Appropriate Assessment

of

Material Alterations

to the

Draft Portumna Local Area Plan 2016-2022

Natura Impact Report

On behalf of Galway County Council

Comhairle Chontae na Gaillimhe
Galway County Council

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1. Introduction

1.1. General Introduction

This report contains information required for the competent authority, in this case Galway County Council, to complete an Appropriate Assessment (AA) process on the effects of the adoption of Material Alterations to the Portumna Local Area Plan 2016-2022.

The report assesses the potential for Material Alterations to the Plan to impact on sites of European-scale ecological importance. It is necessary that the Plan has regard to Article 6 of the Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (as amended) (referred to as the Habitats Directive). This is transposed into Irish Law by the European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. 477) (referred to as the Birds and Natural Habitats Regulations).

1.2. Legislative Background - The Habitats and Birds Directives

The Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora) is the main legislative instrument for the protection and conservation of biodiversity in the EU. Under the Directive member States are obliged to designate Special Areas of Conservation (SACs) which contain habitats or species considered important for protection and conservation in a European Union context.

The Birds Directive (Council Directive 79/409/EEC as amended 2009/147/EC), is concerned with the long-term protection and management of all wild bird species and their habitats in the EU. Among other things, the Directive requires that Special Protection Areas (SPAs) be established to protect migratory species and species which are rare, vulnerable, in danger of extinction, or otherwise require special attention.

Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas, designated under the Birds Directive, form a pan-European network of protected sites known as Natura 2000. The Habitats Directive sets out a unified system for the protection and management of SACs and SPAs.

Articles 6(3) and 6(4) of the Habitats Directive set out the requirement for an assessment of proposed plans and projects likely to affect Natura 2000 sites.

Article 6(3) establishes the requirement to screen all plans and projects and to carry out a further assessment if required (Appropriate Assessment (AA)):

Article 6(3): “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 subjected to an appropriate assessment of its implications for the site in view of the site’s conservation objectives. In 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): “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, Member States shall take all compensatory measures necessary to ensure that the overall coherence of

the 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 the beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest."

2. Stages of the AA Process

The Commission's methodological guidance (EC, 2002) promotes a four-stage process to complete the AA, and outlines the issues and tests at each stage. An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required.

Stages 1-2 deal with the main requirements for assessment under Article 6(3). Stage 3 may be part of Article 6(3) or may be a necessary precursor to Stage 4. Stage 4 is the main derogation step of Article 6(4).

Stage 1 Screening: This stage examines the likely effects of a project either alone or in combination with other projects upon a European site and considers whether it can be objectively concluded that these effects will not be significant.

Stage 2 Appropriate Assessment: In this stage, the impact of the project is considered on the integrity of the Natura 2000 site with respect to the conservation objectives of the site and to its structure and function.

Stage 3 Assessment of Alternative Solutions: This stage examines alternative ways of implementing the project that, where possible, avoid any adverse impacts on the integrity of the Natura 2000 site.

Stage 4 Assessment where no alternative solutions exist and where adverse impacts remain: Where imperative reasons of overriding public interest (IROPI) exist, an assessment to consider whether compensatory measures will or will not effectively offset the damage to the sites will be necessary.

In order to ensure that the Plan complies fully with the requirements of Article 6 of the Habitats Directive and all relevant Irish transposing legislation, Moore Group carried out the screening stage of the Plan on behalf of Galway County Council to determine if Stage 2 AA is required.

2.1. Guidance

The AA has been compiled in accordance with guidance contained in the following documents:

- Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities. (Department of Environment, Heritage and Local Government, 2010 rev.).
- Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities. Circular NPWS 1/10 & PSSP 2/10.
- 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 Directorate-General, 2001); hereafter referred to as the EC Article Guidance Document.
- Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC (EC Environment Directorate-General, 2000); hereafter referred to as MN2000.

2.2. Data Sources

Sources of information that were used to collect data on the Natura 2000 network of sites are listed below:

- Ordnance Survey of Ireland mapping and aerial photography available from www.osi.ie and Google Earth and Bing aerial photography.
- Online data available on Natura 2000 sites as held by the National Parks and Wildlife Service (NPWS) from www.npws.ie including; the Natura 2000 network Data Form; Site Synopsis; Qualifying Interests and Conservation Objective data,
    - Online database of rare, threatened and protected species,
    - Publicly accessible biodiversity datasets.
- Status of EU Protected Habitats in Ireland. (National Parks & Wildlife Service, 2013).
- Biodiversity Data for County Galway including that collated in the Biodiversity Action Plan for County Galway 2008 – 2013
- Port Omna Beo: Nature & Wildlife Plan 2013-2016
- Information on water quality in the area available from www.epa.ie
- Information on the River Basin Districts from www.wfdireland.ie
- Information on soils, geology and hydrogeology in the area available from www.gsi.ie
- Status of EU Protected Habitats in Ireland. (National Parks & Wildlife Service, 2013)
- Galway County Development Plan 2009-2015
- GCDP AA Screening Report & Natura Impact Report 2014
- Portumna Local Area Plan (2016) Issues Leaflet
- Draft Portumna Local Area Plan (2016-2022)

2.3. Consultation

Galway County Council has notified the Department of Arts, Heritage and the Gaeltacht (DAHG) of their intention to commence the preparation of a new Local Area Plan for Portumna through the Strategic Issues Paper for the Local Area Plan. The Development Applications Unit was consulted as part of this process and comments received with regard to AA are outlined below.

Ref. FP2015/044

> The submission reiterates that the plan must contain objectives for the conservation and protection of the environment. The wording of objectives in the natural heritage section of the plan should reflect or encompass key obligations and requirements as set out in the relevant legislation in relation to the various ecological corridors or natural heritage features.
>
> The Planning Authority is reminded that legislation in Ireland has changed since the last plan was adopted and cognizance should be taken in the context of European sites or Natura 2000 network.
>
> There is suggested wording that should be incorporated into the plan in relation to the text and objectives of the plan in relation to the European sites.
>
> In relation to the NIR and the plan it is suggested that in some limited cases that policies and objectives that contain further projects or lower level plans will be subject to appropriate assessment at a later stage. In other instances development objectives maybe such that potential impact on European Sites cannot be avoided, the impacts on European Sites must be assessed at plan level in the NIR. In addition it must be demonstrated how any mitigation measures, which are specified at plan level, will ensure that no adverse effects on site integrity will result.

It is suggested that the Department is of the view that there is potential for the plan, or services or resources on which the plan area is reliant to have significant effects on European sites in view of the conservation objectives. All potential impacts in relation to development or increased usage or pressures need to be examined and assessed at plan level prior to their inclusion in the plan.

It is stated that the implications of all parts of the plan, including zoning and land use designations and associated maps, strategies or other reports must be examined on their own and in combination with the plan and with other plans and projects. Only those plan elements that are demonstrated to be compliant with the Habitats Directive and Birds Directive should be incorporated into the plan.

It is stated that one of the key benefits of the environmental assessment procedures is that they should influence and inform the plan during its preparation, and integrate ecological and other environmental considerations with the vision, policies and objectives for the future development and growth of the plan area.

The implications of the plan for European sites in view of their conservation objectives must be assessed.

The NIR is the resulting statement of the effects for the purposes of Article 6 of the Habitats Directive and its findings must be taken into account when the appropriate assessment is carried out and a determination is made as to whether or not the land use plan would adversely affect the integrity of a European Site.

It is stated that the appropriate assessment cannot have a lacunae and must contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of a project on a European Site, it is stated that these standards should underpin the NIR.

The appropriate assessment must be carried out prior to the adoption of the plan.

The Department has included 13 points in relation to the preparation of a NIR and what information should be included, the following is a brief summary of this information:

- The need for an NIR follows on from screening. The NIR should not contain the screening exercise;
- The NIR should be a scientific assessment that presents relevant evidence, data and analysis and not just commentary, lists and tables.;
- The best scientific knowledge and objective information which are specified in legislation in relation to screening are also required in the preparation of the NIR;
- The relevant environmental baseline and trends should be taken into account, bearing in mind changes and in combination effects which have occurred since site designations;
- If a NIR is required, it should cover the entire plan, not just parts of the plan;
- The NIR should focus on the likely significant effects of the plan, on its own and in combination with other plans and projects, on European sites in view of their conservation objectives, whether these are generic or site specific;
- An examination of the potential or existing effects of the plan, and the resources and services, on which it is reliant, must be undertaken to identify what European sites, and which of their conservation objectives are

potentially at risk. In combination effects of other plans or projects must also be taken into account. This examination is also required to determine a "zone of influence" or "zone of impact" of the plan area. It is noted that a 15km distance for plans in existing guidance is an indicative figure and its application and validity should be examined and justified in each specific case with reference to the nature, size and location of plan area, and the sensitivities of the ecological receptors, and the potential for in combination effects;

- The scientific basis on which site and conservation objectives are included or excluded from assessment and analysis should be presented;
- The scientific basis on which plan policies and objectives and other plan elements are included or excluded from further assessment and analysis should be presented. It is suggested that this should be applied to all parts of the plan and all policies and objectives;
- Where the plan level mitigation measures are put forward the necessary analysis should be presented to demonstrate that these will be effective in avoiding or removing risks of adverse effects on the integrity of European sites, or in managing future proposals where adverse effects maybe unavoidable;
- The NIR and plan level mitigation measures should go beyond altering the wording of objectives to say that future assessment is required;
- All parts of the plan, including zoning and land use zoning designations and associated maps and strategies, should be subject to assessment and should be compliant with the Habitats Directive. In the case of non-statutory strategies or other reports, these may only be incorporated into the plan , or given effect by the plan, if demonstrated to be compliant with Article 6 on their own and in combination with the plan itself and with other plans and projects;
- The NIR should reach a clear and precise conclusion as to the implications of the plan for the conservation objectives of the relevant European sites.

3. Stage 1 – Screening for Appropriate Assessment

A Stage 1 Screening Assessment was undertaken for Material Alterations to the Portumna Local Area Plan and the Screening Report is attached as Appendix 1 to this report.

The finding of the Screening Assessment is reiterated here:

The Screening process has identified that four of the European Sites assessed have the potential to be adversely affected by the adoption of Material Alterations to the draft Portumna Local Area Plan 2016-2022.

The Screening Assessment has identified that there may be potential impacts as a result of the adoption of Material Alterations No.s 1, 3 and 5 to the Plan on four sites listed below and that Stage 2 AA is required to assess the potential impacts of the Plan in detail on these sites:

- River Shannon Callows SAC
- Lough Derg, North-East Shore SAC
- Lough Derg (Shannon) SPA
- Middle Shannon Callows SPA

4. Stage 2 – Appropriate Assessment

4.1. Description of the Plan

4.1.1. General Description

The draft Portumna Local Area Plan (LAP) 2016-2022 has been prepared by Galway County Council (GCC) to provide a statutory framework for the future growth and development of Portumna. It is consistent with the policies and objectives contained in the Galway County Development Plan, including the Core Strategy, and seeks to address the needs and requirements of the local community, service providers and other stakeholders. The purpose of the Local Area Plan is to guide future development within the town in a sustainable and equitable manner and to inform members of the public, the local community, stakeholders and developers, of the policies and objectives that will shape the development of the town over the next six years. The policies and objectives for the development of the town include provisions in relation to land use management, community facilities, amenities, transport, infrastructure, urban design, cultural/built heritage, natural heritage and the environment.

The plan period is for 6 years, from the date of adoption by Galway County Council, unless the timeframe is extended by resolution in accordance with Section 12(d) to (f) of the Planning and Development (Amendment) Act 2010. The plan area is comprised of the town and its immediate environs and is considered to provide an appropriate development envelope for the anticipated growth of the town for the plan period. (Figure 4.1).

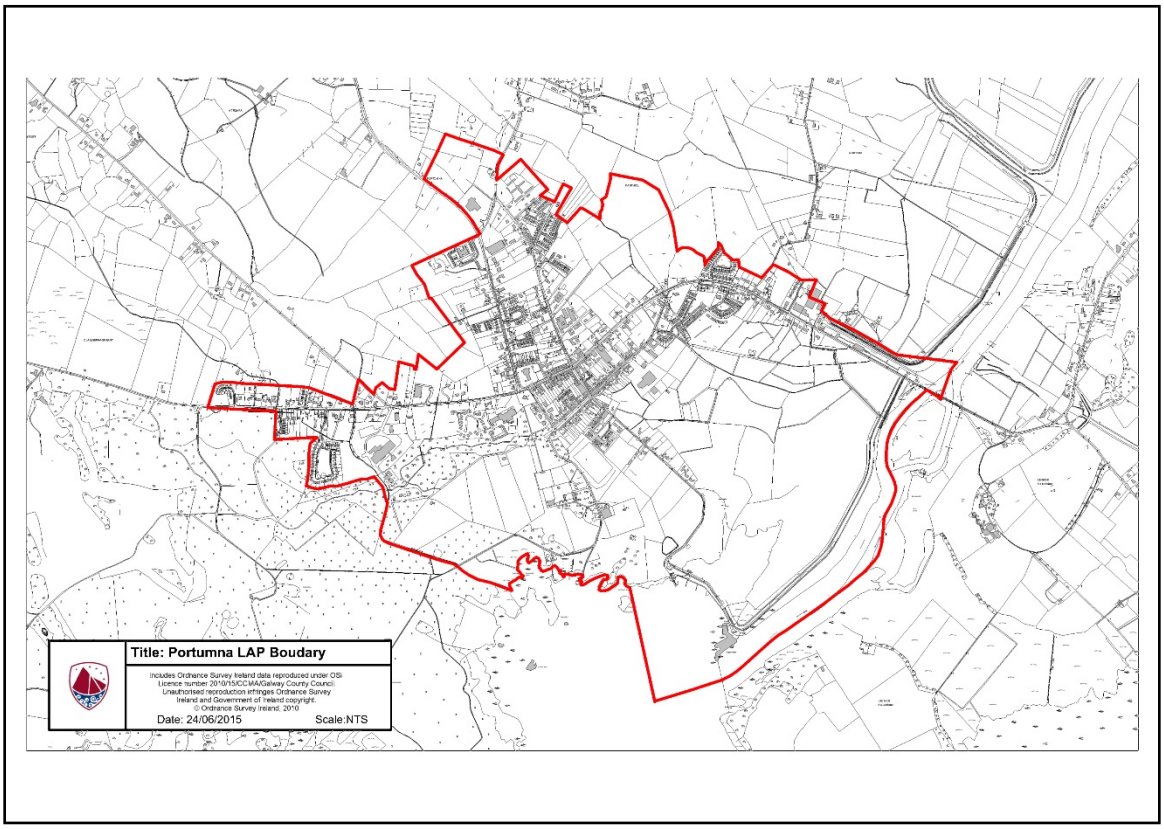


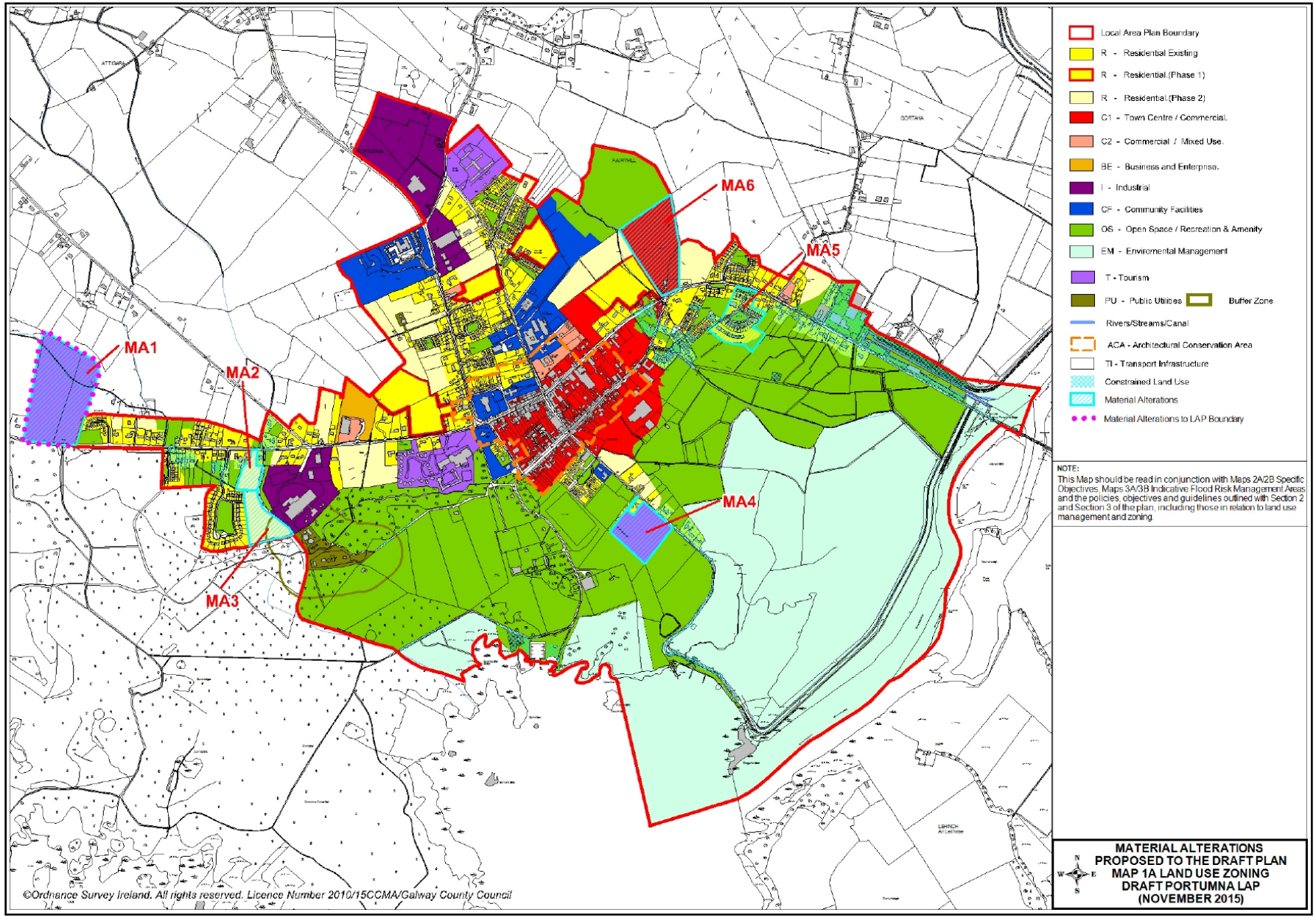
Figure 4.1 Plan area boundary at Portumna, County Galway (source GCC).

4.1.2. Material Alterations

The Draft Portumna Local Area Plan 2016-2022 was prepared and placed on public display for six weeks from Friday 31st July 2015 until Friday 11th of September 2015. 22 submissions were received on the draft plan and a Chief Executive's Report was prepared on the submissions received and submitted to the Members of Galway County Council for their consideration.

On the 11th of November 2015, at the Council Meeting, the elected members considered the Draft Plan and Chief Executive's Report and proposed a number of alterations to the Draft Portumna Local Area Plan, which were deemed to be material alterations. The three MA's brought forward for assessment are listed in the table hereunder and are reflected on the attached Map 1A, as appropriate.

Material Alterations Proposed by Members
MA 1 Include subject lands within the plan boundary and zone Tourism as per attached map (*Material Alterations Proposed to the Draft Plan – Map 1A Land Use Zoning - Draft Portumna Local Area Plan).*
MA 3 Rezone the lands from Recreation, Amenity and Open Space to Residential-Phase 2 as per attached Map 1A.
MA 5 Retain the 'Existing Residential Land Use' and remove the Constrained Land Use as per attached Map 1A.


MA1
MA2
MA3
MA4
MA5
MA6
Local Area Plan Boundary
R - Residential Existing
R - Residential.(Phase 1)
R - Residential.(Phase 2)
C1 - Town Centre / Commercial.
C2 - Commercial / Mixed Use.
BE - Business and Enterprise.
I - Industrial
CF - Community Facilities
OS - Open Space / Recreation & Amenity
EM - Enviromental Management
T - Tourism
PU - Public Utilities
Buffer Zone
Rivers/Streams/Canal
ACA - Architectural Conservation Area
TI - Transport Infrastructure
Constrained Land Use
Material Alterations
Material Alterations to LAP Boundary
NOTE:
This Map should be read in conjunction with Maps 2A/2B Specific Objectives, Maps 3A/3B Indicative Flood Risk Management Areas and the policies, objectives and guidelines outlined with Section 2 and Section 3 of the plan, including those in relation to land use management and zoning.
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MATERIAL ALTERATIONS
PROPOSED TO THE DRAFT PLAN
MAP 1A LAND USE ZONING
DRAFT PORTUMNA LAP
(NOVEMBER 2015)

4.2. Identification of European Sites & Conservation Objectives

The Screening stage of the AA process identified four European Sites that could potentially be affected by the adoption of the Material Alterations to the Draft Portumna Local Area Plan. The Plan boundary is presented in Figure 4.2 below for reference only in terms of the geographical location of the Plan in relation to the immediate surrounding European sites.

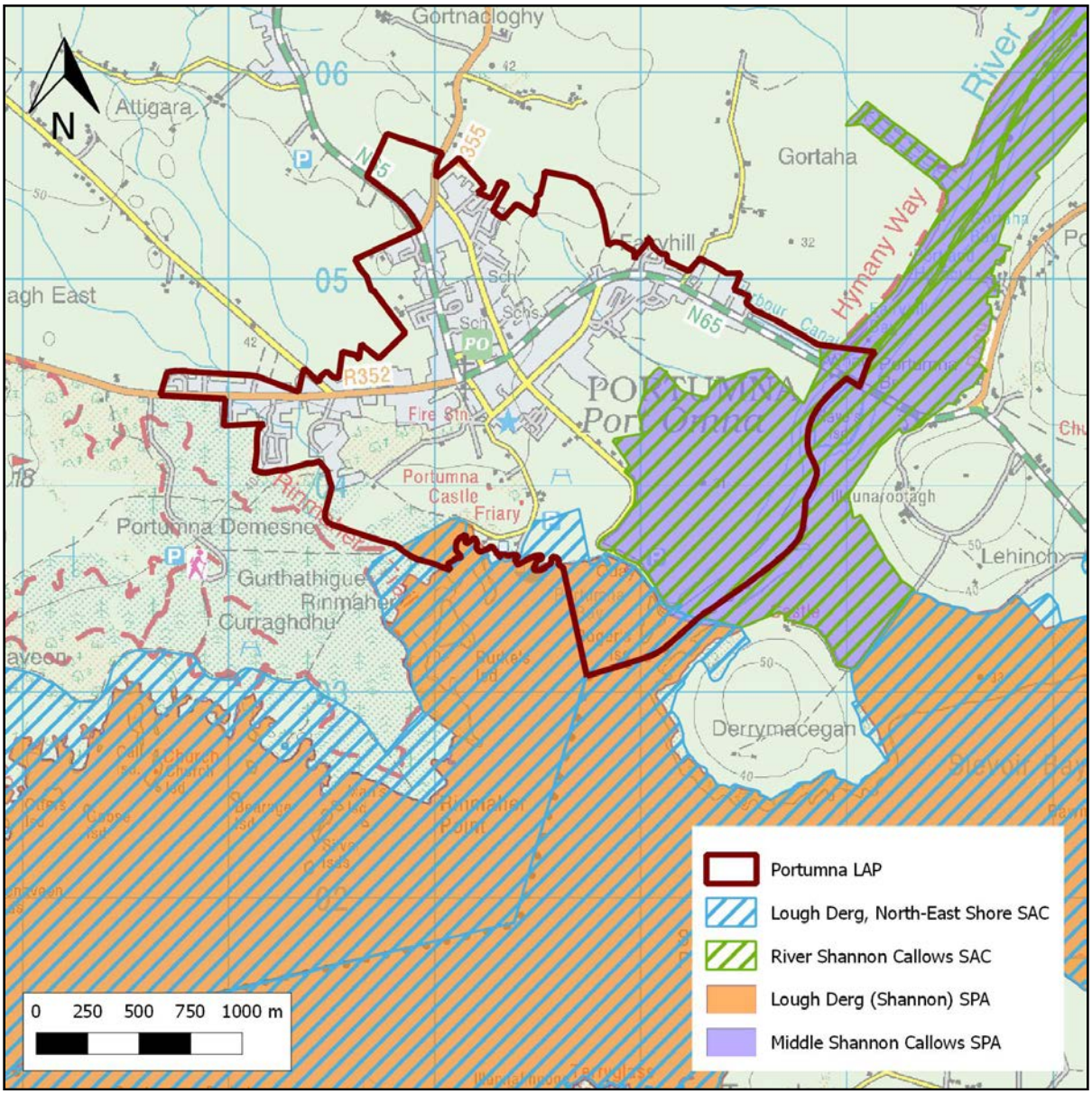

Figure 4.2. Detail of European sites in relation to the LAP.

The following is a detailed description of the European Sites potentially affected by the proposed Material Alterations to the Draft Portumna Local Area Plan.

4.2.1. Special Areas of Conservation

River Shannon Callows SAC (Site code 000216):
The River Shannon Callows is a long and diverse site which consists of seasonally flooded, semi-natural, lowland wet grassland, along and beside the river between the towns of Athlone and Portumna. It is approximately 50 km long and averages about
0.75 km wide (reaching 1.5 km wide in places). Along much of its length the site is bordered by raised bogs (many, but not all, of which are subject to large-scale harvesting), esker ridges and limestone-bedrock hills. The soils grade from silty- alluvial to peat. This site has a common boundary, and is closely associated, with two other sites with similar habitats, River Suck Callows and Little Brosna Callows.

The River Shannon Callows is mainly composed of lowland wet grassland. Two habitats listed on Annex I of the E.U. Habitats Directive are well-represented within the site – Molinia meadows and lowland hay meadows. In places these two habitats grade into one another.

