheres to RSES in emphasizing the importance of Limerick.	+	Promotes sustainable urban development. No additional recommendation necessary.
Settlement Strategy Objectives SSO6 to SS20	Broad range of objectives which take into account the settlement needs of settlements in Limerick. This includes Newcastle West and Kilmallock as key towns and the preparation of LAPS for identified towns. It also sets out the scale of development appropriate for different settlements in the hierarchy.	+	<p>SS07 includes Kilmallock within Level 2, which reflects its importance as the largest town in Limerick's largest metropolitan area.</p> <p>SSO20 mentions refurbishment of rural structures of merit- generally redevelopment of older structures should take into account the need for adequate wildlife surveys.</p> <p>The designation of Kilmallock as key town helps to achieve balanced development and growth in the county, as it acts as an essential counter weight in the south east to Limerick City and Newcastle West to the north and east.</p>

	<p>appropriate locations. Caters for differing housing needs for all sections of the population.</p>		
<p>Urban Housing Objectives HO1-HO16</p>	<p>Provides further detail on types and design of housing and accommodation for urban areas.</p>	<p>+ H004 encourage the reuse of existing housing stock.</p> <p>H005 promotes apartments which encourage higher density land use. In urban areas consistent with NPF and RSES.</p> <p>In terms of human health objectives 9 and 10 makes provision for specialist accommodation for dependents.</p>	<p>Should stress the need for suitable assessment for larger development sites.</p>

Overall comments: This section presents a range of policies and objectives on housing, which covers allocations from the core strategy, housing, tenure and location. Of particular note is

the emphasis on housing quality, both in terms of design and layout, open space provision and the need to take climate change into account. The objective emphasising the reuse of existing housing stock is welcomed as it encourages increased use of existing resources, which are often located in already serviced areas. Such re-use applications should be accompanied by suitable bat and ecology surveys.

The emphasis on compact development and avoiding urban sprawl has beneficial ecological consequences in that it will reduce pressure on the wider countryside and by extension on rural habitats. Concentrated development is also more easily serviced, which reduces the risk of ground and surface water contamination from poorly functioning treatment systems. Compact growth also reduces the impact of carbon emissions, reduced need to travel, the plan focus on the 10-minute city and town, which reduces reliance on vehicular travel and places an emphasis on sustainable modes, which is important in terms of potential impacts on designated sites in terms of emissions and travel.

5.3.4 Chapter 4: A Strong Economy

The Chapter begins with the following quote “the aim of this chapter is to support the growth of employment and enterprise, retail, tourism and the marine economy in Limerick, *in a manner, which ensures that economic development does not impact adversely on the environment*”. This sets out the Local Authority’s positive approach to the protection of the environment and that it seeks to control development in a sustainable manner.

Given the emphasis on the new Limerick Shannon metropolitan area as a whole, the inclusion of this section in the Plan is of huge importance. It identifies the role that Limerick can play with emphasis on high quality employment in the city on lands that are available to the Council. It also makes reference to the Retail Strategy for the Limerick Shannon Metropolitan Area and County Limerick. This is important in that it will ensure a coordinated approach to retail activity in both local authority areas covering the wider Metropolitan area.

Table 4.2: A Strong Economy Policies and Objectives

A Strong Economy Policy/Objective	Comment	Effects	Recommendations
Economic Development Policy ECON P1-7	Promotes Limerick City economic activity including retail and marine related industry. The Limerick 2030 plan is	=	None

	also mentioned, which is an important component of coherent development in Limerick.		
City Centre Objective ECON 01	Maintain Limerick City Centre as the primary retail centre in the County and to support its evolving multifunctional role.	+	None, it is an important policy in that it reflects the importance of the city centres historic development role, reinforcing the idea of centre out development.
Limerick Environs retail ECON 02	Regulates retail in the environs so that it does not undermine city centre retail.	+	None, See comment above.
District and Local Centres Objectives and Retail Warehousing. ECON 03-6	Protect and enhance the mix of services and facilities in existing Centres. Defines their limits and functions, outlines policies for retail warehousing and local shops.	=	None, by supporting a mix of services in local centres it reduces the need for travel and supports the idea of vibrant local areas, where most needs can be fulfilled nearby.
Newcastle West Objective ECON 07	Promotes the role of the town as an economic centre and its role as a Level 2 Town.	=	None
County Towns and Villages Objectives ECON 08	Promotes their role as economic centres	=	None
Local Shops and Rural Retail Objectives ECON 09	Promotes local and rural shops and retail at adequate levels to support local populations	=	None
Casual trading ECON 10 Casual Trading	Designates areas for casual trading.	=	None

Active Street Frontages ECON 11	Promotes ground floor retail and upgrade of original shopfronts	+ provides alternatives to retail parks, ensures vibrant streets which are important in urban development.	None, by promoting such development it can play a role in revitalising urban areas.
Strategic Employment Objectives ECON O12-14	Supports the night-time economy, strategic employment locations in the city and environs, the development of zoned lands and existing business parks, including the knowledge based economy and education, home marketing and incubator units.	+ ECON O14 supports development on brown field sites and infill development.	None
Location of industry on brown field sites ECON 015	Promotes location on already serviced sites or those with existing structures.	+	None, consistent with RSES.
Knowledge economy ECON 016	Promotes knowledge economy.	+	Could help support working from home and reduce travel.
Education and skills ECON 16	Promotes education and skills for work force and educational opportunities.	=	None
Work with Higher Education. /Education and Skills ECON017 ECON18	See above.	=	None
Clustering and Innovation ECON019	Promotes clustering	+	None- promotes concentrated development.

Tackling Unemployment ECON020	Support ETB and establishment of facilities.	=	None
Smart City ECON021	Support smart City.	+ Could promote sustainable solutions to urban problem such as smart energy use.	None
Office Development ECON 022	Promotes appropriately zoned office development in urban areas.	+	None.
Light Industry ECON023	Encourages development on appropriately zoned lands.	+	None
Data Centres ECON024	Encourages development on appropriately zoned land	-	High energy consumption, also might affect supply to other enterprises. While 24(b) supports location close to renewable energy sources, this does not reduce their energy demand and might not be feasible in many cases.
Cultural and Creative ECON025	Promotes cultural enterprises	+	Benefits human health.
Incubator units ECON 026	Encourages their development in suitable lands	=	None
Rural Hubs ECON027	Encourages the development of rural hubs to facilitate remote working	+ could play a part in reducing travel	None
Rural Economy Objectives ECON 028 – 033	Rural economic activity in settlements and in sectors such as agriculture, forestry equine industry	-	Would require careful assessment of intensive practices from an ecological perspective.
Home working Objective ECON 034	Supports activity from home	+	None

Food Strategy Objective ECON O35	Supports Limerick Food Strategy	+	Could serve to promote local resilient industries reducing demands for imported foods.
Tourism Objectives ECON O36 - O40	Supports development of tourism, including water based and niche tourism in Limerick both in rural and urban centres. ECON O38 directs tourism away from sensitive areas.	= ECON O38 states that facilities will not be located where they can cause significant effects. ECON O40 requires that new tourism development is located within existing settlements.	That the provisions of Tourism O38 and O40 are used to inform the development of tourism to ensure a sustainable base for Limerick tourism.
Marine Economy Objectives ECON O41-44	Encourages Shannon Estuary Economic Development, including Foynes port and mariculture.	-	Requires careful assessment and management and mitigation. Mentions SIFP which has an excellent track record of such assessment.
Offshore Renewable Energy Objective ECON O45	Encourages the development of offshore renewables.	-	Requires careful assessment and management and mitigation.

Comments: It is recognised that Limerick will grow from an economic and population perspective and both are interlinked and need each other to sustain themselves. Growth is supported in line with the core strategy and national and regional policy. Larger infrastructural projects to facilitate economic development will require careful assessment of their environmental effects. Tourism can damage natural environments and care is required to ensure that this will not take place. Objectives ECON O38 and O40 are welcomed. Objective ECON O38 ensures development will not be located in sensitive areas where they are likely to have significant effects, while objective ECON O40 requires that new tourism developments to locate within existing settlements.

5.3.5 Chapter 5 Environment and Heritage

The content of this chapter has been much modified since the previous development plans to reflect changed circumstances. One of the main changes has been to reflect the importance of climate change. There is a specific policy reference to taking into account the Climate Change Adaptation measures in the Biodiversity Climate Adaptation Strategy produced in 2019 (Policy EHP3).

In addition, the policy content has been modified to take into account climate action concerns and the effects it might have on Limerick’s environment. Reference has been made to specific species of conservation concern in Limerick such as the Lesser Horseshoe Bat.

Table 4.3: Environment and Heritage Policies and Objectives

Natural Heritage Policies and Objectives	Comments	Effects	Recommendations
Natural Heritage Policies EH P1-7	Calls for sustainable management of natural habitats, biodiversity and linkages between them, including designated sites. Calls for climate action and compliance with Limerick’s Heritage Plan, water and air quality and environmental noise.	+	None
Natural Heritage Objectives EH01 - EH029	Contains references to climate action, species and sites of conservation concern, blue green infrastructure, and provision of habitats. EH05 stresses the need for infrastructure to be permeable for wildlife. EH06 mentions the Barn owl and EH02 mentions the Lesser Horseshoe bat.	+	That during the lifetime of the Plan surveys to support these policies be carried out such as the Swift Survey planned for 2022 and the geological heritage survey for 2021. Funding has been obtained from the Heritage Council for this. Objective EH05 is important for wildlife permeability in new infrastructure.

	<p>EHO 15 mentions peatlands in response to NPWS/DAU submission.</p> <p>EHO23 mentions wildlife friendly lighting.</p>		
Landscape Policy EH P8	Promotes distinctiveness of landscape through the Landscape Character assessment process.	+	None
Landscape Objectives UCA01- UCA04 LCA O1- O10	<p>Introduction of Urban Landscape character areas and policies</p> <p>Rural Landscape character areas policies</p>	+	None. These will help integrate development.
Views and Prospects Objective EH O30	Seeks to conserve views and prospects	+	Will help integrate development.
Historical Landscapes Objective EH O31	Seeks to carry out a survey in the lifetime of the plan.	+	None
Special Control Areas Objectives EH O32- O34	EH32 calls for retention of trees and landscape features in Castle park while 33 and 34 outline Special Control areas to regulate development in Mungret and other areas of archaeological significance.	+	Will help regulate development in sensitive areas.
Archaeology Objectives EH O35 - O47	Covers underwater archaeology, preservation by record or in situ, correct procedures, access to monuments, town defences, surveys for archaeological landscapes and	+	None. The archaeological landscape survey would complement the historical one.

	support to protect Lough Gur.		
Architectural Heritage Objectives EH O48 - O52	These objectives relate to protection and development of protected structures, shop fronts in Architectural Conservation Areas, Architectural Conservation Areas and the National Inventory of Architectural Heritage.	+	Modification of older buildings would require wildlife surveys.

Comments: In the natural history section of the Environmental Report (part of the complementary SEA process) specific mention has been made of species of conservation concern such as the Barn Owl, Lesser Horseshoe bat, at the request of the NPWS who consider that these species are of particular concern in a Limerick context. They also raised the issue of mainstreaming bio-diversity in planning and mention has been made of both the National Bio-diversity Action Plan and the All Ireland Pollinator Plan (EHO7). The Pollinator Plan has been included in the measures in the Development Management chapter to ensure that its recommendations are included in landscaping plans, submitted as part of planning applications. The effects of climate change on the natural environment has also been reflected in policy content. In this regard, Policy EHP3 in Chapter 5 is relevant, which relates to Climate Action and the Natural Environment.

The importance of ensuring that infrastructure allows wildlife movement has also been included in EH-05, which calls for permeability in infrastructure for wildlife movement. Adherence to this objective would prevent infrastructure acting as barriers for species movement in the wider landscape.

There is also a recognition of the possibilities that development can afford to create new habitats, by way of the provision of nesting sites for swifts in new buildings for example. This complements elements of Chapter 11 Development Management Standards, where it is suggested that the open space component of development might be located adjacent to ecological areas to allow for expansion of habitat and to ensure the siting of sympathetic land uses.

The importance of Ecological Impact Assessment (EclA) has also been acknowledged as has conservation outside protected sites (5.3.3). This is an important tool as ecology also lies

outside designated sites and this is an appropriate tool for assessing such areas. This can best be indicated by considering the otter (*Lutra lutra*). Part of the qualifying interests of the Lower River Shannon Special Area of Conservation (see Table 5.3 below) it ranges throughout Limerick both inside and outside the SAC area and from fresh water to brackish. Its range is linear (Fairley 2001) and can run for up to 15km along a river bank so they have wide territories and can be found anywhere in that range. They also have no fixed breeding season and as such can breed throughout the year so this adds to the ecological complexity of the otter.

The EPA and NPWS have noted in some of its recommendations in the past the need to take Article 10 of the Habitats directive into account. The purpose of Article 10 is to “improve the ecological coherence of Natura 2000 network by maintaining, and where appropriate developing, features of the landscape which are of major importance for wild fauna and flora”. Closely connected with Article 10 is Article 3, of which Paragraph 3 mentions the need to “endeavour, where they consider it necessary, in their land-use planning and development policies, and in particular, with a view to improving the ecological coherence of the Natura 2000 Network, to encourage the management of features of the landscape which are of major importance for wild fauna and flora” as referred to in Article 10, namely “Such features are those which, by virtue of their linear and continuous structure (such as rivers with their banks or the traditional systems for marking field boundaries) or their function as stepping stones (such as ponds or small woods), are essential for the migration, dispersal and genetic exchange of wild species.



Figure 4.8: Traces of otters (*Lutra lutra*) throughout Limerick. Otters are part of the qualifying interests of the Lower River Shannon SAC site

There is also a recognition of the possibilities that development can afford to create new habitats, such as by way of the provision of nesting sites for swifts in new buildings for example. This complements elements of Chapter 10 (Development Management Guidelines) where it is suggested that the open space component of development might be located

adjacent to ecological areas to allow for the expansion and also to ensure that sympathetic land use is located close to them. One of the important inclusion in policy has been that of EHO12 (d) which seeks the removal of obstacles for species movement.

There are a number of species for which this is of particular importance. These are expanded on below and have been emphasised by both NPWS and IFI repeatedly over the years including this plan.

5.3.5.1 Lamprey Species

There are three species of Lamprey to consider, as part of the Qualifying interests of the Lower River Shannon SAC site, Sea Lamprey, River Lamprey and Brook Lamprey. Of the three species brook lamprey spend all of their lives in freshwater. Unlike the other two species, they do not feed as adults. Sea Lamprey enter estuaries from the sea and migrate upstream generally between late March and June to spawn in the freshwater reaches of the River Shannon catchment. Water temperature is a factor in this migration. The Mulkear River upstream from the city is an important site, with known spawning sites in stretches of that river bordering the National Technology Park in Castletroy and further upstream in Annacotty village (see also Section 6 of this report). The ammocoetes (lamprey larvae) live in marginal silty areas, often in riverbanks, where they gradually develop over several years (Kunz and Costello, 1999). They then begin to metamorphose to adults, starting in late July. This takes about 3 months after which they migrate to the lower estuary in about October. The upstream migration of River Lamprey is less well defined than Sea Lamprey and is thought to commence in late summer and continue through the winter months. The spawning season occurs in spring with two peaks in migration occurring, first in the August-November period and then a second in spring (March-April). Following metamorphosis, young adults begin their downstream migration over an extended period from late winter to early summer. Downstream migration by both Sea Lamprey and River Lamprey is mostly nocturnal. In summary, the River Shannon is an important migration route for both river and sea lamprey, and the upper freshwater reaches are important spawning sites. The freshwater reaches of the River Shannon and freshwater rivers in the plan area are home to the River Lamprey. Again, the maintenance of water quality and avoidance of direct encroachment on the rivers are important factors in the conservation of this species.

5.3.5.2 European Eel

The European eel, once common in all-Irish freshwaters, to which it could gain access, has undergone a dramatic decline. Though not listed amongst the qualifying interests of the SAC site, its conservation status merits inclusion. It spawns in the Gulf of Mexico and returns to freshwaters. It is this recruitment from the spawning grounds that has declined dramatically

with numbers running at less than 7% of those that made the journey prior to the 1980s. Some suggested causes of this decline include climate change and shift in ocean currents, overfishing, habitat loss in the freshwater range, mortality in hydropower plants, disease and parasites, and chemical contamination affecting reproductive ability (King et al 2011, pp. 39-15 40). Though long-lived, the lack of returning eels from the spawning grounds will have long term implications for the eel population as a whole. Many of the issues that affect the lamprey species, mentioned previously, also affect the eel. It is important that no obstacles to migration, or declines in water quality result from the policies in the plan.

3.3.5.3 Otters

These mammals are known to range widely throughout the River Shannon catchment and it is likely that they use all of the rivers within the plan area. They can frequently use manmade structures as resting areas. One anecdotal report from the Fire Service of Limerick City and County Council indicates that otters use the mooring pontoon for one of their rescue boats at Shannon Bridge, within the city (Fire Service, personal communication). In submissions and conversations, the NPWS have indicated concerns with otters. Otter territories are linear (Fairley, 2001) and as such can be expected along any of the water courses of the plan area. The territories can cover considerable lengths of river. They can often use a number of resting locations (holts) along a stretch of river so for this reason an undisturbed river bank area is important. EHO18 which seeks to maintain river bank vegetation along undeveloped sections of water courses and a 20m riparian buffer zone would be useful in maintaining otter habitat.



Figure 4.9: Otter (*Lutra lutra*) Source: Biodiversity.ie

3.3.5.4 Salmon

Similar to Lamprey, the Atlantic salmon uses the River Shannon as a migratory route to spawning areas upstream. The nearest spawning sites to the city area is upstream at Castleconnell, Doonass, Plassey and Corbally. Given the main river channels importance as a route to spawning for salmon, it is important to ensure that any of the plan policies do not

permit encroachment into the channel itself or to allow any obstruction to fish passage to take place.

For species such as the European eel and salmonids which are the subject of serious conservation concern, the removal of instream obstacles is vital to secure their future. Closely related to this is the inclusion of policy content which calls for permeability in new infrastructural development which would allow species movement and prevent linear infrastructure, in particular, being a barrier to species movement on a landscape scale. Both the DAU and IFI submissions stressed the necessity of removal of barriers to species movement, particularly in relation to salmonids and the European Eel. Both of these aims have been achieved with the inclusion of EHO12(d)

5.3.6 Chapter 6 - Sustainable Transport

This chapter intends to promote the use of more sustainable transport modes than use of the private car. However it does also recognise the need to ensure that existing infrastructure is safeguarded and where necessary further developed. It should be remembered for instance that when the transition to electric or sustainably (with sustainably powered recharging facilities) powered vehicles takes place that an adequate transport network will have to exist to permit ease of movement.

Table 4.4: Sustainable Transport Policies and Objectives

Sustainable Mobility and Transport Policies and Objectives	Comments	Effects	Recommends
Integration of transport and Land use policies, Sustainable Mobility and Transport Policies TR P1 - P4	Delivery of sustainable transport linkages, integration of land use and transport policies. Promotes national transport policy. Emphasises sustainable transport links in line with NPF/RSES.	+ Integration of land use and transport policies should result in increased transport efficiencies and less emissions.	None, Chapter refers to Limerick Climate Change Adaptation Strategy 2019-25.
Sustainable Mobility and Transport Objectives TR 01 - 08	Supports delivery of specific projects such as the M20 to Cork, the Shannon to Foynes N69 upgrade	=	None, these policies do stress the need for adequate planning and environmental assessment.

	and link roads such as the LNDR.		
Sustainable Travel and Transport Policy TRP5	Work with relevant agencies to promote climate friendly solutions in transport infrastructure	+	None, delivering on climate issues does require a multi-agency response.
Sustainable Mobility and Transport Objectives TR 09 – O24	Deals with sustainable mobility, in particular issues within city and county. Also deals with climate proofed infrastructure. Objectives deal with modal split and promote walking and cycling and associated infrastructure. Promotes public transport, bus rail and their infrastructure and Park and Ride Facilities. TR022 protects the Limerick Foynes rail link for future use, which is important from point of view of linkages with the port.	=	TR 09 refers to the need to climate proof transport.
Car Clubs, Electric Vehicles and Micro-Mobility Objectives TR O25 – O27	Promotes e-vehicles, car sharing and micro mobility.	+	Could reduce traffic levels and carbon emissions, while reducing wildlife mortality caused by traffic movements.
Mobility Management and Active Travel Objectives TR O28 - O30	Encourages mobility planning and behavioural change towards active travel modes.	+	See above.
Strategic Connections Objectives TR O31 TR032	Supports and Shannon Airports and Foynes Port	-	Requires careful assessment and mitigation.

Road Safety and Carrying capacity of the road network. TRP7 TRP 8 Refers specifically to National Roads.	Tries to “ future proof” the network By maintaining capacity and standards and also seeks improvement to benefit road safety	+	None, maintaining capacity and efficiency will help reduce grid lock and reduce need for new infrastructure.
Strategic Regional Roads TRP9	Protect capacity in regional road network	+	None, these are important links within the county and maintaining their efficiency would reduce the need for new infrastructure.
Road Infrastructure Objectives TR O33 - O36	Safeguards capacity of regional and national roads and promotes improvement works.	-	Requires careful assessment and mitigation.
Road Infrastructure Objectives TR O37- O41	Supports link road provision upgrade of roads and streets and safeguard regional road capacity. Improved access to zoned lands on Dock Road (TRO41)	-	Requires careful assessment and mitigation.
Sustainable Transport In Rural Areas TRP10 TRP11	Support sustainable transport provision in rural areas TRP11 supports Rural Link Network.	+	None, supporting public transport initiatives reduces number of individual car journeys.
Traffic Management Objectives TR 042- O48	Deals with city traffic management, road and directional signage, car and cycle parking.	=	None, Provision of cycle facilities may encourage cycling.
Noise Objectives TR 049 - O50	Deals with traffic noise and mitigation for noise sensitive developments.	+	None

Comments: The need for adequate environmental, appropriate and ecological assessment for all transport infrastructure, including greenways and large-scale transport infrastructure projects should be emphasised.

The draft Plan seeks to encourage more sustainable forms of transport such as public transport, electric vehicles and walking and cycling should serve to reduce individual journeys by private transport, which would help reduce carbon emission. The eventual publication of the Limerick Shannon Metropolitan Area Transport Strategy would be a step forward in this regard.

A reference to the need to include permeability in such structures for wildlife has been made in Chapter 5 so that they will not act as barriers to wildlife in the wider countryside (Objective EH05); this is an important consideration in the draft development plan from an ecological perspective.

The need for adequate environmental and ecological assessment for all transport infrastructure, including greenways, including appropriate assessment of large scale transport infrastructure projects such as Foynes Port and Shannon Airport (outside the Councils functional area) should be emphasised.

5.3.7 Chapter 7 - Infrastructure

This chapter sets out the Development Plan policies in relation to infrastructure in Limerick. There has been substantial updates to these policies since the last Development Plans as a single Plan now covers both the city and county areas.

Table 4.5: Infrastructure Policies and Objectives

Infrastructure Policy/Objectives	Comments	Effects	Recommendations
Infrastructure Policy IN P1	Secure investment in necessary infrastructure.	=	This should be accompanied by adequate assessment from the earliest stages.
Climate Action in Infrastructure Planning Objective IN 01	Requires infrastructure to avoid areas that might flood or be subject to erosion, or locations where climate risk might arise.	+	None, objectives ensure infrastructure projects avoid sensitive habitats where possible.
Digital Connectivity Objective IN 02	Promotes digitalisation of Limerick's communities which could	+ Could help reduce travel and hence wildlife mortality as	None

	help working from home.	traffic is often cited as being an important cause of wildlife mortality, particularly for smaller mammals, birds and otters.	
Broadband Objective IN O3	Promotes efficient broadband network for Limerick	+	None
Telecommunications Objective IN O4	Supports the roll out of efficient tele-communications , but also supports shared infrastructure.	+	None
Water Services Objective IN O5	Emphasis support for Irish water to ensure adequate service provision throughout Limerick	=	None
Public Water Supply Objective IN O6	IO6(b) Restricts development within zones of contribution	+	None
Private Water Schemes Objective IN O7	Includes protection of ground water supply and requires connection to the public supply where connections are available.	+	None
Public Waste Water Treatment Objective	IO8(c) stresses the need to	+	None

IN O8	separate foul and storm water to avoid hydraulic overloading.		
Private Waste Water Treatment Objective IN O9	Refers to latest EPA Code of Practice for Domestic Waste Water Systems issued in March 2021	+	None
Surface Water and SuDS Objective IN O10	Refers to National River Basin Management Plan for Ireland 2018-2021 (DHPLG) and achieving targets through SuDs and water management measures.	+	None
Energy Networks Objective IN O11	Requires best practice in siting in terms of landscape protection. Supports gas networks in achieving carbon neutrality. Reserves corridors for energy and promotes shared services.	=	None
Energy Interconnector Objective IN O12	Includes reference to international energy connections.	=	None, in the future it may allow transfer of renewable energy internationally or allow Ireland to avail of such energy from abroad.
Electricity Grid Development Objective	Supports Eirgrid's	=	None

IN O 13	Development Strategy and injection of renewables into a developed grid.		
Gas Development Objective IN O14	Supports GNI's Network Development Plan 2018	=	None
Waste Management and the Circular Economy Objective IN O15	Promotes the circular economy and re-use of material and waste minimisation.	+	None
Waste Infrastructure Objective IN O16	Ensures waste infrastructure is appropriately located, adequate provision of waste management facilities, recycling centres etc.	+	None, promotes access to these facilities and hence encourages recycling.
Sludge Management Objective IN O17	Encourages sustainable use of sludge.	+	None
Agricultural Waste Objective IN O18	Encourages sustainable use of agricultural waste. References GAP regulations.	+	None, more related to good Agricultural Practice regulations than planning.
Construction and Demolition Waste Objective IN O19	Encourages re-use of material in the circular economy. Requires a refurbishment/ demolition asbestos survey with details of disposal.	+	None

Landfills Objective IN O20	Addresses restoration of historical landfills and re-development of older landfills as public amenities.	+	None
Hazardous Waste Objective IN O21	Implements EPA's National Hazardous Waste Management Plan	+	None
Seveso Sites Objective IN O22	Inform HSA on any applications close to identified sites and have regard to potential impacts on public health and safety.	=	None

Comments: This chapter cross-references Chapter 8 Climate Action. This is important as climate action has been identified as a cross cutting theme in the draft Limerick Development Plan. A clear reference to the need for adequate ecological and appropriate assessment of infrastructure projects would be desirable, though this has been covered in Chapter 5 under Policy EH P1 (Protection of Natural Heritage and Bio-diversity) and Objective EH O1 (Designated Sites and Habitats Directive) and Objective EH 03 (Ecological Impact Assessment).

3.3.8 Chapter 8 Climate Action and Flooding and Transition to a Low Carbon Economy

This is a wide ranging chapter dealing with aspects of climate adaptation such as flood management and also mitigation such as renewable energy production and carbon storage. Importantly the chapter also recognises the need for adequate ecological assessment of these proposals.