A further two Annex I habitats, both listed with priority status, have a minor though important presence within the site. Alluvial forest occurs on a series of alluvial islands just below the ESB weir near Meelick. Several of the islands are dominated by well-grown woodland consisting mainly of Ash (*Fraxinus excelsior*) and Willows (*Salix spp*.). Other habitats of smaller area but also of importance within the site are lowland dry grassland, drainage ditches, freshwater marshes and reedbeds. Good quality habitats on the edge of the callows included in the site are wet broadleaved semi-natural woodland and dry broadleaved woodland. There are also areas of raised bog, fen on old cut-away bog and a 'petrifying stream' with associated species-rich calcareous flush.

Two species which are legally protected under the Flora (Protection) Order, 1999, occur in the site - Opposite-leaved Pondweed *(Groenlandia densa*) in drainage ditches, and Meadow Barley (*Hordeum secalinum*) on dry alluvial grassland. The Red Data Book plant Green-winged Orchid is known from dry calcareous grasslands within the site, while the site also supports a healthy population of Marsh Pea (*Lathyrus palustris*).

The site is of international importance for wintering waterfowl and of particular note is an internationally important population of Whooper Swans. A further five species have populations of national importance. Small flocks of Greenland White-fronted Goose use the Shannon Callows; these are generally associated with larger flocks which occur on the adjacent Little Brosna Callows and River Suck Callows.

Shoveler (an estimated 12 pairs in 1987) and Black-tailed Godwit (Icelandic race) (one or two pairs in 1987) breed within this site. These species are listed in the Red Data Book as being threatened in Ireland. The scarce bird Quail is also known to breed within the area. The callows has at times held over 40% of the Irish population of the globally endangered Corncrake, although numbers have declined in recent years. The total population of breeding waders in 1987 was one of three major concentrations in Ireland and Britain. The population of breeding Redshank in the site was estimated to be 10% of the Irish population, making it nationally significant. Also, the Annex I species Merlin and Hen Harrier are regularly reported hunting over the callows during the breeding season and in autumn and winter.

This site holds a population of Otter, a species listed on Annex II of the E.U. Habitats Directive, while the Irish Hare, which is listed in the Irish Red Data Book, is a common sight on the callows.

The Shannon Callows are used for summer dry-stock grazing (mostly cattle, with some sheep and a few horses), and permanent hay meadow. About 30 ha is a nature reserve owned by voluntary conservation bodies. The River Shannon is used increasingly for recreational purposes with coarse angling and boating accounting for much of the visitor numbers. Intermittent and

scattered damage to the habitats has occurred due to over-deepening of drains and peat silt deposition, water-skiing, ploughing and neglect of hay meadow (or reversion to pasture). However, none of these damaging activities can yet be said to be having a serious impact. Threats to the quality of the site may come from the siting of boating marinas in areas away from centres of population, fertilising of botanically-rich fields, the use of herbicides, reversion of hay meadow to pasture, neglect of pasture and hay meadow, disturbance of birds by boaters, anglers, birdwatchers and the general tourist. The maintenance of generally high water levels in winter and spring benefits all aspects of the flora and fauna, but in this regard, summer flooding is a threat to breeding birds, and may cause neglect of farming.

The Shannon Callows has by far the largest area of lowland semi-natural grassland and associated aquatic habitats in Ireland, and one in which there is least disturbance of natural wetland processes. Botanically, it is extremely diverse with two legally protected species of plants and many scarce species. Excellent examples of two habitats listed on Annex I of the E.U. Habitats Directive occur within the site – Molinia meadows and lowland hay meadows with good examples of a further two Annex habitats (both with priority status). In winter the site is internationally important for numbers and species of waterfowl. In spring it feeds large numbers of birds on migration, and in summer it holds very large numbers of breeding waders, rare breeding birds and the endangered Corncrake, as well as a very wide variety of more common grassland and wetland birds. The presence of Otter, an Annex II species, adds further importance to the site.

Objective: 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:

Code	Description
6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)
6510	Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*)
8240	Limestone pavements*
91E0	Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion alb*ae)*

* denotes a priority habitat

Code	Common Name	Scientific Name
1355	Otter	*Lutra lutra*

Lough Derg, North-East Shore SAC (Site code 002241):
Lough Derg, the lowest order lake on the River Shannon, is one of the largest bodies of freshwater in Ireland. This SAC, however, only includes the northern shore of the lake from the mouth of the Cappagh River in the north-west to just below Black Lough at the north-eastern shore. The greater part of this site lies on Carboniferous limestone, although there is Old Red Sandstone on the southern shores of the eastern section.

The geology of the lake shore is principally limestone and in places this protrudes at the surface in the form of boulders and rubble, and can be classified as limestone pavement. These are often bryophyte-rich surfaces or else support a calcareous grassland or heath flora, as well as some woody species, such as Yew (*Taxus baccata*) and Juniper (*Juniperus communis*).

A second priority Annex I habitat, Cladium fen, occurs occasionally along the lake margins, mainly in association with alkaline fens, Common Reed (*Phragmites australis*) and other swamp vegetation.

A substantial area of Yew is located on limestone at Cornalack, where Yew forms a scrub woodland along the east shore of Lough Derg. Elsewhere, small stands of Yew occur. Juniper

occurs throughout this site in a range of habitats, associated with calcareous grasslands, heath and limestone outcrops. Some of the finest examples of Juniper formations in Ireland occur along the lake edge where upright, bushy Juniper shrubs up to 3 m tall are found. Deciduous woodlands are also a notable feature of the site, dominated by oak (*Quercus spp.*), as at Bellevue, and Hazel/Ash at many of the examples along the north-eastern shore. Wet woodland is frequent along the lake shore, and in some areas this conforms well with the E.U. Annex I habitat, alluvial woodland.

The only known site in the country for the Red Data Book plant Irish Fleabane (*Inula salicina*) occurs along the lake shore. Other Red Data Book species present within this site are Marsh Pea (*Lathyrus palustris*) and Ivy Broomrape (*Orobanche hederae*). The Red Data Book stonewort *Chara tomentosa* has its stronghold in Lough Derg.

The lake is rated as nationally important for waterfowl. The entire lake, including all of the islands, is a designated SPA (Special Protection Area). The lake also supports a number of Greenland White-fronted Goose, a bird species listed on Annex I of the E.U. Birds Directive. There is a Wildlife Sanctuary at the north western edge of the lake.

Lough Derg is of conservation interest also for its fish and freshwater invertebrates. Lampreys, are known to occur and the lake contains an apparently self-sustaining landlocked population of Sea Lamprey (*Petromyzon marinus*). The endangered fish species Pollan (*Coregonus autumnalis pollan*) is recorded from Lough Derg. Lough Derg is also a well known fishing lake with a good Trout (*Salmo trutta*) fishery. Atlantic Salmon (*Salmo salar*) also use the lake as a spawning ground.

Otter and Badger have been recorded within the site.

Land use within the site is mainly of a recreational nature with many boat hire companies, holiday home schemes and angling clubs located at the lake edge.

Recreational disturbance may pose a threat to the wintering wildfowl populations, though tourism is scaled down during the winter. The water body is surrounded mainly by improved pastoral farmland to the south and east, with areas of bog to the south-west and west. Coniferous plantations are present along the west and north- west shore and small areas of these are included within the site. If these areas are felled no further planting should take place as afforestation damages the wetland habitats between the plantation and lake edge.

The main threats to the quality of the site are water polluting activities resulting from intensification of agricultural activities around the lake shore, uncontrolled discharge of sewage, which is causing eutrophication of the lake, and housing and boating development which has resulted in the destruction of lakeshore habitats. There is also significant fishing and shooting pressure on and around the lake. Forestry can result in the loss of some areas of wetland habitat. The spread of Zebra Mussel (*Dreissena polymorpha*) in Lough Derg also poses a threat the ecology of the lake.

This is a site of significant ecological interest, with six habitats listed on Annex I of the E.U. Habitats Directive. Four of these are priority habitats - Cladium fen, alluvial woodland, limestone pavement and Yew woodland. Other annexed habitats present include alkaline fen and Juniper scrub formations on heath and calcareous grasslands. In addition, the lake itself is an SPA that supports important numbers of wintering wildfowl, Greenland White-fronted Goose, Common Tern and Cormorant, a number of which are listed under Annex I of the E.U. Birds Directive.

Objective: 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:

Code	Description
5130	*Juniperus communis* formations on heaths or calcareous grasslands
7210	Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae**
7230	Alkaline fens
8240	Limestone pavements*
91E0	Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*)*
91J0	*Taxus baccata* woods of the British Isles*

* denotes a priority habitat

4.2.2. Special Protection Areas

Lough Derg (Shannon) SPA (Site Code 004058):
Lough Derg is the largest of the Shannon Lakes, being some 40 km long. Its maximum breadth across the Scarriff Bay -Youghal Bay transect is 13 km but for most of its length it is less than 5 km wide. The lake has many small islands, especially on its western and northern sides. The shoreline is often fringed with swamp vegetation. Aquatic vegetation includes a range of charophyte species, including the Red Data Book species, *Chara tomentosa*. The shoreline is often fringed by swamp vegetation, comprised of such species as Common Reed (*Phragmites australis*), Great Fen-sedge (*Cladium mariscus*) and Bottle Sedge (*Carex rostrata*).

Lough Derg is of importance for both breeding and wintering birds. In winter, the lake is important for a range of waterfowl species.

Lough Derg is of conservation interest for its fish and freshwater invertebrates. Lampreys, listed on Annex II of the E.U. Habitats Directive, are known to occur and the lake contains a landlocked population of Sea Lamprey (*Petromyzon marinus*). The endangered fish species Pollan (*Coregonus autumnalis pollan*) is recorded from Lough Derg, one of only four sites (L. Neagh, L. Erne, L. Ree and L. Derg) in which it occurs. Lough Derg is also a well-known fishing lake with a good Trout (*Salmo trutta*) fishery.
Atlantic Salmon (*Salmo salar*) also use the lake as a spawning ground.

Lough Derg was classified as being strongly eutrophic in the early 1990s. Since 1997, a monitoring programme on the Shannon lakes has shown that the symptoms of eutrophication previously documented (i.e. high chlorophyll level and reduced water visibility) have been ameliorated significantly. These reductions have coincided with the invasion of the Shannon system by the Zebra Mussel (*Dreissena polymorpha*), a species which feeds on plankton, and also with measures to reduce phosphorus in sewage plants in the catchment. Enrichment of the lake, both by agricultural run-off and sewage, remains a threat and could affect the bird populations, especially the diving duck. Whilst the presence of Zebra Mussel in Lough Derg appears to have improved water quality in the lake, in the long-term this invasive bivalve may threaten the ecology of the lake. Recreational activities presently cause some disturbance to the birds and an increase in such activities would be of concern.

Lough Derg SPA is of high ornithological importance as it supports nationally important breeding populations of Common Tern, Cormorant, Great Crested Grebe, and probably Tufted Duck and Black-headed Gull. In winter, it has nationally important populations of Tufted Duck and Goldeneye, as well as a range of other species including Whooper Swan. The site is still used on occasions by Greenland White-fronted Goose. The presence of Common Tern, Whooper Swan and Greenland White-fronted Goose is of particular note as these are listed on Annex I of the E.U. Birds Directive.

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

Bird Code	Common Name	Scientific Name
A017	Cormorant	*Phalacrocorax carbo*
A061	Tufted Duck	*Aythya fuligula*
A067	Goldeneye	*Bucephala clangula*
A193	Common Tern	*Sterna hirundo*

To acknowledge the importance of Ireland's wetlands to wintering waterbirds, "Wetland and Waterbirds" may be included as a Special Conservation Interest for some SPAs that have been designated for wintering waterbirds and that contain a wetland site of significant importance to one or more of the species of Special Conservation Interest.

Thus, a second objective is included as follows:

Objective: To maintain or restore the favourable conservation condition of the wetland habitat at Lough Derg (Shannon) SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.

Middle Shannon Callows SPA (Site Code 004096):
The Middle Shannon Callows SPA is a long and diverse site which extends for approximately 50 km from the town of Athlone (at southern point of Lough Ree) to the town of Portumna (northern point of Lough Derg). The Shannon Callows has a common boundary with two other sites of similar habitats, the River Suck Callows and the Little Brosna Callows, both of which are also Special Protection Areas.

The site has extensive areas of callow, or seasonally flooded, semi-natural, lowland wet grassland, along both sides of the river. Two habitats listed on Annex I of the EU Habitats Directive are well represented within the site – Molinia meadows and lowland hay meadows. In places these two habitats grade into one another. Two legally-protected plant species (Flora (Protection) Order 1999) occur in the site: Opposite-leaved Pondweed (*Groenlandia densa*) in drainage ditches, and Meadow Barley (*Hordeum secalinum*) on dry alluvial grassland. The Red Data Book plant Green-winged Orchid (*Orchis morio*) is known from dry calcareous grasslands within the site, while the site also supports a healthy population of Marsh Pea (*Lathyrus palustris*).

The Middle Shannon Callows qualifies as a site of International Importance for wintering waterfowl both on the total numbers and for the Whooper Swan population. Whooper Swan is listed on Annex I of the EU Birds Directive. The site is also of national importance for breeding waterfowl.

The Shannon Callows continues to hold approximately 40% of the Irish population of Corncrake, a species of global conservation concern that is also listed on Annex I of the EU Birds Directive.

The Shannon Callows has by far the largest area of lowland semi-natural grassland and associated aquatic habitats in Ireland and one in which there is least disturbance of natural wetland processes. Botanically, it is extremely diverse. In winter the site is internationally important for the total numbers of birds (regularly exceed 20,000) and for Whooper Swan in particular. It also holds nationally important populations of a further five species. Some of the wintering species are listed on Annex I of the EU Birds Directive, including Whooper Swan, Greenland White-fronted Goose and Golden Plover. In summer the site supports important populations of breeding waders. Perhaps the most important species which occurs in the site is Corncrake (the site holds 40% of the national total), as this is listed on Annex I of the EU Birds Directive and is Ireland's only globally endangered species.

Main conservation objective:
Objective: To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:

Bird Code	Common Name	Scientific Name
A038	Whooper Swan	*Cygnus cygnus*
A050	Wigeon	*Anas penelope*
A122	Corncrake	*Crex crex*
A140	Golden Plover	*Pluvialis apricaria*
A142	Lapwing	*Vanellus vanellus*
A156	Black-tailed Godwit	*Limosa limosa*
A179	Black-headed Gull	*Chroicocephalus ridibundus*

To acknowledge the importance of Ireland's wetlands to wintering waterbirds, "Wetland and Waterbirds" may be included as a Special Conservation Interest for some SPAs that have been designated for wintering waterbirds and that contain a wetland site of significant importance to one or more of the species of Special Conservation Interest.

Thus, a second objective is included as follows:

Objective: To maintain or restore the favourable conservation condition of the wetland habitat at Middle Shannon Callows SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.

4.3. Likely Effects on European Sites

The Material Alterations proposed by the members were screened for Appropriate Assessment and it was determined that MAs 1 – 5 when considered in combination with the other plans and projects in the area including the Draft Portumna Local Area Plan, have the potential to have an impact on Lough Derg SAC and SPA and by connection, the River Shannon Callows SAC and Middle Shannon Callows SPA.

Prior to the required analysis of each Material Alteration, it is possible to further scientifically assess the potential impacts on the Qualifying Interests of the SACs and Special Conservation Interests of the SPAs listed.

To this end, Table 4.1 sets out such an analysis based on the most up to date data available from the sources listed in Section 2.2 of the report. Habitat status is reported per the findings of the most recent Article 17 Report - Status of EU Protected Habitats and Species in Ireland, 2013.

Table 4.1. Analysis of Qualifying Interests of the SACs and Special Conservation Interests of SPAs potentially affected by Material Alterations 1-5.

Qualifying Interests & Special Conservation Interests	Key environmental conditions supporting site integrity	Current Threats to Qualifying Interests& Special Conservation Interests	Potential Impacts
Alkaline fens	High water table. Ground surface water supply. Calcium-rich conditions. The Overall Status is considered to be Bad; the overall trend is Unknown due to the absence of a national survey for this habitat.	Groundwater dependant. Highly sensitive to hydrological changes. Changes in nutrient or base status	Drainage or reclamation of wetlands (which includes fens) is controlled under the Planning and Development (Amendment) (No. 2) Regulations 2011 and the European Communities (Amendment to Planning and Development) Regulations 2011. Permission is required from the relevant Local Authority where the area impacted by the works exceeds 0.1ha or the works may have a significant effect on the environment. Areas greater than 2ha require an EIS with the planning application. Works include installation of open drains or closed drains, opening of a watercourse, infilling with earth etc. Given the aquatic nature of this habitat and the interaction of the LAP area with Lough Derg potential impacts are assessed.
Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*)*	Riparian/lacustrine habitat prone to flooding. The Overall Status is assessed as Bad due to ongoing pressures and highly fragmented nature of this habitat.	Grazing, Invasive Species, Drainage, Planting of nonnative conifers, felling of native tree species.	A number of variants of this woodland habitat exist, of which riparian forests of *Fraxinus excelsior* and *Alnus glutinosa* (*Alno-Padion*) of temperate and Boreal Europe lowland and hill watercourses are the most common type to be found in Ireland. The interpretation manual of EU habitats 2007 states that all types occur on heavy soils which are periodically inundated by the annual rise of river levels, but which are otherwise well drained and aerated during low water. In addition, there are gallery forests of tall

Qualifying Interests & Special Conservation Interests	Key environmental conditions supporting site integrity	Current Threats to Qualifying Interests& Special Conservation Interests	Potential Impacts
			willows (*Salicion albae*) alongside river channels and occasionally on river islands, where the tree roots are almost continuously submerged. Given the aquatic nature of this habitat and the interaction of the LAP area with the River Shannon and occurrence of Wet woodland which conforms to this habitat on the shores of Lough Derg potential impacts are assessed.
* Calcareous fens with *Cladium mariscus* and species of the Caricion davallianae	Groundwater dependent. Highly sensitive to hydrological changes. Changes in nutrient or base status. The Overall Status is considered to be Bad; the overall trend is Unknown due to the absence of a national survey for this habitat.	Peat or turf cutting, arterial drainage, local drainage and agricultural reclamation, infilling of sites with building waste, dumping of household refuse, afforestation, water pollution and urban expansion.	Cladium fens occur in a variety of situations including fens found in valleys or depressions, floodplains, over-grown-ditches, extensive wet meadows, within tall reed beds, on the landward side of lakeshore communities, calcium rich flush areas in blanket bogs, dune slack areas, fens adjacent to raised and blanket bogs, in turloughs, wet hollows in machair and often in association with alkaline fen. Given the aquatic nature of this habitat and the interaction of the LAP area with Lough Derg potential impacts are assessed.
Juniperus communis formations on heaths or calcareous grasslands	Onset of inundation or water logging Inappropriate management. The Overall Status has been assessed as Inadequate but stable as there is no evidence of any recent decline in condition and no change is foreseen in the immediate future.	Overgrazing; fire; agricultural expansion; invasion by alien species particularly *Rhododendron ponticum*; and poor regeneration.	Any damaging activity that impacts the conservation status of Juniper formation is regulated under the Environment Liability Regulations 2008. Any development in the terrestrial environment of the Plan area would be subject to assessment in terms of location and extent of Juniper scrub (where there are at least 50 individual

Qualifying Interests & Special Conservation Interests	Key environmental conditions supporting site integrity	Current Threats to Qualifying Interests& Special Conservation Interests	Potential Impacts
			Juniper Shrubs) within the overlapping areas of the Plan area and the Lough Derg North-east Shore SAC.
* Limestone pavements	Physical removal. Scrub encroachment. Limestone pavement quarrying, land reclamation, scrub encroachment, invasive non-native species, problematic native species and lack of grazing were considered the main pressures and resulted in an Overall Status of Inadequate.	Quarrying, reclamation for agriculture and reduced farming activity which has facilitated the spread of scrub over some areas. Intensive agriculture and domestic/municipal waste sources in the vicinity of pavement may also threaten groundwater.	The geology of the lake shore is principally limestone and in places this protrudes at the surface in the form of boulders and rubble, and can be classified as limestone pavement. Indirect impacts from flooding as a result of development must be considered.
Lowland hay meadows (*Alopecurus pratensis, Sanguisorba officinalis*)	Surface and groundwater dependent. Moderately sensitive to hydrological change. Changes in management. Changes in nutrient status. The Overall Status is assessed as Bad due to considerable historic losses caused by agricultural improvement.	Agricultural intensification; drainage; abandonment of pastoral systems	This habitat occurs in the River Shannon Callows SAC and while there is limited hydrological connectivity, it is considered in terms of flood management.
Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)	Surface and groundwater dependent. Moderately sensitive to hydrological change. Changes in management. Changes in nutrient status. The Overall Status is assessed as Bad due to historic losses and an ongoing decline in quality caused by succession to scrub, abandonment of pastoral systems, and abandonment of mowing.	Agricultural intensification; drainage; abandonment of pastoral systems	This habitat occurs in the River Shannon Callows SAC and while there is limited hydrological connectivity, it is also considered in terms of flood management.
Otter	Prey availability. Water Quality. Riparian vegetation for breeding sites. Unhindered	Decrease in water quality: Use of pesticides; fertilization; vegetation	Otter is a qualifying interest for the River Shannon Callows SAC and potential

Qualifying Interests & Special Conservation Interests	Key environmental conditions supporting site integrity	Current Threats to Qualifying Interests& Special Conservation Interests	Potential Impacts
	passage along waterways. The Overall Status is assessed as Favourable.	removal; professional fishing (including lobster pots and fyke nets); hunting; poisoning; sand and gravel extraction; mechanical removal of peat; urbanised areas; human habitation; continuous urbanization; drainage; management of aquatic and bank vegetation for drainage purposes; ; and canalization or modifying structures of inland water course.	impacts are assessed in terms of indirect upstream impacts in terms of hydrology and changes in water levels.
Taxus baccata woods	Changes in management. Changes in nutrient or base status. Introduction of alien species. The Overall Status is Bad but improving	The introduction of alien species; sub-optimal grazing patterns; general forestry management; increases in urbanisation and human habitation adjacent to woodlands; and the construction of communication networks through the woodland.	A substantial area of Yew is located on limestone at Cornalack, where Yew forms a scrub woodland along the east shore of Lough Derg. Elsewhere, small stands of Yew occur. Potential impacts are assessed in terms of indirect impacts in terms of hydrology and changes in water levels.
Wetlands & Waterbirds	Highly sensitive to hydrological changes and loss of wetland habitat. Sensitive to disturbance.	A number of pressures have been identified by Crowe (2005). These pressures include: the modification of wetland sites, particularly for industry or housing and increased levels of disturbance, largely related to recreational activity. Eutrophication at a number of wetland sites as a result of nutrient inputs from a range of polluting activities were also identified as a potential pressure. However this latter pressure is now being alleviated through stricter control of activities associated with water discharge/runoff etc. Climate change was also noted as a significant factor underlying changes in trends of wintering waterbirds in Ireland.	

Qualifying Interests & Special Conservation Interests	Key environmental conditions supporting site integrity	Current Threats to Qualifying Interests& Special Conservation Interests	Potential Impacts
Cormorant (*Phalacrocorax carbo*) A017 (breeding) 004058	Sensitive to hydrological changes and loss of wetland habitat. Changes in the nutrient levels of wetlands (although eutrophication not necessarily a threat to this species). Water pollution. Disturbance. In 2012 it was estimated that the Irish breeding population numbered 4,366 pairs and the short-term population trend is stable. Cormorant are currently Amber-listed due to a moderate (35-69%) decline in breeding range and a localized breeding population (Colhoun & Cummins 2013). The European population (EUR25) of this species is assessed as Secure and there have been large increases in both wintering and breeding populations (BirdLife International 2004). Globally, this species has been listed as being of Least Concern, with an increasing population trend (BirdLife International 2012).	**Urbanization**: Collision from powerlines and wind turbines **Human interference:** Pollution of aquatic habitats. Disturbance and persecution at nesting colony sites (to which this species is very loyal). Persecution by fisheries interests. (Lough Derg (Shannon) SPA Natura 2000 Form)	Cormorant is a Special Conservation Interest for the Lough Derg (Shannon) SPA. Parts of the plan relating to water quality will be of concern with regard to this species along with disturbance and loss of habitat.
Whooper Swan (*Cygnus cygnus*) A038 (wintering) 004096	Management practices of grasslands. Hydrological changes. Changes to wetland structure and distribution. Disturbance. In 2010, the RoI wintering population of this species was estimated at 10,520 birds, of which 4,170 are within the SPA network. There have been both long and short-term population increases. Whooper Swans are currently Amber-listed in Ireland due to the hosting of more than 20% of the European wintering population, the majority of which winter at ten or less sites (Colhoun & Cummins 2013). Furthermore, this species relies on a very small breeding population internationally. Consequently, this species is listed under Annex I of the EC Council Directive on the	**Urbanization**: Collision from powerlines and wind turbines **Climate change**, **dispersed habitation**, **Change of land use:** (e.g. from grazing to silviculture) **Human interference:** Hunting and Pollution including poisoning from embedded or ingested lead shot. Deliberate and accidental disturbance from farmland feeding sites (reseeded fields and winter cereals). (Bolland *et al*., 2010, Middle Shannon Callows SPA Natura 2000 Form)	Whooper swan is a Special Conservation Interest for the River Shannon Callows SPA and is considered in term of flood management and potential changes to upstream wetland structure and habitat availability.

Qualifying Interests & Special Conservation Interests	Key environmental conditions supporting site integrity	Current Threats to Qualifying Interests& Special Conservation Interests	Potential Impacts
	Conservation of Wild Birds (2009/147/EC). BirdLife International has, however, assessed the European population of this species as Secure owing to its extensive range and large numbers which have experienced a recent increase (BirdLife International 2004). Similarly, this species has been listed as Least Concern by (BirdLife International 2012).		
Wigeon (*Anas penelope*) A050 (wintering) 004096	Sensitive to hydrological changes and loss of wetland habitat. Changes in the nutrient levels of wetlands Climate change & weather conditions. Wintering Wigeon are currently Red-listed in Ireland due to a long-term decline in the non-breeding population (Colhoun & Cummins 2013). In 2011, the RoI wintering population was estimated at 56,350 birds, of which 43,746 were recorded within the SPA network. There have been both short-term and long-term wintering population declines and a short-term population decline within the SPA network. The European (EUR25) population of this species as Secure and both breeding and wintering populations were classified as Stable (BirdLife International 2004). Globally, this species is considered to be of Least Concern, albeit with a decreasing population trend, due to its large world population and huge population range.	**Climate change & Weather conditions**: Cold snaps can influence overwintering location from Ireland to UK. Extent of flooding on the Shannon callow system influences numbers. **Agricultural change of practice:** changing wetland management practices (decreased grazing and mowing in meadows leading to scrub over-growth) **Human interference:** Hunting and Pollution including poisoning from embedded or ingested lead shot, disturbance, leisure fishing and nautical sports **Urbanization:** Collision from powerlines and windturbines **Predation:** Primarily from foxes, pine marten, and American mink (Birdlife International, Boland & Crowe, 2012, Middle Shannon Callows SPA Natura 2000 Form)	Wigeon is a Special Conservation Interest for the River Shannon Callows SPA and is considered in term of flood management and potential changes to upstream habitat availability.
Tufted Duck (*Aythya fuligula*) A061 (wintering) 004058	Sensitive to hydrological changes and loss of wetland habitat. Changes in the nutrient levels of wetlands (although eutrophication not necessarily a threat to this species). Water pollution. Disturbance.	**Climate change & Weather conditions**: Cold snaps can influence overwintering location from Ireland to UK. Migratory short stopping in response to warmer winters could cause long-term decline of wintering population (wintering	Tufted Duck is a Special Conservation Interest for the Lough Derg (Shannon) SPA. Parts of the plan relating to water quality will be of concern with regard to this

Qualifying Interests & Special Conservation Interests	Key environmental conditions supporting site integrity	Current Threats to Qualifying Interests& Special Conservation Interests	Potential Impacts
	Tufted Duck is currently Red-listed in Ireland due to a short-term decline in the non-breeding population (Colhoun & Cummins 2013). In 2012 it was estimated that the Irish wintering population numbered 20,980 birds, 15,540 of which were within the SPA network. Short-term (i.e. last 12 years) population trend is increase (stable within the SPA network) and the long-term (i.e. since c. 1980) trend is unknown. The European population (EUR25) of this species is assessed as Declining and there have been moderate declines in both wintering and breeding populations (BirdLife International 2004). Globally, this species has been listed as being of Least Concern, with a stable population trend (BirdLife International 2012).	population range has already shifted north-eastwards). **Human interference:** Hunting and Pollution including poisoning from embedded or ingested lead shot, disturbance, leisure fishing and nautical sports **Urbanization:** Collision from power lines and wind turbines. (Birdlife International, Boland & Crowe, 2012, Middle Shannon Callows SPA Natura 2000 Form, Tomankova et al., 2013)	species along with disturbance and loss of habitat.
Goldeneye (*Bucephala clangula*) A067 (wintering) 004058	Sensitive to hydrological changes and loss of wetland habitat. Changes in the nutrient levels of wetlands (although eutrophication not necessarily a threat to this species). Water pollution. Disturbance. Goldeneye is currently Red-listed in Ireland due to a short-term decline in the non-breeding population (Colhoun & Cummins 2013). In 2012 it was estimated that the Irish wintering population numbered 1,940 birds, 1,308 of which were within the SPA network. Both short-term (i.e. last 12 years) and long-term (i.e. since c. 1980) population trends are decreasing, as is the short-term trend within the SPA network. The European population (EUR25) of this species is assessed as Secure, the wintering population is considered Stable and there has been a moderate increase in the breeding population (BirdLife International 2004). Globally, this species has	**Climate change & Weather conditions**: Cold snaps can influence overwintering location from Ireland to UK. Migratory short stopping in response to warmer winters could cause long-term decline of wintering population (wintering population range has already shifted north-eastwards). **Human interference:** Hunting and Pollution including poisoning from embedded or ingested lead shot, disturbance, leisure fishing and nautical sports **Urbanization:** Collision from power lines and wind turbines. (Birdlife International, Boland & Crowe, 2012, Middle Shannon Callows SPA Natura 2000 Form, Tomankova et al., 2013)	Goldeneye is a Special Conservation Interest for the Lough Derg (Shannon) SPA. Parts of the plan relating to water quality will be of concern with regard to this species along with disturbance and loss of habitat.

Qualifying Interests & Special Conservation Interests	Key environmental conditions supporting site integrity	Current Threats to Qualifying Interests& Special Conservation Interests	Potential Impacts
	been listed as being of Least Concern, with a stable population trend (BirdLife International 2012).		
Corncrake (*Crex crex*) A122 (breeding) 004096	Management practices of habitat: loss of hay-meadows and wetlands; intensification of grassland management; loss of habitat through vegetation succession/land abandonment; insufficient extent and design of conservation measures. In 2012, the RoI breeding population was counted at 135 calling males. There have been both short and long-term population declines, along with a long-time population range decline (the short-term range trend is Stable). Currently this species is Red-listed in Ireland due to significant declines in range and population (Colhoun & Cummins 2013). Additionally, though it is listed on the IUCN Red List of Threatened Species in the Least Concern category (with a stable population trend), following upward revisions of the global population estimates (BirdLife International 2012), Corncrakes are listed under Annex I of the EC Council Directive on the Conservation of Wild Birds (2009/147/EC) due to declines in range and population throughout Europe. The European population (EUR25) of this species is assessed as Depleted, the breeding population trend has recently shown a large increase (BirdLife International 2004).	**Agricultural intensification/change of practices** : Irish decline was first started by the introduction of faster growing grass varieties that allowed earlier mowing for hay and later by the introduction of silaging, which in many places has replaced the saving of hay. Nest destruction, early mowing being the most important threat; increased chick mortality during mowing, adult mortality during mowing. Ploughing and neglect of hay meadows. (AEWA Single species action plan Corncrake, Crowe, 2005, Middle Shannon Callows SPA Natura 2000 Form).	Corncrake is a Special Conservation Interest for the River Shannon Callows SPA and is unlikely to be affected by the Local Area Plan.
Golden Plover (*Pluvialis apricaria*) A140 (wintering) 004096	Afforestation and intensification of farming practices. The Golden Plover is Red-listed in Ireland (Lynas et al. 2007; Colhoun & Cummins 2013),	**Urbanisation**: Loss/modification of wetland, peatland, collision risk from power lines and wind-turbines. **Agricultural intensification/change of**	Golden Plover is a Special Conservation Interest for the River Shannon Callows SPA and is unlikely to be affected by the Local Area Plan.

Qualifying Interests & Special Conservation Interests	Key environmental conditions supporting site integrity	Current Threats to Qualifying Interests& Special Conservation Interests	Potential Impacts
	due to large declines in its breeding population and breeding range and more recent declines in wintering populations. The European population is considered Secure. Though declines were recorded in several populations in Western Europe, this was compensated for by increases in its Finnish population and stability elsewhere (BirdLife International 2004). This is further regarded as being of Least Concern internationally by the IUCN (BirdLife International 2012). Given its significant regional declines, this species is also listed under Annex I of the EC Council Directive on the Conservation of Wild Birds (2009/147/EC). It is thought that the southern extremities of its European breeding range (including populations in Ireland and the UK) have been in decline since the 19th Century (Tucker & Heath 1994).	**practices**: Loss of peatland & farmland habitat. Burning of peatland and overgrazing by sheep. **Afforestation** **Climate change**: Widescale departures of Golden Plover with the onset of severe winter cold have been noted from the British Isles could result in increased winter mortality (Wernham *et al.* 2002) Warm and dry autumns could become the norm in southern England and Ireland which could favour rapid growth of winter cereals to heights which are unfavourable, thereby causing rapid abandonment by Golden Plovers (Mason & Macdonald, 1999) **Human interference:** hunting, disturbance, leisure fishing and nautical sports **Predation**: (EU management plan – Golden Plover 2009-2011, Middle Shannon Callows SPA Natura 2000 Form)	
Lapwing (*Vanellus vanellus*) A142 (wintering) 004096	Management practices of grasslands. Hydrological changes. Changes to wetland structure and distribution. Disturbance. Breeding Lapwings are Red-listed in Ireland due to long-term declines in this breeding population (Colhoun & Cummins 2013). In 2008, the RoI breeding population was estimated at 2,000 pairs. There have been both long and short-term population and breeding range declines. The European population, previously regarded as Secure, is	**Agricultural intensification**: Fertiliser, drainage, loss of traditional farming practices, pesticides **Urbanisation:** Loss of habitat, powerlines & wind turbine collision, **Pollution:** Deposition of nutrients, particularly nitrogen compounds, can lead to unfavourable changes in vegetation structure and generally increase vegetation growth, to the detriment of	Lapwing is a Special Conservation Interest for the River Shannon Callows SPA and is considered in term of flood management and potential changes to upstream habitat availability.

Qualifying Interests & Special Conservation Interests	Key environmental conditions supporting site integrity	Current Threats to Qualifying Interests& Special Conservation Interests	Potential Impacts
	now listed as Vulnerable (BirdLife International 2004) owing to a more than 30% decline in overall breeding numbers. Despite these large declines, the global population of this species remains high and is regarded as being of Least Concern by the IUCN (BirdLife International 2012).	Lapwings. **Predation** **Human disturbance:** leisure fishing and nautical sports, **Climate change** Winter flooding improves conditions for breeding Lapwing by keeping sward short and open and by creating suitable, wet feeding areas (Ausden *et al*. 2001). (EU management plan Lapwing 2009-2011, Middle Shannon Callows SPA Natura 2000 Form)	
Black-tailed Godwit (*Limosa limosa*) A156 (wintering) 004096	Sensitive to hydrological changes and loss of wetland habitat. Changes in the nutrient levels of wetlands. Black-tailed Godwit occurs in internationally important numbers in Ireland. It is Amber-listed. With fewer than three pairs of Black-tailed Godwit proven breeding in recent years (Hillis 2010, 2011, 2012 in Colhoun & Cummins 2013) this species now qualifies under the rare breeder category. In 2011, the RoI wintering population was estimated at 18,080 birds and both the short and long-term population trends were increasing. The European population is considered to be Vulnerable; the breeding population trend is of large decline and the wintering population trend is of moderate decline (BirdLife International 2004). Globally, the population of this species is considered Near Threatened and the population trend is decreasing (BirdLife International 2012).	**Urbanisation:** Loss of habitat, powerlines & wind turbine collision, **Pollution:** Habitat change (e.g. reduction in prey density) due to reductions in organic loadings to wetlands caused by the introduction of, or improvement to, waste-water treatment plants. **Invasive species:** Zebra mussel filtration of phytoplankton and suspended particulate resulting in a reduction of invertebrates could impact on food source of larval fish. This could impact on fish food sources **Predation** **Human disturbance:** leisure fishing and nautical sports, **Climate change:** (EU management plan for Black--tailed godwit 2007-2009, Middle Shannon Callows SPA Natura 2000 Form)	Black-tailed Godwit is a Special Conservation Interest for the Lough Derg (Shannon) SPA. Parts of the plan relating to water quality will be of concern with regard to this species along with disturbance and loss of habitat.
Black-headed Gull (*Chroicocephalus*	Sensitive to hydrological changes and loss of wetland habitat. Nest predation. Pollution at	**Predation:** Inland breeding sites affected by the	Black-headed Gull is a Special Conservation Interest for the Lough Derg

Qualifying Interests & Special Conservation Interests	Key environmental conditions supporting site integrity	Current Threats to Qualifying Interests& Special Conservation Interests	Potential Impacts
ridibundus) A179 (wintering) 004096	sea. Though significant populations exist elsewhere in the Palaearctic, breeding Black-headed Gulls have been placed on the Red-list of Birds of Conservation Concern in Ireland since 2007, owing to a rapidly declining and localised breeding population (Lynas et al. 2007; Colhoun & Cummins 2013). The European population of this species is regarded as Secure, despite declines in several countries (BirdLife International 2004). The aggregate global population of this species has been assessed as Least Concern (BirdLife International 2012).	spread of American Mink. **Agricultural intensification**: Drainage **Urbanisation:** Loss of wetland habitat, powerlines & wind turbine collision **Nutrification:** Black-headed Gulls frequently forage at WWTP outfalls. They undoubtedly benefit from artificial food sources (Burton *et al.* 2001) supplied by WWTPs **Invasive species:** Zebra mussel filtration of phytoplankton and suspended particulate resulting in a reduction of invertebrates could impact on food source of larval fish. This could impact on fish food sources. (Craik, 1997, Middle Shannon Callows SPA Natura 2000 Form)	(Shannon) SPA. Parts of the plan relating to water quality will be of concern with regard to this species along with disturbance, loss of habitat and the spread of Zebra mussels in Lough Derg.
Common Tern (*Sterna hirundo*) A193 (breeding) 004058	Sensitive to wetland habitat loss. On the breeding grounds, this species is sensitive to disturbance from outdoor leisure activities, to coastal erosion and development, to natural flooding, to predation at nest sites (large gulls and mink) and vegetation overgrowth. Pollution at sea. Common Tern is in the BoCCI Amber list due to a moderate decline in breeding range and a localized breeding population. This species is also listed under Annex I of the EC Council Directive on the Conservation of Wild Birds (2009/147/EC). In 2012 it was estimated that the Irish breeding population numbered 4,887 birds, short and long-term breeding population trends were both increasing, as were the long and short-term breeding range trends. The	**Predation:** Inland breeding sites affected by the spread of American Mink and large gull breeding sites. **Agricultural intensification**: Drainage **Urbanisation:** Loss of wetland habitat, powerlines & wind turbine collision. **Climate Change** Climate change could lead to scarcity of food supplies and sea level rises could lead to nest flooding and loss of breeding sites.	Common Tern is a Special Conservation Interest for the River Shannon Callows SPA and is considered in term of flood management and potential changes to upstream wetland structure and habitat availability.

Qualifying Interests & Special Conservation Interests	Key environmental conditions supporting site integrity	Current Threats to Qualifying Interests& Special Conservation Interests	Potential Impacts
	European population of this species is regarded as Secure (BirdLife International 2004). The aggregate global population of this species has been assessed as Least Concern (BirdLife International 2012), albeit with a decreasing population trend.		

4.4. Assessment of Potential Impacts on European Sites

Following the identification of potential impacts based on the most recent available scientific data for Qualifying Interests and Special Conservation Interests, Table 4.2 shows how specific elements of the proposed Material Alterations to the Draft Local Area Plan were deemed to pose likely significant effects to the Conservation Objectives of the European Sites considered.

Table 4.2. Assessment of Potential Impacts of Material Alterations 1-11 on European Sites.

Material Alterations Proposed at Council Meeting	**Effects of Material Alteration**	**Potential impacts of material alterations on European Sites**	**Determination**
MA 1 Include subject lands within the plan boundary and zone Tourism as per attached map (*Material Alterations Proposed to the Draft Plan – Map 1A Land Use Zoning - Draft Portumna Local Area Plan).*	New tourism/commercial development on these lands may have the following general effects - Development and operational phases: Increased population – light, noise, traffic, air emissions. Pollution from use or storage of hazardous materials (paint, oil, pesticides). Disturbance from increased recreational pressure in surrounding landscape. Increased wastewater. Increase in hard landscaping and runoff water. Introduction of invasive plant or animal species.	The northern section of the site is drained by the Lickmolassy Stream which is prone to flooding and which discharges into Lough Derg. As the subject lands are partly located within the boundary of Indicative flood zone A, there is concern that if development takes place in a flood zone and flood events subsequently occur there is the increased potential for flood waters to become contaminated and re-enter the water course and impact on the water quality of Lough Derg. The Portumna Local Area Plan has several objectives and policies which are intended to avoid potential negative impacts on European sites through compliance with all relevant legislation and guidelines and abiding by the principles of best practice in relation to planning and land use.	Due to its location and direct hydrological connectivity with Lough Derg, this material alteration, considered in isolation would be likely to have a significant impact on the Lough Derg SAC and SPA. A potential significant impact in combination with the other proposed material alterations on the European sites listed cannot be ruled out. **Stage 2 AA required**
MA 2 Rezone the lands from Recreation, Amenity and Open Space to Residential-Phase 2 as per attached Map 1A.	New residential development on these lands may have general effects such as increased population, light, noise, traffic, air emissions, increase in hard landscaping and runoff water which would have been considered in any case for residential	This area of land is located within an area designated as Indicative flood zone C and the likelihood of flooding is low. The Portumna Local Area Plan has several objectives and policies which are intended to avoid potential negative	No significant impact on European sites.

Material Alterations Proposed at Council Meeting	Effects of Material Alteration	Potential impacts of material alterations on European Sites	Determination
	development.	impacts on European sites through compliance with all relevant legislation and guidelines and abiding by the principles of best practice in relation to planning and land use management in flood risk areas.	
MA 3 Rezone the lands from Recreation, Amenity and Open Space to Residential-Phase 2 as per attached Map 1A.	New residential development may have the following general effects - Development and operational phases: Increased population – light, noise, traffic, air emissions. Pollution from use or storage of hazardous materials (paint, oil, pesticides). Disturbance from increased recreational pressure in surrounding landscape. Increased wastewater. Increase in hard landscaping and runoff water. Introduction of invasive plant or animal species	Located directly south of lands addressed under MA 2, the eastern section of the site is drained by the Lickmolassy Stream which is prone to flooding and which discharges into Lough Derg. As the subject lands are partly located within the boundary of Indicative flood zone A, there is concern that if development takes place in a flood zone and flood events subsequently occur there is the increased potential for flood waters to become contaminated and re-enter the water course and impact on the water quality of Lough Derg. The Portumna Local Area Plan has several objectives and policies which are intended to avoid potential negative impacts on European sites through compliance with all relevant legislation and guidelines and abiding by the principles of best practice in relation to planning and land use management in flood risk areas.	Due to its location and direct hydrological connectivity with Lough Derg, this material alteration, considered in isolation would be likely to have a significant impact on the Lough Derg SAC and SPA. A potential significant impact in combination with the other proposed material alterations on the European sites listed cannot be ruled out. **Stage 2 AA required**

Material Alterations Proposed at Council Meeting	Effects of Material Alteration	Potential impacts of material alterations on European Sites	Determination
MA 4 Rezone the lands from Recreation, Amenity and Open Space to Tourism as per attached Map 1A.	New tourism/commercial development on these lands may have general effects such as increased population, light, noise, traffic, air emissions, increase in hard landscaping and runoff water which would have been considered in any case for commercial development.	This parcel of land is located within an area designated as Indicative flood zone C and the likelihood of flooding is low. The Portumna Local Area Plan has several objectives and policies which are intended to avoid potential negative impacts on European sites through compliance with all relevant legislation and guidelines and abiding by the principles of best practice in relation to planning and land use management in flood risk areas.	No significant impact on European sites.
MA 5 Retain the 'Existing Residential Land Use' and remove the Constrained Land Use as per attached Map 1A.	The subject lands were zoned Existing Residential Land Use and are now proposed to remove the Constrained Land Use, which would see it developed for housing and other uses permitted under the land use zoning matrix for this zoning. New residential development and other development open for consideration on this land use zoning may have the following general effects - Development and operational phases: Increased population – light, noise, traffic, air emissions. Pollution from use or storage of hazardous materials (paint, oil, pesticides). Disturbance from	As the subject lands are partly located within the boundary of Indicative flood zone A/B/C, there is concern that if development takes place in a flood zone and flood events subsequently occur there is the increased potential for flood waters to become contaminated and re-enter the water course and impact on the water quality of Lough Derg. The Portumna Local Area Plan has several objectives and policies which are intended to avoid potential negative impacts on European sites through compliance with all relevant legislation and guidelines and abiding by the principles of best practice in relation to planning and land use management in flood risk	Due to its location and indirect hydrological connectivity with Lough Derg, this material alteration, considered in isolation would be likely to have a significant impact on the Lough Derg SAC and SPA. A potential significant impact in combination with the other proposed material alterations on the European sites listed cannot be ruled out. **Stage 2 AA required**

Material Alterations Proposed at Council Meeting	Effects of Material Alteration	Potential impacts of material alterations on European Sites	Determination
	increased recreational pressure in surrounding landscape. Increased wastewater. Increase in hard landscaping and runoff water. Introduction of invasive plant or animal species.	areas.	
MA 6 Rezone the lands from Residential Phase 2 to Town Centre/Mixed Use as per attached Map 1A.	New commercial development on these lands may have general effects such as increased population, light, noise, traffic, air emissions, increase in hard landscaping and runoff water which would have been considered in any case for commercial development.	This parcel of land is located within an area designated as Indicative flood zone C and the likelihood of flooding is low. The Portumna Local Area Plan has several objectives and policies which are intended to avoid potential negative impacts on European sites through compliance with all relevant legislation and guidelines and abiding by the principles of best practice in relation to planning and land use management in flood risk areas.	No significant impact on European sites.
MA 7 Amend the Land Use Matrix Table to "Open For Consideration" for Medical Facilities on Business and Enterprise zoned Lands	N/A	N/A	The findings of the AA carried out on the draft plan are unaffected. No significant impact on European sites.
MA 8 Amend the Land Use Table Matrix to "Open For Consideration" for Guest Houses on Community Facilities zoned Lands	N/A	N/A	The findings of the AA carried out on the draft plan are unaffected. No significant impact on European sites.
MA 9 Amend the Draft Portumna Local Area Plan 2016-2022 as follows: 3.7.2 Water Framework Directive *[Textual Changes]*	N/A	N/A	The findings of the AA carried out on the draft plan are unaffected. No significant impact on European sites.
MA 10	N/A	N/A	The findings of the AA

Material Alterations Proposed at Council Meeting	Effects of Material Alteration	Potential impacts of material alterations on European Sites	Determination
Amend Text of Objective UI 2 in the Draft Portumna Area Plan 2016-2022 *[Textual Changes]*			carried out on the draft plan are unaffected. No significant impact on European sites.
MA 11 Insert new policy NH2 in the Draft Portumna Area Plan 2016-2022 as follows: **Policy NH2: Green Infrastructure Strategy** The Council shall commence the preparation of a Green Infrastructure Strategy within the lifetime of the plan as resources permit.	N/A	N/A	The findings of the AA carried out on the draft plan are unaffected. No significant impact on European sites.
MISCELLANEOUS In addition to the above: • Update the Local Area Plan boundary on *Maps 1A* and *1B-Land Use Zoning*, *Map 2 -Specific Objectives* and *Map 3-Flood Risk Management,* as necessary. • Update the table of *Areas of Zoned Land* on page 20-21 of the Draft Portumna Local Area Plan 2016-2022 as a consequence of the Material Alterations. • Update any typos in the document.	N/A	N/A	The findings of the AA carried out on the draft plan are unaffected. No significant impact on European sites.

The Local Area Plan is a policy document which provides a framework for the land use management to allow for economic growth and development of the town as well as the infrastructure, services and facilities to meet the requirements of the current and future population. The Plan must consider how development can take place which will be sustainable and balanced way so as to meet the needs of the local residential and commercial interests while ensuring the health and function of the cloacal environment.

This is done through:

- Selective zoning of land parcels for suitable development,
- Application of Development Standards which provide parameters for suitable development,
- Objectives and policies for development within the context of the Plan.

Because of the nature of the Plan, it is not possible to specify or qualify with any degree of certainty that the impacts of the Plan would be. That is – the Plan can zone land for a certain use, type of development or development density, however, it does not specify what development, if any will be proposed for any given site during the lifetime of the Plan.

It can only be stated that in zoning of land for development in areas that are vulnerable to flooding and/or those that have director indirect hydrological connectivity to Lough Derg, the proposed Material Alterations carry a risk of having a negative impact on the Lough Derg SAC and SPA and by connection, the River Shannon Callows SAC and Middle Shannon Callows SPA.

The risk of these negative effects may be considered to be relatively low for the following reasons:

1. There is limited scope for extensive residential development in the subject lands and they are unlikely to be considered for development within the lifetime of the Plan.
2. Only projects relating to the development of tourism infrastructure will be considered where it has been determined that there would be no significant impacts either alone or in combination on any European Sites will be considered.
3. It is implicit that the standards, guidelines and policies and objectives set out in the draft Portumna Local Area Plan will be implemented at the project level i.e. by Development Management of the Planning Section within the Local Authority when a project is submitted for planning permission. The rigorous implementation of the policies and objectives of the Plan relating to the protection of the environment would prevent any unsuitable developments or activities within the Plan area which would have a significant adverse effect on the environment. In particular Objective DS3, Policy NH1 and Objective NH1 relate specifically to the implementation of Article 6(3) of the Habitats Directive is designed to ensure that no plan or project can proceed within the Plan area which would have a significant effect on any European Site.

4.5. Mitigation of Impacts

The Portumna Local Area Plan has several objectives and policies which are intended to avoid potential negative impacts on European sites through compliance with all relevant legislation and guidelines and abiding by the principles of best practice in relation to planning and land use management in flood risk areas.

The application of all relevant legislation and guidelines relating to good planning and land use management and flood risk management should in practice avoid any negative impacts on European Sites arising from the proposed Material Alterations.