Table 4.6: Climate Action and Flooding Policies and Objectives

Climate Action, Flooding and Low Carbon Economy Policies and Objectives	Comments	Effects	Recommendations
Climate Action Policy CAF P1	CA P1 places climate action at the centre of plan policies.	+ See Chapter 5, where biodiversity climate plan is acknowledged.	None
Climate Action Objectives CAF 01 - O12	CA01 from the outset emphasises national guidance on climate change. Climate proofing and energy efficiency is emphasised in new developments (CA 04 and CA 05). Promotes achieving nature based solution and climate resilience (CA09 and CA10). CA O10 promotes woodland creation, forestry and preservation of bogs.	+ It is acknowledged in CAF 02 that cooperation with service providers and entities will be required. CAF O12 mentions urban greening.	None, preservation of bogs was highlighted by NPWS/DAU submission to the pre-draft first issues paper public consultation.
City XChange project CAF013	Promotes climate resilience through promotion of lighthouse city initiative and technical	+	None

	solutions to climate change.		
Energy Generation CAF014	Supports renewable energy and connection to gas network.	+	Will require adequate assessment
Localised energy Production CAF015	Supports localised and carbon friendly energy production	+	Will require adequate assessment
Circular economy CAF016	Encourages reuse reduce and recycling of resources.	+	None
Low energy building materials CAF017	Encourages use of low energy building materials.	+	None
Energy and Emissions Balance CAF018	Supports energy and Emissions report.	+	None
Decarbonising Zones CAF 019	Supports areas devoted to climate mitigation	+	None
Flood Risk Management Strategic Policy CAF P5	Ensures compliance with Section 28 guidance – The Planning System and Flood Risk Management Guidelines for Planning Authorities, 2009. Protects Flood Zones A and B from inappropriate development and directs land uses to	+	None, this would enable such areas to function as more natural flood plains.

	appropriate lands.		
Flood Risk Assessments CAF020	Requires site specific FRA	+	None
Identified Flood Risk CAF021	Ensures that no development takes place on lands mentioned as being prone to flood risk.	+	None
Cooperation with other Agencies CAF022	Recognises necessity of working with OPW and other agencies.	+	None
Flood relief Schemes. CAF 023	Supports delivery of flood relief schemes	-	Potential for ecological damage requires careful assessment.
Minor Flood works and Coastal schemes. CAF 024	Supports the OPW in delivering these schemes.	-	Potential for ecological damage requires careful assessment
Strategic Flood Risk assessment CAF025	Will adopt the findings of the SFRA commissioned by the council to inform the plan.	+	None, would result in de-zoning.
Renewable Energy Policies CAF06	Supports renewable energy, both on shore and offshore, community based energy and renewable energy technologies.	+ Requires adequate Ecological assessment.	None
Green Digital Basin CAF07	Supports the development of Digital green basin, technological hub which would be	-	Requires assessment as to effects and energy usage.

	located in Limerick		
Renewable Energy Objectives CAF P8-P9	Encourages development of new renewable technologies, community energy projects, and carbon capture. The need for adequate assessment is emphasised	+ Requires adequate ecological assessment and the need to avoid damage is set out in P8.	None
Bio-energy CAF 026	Supports bio-energy at suitable locations	+ Requires adequate ecological assessment and the need to avoid damage is set out in P8	None
Renewable Energy Production. CAF027	Supports different technologies, hydro, Tidal geothermal and wind	+ Requires adequate ecological assessment and the need to avoid damage is set out in P8	None
Assessment of Renewable Energy Production CAF028, 29 , 30 , 31	Wind energy to be assessed in accordance with latest guidance, its location to be determined by wind energy map 8.1 and on shore facilities for off shore wind to be developed. (CAF031)	+ Requires adequate ecological assessment and the need to avoid damage	None

Off shore wind CAF032	Supports the development of offshore wind	+ Requires adequate ecological assessment and the need to avoid damage	
Foynes Port CAF033	Supports development of Foynes as off shore wind logistics/support base.	- Requires adequate ecological assessment and the need to avoid damage	None
Wind Energy Development on sloping sites CAF034	Requires assessment of slippage	+ Requires adequate ecological assessment and the need to avoid damage	None, this could avoid future peat slippage
Community based energy initiatives CAF035	Supports Community based energy production initiatives	+	None
Geothermal CAF 036	Facilitates geothermal energy	+	None
Emerging Technologies CAF 037	Facilities emerging technologies such as Hydrogen electrolysis.	+	None
Carbon Capture CAF038	Supports investment in such technologies	+	None
Energy Storage CAF039	Promotes the use of storage systems such as battery systems	+ Requires adequate ecological assessment and the need	None

		to avoid damage	
Community and Renewable energy CAF040	Promotes and supports community renewables	+ Requires adequate ecological assessment and the need to avoid damage	None

Comment: Chapter 8 is a wide ranging chapter dealing with aspects of climate adaptation such as flood management and mitigation including renewable energy production and carbon storage. The chapter also recognises the need for adequate ecological assessment of development proposals for renewable energy. The text cross references climate action topics in other chapters of the Plan. Objective CAF034 is an important one in requiring adequate assessment of peatland sites in order to prevent possible slippage events associated with their development.

3.3.9 Chapter 9 Sustainable Communities and Social Infrastructure

This chapter emphasises the needs for adequate community facilities that are adaptable to all elements of society at whatever age. It recognises the contribution of culture sports and arts and its policies recommend their inclusion in new developments. It also mentions the significance of existing initiatives such as regeneration and acknowledges the benefits that it has brought to Limerick.

Table 4.7 Social Infrastructure Policies and Objectives

Sustainable Communities and Social Infrastructure Policies and Objectives	Comments	Effects	Recommendations
Sustainable Communities and Social Infrastructure Policies SCSi P1 – P3	These policies aim to improve provision and location of community facilitates and provide for adequate social infrastructure to enable	+ Ensures delivery of accessible facilities at local level close to where they are needed.	None

	<p>sustainable communities. Policies ensure facilities are adaptable and include social elements, arts and sports. Supports development of rural communities and facilities.</p>		
<p>Sustainable Communities and Social Infrastructure Objectives SCSi 01-06</p>	<p>Promote safe, accessible open space, new developments will incorporate sufficient facilities that can provide shared services. Seeks development of a strategy on community facilities identifying where new/improved infrastructure should be provided. SCS104 provides the for the 10 minute neighborhood which aims to provide for local need within this radius.</p>	<p>+ Caters for broad range of social and cultural needs within communities.</p>	<p>None</p>
<p>Rural Community Development SCSP4.</p>	<p>Supports national rural Development policies.</p>	<p>+</p>	<p>None</p>
<p>Smart Towns and Villages SCSi07</p>	<p>Promotes innovation to solve problems in rural towns.</p>	<p>+</p>	<p>None</p>

Place Making Objectives SCSi 08	Objective for place making and to establish a hierarchy of well designed open space, with natural settings and quiet areas	+	None
Education Facilities Objectives SCSi 09 – O12	To reserve lands to facilitate educational facilities, ensure sufficient school places, support the provision of schools in tandem with new residential development, the multi-use of school facilities and support for the higher education institutes.	=	None
Childcare Facilities Objectives SCSi O13	Encourage facilities as an integral part of residential development, in a timely manner which would help local economic activity.	+ Increases access to these facilities.	None
Health and respite Care Objectives SCSi O14 - O15	Encourage development and expansion of health care facilities in suitable locations, within communities. Facilitate the ambulance and emergency services.	=	None

Age Friendly Strategy Objective SCSI O16	Support and facilitate the implementation of Age Friendly Limerick Strategy 2016-2020 or any update thereto.	=	None
Active City Initiative Objective SCSI O17	Part of a wider global initiative on physical activity	=	None
Sports and Recreation Objectives SCSI O18 - O23	Protect lands zoned for open space, sports grounds/ facilities. Improve open space and city amenity areas including play facilities. Provide new facilities (O21) Support the Limerick Recreation Strategy.	+ Provision of open space has environmental as well as social benefits.	None
Night Time Strategy SCSIO24	Prepare strategy for the night time economy.	+ could lead to an integrated approach to the night time economy which also minimise nuisance for local residents.	None
Sports Plan SCSIO25	Supports Limerick Sports Plan	+	None
Play Areas Policy SCSI P5, Objective SCSI O26	Support the Play Policy. Address play and recreation needs of children and young people, support local communities in establishing play facilities and	+ Reduces the need to travel for such facilities. Supports nature based play which increases natural features such as trees in play areas.	None

	encourage nature based play. SCSI026 also includes those with disability.		
Trails and Green Routes and water sports Objectives SCSI O27 - O29	Supports amenity walkways but draws attention to the need for adequate ecological assessment. SCSI O28 encourages the development of water based sports.	-- Increased public access and facilities can effect local ecology.	Adequate assessment and mitigation is required for such amenities.
Arts and Culture Objectives SCSI O30 - O34	Support the objectives of Limerick Cultural Strategy 2016-2030 and arts and cultural events, hubs/ clusters and venues. Aims to develop an Art Strategy. Supports Limerick Museum	=	None
Library Service Objective SCSI O35-	Supports expansion of library services	=	None
Burial Grounds and Crematoria Objective SCSI O36	To provide and facilitate the provision and management of burial grounds or extensions to existing burial grounds, in cooperation with local communities, at appropriate locations.	=	None
Community Gardens and	Facilitate development of community	=	Link with Chapter 8 Climate action in relation to local food production.

Allotments Objective SCSI O37	gardens and allotments.		
Public Rights of Way Objective SCSI O38	Encourage preservation of rights of way	Increased public access can have adverse effects on local ecology.	None

Comments: There is a strong emphasis on the provision of appropriate social infrastructure throughout Limerick in this chapter, which should help with quality place making mentioned in the settlement strategy in chapter 3. The provision of appropriate community, open space and cultural facilities close to and within the communities they serve would have undoubted benefits for human health and well-being and reduce the need to travel to access them.

The provision of walkways and trails and promotion of water sports may have adverse ecological consequences and require careful assessment, management and mitigation, particularly in sensitive areas. For those routes that lie outside or at a distance from Natura 2000 sites, should be carefully assessed for their ecological effects using Ecological Impact Assessment techniques. For those close to or within Natura 2000 site networks the provision of Article 6 of the Habitats Directive are to apply.

5.3.10 Chapter 10 Compact Growth and Revitalisation

This chapter emphasises the need to strengthen the urban areas of the plan through the application of principles such as infill, concentration of development, and the use of brown field sites. All of these are basic planning principles, and are also the policy approach put forward on both the National Planning Framework and the Regional Spatial and Economic Strategy. It takes into account key locations within the city and puts forward policy responses and guidance for their development. One document that will be an important part of this within the city areas will be that of the Building Height Strategy. This offers guidance to potential developers of higher rise buildings within zoned areas in the city. As noted in the Environmental Report this can offer opportunities for wildlife should provision be made for nesting and roosting sites at the design stages of these buildings. From the point of view of the Appropriate Assessment of the plan, the Building Height Strategy applies only to zoned areas within the metropolitan area and as such is on previously modified environments. There has been no reports of bird collisions with existing higher rise buildings along the Shannon in Limerick. Higher rise buildings generally contribute to higher density development, which would reduce demands for more dispersed forms of development and in this regard such buildings, would be a very useful alternative to more dispersed less dense development types.

Other documents that will exert an influence within zoned areas in particular are the Retail Strategy, in preparation, and Housing Strategy also in preparation, both of which will exert and influence for the most part in zoned areas of the plan. It should be remembered that Chapter 12 Land use zoning strategy has as one of its zoning objectives, a policy of not encroaching on Natura 2000 sites.

Table 4.8 Compact settlement Policies and Objectives

Compact Growth and Revitalisation Policies and Objectives	Comments	Effects	Recommendations
Compact Growth and Revitalisation Policy CGR P1	Encourages compact growth through revitalisation, the integration of land use and transport, higher densities, mixed use and consolidation of development through the use of infill and brownfield sites.	+ In the longer term, by encouraging the better use of existing zoned and brownfield sites, it would prevent urban sprawl. It also refers to rural settlements which would help prevent sprawl in rural areas.	None
Place-making, Universal Design & Public Realm Objective CGR O1	Ensure highest quality design and public realm with access for all	+	None, applies to urban areas but has the potential to include natural features, trees, grassed areas, in public areas.
Building Heights Objective CGR O2	Ensure tall buildings comply with the Building Height Strategy accompanying the Plan.	=	None, CGR05 mentioned the need for adequate assessment effects.
Urban Lands and Compact Growth Objective CGR O3	Clearly reflects NPF and RSES settlement targets with 50% of new homes in the city, and 30% within existing settlements. Promotes compact growth and high quality design.	+ See above	None

Active Land Management Objective CGR 04	Supports use of derelict, vacant and underutilised sites. Aims to establish a data base of brown field sites to facilitate compact growth.	+ Reduces chances of urban sprawl.	None
Vacant site Levy Objective CGR 04 Derelict sites Objective CGR 05 Unfinished estates Objective CGR 06	The vacant site register and derelict site register are active land measures to encourage development of sites and address dereliction and decay.	+ Reduces urban sprawl and improves the urban environment.	None
Unfinished estates CGR07	Seeks to work with other to complete these developments	+ Would make maximum use of existing resources.	None
Revitalisation Objective CGR 08	Seeks to revitalise Limerick's urban areas both within and outside the city, using investment from sources such as URDF, Rural Regeneration and Towns and Villages Renewal scheme.	=	None
Limerick Laneways Objective LL01	Encourages reuse of vacant buildings and improved linkages and public realm in the city.	=	Would require adequate urban wildlife assessments.
Cleeves Riverside Campus Objectives CRC 01	Encourages development of the former Cleeves factory brownfield site	=	Would require adequate urban wildlife assessments and AA screening.
UL City Campus Objectives ULCC 01	Seeks to redevelop the former Dunnes store site at Honan's Quay/Sarsfield Bridge as a UL City Campus	=	Would require adequate urban wildlife assessments.
Arthur's Quay Objectives AQ 01	Facilitates the redevelopment of the Arthur's Quay area in the city centre for a mix	=	Would require adequate urban wildlife assessments.

	of uses and public realm works.		
Land Development Agency Objective LDA 01	Work with the Land Development Agency to develop larger land banks	+	None, would require adequate urban ecological assessments, but would ensure efficient development of centralised urban lands.
Colbert Station Quarter Objectives CSQ 01	Seeks to redevelop the Colbert station area of the city as a new mixed use urban quarter	=	Would require adequate urban ecological assessments.
Ellen Street carpark Objectives ES 01	Seeks to create a mixed use city centre development on an underutilised site	=	Would require adequate urban ecological assessments.
Thomond Park Objectives TP 01	Seeks to develop mixed use employment, tourist and leisure facilities.	=	Would require adequate urban ecological assessments.
The Bays, Moyross Objectives BM 01	Seeks to develop mixed employment in the Regeneration area of Moyross.	=	Would require adequate urban ecological assessments.
Mungret Masterplan Objectives MM 01	Develop a new neighbourhood with high quality residential and community facilities.	=	Would require adequate urban ecological assessments. Would need to consider Loughmore Commons PNHA and potential hydrological intakes to the Shannon SAC site.
Parkway Valley Objectives PV 01	Requires master plan for this brownfield site, which will govern building height, layout and individual design features.	= Contributes to coherent development patterns which make maximum use of brownfield and infill sites.	Would require adequate urban ecological assessments and would need to take into account and potential hydrological

			intakes to the Shannon SAC site.
Groody Valley Objectives GV 01	Facilitates higher quality development on the northern part of the valley green wedge with pedestrian and cyclist connectivity.	+	Would require adequate urban ecological assessments and would need to take into account and potential hydrological intakes to the Shannon SAC site.
Towlerton Objectives TN 01	Seeks to develop a masterplan for a mixed use development adjoining the Groody Valley green wedge.	-	Would require adequate urban ecological assessments and would need to take into account and potential hydrological intakes to the Shannon SAC site.
Regeneration Strategic Policy RA P1	Supports the Limerick Regeneration Framework Implementation Plan	=	None
Regeneration Areas Opportunity Areas Objective RA 01	Seeks to integrate regeneration communities into mainstream social, economic and community life of the city through regeneration	+ Benefits to human health though increased opportunities.	Would require adequate urban ecological assessments.
Social Framework Strategy Objectives SF 01	The social framework is part of the regeneration process and seeks to ensure that people can access social and employment opportunities.	+ See above.	None
Economic Framework Strategy Objectives EF 01	Promotes training and access to jobs and employment.	=	None

Physical Framework Strategy Objectives PF 01	Promotes good design, sustainable movement and conservation of the Natural environment.	+	None
Moyross Objectives M O1	Promotes environmental improvements and linkages in the area. Includes protection for landscape and Natura 200 sites. Promotes opportunities for education, employment, recreation and leisure.	+	None, includes requirements for protection of the Natura 2000 sites of the area.
St. Mary's Park & King's Island Objectives MK O1	Promotes environmental improvements and linkages in the area, supports CFRAM objectives. Promotes opportunities for education, employment, recreation and leisure.	+	None, includes requirements for adequate ecological assessment.
Ballinacurra Weston Objectives BW O1	Seeks to improve the permeability of the area. Promotes opportunities for education, employment, recreation and leisure.	+ Enables improved pedestrian and cycling access.	None
Southill Objectives OK O1	Promotes permeability and employment in the area and new pedestrian routes. Promotes opportunities for education, employment, recreation and leisure.	+ See above	None
Kincora and Carew Parks Objectives KC O1	Promotes permeability, employment and training opportunities. Protection of the landscape and provision of a community garden.	+	None

Revitalisation of Towns and Villages Objectives CGR P2	Promotes the revitalisation of Limerick and its towns and villages	+ A core principle of the NPF and RSES, which would help sustain Limerick's towns and villages.	None, consistent with NPF and RSES.
Town and Village Revitalisation Objectives CGR O9	Promotes and supports renewal and revitalisation to enhance vitality including the reuse of vacant premises	+	None

Comments: While consolidation of urban settlements would in the long term prevent dispersed development and urban sprawl and associated pressures on the natural environment, there is a need to ensure that adequate ecological assessment is carried out for such development.

The policies of the NPF and the RSES have been carried through to the Plan with adequate recognition for other initiatives in Limerick such as the Regeneration Implementation Frameworks, which predated the plan.

For development with potential hydrological links to the Shannon such as the Parkway valley, Towlerton and the Groody an assessment of such links should form part of any planning application. For the Cleeves site located in close proximity to the Lower River Shannon SAC site, any assessment should examine the Qualifying Interests of both the SAC and the SPA.

5.3.11 Chapter 11 Development Management Standards

In considering the content of the Development Management Standards (DMS), it is important to note that this chapter does not contain policies and objectives. However, the chapter includes standards required for developments which should be addressed in all planning applications in Limerick. The chapter offers guidance at a project level rather than at the strategic level of the current Strategic Environmental Assessment/ Appropriate Assessment process. This does not mean that Appropriate Assessment will not be necessary at planning application stage and Ecological Impact Assessment (EclA) as set out in policy EH03 in Chapter 5 may also be required. Environmental Impact Assessment may also be required. A useful step in establishing whether or not EIA is required is looking at the Planning Regulations where the thresholds for individual projects are laid down. The chapter presents the best way to integrate environmental concerns into individual planning applications and includes a section on the importance of Appropriate Assessment (Article 6 Assessments) in Section

11.12.1. Section 11.12.1.2 addresses Ecological Impact Assessment which was raised by the NPWS/DAU submission in the pre-draft stage of the Plan.

One of the major issues to emerge in Limerick in relation to Natura 2000 sites over the last five years, for water based sites in particular, was that of hydrological connectivity to such sites. One of the most recent examples relates to a Strategic Housing Development (SHD) in the city. An Bord Pleanála is the competent body in relation to SHD applications. The Bord determined the possibility of a hydrological link through groundwater to the Lower River Shannon SAC site, approximately two kilometres away. This has led to a new emphasis on ground water within the development management section of planning and the possibility of effects of various kinds of development on its quality. This brings into focus the efficiency of treatment systems and the need for enforcement and monitoring of these and ground water quality, a point which was raised in pre-draft submissions. It should also be noted that the new EPA guidance on treatment systems for single houses 2021 Code of Practice for Domestic Waste Water Treatment Systems has been included in the plan. This replaces the previous EPA 2009 guidance.

Another important ecological issue that is dealt with in Chapter 11 is the value of trees and hedgerows, particularly as ecological corridors as set out in Section 11.3.9. In addition, Section 11.3.6 addresses the need for ecological corridors linking areas of open space. Table DM 1 Open Space Hierarchy within Residential Estates requires bio-diversity areas within local parks.

Section 11.3.8 entitled Landscaping notes the contribution to bio-diversity that suitable landscaping can make and also links the importance of landscaping to pollinator friendly actions. It is worth quoting in full:

The landscape design rationale should also address the following:

- Biodiversity (including pollinator friendly approach): Biodiversity Open spaces, especially large ones, can provide for a range of natural habitats and can facilitate the preservation and enhancement of flora and fauna. All proposals should be pollinator friendly, providing sufficient year-round diverse flowering plants to address the decline of pollinators. They should generally accord with the planting and maintenance approach set out in the Pollinator Friendly Planting Code of the All-Ireland Pollinator Plan, which is inclusive of best practise in the use of pesticides, herbicides, fungicides, and growth regulators.

As mentioned earlier in the environmental approach, a coherent response towards bio-diversity outside designated sites can help with species movement and contribute to fulfilling the requirements of Article 10 of the Habitats Directive, facilitating species movement between areas of habitat value and the Natura 2000 site network itself.

On a more strategic level, it is anticipated that the new policies, put forward in previous chapters, favouring compact settlement and development patterns, will themselves contribute to bio-diversity conservation as they will encourage development of brownfield and infill sites rather than green field development on the edges of settlements. On a strategic level too it is important to link the Appropriate Assessment process with that of the SEA process. Table 4.9 below contains the Environmental Protection Objectives taken from the Environmental Report which is linked with the content of Chapter 11. From this it can be seen that many of the concerns of both processes are similar. This is also reflected in the monitoring section of both the Environmental Report and Natura Impact statement.

Table 4.9: Development Management Standards and Environmental Protection Objectives

Themes and Objectives	Content
Biodiversity, Flora and Fauna/Built and Archaeological Heritage	Content
B1: Protect, conserve and enhance habitats, species and areas of regional and local importance, including aquatic habitats and species and promote the sustainable management of ecological networks. See also W3 below.	Section 11.3.6 requires adequate open space provision and linkages with wildlife habitats.
B2: Ensure the continued conservation of the Natura 2000 sites, Natural Heritage and Proposed Natural Heritage sites. These sites are important, both as an amenity and natural history resource.	The importance of open space and green areas both to serve as a buffer and to allow expansion of bio-diversity is emphasised. The importance of pollinator friendly planting and the All Ireland Pollinator Plan is also included.
B3: Preservation of the character of the historic built fabric.	The chapter places an emphasis on good quality design which respect to protected structures and their settings.
B4: Preservation of the archaeological heritage.	This is addressed throughout the chapter in relation to both individual housing developments in the wider countryside and larger development such as those associated with the extractive industry.

Population and Human Health	Content
P1: Facilitate a good standard of quality of life for the population of Limerick through ensuring high quality residential, recreational, educational and working environments.	The chapter places an emphasis on high quality development and sets out in detail aspects such as landscaping, design of individual units and the need for adequate amenities.
P2: Provide policy support for the provision of suitable employment and facilities for the local population.	The chapter places an emphasis on high quality environments to attract enterprise and employment opportunities.
Water Resources	Content
W1: Ensure that wastewater infrastructure keeps pace with development proposals.	In particular the need to ensure that the waste water systems correspond to the particular development requirements e.g. seasonal development is emphasised.
W2: Ensure that the requirements of the Water Framework Directive are incorporated into the Plan.	The WFD and new EPA guidance for single houses (March 2021) are referenced.
W3: Ensure that wetland and peatland sites are preserved.	The chapter outlines that constraints will be exercised in areas of ecological interest, including wetlands.
Soils and Geology	Content
GS1: Place an emphasis on the development of brownfield sites rather than greenfield sites in Limerick. By reducing the possible development of greenfield sites this makes a positive contribution to soil conservation. This can also be achieved through the sensitive reuse of existing buildings, reducing the need for new build.	The emphasis throughout the chapter is on the development of brownfield and infill sites and compact growth.
GS2: Protect geological sites within the Plan area.	Sites of “geological or geomorphological importance” in the county area are acknowledged.

Air and Climatic Factors	Content
AQC1: To increase energy efficiency and the proportion of energy generated from renewable sources and where necessary to ensure the sensitive application of energy saving measures to the historic built fabric of Limerick.	Section 11.7.2 addresses renewable energy.
AQC2: To avoid deterioration of air quality in the Plan area.	Section 11.2.1 addresses air quality.
AQC3: To include climate action concerns into the Plan policies.	New developments and changes of use applications are required to include “an assessment of the impacts of climate change on their development and make provision for these impacts - particularly relating to drainage design, waste management, and energy use”.
Cultural Heritage	Content
C1: Protect and conserve features of archaeological heritage and their setting.	Addressed throughout the chapter in relation to both small developments and larger infrastructure projects, such as solar farms, where both archaeological heritage impacts assessments are required. See Section 11.12.2.1
C2: Protect, conserve and promote the sustainable re-use of architectural heritage.	Addressed in Section 11.12.3
Landscape	Content
L1: Protect and conserve the quality, character and distinctiveness of the Limerick landscape both urban and rural.	All development proposals, including tourism related projects must take cognisance of the existing landscape character and quality.
L2: Retain listed views in the county area.	Protected views are addressed in relation to different types of development including electricity, wind, extractive industry etc.
Material Assets	Content
MA1: Maintain sustainable access to assets such as open spaces, water resources and all other physical and social infrastructure.	Open space has been addressed in terms of amenity, both public and private in new residential developments in Table DM6

MA2: Ensure that there is adequate policy support for infrastructural provision in the Plan area.	Section 11.5 addresses the requirements for community facilities.
Compliance with higher tier plans	Content
HTP 1: Ensure compliance with higher tier plans such as the National Planning Framework, the Regional Spatial and Economic Strategy and other guidance that might be issued by the Department.	There is an emphasis on compact growth throughout the chapter with requirements to develop infill and brownfield sites, which are strategic objectives of both the NPF and the RSES.

Comments: The Development Management Standards Chapter is the part of the Plan that offers guidance to those making planning applications within the functional area of the Council. It translates the environmental policies content of the Plan into practical advice for those applicants. In this regard, the overall content of the Plan accurately reflects the content of those policies and the higher tier requirements of the National Planning Framework and the Regional Spatial and Economic Strategy. It places an emphasis on compact growth and offers advice on how to integrate environmental considerations into different scales and types of development. The chapter places a greater emphasis on green infrastructure, open space provision and the integration of climate change considerations.

5.3.12 Chapter 12 Land Use Zoning Strategy

The importance of land use zoning and the important sections for ecology and Natura 2000 sites land use zoning objectives is highlighted below so that readers will be aware of the policies that apply to land use zonings presented in the plan. It is stating the obvious, but this does apply to zoned areas only and in this regard it is important to remember those other strategy documents that were mentioned earlier such as the Retail and Housing Strategies and the Building Height Strategy will operate within zoned areas. They will be subject then to the land use zoning objectives of Section 12.3 of the plan. The objective to protect such sites in the zoning objectives is valuable one to aid both in nature conservation and flood management.

Table 4.10: Land Use Zoning Strategy Objectives

Semi Natural Open Space	<p>Objective: <i>To protect Natura 2000 designated sites, candidate/proposed sites and flood plains in a semi natural open state.</i></p> <p>Purpose: This zoning recognises the importance and need for protection of these areas for wildlife, habitat, flora and fauna and</p>
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	floodwater storage. Within these areas development will be prohibited in order to maintain the integrity of the sites.
Groody Valley Wedge	<p>Objective: <i>To preserve and protect the Groody Valley from development.</i></p> <p>Purpose: To maintain the area's importance in preventing the encroachment of the built up area of Limerick City and to retain its important role as a wildlife corridor and a flood management zone.</p>

In the previous chapter reference has been made to the need to consider hydrological linkages through areas such as the Groody to the Lower River Shannon SAC site. The specific mention of the Groody Green Wedge helps to draw attention to the significance of this area.



Figure 4.10: Groody Green wedge mid picture. The hatched area to the north of the picture is the Lower River Shannon SAC site

The inclusion of the objectives to protect Natura 2000 sites and semi natural open spaces is very useful, particularly where such habitats are coming increasing development pressure, which would be the case on or close to Zoned lands in urban areas. The significance and importance of green space is outlined in the vision for Limerick, the importance of retaining and maintaining this space is critical for the sustainable development of Limerick.

5.3.13 Chapter 13: Implementation and Monitoring

The importance of monitoring and implementation of the plan is crucial, the measurement of impact of policies and objectives will be an important consideration as the plan comes into force.

5.4 The Importance of the River Shannon and Fergus Estuary Special Protection Area

The Special Protection Area has been designated mostly for its internationally important population of wintering wildfowl. The ecology of coastal wildfowl and their use of coastal and near coastal habitats is complex; the following lengthy quote is from The River Shannon & River Fergus Estuaries Special Protection Area (Site Code 4077) Conservation Objectives Supporting Document (NPWS, 2012) and indicates the situation:

“A single wetland site seldom meets all the ecological requirements of a diverse assemblage of waterbirds (Ma et al. 2010). Although some waterbird species will be faithful to specific habitats within the SPA, many will at times use habitats situated within the immediate hinterland of the site or in areas ecologically connected to the SPA. These areas may be used as alternative high tide roosts, as a foraging resource or, be simply flown over, either during migration or on a more frequent basis throughout the non-breeding season as waterbirds move between different areas used (e.g. commuting corridors between feeding and roosting areas).