Material Alterations 1, 3 and 5, by rezoning these sites Tourism/Commercial or Residential and allowing in principle for development, contradicts the principles of sustainable land use management and good planning and so, mitigation in the form of specific objectives for these lands should be included to bolster the existing policies, objectives and standards and clarify procedures where the inappropriate rezoning of lands may have the potential to impact on nearby European Sites.

In line with best practice, a hierarchy of mitigation, starting with avoidance, should be followed. Table 4.3 below outlines mitigation measures in the form of specific objectives which if implemented will ensure that any potential impact arising from the rezoning of the specified lands and eliminate the risk of any significant impacts on the specified European Sites.

Table 4.3. Mitigation measures to avoid potential significant impacts on European Sites.

Material Alterations	Mitigation
MA 1 Include subject lands within the plan boundary and zone Tourism as per attached map (*Material Alterations Proposed to the Draft Plan – Map 1A Land Use Zoning - Draft Portumna Local Area Plan).*	1. Any development proposals should be considered with extreme caution and will be required to comply with The Planning System and Flood Risk Management Guidelines for Planning Authorities/Circular PL2/2014 & the associated Development Management Justification Test. Climate Change should be duly considered in any development proposal. 2. A buffer zone will be included so that no development is permitted with an appropriate zone of water courses leading to Lough Derg will be determined by an independent site specific Flood Risk Assessment carried out by suitably qualified personnel. 3. Any development proposals submitted for this site will require a detailed ecological report(s), carried out by suitably qualified personnel for the purposes of informing Appropriate Assessment Screening by Galway County Council. The AA Screening will be informed by the aforementioned Flood Risk Assessment. 4. The relevant lands will be outlined and flagged with a symbol on the on the land use zoning map and on the GIS system of Galway County Council so the staff and the public are aware of the special conditions/constraints attached. 5. A briefing will be provided to relevant staff within Galway County Council on the special conditions and constraints on relevant lands.
MA 3 Rezone the lands from Recreation, Amenity and Open Space to Residential-Phase 2 as per attached Map 1A.	1. Any development proposals should be considered with extreme caution and will be required to comply with The Planning System and Flood Risk Management Guidelines for Planning Authorities/Circular PL2/2014 & the associated Development Management Justification Test. Climate Change should be duly considered in any development proposal. 2. A buffer zone will be included so that no development is permitted with an appropriate zone of water courses leading to Lough Derg will be determined by an independent site specific Flood Risk Assessment carried out by suitably qualified personnel. 3. Any development proposals submitted for this site will require a detailed ecological report(s), carried out by suitably qualified personnel for the purposes of informing Appropriate Assessment Screening by Galway County Council. The AA Screening will be informed by the aforementioned Flood Risk Assessment. 4. The relevant lands will be outlined and flagged with a symbol on the on the land use zoning map and on the GIS system of Galway County Council so the staff and the public are aware of the special conditions/constraints attached. 5. A briefing will be provided to relevant staff within Galway County Council on the special conditions and constraints on relevant lands.

MA 5 Retain the 'Existing Residential Land Use' and remove the Constrained Land Use as per attached Map 1A.	1. Any development proposals should be considered with extreme caution and will be required to comply with The Planning System and Flood Risk Management Guidelines for Planning Authorities/Circular PL2/2014 & the associated Development Management Justification Test. Climate Change should be duly considered in any development proposal. 2. A buffer zone will be included so that no development is permitted with an appropriate zone of water courses leading to Lough Derg will be determined by an independent site specific Flood Risk Assessment carried out by suitably qualified personnel. 3. Any development proposals submitted for this site will require a detailed ecological report(s), carried out by suitably qualified personnel for the purposes of informing Appropriate Assessment Screening by Galway County Council. The AA Screening will be informed by the aforementioned Flood Risk Assessment. 4. The relevant lands will be outlined and flagged with a symbol on the on the land use zoning map and on the GIS system of Galway County Council so the staff and the public are aware of the special conditions/constraints attached. 5. A briefing will be provided to relevant staff within Galway County Council on the special conditions and constraints on relevant lands.

4.6. Interaction with other Plans

The E.C. Habitats Directive and the Irish Habitats Regulations 2011 require that the impacts on European sites be assessed from the plan or project in question and also in combination with other plans and projects that could affect the same European Sites.

The screening process identified the plans that could act in combination with the Local Area Plan to pose likely significant effects on European Sites in its administrative area and its environs. This Section identifies if the Plans considered have undergone appropriate assessment themselves as it is assumed that if a Plan has been adopted following AA then it cannot pose likely significant adverse effects on European Sites.

Following the adoption of the Draft County Development Plan, Local Plans will undergo their own appropriate assessment where necessary and will take into account the cumulative effects at this scale, particularly of projects which can act in-combination and identified at a local scale. The amendments/variations to these Plans will be in accordance with the Policies and Objectives that are described in the County Development Plan. Therefore, it is assumed that the amendments/variations themselves will not pose likely significant effects to the European Sites. Local Area Plans in County Galway are therefore not predicted to pose cumulative adverse impacts, provided they are in compliance with the County Development Plan.

The cumulative/in-combination impact assessment next focuses on the other County Development Plans that had the highest potential to affect the same European sites that could be affected by the Portumna Local Area Plan. Other higher-level plans that could promote infrastructure are integrated within the County Development Plan and have been assessed as such.

Galway County Development Plan 2015-2021
Potential impacts on the River Shannon Callows SAC, Lough Derg North-East Shore SAC, Middle Shannon Callows SPA and Lough Derg (Shannon) SPA are addressed in the Galway County Development Plan. The County Development Plan has undergone an appropriate assessment under Article 6(3) of the E.C. Habitats Directive. No cumulative impacts are

predicted as there are no specific policies promoting development in the Galway County Development Plan that would have in-combination effects.

Offaly County Development Plan 2014-2020
The Middle Shannon Callows SPA and River Shannon Callows SAC are shared by Galway and Offaly. Policies have been assessed as part of a comprehensive appropriate assessment and objectives included in the Offaly CDP to protect these specific sites. As a result, there are no predicted cumulative impacts from the implementation of the Local Area Plan.

North Tipperary County Development Plan 2010-2016
The River Shannon and part of Lough Derg forms the county border between Galway and Tipperary and therefore the River Shannon Callows SPA is shared by Galway and Tipperary with hydrological connectivity to the Lough Derg and therefore to the Lough Derg North-East Shore SAC, River Shannon Callows SPA and Lough Derg (Shannon) SPA. Objectives have been included in the Plan relating to the protection of Natural Heritage. Policy Env.1 requires Appropriate Assessment Screening and if required Appropriate Assessment is carried out for any plan or project which, individually, or in combination with other plans and projects is likely to have a significant direct or indirect impact on any Natura 2000 site or sites As a result there are no predicted cumulative impacts from the implementation of this Plan.

Shannon International River Basin Management Plan 2009-2015
The primary objectives of the Shannon RBMP are to protect and enhance surface and groundwater resources and to achieve at least Good Ecological Status in all waterbodies by 2015.

The Shannon IRBMP has been subject to Appropriate Assessment and various mitigation measures are included in that Plan with regard to achieving good status water quality. Many of the measures included mirror those of the Portumna LAP, e.g. where replacement or upgrading of a treatment plant is required, AA would be required if this would involve building of a new plant or an extension to an existing plant and where relocation the point of discharge would be required, that AA would be required and 'should show that the relocation will not negatively impact on protected areas'. There would be no risk of significant "in combination" effects with Draft Local Area Plan.

4.7. Summary of Policies protecting European Sites

A summary of the Policies and Objectives which act cumulatively to protect the individual European Sites is presented in Table 4.4 below.

Table 4.4. Policies and Objectives protecting European sites and supporting Article 10 habitats and species.

Site	Sensitivity/Threats	Mitigation – Policy/Objective
River Shannon Callows SAC Lough Derg North-East Shore SAC Middle Shannon Callows SPA Lough Derg (Shannon) SPA	Disturbance from development on Water quality and Habitats	Objective DS 3 Natura 2000 Network and Habitats Directive Objective DS 9 Screening for Appropriate Assessment Objective LU 13 – Constrained Land Use Zone (CL) Objective LU 16 – Residential Densities (Refer to DM Guideline LU1) Objective CF 8 – Amenity Network Objective CF 9 – Riverside Networks Objective UI 3 – Wastewater Disposal Objective FL 1 – Flood Risk Management and Assessments Objective FL 7 – Protection of Water bodies and Watercourses Policy NH 1 – Natural Heritage, Landscape and Environment Objective NH 1 – European Sites Objective NH 2 – Protected Habitats and Species Objective NH 8 – Environmental Management Area Objective NH 9 – Objective NH 9 – Riparian Zones

		Objective NH 12 – Control of Invasive and Invasive Alien Species

With regard to mitigation measures the inclusion of **DM Guideline NH 2 – Conservation Management Plan/Environmental Operating Plan & Project Specific Mitigation Measures** is acknowledged:

Project specific mitigation measures may be included in a Construction Management Plan (CMP) or an Environmental Operating Plan (EOP) and will be commensurate to the level of impact predicted and determined to be successfully employable with regard to the Conservation Objectives of the European sites in question.

The CMP or EOP may be required to present information on mitigation in terms of:

1) Evidence of how these will be secured and implemented and by whom;
2) Evidence of the degree of confidence of their likely success;
3) Timescale, relative to the plan or project, for their implementation or completion;
4) Evidence as to how the measures will be monitored and, should mitigation failure identified, how that failure will be rectified.

Specific mitigation measures with regard to the proposed Material Alterations are presented in Table 4.3 and are not repeated here.

4.8. Responsibilities for implementing mitigation policies

The responsibility for implementing the Portumna Local Area Plan lies solely with the Planning Authorities through the Planning consent process. Applicants who intend to develop within the Portumna Local Area Plan Administrative Area are obliged to ensure that their application is consistent with the Policies and Objectives within the Local Area Plan. Applicants must provide information to allow the Planning Authorities to screen the application and decide if Stage 2 AA is required.

4.9. Monitoring the Implementation of Policies

Whilst there is no legal requirement to monitor the outputs of the AA process, there is an obligation to monitor the implementation of the Local Area Plan through the E.C. SEA Directive as implemented in Ireland. Contingency measures may have to be applied if there is evidence that Policies or Objectives cannot be implemented successfully.

4.10. Conclusion of Stage 2 – Appropriate Assessment

This Natura Impact Report records the decisions that were taken during the consideration of proposed Material Alterations to the Draft Portumna Local Area Plan 2016-2022.

It determines that, assuming the successful implementation of those Policies and Objectives listed in the Plan and specific mitigation measures with regard to the proposed Material Alterations 1, 3 and 5, which specifically address development and control, where potential impacts on the European sites were considered, there will be no likely significant effects on the Conservation Objectives or overall integrity of those European sites in the Administrative Area of the Plan, either in isolation or in combination with other Plans and Projects acting in the same area.

It is imperative that the mitigation measures are adopted and implemented together with the existing policies and objectives of the Plan in order to ensure that the proposed material alterations will have no adverse effect on European Sites. If they are not implemented, the risk of adverse impacts on European Sites would remain and the Draft Portumna Local Area Plan with the proposed Material Alterations could not be adopted.

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Appendix 1

Appropriate Assessment Screening Report

of
Material Alterations to the

Draft Portumna Local Area Plan 2016-2022

APPROPRIATE ASSESSMENT SCREENING REPORT

as required under Article 6(3) of the EU Habitats Directive

of

MATERIAL ALTERATIONS

to the

PORTUMNA LOCAL AREA PLAN 2016-2022

On behalf of Galway County Council

Comhairle Chontae na Gaillimhe
Galway County Council

Prepared by: Moore Group – (Environmental Services)

February 2016

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1. Introduction

1.1. General Introduction

The Habitats Directive (Council Directive 92/43/EEC) requires that all land use plans must be screened for potential impact on Special Areas of Conservation (SACs) or Special Protection Areas (SPAs). This process aims to establish whether a full Appropriate Assessment as required by Article 6 of the Directive is required in any particular case.

This report contains information required for the competent authority, in this case Galway County Council, to commence an Appropriate Assessment (AA) process on the effects of the adoption of Material Alterations to the Draft Portumna Local Area Plan 2016-2022.

The report assesses the potential for the Material Alterations to impact on sites of European-scale ecological importance. It is necessary that the Plan has regard to Article 6 of the Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (as amended) (referred to as the Habitats Directive). This is transposed into Irish Law by the European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. 477) (referred to as the Birds and Natural Habitats Regulations).

1.2. Legislative Background - The Habitats and Birds Directives

The Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora) is the main legislative instrument for the protection and conservation of biodiversity in the EU. Under the Directive Member States are obliged to designate Special Areas of Conservation (SACs) which contain habitats or species considered important for protection and conservation in a European Union context.

The Birds Directive (Council Directive 79/409/EEC as codified by 2009/147/EC), is concerned with the long-term protection and management of all wild bird species and their habitats in the EU. Among other things, the Directive requires that Special Protection Areas (SPAs) be established to protect migratory species and species which are rare, vulnerable, in danger of extinction, or otherwise require special attention.

Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas, designated under the Birds Directive, form a pan-European network of protected sites known as Natura 2000. The Habitats Directive sets out a unified system for the protection and management of SACs and SPAs.

Articles 6(3) and 6(4) of the Habitats Directive set out the requirement for an assessment of proposed plans and projects likely to affect Natura 2000 sites.

Article 6(3) establishes the requirement to screen all plans and projects and to carry out a further assessment if required (Appropriate Assessment (AA)):

Article 6(3): “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 subjected to an appropriate assessment of its implications for the site in view of the site's conservation objectives. In 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): "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, Member States shall take all compensatory measures necessary to ensure that the overall coherence of the 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 the beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest."

2. Stages of the AA Process

The Commission's methodological guidance (EC, 2002) promotes a four-stage process to complete the AA, and outlines the issues and tests at each stage. An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required.

Stages 1-2 deal with the main requirements for assessment under Article 6(3). Stage 3 may be part of Article 6(3) or may be a necessary precursor to Stage 4. Stage 4 is the main derogation step of Article 6(4).

Stage 1 Screening: This stage examines the likely effects of a project either alone or in combination with other projects upon a European site and considers whether it can be objectively concluded that these effects will not be significant.

Stage 2 Appropriate Assessment: In this stage, the impact of the project is considered on the integrity of the Natura 2000 site with respect to the conservation objectives of the site and to its structure and function.

Stage 3 Assessment of Alternative Solutions: This stage examines alternative ways of implementing the project that, where possible, avoid any adverse impacts on the integrity of the Natura 2000 site.

Stage 4 Assessment where no alternative solutions exist and where adverse impacts remain: Where imperative reasons of overriding public interest (IROPI) exist, an assessment to consider whether compensatory measures will or will not effectively offset the damage to the sites will be necessary.

In order to ensure that the Plan complies fully with the requirements of Article 6 of the Habitats Directive and all relevant Irish transposing legislation, Moore Group carried out

the screening stage of Material Alterations to the Plan on behalf of Galway County Council to determine if Stage 2 AA is required.

2.1. Guidance

The AA has been compiled in accordance with guidance contained in the following documents:

- Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities. (Department of Environment, Heritage and Local Government, 2010 rev.).
- Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities. Circular NPWS 1/10 & PSSP 2/10.
- 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 Directorate-General, 2001); hereafter referred to as the EC Article Guidance Document.
- Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC (EC Environment Directorate-General, 2000); hereafter referred to as MN2000.

2.2. Data Sources

Sources of information that were used to collect data on the Natura 2000 network of sites are listed below:

- Ordnance Survey of Ireland mapping and aerial photography available from www.osi.ie and Google Earth and Bing aerial photography.
- Online data available on Natura 2000 sites as held by the National Parks and Wildlife Service (NPWS) from www.npws.ie including; the Natura 2000 network Data Form; Site Synopsis; Qualifying Interests and Conservation Objective data,
    - Online database of rare, threatened and protected species,
    - Publicly accessible biodiversity datasets.
- Status of EU Protected Habitats in Ireland. (National Parks & Wildlife Service, 2008).
- Biodiversity Data for County Galway including that collated in the Biodiversity Action Plan for County Galway 2008 – 2013
- Port Omna Beo: Nature & Wildlife Plan 2013-2016
- Information on water quality in the area available from www.epa.ie
- Information on the River Basin Districts from www.wfdireland.ie
- Information on soils, geology and hydrogeology in the area available from www.gsi.ie
- Status of EU Protected Habitats in Ireland. (National Parks & Wildlife Service, 2014)
- National Biodiversity Data Centre records
- Galway County Development Plan 2009-2015
- GCDP AA Screening Report & Natura Impact Report 2014
- Portumna Local Area Plan (2016) Issues Leaflet
- Draft Portumna Local Area Plan (2016-2022)

2.3. Consultation

Galway County Council has notified the Department of Arts, Heritage and the Gaeltacht (DAHG) of their intention to commence a review of the Town Development Plan through the Strategic Issues Paper for the Local Area Plan. The Development Applications Unit was consulted as part of this process and comments received with regard to AA are outlined below.

Ref. FP2015/044

The submission reiterates that the plan must contain objectives for the conservation and protection of the environment. The wording of objectives in the natural heritage section of the plan should reflect or encompass key obligations and requirements as set out in the relevant legislation in relation to the various ecological corridors or natural heritage features.

The Planning Authority is reminded that legislation in Ireland has changed since the last plan was adopted and cognizance should be taken in the context of European sites or Natura 2000 network.

There is suggested wording that should be incorporated into the plan in relation to the text and objectives of the plan in relation to the European sites.

In relation to the NIR and the plan it is suggested that in some limited cases that policies and objectives that contain further projects or lower level plans will be subject to appropriate assessment at a later stage. In other instances development objectives maybe such that potential impact on European Sites cannot be avoided, the impacts on European Sites must be assessed at plan level in the NIR. In addition it must be demonstrated how any mitigation measures, which are specified at plan level, will ensure that no adverse effects on site integrity will result.

It is suggested that the Department is of the view that there is potential for the plan, or services or resources on which the plan area is reliant to have significant effects on European sites in view of the conservation objectives. All potential impacts in relation to development or increased usage or pressures need to be examined and assessed at plan level prior to their inclusion in the plan.

It is stated that the implications of all parts of the plan, including zoning and land use designations and associated maps, strategies or other reports must be examined on their own and in combination with the plan and with other plans and projects. Only those plan elements that are demonstrated to be compliant with the Habitats Directive and Birds Directive should be incorporated into the plan.

It is stated that one of the key benefits of the environmental assessment procedures is that they should influence and inform the plan during its preparation, and integrate ecological and other environmental considerations with the vision, policies and objectives for the future development and growth of the plan area.

The implications of the plan for European sites in view of their conservation objectives must be assessed.

The NIR is the resulting statement of the effects for the purposes of Article 6 of the Habitats Directive and its findings must be taken into account when the

appropriate assessment is carried out and a determination is made as to whether or not the land use plan would adversely affect the integrity of a European Site.

It is stated that the appropriate assessment cannot have a lacunae and must contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of a project on a European Site, it is stated that these standards should underpin the NIR.

The appropriate assessment must be carried out prior to the adoption of the plan.

The Department has included 13 points in relation to the preparation of the NIR and what information should be included, the following is a brief summary of this information:

- The need for an NIR follows on from screening. The NIR should not contain the screening exercise;
- The NIR should be a scientific assessment that presents relevant evidence, data and analysis and not just commentary, lists and tables.;
- The best scientific knowledge and objective information which are specified in legislation in relation to screening are also required in the preparation of the NIR;
- The relevant environmental baseline and trends should be taken into account, bearing in mind changes and in combination effects which have occurred since site designations;
- If a NIR is required, it should cover the entire plan, not just parts of the plan;
- The NIR should focus on the likely significant effects of the plan, on its own and in combination with other plans and projects, on European sites in view of their conservation objectives, whether these are generic or site specific;
- An examination of the potential or existing effects of the plan, and the resources and services, on which it is reliant, must be undertaken to identify what European sites, and which of their conservation objectives are potentially at risk. In combination effects of other plans or projects must also be taken into account. This examination is also required to determine a “zone of influence” or “zone of impact” of the plan area. It is noted that a 15km distance for plans in existing guidance is an indicative figure and its application and validity should be examined and justified in each specific case with reference to the nature, size and location of plan area, and the sensitivities of the ecological receptors, and the potential for in combination effects;
- The scientific basis on which site and conservation objectives are included or excluded from assessment and analysis should be presented;
- The scientific basis on which plan policies and objectives and other plan elements are included or excluded from further assessment and analysis should be presented. It is suggested that this should be applied to all parts of the plan and all policies and objectives;
- Where the plan level mitigation measures are put forward the necessary analysis should be presented to demonstrate that these will be effective in avoiding or removing risks of adverse effects on the integrity of European sites, or in managing future proposals where adverse effects maybe unavoidable;
- The NIR and plan level mitigation measures should go beyond altering the wording of objectives to say that future assessment is required;
- All parts of the plan, including zoning and land use zoning designations and associated maps and strategies, should be subject to assessment and should be compliant with the Habitats Directive. In the case of non-statutory

strategies or other reports, these may only be incorporated into the plan , or given effect by the plan, if demonstrated to be compliant with Article 6 on their own and in combination with the plan itself and with other plans and projects;

- The NIR should reach a clear and precise conclusion as to the implications of the plan for the conservation objectives of the relevant European sites.

2.4. Screening Steps

In complying with the obligations under Article 6(3) and following the EC2000 and MN2000 Guidance, the AA process has been structured as a stage by stage approach as follows:

Screening stage

- Description of the Material Alterations;
- Brief description of the Natura 2000 site(s) potentially affected;
- Conservation objectives of the Natura 2000 site(s);
- Assessment criteria;
    - Likely impacts on Natura 2000 site(s);
    - Cumulative and in combination impacts;
    - Likely changes to Natura 2000 site(s);
    - Elements of the Material Alterations where the impacts are likely to be significant;
- Identification and description of individual and cumulative impacts likely to result;
- Assessment of the significance of the impacts identified above on site(s) integrity;
- Exclusion of site(s) where it can be objectively concluded that there will be no significant effects; and
- Screening conclusion and statement.

If the effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2 (AA).

3. Description of the Plan

3.1. Background

The draft Portumna Local Area Plan (LAP) 2016-2022 has been prepared by Galway County Council (GCC) to provide a statutory framework for the future growth and development of Portumna. It is consistent with the policies and objectives contained in the Galway County Development Plan, including the Core Strategy, and seeks to address the needs and requirements of the local community, service providers and other stakeholders. The purpose of the Local Area Plan is to guide future development within the town in a sustainable and equitable manner and to inform members of the public, the local community, stakeholders and developers, of the policies and objectives that will shape the development of the town over the next six years. The policies and objectives for the development of the town include provisions in relation to land use management, community facilities, amenities, transport, infrastructure, urban design, cultural/built heritage, natural heritage and the environment.

The plan period is for 6 years, from the date of adoption by Galway County Council, unless the timeframe is extended by resolution in accordance with Section 12(d) to (f) of the Planning and Development (Amendment) Act 2010. The plan area is comprised of the town and its immediate environs and is considered to provide an appropriate development envelope for the anticipated growth of the town for the plan period. (Figure 3.1).