Reliance on alternative habitats will vary between species and from site to site. Use of alternative habitats is also likely to vary through time, from seasonally through to daily, and different habitats may be used by day and night (Shepherd et al. 2003). Different waterbird species may utilise wetland habitats in different ways. For example, while the majority of wading birds forage across exposed tidal flats, species such as Lapwing and Golden Plover are considered to be ‘terrestrial waders’ typically foraging across grassland and using tidal flats primarily for roosting. When tidal flats are covered at high water, intertidally-foraging waterbirds are excluded and many will move to nearby fields to feed. Terrestrial foraging is also important when environmental factors (e.g. low temperature) reduce the profitability of intertidal foraging (e.g. Zwarts & Wanink, 1996b). Some waterbird species are simply generalists, and make use of a range of habitats, for example the Black-tailed Godwit that forage across intertidal mudflats but also readily use grassland habitats. Other species such as Greenland White-fronted Goose (*Anser albifrons flavirostris*) or Bewick’s Swan (*Cygnus columbianus bewickii*) are herbivores and are therefore reliant on terrestrial areas, often outside of the SPA boundary, and use the wetland site primarily for roosting. Some species switch their habitat preference as food supplies become depleted; an example being Light-bellied Brent Geese that exploit grasslands increasingly when intertidal seagrass and algae become depleted.

The topic of alternative habitat use is also applicable to benthic-foraging seaducks and divers whose foraging distribution is highly influenced by water depth and tidal conditions. Many of these species however (e.g. Great Northern Diver, Common Scoter) exhibit a widespread

coastal distribution during winter utilising shallow nearshore waters to a greater degree at certain times (e.g. storms, driving onshore winds).

Thus the area designated as a SPA can represent a variable portion of the overall range of the listed waterbird species. To this end, data on waterbird use of areas adjacent to or ecologically connected to the SPA are often collected. Indeed for some species a mix of site-related and wider countryside measures are needed to ensure their effective conservation management (Kushlan, 2006). Furthermore, it is recommended that assessments that are examining factors that have the potential to affect the achievement of the site’s conservation objectives should also consider the use of these ‘ex-situ’ habitats, and their significance to the listed bird species”.

Table 4.11: Qualifying Interests of the River Shannon and Fergus Estuary Special Protection Area

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]

Source: www.NPWS.ie

The tidal and mud flat habitats along the estuary are of huge importance as a feeding resource for many of Ireland's coastal birds (Wilson and Carmody , 2009, p.3) . In these locations, there would be flights to and from these areas for feeding purposes. It is not just estuarine habitats

that would be of interest to feeding birds. Wildfowl species including geese and swans would often move inland to feed on agricultural grasslands. Ponds, lakes and wet grasslands inland would also attract birds away from the main river channel. This would mean that bird usage of the area would be both along the shore line and inland. This is reflected in the decision in the Shannon Bird survey to record species up to 500m inland, though of course many progress farther than that. To ensure that any potential wind energy development would not affect bird species moving to either feeding or resting areas inland or along the estuary it is important to recognise this movement and to make decisions on the designation of areas open for wind energy on this basis.

The designation of the area to the north of the roadway along the estuary as not open for wind energy development has the potential to greatly assist in the undisturbed foraging patterns of coastal wildfowl, particularly those that move inland to feed on agricultural grassland or use inland habitats such as ponds or wetlands for feeding or roosting. This area was shown in the last plan, along the estuary, as being open for consideration for wind energy development. One wind energy application was lodged but was unable to satisfy conservation criteria and was subsequently withdrawn. This indicates the difficulty of reconciling wind energy development with conservation concerns in areas close to the estuary. It is for this reason that the area closest to the estuary is now shown as being not open for consideration for wind energy.



Figure 4.11: Showing both SPA and SAC site boundaries in the area of the proposed wind energy extension in West Limerick



Figure 4.12: Whooper Swan Feeding site (Surveyed Winter 2015-2017) Source ROD Aecom 2018

One of the key conservation issues is the use of inland feeding and roosting sites by birds that are part of the qualifying interests of the Special Protection Areas sites.

The Whooper Swan is the example used to indicate the potential of birds ranging inland. While the available information shows it using grassland closer to the city, it indicates the range and potential inland movement that wildfowl are capable of in response to feeding needs. Goose species and other wildfowl species exhibits similar behaviour. Other species such as Lapwing and Curlew, both waders, also move considerable distances inland either to feed or to escape harsh weather on exposed estuarine areas.

Inland grassland and wetland sites are attractive to goose and swan species and other wildfowl and can play an important role in helping to sustain them during wintering periods. The movement of these feeding flocks can be restricted by the presence of wind turbines. The list of birds as qualifying interests in the River Shannon and Fergus Estuaries SPA (Table 4.3) is widely varied with similarly varied flighting, roosting, feeding and dispersal characteristics. This makes predicting their flight paths and usage of inland sites particularly complex. In the absence of such information, it cannot be determined beyond reasonable scientific doubt that the promotion of wind energy in the estuary would have not have a significant adverse impact on the qualifying interests of the SPA. It is for this reason that the area north of the route of proposed Foynes to Limerick Road is shown as unsuitable for wind energy. There is also the white-tailed eagle to consider in that it has been the subject of a re-introduction programme. Three eagles have been killed in turbines strikes in the Cork and Kerry area since 2011. This is an Annex 1 species of the Birds Directive and is of critical conservation concern.

Having regard to the above, it is recommended that the area to the north of the roadway which, in the current plan (2010-2016) is open for consideration is deemed in this draft plan as being unsuitable for wind energy.

6.0 In Combination Effects

As the draft plan is a policy document, it makes sense to consider cumulative effects of plans and policy documents that are in operation at the same time.

Consideration of legacy plans such as the Limerick City Development Plan 2010 – 2016 (as extended), the Limerick County Development Plan 2010 – 2016 (as extended) is the first step in assessing cumulative effects in that prior to this plan there would have been a rather more disjointed approach to the development of city and county. They can now be considered as one development area, which means that there will be consistency of ecological policies across them. This makes sense as Natura 2000 sites do not follow administrative boundaries and policy consistency is important in their conservation.

The LDP review has to be considered with changes to the city area, of which the Limerick and Castletroy, and the Southern Environs will now form part. Due to Limerick’s status as the major city in the Midwest, it is necessary to consider the plan review and its effects at a larger scale. Table 4.12 below shows the main plans and projects ongoing in Limerick and it is these that provide the most immediate back drop to the review. These are the plans and projects that are assessed with in-combination effects in mind.

Table 4.12: In combination effects

Projects and Plans	Comments
Limerick Economic and Spatial Plan 2030	This plan identifies seven key locations in Limerick for re-development, which will complement the SIFP in that the aims of both as they relate to Limerick are similar. Both offer detailed area based suggestions of redevelopment of selected areas.
Regeneration areas	The Limerick Regeneration Framework Implementation Plan envisages one of the largest capital programmes and largest regeneration programme in the State. The Plan includes investment on physical, on social and on economic programmes. From the point of view of population and human health the effects are meant to be beneficial.

<p>Iarnrod Éireann: Redevelopment of Colbert Station and improvements to Limerick and Cork Line (2020)</p>	<p>The upgrading of rail infrastructure will have beneficial effects on the connectivity of the city as a whole and for movement of goods to and from the city. The line to Foynes which runs through part of the LDP area, may be upgraded in the long term but its effects are not anticipated to be significant in that this initial upgrade if it takes place will be for freight rather than passenger traffic. However, it has the potential to be part of a more sustainable transport network for the county as a whole. The improvement of the Limerick to Cork line with removal of level crossings reducing journey times will improve connectivity between Cork and Limerick. Rail improvements are also associated with the M20 road scheme.</p>
<p>Colbert Quarter Development</p>	<p>This is multiagency development led by the Land development agency and combines the lands owned by several state agencies. This is a total of 50ha of lands close to the strategically important rail link from Colbert Station. It is a central location and its development would be key part of revitalising Limerick City. It is intended to be a development with multiple uses but will have a strong residential component.</p> <p>Its location close to the rail link is similar to many ways to that of the Cork SDZ in Monard which is located close to the Cork Dublin line. Unlike Monard however the fact that the lands in question in Limerick are owned by state agencies and within the city boundaries make it far easier to develop.</p>
<p>Shannon Integrated Framework Plan</p>	<p>The SIFP operates throughout the estuary, which means that docklands which in the city area are included as well as locations in Foynes and Askeaton. The SIFP has been viewed as being a model of good practice in the RSES and much valuable ecological survey work has resulted from it.</p>
<p>City Development Plan 2010 and County Development Plan 2010</p>	<p>Since the amalgamation the implementation of the both plans have proceeded in tandem. The draft LDP</p>

	will function across city and county plan areas, which should ensure greater planning policy consistency throughout the new metropolitan area.
Smarter Travel and successor programmes (which was a demonstration project until 2018)	Designed to promote sustainable travel patterns which will promote cycling and pedestrian access throughout the city and plan area.
Limerick Shannon Metropolitan Area Transport Strategy	Outlines a coherent transport strategy for the region. This will mean an emphasis on more efficient transport and an expansion of cycle routes.
Limerick Northern Distributor Road (LNDR) and other large road infrastructure schemes such as the M20 and Foynes to Limerick scheme	<p>The LNDR project to create a by-pass of the city with a route running to the north and the east would reduce the volumes of city traffic with consequent improvements in both traffic flows and the city environment. This would also assist in dealing with traffic flows on a citywide basis and complement the southern ring road.</p> <p>The M20 scheme would improve connectivity between Limerick and Cork which is an object not just of the LDP but also of the RSES. A programme of rail improvement works has been put forward in association with it.</p>
Upgrade of Bunlicky Wastewater Treatment Plant	Communications from Water Services and Irish Water indicate that a programme of works will be ongoing to ensure that capacity keeps pace with demand. This is essential for the future development of the City and plan area. Capacity in infrastructure is of significant importance, as an enabler of growth, to support Limerick's regional importance and has the largest treatment plants in the region which should keep pace with development demands.

6.1 Regeneration areas

The Limerick Regeneration Framework Implementation Plan includes measures for Kings Island, Moyross, Ballinacurra Weston and Southill. These masterplans provide the strategic basis for the implementation of work programmes over a 10 year period. The master plans

are built on three key pillars: Social regeneration, Physical regeneration and Economic regeneration. All elements of the regeneration plans have been subjected to SEA/AA, as they were developed. As they operate within previously zoned areas their ecological effects, subject to ongoing assessment of new variations of their plans is not anticipated to significant.

6.2 Shannon Integrated Framework Plan

This plan is intended to promote the sustainable development of the estuary as a whole and operates in the functional area of Limerick City and County Council, Clare County Council and Kerry County Council. With respect to Limerick City, it called for the zoning of the dockland area for development purposes. Much of the area of the SIFP is outside the LDP boundary, but would have a positive effect in creating employment for its residents. However, the underlying tenet of the SIFP is to promote development of the estuary as a whole. Any increased economic activity is bound to benefit the docks area and complement employment generation in the city. The Docklands for instance had been designated as a Strategic Employment Location in the existing City Development Plan (2010) and is described as an “under-utilised asset”. This had been the subject of assessment when the city plan was varied to include it as it related to previously developed dock land areas it was not considered that there would be significant effects.

6.3 Limerick Economic and Spatial Plan 2030

This plan identifies seven key locations in Limerick for re-development, which will complement the SIFP in that the aims of both as they relate to Limerick are similar. Both offer detailed area based suggestions of redevelopment of selected areas.

6.4 City Development Plan and County Development Plans (as extended)

The new LDP will be take the place of both the older City and County Plans which will take in the larger metropolitan area of Limerick City and environs and Limerick County.

6.5 Smarter Travel and Successor Programmes

This initiative was designed to promote networks of cycle and pedestrian ways throughout the City and plan area and was also designed to maximise the use of public transport. In this regard, it fits well with the Colbert station project (see above). This initiative is updating traffic, pedestrian and cycle movement to suit a new era in Limerick traffic management and this has helped update plan policy in this regard.

6.6 Limerick Northern Distributor Road (LNDR)

This project to create a by-pass of the city with a route running to the north and the east would reduce the volumes of city traffic with consequent improvements in both traffic flows and the city environment. This would also assist in dealing with traffic flows on a citywide basis and complement the southern ring road, which runs to the south of the metropolitan area.

6.7 M20 and Foynes to Limerick Scheme

The Limerick to Foynes road scheme has been assessed with its own SEA and AA during its incorporation into the Limerick County Development Plan in 2017. Similarly, the M20 project will be assessed on its own merits when more details become available. It should be noted that the previous iteration of the M20 was assessed in the time frame of the last plan.

6.8 Upgrade of Bunlicky Wastewater Treatment Plant

Information from Development management planners indicate that future development plans are afoot to ensure that facilities keep pace with demand. This is essential for the future development of the City and environs.

7.0 Reasons for Choosing the Plan as Presented

One of the reasons for choosing the plan was that its contents had been informed by the Strategic Flood Risk Assessment, which had been commissioned by the Council to inform the zoning layout of the plan. In many cases this has led to de-zoning, many of which would have ecological benefits. One example of this is shown in Figure 14 below which shows an area in the Plassey Technological Park now being zoned for agricultural usage. This allows this area to function as a floodplain area which is particularly important as the River Mulkear, forms the eastern boundary of the zoned area. This is part of the Lower River Shannon SAC site and has Sea Lamprey spawning redds present along this stretch of river. The agricultural zoning provides a valuable buffer for this stretch of the river.

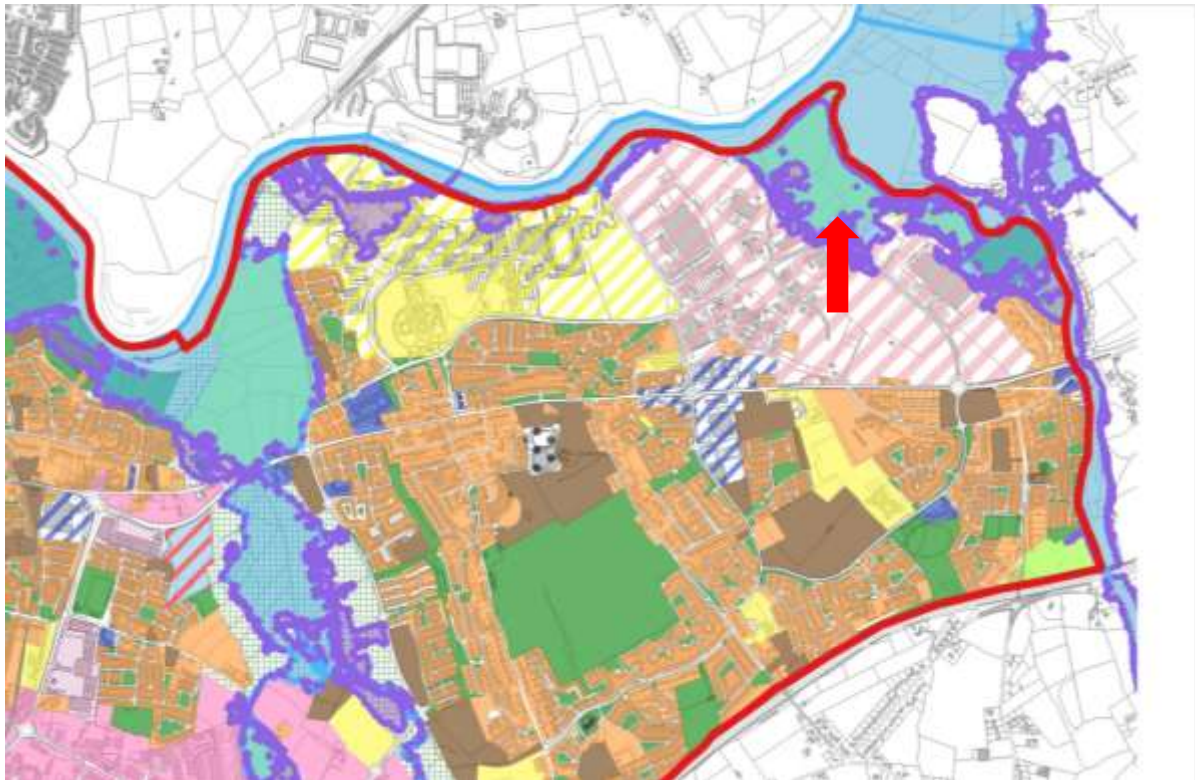


Figure 4.13: Area indicated with the red arrow had previously been zoned for a high tech manufacturing campus. Following assessment as part of the strategic flood risk assessment for the Limerick Development Plan, it is now zoned as agricultural land. This will enable proper flood plain functioning in this area.

The de-zoning of land as a result of the identification of flood risk also allows for the development of natural alternatives to engineered solutions to flood controls. Objective EHO14 calls for the increased usage of nature based solutions to flood management and sustainable drainage and- subject to adequate ecological assessment and design -this could prove to be an effective way of both retaining existing habitats and perhaps adding to the habitat stock of the plan area. The fact that the draft plan, as presented, contains these measures is another reason for its selection.

Another important issue in relation to nature conservation is the permeability of infrastructure- i.e. the ability of species to move through new infrastructure such as transport connections for example. This is emphasised in Objective EH05: New infrastructure projects where it is “an objective of the council to require 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”. Reference has already been made elsewhere in the plan to the Lesser Horseshoe Bat and the need to avoid the isolation of this species. It applies to great many species and as referred to elsewhere may assume a greater importance in the future as species respond to climate change and move about on a landscape scale.

The Development Applications Unit/ National Parks and Wildlife submission to the plan also stressed the importance of emphasising the National Bio-diversity Action Plan (NBAP). The importance of this has been acknowledged in Chapter 5 in the plan, as has the importance of the All Ireland Pollinator Plan. This has also been included in the landscaping part of Chapter 11 Development Management Guidelines.

The two species that the NPWS identified as being of particular importance in a Limerick context, the Barn Owl and the Lesser Horseshoe bat have also had specific policy content included for them. Closely related to this has been the inclusion of policy that relates to the permeability of infrastructure, which could benefit the Lesser Horseshoe Bat specifically.

Climate change is a pressing concern and the importance of climate change and the natural environment has been recognised in Chapter 5 where it says the provisions of the Biodiversity Climate Adaptation Plan 2019 will be taken into account.

8.0 Monitoring and Mitigation Measures

8.1 Monitoring

It anticipated that the monitoring schemes for ecological aspects of the plan will be tied in with its mid-term review. In many respects, this will involve close cooperation with the Development Management section within the Planning Authority as it is through planning applications that the practical effects of the plan will be felt. It is best to be involved at the earliest possible stage in trying to shape the eventual form of planning applications to minimise their ecological effects, so involvement in pre-planning meetings will be important particularly from a mitigation perspective. It will also mean liaising with the Planning Enforcement Section. The Development Applications Unit / DAU submission placed particular stress on enforcement. Some types of planning applications such as those required for Strategic Development Infrastructure are not dealt with by the council but by An Bord Pleanála. These would have to be referred to the Council for comment so it would be possible to keep track of these and their possible ecological effects and inform the applicant and the An Bord Pleanála accordingly.

It will also be necessary to keep in in contact with local National Parks and Wildlife Service Personnel as they would be aware of wider happenings, outside of planning, as they relate to designated sites and through their monitoring of any changes would be able to inform the council of any ecological changes.

Table 4.13: Ecological Monitoring Measures for the Plan

Measure	Information Sources.	Comment
Liase with Development Management section	Planning applications and individual ecological assessments. Appropriate Assessment register.	Request Development Management planners to pass on details of ecologically sensitive applications.
Engage with pre-planning meetings	Pre-planning register	May be possible to shape development form and layout to minimise ecological effects. This would be an important mitigation measure.
Monitor SID and SHD applications	Referrals by applicants and DM planners.	Dealt with by ABP, but input sought from the Council.
Liase with Enforcement Section	Planning enforcement files as they relate to ecological issues and designated areas.	Emphasised by DAU NPWS submission.
Liase with local National Parks and Wildlife Service personnel.	NPWS monitoring	Could assist in monitoring of ecological locations through their Article 17 reports
Liase with Local Inland Fisheries Ireland Personnel	IFI studies and inspections	Useful in relation to Lower River Shannon SAC site and other designated water courses.
Liase with Infrastructure providers such as RDO, TII and Iarnrod Eireann.	NIS EIAR EclA material from their projects.	Will inform our own policy review and help identify Environmental/Ecological trends.

8.1.1 Monitoring Actions for the Plan

Action 1: Identify ecological and environmental trends through enforcement and Article 17 reports, as they relate to Nature 2000 sites in particular.

Response: Modify policy content in the plan where deficiencies occur.

Action 2: Ensure that information and resources on climate change as received from the heritage council working group and CARO are fed into planning decisions and possible material for updates of the plan as they relate to designated sites and ecological issues generally.

Response: Update plan content during mid-term review. It will take at least this long to estimate trends.

Action 3: Identify trends and appropriate responses through monitoring the nature and amount of planning applications. As indicated in both this report and the Environmental report, renewable energy technology applications have changed almost entirely in relation to solar applications over the last while. Monitoring planning application trends will indicate any future changes like this, which can be taken into account into ecological policy updates.

Response: Update plan content during mid-term review, if necessary. It will take at least this long to estimate trends.

Action 4: Keep track of new Appropriate Assessment and Section 28 guidance as it emerges and update policy content.

Response: Update plan content during mid-term review, or before depending on the significance of the new guidance.

8.2 Mitigation Measures

Mitigation measures should be properly informed and what follows is firstly a brief account of surveys that have been carried to inform mitigation. The assistance of the National Biodiversity Action Plan Funding and the Heritage Council Heritage funding schemes are gratefully acknowledged. Included are measures that have been carried out and then some that are planned:

A joint initiative with Clare County Council in 2018 arrived at a methodology for controlling Giant Hogweed, which has since been employed by the Physical Development Section of Limerick City and County Council on the Loobagh River in south east Limerick. The project with Clare County Council was along a tributary of the River Shannon which was part of the Lower River Shannon SAC site. The intention of the joint initiative was to arrive at a methodology that could be used to control this species within Natura 2000 sites. This is reflected in the reference to invasive species in the DAU/NPWS submission.

In 2016 and 2017, in association with Clare County Council a twelve month survey of the Bird populations of the Shannon Estuary was carried out. This was the first time that such a year round survey was carried out and provides a valuable baseline for bird numbers within the River Shannon and Fergus Special Protection Area and provides a useful tool in informing

planning decisions in relation to the estuary. It can also form a baseline for assessing possible climate change effects on these species. The impact of climate change was raised by the NPWS/DAU submission.

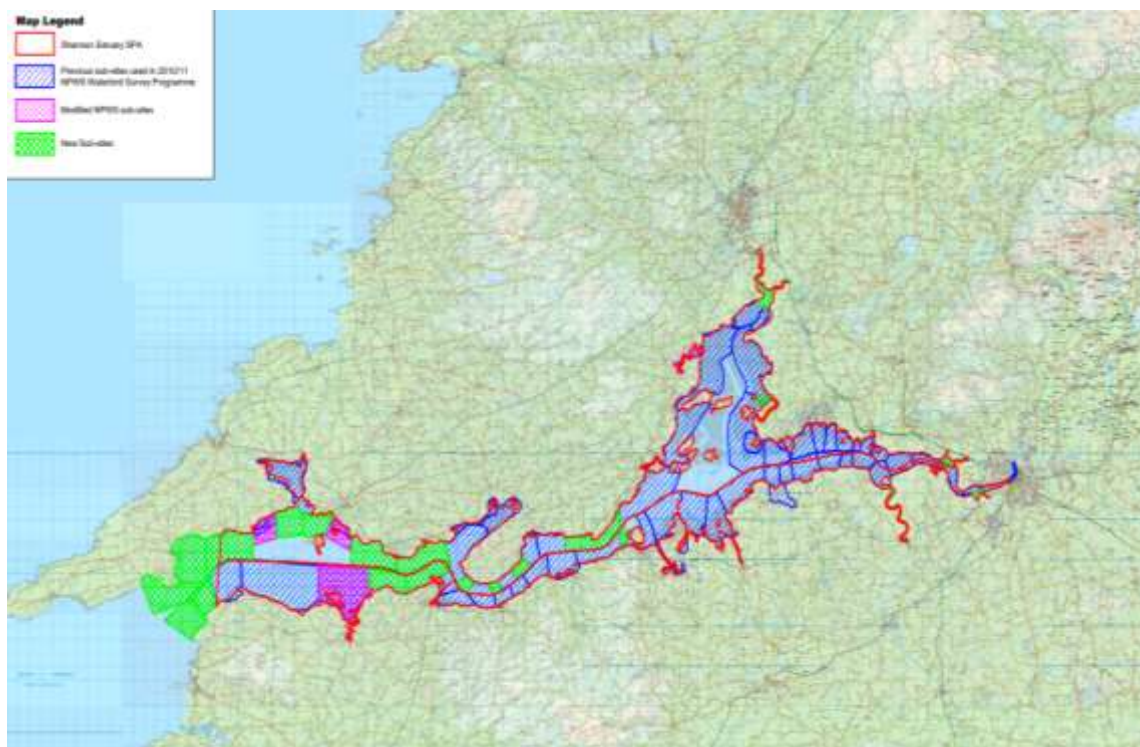


Figure 4.14: Showing the extent of the bird survey within the Lower Shannon Estuary

The Forward Planning section sits on the steering group for the Climate Action Regional Office. This is a very valuable working group to be involved in and allows the planning department to keep informed on climate action activities as they emerge. It is intended to continue with this, as indicated above this group can feed into monitoring of climate issues for the plan.

In terms of mitigation measures for pollinators, over the last three years it is standard practice to request that landscaping plans take into account the measures of the All Ireland Pollinator Plan (AIPP). Over the last year, in particular, it is encouraging to see that landscaping proposals, particularly for larger developments, including Strategic Housing Development proposals, now submit landscaping proposals guided by the AIPP and concentrate on native species. One useful and long-established publication in this regard is the Heritage Council's 'Conserving and Enhancing Wildlife in Towns and Villages' (2005) which is recommended as a standard referral document for this purpose as it contains a useful list of native species together with their suitability for differing surroundings, both urban and rural.

In 2020, a joint survey with Cork County Council sought to establish the presence of the Nightjar (an Annex 1 species of the Birds Directive) in the area of the Cork Limerick border. This is a migratory species, which spends its breeding season in Ireland and is one, which has suffered from huge population declines. Unfortunately, none were present. Surveys of

migratory birds may also help identify trends in movement of behaviour, which might be caused by climate change.

In 2012, a survey of Grageen bog, within the Slievefelim to Silvermines Mountains SPA (004165) established the presence of both Hen Harriers and grouse on site and also the types and condition of habitats present. Also present on site was the Grageen Bog and Fen Natural Heritage Area. The presence of both bird species was confirmed. The presence and an increased number of grouse on the site was confirmed by local NPWS staff this year. This emphasises the need to avoid disturbance to this area.



Figure 4.15: Devils' Matchsticks (*Cladonia floerkeana*), a lichen, in Grageen Bog

For the last two years or so in conjunction with Development Management Planners planning conditions have been place on suitable developments for the establishment of swift nesting sites, prior to a survey for these birds being carried out next year. Birdwatch Ireland is working with the Council to provide information to support this initiative.

8.2.2 Future Programme of Survey Works to Inform Future Mitigation Works and Plan Monitoring

8.2.2.1 Swifts Survey

Forward Planning had intended to carry out this survey this year. This was discussed with local NPWS staff but we were unable to proceed with this survey this year. This survey is intended to complement a project that our Environmental Awareness officer is promoting. In meantime Bird Watch Ireland, as indicated above, are providing us with information so we can continue to inform development management planners. This project was prompted, in part, by the NPWS submission to our Development Plan who stressed the need to integrate ecology into planning matters.

8.2.2.2 Wetland survey

Limerick City and County Council received interesting information from the County Botanical Recorder which meant that Forward Planning are rethinking the scope and format of this wetland survey. This is likely to be a multi-annual application as there are over 250 sites on an indicative list. Part of the reason the Planning Authority are re-thinking the format is to focus on climate change, flooding and catchments, and as such this means there is more preparation to carry out prior to commencement. This would feed into our Development Plan and other council plans in the future. This is likely to commence next year. It will also help to set a monitoring baseline.

8.2.2.3 Geological Survey to Commence in summer 2021

One of the information deficiencies highlighted in the Environmental report, part of the SEA process, was the need to survey the Geological Heritage sites in the county. To this end, funding was obtained from the Heritage Council under their County Heritage Plan funding programme (CHP) to carry out the survey this year.

These are the first three that will be carried out in on-going programme of surveys to inform planning policy responses to ecological and heritage issues. In this regard, once again Limerick City and County Council are grateful to the Heritage Council and the National Bio-diversity action Plan funding scheme for helping to support this survey programme.

8.2.2.4 Standard Mitigation Measures to be employed

While all of the above inform mitigation measures a number of standard mitigation measures should be employed in the plan and subsidiary plans such as Local Area Plans in order to avoid effects on the Natura 2000 site network.

The Habitats Directive promotes a hierarchy of avoidance/protection, mitigation and compensatory measures. For the purposes of this statement the term “mitigation measures” are considered to be measures which aim to minimise, or even offset entirely, the negative impacts on a site that are likely to arise as a result of the implementation of a plan or project. These measures are an integral part of the specifications of a plan or project. (Managing Natura 2000 sites The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC", EU 2019).

The following measures should be adopted, within the Limerick Development Plan area in the development of all individual plans (including Local Area Plans) and projects where there is potential for impacts on the Natura 2000 site network

These measures will apply to all areas of policy and development management including housing, transport, environment and infrastructure, including renewable energy recreation and amenity. Where it cannot be clearly demonstrated that a development, or a group of developments, will not result in an adverse effect on a Natura 2000 site or where there is scientific doubt in relation to a potential impact, the precautionary principle must be applied and mitigation is through avoidance. The precautionary principle is applied: (i) where there is potential for negative effects and (ii) where due to inconclusive or insufficient data it is impossible to determine with sufficient certainty the risk in question.

Mitigation measures in the form of specific objectives and policies designed to protect the Natura 2000 sites are often provided by the Development Management section to ensure compliance with the Habitats Directive Article 6. Where proposals might have an effect on a Natura 2000 site, these will require full assessment in line with Article 6 of the Habitats Directive - the Plan identifies a number of individual plans and projects (road schemes, economic and housing development, etc.) for development during the lifetime of the Plan. The Plan should emphasise that these are dependent upon clear demonstration that there will be no impacts on the integrity of a Natura 2000 site in accordance with Article 6 of the Habitats Directive.

In addition, any review or amendment of the plan and proposed projects being prepared by the local authority for the Plan area should be subject to AA screening, at a minimum, to ensure compliance with Article 6 of the Habitats Directive.

The Plan identifies a number of specific transport objectives, such as the M20 road scheme, which will require an appropriate level of environmental and ecological assessment. This should be carried out at the earliest stages in development, beginning at the route selection stage and also at subsequent stages of development to determine if significant adverse impacts are likely. Assessments will become more detailed and specific at each level of the assessment as details of the location, extent, construction and operational impacts of the project emerge.

Where the construction or extension of a water supply scheme or waste water treatment plant has potential to impact on a Natura 2000 site it will require Appropriate Assessment, using hydrogeological data, to clearly demonstrate that there will be no adverse impact on the groundwater supply, surface water or other aspects of Natura 2000 sites.

Where the construction or extension or modification of a renewable energy project has potential to impact on a Natura 2000 site it will require Appropriate Assessment, using all necessary data, to clearly demonstrate that there will be no adverse impact on the specific Natura 2000 site or other aspects of the Natura 2000 site network.

Ensure that the WWTPs in the plan area are maintained and upgraded as required to meet the requirements of the population and that all works associated with the facility are assessed according to Article 6 of the Habitats Directive and ensure that adequate and appropriate waste water treatment infrastructure is in place prior to further development in the Plan area.

Where one-off housing is sought in unserviced areas in the plan, it should be ensured that groundwater quality is maintained through appropriate implementation of the new EPA 2021 Code of Practice for Domestic Waste Water Treatment Systems. In the vicinity of river systems including those within the Natura 2000 site network, and its tributaries the suitability of these lands for individual treatment systems will have to be determined; the need to prevent excessive proliferation of unsewered dwelling units will have to be considered; and the design, capacity and suitability of wastewater treatment systems and the maintenance of such individual wastewater treatment systems will have to be taken into account. This is to ensure that adequate individual wastewater treatment systems are used which have sufficient capacity, safety mechanisms and maintenance to ensure the protection of local surface and groundwater resources.

It is recommended that a buffer zone be established around existing vegetated riparian areas of the Lower River Shannon SAC within undeveloped zoned areas of the Plan area and subsidiary Local Area Plans in order to protect the ecology on which the site depends. Buffer zones are used to protect the hydrological and ecological environment of the site and should be established with reference to hydrological and ecological data for the site, including flooding, and in consultation with the National Parks and Wildlife Service and Inland Fisheries Ireland. This is already an objective in the plan.

In the absence of these data, a minimum buffer zone of 20m is recommended or as determined following consultation with the Inland Fisheries Ireland (IFI). Development proposals beyond this buffer area with potential to negatively impact on the site will be required to clearly demonstrate that there will be no significant adverse impact on the integrity of the site.

Facilities such as new greenways trails and riverside walkways will require appropriate levels of environmental and ecological assessment at project stages in order to proceed. The inclusion of objectives for these facilities should carry the caveat that the facility can only be provided where a positive assessment is received.

It will be ensured that flood defence works and responses to Flood Risk Assessment and CFRAMS proposals undergo Appropriate Assessment in accordance with Article 6 of the Habitats Directive. Any development that has the potential to impact on a Natura 2000 site will be subject to Appropriate Assessment in accordance with Article 6 of the Habitats Directive.

Where deficiencies in terms of wildlife surveys and background ecological reports have been identified in relation to policies in Chapter 6, these should be carried out to adequately inform design and mitigation measures prior to any development taking place.

9.0 Conclusions

Stage 2 AA of the Draft Limerick Development Plan has been carried out. Implementation of the Draft Plan has the potential to result in significant effects to the integrity of Natura 2000 sites, if unmitigated. The risks to the qualifying interests, special conservation interests and conservation objectives of the Natura 2000 site have been addressed by the inclusion of mitigation measures, through policy measures such as non-encroachment of zoning on Natura 2000 sites in the case of zoning objectives and in relation to implementation of Article 6 elsewhere. In addition, policy has been inserted in Chapter 5 to take into account the effects of climate change on Natura 2000 sites and ecological sites generally by taking into account the measures of The Biodiversity Climate Change Sectoral Adaptation Plan 2019.

Furthermore, all lower-level plans and projects arising through the implementation of the Draft Plan will themselves be subject to AA and SEA/EIA when further details of design and location are known. This assessment was undertaken with reference to all subsequent stages of the Plan so far, including all submissions made during the pre-draft process. In-combination effects from interactions with other plans and projects was considered in the assessment and the mitigation measures incorporated into the plan are considered to be robust to ensure there will be no significant adverse effects as a result of the implementation of the Draft Plan either alone or in-combination with other plans/projects.

Having incorporated mitigation measures, it is concluded that the Draft Limerick Development Plan is not anticipated to give rise to any significant adverse effects on designated European sites, alone or in combination with other plans or projects. This evaluation is made in view of the conservation objectives of the habitats or species, for which these sites have been designated

Sources

Balmer, D.E., Gillings, S., Caffrey, B.J., Swann, R.L., Downie, I.S. & Fuller, R.J (2013) The Bird Atlas 2007-11: the breeding and wintering birds of Britain and Ireland, BTO Books Norfolk.

Beebee Trevor (2018) Climate Change and British Wildlife, Bloomsbury, London.

Bontadino F, Schofield H and Naef-Daenzer B (2002) Radio tracking reveals that lesser horseshoe bats (*Rhinolophus hipposideros*) forage in woodland. Journal of Zoology London.

Department of Environment, Heritage and Local Government (2010) Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities. Dublin.

Environmental Protection Agency (2021) Code of Practice Domestic Waste Water Treatment Systems (Population Equivalent ≤10) Johnstown Castle, Wexford.

European Commission (2019) Managing Natura 2000 sites The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC", EU 2019

Fairley J (2001) A Basket of Weasels. Published Privately Belfast.

Hardy J *et al* (2013) Raptors A field Guide for Surveys and Monitoring. The Stationary Office Edinburgh.

Heritage Council (2005) Conserving and Enhancing Wildlife in Towns and Villages, Kilkenny.

McCarthy, Kelville and O Sullivan (2017) Waterfowl Numbers, Usage and Distribution of the River Shannon and the River Fergus Estuaries Interim Report. Galway.

National Parks and Wildlife Service (2012a) Lower River Shannon SAC (site code 2165) Conservation objectives supporting document-coastal habitats. NPWS, Dublin.

National Parks and Wildlife Service (2012b) River Shannon and River Fergus Estuaries SPA 004077 Conservation Objectives series. NPWS, Dublin.

National Parks and Wildlife Service (2013) Lower River Shannon SAC Site Synopsis. NPWS, Dublin.

Parnell J and Curtis T (2012) An Irish Flora, Cork University Press.

Reynolds Sylvia CP (2013) Flora of County Limerick, National Botanic Gardens, Glasnevin Dublin.

Scottish Natural Heritage (2014) Assessing the Impacts to Pink footed and Greylag geese from small scale wind farms in Scotland February 2014

Wilson J, Carmody M (2009) Shore Birds of Ireland, Collins Press Cork.





LIMERICK DEVELOPMENT PLAN 2022-2028

Volume 4

Appropriate Assessment Natura Impact Statement -
Material Alterations

ATLANTIC EDGE

LIMERICK
EUROPEAN EMBRACE



Comhairle Cathrach
& Contae **Luimnigh**

Limerick City
& County Council



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Section 1: Introduction

1.1 Background

This Natura Impact Report (NIR) has been prepared in support of the Appropriate Assessment (AA) of the Draft Limerick County Development Plan 2022-2028 in accordance with the requirements of Article 6(3) of Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (as amended) (hereafter referred to as the “Habitats Directive”).

This report is part of the ongoing appropriate assessment process that is being undertaken alongside the preparation of the Draft Plan. The Chief Executives Report on the submissions received during the public consultation, which included an Environmental Assessment of the Proposed Material Alterations, issued to the Elected Members on 26 November 2021. This report was prepared following the first public display period, which ran from 26th of June to 6 September 2021. The Elected Members considered the proposed amendments set out in the Chief Executives report at a number of workshops in January and February and at a Special Council meeting, held on 18 February 2022 made additional material amendments to the Draft Plan. These amendments are discussed in Chapters 3 and 5.

1.2 Legislative Context

The Habitats Directive provides legal protection for habitats and species of European importance. The overall aim of the Habitats Directive is to maintain or restore the “favourable conservation status” of habitats and species of European Community Interest. These habitats and species are listed in the Habitats and Birds Directives (Council Directive 2009/147/EC on the conservation of wild birds) with Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) designated to afford protection to the most vulnerable of them. These two designations are collectively known as European Sites (also known as Natura 2000 sites).

Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Fauna and Flora, known as the ‘Habitats Directive’ - provides legal protection for habitats and species of European importance. Article 2 of the Directive requires the maintenance or restoration of habitats and species of European Community interest, at a favourable conservation status. Articles 3 - 9 provide the legislative means to protect habitats and species of Community interest through the establishment and conservation of an EU-wide network of sites known as Natura 2000 sites. Natura 2000 sites are Special Areas of Conservation (SACs) designated

under the Habitats Directive and Special Protection Areas (SPAs) designated under the Conservation of Wild Birds Directive (79 / 409 / EEC). Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans or projects affecting Natura 2000 sites. Article 6(3) establishes the requirement for Appropriate Assessment as follows, *“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.”*

Article 6(4) deals with the steps that should be taken when it is determined, as a result of Appropriate Assessment, that a plan/project will adversely affect a European site. Issues dealing with alternative solutions, imperative reasons of overriding public interest and compensatory measures need to be addressed in this case. Article 6(4) states: *“If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member States shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted. Where the site concerned hosts a priority natural habitat type and / or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest.”* The requirements of Articles 6(3) and 6(4) of the Habitats Directive have been transposed into Irish legislation by means of the Habitats Regulations, 1997 (S.I. No. 94 of 1997) and the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 / 2011).

AA is required by the Habitats Directive, as transposed into Irish legislation by the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) and the Planning and Development Act 2000 (as amended). AA is an assessment of the potential for adverse or negative effects of a plan or project, in combination with other plans or projects, on the conservation objectives of a European Site. These sites consist of SACs and SPAs and provide for the protection and long-term survival of Europe's most valuable and threatened species and habitats.

1.3 Approach

The AA is based on best scientific knowledge and has utilised ecological and hydrological expertise. In addition, a detailed online review of published scientific literature and grey literature was conducted. This included a detailed review of the National Parks and Wildlife (NPWS) website including mapping and available reports for relevant sites and in particular sensitive qualifying interests/special conservation interests described and their conservation objectives. The ecological desktop study completed for the AA of the amendments comprised the following elements:

- Identification of European Sites within the Plan boundary with identification of potential pathway links for specific sites (if relevant);
- Review of the NPWS site synopsis and conservation objectives for European Sites with identification of potential pathways from the Plan area; and
- Examination of possible effects of the amendments on the Natura 2000 network.

There are four main stages in the AA process as follows:

Stage One: Screening - The process that identifies the likely impacts upon a European Site of a project or plan, either alone or in combination with other projects or plans and considers whether these impacts are likely to be significant. This is dealt with in section 3 of this report.

Stage Two: Appropriate Assessment - The consideration of the impact on the integrity of the European Site of the project or plan, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts.

If adequate mitigation is proposed to ensure no significant adverse impacts on European Sites, then the process may end at this stage. However, if the likelihood of significant impacts remains, then the process must proceed to Stage Three. Stage 2 of the relevant material alterations is dealt with in section 5 of this report.

Stage Three: Assessment of Alternative Solutions - The process that examines alternative ways of achieving the objectives of the project or plan that avoids adverse impacts on the integrity of the European Site.

Stage Four: Assessment - where no alternative solutions exist and where adverse impacts remain an assessment of compensatory measures where, in the light of an assessment of

imperative reasons of overriding public interest (IROPI), it is deemed that the project or plan should proceed.

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures. This approach aims to avoid any impacts on European Sites by identifying possible impacts early in the plan-making process and avoiding such impacts. Secondly, the approach involves the application of mitigation measures, if necessary, during the AA process to the point where no adverse impacts on the site(s) remain. If potential impacts on European Sites remain, the approach requires the consideration of alternative solutions. If no alternative solutions are identified and the plan/project is required for imperative reasons of overriding public interest, then compensation measures are required for any remaining adverse effect(s).

The assessment of potential effects on European Sites is conducted following a standard source- path-receptor model, where, in order for an effect to be established all three elements of this mechanism must be in place. The absence or removal of one of the elements of the model is sufficient to conclude that a potential effect is not of any relevance or significance.

In the interest of this report, receptors are the ecological features that are known to be utilised by the qualifying interests or special conservation interests of a European Site. A source is any identifiable element of the Plan provision that is known to interact with ecological processes. The pathways are any connections or links between the source and the receptor.

The AA exercise has been prepared taking into account legislation including the aforementioned legislation and guidance including the following:

- Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities, Department of the Environment, Heritage and Local Government, 2009;
- "Commission Notice: Managing Natura 2000 sites - The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC", European Commission 2018;
- "Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC", European Commission Environment DG, 2002; and
- "Managing Natura 2000 sites: The Provisions of Article 6 of the Habitats Directive 92/43/EEC", European Commission, 2000.

1.4 Limerick's Landscape

Limerick's natural heritage is an integral part of our inheritance and forms part of our sense of identity, providing resources of social, educational, recreational and aesthetic value. Heritage does not just include buildings; it includes landscapes, rivers, woodlands, hedgerows, geology, plants and animals. There a number of designated sites throughout Limerick coupled with a number of ecologically sensitive sites. Limerick City Centre lies at the heart of Limerick and within the City, there are a number of sensitive sites. The significance of the Shannon Estuary and its importance forms the northern boundary of county, the River Shannon and Fergus Rivers Special Protection Areas is of significant importance in terms of providing a habitat for bird species.

Many of the natural heritage designations such as Special Areas of Conservation and Special Protection Areas have been designated by European legislation. Natural Heritage Areas are designated by national legislation. Protection and conservation of our natural heritage assets is critical in terms of enhancing natural resources, as well as protecting habitats and species in their natural environment. Some 13% of the land area of Limerick comprises designated areas, including Special Areas of Conservation, Special Protection Areas and Natural Heritage Areas. Protection of biodiversity, which is threatened globally and locally by demands of people and increasingly by climate change is a significant challenge. Loss or damage to sites and places of biodiversity value caused by changes in land use and pressure for development is a constant battle. The Draft Limerick Development Plan 2022-2028 considers Limerick's natural heritage in its various forms, with all the diversity of habitats, which occur within Limerick, both urban and rural. At this stage in the Plan making process, it considers the effects of the proposed amendments to the Natura 2000 network. Habitats range from those associated with the Estuary in the north of the County, urban habitats, through to those in rural settings throughout the county and mountain and upland habitats in the Galtee Mountains in southeast of Limerick.

One of the key ecological parameters is water quality and work carried out under the Water Framework Directive will be of particular importance. The Local Authority Water Protection Office (LAWPRO) are being consulted on an ongoing basis during the plan preparation. Other areas will also need to be considered such as wetlands, peatlands and flood plains. In relation to peatlands, the Irish Peatland Conservation Council (IPCC) produces a list of peatlands in each county and has a list of Limerick bog and fen habitats. With wetlands and flood plains being considered there are obviously linkages with the Strategic Flood Risk Assessment being carried out as part of the Plan preparation process. There is the potential to link this with the provision of green infrastructure and ecological connectivity, ecological

networks and zoning and this will be examined in the Environmental Report. Other potential considerations are:

- Important sites for Limerick's Flora, including Flora Protection Order (FPO) sites. There are many areas in and around Limerick City, which contain species such as the Triangular Club rush, which is located along the River Shannon and some of its tributaries, particularly around the city.
- Other sites of high biodiversity value or ecological importance, for example, Bird Watch Ireland's 'Important Bird Areas' (Crowe et al., 2009). In Limerick City, Westfields and Coonagh are important sites.

The conservation, protection and enhancement of these important sites are key to safeguarding the natural heritage of Limerick, while allowing the development of Limerick in line with the policies of the Draft Development Plan.

1.5 Key Submissions received to the plan to date from an ecological perspective

Three submissions received as part of the initial pre-draft public consultation process have particular relevance to the ecological issues in the Draft Plan. These submissions were from the Development Applications Unit (National Parks and Wildlife Service), Inland Fisheries Ireland and the Environmental Protection Agency. The importance of the submission from the NPWS through the Development application unit is emphasised as follows: "the Department's comments, if any, on a draft plan and the associated AA should be taken into account by the planning authority before the plan is adopted" (Department of Environment, Heritage and Local Government 2010, p. 56). The submissions are summarised below.

1.5.1 Development Applications Unit (DAU)

This submission outlines that Government policy on nature conservation is clearly set out in the National Biodiversity Action Plan 2017-2021 (NBAP) and Ireland is fully committed to halting the loss of biodiversity and the degradation of ecosystem services as set out in the EU Biodiversity Strategy to 2020. It is also a signatory to the United Nations (UN) Convention on Biological Diversity Strategic Plan for Biodiversity 2011-2020. These policies are reflected in Ireland's vision for biodiversity.

Biodiversity in general is under threat at a global, national and local scale. Therefore, there is an urgent need to protect our natural resources for present and future generations. A Development Plan that has biodiversity embedded in its core policies will help build a county that is a healthy place for its people and visitors, and provide fully functioning and resilient ecosystems.

While it is important that the plan sets out the legislative requirements in relation to the protection of designated sites and protected species under both European (i.e. Birds and Habitats Directive) and national legislation (i.e. Wildlife Act 1976-2018), the plan should also ensure that legislative requirements and Government policy on biodiversity generally can be delivered and that account is taken of Objective 1 in the NBAP to *“Mainstream biodiversity into decision-making across all sectors”*. There are real opportunities to protect and enhance biodiversity when considered early in any development proposal and, in particular, at a strategic level during the plan-making process.

Reports under the Habitats and Birds Directives, respectively, have shown that even with strict protection habitats and species are continuing to deteriorate or decline. It is noted that Limerick City and County Council is committed to the protection of the designated sites across the County. It is important that the Plan recognises the potential for tourism and recreation related proposals to impact such sites. Many species listed for protection within European sites also depend on habitats and landscape features outside of the designated site boundaries. The loss of these features, due to development pressure can indirectly cause disturbance and deterioration to the conservation status of internationally important species. This issue is addressed in relation to the amendments both in the Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA) for the Plan.

It is recommended that natural heritage objectives are clear and robust, and include an objective to protect, conserve and enhance biodiversity both within and outside protected sites. This is critical in ensuring that the Council meets its obligations in relation to nature conservation and biodiversity. Where development projects arising from the plan are not subject to the legal requirements to prepare either an Environmental Impact Assessment Report (EIAR) or Natura Impact Statement (NIS), the impacts to biodiversity may best be facilitated through the preparation of an Ecological Impact Assessment (EclA), and it is recommended including this as an objective in the Plan.

In the submission, the Department welcome a commitment in the plan to the preparation of an overall green infrastructure (G.I.) strategy for the Limerick, as defined by the EU and draw the council’s attention to the EU definition of G.I. as an important link in the connectivity of European sites in the County. A clear distinction should be made between G.I. and Greenways, Blueways and tourist trails within the Plan. As advised in the National Greenway Strategy, greenways and other associated linear trails should be designed to take into account, and avoid where necessary, the sensitivities of natural heritage. Whilst the development of Greenways, Blueways and tourist trails is generally welcomed, the same risks to biodiversity are associated with these type of trails, as with any other development.

Developments should avoid the fragmentation of landscape features, including ecological corridors, which allow for the mobility of species in a changing climate. Hedgerows are

essential wildlife corridors and of great ecological importance. Removal of hedgerows at key locations can lead to habitat fragmentation, thereby threatening the coherence of this important ecological network.

It is recommended that clear policy objectives are included in the Plan to ensure that undesignated wetland areas are protected.

Qualifying interest species of the Lower River Shannon SAC include Atlantic Salmon and Lamprey species, which are migratory. In addition, the European Eel is classified as critically endangered. Barriers to fish migration occur within the SAC and it is recommended that this issue is considered in the Plan. There may be scope for barrier removal or mitigation in conjunction with Local Authority projects and this should be explored with Inland Fisheries Ireland.

It is recommended that the requirements of the National Peatland Strategy and the National Raised Bog SACs Management Plan 2017-2022 are reflected in the policy in relation to peatlands in the Plan.

Limerick is fortunate to be one of only six counties in Ireland to have a Lesser Horseshoe Bat population, however there are significant concerns for the Limerick population and the forthcoming Plan could play a significant role in determining the future of the population. A major concern is the isolation of the population from other populations and the potential isolation of subpopulations within Limerick.

The Barn Owl is a protected species of threatened status (red-listed) at national level. Barn Owls are attracted to feeding on the rough grass growing on the margins of motorways, and it is recommended that an objective is included in the Draft Plan to support any emerging solution to reduce mortality of Barn Owls on motorways and large roads in co-operation with Transport Infrastructure Ireland and other stakeholders.

1.5.2 Inland Fisheries Ireland

The submission refers to the protection of habitats and outlines that current SEA must recognise that protection of the aquatic environment is not solely dependent on water quality but includes protection of the physical environment, hydrological processes and biodiversity. Effects of diffuse pollution are often more destructive than individual point source pollution events. Sub-lethal pollution levels also have ecological effects.

Physical habitat is very important. The Water Framework Directive requires conservation of habitats for ecological communities and physical habitats should be protected as well as hydrological processes.

The submission notes that the SEA will be flawed if it does not recognise that protection of the aquatic environment/habitats not only requires the protection of water quality but also

necessitates the protection and maintenance of physical habitats and hydrological processes.

Impacts of development can include destruction of in-stream habitats, interference with spawning and nursery areas, obstruction of passage and removal of pools and changes in flow regime and fragmentation of habitat.

Infrastructure provision should keep pace with development and in instances where it is not available planning permission should be refused on the grounds it is premature or constrained by appropriate conditions.

Areas adjacent to watercourses should be managed which will lessen their effects on rivers and watercourses. Riparian buffer zones are areas near watercourses, which help shade and protect them from the effects of nearby land use. They must be sufficiently wide to achieve this effect and can require a zone of 30m in width.

Inland Fisheries Ireland should be consulted on any proposed developments that could affect river ecosystems and associated habitat. IFI can provide guidance on the establishment and/or protection of riparian habitat.

Urban watercourses are important fish and wildlife habitats and may also have an amenity value. It is essential that they be maintained in an environmentally sensitive manner. The publication “Planning for Watercourses in the Urban Environment” has much useful information on the topic.

The submission requests that the Draft Plan provides for the maintenance and preservation of all watercourse and associated riparian habitats in urban areas and ensure that the amenity potential which watercourse provides in rural area is protected.

1.5.3 Environmental Protection Agency

The submission from the EPA outlines that the Plan should include specific actions/objectives and commitments to protect designated habitats and protected species (and associated ecological corridors/linkages) within, and adjacent to, the Plan area.

Section 2: Draft Limerick Development Plan 2022-2028, June 2021

The Draft Limerick Development Plan 2022-2028 is being prepared as part of the review of the existing Limerick County Development Plan 2010 – 2016 (as extended) and the Limerick City Development Plan 2010 – 2016 (as extended). The existing plans need updating, as there has been significant change in the intervening years since the preparation of both plans. The Draft Plan, dated June 2021 set out the overall vision for Limerick to be a Green City Region on the waterfront, and 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.

The main part of the Draft Plan, the Written Statement, was divided into 13 separate chapters setting out various policies and objectives under the headings of:

1. Introduction, Vision and Strategic Overview
2. Core Strategy and Settlement Strategy
3. Spatial Strategy (replaces chapter 3 and 10 of the previous draft plan, with elements of chapter 3 relocated to chapter 2 and 4).
4. Housing - This Chapter set out the policies and objectives for the provision of housing in Limerick.
5. A Strong Economy - This Chapter set out the policy objectives for economic development both urban and rural, to deliver a strong resilient economy, including Enterprise and Employment and Retail Development opportunities
6. Environment, Heritage, Landscape and Green Infrastructure (formerly Chapter 5)- This Chapter set out the policy objectives for the preservation and protection of our natural and built heritage, adoption of Green Infrastructure and Biodiversity, Open Space, Parks and Recreation.
7. Sustainable Mobility and Transport - This Chapter set out detailed policy objectives in relation to Roads and Transport, Mobility and Traffic Safety
8. Infrastructure - This Chapter set out detailed policy objectives in relation to services infrastructure including energy networks and environmental services.
9. Climate Action, Flood Risk and Transition to a Low Carbon Economy - This Chapter set out detailed policy objectives in relation to climate action and the role of planning in climate change mitigation, climate change adaptation including flooding and the transition towards a more climate resilient economy
10. Sustainable Communities and Social Infrastructure (formerly Chapter 9) - This Chapter set out the policy objectives for community development and place making, to deliver sustainable and liveable communities and neighbourhoods over the lifetime of the Plan and beyond.
11. Development Management Standards -This Chapter incorporated detailed development management objectives and standards to be applied to future development proposals in Limerick.
12. Land Use Zoning Strategy – This Chapter set out a series of land use zoning objectives and accompanying definitions, which were given graphic representation through the accompanying zoning maps. The purpose of zoning is to indicate the land use objectives for all lands within Limerick.

13. Implementation and Monitoring - This Chapter outlined the implementation and monitoring mechanisms to be put in place to ensure effective and sustainable delivery of the Plan to allow greater transparency on the progress in its implementation.