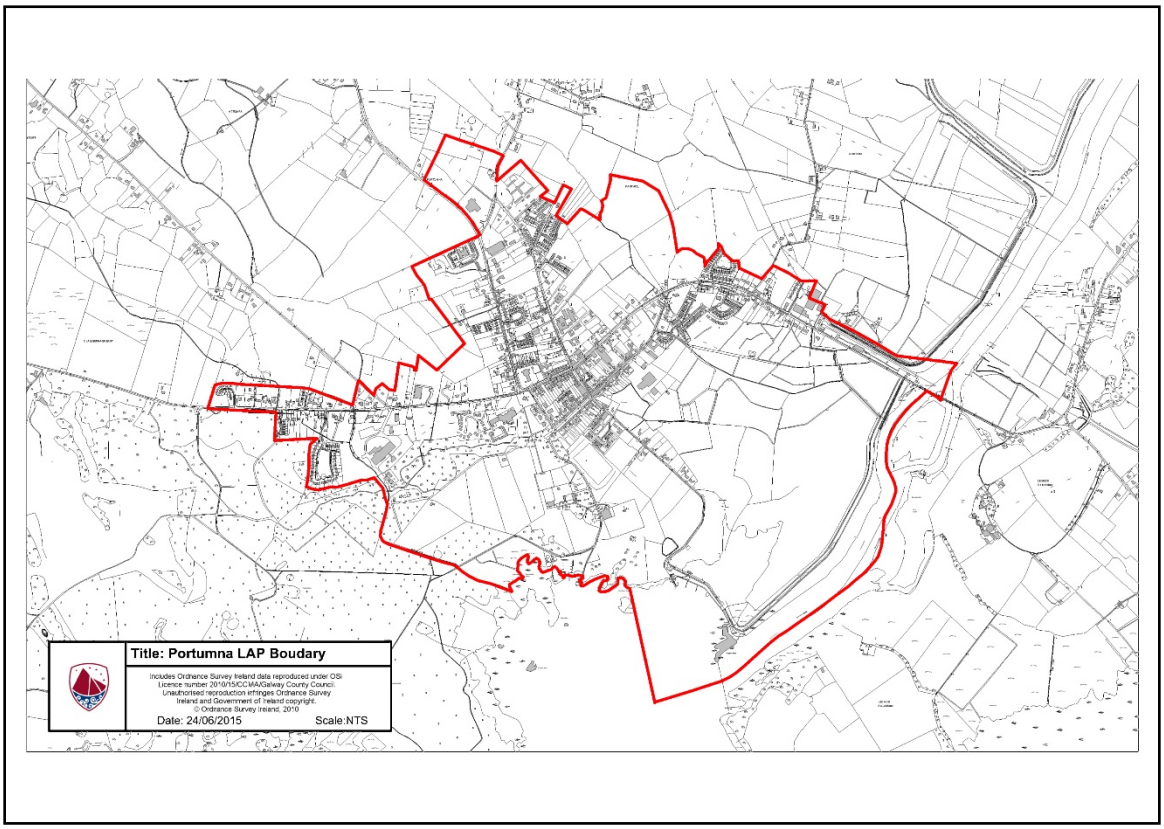


Figure 3.1 Plan area boundary at Portumna, County Galway. (source GCC)

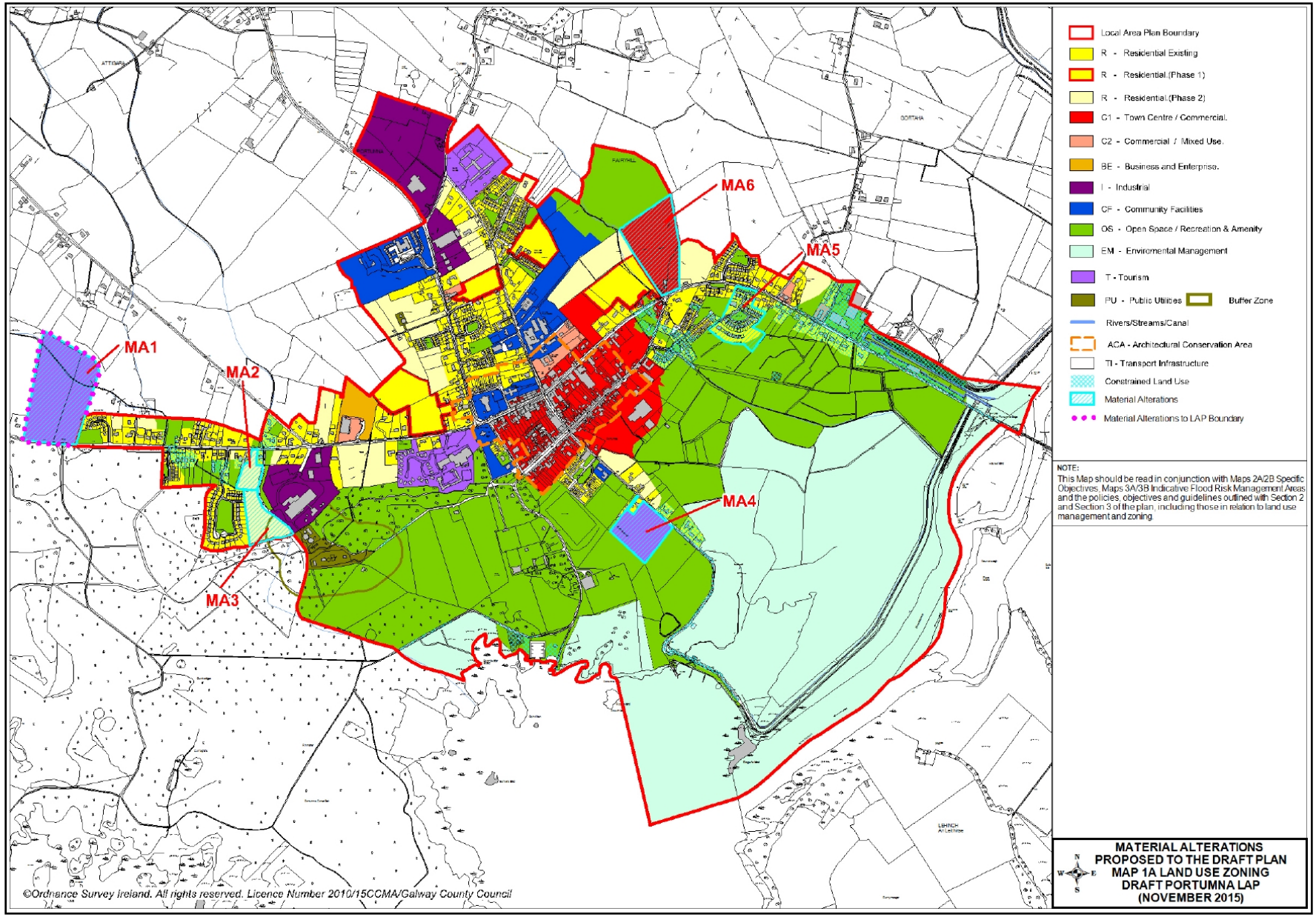
3.2. Material Alterations

The Draft Portumna Local Area Plan 2016-2022 was prepared and placed on public display for six weeks from Friday 31st July 2015 until Friday 11th of September 2015. 22 submissions were received on the draft plan and a Chief Executive's Report was prepared on the submissions received and submitted to the Members of Galway County Council for their consideration.

On the 11th of November 2015, at the Council Meeting, the elected members considered the Draft Plan and Chief Executive's Report and proposed a number of alterations to the Draft Portumna Local Area Plan, which were deemed to be material alterations. They are listed in the table hereunder and are reflected on the attached Map 1A, as appropriate.

Material Alterations Proposed at Council Meeting
MA 1 Include subject lands within the plan boundary and zone Tourism as per attached map (*Material Alterations Proposed to the Draft Plan – Map 1A Land Use Zoning - Draft Portumna Local Area Plan).*
MA 2 Rezone the lands from Recreation, Amenity and Open Space to Residential-Phase 2 as per attached Map 1A.
MA 3 Rezone the lands from Recreation, Amenity and Open Space to Residential-Phase 2 as per attached Map 1A.
MA 4 Rezone the lands from Recreation, Amenity and Open Space to Tourism as per attached Map 1A.
MA 5 Retain the 'Existing Residential Land Use' and remove the Constrained Land Use as per attached Map 1A.
MA 6 Rezone the lands from Residential Phase 2 to Town Centre/Mixed Use as per attached Map 1A.
MA 7 Amend the Land Use Matrix Table to "Open For Consideration" for Medical Facilities on Business and Enterprise zoned Lands
MA 8 Amend the Land Use Table Matrix to "Open For Consideration" for Guest Houses on Community Facilities zoned Lands
MA 9 Amend the Draft Portumna Local Area Plan 2016-2022 as follows: 3.7.2 Water Framework Directive *[Textual Changes]*
MA 10 Amend Text of Objective UI 2 in the Draft Portumna Area Plan 2016-2022 *[Textual Changes]*
MA 11 Insert new policy NH2 in the Draft Portumna Area Plan 2016-2022 as follows: **Policy NH2: Green Infrastructure Strategy** The Council shall commence the preparation of a Green Infrastructure Strategy within the lifetime of the plan as resources permit.

Material Alterations Proposed at Council Meeting
MISCELLANEOUS In addition to the above: • Update the Local Area Plan boundary on *Maps 1A* and *1B-Land Use Zoning*, *Map 2 -Specific Objectives* and *Map 3-Flood Risk Management,* as necessary. • Update the table of *Areas of Zoned Land* on page 20-21 of the Draft Portumna Local Area Plan 2016-2022 as a consequence of the Material Alterations. • Update any typos in the document.


MA1
MA2
MA3
MA4
MA5
MA6
Local Area Plan Boundary
R - Residential Existing
R - Residential (Phase 1)
R - Residential (Phase 2)
C1 - Town Centre / Commercial.
C2 - Commercial / Mixed Use.
BE - Business and Enterprise.
I - Industrial
CF - Community Facilities
OS - Open Space / Recreation & Amenity
EM - Environmental Management
T - Tourism
PU - Public Utilities
Buffer Zone
Rivers/Streams/Canal
ACA - Architectural Conservation Area
TI - Transport Infrastructure
Constrained Land Use
Material Alterations
Material Alterations to LAP Boundary
NOTE:
This Map should be read in conjunction with Maps 2A/2B Specific Objectives, Maps 3A/3B Indicative Flood Risk Management Areas and the policies, objectives and guidelines outlined with Section 2 and Section 3 of the plan, including those in relation to land use management and zoning.
MATERIAL ALTERATIONS
PROPOSED TO THE DRAFT PLAN
MAP 1A LAND USE ZONING
DRAFT PORTUMNA LAP
(NOVEMBER 2015)
©Ordnance Survey Ireland. All rights reserved. Licence Number 2010/15CCMA/Galway County Council

3.3. Is the Plan Necessary to the Management of Natura 2000 Sites?

The Plan is not directly connected with or necessary to the management of the Natura 2000 sites in the Plan area. However, it does include, inter alia, measures to protect, conserve and manage the area's natural heritage in a prudent and sustainable manner, including Natura 2000 sites, and to seek its enhancement where appropriate and feasible.

4. Identification of Natura 2000 Sites

This section of the screening process describes the European sites within a 15km of the LAP area. A 15 km buffer zone has been chosen as a precautionary measure to ensure that all potentially affected Natura 2000 sites are included in the screening process. Figure 4.1 indicates the location of the Portumna LAP area in relation to sites within 5 km, 10 km and 15km. This is in line with Appropriate Assessment of Plans and Projects in Ireland-Guidance for Planning Authorities, produced by the Department of the Environment, Heritage and Local Government. However, this screening report is cognisant of the response from the DAU highlighting that:

> *a 15km distance for plans in existing guidance is an indicative figure and its application and validity should be examined and justified in each specific case with reference to the nature, size and location of plan area, and the sensitivities of the ecological receptors, and the potential for in combination effects*

There are four Natura 2000 sites within the Plan area: River Shannon Callows SAC (Site Code 000216), Lough Derg, North-East Shore SAC (Site Code 002241), Lough Derg (Shannon) SPA (Site Code 004058) and the Middle Shannon Callows SPA (Site Code 004096) and there are a number of designated sites in the vicinity.

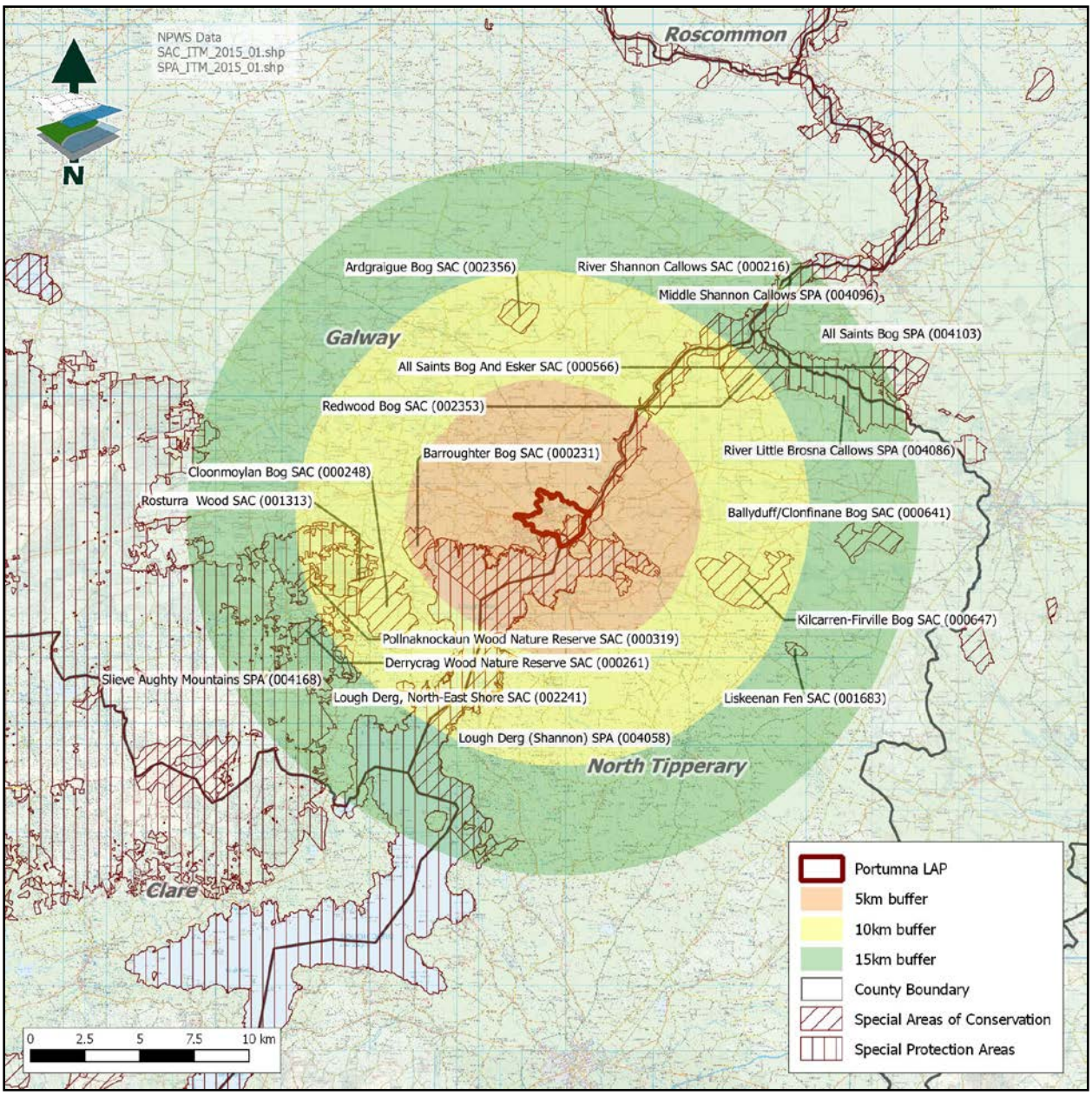


Figure 4.1. The LAP area in relation to the surrounding European sites.

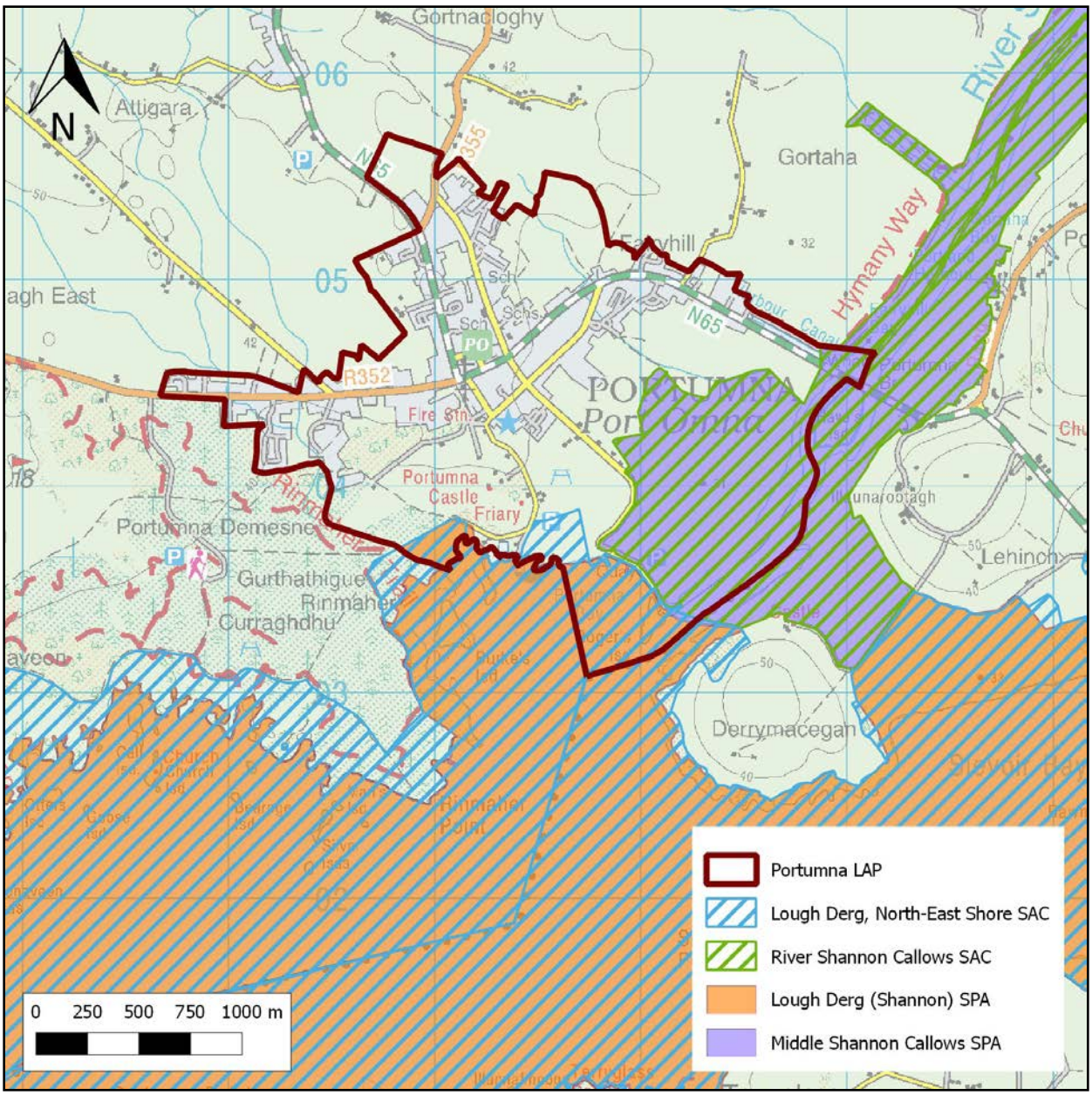


Figure 4.2. Detail of European sites in relation to the LAP.

Table 4.1 lists Natura 2000 sites with their respective codes, distances from the LAP boundary and potential pathways between the sites and the plan area.

Table 4.1. Pre-screening of Natura 2000 sites within 15 km of the Portumna LAP area.

Natura 2000 Site	Site Code	Distance from Plan (km)	Hydrological Pathway?	Aerial Pathway?	Disturbance Pathway?
River Shannon Callows SAC	000216	0.0	The River Shannon, with this associated SAC, forms the eastern boundary of the LAP with the southern (downstream) extent of the SAC terminating at the south east of the LAP	Yes	Internationally important winter site for numbers and species of waterfowl and in summer it holds very large numbers of breeding waders, rare breeding birds and the endangered Corncrake. The presence of Otter adds further importance to the site.
Lough Derg, North-East Shore SAC	002241	0.0	Starts at Portumna	Yes	Site of significant ecological interest, with six habitats listed on Annex I of the E.U. Habitats Directive. Four of these are priority habitats - Cladium fen, alluvial woodland, limestone pavement and Yew woodland. Other annexed habitats present include alkaline fen and Juniper scrub formations on heath and calcareous grasslands. In addition, the lake itself is an SPA that supports important numbers of wintering wildfowl, Greenland White-fronted Goose, Common Tern and Cormorant, a number of which are listed under Annex I of the E.U. Birds Directive.
Lough Derg (Shannon) SPA	004058	0.0	Starts at Portumna	Yes	Lough Derg SPA is of high ornithological importance as it supports nationally important breeding populations of Common Tern, Cormorant, Great Crested Grebe, and probably Tufted Duck and Black-headed Gull. In winter, it has nationally important populations of Tufted Duck and Goldeneye, as well as a range of other species including Whooper Swan. The site is still used on occasions by Greenland White-fronted Goose. The presence of Common Tern, Whooper Swan and Greenland White-fronted Goose is of particular note as these are listed on Annex I of the E.U. Birds Directive
Middle Shannon Callows SPA	004096	0.0	Finishes at Portumna	Yes	Internationally important for the total numbers of birds and for Whooper Swan in particular. In summer the site supports important populations of breeding waders and is one of the most important National sites for Corncrake
Barroughter Bog SAC	000231	3.8	Located on the northwest shore of Lough Derg, it has limited hydrological connectivity to the lake.	Limited	Barroughter Bog is a raised bog of considerable conservation value. Given its relatively small size, the area of outstanding quaking habitat is remarkably large. Its proximity to the shores of Lough Derg, with its succession from open water through extensive reed beds and marginal scrub, to raised bog, adds to its importance. It is also the only raised bog on the shores of Lough Derg. It has limited hydrological connectivity to the lake and is unlikely to be affected by the Plan.
Kilcarren-Firville Bog SAC	000647	5.3	This site is at a distance and direction unlikely to incur	Limited	No

			hydrological impacts		
Cloonmoylan Bog SAC	000248	5.7	This site is at a distance and direction unlikely to incur hydrological impacts	Limited	No
Slieve Aughty Mountains SPA	004168	6.5	This site is at a distance and direction unlikely to incur hydrological impacts	Limited	SCIs: Hen Harrier and Merlin. Since the LAP deals with built-up area in the vicinity of Portumna only, it is difficult to predict any likely impacts of the plan on these two species living in upland forestry, bog and heath habitat.
Rosturra Wood SAC	001313	7.0	This site is at a distance and direction unlikely to incur hydrological impacts	Limited	No
Ardgraigue Bog SAC	002356	7.2	This site is at a distance and direction unlikely to incur hydrological impacts	Limited	No
Redwood Bog SAC	002353	8.2	This site is at a distance and direction unlikely to incur hydrological impacts	Limited	No
Pollnaknockaun Wood Nature Reserve SAC	000319	8.8	This site is at a distance and direction unlikely to incur hydrological impacts	Limited	No
Derrycrag Wood Nature Reserve SAC	000261	9.7	This site is at a distance and direction unlikely to incur hydrological impacts	Limited	No
Liskeenan Fen SAC	001683	10.6	This site is at a distance and direction unlikely to incur hydrological impacts	Limited	No
River Little Brosna Callows SPA	004086	10.6	This site is at a distance and direction unlikely to incur hydrological impacts. Upstream of the LAP area, so no issues with water quality.	Limited	SCIs: Whooper Swan, Wigeon, Teal, Pintail, Shoveler, Golden Plover, Lapwing, Black-tailed Godwit, Black-headed Gull and Greenland White-fronted Goose.. Disturbance not an issue due to distance. Connectivity issues unlikely (assuming that birds may be passing back and forth to site along Shannon and Lough Derg).
Ballyduff/Clonfinane Bog SAC	000641	11.2	This site is at a distance and direction unlikely to incur hydrological impacts	Limited	No
All Saints Bog And Esker SAC	000566	14.4	This site is at a distance and direction unlikely to incur hydrological impacts	Limited	No
All Saints Bog SPA	004103	14.4	This site is at a distance and direction unlikely to incur hydrological impacts. Upstream of the LAP area, so no issues with water quality.	Limited	SCI Greenland White-fronted Goose. As with River Little Brosna Callows, no issues with disturbance. Similarly, connectivity unlikely to be an issue.

4.1. Detailed Description of Natura 2000 Sites within the Zone of Influence

The following is a detailed description of the Natura 2000 Sites located within the Zone of Influence of the Portumna Local Area Plan. Site synopses for all 18 sites are available on the NPWS metadata website.

4.1.1. Special Areas of Conservation

River Shannon Callows SAC (Site code 000216):
The River Shannon Callows is a long and diverse site which consists of seasonally flooded, semi-natural, lowland wet grassland, along and beside the river between the towns of Athlone and Portumna. It is approximately 50 km long and averages about 0.75 km wide (reaching 1.5 km wide in places). Along much of its length the site is bordered by raised bogs (many, but not all, of which are subject to large-scale harvesting), esker ridges and limestone-bedrock hills. The soils grade from silty- alluvial to peat. This site has a common boundary, and is closely associated, with two other sites with similar habitats, River Suck Callows and Little Brosna Callows.

The River Shannon Callows is mainly composed of lowland wet grassland. Two habitats listed on Annex I of the E.U. Habitats Directive are well-represented within the site – Molinia meadows and lowland hay meadows. In places these two habitats grade into one another.

A further two Annex I habitats, both listed with priority status, have a minor though important presence within the site. Alluvial forest occurs on a series of alluvial islands just below the ESB weir near Meelick. Several of the islands are dominated by well-grown woodland consisting mainly of Ash (*Fraxinus excelsior*) and Willows (*Salix spp*.). Other habitats of smaller area but also of importance within the site are lowland dry grassland, drainage ditches, freshwater marshes and reedbeds. Good quality habitats on the edge of the callows included in the site are wet broadleaved semi-natural woodland and dry broadleaved woodland. There are also areas of raised bog, fen on old cut-away bog and a 'petrifying stream' with associated species-rich calcareous flush.

Two species which are legally protected under the Flora (Protection) Order, 1999, occur in the site - Opposite-leaved Pondweed *(Groenlandia densa*) in drainage ditches, and Meadow Barley (*Hordeum secalinum*) on dry alluvial grassland. The Red Data Book plant Green-winged Orchid is known from dry calcareous grasslands within the site, while the site also supports a healthy population of Marsh Pea (*Lathyrus palustris*).

The site is of international importance for wintering waterfowl and of particular note is an internationally important population of Whooper Swans. A further five species have populations of national importance. Small flocks of Greenland White-fronted Goose use the Shannon Callows; these are generally associated with larger flocks which occur on the adjacent Little Brosna Callows and River Suck Callows.

Shoveler (an estimated 12 pairs in 1987) and Black-tailed Godwit (Icelandic race) (one or two pairs in 1987) breed within this site. These species are listed in the Red Data Book as being threatened in Ireland. The scarce bird Quail is also known to breed within the area. The callows has at times held over 40% of the Irish population of the globally endangered Corncrake, although numbers have declined in recent years. The total

population of breeding waders in 1987 was one of three major concentrations in Ireland and Britain. The population of breeding Redshank in the site was estimated to be 10% of the Irish population, making it nationally significant. Also, the Annex I species Merlin and Hen Harrier are regularly reported hunting over the callows during the breeding season and in autumn and winter.

This site holds a population of Otter, a species listed on Annex II of the E.U. Habitats Directive, while the Irish Hare, which is listed in the Irish Red Data Book, is a common sight on the callows.