Section 3: Screening for Appropriate Assessment

3.1 Introduction

This stage of the process identifies any potential significant effects of proposed material amendments on European Sites in accordance with the requirements of Article 6(3) of the EU Habitats Directive (92/43/EEC). This section deals with screening of the proposed amendments.

An important element of the AA process is the identification of the “conservation objectives”, “Qualifying Interests” (QIs) and/ or “Special Conservation Interests” (SCIs) of European Sites requiring assessment. QIs are the habitat features and species listed in Annexes I and II of the Habitats Directive for which each European Site has been designated and afforded protection. SCIs are wetland habitats and bird species listed within Annexes I and II of the Birds Directive. It is also vital that the threats to the ecological / environmental conditions that are required to support QIs and SCIs are considered as part of the assessment.

The following NPWS Generic Conservation Objectives have been considered in the screening:

- 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 selected; and
- For SPAs, to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA. Where available, Site-Specific Conservation Objectives (SSCOs) designed to define favourable conservation status for a particular habitat or species at that site have been considered.

3.2 Identification of Relevant European Sites

The Department of the Environment (2009) Guidance on AA recommends a 15 km buffer zone to be considered. A review of all sites within this zone has allowed a determination to be made that in the absence of significant hydrological links, the characteristics of the Plan will not impose effects beyond the County boundary.

Details of European Sites that occur within the Plan area listed below. European Sites and are mapped in Figure 1.1 and 1.2 below. Information on QIs, SCIs and site-specific vulnerabilities have been considered and are available on www.npws.ie.

The NPWS list the following 15 Natura 2000 sites in Limerick:

Site Name: Askeaton Fen Complex SAC (002279)

Site Name: Ballyhoura Mountains SAC (002036)

Site Name: Barrigone SAC (000432)

Site Name: Blackwater River (Cork/Waterford) SAC (002170)

Site Name: Carrigeenamronety Hill SAC (002037)

Site Name: Clare Glen SAC (000930)

Site Name: Curraghchase Woods SAC (000174)

Site Name: Galtee Mountains SAC (000646)

Site Name: Glen Bog SAC (001430)

Site Name: Glenstal Wood SAC (001432)

Site Name: Lower River Shannon SAC (002165)

Site Name: River Shannon and River Fergus Estuaries SPA (004077)

Site Name: Slievefelim to Silvermines Mountains SPA (004165)

Site Name: Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (004161)

Site Name: Tory Hill SAC (000439)

Figure 1.1 Special Areas of Conservation (SAC)

Source: NPWS

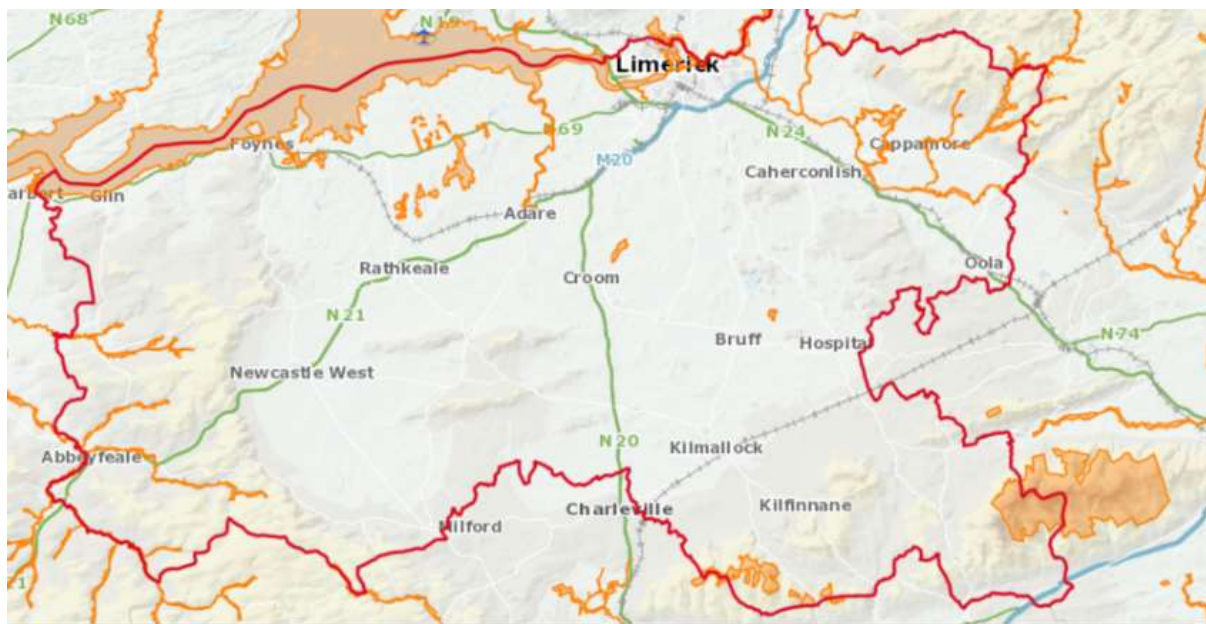
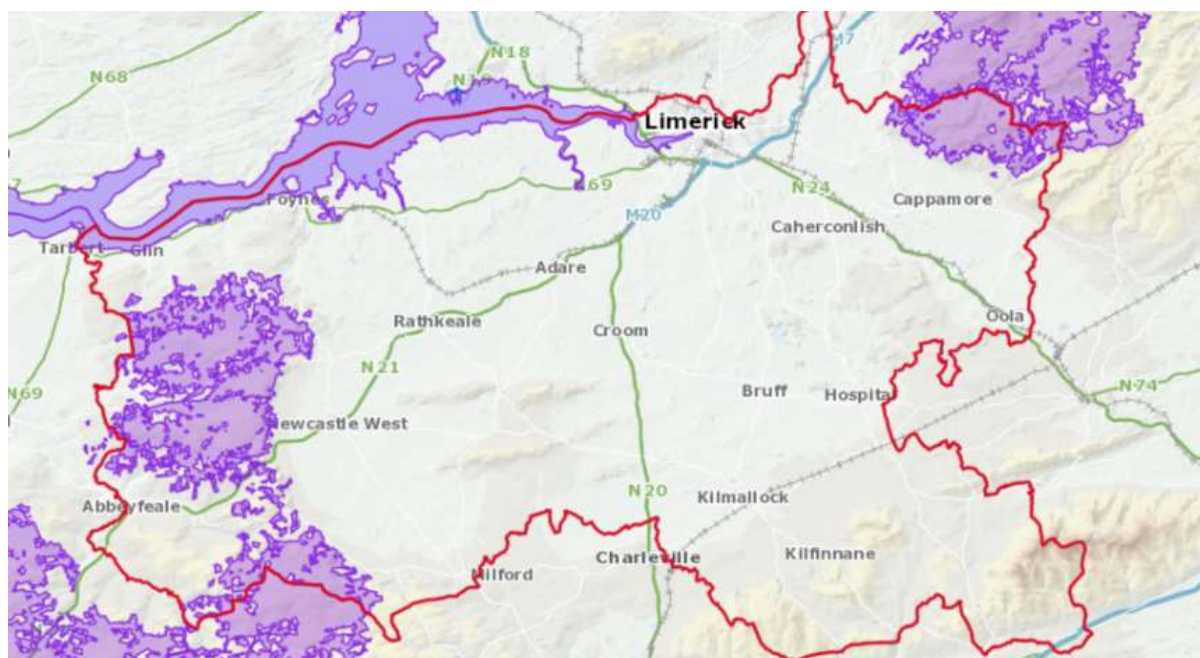


Figure 1.2 Special Protection Areas (SPA)

Source: NPWS



At this stage of the Draft Plan –making process the potential impact of the proposed amendments that could affect the designated sites are considered. Many of the amendments are location specific and would not have effects on particular sites as a result. The Environmental Report, prepared as part of the SEA process with its more general focus, has identified three sites that might be affected by the amendments. The sites that might be affected are the River Shannon and River Fergus Estuaries SPA (004077), the Lower River Shannon SAC (002165) and the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (004161). The NIS with specific focus on possible effects of the amendments on Natura 2000 sites will further examine these effects in Chapter 5.

3.3 Assessment Criteria and Screening of Proposed Amendments.

3.3.1 Is the Plan Necessary to the Management of European Sites

The Plan including any amendments is a land use planning document prepared under the Planning Acts. It is not intended for management of Natura 2000 sites, but to coordinate and plan the future development of Limerick. Therefore, the Plan is not considered directly connected with or necessary to the management of European Sites. However, the Draft Plan

policies and objectives are considered through the AA process to ensure they do not have an adverse impact on the integrity of Natura 2000 sites.

3.3.2 Elements of Proposed Amendments with Potential to Give Rise to Effects

Amendments which could potentially have effects on the Natura 2000 site network include:

- Amendments that call for the establishment of trails, walkways and other forms of transport links might have effects on the Natura 2000 site network unless they are designed with the needs of local ecology in mind. This is discussed further in Chapter 5.
- Amendments which call for the zoning of green field sites, which are in flood plains but outside the Natura 2000 site networks could also have effects on the movement of species across the wider countryside, in addition to effects on local hydrology.
- Amendments which call for encroachment into Natura 2000 site which might lead to the loss of area and site disruption.

Pressures could follow from the operational phase of development following adoption of amendments. This could include run-off, wastewater discharges to ground water or disturbance. These can often be indirect effects but when tracked through the source pathway receptor model could, for instance, indicate effects in local ground and surface waters which might ultimately lead to designated sites such as the Lower River Shannon SAC site. The Draft Plan has been formulated to ensure that land uses, developments and effects arising from permissions based upon this Plan (either individually or in combination with other plans or projects) will not give rise to significant adverse impacts on the integrity of any Natura sites, having regard to their conservation objectives.

3.3.3 Appropriate Assessment Screening of adopted Chief Executives Material Amendments

Of the amendments that were presented in the SEA screening, which accompanied the Chief Executives report, dated 26 November 2021, on the submissions to the Draft Plan, it is considered that several would have had the potential to exert an influence on the Natura 2000 site network in the plan area. Those that were likely to have adverse effects were not implemented. Those whose implementation would be likely to have beneficial effects were implemented. Both types are shown below in order to indicate how the needs of the Natura 2000 site network was taken into account.

1. Setting targets for renewable energy production. Submission 225:

Table X: Renewable Energy allocations for differing technologies

Output Current and Projected	Wind	Anaerobic Digestion	Solar	Hydro	Geothermal
Current capacity MW	234.35	2.0	113.49	0.1 MW	0
Target Capacity MW (2030)	386.45 (+65%)	20 (+1000%)	227.0 (+100%)	0.3MW (+300%)	0.5MW

The targets for wind energy have been set with regard to existing wind farms only and are mindful of the fact that the vast bulk of Limerick wind farms are now located within what are now Special Protection Areas for the Hen Harrier. These designations took place in 2008. No new applications have been received since 2008 within the SPAs, but the fact remains that existing wind farms are operational in what are now designated sites.

The targets have been set with regard to repowering of existing wind farms rather than based on construction of new wind farms. This means that a large number of older less capable turbines could be replaced by smaller more efficient turbines. A reduction in turbine numbers would be beneficial from an ecological perspective as it would prevent further displacement or disturbance effects and minimise the chances of direct mortality through collision. One harrier has collided with a wind turbine in Limerick in 2010.

2. Remove mention of development of a new pedestrian bridge from Barrington Pier and Ted Russell Park to Atlas Avenue as a longer-term aspiration to create new connections. Submission 103:



Figure 1.3: Showing suggested route of the proposed pedestrian crossing between Barrington's Pier and Ted Russell Docks on the southern side of the river. Source: Limerick 2030.



Figure 1.4: Showing the location of the proposed pedestrian bridge within both the Lower River Shannon SAC site and the River Shannon and Fergus Estuary SPA. Source: NPWS

The pedestrian bridge crosses the River Shannon at a point where it is designated as both a Special Area of Conservation Site (Lower River Shannon 002165) and as a Special Protection Area (River Shannon and Fergus Estuaries 004077). The River Shannon SAC is designated for series of tidal habitats in this location, while the River Shannon and Fergus SPA is designated for the protection of wildfowl. There is also a population of the Flora Protection Order Species Triangular Club Rush in this area, specifically at Barringtons Pier (Reynolds 2013 p. 38). The Triangular Club-rush (*Scirpus triquetrus*) is a rare and highly threatened vascular plant in Ireland with restricted distribution to tidal stretches of the River Shannon in “Limerick City and for some distance downstream” (Parnell and Curtiss 2012, p.77). It is protected under the Wildlife Acts (1976 and 2000) and is listed on the Flora Protection order 2015.

Given the range of tidal habitats including mudflats, fringing reed stretches (a feature of the upper estuary), the presence of two Natura 2000 sites and the presence of a Flora Protection Order species, it was decided to remove any reference to a pedestrian crossing in this location due to the potential ecological damage that might result. From an SEA strategic infrastructure perspective, it would have denied access to the port, an important part of Limerick Maritime Infrastructure.



Figure 1.5: Triangular Club Rush (*Scirpus triquetrus*). Source: BEC consultants

3. Potential Rezoning for marine use at Foynes Island, Submission 84



Figure 1.6: Showing area in red for proposed zoning for marine use

The area outlined in red was requested for zoning for marine related usage. Part of the area outlined in red in Figure 5 includes cut across part of the Lower River Shannon SAC site.



Figure 1.7: The arrow shows the area of the SAC through which the area for the proposed re-zoning cuts

The proposed rezoning is to the south east of the island with the potential to cause further disturbance to the eastern portion of the island. There are mudflats in the lee of the island, which are part of larger complex of mudflats in the estuary. This is the reason why many wintering wildfowl species visit the estuary as they are feeding grounds for them. The

actual loss of this habitat and the disturbance effects of the proposed re-zoning would be factors here.

Close to the proposed re-zoning area is Sturamus Island. This has been mentioned as a Tern colony in the site synopsis. This is very low-lying and is almost covered at high tide. In a visit to the island in 2017, no terns were present but such low-lying islands are valuable resting and preening areas for wildfowl and this too would have to be taken into account.

On Foynes island itself the proposed re-zoning cuts through some of the Lower River Shannon SAC site. This part of the island has mixed woodland close to the shore. Patches of the broadleaved woodland here has been described as having links with the Annex habitat old oak woodland (Doherty 2015 p.8) and it is not certain as to whether or not this would apply to the area in question.

One of the main reasons that the current zoned area is considered as suitable for maritime use is because no Annex species lay within that area. Further detailed ecological reports would be required to ascertain the impact on the designated site of further extending the zoning.

For these reasons the proposals for rezoning was not accepted.

4. Change the zoning from Semi Natural Open Space to Utilities (solar arrays) in the area of the landfill cells, a narrow margin around the cells and the compound at Longpavement Submissions 218, 277:

The area of the compensatory habitat in the south of the Longpavement site remains untouched by the change in zoning. The area of the identified for solar arrays can also be allowed to revegetate naturally to create a grassland community similar to the one which currently exists. It should be noted that the grassland species that are present at the moment were the result of planting. In the event that solar arrays proceeded on site, it is recommended that the area be allowed to revegetate naturally to ensure that the grassland species would reflect local species and local genetic material. This is in line with current good practice (DNFC July 2021) which calls for the use of local seed materials and site management rather than the use of outside seed stock. The solar array will not encroach into the Lower River Shannon SAC site at the eastern site boundary.



Figure 1.8: The red arrow shows the compensatory habitats for works on the Limerick main drainage scheme in the early 2000s. It is a series of constructed wetlands and wetland vegetation.

5. Amendments sought by the Department of Housing, Local Government and Heritage

The submission requested the amendment to Objective EH 01 as follows:

Add the following text to Objective EH 01: 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;

Amend Objective EH 012 with the inclusion of the following text at the end of part b) Projects which would be detrimental to existing Blue – Green Infrastructure features will not be permitted

Comment: the addition of additional text to Objective EH 01 above has the potential, through the planning and enforcement process to restore damage to designated sites, through the established planning condition and enforcement process.

**It should be noted that blue green infrastructure is taken to mean what the DHLGH indicated in its pre-draft submission to the plan last year. This means, not pathway or man-made constructions, but rather natural habitats and landscape features. This is in line with Policy EHP1 which is to “protect and conserve Limerick’s natural heritage and biodiversity”.

Screening determination of Chief Executives proposed material alterations:

Progression to Stage 2 was not judged necessary, as any of the suggested amendments that might have significant effects on the Natura 2000 network were not recommended to proceed. Those suggested amendments that would have beneficial effects were recommended to proceed.

3.3.4 Appropriate Assessment Screening of Elected Members proposed Additional Material Amendments

The table below sets out the screening of the proposed amendments from the Special Council Meeting of 18 February 2022 and identifies proposed amendments that require further assessment, i.e. progression to Stage 2 of the process.

Proposed changes to text are underlined>.

Amendment Proposed by Elected Members 18 February 2022	AA Screening	Comment
Proposed not to accept the Chief Executives recommendation and that draft plan revert to the Rural Settlement Strategy Map, which was put on public display at Draft Plan stage.	AA not required.	Subject to the requirements of the 2021 EPA guidance re wastewater treatment for single dwellings which ensure environmental standards are complied with.
Proposed the removal of RPS. No. 4057 - 'Biarritz', O'Connell Avenue from the Record of Protected Structures	AA not required	Single structure outside Natura 2000 network, no effects.
Proposed to extend the development boundary of Carrigkerry.	AA required	Encroaches into SPA site, assessment required
Proposed to extend the development boundary of Templeglantine.	AA not required	No Natura 2000 site in question. Grassland habitats common in locality.
Proposed an amendment to the zoning of the lands (0.3 ha.), adjoining the Model School from Existing Residential to Community and Education.	AA not required	Outside Natura network, Limited loss of amenity grassland.

<p>Proposed an amendment to Objective CGR O4 e) Urban Lands and Compact Growth in Chapter 3 – Spatial Strategy as follows:</p> <p>e) Require multiple owners of large-scale urban sites, <u>in instances where phased development is proposed, or where such land adjoins other undeveloped, zoned land in third party ownership</u>, to develop a masterplan for the coherent and sustainable development of such lands, addressing issues of the sustainable use of available lands, preservation of existing residential amenity, access, urban design and connectivity. These Masterplans shall set out the framework for the sustainable, phased and managed development of a particular area. The Masterplan should include the written consent of all landowners, where applicable, a conceptual layout, infrastructure proposals including any consultation with service providers and phasing details. <u>The masterplan should clearly detail how adjoining undeveloped, zoned land in third party ownership, can be accessed and serviced in an integrated and coherent manner.</u></p>	<p>AA not required</p>	<p>Outside Natura network, within previously zoned land.</p>
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<p>Propose an amendment to Objective ECON O18 a) Strategic Employment Locations Limerick City and Environs - Chapter 5 – A Strong Economy as follows:</p> <p>Ensure <u>that a comprehensive framework plan shall be prepared and agreed with the Planning Authority in advance</u> of development on the ‘High Tech/Manufacturing’ zoned lands to the west of Raheen Business Park. <u>The framework should clearly set out the key infrastructure requirements for the site and identify, responsibility for and the timeframe for delivery of such infrastructure.</u> The Framework Plan shall be subject to the following:</p> <ul style="list-style-type: none"> • Cognisance of the residential amenities of the properties to the north and western side of the site and the adjacent agricultural land; • Access to the ‘High Tech/ Manufacturing’ zoned land to the west of the R510 will be limited to the existing roundabout to the east of the site; • Applications for development in the low-lying area in the southern section of this zone shall have regard to the attenuation infrastructure and shall include a site-specific flood risk assessment, including proposals to mitigate and control the level of run off and attenuation. 	<p>AA not required</p>	<p>Outside Natura 2000 network, within previously zone land.</p>
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<p>Proposed an amendment to the High Tech/Manufacturing land use zoning objective and purpose text in Chapter 12 – Land Use Zoning Strategy as follows: Objective: To provide for office, research and development, high technology, <u>regional distribution/logistics</u>, manufacturing and processing type employment in a high quality built and landscaped campus style environment.</p> <p>Purpose: To facilitate opportunities for high technology, advanced manufacturing including pharmaceutical and food production, major office, <u>regional distribution/logistics</u>, and research and development-based employment, within high quality, highly accessible, campus style settings. The zoning is for high value-added businesses and corporate facilities that have extensive/specific land requirements, such as those located at Raheen Business Park and the National Technology Park.</p>	AA not required	Outside Natura 2000 network
<p>Proposed an amendment to the High Tech/ Manufacturing Land Use Zoning Matrix as follows: Change Logistics from 'Open for Consideration' to '<u>Generally Permitted</u>' and Warehousing from 'Generally Not Permitted' to '<u>Generally Permitted</u>' in the High Tech/ Manufacturing zone.</p>	AA not required	See above.

<p>Proposed to amend the Core Strategy Table figures in relation to the projected growth for Patrickswell as follows:</p> <ul style="list-style-type: none"> -Population growth totals 2016 – 2028: <u>1,270</u> -Population growth as % of 2016 base - <u>50%</u> -Additional households forecasted 2022 –2028 - <u>158</u> households -Amend the City and Environs Population Growth and Additional Household Figures to reflect this change. 	<p>AA not required</p>	<p>Outside Natura 2000 network, within previously zoned land.</p>
<p>Proposed a change of zoning from Agriculture to Enterprise and Employment at Ballykeeffe - the proposed amendment relates to 4 plots of lands Plot A (5.57ha), Plot B (4.25ha), Plot C (5.57ha) and Plot D (10.22ha). Lands zoned Semi - Natural Open Space are precluded from the rezoning, it only applies to Agriculturally zoned lands.</p>	<p>AA required</p>	<p>May have implications for AA species, which might use open grassland.</p>
<p>Proposed an amendment to the Zoning Map for Bruff to rezone 0.2 hectares of land from Open Space and Recreation to Residential and maintain 0.8 hectares of land as Open Space and Recreation use to facilitate the provision of public walks and trails adjacent to the Morningstar River, in accordance with Objectives BR 02 and BR 06 of the Draft Plan.</p>	<p>AA not required</p>	<p>Outside Natura 2000 site, buffer remains between the development site and the river and any material/debris entering the water will be diluted before entering the Natura 2000 network owing to the significant distance between the site and the closest Natura 2000 site.</p>

<p>Proposed an amendment to Objective ECON 040 – Location of Tourism Accommodation as follows: Ensure that holiday home developments accommodation including campsite (i.e. static and touring caravans, campervans, glamping <u>Pods</u>, and tents) developments should be concentrated within or adjoining existing towns, villages and settlements, where they can best support the provision of services and minimise the impact on the open landscape. Such developments should respect the existing fabric of the settlement, both in scale and design.</p> <p><u>In limited cases, such accommodation may be appropriate in rural locations, where it complements an existing tourism asset and where there is a justifiable need, such as its proximity to established tourism trails/routes. In rural locations, structures should be integrated into the existing landscape or proposals should demonstrate that an appropriate landscape will be designed around the structure.</u></p> <p><u>Proposals to reinstate, conserve and/ or renovate existing, vacant, derelict or disused buildings for holiday accommodation in both urban and rural areas, will be considered subject to normal planning and environmental criteria.</u></p>	<p>AA not required</p>	<p>Outside Natura 2000 network. Emphasis on limited cases in appropriate rural locations.</p>
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<p><u>All such development will be considered, having regard to the environmental conditions and sensitivities, scenic amenity, availability of services and the cumulative impact of such developments on the environment.</u></p>		
<p>Proposed a further amendment to Objective ECON 040 – Location of Tourism Accommodation as follows:</p> <p><u>(b) In limited cases, such accommodation may be appropriate in rural locations, where it complements an existing tourism asset /service and where there is a justifiable need, such as its proximity to established tourism trails/routes/food and craft businesses. In rural locations, structures should be integrated into the existing landscape or proposals should demonstrate that an appropriate landscape will be designed around the structure.</u></p>	AA not required	See above.
<p>Proposed a New Policy as follows: Objective ECON OXX-: <u>It is an objective of the Council to cluster niche tourist / visitor services and infrastructure, including locations where the service or tourist attraction currently exists.</u></p>	AA not required	Clustering allows facilities to use existing infrastructure and reduces pressure on green field sites.

<p>Amendment proposed to Objective CGR 05 as follows:</p> <p>It is an objective of the Council to utilise the provisions of the Urban Regeneration and Housing Act 2015 (As amended), including the continued maintenance of a Vacant Site Register to facilitate the appropriate re-use and development of vacant and underutilised sites on zoned lands in Limerick that are in need of renewal or revitalisation.</p> <p><u>a) This objective shall also apply to all lands in the ownership of Limerick City and County Council.</u></p> <p><u>b) This objective shall not apply to any lands where public utilities are not available or are deemed inadequate.</u></p>	<p>AA not required</p>	<p>Applies to levy policy and finance.</p>
<p>Proposed an amendment to Objective CGR 08 – Derelict Sites as follows: It is an objective of the Council to utilise the provisions of the Derelict Sites Act 1990, including the maintenance of a Derelict Site Register and CPO powers to address instances of dereliction and decay in the urban <u>and rural</u> environment and bring properties back into active re-use.</p>	<p>AA not required</p>	<p>See above.</p>

<p>Proposed an amendment to Objective CGR 015 – Requirements for Developments within Level 4 Settlements as follows:</p> <p>It is an objective of the Council within these settlements to facilitate development, subject to compliance with the following:</p> <p>a) To ensure that the scale of the new housing developments both individually and cumulatively shall be in proportion to the pattern and grain of existing development. Generally, no one proposal for residential development shall increase the existing housing stock by more than 10 – 15% within the lifetime of the Draft Plan, unless the applicant can demonstrate that the settlement has adequate capacity in terms of both physical and social infrastructure to support additional growth.</p> <p>b) The development of these centres shall provide for serviced sites and a variety of other house types and densities as appropriate.</p> <p>c) New commercial developments shall generally be located within the core area and shall contribute positively to the village urban fabric and streetscape.</p> <p>d) New community and social facilities shall be provided in conjunction with residential development as required.</p> <p><u>e) Where there is no treatment</u></p>	<p>AA not required</p>	<p>Within settlement boundaries and will be guided by 2021 EPA guidance to ensure best practice.</p>
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<p><u>plant or limited capacity in the existing treatment plant, sewerage treatment for serviced sites shall generally be by means of individual treatment systems, subject to satisfactory site assessment and compliance with EPA guidelines. All systems shall constructed so as to allow connection to public sewers in due course when capacity becomes available.</u></p>		
<p>Proposed an amendment to Objective CGR 017 – Requirements for Developments within Level 5 Settlements as follows: It is an objective of the Council within these settlements to facilitate development, subject to compliance with the following: a) The scale of new residential schemes shall be in proportion to the pattern and grain of existing development and shall be located within the development boundary, thus avoiding 'leap frogging' of development and delivering compact growth and providing for the organic and sequential growth of the settlement. Infill and brown field sites will be the preferred location for new development. In this regard, any development shall enhance the existing village</p>	<p>AA not required</p>	<p>Within settlement boundaries and will be guided by 2021 EPA guidance to ensure best practice.</p>

<p>character and create and create or strengthen a sense of identity and distinctiveness for the settlement.</p> <p>b) New commercial developments shall generally be located within the core area and shall contribute positively to the village urban fabric and streetscape.</p> <p>c) New community and social facilities shall be provided in conjunction with residential development as required.</p> <p><u>d) The development of these centres shall provide for serviced sites and a variety of other house types and densities as appropriate.</u></p> <p><u>e) Where there is no treatment plant or limited capacity in the existing treatment plant, sewerage treatment shall generally be by means of individual treatment systems, subject to satisfactory site assessment and compliance with EPA guidelines. All systems shall be so constructed so as to allow connection to public sewers in due course when capacity becomes available.</u></p>		
<p>Proposed an amendment to Objective HO 04 – Re-use of Existing Buildings as follows: It is an objective of the Council to encourage redevelopment and reuse, including energy retrofitting, of existing housing stock <u>and conversion of other suitable buildings to sustainable housing accommodation.</u></p>	<p>AA not required</p>	<p>Deals with individual buildings.</p>

Proposed to re-zone lands at Clonmacken, south of the Condell Road from Agriculture to Residential Zoning (4ha.)	AA required.	Part of the land are at flood risk and may be used by wildfowl species from the nearby Special Protection Area.
Proposed an amendment to the Zoning Map for Ballingarry Village to include the land (3.08ha.) as Serviced Sites.	AA not required	Within settlement boundaries and of limited scale, outside Natura 2000 network.
Proposed an amendment to change Objective IN O10 Surface Water and SuDS and Development Management Standard Section 11.3.11 SuDS re Greenroofs	AA not required	Should have local ecological benefits in terms of both green space and surface water management.
Proposed that the zoning of the lands at Rhebogue are changed from Groody Valley Green Wedge to New Residential (0.94ha.)	AA required	Encroachment onto Green Space close to the Lower River Shannon SAC site.
<p>A2a – Proposed that the ‘Community and Education’ land use zone be changed to ‘Mixed Use’ (1.7ha) at Downes site, Pa Healy road</p> <p>A2b – Proposed the insertion of a new section 3.4.5.6 Pa Healy Road Sites into the Draft Plan in chapter 3: Spatial Strategy as follows: Section 3.4.5.6 <u>Pa Healy Road Sites</u> The 1.7 ha. Site is in a prominent location with road frontage onto the Pa Healy Road. The site and adjoining land (former Dawn Dairies) require significant regeneration. In a coordinated and holistic manner, facilitating mixed uses and associated synergies whilst</p>	AA not required	Outside Lower River Shannon SAC site.

ensuring sustainable compact growth. Objective – Pa Healy Road: It is an objective of the Council to:

A) Require the preparation of a masterplan for the land which utilises the low-lying land to the west for recreational purposes and facilitates a mixed-use/ residential development to the west with vehicular access off the existing permitted entrance which was constructed as part of the link road (Pa Healy Road);

B) Enhance the character of the area through urban design and placemaking, incorporating buildings of high-quality design having regard to the sites prominent location on the Pa Healy Road;

C) Require provision of an integrated sustainable mobility network, with walking, cycling and public transport as the main components;

D) Facilitate connectivity between the low lying land to the west and the adjoining O'Briens public park to the south;

E) Ensure green infrastructure is a key component of the design and layout;

F) Promote a site-specific approach, reflecting emerging best practice, in addressing flood risk and prepare a Site Specific Flood Risk Assessment in accordance with the Planning

System and Flood Risk Management
Guidelines for Planning Authorities.

A2c – Proposed amendment to Section 12.3 of the draft plan as follows: Mixed Use Land Use Zoning as follows:

Objective: To provide for a mixture of residential and compatible commercial uses.

Purpose: To facilitate the use of land for a mix of uses, making provisions, where appropriate for 'primary' uses i.e. residential and combined with other compatible uses e.g. offices as 'secondary'.

These secondary uses will be considered by the Local Authority, having regard to the particular character of the area. A diversity of uses for both day and evening is encouraged. These areas require high levels of accessibility, including pedestrian, cyclists and public transport (where feasible).

Opportunity sites set out in Chapter 3 Spatial Strategy, include Mixed Use zoned lands located at Towlerton, Parkway Valley, Thomond Park and the Pa Healy Road, which have been accounted for in the Core Strategy figures. In addition, the Draft Retail Strategy has identified capacity for additional retail floor space in Moyross, which could be accommodated on the Mixed Use lands at The Bays

<p>identified for employment uses only.</p>		
<p>Proposed that the Enterprise and Employment land use zone is changed to Mixed Use (0.9 hectares) on Shannon Minerals Site, Pa Healy Road</p>	<p>AA not required</p>	<p>Brown field site within zoned area, outside Lower River Shannon SAC site.</p>
<p>Proposed the designation of Roxborough as a Level 6 Settlement to allow for limited small scale residential development within the existing reduced speed zone area. Include additional text as follows: <u>Roxborough benefits from a National School and Golf Club, public lighting, mains water and broadband. Approximately 90 dwellings are located within 500m of the National School, while the settlement is 2.5km from Raheen</u></p>	<p>AA not required</p>	<p>Outside Natura 2000 network</p>

<u>Business Park and 5km from the City Centre</u>		
Proposed that the Annacotty Business Park boundary be extended to encompass some 7 hectares of additional lands to safeguard the expansion of the business Park and to facilitate and promote enterprise and employment in Limerick City and County, as identified on the Map below.	AA not required	Outside Natura 2000 network, and would involve only agricultural grassland
Add additional text under Section 1.3, Bullet Point 1, Chapter 1: The Limerick Brand shall be used to internationalise the city. Any further brands created within and by the Local Authority, including organisations owned by the Local Authority, shall work within the framework outlined in the 'Limerick Atlantic Edge, European Embrace' brand.	AA not required	Applies only to marketing and not to land use.
Proposed an amendment to the zoning of the lands at Greenpark from Enterprise and Employment and Open Space to New Residential (14.71ha.)	AA not required	Already zoned but with buffer between the zoning and the creek. This buffer is identified for retention.

<p>A2a - Proposed an amendment to the zoning of lands adjoining the Dooradoyle District Centre from Semi Natural Open Space to Enterprise and Employment.</p> <p>A2b - Proposed an objective in Chapter 5 A Strong Economy as follows: <u>Dooradoyle Urban Quarter: It is an objective of the Council to:</u></p> <p><u>a) Promote the continued development of lands around the Dooradoyle District Centre and adjoining lands as a Strategic Employment Location through the delivery of additional office based employment uses in a phased manner in conjunction with supporting infrastructure development.</u></p> <p><u>b) Promote improvements to connectivity, signage and permeability within the wider area including pedestrian and cycle facilities linking to Portland Park and provide for the link road from Dooradoyle Road to Rosbrien Road</u></p> <p><u>c) Facilitate the early upgrading of the existing flood defence infrastructure, thus ensuring the long-term flood protection of the wider lands in Dooradoyle in a manner compatible with any future City Wide Flood Relief Scheme.</u></p> <p><u>d) Ensure any application on lands at risk of flooding is accompanied by a Site Specific Flood Risk Assessment which shall</u></p>	<p>AA required</p>	<p>Green field site, subject to flooding, may be used by Wildfowl species from the nearby SPA.</p>
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<p><u>demonstrate that any development does not result in additional significant flood risk in the area and does not impede the future delivery of a wider flood relief scheme for Limerick.</u></p> <p><u>e) Require an overall framework plan / masterplan to be prepared for the lands in advance of, or as part of, any application for a portion of the currently undeveloped lands.</u></p>		
<p>Proposed amendment to zone 33 hectares at Ballysimon House, Commons Road, Ballysimon for the development of a Data Centre.</p>	<p>AA not required</p>	<p>Outside Natura 2000 site network</p>
<p>Proposed a change of zoning from Agriculture to District Centre of 1.6ha. at the Jetland District Centre, Caherdavin, Ennis Road.</p>	<p>AA required.</p>	<p>Possible hydrological links with nearby SAC site and forms part of green space network.</p>
<p>Proposed an amendment to Development Management Standards Section 11.3.5 Roads, footpaths, water services and landscaping as follows: Road and footpath design and construction shall be in accordance with DEHLG 'Recommendation for Site Development Works for Housing Areas' (1998) and design should also be informed by the Design Manual for Urban Roads and Streets, DTTS 2019, <u>DMURS Interim Advice Notice, COVID – 19 Pandemic Response and Whole of Government National Disability Inclusion Strategy (NDIS) 2017 - 2022</u> and any subsequent</p>	<p>AA not required</p>	<p>Relates to construction details of foot paths cycle paths. No effects anticipated.</p>

<p>government guidance documents. Where there is a deviation in the general requirements, the primary consideration will be the safety of pedestrians, cyclists and access for emergency vehicles. Dished kerbs shall be provided at junctions and vehicular entrances, to facilitate people with ease of movement. <u>An assessment of pedestrian crossing requirements to be made at junctions and vehicular entrances with consideration given to appropriateness of dropped kerbs and/or continuous footpaths in each instance.</u></p>		
<p>Proposed amendment to text of the Draft Plan Section 6.5 Sustainable Mobility as follows: The promotion of use and increased delivery of sustainable modes of transport is fundamental to achieving Ireland’s carbon emission reduction requirements of 30% <u>51%</u> by 2030.</p> <p>Proposed amend text to text of Draft Plan Section 6.2.1 Climate Action Plan 2019 <u>2021</u>.</p> <p>Proposed amendment to text under Section 6.5.2 Promoting Active Travel as follows: A transition towards more sustainable modes of transport is essential to reduce Ireland’s carbon emissions and reach the Government’s goal of a 50% <u>51%</u> reduction in carbon emissions by 2050 <u>2030</u>.</p>	<p>AA not required</p>	<p>Clarifies climate targets.</p>

<p>(a) Proposed amendment to the Legend of the Transport Map for the City and Environs as follows: Proposed <u>Indicative</u> Cycle way/Walkway.</p> <p>(b) Proposed further amendment to the Transport Map for the City and Environs to include an indicative cycleway via Belfield Gardens.</p>	AA not required	Within zoned area, outside of Natura 2000 network.
<p>Proposed an amendment to Objective ECON 045 Tourism to include an additional point as follows: <u>It is an objective of the Council to support and promote the development of the Shannon River Interpretative Centre in Limerick City.</u></p>	AA not required	Provides policy support for the centre. Any proposal will be located on zoned area outside of Natura 2000 network.
<p>Proposed the following amendments to Objective ECON 048 Limerick Greenway: Change the title of the Objective to Limerick Greenway <u>Greenways</u> and add an additional point as follows: <u>X) Support the development of a greenway link from Limerick City to connect with the Suir Blueway in Cahir, County Tipperary in so far as it falls within County Limerick, subject to ecological assessment and design.</u></p>	AA not required	Requirement for ecological design and assessment in place from the outset in the policy.
<p>Proposed the change of zoning from Agriculture to New Residential of 2.9ha. at Ballyclough, Castletroy</p>	AA required	Adjacent to Mulkear River, would require examination of appropriate mitigation measures.

<p>Proposed amendment to objective CAF O21 Identified Flood Risk as follows:</p> <p>d) No works including the undertaking of ground level changes shall commence on the lands in the National Technology Park subject to flood risk, until all flood mitigation measures proposed on the site <u>to facilitate future development of the IDA lands</u> have been put in place. <u>These measures shall form part of a, project-specific flood risk assessment being completed as part of the planning application.</u></p>	<p>AA not required</p>	<p>Ensures compliance with flooding guidance from 2009.</p>
<p>Proposed to extend the development boundary in Knocklong.</p>	<p>AA not required</p>	<p>Minor extension of boundary, outside of the Natura 2000 network.</p>
<p>A1a - Change of zoning from Residential to Mixed Use (1.613ha.) in Glin</p> <p>A1b - Include new objective GL08 as follows:</p> <p><u>Mixed use zoned land: The purpose of this zoning is to facilitate a variety of uses that would support the further development of the village, including residential, health care, hotel, and tourism related activities. Notwithstanding the land-use zoning objective and purpose set out in section 12.3, volume 1 and the land use zoning matrix, in order to protect the village centre, retail uses that could more appropriately be located in the</u></p>	<p>AA not required</p>	<p>Change of use within existing zoned area outside of the Lower River Shannon SAC site.</p>

<u>village centre and or compete with existing uses in the village centre will not be permitted on this land.</u>		
Add 1.2 ha of residential land in Glin	AA not required	Minor change of zoning and extension of boundary outside of Natura 2000 sites.
Proposed amendment to Table 2.6 Density Assumptions per Settlement Hierarchy so that the density assumption for Newcastle West (Key Town) are reduced from 35 to 22 Units per Hectares.	AA not required	Concerns density within existing zoned areas.
Proposed amendment to the Cappamore Zoning Map as follows: A1 - Remove Site No. 2 (Area 0.152ha) and realign the boundary to reflect existing residential on the ground; A2 - Change sites No.5 and No.6 from Serviced Sites to New Residential; A3 - Zone the William O'Brien lands (Submission received) to include 0.65 ha Enterprise and Employment and; A4 - 0.66ha as Serviced Sites.	AA not required	Minor changes to zoning within the village of Cappamore outside of the Natura 2000 site network.
Proposed change of zoning from lands currently proposed for residential use to Community use and zoning of additional lands for residential use (1.73 ha) in Doon.	AA not required	Minor changes to zoning within the village of Doon outside of the Natura 2000 site network.
Proposed the removal of RPS. No. 229 – Leonard's Thatched Cottage, Castle-Erkin, Pallasgreen from the Record of Protected Structures.	AA not required	Refers to individual structure outside the Natura 2000 network.

<p>Proposed amendment to Objective SCS1 O9 Educational Facilities to include the following: <u>(d) It is an objective of the Council to commence work, in conjunction with the Department of Education, to identify potential school sites in the city and environs that will address the future educational needs of the projected population.</u></p>	<p>AA not required</p>	<p>Establishes working group in relation to educational sites rather than land use itself.</p>
<p>Insert into Section 11.4.6: Table DM 4 Design Guidelines for Rural Houses the following text: <u>A variety of house types of innovative designs, including timber houses will be considered subject to the dwelling integrating into the local environment and compliance with building regulations.</u></p>	<p>AA not required</p>	<p>Refers to individual structure outside the Natura 2000 network.</p>
<p>Proposed a new policy for inclusion in Section 3.7.16 Homeless Accommodation as follows: Limerick City and County Council will implement measures to address the homeless crisis in Limerick.</p>	<p>AA not required</p>	<p>Refers to homeless policy not land use.</p>
<p>Proposed to change the zoning on lands of approx 1.2 hectares within Ballykeeffe from Enterprise and Employment” to Residential.</p>	<p>AA not required</p>	<p>Change of use within existing zoned area outside of the Lower River Shannon SAC site.</p>
<p>Proposed to change the zoning on lands of approx 14 hectares within Ballykeeffe from Agriculture to Enterprise Employment.</p>	<p>AA required</p>	<p>Change of zoning of flood risk lands from open space to development use. This may be used by wildfowl species from the nearby SPA.</p>

3.3.5 Screening of European Designated Sites

Table 3.1 examines whether there is potential for effects on European Sites. Sites are screened based on one or a combination of the following criteria:

- The existence of potential for pathways for significant effects, such as hydrological links, Plan proposals and the site to be screened;
- The distance of the relevant site from the County boundary; and
- The existence of a link between identified threats or vulnerabilities at a site to potential impacts that may arise from the Plan.

Table 3.1: Screening for European Designated Site

Site Code	European Site	Distance (km)	Qualifying Features (Qualifying Interest and Special Conservation Interests)	Potential effects	Potential Pathway for Significant effects	Potential for in combination effects
0002279	Askeaton Fen Complex SAC	36km	Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> [7210] Alkaline fens [7230]	None, due to distance from the site of proposed amendments which are largely in the city area or where outside are confined to local settlements with localised effects.	No	No
002036	<u>Ballyhoura Mountains SAC</u>	70km	Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010] European dry heaths [4030] Blanket bogs (* if active bog) [7130]	None, due to distance from the site of proposed amendments which are largely in the city area or where outside are confined to local settlements with localised effects.	No	No
00432	<u>Barrigone SAC</u>	30km	<i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130] Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites) [6210]	None, due to distance from the site of proposed amendments which are largely in the city area or where outside are confined to local settlements with localised effects	No	No

			<p>Limestone pavements [8240]</p> <p>Euphydryas aurinia (Marsh Fritillary) [1065]</p>			
00217	Blackwater River (Cork/Waterford) SAC	72km	<p>Estuaries [1130]</p> <p>Mudflats and sandflats not covered by seawater at low tide [1140]</p> <p>Perennial vegetation of stony banks [1220]</p> <p>Salicornia and other annuals colonising mud and sand [1310]</p> <p>Atlantic salt meadows (Glauco-Puccinellietalia maritima) [1330]</p> <p>Mediterranean salt meadows (Juncetalia maritimi) [1410]</p> <p>Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation [3260]</p> <p>Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]</p>	None, due to distance from the site of proposed amendments which are largely in the city area or where outside are confined to local settlements with localised effects.	No	No

		<p>Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0]</p> <p><i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029]</p> <p><i>Austropotamobius pallipes</i> (White-clawed Crayfish) [1092]</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>Alosa fallax fallax</i> (Twaite Shad) [1103]</p> <p><i>Salmo salar</i> (Salmon) [1106]</p> <p><i>Lutra lutra</i> (Otter) [1355]</p> <p><i>Trichomanes speciosum</i> (Killarney Fern) [1421]</p>		
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002037	Carrigeenamro nety Hill SAC	30km	European dry heaths [4030] Trichomanes speciosum (Killarney Fern) [1421]	None, due to distance from the site of proposed amendments which are largely in the city area or where outside are confined to local settlements with localised effects	No	No
000930	Clare Glen SAC	24km	Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] Trichomanes speciosum (Killarney Fern) [1421]	None, due to distance from the site of proposed amendments which are largely in the city area or where outside are confined to local settlements with localised effects	No	No
000174	Curraghchase Woods SAC	14km	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] Taxus baccata woods of the British Isles [91J0] Vertigo moulinsiana (Desmoulin's Whorl Snail) [1016] Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303]	None, due to distance from the site of proposed amendments which are largely in the city area or where outside are confined to local settlements with localised effects	No	No

000646	Galtee Mountains SAC	74km	<p>Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010]</p> <p>European dry heaths [4030]</p> <p>Alpine and Boreal heaths [4060]</p> <p>Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) [6230]</p> <p>Blanket bogs (* if active bog) [7130]</p> <p>Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>) [8110]</p> <p>Calcareous rocky slopes with chasmophytic vegetation [8210]</p> <p>Siliceous rocky slopes with chasmophytic vegetation [8220]</p>	None, due to distance from the site of proposed amendments which are largely in the city area or where outside are confined to local settlements with localised effects	No	No
001430	Glen Bog SAC	22km	<p>Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0]</p>	None, due to distance from the site of proposed amendments which are largely in the city area or where outside are confined to local settlements with localised effects	No	No

001432	Glenstal Wood SAC	18km	Trichomanes speciosum (Killarney Fern) [1421]	None, due to distance from the site of proposed amendments which are largely in the city area or where outside are confined to local settlements with localised effects	No	No
002165	Lower River Shannon SAC	1km	<p>Sandbanks which are slightly covered by sea water all the time [1110]</p> <p>Estuaries [1130]</p> <p>Mudflats and sandflats not covered by seawater at low tide [1140]</p> <p>Coastal lagoons [1150]</p> <p>Large shallow inlets and bays [1160]</p> <p>Reefs [1170]</p> <p>Perennial vegetation of stony banks [1220]</p> <p>Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]</p> <p>Salicornia and other annuals colonising mud and sand [1310]</p>	<p>Amendments that call for the zoning of undeveloped green fields lands in the city, can affect local hydrology. Though the sites are outside the Lower River Shannon SAC site, the loss of floodplain habitats could affect the movement of species such as otters.</p> <p>Habitats such as these would function as stepping stones for such species as mentioned in Article 10 of the Habitats Directive.</p>	Yes	Yes

			<p>Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330]</p> <p>Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]</p> <p>Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260]</p> <p>Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</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>			
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			<p>Lampetra fluviatilis (River Lamprey) [1099]</p> <p>Salmo salar (Salmon) [1106]</p> <p>Tursiops truncatus (Common Bottlenose Dolphin) [1349]</p> <p>Lutra lutra (Otter) [1355]</p>			
004077	River Shannon and River Fergus Estuaries SPA	1km	<p>Cormorant (Phalacrocorax carbo) [A017]</p> <p>Whooper Swan (Cygnus cygnus) [A038]</p> <p>Light-bellied Brent Goose (Branta bernicla hrota) [A046]</p> <p>Shelduck (Tadorna tadorna) [A048]</p> <p>Wigeon (Anas penelope) [A050]</p> <p>Teal (Anas crecca) [A052]</p> <p>Pintail (Anas acuta) [A054]</p> <p>Shoveler (Anas clypeata) [A056]</p> <p>Scaup (Aythya marila) [A062]</p>	<p>Amendments that call for the zoning of undeveloped green fields lands in the city, can affect local hydrology. Though the sites are outside the Lower River Shannon SAC site, the loss of floodplain habitats could affect the movement of species such as Lapwing. Sites such as these are suitable for feeding and resting away from the main river channel.</p> <p>With the mobile nature of bird populations such sites are important for functioning of Special Protection Areas even if they are outside its designated boundaries.</p>	Yes	Yes

			<p>Ringed Plover (<i>Charadrius hiaticula</i>) [A137]</p> <p>Golden Plover (<i>Pluvialis apricaria</i>) [A140]</p> <p>Grey Plover (<i>Pluvialis squatarola</i>) [A141]</p> <p>Lapwing (<i>Vanellus vanellus</i>) [A142]</p> <p>Knot (<i>Calidris canutus</i>) [A143]</p> <p>Dunlin (<i>Calidris alpina</i>) [A149]</p> <p>Black-tailed Godwit (<i>Limosa limosa</i>) [A156]</p> <p>Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]</p> <p>Curlew (<i>Numenius arquata</i>) [A160]</p> <p>Redshank (<i>Tringa totanus</i>) [A162]</p> <p>Greenshank (<i>Tringa nebularia</i>) [A164]</p> <p>Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]</p>		
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			Wetland and Waterbirds [A999]			
004165	Slievefelim to Silvermines Mountains SPA	18km	Hen Harrier (<i>Circus cyaneus</i>) [A082]	None, due to distance from the site of proposed amendments which are largely in the city area or where outside are confined to local settlements with localised effects	No	No
004161	Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA	Within	Hen Harrier (<i>Circus cyaneus</i>) [A082]	There is a proposal for a slight encroachment of the development boundary of Carrigkerry into the SPA. This is close to the village centre and hence already subject to human disturbance and has been the subject of previous planning permissions	Yes	Yes
000439	Tory Hill SAC	20km	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]	None, due to distance from the site of proposed amendments which are largely in the city area or where outside are confined to local settlements with localised effects.	No	No

3.4 Other Plans and Programmes

Article 6(3) of the Habitats Directive requires an assessment of a plan or project to consider other plans or programmes that might, in combination with the plan or project, have the potential to adversely affect European Sites. Section 6.0 below outlines a selection of plans or projects that may interact with the Plan to cause in-combination effects to European Sites. Projects within the Draft Plan area and receiving environment will be considered. Given the uncertainties that exist with regard to the scale and location of developments facilitated by the Draft Plan, it is recognised that the identification of in-combination effects is limited and that the assessment of in-combination effects will need to be undertaken in a more comprehensive manner at the project level.

3.5 AA Screening Conclusion

The effects that could arise from some of the amendments have been examined and could affect the integrity of Lower River Shannon SAC site and have indirect effects on the River Shannon and Fergus Estuary SPA. See Table 3.1. The Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA could also be affected. On the basis of the findings of this Screening for AA, it is concluded that the Plan and amendments:

- Is not directly connected with or necessary to the management of any European Site; and
- May, if unmitigated, have significant effects on three no. European Sites.

Therefore, a Stage 2 AA is required for the Plan (see Section 4 of this report).

Section 4: Stage 2 Appropriate Assessment

4.1 Introduction

The Stage 2 AA assesses whether the amendments to the Plan alone, or in-combination with other plans, programmes, and/or projects, would result in adverse impacts on the integrity of the 3 European Sites brought forward from screening, with respect to site structure, function and/or conservation objectives.

The Draft Limerick Development Plan is a land use plan and is not intended for the purposes of managing Natura 2000 sites. The primary legislation behind the preparation of a development plan is the Planning and Development Act 2000 (as amended) and Section 28 Guidelines. These inform the policy content of the plan. The policy content of the plan guides development and land use in Limerick, and it is through this that effects can occur on Natura 2000 sites. This Natura Impact Statement (NIS) presents the results of the

assessment of the effects of the plan policies on the Natura 2000 site network. It also sets out mitigation and monitoring measures

4.2 Characterisation of European Sites Potentially Affected

The AA Screening identified three European Sites with pathway receptors for potential effects arising from the implementation of the Plan. Table 3.1 above sets out each of the qualifying features of the 14 European Sites brought forward from Stage 1. Each of these site characterisations were taken from the NPWS website. The three sites are the Lower River Shannon SAC site (002165), the River Shannon and Fergus Estuary (004077) and The Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (004161).

4.3 Identifying and Characterising Potential Significant Effects

The following parameters can be used when characterising impacts¹:

Direct and Indirect Impacts - An impact can be caused either as a direct or as an indirect consequence of a Plan/Project.

Magnitude - Magnitude measures the size of an impact, which is described as high, medium, low, very low or negligible.

Extent - The area over that the impact occurs – this should be predicted in a quantified manner.

Duration - The time that the effect is expected to last prior to recovery or replacement of the resource or feature.

- Temporary: Up to 1 Year;
- Short Term: The effects would take 1-7 years to be mitigated;
- Medium Term: The effects would take 7-15 years to be mitigated;
- Long Term: The effects would take 15-60 years to be mitigated; and
- Permanent: The effects would take 60+ years to be mitigated.

Likelihood – The probability of the effect occurring taking into account all available information.

- Certain/Near Certain: >95% chance of occurring as predicted;¹

¹ These descriptions are informed by publications including: Chartered Institute of Ecology and Environmental Management (2016) "Guidelines for ecological impact assessment"; Environmental Protection Agency (2002) "Guidelines on the Information to be contained in Environmental Impact Statements"; and National Roads Authority (2009) "Guidelines for Assessment of Ecological Impacts of National Roads Schemes".

- Probable: 50-95% chance as occurring as predicted;
- Unlikely: 5-50% chance as occurring as predicted; and
- Extremely Unlikely: <5% chance as occurring as predicted.

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.

The Habitats Directive requires the focus of the assessment at this stage to be on the integrity of the site as indicated by its Conservation Objectives. It is an aim of NPWS to draw up conservation management plans for all areas designated for nature conservation. These plans will, among other things, set clear objectives for the conservation of the features of interest within a site. Site-Specific Conservation Objectives (SSCOs) have been prepared for a number of European Sites. These detailed SSCOs aim to define favourable conservation condition for the qualifying habitats and species at that site by setting targets for appropriate attributes that define the character habitat. The maintenance of the favourable condition for these habitats and species at the site level will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level

Favourable conservation status of a species can be described as being achieved when: 'population data on the species concerned indicate that it is maintaining itself, and the natural range of the species is neither being reduced or 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'.

Favourable conservation status of a habitat can be described as being achieved when: 'its natural range, and area it covers within that range, is stable or increasing, and the ecological factors that 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'.

Conservation Objective for SACs:

- To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species that the SAC has been selected.

Conservation Objective for SPAs:

- To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.

4.4 Assessment of likely Significant Effects on Designated Sites

Assessment of potential impacts on European Sites is conducted utilising a standard source-path-receptor model. The 2001 European Commission AA guidance outlines the following potential changes that may occur at a designated site, which may result in effects on the integrity and function of that site: loss/reduction of habitat area; habitat or species fragmentation; disturbance to key species; reduction in species density; changes in key indicators of conservation value (water quality etc.); and climate change.

4.4.1 Loss/Reduction of Habitat Area

The Draft Plan provides a framework for granting consent for land use developments and activities across the whole County. Potential effects arising from developments and activities include land take, habitat destruction, disturbance effects, light pollution, dust, hydrological interactions, airborne pollution and excessive noise. Three Natura 2000 sites occurring within or partially within the County have the potential to be impacted by the Amendments, but one in particular the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (004161) will suffer direct encroachment.

4.4.2 Habitat or species Fragmentation

The Draft Plan provides a framework for granting consent for land use developments and activities across various sectors. Potential effects arising from developments and activities include the fragmentation of habitat and or species through, for example, light pollution, habitat loss or removal of stepping stone habitats. The Draft Plan includes measures to minimise potential fragmentation and to facilitate the enhancement of ecological corridors such as riparian zones, planting of native tree species, management of habitats such as woodlands and minimising inappropriate lighting (relevant policies and objectives are expanded on in Section 5.0).

Further to the above, there are provisions related to non-designated sites and specific ecological resources and/or habitats such as waterways, wetlands and peatlands that will

ensure that habitat or species fragmentation does not occur in relation to the connectivity of the ecological resources necessary to maintain the ecological integrity of European Sites.

4.4.3 Disturbance to Key Species

The Draft Plan provides a framework for granting consent for land use developments and activities across various sectors. Disturbance effects are caused by any activity or development that has potential to alter the movement patterns or distribution of species, for example direct disturbance through human activity/movement as a result of recreation/tourism or noise pollution.