The Shannon Callows are used for summer dry-stock grazing (mostly cattle, with some sheep and a few horses), and permanent hay meadow. About 30 ha is a nature reserve owned by voluntary conservation bodies. The River Shannon is used increasingly for recreational purposes with coarse angling and boating accounting for much of the visitor numbers. Intermittent and scattered damage to the habitats has occurred due to over-deepening of drains and peat silt deposition, water-skiing, ploughing and neglect of hay meadow (or reversion to pasture). However, none of these damaging activities can yet be said to be having a serious impact. Threats to the quality of the site may come from the siting of boating marinas in areas away from centres of population, fertilising of botanically-rich fields, the use of herbicides, reversion of hay meadow to pasture, neglect of pasture and hay meadow, disturbance of birds by boaters, anglers, birdwatchers and the general tourist. The maintenance of generally high water levels in winter and spring benefits all aspects of the flora and fauna, but in this regard, summer flooding is a threat to breeding birds, and may cause neglect of farming.

The Shannon Callows has by far the largest area of lowland semi-natural grassland and associated aquatic habitats in Ireland, and one in which there is least disturbance of natural wetland processes. Botanically, it is extremely diverse with two legally protected species of plants and many scarce species. Excellent examples of two habitats listed on Annex I of the E.U. Habitats Directive occur within the site – Molinia meadows and lowland hay meadows with good examples of a further two Annex habitats (both with priority status). In winter the site is internationally important for numbers and species of waterfowl. In spring it feeds large numbers of birds on migration, and in summer it holds very large numbers of breeding waders, rare breeding birds and the endangered Corncrake, as well as a very wide variety of more common grassland and wetland birds. The presence of Otter, an Annex II species, adds further importance to the site.

Objective: 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:

Code	Description
6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)
6510	Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*)
8240	Limestone pavements*
91E0	Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion alb*ae)*

* denotes a priority habitat

Code	Common Name	Scientific Name
1355	Otter	*Lutra lutra*

Barroughter Bog SAC (Site code 000231):
Barroughter Bog is a relatively small raised bog, situated on the shores of Lough Derg in Co. Galway, a few kilometres east of Woodford, and bounded in the north by the Cappagh River. The bog has a good dome, which is slightly hollowed towards the eastern side. The north-eastern corner (cut off by an old drain and track) and a narrow area in the south-east are fairly dry due to drainage and burning.

Part of the central area of the peat dome contains active raised bog. Degraded raised bog is the dominant habitat on the uncut high bog surface at this site. It is generally associated with the more marginal areas of the high bog where drainage effects, due to peripheral peat-cutting, are most pronounced. The site also includes some wet grassland along the Cappagh River and an area of rocky grassland in the north.

A threat to the extent and quality of the central and most interesting habitat is present in the form of active "hopper" turf extraction around 90% of the bog's perimeter. This is especially serious along the south-west facing edge, where the quaking area lies quite close to the perimeter. Burning has caused some drying out of the bog surface. The area of outstanding habitat (i.e. the very wet, quaking area) in the centre of the bog could be extended if burning was prevented, especially towards the south-west.

Barroughter Bog is a raised bog of considerable conservation value. Given its relatively small size, the area of outstanding quaking habitat is remarkably large. Its proximity to the shores of Lough Derg, with its succession from open water through extensive reed beds and marginal scrub, to raised bog, adds to its importance. It is also the only raised bog on the shores of Lough Derg.

Objective: 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:

Code	Description
7110	Active raised bogs*
7120	Degraded raised bogs still capable of natural regeneration 7150
7150	Depressions on peat substrates of the Rhynchosporion

* denotes a priority habitat

Cloonmoylan Bog SAC (Site code 000248):
Cloonmoylan Bog is a very large expanse of level raised bog, situated close to the western shore of Lough Derg, near Woodford in Co. Galway. It lies at an altitude of approximately 50 m above sea-level.

Active raised bog comprises areas of high bog that are wet and actively peat- forming, where the percentage cover of bog mosses (Sphagnum spp.) is high, and where some or all of the following features occur: hummocks, pools, wet flats, Sphagnum lawns, flushes and soaks. Degraded raised bog corresponds to those areas of high bog whose hydrology has been adversely affected by peat cutting, drainage and other land use

activities, but which are capable of regeneration. The Rhynchosporion habitat occurs in wet depressions, pool edges and erosion channels.

This site contains a large area of good quality, intact active raised bog habitat. At least half of the surface of the peat dome comprises degraded raised bog. A wide flush dominated by Purple Moor-grass (*Molinia caerulea*) is a prominent feature in the northern half of this site. The flush runs in an east to west direction and there is a distinct central drain (probably natural) in which water flow is evident. In parts of this flush area wet bog woodland occurs.

Raised bogs are vulnerable to turf-cutting and any drain excavation, since these practices affect the hydrology of the bog. Burning is also damaging, causing drying- out of the surface and removal of vegetation.

Cloonmoylan Bog is of high conservation value, due to the large area of good quality raised bog habitats present, notably active raised bog and bog woodland, both of which are listed with priority status on Annex I of the E.U. Habitats Directive. Raised bogs have largely disappeared from Europe, and in Ireland, are threatened by peat extraction. Habitat diversity on this raised bog is good and the presence of scarce plant species adds to the sites importance.

Objective: 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:

Code	Description
7110	Active raised bogs*
7120	Degraded raised bogs still capable of natural regeneration
7150	Depressions on peat substrates of the Rhynchosporion
91D0	Bog woodland*

* denotes a priority habitat

Derrycrag Wood Nature Reserve SAC (Site code 000261):
Derrycrag Wood is an old oak woodland, situated 1.5 km south-east of Woodford, Co. Galway, and is traversed by the Woodford River. The underlying rock is Old Red Sandstone, which is overlain in places by drift. The soils vary from thin, acidic podzols to deeper, gleyed brown earths. The site is dominated by planted conifers, but fragments of old oak woodland still occur.

Before commercial conifer planting in the 1930s and 1940s, this would have been part of the largest oak woodlands in the country. In the fragments remaining, the Sessile Oak (Quercus petraea) canopy can be up to 17m tall. In spite of the fact that the site is dominated by planted conifers, elements of the original ground flora persist, especially where mature Scots Pine (*Pinus sylvestris*) is present. Most of the site is also designated as a Nature Reserve, but an adjacent area of thinned out Scots Pine with a very diverse ground flora and an area of wet grassland are also included.

Pine Marten and Badger (both Red Data Book species), Red Squirrel, Fox and Fallow Deer are all found in the wood. Bat species also forage in the area. Kestrel, Sparrowhawk and Jay are a few of the more notable bird species present in the site.

Management of the wood includes the gradual removal of all conifers except for a few areas with mature Scots Pine. The cleared areas, however, are vulnerable to invasion by non-native species, e.g. Beech (*Fagus sylvaticus*) and to grazing by deer.

Derrycrag Wood is of considerable conservation significance as an old oak woodland, a habitat listed on Annex I of the E.U. Habitats Directive. Furthermore it supports a diverse flora and fauna including the Red Data Book species Alder Buckthorn, Pine Marten and Badger.

Objective: 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:

Code	Description
91A0	Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles

* denotes a priority habitat

Pollnaknockaun Wood Nature Reserve SAC (Site code 000319):
Pollnaknockaun Wood is situated approximately 2 km north-east of Woodford, Co. Galway. It is a large area of former oakwood with significant remnants of the original stands of Sessile Oak (*Quercus petraea*) and even larger areas of intact ground flora. The area is underlain by Old Red Sandstone, which is covered in places by drift. The soils vary from thin acidic podzols to deeper gleyed brown earths. In the 1930s and 1940s the area at Pollnaknockaun was cleared of hardwoods and planted with commercial conifers. Most of these conifers have now been removed and woodland regeneration is occurring. Invasion by Beech (*Fagus sylvaticus*) and Rhododendron (*Rhododendron ponticum*) is now a threat.

At Pollnaknockaun Wood, due to the relatively fertile nature of the soil, the size and quality of the hardwood and the diversity of the ground flora is greater than in many other Irish oakwoods. The site boundary has been taken to include all of the Nature Reserve plus an adjacent, similar sized area owned by Coillte. Also included is a tongue of woodland to the east which consists of a good stand of Oak with an understorey of Yew and Holly. A stream which passes through the Nature Reserve is also included in the site.

A varied bird community, including the Jay, is present in the wood, and Fallow Deer (*Dama dama*) graze part of the site.

Old Oak Woodlands are listed on Annex I of the E.U. Habitats Directive. Oakwoods are rare in Ireland and oakwoods on rich soils which are not the result of planting are even rarer. The remnants of original oakwood in Pollnaknockaun are part of what was, until 1940, one of the largest areas of natural oakwood in Ireland.

Pollnaknockaun Wood represents an opportunity to recreate an oakwood with its associated fauna and a diverse ground flora. The wet woodland, stream and wet grassland add further interest to this site.

Objective: 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:

Code	Description
91A0	Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles

* denotes a priority habitat

All Saints Bog And Esker SAC (Site code 000566):
All Saints Bog is a lowland raised bog lying about 5 km north-west of Birr in Co. Offaly, and separated from the Little Brosna Callows by a fragmented esker ridge.

The active raised bog is dominated by bog mosses. Degraded raised bog dominates the drier areas of high bog surface within this site. The site contains the largest stand of birch (Betula spp.) woodland growing on an active raised bog in the country. The birch wood supports an interesting invertebrate fauna, with two rare species being recorded; a fly (*Dictenida bimaculata*, Order Diptera) and a ladybird (*Hippodamia tredecimpunctata*, Order Coleoptera). There is a concentration of saproxylic invertebrates in the birch woodland, which suggests that the woodland is ancient.

The bog has traditionally been used as an occasional refuge for part of the Little Brosna flock of Greenland White-fronted Goose, an Annex I species of the E.U. Birds Directive, although in recent years they have not been observed on the bog.

An extensive area in the north-east corner of the bog, representing about 20% of the bog surface, is being cut for turf, with drains running into the eastern edge of the birch woodland. This appears to be leading to the bog drying out, as the surface is reported to be much drier than when first surveyed in the mid-1980s.

To the south of the bog are the fragmented remains of an esker ridge, which may have an influence on the hydrology of the flush. It is included in the site partly for this reason, but also for its own intrinsic value.

All Saints' Bog is a unique bog, important for its vegetation types, plants, invertebrates and birds. To conserve the site peat cutting needs to stop, drains need to be blocked and marginal dams built to raise the water table. The esker supports species-rich grassland, including rare species, and this area should continue to be grazed but left unfertilized. Further gravel extraction should be prevented, although some disturbance may be required to conserve the Red Hemp-nettle and Blue Fleabane.

Objective: 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:

Code	Description
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco Brometalia*) (* important orchid sites)*
7110	Active raised bogs*
7120	Degraded raised bogs still capable of natural regeneration
7150	Depressions on peat substrates of the Rhynchosporion
91D0	Bog woodland*

* denotes a priority habitat

Ballyduff/Clonfinane Bog SAC (Site code 000641):
Clonfinane and Ballyduff bogs are found in Co. Tipperary, and lie some 6 km to the south-west of Birr (Co. Offaly). The two bogs are separated by a small area of cutover bog, with Clonfinane on the west and Ballyduff on the east.

Clonfinane is a large, flat lowland raised bog largely bordered by drains and, except in the immediate vicinity of the drains, is wet and quaking. The bog consists of a southern and a northern lobe, with the southern being wetter and containing a well developed pool and hummock complex. The drier northern lobe has recently been drained and exploited for moss peat and is not included within the SAC. At the western end of Clonfinane Bog there is a small Scots Pine (*Pinus sylvestris*) woodland.

Ballyduff is a smaller, domed bog, with a ridge at the north-eastern end. The south- east margin is wettest, with quaking areas and flushes. Towards the centre of the bog there is a well developed pool and hummock system. A moss peat development has recently affected an area in the south part of Ballyduff.

Active raised bog is found in the wet central areas of both Ballyduff and Clonfinane bogs. Both Ballyduff and Clonfinane bogs contain substantial areas of degraded raised bog and these areas are typically located along the edges of the high bog. An area of bog woodland occurs on the high bog at Clonfinane. The nationally rare shrub Alder Buckthorn (*Frangula alnus*) grows in tall birch woodland along the northern margins of Clonfinane.

There are a number of areas on the high bog surface of both bogs which have been drained in the past decade and this drainage has lead to the degradation of the habitat locally. At Clonfinane these drains have been subsequently dammed with peat dams, an action which should arrest the decline in habitat quality. On both bog areas there are relatively high levels of pine regeneration on the surface, which suggests that the surface is drying out. Burning poses a significant threat to the bog surface and especially to the area of bog woodland due to its rather dry nature.

Ballyduff/Clonfinane bog is of high conservation value as it contains good examples of the Annex I habitats active raised bog, degraded raised bog, depressions on peat substrates (Rhynchosporion) and bog woodland. Both active raised bog and bog woodland are listed on the Annex with priority status. Although parts of the site have been drained in the past there has been significant restoration of the high bog areas in the Clonfinane portion of the site.

Objective: 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:

Code	Description
7110	Active raised bogs*
7120	Degraded raised bogs still capable of natural regeneration
7150	Depressions on peat substrates of the Rhynchosporion
91D0	Bog woodland*

* denotes a priority habitat

Kilcarren-Firville Bog SAC (Site code 000647):
Kilcarren-Firville Bog is situated approximately 2 km east of the village of Carrigahorig in north Co. Tipperary. It is a lowland raised bog complex which extends about 4.5 km from east to west and is bisected by a road. It contains a large area of uncut high bog.

The site contains substantial areas of active raised bog, which are largely confined to the wetter, more central areas of high bog. The degraded raised bog tends to occur along the high bog margins where the peat has been subject to drying out. Localised flushes support Downy Birch (*Betula pubescens*) and Scots Pine (*Pinus sylvestris*).

The uncut high bog is surrounded by a large cutover area which is still subject to varying degrees of peat-cutting. Peripheral areas at Kilcarren-Firville Bog have been extensively damaged by peat cutting, drainage and land reclamation. The structure of the high bog has been detrimentally affected by drainage effects over a long period of time through a lowering of the water table. This can lead to the decline in abundance of plant species of wet bog conditions. Without restoration works, further drying out of the bog surface is likely to occur and further peat cutting remains a threat.

Kilcarren-Firville Bog is of high conservation importance as it contains good examples of the priority Annex I habitat active raised bog and the non-priority habitats degraded raised bog and depressions on peat substrates (Rhynchosporion). The quality of these habitats is good, although the overall system has been detrimentally affected by drainage effects over a long period of time.

Objective: 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:

Code	Description
7110	Active raised bogs*
7120	Degraded raised bogs still capable of natural regeneration
7150	Depressions on peat substrates of the Rhynchosporion

* denotes a priority habitat

Rosturra Wood SAC (Site code 001313):
Rosturra Wood comprises part of what was formerly a large stand of Sessile Oak (*Quercus petraea*) woodland. It is situated about 3 km east of Woodford, Co. Galway and consists of two separate areas. In the 1930s and 1940s much of the wood was cleared and planted with coniferous species. However, the wood retains significant remnants of the original stands of Sessile Oak and its associated ground flora. The wood is situated on rich loamy soils and consequently the size and quality of the hardwood and the diversity of the ground flora is greater than in most Irish Sessile Oak woods.

The rare and legally protected (Flora (Protection) Order, 1999), Narrow-leaved Helleborine (*Cephalanthera longifolia*) occurs in both sections of the wood. Almost half of Rosturra Wood is designated as a Statutory Nature Reserve.

Oak woods are rare in Ireland and those found on rich soils which are not the result of planting are even more rare. The remnants of original oak wood at Rosturra Wood (and at the neighbouring Derrycrag Wood and Pollnaknockaun Wood) are part of what was, until 1940, the largest area of natural oak wood in the country. Oak and Yew woodland

such as that found at Rosturra Wood are habitats of considerable conservation significance and are listed on Annex I of the E.U. Habitats Directive. The presence of the rare species Narrow-leaved Helleborine adds further to the conservation value of the site.

Objective: 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:

Code	Description
91A0	Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles

* denotes a priority habitat

Liskeenan Fen SAC (Site code 001683):
Liskeenan Fen is a small turlough-like fen situated about 10 km north-west of Borrisokane and just 1 km from the village of Aglish, in north Co. Tipperary. The site floods in winter via a swallow hole in the far north-west corner. The eastern part of the site consists of a small, dry, inactive raised bog on which mixed woodland is developing, as well as an extensive and unusual area of flooded cut-away.

The main habitat at this site consists of calcareous fen. A secondary habitat which is also of interest is the regenerating flooded cut-away bog east of the fen. Also included in the site is a small field of species-rich dry grassland. There is also a wet grassland area within the site, and a mixed woodland is developing on the bog in the east. All of these habitats add diversity to the site.

In summer the fen is grazed, but few cattle venture into the wettest centre. Any alteration of the swallow-hole could threaten the water levels at the site.

Liskeenan Fen is of conservation importance as it contains a good example of a Cladium fen, a habitat listed with priority status on the E.U. Habitats Directive. It is one of the only such fens remaining in the area, most of the rest having been drained in the past. The presence of a range of other habitat types in the site, along with some rare and scarce vascular plants, adds further to the value of the area.

Objective: 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:

Code	Description
7120	Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae**

* denotes a priority habitat

Lough Derg, North-East Shore SAC (Site code 002241):
Lough Derg, the lowest order lake on the River Shannon, is one of the largest bodies of freshwater in Ireland. This SAC, however, only includes the northern shore of the lake from the mouth of the Cappagh River in the north-west to just below Black Lough at the north-eastern shore. The greater part of this site lies on Carboniferous limestone, although there is Old Red Sandstone on the southern shores of the eastern section.

The geology of the lake shore is principally limestone and in places this protrudes at the surface in the form of boulders and rubble, and can be classified as limestone pavement.

These are often bryophyte-rich surfaces or else support a calcareous grassland or heath flora, as well as some woody species, such as Yew (*Taxus baccata*) and Juniper (*Juniperus communis*).

A second priority Annex I habitat, Cladium fen, occurs occasionally along the lake margins, mainly in association with alkaline fens, Common Reed (*Phragmites australis*) and other swamp vegetation.

A substantial area of Yew is located on limestone at Cornalack, where Yew forms a scrub woodland along the east shore of Lough Derg. Elsewhere, small stands of Yew occur. Juniper occurs throughout this site in a range of habitats, associated with calcareous grasslands, heath and limestone outcrops. Some of the finest examples of Juniper formations in Ireland occur along the lake edge where upright, bushy Juniper shrubs up to 3 m tall are found. Deciduous woodlands are also a notable feature of the site, dominated by oak (*Quercus spp.*), as at Bellevue, and Hazel/Ash at many of the examples along the north-eastern shore. Wet woodland is frequent along the lake shore, and in some areas this conforms well with the E.U. Annex I habitat, alluvial woodland.

The only known site in the country for the Red Data Book plant Irish Fleabane (*Inula salicina*) occurs along the lake shore. Other Red Data Book species present within this site are Marsh Pea (*Lathyrus palustris*) and Ivy Broomrape (*Orobanche hederae*). The Red Data Book stonewort *Chara tomentosa* has its stronghold in Lough Derg.

The lake is rated as nationally important for waterfowl. The entire lake, including all of the islands, is a designated SPA (Special Protection Area). The lake also supports a number of Greenland White-fronted Goose, a bird species listed on Annex I of the E.U. Birds Directive. There is a Wildlife Sanctuary at the north western edge of the lake.

Lough Derg is of conservation interest also for its fish and freshwater invertebrates. Lampreys, are known to occur and the lake contains an apparently self-sustaining landlocked population of Sea Lamprey (*Petromyzon marinus*). The endangered fish species Pollan (*Coregonus autumnalis pollan*) is recorded from Lough Derg. Lough Derg is also a well known fishing lake with a good Trout (*Salmo trutta*) fishery. Atlantic Salmon (*Salmo salar*) also use the lake as a spawning ground.

Otter and Badger have been recorded within the site.

Land use within the site is mainly of a recreational nature with many boat hire companies, holiday home schemes and angling clubs located at the lake edge.

Recreational disturbance may pose a threat to the wintering wildfowl populations, though tourism is scaled down during the winter. The water body is surrounded mainly by improved pastoral farmland to the south and east, with areas of bog to the south-west and west. Coniferous plantations are present along the west and north- west shore and small areas of these are included within the site. If these areas are felled no further planting should take place as afforestation damages the wetland habitats between the plantation and lake edge.

The main threats to the quality of the site are water polluting activities resulting from intensification of agricultural activities around the lake shore, uncontrolled discharge of sewage, which is causing eutrophication of the lake, and housing and boating

development which has resulted in the destruction of lakeshore habitats. There is also significant fishing and shooting pressure on and around the lake. Forestry can result in the loss of some areas of wetland habitat. The spread of Zebra Mussel (*Dreissena polymorpha*) in Lough Derg also poses a threat the ecology of the lake.

This is a site of significant ecological interest, with six habitats listed on Annex I of the E.U. Habitats Directive. Four of these are priority habitats - Cladium fen, alluvial woodland, limestone pavement and Yew woodland. Other annexed habitats present include alkaline fen and Juniper scrub formations on heath and calcareous grasslands. In addition, the lake itself is an SPA that supports important numbers of wintering wildfowl, Greenland White-fronted Goose, Common Tern and Cormorant, a number of which are listed under Annex I of the E.U. Birds Directive.

Objective: 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:

Code	Description
5130	*Juniperus communis* formations on heaths or calcareous grasslands
7210	Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae**
7230	Alkaline fens
8240	Limestone pavements*
91E0	Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*)*
91J0	*Taxus baccata* woods of the British Isles*

* denotes a priority habitat

Redwood Bog SAC (Site code 002353):
Redwood Bog is located 7 km south west of Banagher, mainly in the townland of Redwood, Co. Tipperary. The site comprises a raised bog that includes both areas of high bog and cutover bog. The site is bounded by the Middle Shannon Callows Special Protection Area (SPA) to the north and the River Little Brosna SPA to the north-east.

Redwood Bog has developed on the margins of the River Shannon and Little Brosna floodplains. The site can be divided into two sections, a cutover and drained western side and the eastern side that contains intact high bog. This eastern part of the site consists of two domes, which are separated to some extent by a stream that runs south to north. Hummocks and pools occur in the northern dome of the bog. The flushes in the site are found along the length of the stream.

Greenland White-fronted Goose has been recorded on the site. However, numbers of birds using the site in recent years are not known.

There has been extensive peat-cutting in the western half of the site but active cutting is minimal and has only been recorded in the north and north-west of this area. Damaging activities associated with this land use include drainage throughout the site (both old and recent) and extensive burning of the high bog. There are many indications that this site has been burnt on a regular basis. These are all activities that have resulted in loss of habitat and damage to the hydrological status of the site, and that pose a continuing threat to its viability.

Redwood Bog is a site of considerable conservation significance as it comprises a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. This site supports a good diversity of raised bog microhabitats, including hummock/hollow complexes, pools and flushes. This bog has developed on the margins of a floodplain and is one of the few remaining floodplain bogs in the country. Active raised bog is listed as a priority habitat on Annex I of the E.U. Habitats Directive. Priority status is given to habitats and species that are threatened throughout the E.U. Ireland has a high proportion of the total E.U. resource of this habitat type (over 60%) and so has a special responsibility for its conservation at an international level. Part of the site is already a State-owned nature reserve and supports Greenland White-fronted Goose, a bird species listed on Annex I of the E.U. Birds Directive.

Objective: 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:

Code	Description
7110	Active raised bogs*
7120	Degraded raised bogs still capable of natural regeneration
7150	Depressions on peat substrates of the Rhynchosporion

* denotes a priority habitat

Ardgraigue Bog SAC (Site code 002356):
Ardgraigue Bog is situated approximately 3 km north-east of Killimor, in Co. Galway, in the townlands of Ardgraigue, Kilquain, Woodfield, and Lissaniska North and South. The site comprises a raised bog that includes both areas of high bog and cutover bog. It is surrounded by agricultural fields and is located within a cluster of raised bogs. The bog is just north of the Killimor-Eyrecourt road with a number of local access roads leading to the bog and one leading onto the high bog.

This site consists of a small raised bog that developed in a basin. It is actively cut on all margins. It is described as being of excellent quality with a very wet quaking surface and soft margins. The vegetation is described as uniform throughout the bog. There are few pools on this site but it has very good hummock and hollow complexes. There is a small flush to the north of the high bog area. The bog does not appear to have been burnt in over 20 years and has a good lichen flora as a result.

Current land use on the site consists of peat-cutting around most of the margins of the high bog. Areas of cutover have been reclaimed for agricultural purposes to the north of the site. Peat-cutting on the site appears to be domestic mechanised peat extraction. Damaging activities associated with these land uses include drainage around the high bog and burning of the high bog. These are all activities that have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability.

Ardgraigue Bog is a site of considerable conservation significance as it comprises a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. The site has a high diversity of raised bog plant species and supports a good diversity of raised bog microhabitats, including hummock/hollow complexes, pools, and flushes, as well as a number of scarce plant species. Active

raised bog is listed as a priority habitat on Annex I of the E.U. Habitats Directive. Priority status is given to habitats and species that are threatened throughout the E.U. Ireland has a high proportion of the total E.U. resource of this habitat type (over 60%) and so has a special responsibility for its conservation at an international level.

Objective: 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:

Code	Description
7110	Active raised bogs*
7120	Degraded raised bogs still capable of natural regeneration
7150	Depressions on peat substrates of the Rhynchosporion

* denotes a priority habitat

4.1.2. Special Protection Areas

Special Protection Areas (SPAs) have been selected for protection under the 1979 European Council Directive on the Conservation of Wild Birds (79/409/EEC as amended 2009/147/EC) - referred to as the Birds Directive - by the DoAHG due to their conservation value for birds of importance in the European Union. Including the site that runs through the Plan area which is detailed below, there are three SPAs within 15km of the Plan area. The characteristics of these sites are summarised and then their conservation objectives are listed.

Lough Derg (Shannon) SPA (Site Code 004058):
Lough Derg is the largest of the Shannon Lakes, being some 40 km long. Its maximum breadth across the Scarriff Bay -Youghal Bay transect is 13 km but for most of its length it is less than 5 km wide. The lake has many small islands, especially on its western and northern sides. The shoreline is often fringed with swamp vegetation. Aquatic vegetation includes a range of charophyte species, including the Red Data Book species, *Chara tomentosa*. The shoreline is often fringed by swamp vegetation, comprised of such species as Common Reed (*Phragmites australis*), Great Fen-sedge (*Cladium mariscus*) and Bottle Sedge (*Carex rostrata*).

Lough Derg is of importance for both breeding and wintering birds. In winter, the lake is important for a range of waterfowl species.

Lough Derg is of conservation interest for its fish and freshwater invertebrates. Lampreys, listed on Annex II of the E.U. Habitats Directive, are known to occur and the lake contains a landlocked population of Sea Lamprey (*Petromyzon marinus*). The endangered fish species Pollan (*Coregonus autumnalis pollan*) is recorded from Lough Derg, one of only four sites (L. Neagh, L. Erne, L. Ree and L. Derg) in which it occurs. Lough Derg is also a well-known fishing lake with a good Trout (*Salmo trutta*) fishery. Atlantic Salmon (*Salmo salar*) also use the lake as a spawning ground.

Lough Derg was classified as being strongly eutrophic in the early 1990s. Since 1997, a monitoring programme on the Shannon lakes has shown that the symptoms of eutrophication previously documented (i.e. high chlorophyll level and reduced water visibility) have been ameliorated significantly. These reductions have coincided with the

invasion of the Shannon system by the Zebra Mussel (*Dreissena polymorpha*), a species which feeds on plankton, and also with measures to reduce phosphorus in sewage plants in the catchment. Enrichment of the lake, both by agricultural run-off and sewage, remains a threat and could affect the bird populations, especially the diving duck. Whilst the presence of Zebra Mussel in Lough Derg appears to have improved water quality in the lake, in the long-term this invasive bivalve may threaten the ecology of the lake. Recreational activities presently cause some disturbance to the birds and an increase in such activities would be of concern.

Lough Derg SPA is of high ornithological importance as it supports nationally important breeding populations of Common Tern, Cormorant, Great Crested Grebe, and probably Tufted Duck and Black-headed Gull. In winter, it has nationally important populations of Tufted Duck and Goldeneye, as well as a range of other species including Whooper Swan. The site is still used on occasions by Greenland White-fronted Goose. The presence of Common Tern, Whooper Swan and Greenland White-fronted Goose is of particular note as these are listed on Annex I of the E.U. Birds Directive.

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

Bird Code	Common Name	Scientific Name
A017	Cormorant	*Phalacrocorax carbo*
A061	Tufted Duck	*Aythya fuligula*
A067	Goldeneye	*Bucephala clangula*
A193	Common Tern	*Sterna hirundo*

To acknowledge the importance of Ireland's wetlands to wintering waterbirds, “Wetland and Waterbirds” may be included as a Special Conservation Interest for some SPAs that have been designated for wintering waterbirds and that contain a wetland site of significant importance to one or more of the species of Special Conservation Interest.

Thus, a second objective is included as follows:

Objective: To maintain or restore the favourable conservation condition of the wetland habitat at Lough Derg (Shannon) SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.

River Little Brosna Callows SPA (Site Code 004086):
The River Little Brosna Callows SPA follows the River Brosna from its confluence with the River Shannon for approximately 9 km south-eastwards to just beyond New Bridge on the R438 road. The site extends along both sides of the river. The main habitat is the extensive area of low-lying callow grassland in the floodplain of the river. These grasslands are subject to prolonged flooding in winter, early spring and occasionally in summer. A wide range of callow grassland is present, with the vegetation influenced by the exact flooding regime, the peat content of the soil and the intensity of agricultural improvement.

The River Little Brosna Callows is an internationally important site for wintering waterfowl, being notable both for numbers and diversity of species. The callows are also of importance for breeding waders.

The grassland in the site is used mainly for pasture, but some is also used for silage or occasionally hay-making. The intensification of agriculture in recent years, with earlier mowing and the replacement of hay with silage, is likely to have caused the decline and eventual absence of breeding Corncrake, and may be affecting numbers of breeding waders, especially Lapwing which formerly bred here. Any attempts at further drainage to reduce the extent of winter flooding could be damaging for the birds. Some shooting occurs on the site. Part of the site is a Wildfowl Sanctuary.

The River Little Brosna Callows SPA is one of the top sites in the country for wintering waterfowl. It is of international importance on account of the total numbers of birds that use it, as well as for its Greenland White-fronted Goose and Black-tailed Godwit populations. In addition, there are a further seven species with nationally important populations, several of which are the largest in the country. Also of note is that three of the species which occur regularly, i.e. Whooper Swan, Greenland White- fronted Goose and Golden Plover, are listed on Annex I of the E.U. Birds Directive.

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

Bird Code	Common Name	Scientific Name
A038	Whooper Swan	*Cygnus cygnus*
A050	Wigeon	*Anas penelope*
A052	Teal	*Anas crecca*
A054	Pintail	*Anas acuta*
A056	Shoveler	*Anas clypeata*
A140	Golden Plover	*Pluvialis apricaria*
A142	Lapwing	*Vanellus vanellus*
A156	Black-tailed Godwit	*Limosa limosa*
A179	Black-headed Gull	*Chroicocephalus ridibundus*
A395	Greenland White-fronted Goose	*Anser albifrons flavirostris*

To acknowledge the importance of Ireland's wetlands to wintering waterbirds, “Wetland and Waterbirds” may be included as a Special Conservation Interest for some SPAs that have been designated for wintering waterbirds and that contain a wetland site of significant importance to one or more of the species of Special Conservation Interest.

Thus, a second objective is included as follows:

Objective: To maintain or restore the favourable conservation condition of the wetland habitat at River Little Brosna Callows SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.

Middle Shannon Callows SPA (Site Code 004096):
The Middle Shannon Callows SPA is a long and diverse site which extends for approximately 50 km from the town of Athlone (at southern point of Lough Ree) to the town of Portumna (northern point of Lough Derg). The Shannon Callows has a common

boundary with two other sites of similar habitats, the River Suck Callows and the Little Brosna Callows, both of which are also Special Protection Areas.

The site has extensive areas of callow, or seasonally flooded, semi-natural, lowland wet grassland, along both sides of the river. Two habitats listed on Annex I of the EU Habitats Directive are well represented within the site – Molinia meadows and lowland hay meadows. In places these two habitats grade into one another. Two legally-protected plant species (Flora (Protection) Order 1999) occur in the site: Opposite-leaved Pondweed (*Groenlandia densa*) in drainage ditches, and Meadow Barley (*Hordeum secalinum*) on dry alluvial grassland. The Red Data Book plant Green-winged Orchid (*Orchis morio*) is known from dry calcareous grasslands within the site, while the site also supports a healthy population of Marsh Pea (*Lathyrus palustris*).

The Middle Shannon Callows qualifies as a site of International Importance for wintering waterfowl both on the total numbers and for the Whooper Swan population. Whooper Swan is listed on Annex I of the EU Birds Directive. The site is also of national importance for breeding waterfowl.

The Shannon Callows continues to hold approximately 40% of the Irish population of Corncrake, a species of global conservation concern that is also listed on Annex I of the EU Birds Directive.

The Shannon Callows has by far the largest area of lowland semi-natural grassland and associated aquatic habitats in Ireland and one in which there is least disturbance of natural wetland processes. Botanically, it is extremely diverse. In winter the site is internationally important for the total numbers of birds (regularly exceed 20,000) and for Whooper Swan in particular. It also holds nationally important populations of a further five species. Some of the wintering species are listed on Annex I of the EU Birds Directive, including Whooper Swan, Greenland White-fronted Goose and Golden Plover. In summer the site supports important populations of breeding waders. Perhaps the most important species which occurs in the site is Corncrake (the site holds 40% of the national total), as this is listed on Annex I of the EU Birds Directive and is Ireland's only globally endangered species.

Main conservation objective:
Objective: To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:

Bird Code	Common Name	Scientific Name
A038	Whooper Swan	*Cygnus cygnus*
A050	Wigeon	*Anas penelope*
A122	Corncrake	*Crex crex*
A140	Golden Plover	*Pluvialis apricaria*
A142	Lapwing	*Vanellus vanellus*
A156	Black-tailed Godwit	*Limosa limosa*
A179	Black-headed Gull	*Chroicocephalus ridibundus*

To acknowledge the importance of Ireland's wetlands to wintering waterbirds, "Wetland and Waterbirds" may be included as a Special Conservation Interest for some SPAs that have been designated for wintering waterbirds and that contain a wetland site of significant importance to one or more of the species of Special Conservation Interest.

Thus, a second objective is included as follows:

Objective: To maintain or restore the favourable conservation condition of the wetland habitat at Middle Shannon Callows SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.

All Saints Bog SPA (Site Code 004103):
There is no site synopsis available for this site. The reader is referred back to the site synopsis for the All Saints Bog and Esker SAC (Site code 000566).

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

Bird Code	Common Name	Scientific Name
A395	Greenland White-fronted Goose	*Anser albifrons flavirostris*

Slieve Aughty Mountains SPA (Site Code 004168):
The Slieve Aughty Mountains SPA is a very large site that extends southwards from just south of Lough Rea, County Galway to Scariff in County Clare. The peaks are not notably high or indeed pronounced; the site rises to a maximum of 378 m near Cappaghabaun Mountain. It site includes many small- and medium-sized lakes, notably Lough Graney and Lough Atorick; several important rivers rise in the site, including the Owendalulleegh and Graney. Lough Derg occurs immediately to the south-east. The Slieve Aughty hills are predominantly comprised of Old Red Sandstone, but outliers of Lower Palaeozoic rocks provide occasional outcrops capping the hills.

The site consists of a variety of upland habitats, though approximately half is afforested. The coniferous forests include first and second rotation plantations, with both pre-thicket and post-thicket stands present. Substantial areas of clear-fell are also present at any one time. Almost one-third of the site is unplanted blanket bog and heath, with both wet and dry heath present. Well-developed blanket bog occurs at several locations.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for Hen Harrier and Merlin.

The SPA is a stronghold for Hen Harriers and supports the second largest concentration in the country. The site also supports a breeding population of Merlin, a species that is also listed on Annex I of the E.U. Birds Directive. Red Grouse is found on many of the unplanted areas of bog and heath – this is a species that has declined in Ireland and is now Red-listed.

The main threat to the long-term survival of Hen Harriers within the site is further afforestation, which would reduce and fragment the area of foraging habitat, resulting in possible reductions in breeding density and productivity. The Slieve Aughty Mountains

have a number of large wind farm developments but it is not yet known if these have any adverse impacts on the Hen Harriers.

Overall, the site provides excellent nesting and foraging habitat for breeding Hen Harrier and is one of the top two sites in the country for the species.

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

Bird Code	Common Name	Scientific Name
A082	Hen Harrier	*Circus cyaneus*
A098	Merlin	*Falco columbarius*

4.1.3. Ecological Network Supporting Natura 2000 Sites

An analysis of the proposed Natural Heritage Areas and designated Natural Heritage Areas in terms of their role in supporting the species using Natura 2000 sites was undertaken. It was assumed that these supporting roles mainly related to mobile fauna such as mammals and birds which may use pNHAs and NHAs as "stepping stones" between Natura 2000 sites.

Article 10 of the Habitats Directive and the Habitats Regulations 2011 place a high degree of importance on such non-Natura 2000 areas as features that connect the Natura 2000 network. Features such as ponds, woodlands and important hedgerows were taken into account during the rest of the AA process.

Areas of conservation concern supporting species using the Natura 2000 sites considered with in the 15 km zone of influence is presented in Table 4.2.

Table 4.2. Areas of conservation concern supporting species using the Natura 2000 sites considered.

Site Name	Site Code	Distance from Plan (km)	Species Connectivity
Lough Derg pNHA	000011	0	Considered under Natura 2000
River Shannon Callows pNHA	000216	0	Considered under Natura 2000
Capira/Derrew Bog NHA	001240	2.97	None
Friar's Lough pNHA	000933	3	None
Barroughter Bog pNHA	000231	3.83	None
Kilcarren-Firville Bog pNHA	000647	5.31	None
Lorrha Bog NHA	001684	5.53	None
Cloonmoylan Bog pNHA	000248	5.7	None
Spring Park Wetlands pNHA	000941	6.3	None
Meeneen Bog NHA	000310	6.75	None
Rosturra Wood pNHA	001313	6.98	None
Ardgraigue Bog pNHA	001224	7.18	None

Ballymacegan Bog NHA	000642	7.48	None
Lough Avan pNHA	001995	8.13	None
Redwood Bog pNHA	000654	8.2	None
Fiagh Bog pNHA	000932	8.95	None
Pollnaknockaun Wood Nature Reserve pNHA	000319	9.16	None
Cloonoolish Bog NHA	000249	9.2	None
Arragh More Bog NHA	000640	9.34	None
Derrycrag Wood Nature Reserve pNHA	000261	9.74	None
Moorfield Bog NHA	001303	9.99	None
Newchapel Turlough pNHA	000653	10.43	None
Liskeenan Fen pNHA	001683	10.56	None
River Little Brosna Callows NHA	000564	10.63	None
Slieve Aughty Bog NHA	001229	11.04	None
Ballyduff/Clonfinane Bog pNHA	000641	11.23	None
Derryoober Bog NHA	002379	12.05	None
Eskerboy Bog NHA	001264	12.45	None
Clareen Lough pNHA	000929	13.58	None
Scohaboy Bog NHA	000937	13.6	None
Cloghanbeg pNHA	002059	13.96	None
Killeen Bog NHA	000648	14.16	None
All Saints Bog And Esker pNHA	000566	14.35	None
Willsborough Esker pNHA	000943	14.45	None

5. Identification of Potential Impacts & Assessment of Significance

5.1. Examples of Direct, Indirect or Secondary Impacts

In general, any development that may result from adoption of Material Alterations to the proposed Development Plan, such as construction of housing, roads, rail, water and wastewater infrastructure, gas, electricity and telecommunications infrastructure could lead to a number of impacts depending on where development is sited, the scale of development and types and quantities of emissions. In practice and as outlined in the EU document “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”, and the national guidance document ‘Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities’, impacts that could potentially occur through the implementation of the proposed Development Plan can be categorised under a number of headings:

- Habitat loss within Natura 2000 site,
- Direct species mortality,
- Disturbance of species during construction,
- Disturbance of species due to active/passive recreation,
- Disturbance due to lighting,
- Surface water run off during construction,

- Surface water run off from increased hard standing areas,
- Disturbance of watercourses due to diversions, culverting,
- Water Supply,
- Wastewater treatment plant capacity.

In order to identify those sites that could be potentially affected, it is necessary to describe the Natura 2000 site in the context of why it has been designated i.e. in terms of its Qualifying Interests and the environmental and ecological conditions that maintain the condition of these features. The underpinning conditions that are required to maintain the 'health' of these features are listed in Table 5.1 below.

Table 5.1. Qualifying Interests and Key environmental conditions supporting site integrity.

Qualifying Interests	Key environmental conditions supporting site integrity	Current Threats to Qualifying Interests
Active raised bogs	Surface water supply. Low nutrient, acidic conditions to support growth of Sphagnum spp. Restricted drainage at perimeter.	Surface and groundwater dependant. Highly sensitive to hydrological changes. Inappropriate management.
Alkaline fens	High water table. Ground surface water supply. Calcium-rich conditions.	Groundwater dependant. Highly sensitive to hydrological changes. Changes in nutrient or base status
Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*)*	Riparian/lacustrine habitat prone to flooding.	Grazing, Invasive Species, Drainage, Planting of nonnative conifers, felling of native tree species.
* Bog woodland	Surface and groundwater dependent. Highly sensitive to hydrological changes. Inappropriate management.	Drainage, peat cutting, burning and development.
* Calcareous fens with *Cladium mariscus* and species of the Caricion davallianae	Groundwater dependent. Highly sensitive to hydrological changes. Changes in nutrient or base status.	Peat or turf cutting, arterial drainage, local drainage and agricultural reclamation, infilling of sites with building waste, dumping of household refuse, afforestation, water pollution and urban expansion.
Degraded raised bogs still capable of natural regeneration	Surface and groundwater dependent. Highly sensitive to hydrological changes. Inappropriate management.	Changes in agricultural practices; afforestation and general forest management; burning; peat extraction; drainage; and the introduction of invasive species.
Depressions on peat substrates of the Rhynchosporion	Surface and groundwater dependent. Low sensitivity to hydrological changes. Erosion, land-use changes.	Drainage; burning; peat extraction; overgrazing; afforestation; erosion; and climate change.
Hen Harrier *Circus cyaneus*	Breeding birds are confined to moorland and young forestry plantations, where they nest on the ground. Hen Harriers mainly hunt over moorland whilst breeding where they take ground nesting birds and mammals. Based on a	Forest planting on open ground. Forest and plantation management & use. Modification of cultivation practices. Renewable abiotic energy use. Fire and fire suppression. Leisure activities. Hunting and collection of wild animals. Mining.

Qualifying Interests	Key environmental conditions supporting site integrity	Current Threats to Qualifying Interests
	2010 national survey Ruddock et al. (2012) estimated the population to be 128 to 172 breeding pairs. Very low rates of polygyny were observed (<1%) and therefore this reported figure corresponds to an estimate of breeding females occurring in Ireland in 2010.	Invasive species.
Juniperus communis formations on heaths or calcareous grasslands	Onset of inundation or water logging Inappropriate management.	Overgrazing; fire; agricultural expansion; invasion by alien species particularly *Rhododendron ponticum*; and poor regeneration.
* Limestone pavements	Physical removal. Scrub encroachment	Quarrying, reclamation for agriculture and reduced farming activity which has facilitated the spread of scrub over some areas. Intensive agriculture and domestic/municipal waste sources in the vicinity of pavement may also threaten groundwater.
Lowland hay meadows (*Alopecurus pratensis, Sanguisorba officinalis*)	Surface and groundwater dependent. Moderately sensitive to hydrological change. Changes in management. Changes in nutrient status.	Agricultural intensification; drainage; abandonment of pastoral systems
Merlin *Falco columbarius*	Nests on the ground on moorland, mountain and blanket bog. Also nests in woodland and has taken to nesting in forestry plantations adjacent to moorland. To date there has been no systematic national survey undertaken for Merlin. Based largely on expert opinion (BWI) the estimated population is 200 – 400 pairs.	Forest planting on open ground. Modification of cultivation practices. Changes in biotic conditions. Renewable abiotic energy use. Forest and Plantation management & use.
Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)	Surface and groundwater dependent. Moderately sensitive to hydrological change. Changes in management. Changes in nutrient status.	Agricultural intensification; drainage; abandonment of pastoral systems
Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	Changes in management. Changes in nutrient or base status. Introduction of alien species.	The introduction of alien species; sub optimal grazing patterns; general forestry management; increases in urbanisation and human habitation adjacent to oak woodlands; and the construction of communication networks through the woodland.
Otter	Prey availability. Water Quality. Riparian vegetation for breeding sites. Unhindered passage along waterways.	Decrease in water quality: Use of pesticides; fertilization; vegetation removal; professional fishing (including lobster pots and fyke nets); hunting; poisoning; sand and gravel extraction; mechanical removal of peat; urbanised areas;

Qualifying Interests	Key environmental conditions supporting site integrity	Current Threats to Qualifying Interests
		human habitation; continuous urbanization; drainage; management of aquatic and bank vegetation for drainage purposes; ; and canalization or modifying structures of inland water course.
Orchid-rich Calcareous Grassland	Changes in management. Changes in nutrient or base status. Moderately sensitive to hydrological change.	The main threats to this habitat include the abandonment of traditional agricultural practices and reclamation.
Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco Brometalia*)(*important orchid sites)	Changes in management. Changes in nutrient or base status. Moderately sensitive to hydrological change.	The main threats to this habitat include the abandonment of traditional agricultural practices and reclamation.
Taxus baccata woods	Changes in management. Changes in nutrient or base status. Introduction of alien species.	The introduction of alien species; sub-optimal grazing patterns; general forestry management; increases in urbanisation and human habitation adjacent to woodlands; and the construction of communication networks through the woodland.
* Turloughs	Surface and Groundwater dependent. Highly sensitive to hydrological changes. Changes in nutrient or base status.	Nutrient enrichment and inappropriate grazing; drainage, peat cutting; marl extraction and quarrying.
Wetlands & Waterbirds	Highly sensitive to hydrological changes and loss of wetland habitat. Sensitive to disturbance.	A number of pressures have been identified by Crowe (2005). These pressures include: the modification of wetland sites, particularly for industry or housing and increased levels of disturbance, largely related to recreational activity. Eutrophication at a number of wetland sites as a result of nutrient inputs from a range of polluting activities were also identified as a potential pressure. However this latter pressure is now being alleviated through stricter control of activities associated with water discharge/runoff etc. Climate change was also noted as a significant factor underlying changes in trends of wintering waterbirds in Ireland.
Cormorant (*Phalacrocorax carbo*) A017 (breeding) 004058	Sensitive to hydrological changes and loss of wetland habitat. Changes in the nutrient levels of wetlands (although eutrophication not necessarily a threat to this species). Water pollution. Disturbance.	**Urbanization**: Collision from powerlines and wind turbines **Human interference:** Pollution of aquatic habitats. Disturbance and persecution at nesting colony sites (to which this species is very loyal). Persecution by

Qualifying Interests	Key environmental conditions supporting site integrity	Current Threats to Qualifying Interests
	In 2012 it was estimated that the Irish breeding population numbered 4,366 pairs and the short-term population trend is stable. Cormorant are currently Amber-listed due to a moderate (35-69%) decline in breeding range and a localized breeding population (Colhoun & Cummins 2013). The European population (EUR25) of this species is assessed as Secure and there have been large increases in both wintering and breeding populations (BirdLife International 2004). Globally, this species has been listed as being of Least Concern, with an increasing population trend (BirdLife International 2012).	fisheries interests. (Lough Derg (Shannon) SPA Natura 2000 Form)
Whooper Swan (*Cygnus cygnus*) A038 (wintering) 004096	Management practices of grasslands. Hydrological changes. Changes to wetland structure and distribution. Disturbance. In 2010, the RoI wintering population of this species was estimated at 10,520 birds, of which 4,170 are within the SPA network. There have been both long and short-term population increases. Whooper Swans are currently Amber-listed in Ireland due to the hosting of more than 20% of the European wintering population, the majority of which winter at ten or less sites (Colhoun & Cummins 2013). Furthermore, this species relies on a very small breeding population internationally. Consequently, this species is listed under Annex I of the EC Council Directive on the Conservation of Wild Birds (2009/147/EC). BirdLife International has, however, assessed the European population of this species as Secure owing to its extensive range and large numbers which have experienced a recent increase (BirdLife International 2004). Similarly, this species has been listed as Least Concern by (BirdLife International 2012).	**Urbanization**: Collision from powerlines and wind turbines **Climate change**, **dispersed habitation**, **Change of land use:** (e.g. from grazing to silviculture) **Human interference:** Hunting and Pollution including poisoning from embedded or ingested lead shot. Deliberate and accidental disturbance from farmland feeding sites (reseeded fields and winter cereals). (Bolland *et al*., 2010, Middle Shannon Callows SPA Natura 2000 Form)
Wigeon (*Anas penelope*) A050 (wintering) 004096	Sensitive to hydrological changes and loss of wetland habitat. Changes in the nutrient levels of wetlands Climate change & weather conditions.	**Climate change & Weather conditions**: Cold snaps can influence overwintering location from Ireland to UK. Extent of flooding on the Shannon

Qualifying Interests	Key environmental conditions supporting site integrity	Current Threats to Qualifying Interests
	Wintering Wigeon are currently Red-listed in Ireland due to a long-term decline in the non-breeding population (Colhoun & Cummins 2013). In 2011, the RoI wintering population was estimated at 56,350 birds, of which 43,746 were recorded within the SPA network. There have been both short-term and long-term wintering population declines and a short-term population decline within the SPA network. The European (EUR25) population of this species as Secure and both breeding and wintering populations were classified as Stable (BirdLife International 2004). Globally, this species is considered to be of Least Concern, albeit with a decreasing population trend, due to its large world population and huge population range.	callow system influences numbers. **Agricultural change of practice:** changing wetland management practices (decreased grazing and mowing in meadows leading to scrub over-growth) **Human interference:** Hunting and Pollution including poisoning from embedded or ingested lead shot, disturbance, leisure fishing and nautical sports **Urbanization:** Collision from powerlines and windturbines **Predation:** Primarily from foxes, pine marten, and American mink (Birdlife International, Boland & Crowe, 2012, Middle Shannon Callows SPA Natura 2000 Form)
Tufted Duck (*Aythya fuligula*) A061 (wintering) 004058	Sensitive to hydrological changes and loss of wetland habitat. Changes in the nutrient levels of wetlands (although eutrophication not necessarily a threat to this species). Water pollution. Disturbance. Tufted Duck is currently Red-listed in Ireland due to a short-term decline in the non-breeding population (Colhoun & Cummins 2013). In 2012 it was estimated that the Irish wintering population numbered 20,980 birds, 15,540 of which were within the SPA network. Short-term (i.e. last 12 years) population trend is increase (stable within the SPA network) and the long-term (i.e. since c. 1980) trend is unknown. The European population (EUR25) of this species is assessed as Declining and there have been moderate declines in both wintering and breeding populations (BirdLife International 2004). Globally, this species has been listed as being of Least Concern, with a stable population trend (BirdLife International 2012).	**Climate change & Weather conditions**: Cold snaps can influence overwintering location from Ireland to UK. Migratory short stopping in response to warmer winters could cause long-term decline of wintering population (wintering population range has already shifted north-eastwards). **Human interference:** Hunting and Pollution including poisoning from embedded or ingested lead shot, disturbance, leisure fishing and nautical sports **Urbanization:** Collision from power lines and wind turbines. (Birdlife International, Boland & Crowe, 2012, Middle Shannon Callows SPA Natura 2000 Form, Tomankova et al., 2013)
Goldeneye (*Bucephala clangula*) A067 (wintering) 004058	Sensitive to hydrological changes and loss of wetland habitat. Changes in the nutrient levels of wetlands (although eutrophication not necessarily a threat to this species). Water pollution. Disturbance.	**Climate change & Weather conditions**: Cold snaps can influence overwintering location from Ireland to UK. Migratory short stopping in response to warmer winters could cause long-term decline of wintering

Qualifying Interests	Key environmental conditions supporting site integrity	Current Threats to Qualifying Interests
	Goldeneye is currently Red-listed in Ireland due to a short-term decline in the non-breeding population (Colhoun & Cummins 2013). In 2012 it was estimated that the Irish wintering population numbered 1,940 birds, 1,308 of which were within the SPA network. Both short-term (i.e. last 12 years) and long-term (i.e. since c. 1980) population trends are decreasing, as is the short-term trend within the SPA network. The European population (EUR25) of this species is assessed as Secure, the wintering population is considered Stable and there has been a moderate increase in the breeding population (BirdLife International 2004). Globally, this species has been listed as being of Least Concern, with a stable population trend (BirdLife International 2012).	population (wintering population range has already shifted north-eastwards). **Human interference:** Hunting and Pollution including poisoning from embedded or ingested lead shot, disturbance, leisure fishing and nautical sports **Urbanization:** Collision from power lines and wind turbines. (Birdlife International, Boland & Crowe, 2012, Middle Shannon Callows SPA Natura 2000 Form, Tomankova et al., 2013)
Corncrake (*Crex crex*) A122 (breeding) 004096	Management practices of habitat: loss of hay-meadows and wetlands; intensification of grassland management; loss of habitat through vegetation succession/land abandonment; insufficient extent and design of conservation measures. In 2012, the RoI breeding population was counted at 135 calling males. There have been both short and long-term population declines, along with a long-time population range decline (the short-term range trend is Stable). Currently this species is Red-listed in Ireland due to significant declines in range and population (Colhoun & Cummins 2013). Additionally, though it is listed on the IUCN Red List of Threatened Species in the Least Concern category (with a stable population trend), following upward revisions of the global population estimates (BirdLife International 2012), Corncrakes are listed under Annex I of the EC Council Directive on the Conservation of Wild Birds (2009/147/EC) due to declines in range and population throughout Europe. The European population (EUR25) of this species is assessed as Depleted, the breeding population trend has recently shown	**Agricultural intensification/change of practices** : Irish decline was first started by the introduction of faster growing grass varieties that allowed earlier mowing for hay and later by the introduction of silaging, which in many places has replaced the saving of hay. Nest destruction, early mowing being the most important threat; increased chick mortality during mowing, adult mortality during mowing. Ploughing and neglect of hay meadows. (AEWA Single species action plan Corncrake, Crowe, 2005, Middle Shannon Callows SPA Natura 2000 Form).