Other disturbance effects could relate to a reduction in habitat quality for species. Policies to ensure the protection of habitat quality have been built into the plan as identified below. Disturbance to Flora Protection Order species has also been included in analysis of the amendments below.

4.4.4 Reduction in species density

Species densities are reliant on species distributions, habitat condition, connectivity of ecological resources and availability of resources such as prey/food. The Draft Plan introduces potential sources for effects to affect these four determinant factors for species densities in the form of construction phase effects such as habitat destruction, light pollution, hydrological interaction or operational effects such as disturbance effects, habitat encroachment and trampling. However, the Plan contains provisions to enhance biodiversity, landscape and the environment within Limerick. The Draft Plan includes provisions related to non-designated sites and specific ecological resources and/or habitats such as waterways, wetlands and peatlands that will ensure that habitat or species fragmentation does not occur in relation to the connectivity of the ecological resources necessary to maintain the ecological integrity of European Sites. Measures relating to light pollution, noise pollution, habitat loss and fragmentation are addressed below including policies and objectives within the draft plan. Measures are also included that will help protect and improve water quality interactions, which can influence species densities, including those relating to water services infrastructure, protective buffer zones and water quality standards.

4.4.5 Changes of Indicators of Conservation Value

Indicators of conservation value are identified as key ecological resources such as water quality, air quality, habitat quality, population health of key species or 'keystone species' etc. The protection of these resources is a key focus of the Draft Plan. The Draft Plan

contains many policies and objectives to ensure the protection of both ground and surface water quality. It is important that the amendments are in line with these. Development within the vicinity of groundwater or surface water dependent European Sites will not be permitted where there is potential for a significant impact upon the groundwater or surface water supply to the European Sites. Additionally, various other policies provide broader scope to ensure the protection of the wider landscape associated with riparian zones and habitats sensitive to hydrological interactions. These are outlined in section 5.0 below.

4.4.6 Climate change

The Draft Plan includes provisions that potentially conflict with climate mitigation and provisions that will help to contribute towards climate mitigation. Greenhouse gas emissions arising from the Plan will not affect changes projected to arise from climate change to the degree that it would affect the European Sites considered.

Section 5: Assessment of Draft Development Plan Amendments

5.1 Introduction

Each amendment proposed in the Draft Limerick Development Plan was assessed as part of the Environmental Report. This has a wider focus than the NIS, but from the Environmental Report it was possible to identify those amendments that would have the potential to have effects on the Natura 2000 site network and possible ecological impacts.

5.2 Assessment of Proposed Amendments to the Draft Plan

A Chief Executive's Report on Public consultation was circulated to the Elected Members on 26 November 2021. This also included Volume 3(a) Environmental Assessments of Proposed Material Amendments. These amendments are outlined in section 3.3.3 above. The reports were considered over a series of briefing meetings, which culminated in a Special Council Meeting of 18 February 2022, where the final amendments were considered by the Elected Members.

This section sets out the additional amendments made by the elected members at that council meeting and examine the potential for effects that they might have on the Natura 2000 site network. As indicated above there is potential for effects on the three sites. These are carried forward from Table 3.1 above.

1. **Extend the development boundary of Carrigkerry, indicated by dashed red line.**



Reasons given for amendment:

- The proposed lands are an integral part of the village core and take account of permission recently granted.
- The proposed lands will support compact growth, in line with national and regional planning policy.



The shaded areas shows the extent of the of the Special Protection Area designation. The Carrigkerry boundary extension lies within it.

NIS commentary:

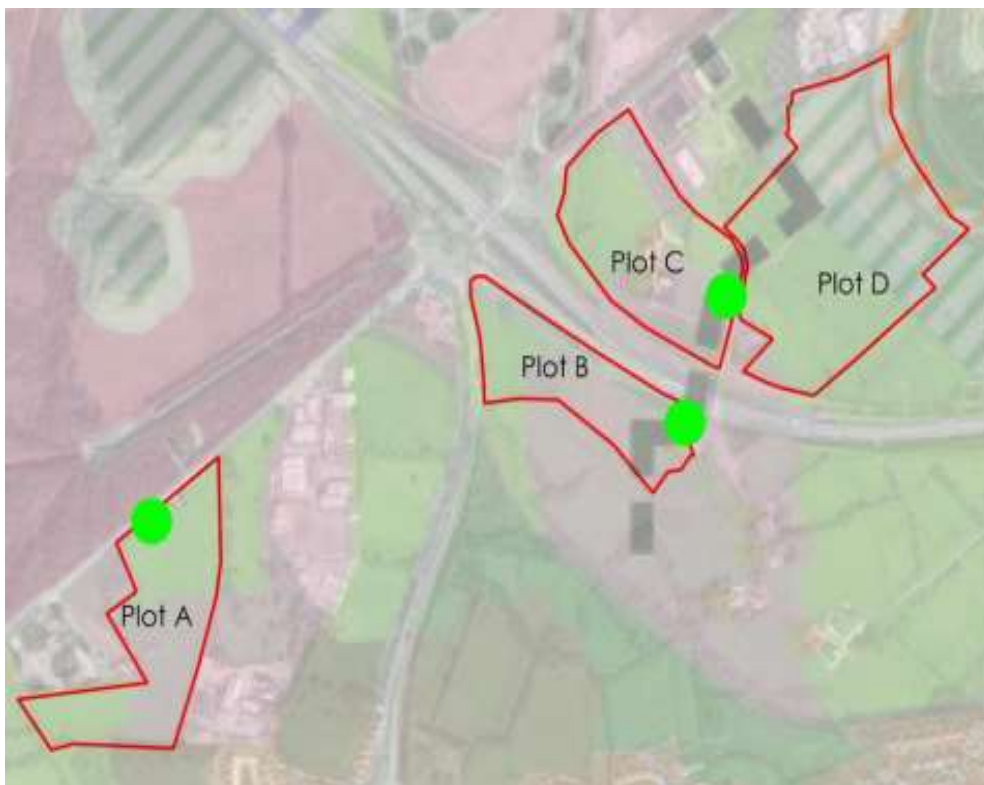
Though there is a slight encroachment into the West Limerick Hills SPA, it is considered that since this area is close to the village core it is already subject to human disturbance and

would not be suitable foraging or nesting habitat for the hen harrier. Noted also that a 2009 circular from the NPWS mentions that rural housing does not generally affect the ecological status of the hen harrier. An outline planning permission had been granted in 2018 and a subsequent application was granted in 2021. The boundary extension reflects this planning context. Furthermore, the lands in question are not suitable hen harrier habitat.

Conclusion: The effects of the expansion would not be significant. However, as mitigation it is recommended that areas at the outskirts of the boundary extension be allowed to revegetate naturally as rough upland grassland to ensure that foraging habitat remains in the area.

2. Change of Zoning City and Environs on Lands at Ballykeeffe

Propose a change of zoning from Agriculture be changed to Enterprise and Employment at Ballykeeffe - the proposed amendment relates to 4 plots of lands Plot A (5.57ha), Plot B (4.25ha), Plot C (5.57ha) and Plot D (10.22ha). Lands zoned Semi - Natural Open Space are precluded from the rezoning, it only applies to Agriculturally zoned lands.



Reasons given for proposed amendment:

- The flood risk assessment accompanying the Draft Development Plan is based on the precautionary approach and the Flood Guidelines sets out that there are no uncertainties in datasets and assessment techniques
- Areas at risk of flooding along the Dock Road and adjoining the former Racecourse are zoned for Enterprise and Employment, with a high risk of flood. Flood risk is not an impediment to development for Enterprise and Employment.
- The Development Plan Justification Test submitted in support of the proposed amendment justifies the suitability of the lands for Enterprise and Employment and proposes measures to prevent flood inundation, including the raising of floor levels.
- Strategic location of the site with accessibility and connectivity to the inter-regional transport network and other transport modes supports optimisation of land use at this location for economic development.

NIS commentary: The site is within Flood Zone A. Apart from the risk of flooding and consequent effects on local hydrology it also means that there will be loss of open grassland within the plan area which might be used by bird species from the nearby SPA. See section 5.4 below. This has been included as there are number of amendments within the plan area to re-zone lands, prone to flooding, previously zoned for semi-natural open space or agriculture within the plan for development uses. Article 10 of the Habitats Directive encourages the retention or management of landscape features, outside of the Natura 2000 site network to assist with the dispersal of species. It has been said that ...”grassland in urban areas especially that which is close to the coast is used by water birds to feed when food is scarce in their natural estuarine habitats or when weather and tides there are not suitable” (Ni Lamhna, Nairn Benson and Kelly (2012, pp. 204-5).

Conclusion: see section 5.3 below. While this zoning would result in the eventual loss of habitat which might be used by wildfowl dispersing from the main river channel during flood events (either tidal or weather related) the effects are expected to be localised, in that Limerick is fringed by agricultural grasslands within a short flight time away. From this perspective it considered that the effects would be localised, i.e. having an effect only within the southern environs area of the city.

3. Proposal to re-zone from Agriculture to Residential zoning of 4ha. in Clonmacken, south of the Condell Road



The shaded lands are the land in question; these are the additional lands to be zoned which are in a flood zone.

Reasons given for proposed amendment:

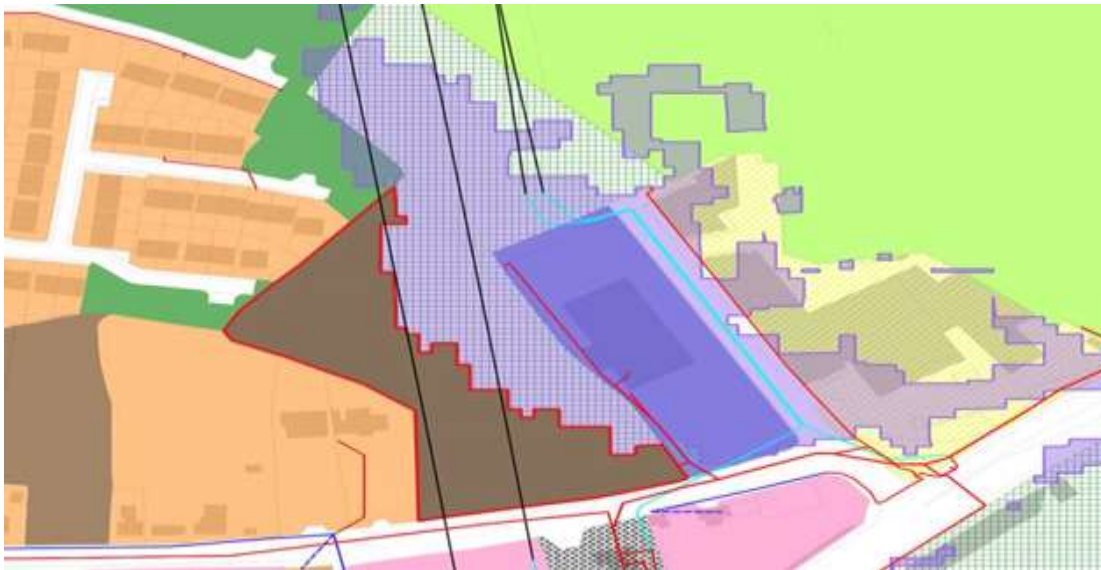
- The site is located in close proximity to the City Centre, will facilitate the development of compact growth in line with national and regional planning policy;
- Site is located in an established residential area with sustainable transport links to the Jetland District Centre and City Centre;
- SHD pre-planning discussions will facilitate the delivery of residential units over the lifetime of the plan and contribute to population growth;
- The Site-Specific Flood Risk Assessment, that was submitted in support of the proposed amendment, indicates that enabling/mitigation works would bring much of the site out of the flood risk zones. A Justification Test indicating that the site passes the Development Plan justification test was also submitted.

NIS response: The lands that are shaded in black are in addition to the lands that are zoned. They are in a flood zone. Similar to the other lands, the gradual zoning and consequent loss of flood prone lands to development zoning, would mean the loss of habitat suitable for foraging wildfowl, close to the estuary. This is likely to be limited, as part of the site is covered in scrub which would not be attractive to wildfowl species.

Conclusion: Limited effects as the site is partly covered in scrub, a habitat which wildfowl do not favour. In this case, it is considered that any potential effects on the nearby SAC or SPA would be very limited and not significant.

4. Change to Zoning at Rhebogue from Groody Green Wedge to Residential

Proposes that the zoning of the lands at Rhebogue identified on the image below, outlined in red are changed from Groody Valley Green Wedge to New Residential (0.94ha.).



Reasons given for proposed amendment:

Two parallel 110kv high voltage electricity cables and pylons traverse the site. The significant cost of relocating the cables has not been defined. No cost benefit analysis supports the viability or otherwise of relaying the ESB cables underground. It is premature to determine that the repositioning of electrical infrastructure would severely restrict the development of the site when the details are unknown. Practicality, cost and viability must be determined.

NIS commentary: Following consultation with the ESB, the Planning Authority have been informed that relocation of the high voltage infrastructure cannot be facilitated at this location. Therefore, the potential development of the site is seriously restricted. Retention of green wedge zoning would also ensure maintenance of levels of open space within the plan area. As outlined above the retention of such open space has beneficial ecological effects and avoids the gradual loss of green areas within the urban boundaries. The Groody Green Wedge is used by a number of species associated with both the nearby SPA and SAC Both Otters and Lapwing, for instance, use the River Groody Green Wedge and the retention of green space on the edge of the green wedge reduces chances of disturbance to species that use the green wedge. This will help ensure the integrity of network of green spaces around the urban area which is consistent with Article 10 and can facilitate species movement.

Conclusions: the retention of green wedge zoning on the site would help prevent further encroachment onto the River Groody Green wedge itself which plays host to, amongst others, otters and lapwing both part of the qualifying interests of the Lower River Shannon SAC site and the River Shannon and Fergus Estuaries SPA. However, this area is on the fringe of the green wedge set amongst other developed lands and the effects from its rezoning, from an ecological perspective would be likely to be limited, especially if it would not encroach into the flood prone area east of the site, indicated by the blue shading above.

5 Amendment that the lands adjoining the Dooradoyle District Centre outlined in red below, be zoned “Enterprise and Employment” rather than “Semi Natural Open Space”

1) Change of zoning



2) Add an objective to Chapter 4 (A Strong Economy) as follows: **Dooradoyle Urban Quarter:**

- To promote the continued development of lands around the Dooradoyle District Centre and adjoining lands as a Strategic Employment Location through the delivery of additional office based employment uses in a phased manner in conjunction with supporting infrastructure development.
- To promote improvements to connectivity, signage and permeability within the wider area including pedestrian and cycle facilities linking to Portland Park and provide for the link road from Dooradoyle Road to Rosbrien Road
- To facilitate the early upgrading of the existing flood defence infrastructure, thus ensuring the long-term flood protection of the wider lands in Dooradoyle in a manner compatible with any future City Wide Flood Relief Scheme.
- Any application on lands at risk of flooding to be accompanied by a Site Specific Flood Risk Assessment which shall demonstrate that any development does not result in additional significant flood risk in the area and does not impede the future delivery of a wider flood relief scheme for Limerick.
- An overall framework plan / masterplan is to be prepared for the lands in advance or as part of any application for a portion of the currently undeveloped lands.

Reasons given for proposed amendment:

The Dooradoyle area represents a strategically located parcel of lands providing a gateway to the city on an important public transport corridor within the built-up area of the southern suburbs of Limerick. The Dooradoyle District Centre and adjoining lands, extending to over 30 hectares, represent a strategically important large scale under-developed site within the inner suburbs with potential to be further developed at the heart of a comprehensive mixed-use Urban Quarter. The existing Crescent Shopping Centre alone already employs nearly 1,500 workers, and when fully built out the total site area has the capacity to accommodate in the order of 2,000 additional employees (additional jobs mainly in offices, technology and support services). Dooradoyle District Centre is therefore considered to be a Strategic Employment Location and has the potential for a significant intensification of employment. The designation as a Strategic Employment Location would ensure compliance with higher tier plans and Section 28 Guidelines.

The lands are sequentially favourable for development, being located on the transition of the City and Southern Environs and comprise a significant infill site, which will be in accordance with national planning objectives for consolidated compact urban growth. The river, N18 and disused rail line historically have provided a physical barrier to permeability in

the area, which may be addressed as part of the comprehensive development of the lands. Development of the lands on the old boundary of the City and County Council's would be representative of the new single Authority approach to the sustainable and appropriate development of Limerick.

The development of the lands would further utilise existing infrastructure such as public transport and services.

Additionally with reference to the submission on the draft Development Plan by Irish Rail to the provision of a commuter rail station at Dooradoyle and forthcoming publication of LSMATS setting out the future sustainable transport.

Therefore, these lands should be identified as a key opportunity site for Limerick City and to give effect to such a designation, there is a requirement to have the lands appropriately zoned.

The provision of Enterprise and Employment lands at this location will provide additional choice of land for companies and investment as an attraction to investment in Limerick in the short term having regard to the existing infrastructure including services, high quality bus services and pedestrian and cycle facilities.

Enterprise and Employment uses are classed as less vulnerable uses under the Flood Risk Guidelines and a suite of documentation is included as Appendices to this rationale, including:

- Appendix 1 – Dooradoyle Urban Quarter Strategic Flood Risk Assessment Summary Report

- Appendix 2 – Plan Making Justification Test
- Appendix 3 – Strategic Flood Risk Assessment
- Appendix 4 – Geotechnical Analysis
- Appendix 5 – Downstream Breach Assessment
- Appendix 6 – IDA Submission on Draft Development Plan

It is further noted that the IDA submission on the draft Development Plan contends sufficient employment lands to attract inward employment investment are not provided for by the draft Development Plan. The proposed amendments will help address this concern.

The IDA has indicated in its submission it is targeting 76 investments for the mid west region between now and 2024. Thus, more lands are needed immediately and not at the next

development plan in a number of years time, or there is risk of lost investment in the County.

NIS Commentary: The site is within Flood Zone A and the OPW have raised concerns that development of the site is premature pending the Limerick City Flood Relief Scheme being progressed.

The loss of land specifically zoned as semi-natural open space because of its location within a floodplain and its undeveloped grassland would mean a loss of habitat network within the City boundaries. Article 10 of the Habitats Directive encourages the retention or management of landscape features, outside of the Natura 2000 site network to assist with the dispersal of species. Cumulatively the loss of this and other open space habitat will affect the ability of species to move about and within the urban area and reduce the usefulness of the city area for the bird species listed of conservation interest within the Special Protection Area (see 5.3 below).

Conclusion: The loss of low-lying wet grassland with associated drains would mean the loss of suitable foraging habitat for wildfowl dispersing from the nearby River Shannon SPA. The loss of drains would also remove habitats for amphibians such as frogs and newts. This would result in the direct loss of habitats but these would be outside the qualifying interests of both the nearby SAC and SPA. The drains would need to be surveyed for the presence of Flora Protection Order species such as the triangular club rush and the Opposite Leaved Pondweed. However, the effects are judged to be local and limited and there are similar habitats along the river and the wildfowl are within short flying distances of other agricultural grasslands in the hinterland of Limerick city.

6. Change Agricultural zoning (1.6 hectares) to District Centre zoning at lands located within the Jetland District Centre at Caherdavin, Ennis Road

Propose a change of zoning from Agriculture to District Centre of 1.6ha. as per the image below at the Jetland District Centre, Caherdavin, Ennis Road



Reasons given for proposed amendment:

- A comprehensive planning application has been submitted on the land for HSE sponsored Primary Care Centre.
- A comprehensive Site-Specific Flood Risk Assessment (SSFRA) and Justification Test was submitted demonstrating that the site is at low risk of flooding and can be developed in accordance with Department Flooding Guidelines.
- Contrary to the consideration of the planning authority it is submitted that the proposed development does comply with the Justification Test, having regard to its location within and adjoining the core of an urban area.
- A substantial part of the site, adjoining the road is brownfield in nature and is in need of regeneration.
- There is no other alternative site available in the northwestern suburbs of Limerick City, surrounded by residential development, accessible by public transport with the ability to create synergies with other services and facilities, that can accommodate the development proposal.

NIS Commentary: The site is located in Flood Zone A. The site is currently undeveloped and its retention as such within the urban area would add to the network of green space available which would be in line with Article 10 of the Habitats Directive. As indicated elsewhere the zoning of previously unzoned flood vulnerable lands will have the effects of reducing the amount of green space available for passive amenity and for use by wildlife within the urban boundary.

Conclusion: The proposed amendment would lead to a loss of green space within the city area, which would have a local effect. There is the possibility of a hydrological link to the Shannon, but overall the potential for effects on the SAC/SPA site is considered to be slight, both due to distance but also to the fact that good practice measures to prevent pollution is now part of standard work practices. The effects are regarded as localised.

7. Amend City and Environs Zoning Map to change the zoning on lands of approx. 14 hectares within Ballykeeffe, from Agriculture to Enterprise Employment



Reasons given for proposed amendment:

- The lands subject to this proposed change are similar to Enterprise and Employment zoned lands at Greenpark. The relevant lands are located on the opposite side of the River to the Greenpark Lands.
- The lands are also located adjacent to a disused rail line, which has the potential for sustainable mass travel from the lands to the city centre and other areas of the City and County.
- The defended site (and proposed development area) is not within the existing area of risk (although is largely within Flood Zone A) so risk is from residual risk of breach rather than direct inundation. The embankment defences are part of the OPW arterial drainage scheme and are of unknown condition and standard of protection, although the defence height (as modelled by CFRAM and RPS) provides protection to the site in the 0.5% and 0.1% tidal events.
- Any detailed development proposals can address and manage flood risk with the site plans, typically through appropriate setting of finished floor levels, ground raising and use of the sequential approach within the development to ensure more vulnerable elements of the design are at a higher level.
- It is noted within Page 26 of the “The Planning System and Flood Risk Management - Guidelines for Planning Authorities” under the heading “Justification Test” that “...strategically located urban centres and particularly city and town centre areas whose continued growth and development is being encouraged in order to bring about compact and sustainable urban development and more balanced regional

development.” We therefore believe these lands on the city boundary adjacent to established residential and industrial developments can contribute to the compact development of the City, avoid urban sprawl and therefore the use of justification test when assessing flood risk is appropriate.

- These lands meet the requirements for sustainable development under the Flood Risk Management Guidelines, the aim of which is to ensure that sustainable development can proceed in towns and cities, despite the fact most are located in flood plains. As the lands are already defended these lands are not flood plains and any development of these lands will not unduly effect lands up or down stream of the river.

NIS Commentary: A portion of the lands are within Flood Zone A and B. Similar to other areas the loss of agriculturally zoned lands to more intensively development zonings would mean the eventual loss of open space in the city areas which could be used by both wildfowl species from the Special Protection Area and also add to risk of flood displacement within the city area and effects on local hydrology.

Conclusion: See section 5.3 below. While this zoning would result in the eventual loss of habitat which might be used by wildfowl dispersing from the main river channel during address conditions (either tidal or weather related) the effects are expected to be localised i.e. having an effect only within the southern environs area of the city, in that Limerick is fringed by agricultural grasslands within a short flight time away..

8. Change of zoning from Agriculture to New Residential zoned land (2.9 ha), Ballyclough, Castletroy

Propose the change of zoning from Agriculture to New Residential of 2.9ha. at Ballyclough, Castletroy



Reasons given for proposed amendment:

- Compact growth, the site is connected by footpath to and within walking distance of the thriving Newtown Shopping Centre and the many local educational / community facilities.
- The site is accessible by public transport.
- Requirement for additional zoned land.
- Lands are not identified on CFRAM maps as being at flood risk.
- Noise separation corridor of 80m proposed.



The arrow indicates the land in question, while the shaded areas indicates the Lower River Shannon SAC site to the west.

NIS Commentary: Any development of the lands would require an appropriate level of assessment of all the relevant issues on site, including noise, surface water management and ecology. The site is adjacent to the Mulkear River, which is part of the Lower River Shannon SAC site. Without mitigation measures there is the potential for effects on this site. It is recommended that a buffer be observed between any potential development and the SAC site and that the line of trees and vegetation along the banks of the Mulkear be retained, to avoid encroachment into the river zone. This mitigation should be built into any site level assessment of development projects. With this mitigation in place, there should not be significant effects on the nearby SAC site.

Conclusion: with the mitigation measures mentioned above, the possibility of effects on the nearby SAC site is not judged to be significant. The buffer would prevent light spill into the SAC site, while the vegetated strip would enhance the buffer between the site and the Lower River Shannon's Qualifying Interests.

5.3 The Importance of the River Shannon and Fergus Estuary Special Protection Area

The Special Protection Area has been designated for its internationally important population of wintering wildfowl. The ecology of coastal wildfowl and their use of coastal and near coastal habitats is complex; the following lengthy quote is from The River Shannon & River Fergus Estuaries Special Protection Area (Site Code 4077) Conservation Objectives Supporting Document (NPWS, 2012) and indicates the situation:

“A single wetland site seldom meets all the ecological requirements of a diverse assemblage of waterbirds”. Although some waterbird species will be faithful to specific habitats within the SPA, many will at times use habitats situated within the immediate hinterland of the site or in areas ecologically connected to the SPA. These areas may be used as alternative high tide roosts, as a foraging resource or, be simply flown over, either during migration or on a more frequent basis throughout the non-breeding season as waterbirds move between different areas used (e.g. commuting corridors between feeding and roosting areas). In a Limerick context waders, such as snipe and lapwing use such areas in the city and environs as alternative feeding areas from those along the Shannon as tide and weather conditions change.

Reliance on alternative habitats will vary between species and from site to site. Use of alternative habitats is also likely to vary through time, from seasonally through to daily, and different habitats may be used by day and night (Shepherd et al. 2003). Different waterbird species may utilise wetland habitats in different ways. For example, while the majority of wading birds forage across exposed tidal flats, species such as Lapwing and Golden Plover are considered to be ‘terrestrial waders’ typically foraging across grassland and using tidal flats primarily for roosting. When tidal flats are covered at high water, intertidally-foraging waterbirds are excluded and many will move to nearby fields to feed. Terrestrial foraging is also important when environmental factors (e.g. low temperature) reduce the profitability of intertidal foraging (e.g. Zwarts & Wanink, 1996b). Some waterbird species are simply generalists, and make use of a range of habitats, for example the Black-tailed Godwit that forage across intertidal mudflats but also readily use grassland habitats. Other species such as Greenland White-fronted Goose (*Anser albifrons flavirostris*) or Bewick’s Swan (*Cygnus columbianus bewickii*) are herbivores and are therefore reliant on terrestrial areas, often outside of the SPA boundary, and use the wetland site primarily for roosting. Some species switch their habitat preference as food supplies become depleted; an example being Light-bellied Brent Geese that exploit grasslands increasingly when intertidal seagrass and algae become depleted.

Thus the area designated as a SPA can represent a variable portion of the overall range of the listed waterbird species. To this end, data on waterbird use of areas adjacent to or ecologically connected to the SPA are often collected. Indeed for some species a mix of site-related and wider countryside measures are needed to ensure their effective conservation management (Kushlan, 2006). Furthermore, it is recommended that assessments that are examining factors that have the potential to affect the achievement of the site’s

conservation objectives should also consider the use of these ‘ex-situ’ habitats, and their significance to the listed bird species”.

Table 4.3 Qualifying Interests of the River Shannon and Fergus Estuary Special Protection Area.

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]

Source: www.NPWS.ie

The tidal and mud flat habitats along the estuary are of huge importance as a feeding resource for many of Ireland's coastal birds (Wilson and Carmody , 2009, p.3) . In these locations, there would be flights to and from these areas for feeding purposes. It is not just estuarine habitats that would be of interest to feeding birds. Wildfowl species including geese and swans would often move inland to feed on agricultural grasslands. Ponds, lakes and wet grasslands inland would also attract birds away from the main river channel. This would mean that bird usage of the area would be both along the shore line and inland. This is reflected in the decision in the Shannon Bird survey to record species up to 500m inland, though of course many progress farther than that.

Inland grassland and wetland sites are attractive to goose and swan species and other wildfowl and can play an important role in helping to sustain them during wintering periods.

Amenity grasslands and urban open space areas can also play an important part in this regard. The movement of these feeding flocks can be restricted by the presence of development. The list of birds as qualifying interests in the River Shannon and Fergus Estuaries SPA (Table 4.3) is widely varied with similarly varied flighting, roosting, feeding and dispersal characteristics.

Section 6: In Combination Effects

As the draft plan is a policy document, it makes sense to consider cumulative effects of plans and policy documents that are in operation at the same time.

Consideration of legacy plans such as the Limerick City Development Plan 2010 – 2016 (as extended), the Limerick County Development Plan 2010 – 2016 (as extended) is the first step in assessing cumulative effects in that prior to this plan there would have been a rather more disjointed approach to the development of city and county. They can now be considered as one development area, which means that there will be consistency of ecological policies across them. This makes sense as Natura 2000 sites do not follow administrative boundaries and policy consistency is important in their conservation.

The Draft Plan review has to be considered with changes to the city area, of which the Limerick and Castletroy, and the Southern Environs will now form part. Due to Limerick’s status as the major city in the Midwest, it is necessary to consider the plan review and its effects at a larger scale. Table 4.11 below shows the main plans and projects ongoing in Limerick and it is these that provide the most immediate back drop to the review. These are the plans and projects that are assessed with in-combination effects in mind.

Table 4.4 In combination effects.

Projects and Plans	Comments
Limerick Economic and Spatial Plan 2030	This plan identifies seven key locations in Limerick for re-development, which will complement the SIFP in that the aims of both as they relate to Limerick are similar. Both offer detailed area based suggestions of redevelopment of selected areas.
Regeneration areas	The Limerick Regeneration Framework Implementation Plan envisages one of the largest capital programmes and largest regeneration programme in the State. The Plan includes investment on physical, on social and on economic

	<p>programmes. From the point of view of population and human health the effects are meant to be beneficial.</p>
<p>Iarnrod Eireann: Redevelopment of Colbert Station and improvements to Limerick and Cork Line (2020)</p>	<p>The upgrading of rail infrastructure will have beneficial effects on the connectivity of the city as a whole and for movement of goods to and from the city. The line to Foynes which runs through part of the LDP area, may be upgraded in the long term but its effects are not anticipated to be significant in that this initial upgrade if it takes place will be for freight rather than passenger traffic. However, it has the potential to be part of a more sustainable transport network for the county as a whole. The improvement of the Limerick to Cork line with removal of level crossings reducing journey times will improve connectivity between Cork and Limerick. Rail improvements are also associated with the M20 road scheme.</p>
<p>Colbert Quarter Development</p>	<p>This is multiagency development led by the Land development agency and combines the lands owned by several state agencies. This is a total of 50ha of lands close to the strategically important rail link from Colbert Station. It's central location and its development would be key part of revitalising Limerick City. It is intended to be a development with multiple uses but will have a strong residential component.</p> <p>Its location close to the rail link is similar to many ways to that of the Cork SDZ in Monard which is located close to the Cork Dublin line. Unlike Monard however the fact that the lands in question in Limerick are owned by state agencies and within the city boundaries make it far easier to develop.</p>
<p>Shannon Integrated Framework Plan</p>	<p>The SIFP operates throughout the estuary, which means that the docklands in the city area are included as well as locations in Foynes and Askeaton.</p>

	The SIFP has been viewed as being a model of good practice in the RSES and much valuable ecological survey work has resulted from it.
City Development Plan 2010 and County Development Plan 2010.	Since the amalgamation the implementation of the both plans have proceeded in tandem. The draft LDP will function across city and county plan areas, which should ensure greater planning policy consistency throughout the new metropolitan area.
Smarter Travel and successor programmes (which was a demonstration project until 2018)	Designed to promote sustainable travel patterns which will promote cycling and pedestrian access throughout the city and plan area.
Limerick Shannon Metropolitan Area Transport Strategy.	Outlines a coherent transport strategy for the region. This will mean an emphasis on more efficient transport and an expansion of cycle routes.
Limerick Northern Distributor Road (LNDR) and other large road infrastructure schemes such as the M20 and Foynes to Limerick scheme.	<p>The LNDR project to create a by-pass of the city with a route running to the north and the east would reduce the volumes of city traffic with consequent improvements in both traffic flows and the city environment. This would also assist in dealing with traffic flows on a citywide basis and complement the southern ring road.</p> <p>The M20 scheme would improve connectivity between Limerick and Cork which is an object not just of the LDP but also of the RSES. A programme of rail improvement works has been put forward in association with it.</p>
Upgrade of Bunlicky Wastewater Treatment Plant	Communications from Water Services and Irish Water indicate that a programme of works will be ongoing to ensure that capacity keeps pace with demand. This is essential for the future development of the City and plan area. Capacity in infrastructure is of significant importance, as an enabler of growth, to support Limerick's regional importance and has the

	largest treatment plants in the region which should keep pace with development demands.
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6.1 Regeneration areas

The Limerick Regeneration Framework Implementation Plan includes measures for Kings Island, Moyross, Ballinacurra Weston and Southill. These masterplans provide the strategic basis for the implementation of work programmes over a 10 year period. The master plans are built on three key pillars: Social regeneration, Physical regeneration and Economic regeneration. All elements of the regeneration plans have been subjected to SEA/AA, as they were developed. As they operate within previously zoned areas their ecological effects, subject to ongoing assessment of new variations of relevant plans is not anticipated to be significant.

6.2 Shannon Integrated Framework Plan

This plan is intended to promote the sustainable development of the estuary as a whole and operates in the functional area of Limerick City and County Council, Clare County Council and Kerry County Council. With respect to the Limerick City, it called for the zoning of the dockland area for development purposes. This area is outside the Draft Plan boundary but may have an effect in creating employment for its residents. However, the underlying tenet of the SIFP is to promote development of the estuary as a whole. Any increased economic activity is bound to benefit the docks area and complement employment generation in the city. The Docklands for instance had been designated as a Strategic Employment Location in the existing City Development Plan (2010) and is described as an “under-utilised asset”. This had been the subject of assessment when the city plan was varied and as it related to previously developed dock land areas, it was not considered that there would be significant effects.

6.3 Limerick Economic and Spatial Plan 2030

This plan identifies seven key locations in Limerick for re-development, which will complement the SIFP in that the aims of both as they relate to Limerick are similar. Both offer detailed area based suggestions of redevelopment of selected areas. The Limerick 2030 plan was updated as part of the Draft Development Plan review process.

6.4 City Development Plan and County Development Plans (as extended)

The new Draft Plan will be take the place of both the older City and County Plans, which will take in the larger metropolitan area of Limerick City and environs and Limerick County. As

can be seen from the process to date there has been an update of environmental policies in the new plan, which should confer additional protection on the ecology of the area.

6.5 Smarter Travel and Successor Programmes

This initiative was designed to promote networks of cycle and pedestrian ways throughout the City and plan area and was also designed to maximise the use of public transport. In this regard, it fits well with the Colbert station project (see above). This initiative is updating traffic, pedestrian and cycle movement to suit a new era in Limerick traffic management and this has helped update plan policy in this regard.

6.6 Limerick Northern Distributor Road (LNDR)

This project to create a by-pass of the city with a route running to the north and the east would reduce the volumes of city traffic with consequent improvements in both traffic flows and the city environment. This would also assist in dealing with traffic flows on a citywide basis and complement the southern ring road, which runs to the south of the metropolitan area.

6.7 M20 and Foynes to Limerick Scheme

The Limerick to Foynes road scheme has been assessed with its own SEA and AA during its incorporation into the Limerick County Development Plan in 2017. Similarly, the M20 project will be assessed on its own merits when more details become available. It should be noted that the previous iteration of the M20 was assessed in the time frame of the last plan.

6.8 Upgrade of Bunlicky Wastewater Treatment Plant

Information from Development Management planners indicate that future development plans are afoot to ensure that facilities keep pace with demand. This is essential for the future development of the City and environs.

Section 7: Reasons for Choosing the Plan as Presented

One of the reasons for choosing the plan was that its contents had been informed by the Strategic Flood Risk Assessment. This has been a key element in informing the content of the NIS, in that flood prone areas are often closer to the main River Channel. In this case, it is the Shannon, which is a Special Protection Area and the Lower River Shannon Special Area of Conservation. Many of the sites mentioned as being rezoned from less intensive open space zonings (Amenity or Agricultural) to more intensive agricultural uses, would result in

a loss of foraging habitats for wildfowl and prevent their movement to sites outside the estuary. This has led to the recommendation for less intensive open space zoning or equivalent as noted in the report above. Mitigation measures have also been suggested for some other sites such as in Castletroy, which is particularly important as the River Mulkear, forms the eastern boundary of the zoned area. This is part of the Lower River Shannon SAC site and has Sea Lamprey spawning reeds present along this stretch of river.

Section 8: Monitoring and Mitigation Measures

8.1 Monitoring

It anticipated that the monitoring schemes for ecological aspects of the plan will be tied in with its mid-term review. In many respects, this will involve close cooperation with the Development Management section within the Planning Authority as it is through planning applications that the practical effects of the plan will be felt. It is best to be involved at the earliest possible stage in trying to shape the eventual form of planning applications to minimise their ecological effects, involvement in pre-planning meetings will be important particularly from a mitigation perspective. It will also mean liaising with the Planning Enforcement Section. The Development Applications Unit / DAU submission placed particular stress on enforcement. Some types of planning application such as those required for Strategic Development Infrastructure are not dealt with by the council but by An Bord Pleanála. These would have to be referred to the Council for comment so it would be possible to keep track of these and their possible ecological effects and inform the applicant and An Bord Pleanála accordingly.

It will also be necessary to keep in in contact with local National Parks and Wildlife Service Personnel as they would be aware of wider happenings, outside of planning, as they relate to designated sites and through their monitoring of any changes would be able to inform the council of any ecological changes.

Table 8.1: Ecological Monitoring Measures for the Plan

Measure	Information Sources	Comment
Liaise with Development Management section	Planning applications and individual ecological assessments. Appropriate Assessment register.	Request Development Management planners to pass on details of ecologically sensitive applications.

Engage with pre-planning meetings	Pre-planning register	May be possible to shape development form and layout to minimise ecological effects. This would be an important mitigation measure.
Monitor SID and SHD applications	Referrals by applicants and DM planners.	Dealt with by ABP, but input sought from the Council.
Liaise with Enforcement Section	Planning enforcement files as they relate to ecological issues and designated areas.	Emphasised by DAU NPWS submission.
Liaise with local National Parks and Wildlife Service personnel.	NPWS monitoring	Could assist in monitoring of ecological locations through their Article 17 reports
Liaise with Local Inland Fisheries Ireland Personnel	IFI studies and inspections	Useful in relation to Lower River Shannon SAC site and other designated water courses.
Liaise with Infrastructure providers such as RDO, TII and Iarnrod Eireann.	NIS EIAR EclA material from their projects.	Will inform our own policy review and help identify Environmental/Ecological trends.

8.1.1 Monitoring Actions for the Plan

Action 1: Identify ecological and environmental trends through enforcement and Article 17 reports, as they relate to Nature 2000 sites in particular.

Response: Modify policy content in the plan where deficiencies occur.

Action 2: Ensure that information and resources on climate change as received from the heritage council working group and CARO are fed into planning decisions and possible material for updates of the plan as they relate to designated sites and ecological issues generally.

Response: Update plan content during mid-term review. It will take at least this long to estimate trends.

Action 3: Identify trends and appropriate responses through monitoring the nature and amount of planning applications. As indicated in both this report and the Environmental report, renewable energy technology applications have changed almost entirely to solar applications over the last while. Monitoring planning application trends will indicate any future changes like this, which can be taken into account into ecological policy updates.

Response: Update plan content during mid-term review, if necessary. It will take at least this long to estimate trends.

Action 4: Keep track of new Appropriate Assessment and Section 28 guidance as it emerges and update policy content.

Response: Update plan content during mid-term review, or before depending on the significance of the new guidance.

8.2 Mitigation Measures

Mitigation measures should be properly informed and what follows is firstly a brief account of surveys that were carried out to inform mitigation. The assistance of the National Biodiversity Action Plan Funding and the Heritage Council Heritage funding schemes are gratefully acknowledged. Included are measures that have been carried out and also some that are planned:

A joint initiative with Clare County Council in 2018 identified a methodology for controlling Giant Hogweed. The project with Clare County Council was along a tributary of the River Shannon, which was part of the Lower River Shannon SAC site. The intention of the joint initiative was to arrive at a methodology that could be used to control this species within Natura 2000 sites. This is reflected in the reference to invasive species in the DAU/NPWS submission.

The initiative has since been employed by the Physical Development Section of Limerick City and County Council on the Loobagh River in south east Limerick.

In 2016 and 2017, in association with Clare County Council a twelve-month survey of the Bird populations of the Shannon Estuary was carried out. This was the first time that such a year round survey was carried out, provides a valuable baseline for bird numbers within the River Shannon and Fergus Special Protection Area, and provides a useful tool in informing planning decisions in relation to the estuary. It can also form a baseline for assessing possible climate change effects on these species. The impact of climate change was raised by the NPWS/DAU submission.

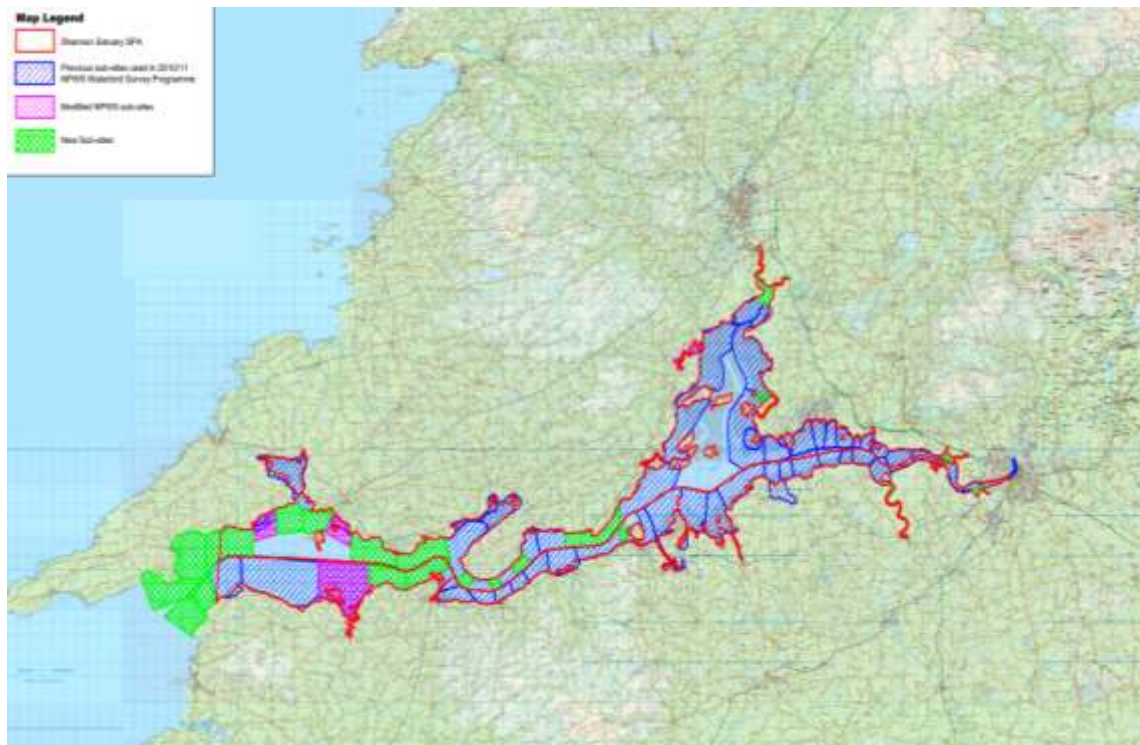


Figure 4.14: Showing the extent of the bird survey within the Lower Shannon Estuary

The Forward Planning section sits on the steering group for the Climate Action Regional Office. This is a very valuable working group to be involved in and allows the planning department to keep informed on climate action activities as they emerge. It is intended to continue with this, as indicated above this group can feed into monitoring of climate issues for the plan.

In terms of mitigation measures for pollinators, it is, over the last three years standard practice to request that landscaping plans take into account the measures of the All Ireland Pollinator Plan (AIPP). Over the last year, in particular, it is encouraging to see that landscaping proposals, particularly for larger developments, including Strategic Housing Development proposals, now submit landscaping proposals guided by the AIPP and concentrate on native species. One useful and long-established publication in this regard is the Heritage Council's 'Conserving and Enhancing Wildlife in Towns and Villages' (2005) which is recommended as a standard referral document for this purpose as it contains a useful list of native species together with their suitability for differing surroundings, both urban and rural.

In 2020, a joint survey with Cork County Council sought to establish the presence of the Nightjar (an Annex 1 species of the Birds Directive) in the area of the Cork Limerick border. This is a migratory species, which spends its breeding season in Ireland and is one, which has suffered from huge population declines. Unfortunately, none were present. Surveys of

migratory birds may also help identify trends in movement of behaviour, which might be caused by climate change.

In 2012 a survey of Grageen bog, within the Slievefelim to Silvermines Mountains SPA (004165) sought to establish the presence both Hen Harriers and grouse on site and also the types and condition of habitats present. Also, present on site was the Grageen Bog and Fen Natural Heritage Area. The presence of both bird species was confirmed. The presence and an increased number of grouse on the site was further confirmed by local NPWS staff in 2021. This emphasises the need to avoid disturbance to this area.

For the last two years or so in conjunction with Development Management Planners, planning conditions have been placed on suitable developments for the establishment of swift nesting sites, prior to a survey for these birds being carried out next year. Birdwatch Ireland is working with the Council to provide information to support this initiative.

8.2.2 Future Programme of Survey Works to Inform Future Mitigation Works and Plan Monitoring

8.2.2.1 Swifts and Barn Owl Surveys.

These surveys are intended to complement a project that our Environmental Awareness officer has promoted, by installing swift boxes on existing buildings. The purpose of this survey is to assist in the conservation of swifts by providing a baseline of population locations and numbers with a view to integrating swift nest boxes into new buildings from the outset as a part of the structure rather than add ons. Similarly, the Barn owl survey is informed by the need to help the conservation of this bird by providing similar baseline information so that barn owl conservation can be integrated into planning. These projects were prompted, in part, by the NPWS submission to our Development Plan who stressed the need to integrate ecology into planning matters.

8.2.2.2 Wetland survey

Limerick City and County Council received interesting information from the County Botanical Recorder, which meant that Forward Planning are rethinking the scope and format of this wetland survey. This is likely to be a multi-annual application as there are over 250 sites on an indicative list. Part of the reason the Planning Authority are re-thinking the format is to focus on climate change, flooding and catchments and as such this means there is more preparation to carry out prior to commencement. This would feed into our Development

Plan and other council plans in the future. This is likely to commence this year (2022). It will also assist in establishing a monitoring baseline.

8.2.2.3 Geological Survey to Commence in summer 2021

One of the information deficiencies highlighted in the Environmental report, part of the SEA process, was the need to survey the Geological Heritage sites in the county. To this end, funding was obtained from the Heritage Council under their County Heritage Plan funding programme (CHP) and the survey was carried out this year.

These surveys are the first three that will be carried out in on-going programme of surveys to inform planning policy responses to ecological and heritage issues. In this regard, once again Limerick City and County Council are grateful to the Heritage Council and the National Bio-diversity action Plan funding scheme for helping to support this survey programme.

8.2.2.4 Standard Mitigation Measures to be employed

While all of the above inform mitigation measures a number of standard mitigation measures should be employed in the plan and subsidiary plans such as Local Area Plans in order to avoid effects on the Natura 2000 site network.

The Habitats Directive promotes a hierarchy of avoidance/protection, mitigation and compensatory measures. For the purposes of this statement the term “mitigation measures” are considered measures, which aim to minimise, or even offset entirely, the negative impacts on a site that are likely to arise as a result of the implementation of a plan or project. These measures are an integral part of the specifications of a plan or project (Managing Natura 2000 sites - The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC", EU 2019).

The following measures should be adopted, within the Draft Limerick Development Plan area in the development of all individual plans (including Local Area Plans) and projects where there is potential for impacts on the Natura 2000 site network

These measures will apply to all areas of policy and development management including housing, transport, environment and infrastructure, including renewable energy recreation and amenity. Where it cannot be clearly demonstrated that a development, or a group of developments, will not result in an adverse effect on a Natura 2000 site or where there is scientific doubt in relation to a potential impact, the precautionary principle must be applied and mitigation is through avoidance. The precautionary principle is applied: (i) where there is potential for negative effects, and (ii) where due to inconclusive or insufficient data it is impossible to determine with sufficient certainty the risk in question.

Mitigation measures in the form of specific objectives and policies designed to protect the Natura 2000 sites are often provided by the Development Management section to ensure compliance with the Habitats Directive Article 6. Where proposals might have an effect on a Natura 2000 site, these will require full assessment in line with Article 6 of the Habitats Directive. The Plan identifies a number of individual plans and projects (road schemes, economic and housing development, etc.) for development during the lifetime of the Plan. The Plan should emphasise that these are dependent upon clear demonstration that there will be no impacts on the integrity of a Natura 2000 site in accordance with Article 6 of the Habitats Directive.

In addition, any review or amendment of the plan and proposed projects being prepared by the local authority for the Plan area should be subject to AA screening, at a minimum, to ensure compliance with Article 6 of the Habitats Directive.

The Plan identifies a number of specific transport objectives, such as the M20 road scheme, which will require an appropriate level of environmental and ecological assessment. This should be carried out at the earliest stages in development, beginning at the route selection stage and at subsequent stages of development to determine if significant adverse impacts are likely. Assessments will become more detailed and specific at each level of the assessment as details of the location, extent, construction and operational impacts of the project emerge.

Where the construction or extension of a water supply scheme or waste water treatment plant has potential to impact on a Natura 2000 site it will require Appropriate Assessment, using hydrogeological data, to clearly demonstrate that there will be no adverse impact on the groundwater supply, surface water or other aspects of Natura 2000 sites.

Where the construction, extension, or modification of a renewable energy project has potential to impact on a Natura 2000 site it will require Appropriate Assessment, using all necessary data, to clearly demonstrate that there will be no adverse impact on the specific Natura 2000 site or other aspects of the Natura 2000 site network.

It will be necessary to ensure that the WWTPs in the plan area are maintained and upgraded as required to meet the requirements of the population and that all works associated with the facility are assessed according to Article 6 of the Habitats Directive and ensure that adequate and appropriate waste water treatment infrastructure is in place prior to further development in the Plan area.

Where one-off housing is sought in un-serviced areas in the plan, it should be ensured that groundwater quality is maintained through appropriate implementation of the new EPA 2021 Code of Practice for Domestic Waste Water Treatment Systems. In the vicinity of river

systems including those within the Natura 2000 site network, and their tributaries, the suitability of these lands for individual treatment systems will have to be determined. The need to prevent excessive proliferation of unsewered dwelling units will have to be considered; and the design, capacity and suitability of wastewater treatment systems and the maintenance of such individual wastewater treatment systems will have to be taken into account. This is to ensure that adequate individual wastewater treatment systems are used which have sufficient capacity, safety mechanisms and maintenance to ensure the protection of local surface and groundwater resources.

It is recommended that a buffer zone be established around existing vegetated riparian areas of the Lower River Shannon SAC within undeveloped zoned areas of the Plan area and subsidiary Local Area Plans in order to protect the ecology on which the site depends. Buffer zones are used to protect the hydrological and ecological environment of the site and should be established with reference to hydrological and ecological data for the site, including flooding, and in consultation with the National Parks and Wildlife Service and Inland Fisheries Ireland. This is already an objective in the plan.

In the absence of background data, a minimum buffer zone of 20m is recommended or as determined following consultation with the Inland Fisheries Ireland (IFI). Development proposals beyond this buffer area with potential to negatively impact on the site will be required to clearly demonstrate that there will be no significant adverse impact on the integrity of the Natura site.

Facilities such as new greenways, trails and riverside walkways will require appropriate levels of environmental and ecological assessment at project stages in order to proceed. The inclusion of objectives for these facilities should carry the caveat that the facility can only be provided where a positive assessment is received. This has been the case with one amendment where it has been stated that a greenway proposal should be subject adequate ecological design and assessment from the outset.

It will be necessary to ensure that flood defence works and responses to Flood Risk Assessment and CFRAMS proposals undergo Appropriate Assessment in accordance with Article 6 of the Habitats Directive. - Ensure that any development that has the potential to impact on a Natura 2000 site is subject to Appropriate Assessment in accordance with Article 6 of the Habitats Directive.

Where deficiencies in in terms of wildlife surveys and background ecological reports have been identified in relation to policies in Chapter 6, these should be carried out to adequately inform design and mitigation measures prior to any development taking place.

Section 9: Appropriate Assessment Conclusion Statement

Stage 2 AA of the amendments to the Draft Limerick Development Plan, which were considered to have the potential for significant effects has been carried out.

The risks to the qualifying interests, special conservation interests and conservation objectives of the Natura 2000 site have been addressed by the inclusion of mitigation measures, through policy measures such as non-encroachment of zoning on Natura 2000 sites in the case of zoning objectives and in relation to implementation of Article 6 elsewhere.

Furthermore, all lower-level plans and projects arising through the implementation of the Draft Plan will themselves be subject to AA and SEA/EIA when further details of design and location are known. This assessment was undertaken with reference to all subsequent stages of the Plan so far. In-combination effects from interactions with other plans and projects was considered in the assessment and the mitigation measures incorporated into the plan are considered to be robust to ensure there will be no significant adverse effects as a result of the implementation of the Draft Plan either alone or in-combination with other plans/projects.

To conclude, taking into account mitigation measures that have already been integrated into the draft plan and the additional mitigation measures mentioned in this report, it is concluded that the proposed material alterations to the Limerick Draft Plan are not foreseen to have any significant effects on the integrity of any European site, alone or in combination with other plans or projects. This evaluation is made in view of the conservation objectives of the habitats or species, for which these sites have been designated.

Sources

- Anthony Caravaggi, Sandra Irwin, John Lusby, Marc Ruddock, Allan Mee, Tony Nagle, Lorcán O'Toole, Shane O'Neill & John O'Halloran (2020): Anthropogenic pressures within the breeding range of the Hen Harrier *Circus cyaneus* in Ireland, *Bird Study*, DOI: 10.1080/00063657.2020.1725420
- Balmer, D.E., Gillings, S., Caffrey, B.J., Swann, R.L., Downie, I.S. & Fuller, R.J (2013) *The Bird Atlas 2007-11: the breeding and wintering birds of Britain and Ireland*, BTO Books Norfolk.
- Beebee Trevor (2018) *Climate Change and British Wildlife*, Bloomsbury, London.
- Bontadino F, Schofield H and Naef-Daenzer B (2002) Radio tracking reveals that lesser horseshoe bats (*Rhinolophus hipposideros*) forage in woodland. *Journal of Zoology London*.
- Department of Environment, Heritage and Local Government (2010) *Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities*. Dublin.
- Environmental Protection Agency (2021) *Code of Practice Domestic Waste Water Treatment Systems (Population Equivalent ≤10) Johnstown Castle, Wexford*.
- European Commission (2019) *Managing Natura 2000 sites The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC*, EU 2019
- Fairley J (2001) *A Basket of Weasels*. Published Privately Belfast.
- Hardy J *et al* (2013) *Raptors A field Guide for Surveys and Monitoring*. The Stationary Office Edinburgh.
- Heritage Council (2005) *Conserving and Enhancing Wildlife in Towns and Villages*, Kilkenny.
- McCarthy , Kelville and O Sullivan (2017) *Waterfowl Numbers, Usage and Distribution of the River Shannon and the River Fergus Estuaries Interim Report*. Galway.
- Nairn R and O Halloran J eds. (2012) *Bird Habitats in Ireland*. The Collins Press
- National Parks and Wildlife Service (2012a) *Lower River Shannon SAC (site code 2165) Conservation objectives supporting document-coastal habitats*. NPWS, Dublin.
- National Parks and Wildlife Service (2012b) *River Shannon and River Fergus Estuaries SPA 004077 Conservation Objectives series*. NPWS, Dublin.
- National Parks and Wildlife Service (2013) *Lower River Shannon SAC Site Synopsis*. NPWS, Dublin.
- Parnell J and Curtis T (2012) *An Irish Flora*, Cork University Press.
- Reynolds Sylvia CP (2013) *Flora of County Limerick*, National Botanic Gardens, Glasnevin Dublin.
- Wilson J, Carmody M (2009) *Shore Birds of Ireland*, Collins Press Cork.