Qualifying Interests	Key environmental conditions supporting site integrity	Current Threats to Qualifying Interests
	a large increase (BirdLife International 2004).	
Golden Plover (*Pluvialis apricaria*) A140 (wintering) 004096	Afforestation and intensification of farming practices. The Golden Plover is Red-listed in Ireland (Lynas et al. 2007; Colhoun & Cummins 2013), due to large declines in its breeding population and breeding range and more recent declines in wintering populations. The European population is considered Secure. Though declines were recorded in several populations in Western Europe, this was compensated for by increases in its Finnish population and stability elsewhere (BirdLife International 2004). This is further regarded as being of Least Concern internationally by the IUCN (BirdLife International 2012). Given its significant regional declines, this species is also listed under Annex I of the EC Council Directive on the Conservation of Wild Birds (2009/147/EC). It is thought that the southern extremities of its European breeding range (including populations in Ireland and the UK) have been in decline since the 19th Century (Tucker & Heath 1994).	**Urbanisation**: Loss/modification of wetland, peatland, collision risk from power lines and wind-turbines. **Agricultural intensification/change of practices**: Loss of peatland & farmland habitat. Burning of peatland and overgrazing by sheep. **Afforestation** **Climate change**: Widescale departures of Golden Plover with the onset of severe winter cold have been noted from the British Isles could result in increased winter mortality (Wernham *et al.* 2002) Warm and dry autumns could become the norm in southern England and Ireland which could favour rapid growth of winter cereals to heights which are unfavourable, thereby causing rapid abandonment by Golden Plovers (Mason & Macdonald, 1999) **Human interference:** hunting, disturbance, leisure fishing and nautical sports **Predation**: (EU management plan – Golden Plover 2009-2011, Middle Shannon Callows SPA Natura 2000 Form)
Lapwing (*Vanellus vanellus*) A142 (wintering) 004096	Management practices of grasslands. Hydrological changes. Changes to wetland structure and distribution. Disturbance. Breeding Lapwings are Red-listed in Ireland due to long-term declines in this breeding population (Colhoun & Cummins 2013). In 2008, the RoI breeding population was estimated at 2,000 pairs. There have been both long and short-term population and breeding range declines. The European population, previously regarded as Secure, is now listed as Vulnerable (BirdLife International 2004) owing to a more than 30% decline in overall breeding numbers. Despite these large declines, the global population of this species remains high and is regarded as being of Least Concern by the IUCN (BirdLife International 2012).	**Agricultural intensification**: Fertiliser, drainage, loss of traditional farming practices, pesticides **Urbanisation:** Loss of habitat, powerlines & wind turbine collision, **Pollution:** Deposition of nutrients, particularly nitrogen compounds, can lead to unfavourable changes in vegetation structure and generally increase vegetation growth, to the detriment of Lapwings. **Predation** **Human disturbance:** leisure fishing and nautical sports, **Climate change** Winter flooding improves conditions for breeding Lapwing by keeping sward short and open and by creating suitable, wet feeding areas (Ausden *et al*. 2001). (EU management plan Lapwing 2009-2011, Middle Shannon Callows SPA Natura 2000 Form)

Qualifying Interests	Key environmental conditions supporting site integrity	Current Threats to Qualifying Interests
Black-tailed Godwit (*Limosa limosa*) A156 (wintering) 004096	Sensitive to hydrological changes and loss of wetland habitat. Changes in the nutrient levels of wetlands. Black-tailed Godwit occurs in internationally important numbers in Ireland. It is Amber-listed. With fewer than three pairs of Black-tailed Godwit proven breeding in recent years (Hillis 2010, 2011, 2012 in Colhoun & Cummins 2013) this species now qualifies under the rare breeder category. In 2011, the RoI wintering population was estimated at 18,080 birds and both the short and long-term population trends were increasing. The European population is considered to be Vulnerable; the breeding population trend is of large decline and the wintering population trend is of moderate decline (BirdLife International 2004). Globally, the population of this species is considered Near Threatened and the population trend is decreasing (BirdLife International 2012).	**Urbanisation:** Loss of habitat, powerlines & wind turbine collision, **Pollution:** habitat change (e.g. reduction in prey density) due to reductions in organic loadings to wetlands caused by the introduction of, or improvement to, waste-water treatment plants. **Invasive species:** Zebra mussel filtration of phytoplankton and suspended particulate resulting in a reduction of invertebrates could impact on food source of larval fish. This could impact on fish food sources **Predation** **Human disturbance:** leisure fishing and nautical sports, **Climate change:** (EU management plan for Black--tailed godwit 2007-2009, Middle Shannon Callows SPA Natura 2000 Form)
Black-headed Gull (*Chroicocephalus ridibundus*) A179 (wintering) 004096	Sensitive to hydrological changes and loss of wetland habitat. Nest predation. Pollution at sea. Though significant populations exist elsewhere in the Palaearctic, breeding Black-headed Gulls have been placed on the Red-list of Birds of Conservation Concern in Ireland since 2007, owing to a rapidly declining and localised breeding population (Lynas et al. 2007; Colhoun & Cummins 2013). The European population of this species is regarded as Secure, despite declines in several countries (BirdLife International 2004). The aggregate global population of this species has been assessed as Least Concern (BirdLife International 2012).	**Predation:** Inland breeding sites affected by the spread of American Mink. **Agricultural intensification**: Drainage **Urbanisation:** Loss of wetland habitat, powerlines & wind turbine collision **Nutrification:** Black-headed Gulls frequently forage at WWTP outfalls. They undoubtedly benefit from artificial food sources (Burton *et al.* 2001) supplied by WWTPs **Invasive species:** Zebra mussel filtration of phytoplankton and suspended particulate resulting in a reduction of invertebrates could impact on food source of larval fish. This could impact on fish food sources. (Craik, 1997, Middle Shannon Callows SPA Natura 2000 Form)
Common Tern (*Sterna hirundo*) A193 (breeding) 004058	Sensitive to wetland habitat loss. On the breeding grounds, this species is sensitive to disturbance from outdoor leisure activities, to coastal erosion and development, to natural flooding, to predation at nest sites (large gulls and mink) and vegetation overgrowth. Pollution at	**Predation:** Inland breeding sites affected by the spread of American Mink and large gull breeding sites. **Agricultural intensification**: Drainage **Urbanisation:** Loss of wetland habitat, powerlines

Qualifying Interests	Key environmental conditions supporting site integrity	Current Threats to Qualifying Interests
	sea. Common Tern is in the BoCCI Amber list due to a moderate decline in breeding range and a localized breeding population. This species is also listed under Annex I of the EC Council Directive on the Conservation of Wild Birds (2009/147/EC). In 2012 it was estimated that the Irish breeding population numbered 4,887 birds, short and long-term breeding population trends were both increasing, as were the long and short-term breeding range trends. The European population of this species is regarded as Secure (BirdLife International 2004). The aggregate global population of this species has been assessed as Least Concern (BirdLife International 2012), albeit with a decreasing population trend.	& wind turbine collision. **Climate Change** Climate change could lead to scarcity of food supplies and sea level rises could lead to nest flooding and loss of breeding sites.

5.2. Assessment of Potential Cumulative Effects

Cumulative impacts or effects are changes in the environment that result from numerous human-induced, small-scale alterations. Cumulative impacts can be thought of as occurring through two main pathways: first, through persistent additions or losses of the same materials or resource, and second, through the compounding effects as a result of the coming together of two or more effects.

As part of the Screening for an Appropriate Assessment, in addition to the proposed Material Alterations, other relevant projects and plans in the region must also be considered at this stage. This step aims to identify at this early stage any possible significant in-combination or cumulative effects / impacts of the proposed development with other such plans and projects on the Natura 2000 sites.

This step aims to identify at this early stage any possible significant in-combination or cumulative effects/impacts of the Material Alterations to the Portumna LAP with other such plans and projects on the relevant Natura 2000 sites and their conservation interests.

Other plans and projects specific to this area which potentially could give rise to significant effects on the relevant Natura 2000 sites are the following:

- Galway County Development Plan 2015-2021
- Western Regional Planning Guidelines 2010-2022
- Replacement Connacht Waste Management Plan
- National Spatial Strategy

- Western RBD Management Plan
- Irish Water Capital Investment Plan 2014-2016
- Inland Fisheries Ireland Corporate Plan 2011-2015
- Groundwater Pollution Reduction Programme
- Galway County Heritage Plan 2009-2014
- Galway County Biodiversity Plan 2008 – 2013
- OPW Flood Risk Management Strategies and Arterial Drainage Schemes are subject to SEA, EIA and Appropriate Assessment as required

A review of the Galway County Council Planning webpage revealed that there have been 36 other applications for the entry “Portumna” for the last three years to date.

Development within the Plan area will have to demonstrate the capacity of the wastewater treatment system proposed to deal with wastewater without impacting the surface and groundwater resource in the zone of influence and to comply with flood impact assessment directives.

Any new applications for the project area will be assessed on a case by case basis by Galway County Council which will determine the requirement for AA Screening as per the requirements of Article 6(3) of the Habitats Directive.

An assessment of the cumulative or in-combination effects of the Material Alterations to the Plan is presented in Table 5.2 below.

Table 5.2. Outlining the potential in-combination impacts of Material Alterations to the Plan in the absence of mitigation.

Site	Potential Impacts from the Plan	Risk of Significant Effect	In-Combination Effects	Significant Risk In-Combination
River Shannon Callows SAC	The River Shannon, with this associated SAC, forms the eastern boundary of the LAP with the southern (downstream) extent of the SAC terminating at the south east of the LAP. In-combination impacts are possible arising from upstream areas in terms of reduced water quality and effects on the conservation objectives of the SAC which rely on good water quality status.	Yes	Galway, Tipperary & Offaly, County Development Plans, River Basin Management Plans, Waste Water Discharge to the River Shannon.	Yes
Lough Derg, North-East Shore SAC	This SAC boundary starts at Portumna and In-combination impacts are possible arising from combined upstream and downstream sources in terms of reduced water quality and effects on the conservation objectives of the SAC which rely on good water quality status.	Yes	Galway, Tipperary & Offaly, County Development Plans, River Basin Management Plans, Waste Water Discharge to the River Shannon.	Yes
Lough Derg (Shannon) SPA	This SPA boundary starts at Portumna and In-combination impacts are possible from combined upstream and downstream sources in terms of reduced water quality and effects on the conservation Interests of the SPA which rely on good water quality status for a viable food source and roosting and nesting habitats and also in terms of disturbance from water-based leisure and tourism.	Yes	Galway, Tipperary & Offaly, County Development Plans, River Basin Management Plans, Waste Water Discharge to the River Shannon.	Yes
Middle Shannon Callows SPA	This SPA boundary ends at Portumna and In-combination impacts are possible from upstream areas in terms of reduced water quality and effects on the conservation Interests of the SPA and also in terms of disturbance from water-based leisure and tourism.	Yes	Galway, Tipperary & Offaly, County Development Plans, River Basin Management Plans, Waste Water Discharge to the River Shannon.	Yes
Barroughter Bog SAC	This site is at a distance and direction unlikely to incur hydrological impacts	No	Galway, Tipperary & Offaly, County Development Plans	No
Kilcarren-Firville Bog SAC	This site is at a distance and direction unlikely to incur hydrological impacts	No	Galway, Tipperary & Offaly, County Development Plans	No
Cloonmoylan Bog SAC	This site is at a distance and direction unlikely to incur hydrological impacts	No	Galway, Tipperary & Offaly, County Development Plans	No
Slieve Aughty Mountains SPA	This site is at a distance and direction unlikely to incur hydrological impacts	No	Galway, Tipperary & Offaly, County Development Plans	No
Rosturra Wood SAC	This site is at a distance and direction unlikely to incur hydrological impacts	No	Galway, Tipperary & Offaly, County Development Plans	No
Ardgraigue Bog SAC	This site is at a distance and direction unlikely to incur hydrological impacts	No	Galway, Tipperary & Offaly, County Development Plans	No
Redwood Bog SAC	This site is at a distance and direction unlikely to incur hydrological impacts	No	Galway, Tipperary & Offaly, County Development Plans	No

Pollnaknockaun Wood Nature Reserve SAC	This site is at a distance and direction unlikely to incur hydrological impacts	No	Galway, Tipperary & Offaly, County Development Plans	No
Derrycrag Wood Nature Reserve SAC	This site is at a distance and direction unlikely to incur hydrological impacts	No	Galway, Tipperary & Offaly, County Development Plans	No
Liskeenan Fen SAC	This site is at a distance and direction unlikely to incur hydrological impacts	No	Galway, Tipperary & Offaly, County Development Plans	No
River Little Brosna Callows SPA	This site is at a distance and direction unlikely to incur hydrological impacts	No	Galway, Tipperary & Offaly, County Development Plans	No
Ballyduff/Clonfinane Bog SAC	This site is at a distance and direction unlikely to incur hydrological impacts	No	Galway, Tipperary & Offaly, County Development Plans	No
All Saints Bog And Esker SAC	This site is at a distance and direction unlikely to incur hydrological impacts	No	Galway, Tipperary & Offaly, County Development Plans	No
All Saints Bog SPA	This site is at a distance and direction unlikely to incur hydrological impacts	No	Galway, Tipperary & Offaly, County Development Plans	No

5.3. Likely Impacts on Natura 2000 Sites

This section documents the final stage of the screening process. It uses the information collected on the sensitivity of each Natura 2000 site and describes any likely significant effects of adoption of Material Alterations to the Plan. This assumes the absence of any controls, conditions or assumption mitigation measures.

A screening matrix of potential impacts is presented in Table 5.3.

Table 5.3. Outlining the potential impacts in the absence of mitigation of MA to the Plan.

Material Alterations Proposed at Council Meeting	**Effects of Material Alteration**	**Potential impacts of material alterations on European Sites**	**Determination**
MA 1 Include subject lands within the plan boundary and zone Tourism as per attached map (*Material Alterations Proposed to the Draft Plan – Map 1A Land Use Zoning - Draft Portumna Local Area Plan).*	New tourism/commercial development on these lands may have the following general effects - Development and operational phases: Increased population – light, noise, traffic, air emissions. Pollution from use or storage of hazardous materials (paint, oil, pesticides). Disturbance from increased recreational pressure in surrounding landscape. Increased wastewater. Increase in hard landscaping and runoff water. Introduction of invasive plant or animal species.	The northern section of the site is drained by the Lickmolassy Stream which is prone to flooding and which discharges into Lough Derg. As the subject lands are partly located within the boundary of Indicative flood zone A, there is concern that if development takes place in a flood zone and flood events subsequently occur there is the increased potential for flood waters to become contaminated and re-enter the water course and impact on the water quality of Lough Derg. The Portumna Local Area Plan has several objectives and policies which are intended to avoid potential negative impacts on European sites through compliance with all relevant legislation and guidelines and abiding by the principles of best practice in relation to planning and land use.	Due to its location and direct hydrological connectivity with Lough Derg, this material alteration, considered in isolation would be likely to have a significant impact on the Lough Derg SAC and SPA. A potential significant impact in combination with the other proposed material alterations on the European sites listed cannot be ruled out. **Stage 2 AA required**
MA 2 Rezone the lands from Recreation, Amenity and Open Space to Residential-Phase 2 as per attached Map 1A.	New residential development on these lands may have general effects such as increased population, light, noise, traffic, air emissions, increase in hard landscaping and runoff water which would have	This area of land is located within an area designated as Indicative flood zone C and the likelihood of flooding is low. The Portumna Local Area Plan has several objectives and policies	No significant impact on European sites.

Material Alterations Proposed at Council Meeting	Effects of Material Alteration	Potential impacts of material alterations on European Sites	Determination
	been considered in any case for residential development.	which are intended to avoid potential negative impacts on European sites through compliance with all relevant legislation and guidelines and abiding by the principles of best practice in relation to planning and land use management in flood risk areas.	
MA 3 Rezone the lands from Recreation, Amenity and Open Space to Residential-Phase 2 as per attached Map 1A.	New residential development may have the following general effects - Development and operational phases: Increased population – light, noise, traffic, air emissions. Pollution from use or storage of hazardous materials (paint, oil, pesticides). Disturbance from increased recreational pressure in surrounding landscape. Increased wastewater. Increase in hard landscaping and runoff water. Introduction of invasive plant or animal species	Located directly south of lands addressed under MA 2, the eastern section of the site is drained by the Lickmolassy Stream which is prone to flooding and which discharges into Lough Derg. As the subject lands are partly located within the boundary of Indicative flood zone A, there is concern that if development takes place in a flood zone and flood events subsequently occur there is the increased potential for flood waters to become contaminated and re-enter the water course and impact on the water quality of Lough Derg. The Portumna Local Area Plan has several objectives and policies which are intended to avoid potential negative impacts on European sites through compliance with all relevant legislation and guidelines and abiding by the principles of best practice in relation to planning and land use management in flood risk areas.	Due to its location and direct hydrological connectivity with Lough Derg, this material alteration, considered in isolation would be likely to have a significant impact on the Lough Derg SAC and SPA. A potential significant impact in combination with the other proposed material alterations on the European sites listed cannot be ruled out. **Stage 2 AA required**

Material Alterations Proposed at Council Meeting	Effects of Material Alteration	Potential impacts of material alterations on European Sites	Determination
MA 4 Rezone the lands from Recreation, Amenity and Open Space to Tourism as per attached Map 1A.	New tourism/commercial development on these lands may have general effects such as increased population, light, noise, traffic, air emissions, increase in hard landscaping and runoff water which would have been considered in any case for commercial development.	This parcel of land is located within an area designated as Indicative flood zone C and the likelihood of flooding is low. The Portumna Local Area Plan has several objectives and policies which are intended to avoid potential negative impacts on European sites through compliance with all relevant legislation and guidelines and abiding by the principles of best practice in relation to planning and land use management in flood risk areas.	No significant impact on European sites.
MA 5 Retain the 'Existing Residential Land Use' and remove the Constrained Land Use as per attached Map 1A.	The subject lands were zoned Existing Residential Land Use and are now proposed to remove the Constrained Land Use, which would see it developed for housing and other uses permitted under the land use zoning matrix for this zoning. New residential development and other development open for consideration on this land use zoning may have the following general effects - Development and operational phases: Increased population – light, noise, traffic, air emissions. Pollution from use or storage of hazardous materials (paint, oil, pesticides). Disturbance from increased recreational pressure in surrounding	As the subject lands are partly located within the boundary of Indicative flood zone A/B/C, there is concern that if development takes place in a flood zone and flood events subsequently occur there is the increased potential for flood waters to become contaminated and re-enter the water course and impact on the water quality of Lough Derg. The Portumna Local Area Plan has several objectives and policies which are intended to avoid potential negative impacts on European sites through compliance with all relevant legislation and guidelines and abiding by the principles of best practice in relation to planning and land use management in flood risk	Due to its location and indirect hydrological connectivity with Lough Derg, this material alteration, considered in isolation would be likely to have a significant impact on the Lough Derg SAC and SPA. A potential significant impact in combination with the other proposed material alterations on the European sites listed cannot be ruled out. **Stage 2 AA required**

Material Alterations Proposed at Council Meeting	Effects of Material Alteration	Potential impacts of material alterations on European Sites	Determination
	landscape. Increased wastewater. Increase in hard landscaping and runoff water. Introduction of invasive plant or animal species.	areas.	
MA 6 Rezone the lands from Residential Phase 2 to Town Centre/Mixed Use as per attached Map 1A.	New commercial development on these lands may have general effects such as increased population, light, noise, traffic, air emissions, increase in hard landscaping and runoff water which would have been considered in any case for commercial development.	This parcel of land is located within an area designated as Indicative flood zone C and the likelihood of flooding is low. The Portumna Local Area Plan has several objectives and policies which are intended to avoid potential negative impacts on European sites through compliance with all relevant legislation and guidelines and abiding by the principles of best practice in relation to planning and land use management in flood risk areas.	No significant impact on European sites.
MA 7 Amend the Land Use Matrix Table to "Open For Consideration" for Medical Facilities on Business and Enterprise zoned Lands	N/A	N/A	The findings of the AA carried out on the draft plan are unaffected. No significant impact on European sites.
MA 8 Amend the Land Use Table Matrix to "Open For Consideration" for Guest Houses on Community Facilities zoned Lands	N/A	N/A	The findings of the AA carried out on the draft plan are unaffected. No significant impact on European sites.
MA 9 Amend the Draft Portumna Local Area Plan 2016-2022 as follows: 3.7.2 Water Framework Directive *[Textual Changes]*	N/A	N/A	The findings of the AA carried out on the draft plan are unaffected. No significant impact on European sites.
MA 10 Amend Text of Objective UI 2 in the	N/A	N/A	The findings of the AA carried out on the draft

Material Alterations Proposed at Council Meeting	Effects of Material Alteration	Potential impacts of material alterations on European Sites	Determination
Draft Portumna Area Plan 2016-2022 *[Textual Changes]*			plan are unaffected. No significant impact on European sites.
MA 11 Insert new policy NH2 in the Draft Portumna Area Plan 2016-2022 as follows: **Policy NH2: Green Infrastructure Strategy** The Council shall commence the preparation of a Green Infrastructure Strategy within the lifetime of the plan as resources permit.	N/A	N/A	The findings of the AA carried out on the draft plan are unaffected. No significant impact on European sites.
MISCELLANEOUS In addition to the above: • Update the Local Area Plan boundary on *Maps 1A* and *1B-Land Use Zoning*, *Map 2 - Specific Objectives* and *Map 3-Flood Risk Management,* as necessary. • Update the table of *Areas of Zoned Land* on page 20-21 of the Draft Portumna Local Area Plan 2016-2022 as a consequence of the Material Alterations. • Update any typos in the document.	N/A	N/A	The findings of the AA carried out on the draft plan are unaffected. No significant impact on European sites.

6. Screening Statement

The Screening process has identified that four of the Natura 2000 sites assessed have the potential to be adversely affected by the adoption of Material Alterations to the Draft Portumna Local Area Plan 2016-2022.

The Screening Assessment has identified that there may be potential impacts as a result of the adoption of Material Alterations No.s 1, 3 and 5 to the Plan on four sites listed

below and that Stage 2 AA is required to assess the potential impacts of the proposed Material Alterations to the Plan in detail on these sites:

- River Shannon Callows SAC
- Lough Derg, North-East Shore SAC
- Lough Derg (Shannon) SPA
- Middle Shannon Callows SPA

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