Natura Impact Statement
Proposed construction of 67no. housing units consisting of; 6 no. 1 bed 2 person, 5 no. 2 bed 3 person, 17 no. 2 bed 4 person, 35 no. 3 bed 5 person, 4 no. 4 bed 7 person on a site of 2.0ha at Tyrrells Land, situated along Stradbally Road, Portlaoise, Co. Laois.

Site walkovers 09th/10th/08/2023 and 07/04/2025

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He has advised South Dublin County Council on the control and management of Giant Hogweed and Japanese Knotweed in the area around Loughlinstown, Co. Dublin.

From 1998 to 2019 he was a visiting lecturer in UCD, in the Science and Archaeology Departments, lecturing at post graduate (Masters Degree) level to students in a Sustainable Development Module (MSc. World Heritage Management).

Introduction and Terms of Reference

Introduction

This is an appropriate assessment screening for the proposed construction of:67 no. housing units consisting of; 6 no. 1 bed 2 person, 5 no. 2 bed 3 person, 17 no. 2 bed 4 person, 35 no. 3 bed 5 person, 4 no. 4 bed 7 person on a site of 2.0ha at Tyrrells Land, situated along Stradbally Road, Portlaoise, Co. Laois. The site is within the Curtilage of a Protected Structure, RPS 925, Portrain House, Stradbally Road, Portlaoise. The development will also include the provision of public open space, public walk-way along east boundary, flood defence infrastructure, public lighting, upgraded vehicular access along the Stradbally Road, 116 no. car parking spaces including both in-curtilage and on street parking, (includes required accessible parking space and EV charging spaces), cycle parking, boundary treatments, ESB Substation, laying of underground sewers, watermains and pipes, attenuation, the importation of soil and stone as by product for engineering and landscaping purposes within the development and all associated ancillary works including site development works, and hard and soft landscaping.
The key objectives are to

- Achieve a cohesive urban layout of blocks and street with sustainable residential densities, making the best use of existing local services and infrastructure.
- Ensure the new development integrates into the existing surrounding built

environment.
• Achieve high quality residential units and public realm spaces.
• Create a visually attractive development that will provide appropriate accommodation and good quality living environments.
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The Appropriate Assessment Screening is carried out in accordance with the requirements of Article 6(3) of the EU Habitats Directive (Directive 92/43/EEC) and in line with the Guidance for Planning Authorities entitled "*Appropriate Assessment of Plans and Projects in Ireland*" as published by the Department of the Environment, Heritage and Local Government in December 2009.

The 1992 Habitats Directive requires member states to designate areas of their territory containing a representative sample of important habitats and species. These areas are known as Natura 2000 sites, and in Ireland they include Special Areas of Conservation (SAC's) and Special Protection Areas (SPA's). Article 6(3) and (4) require that an Appropriate Assessment be carried out for these sites where projects, plans or proposals are likely to have an effect on the protected site.

Article 6(3) of the Habitats Directive states: *'any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public'.*

Article 6(4) states: *'if, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of economic or social nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted. Where the site concerned hosts a priority natural habitat type and/or a priority species the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest'.*

Methodology

The methodology as set out in *Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities* (December 2009) has been followed.

Stage 1 The aim of Stage 1, 'Screening' is to determine whether or not Stage 2, the Appropriate Assessment is required, i.e. to determine whether or not the Plan is likely to negatively affect the conservation objectives on any Natura 2000 site. This is done by examining the design of the proposed project; and the conservation objectives of any Natura 2000 sites that might potentially be affected.

Stage 2, The aim of the 'Appropriate Assessment' proper, is to identify any significant negative impacts that the plan might have upon Natura 2000 sites and to propose changes to the project design that will avoid any such negative impacts. The project design should then be amended accordingly, thereby avoiding the need to progress to Stage 3, which would require the implementation of measures to mitigate or compensate for the identified negative impacts on Natura 2000 sites. A key consideration of Appropriate Assessment is that the Plan or Project under consideration must take account of potential impacts on Natura 2000 sites 'in combination' with other plans or projects.

Stage 3 - Alternative Solutions Following a Stage 2 negative result, that is, adverse effects cannot be excluded; an examination of alternative solutions or options, described in Article 6(4) of the Directive should be examined. These alternative solutions which should have been identified in the appropriate assessment stage should then return to be reassessed by a Stage 2 appropriate assessment, similar to a new plan or a variation of an existing plan. Alternatively, should no alternative solution which does not adversely effect a Natura 2000 site be identified, the 'least damaging' option should be considered with regard to Stage 4.

Stage 4 - Imperative Reasons of Overriding Public Interest (IROPI) / Derogation Described as the derogation process of Article 6(4), this final stage allows for the plan or project to proceed in the knowledge that it will have adverse effects on the conservation objectives and as a consequence the integrity of a Natura 2000 site. This is essentially an assessment of the compensatory measures which should be proposed to offset damage to the site and should be practical, implementable, enforceable and approved by the Minister and referred to the European Commission.

In accordance with this guidance, the following four steps have been used to produce this stage 1 screening statement:

- Description of project and project area characteristics
- Identification of Natura 2000 sites and compilation of information on their qualifying interests and conservation objectives.
- Assessment of Likely Effects/ assessment of Cumulative Effects
- Screening conclusion and statement.

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The overall aim of the Habitats Directive (92/43/EEC) is to maintain or restore the favourable conservation status of habitats and species of Community interest. These habitats and species are listed in the Habitats Directive and the Birds Directive (2009/147/EC), and Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are designated to afford protection to the most vulnerable of these. Both designations are often referred to as 'European sites' and are collectively known as the 'Natura 2000 network'. The Habitats and Bird Directives are transposed into Irish law by (inter alia) the European Communities (Birds & Natural Habitats) Regulations 2011 (S.I.477 of 2011) (see the Irish Statute Book www.irishstatutebook.ie).
As required under the Habitats Directive, screening must be undertaken to assess if there is a possibility of the project having an effect, either individually or in combination with other plans or projects, on a Natura site, in view of the conservation objectives of that Natura site. If a possibility (or uncertainty regarding whether there is a possibility) exists (i.e. a potential pathway for impact on an EU site exists), the project is 'screened in' in relation to the Natura site(s) involved. An 'appropriate assessment' is then undertaken to determine beyond reasonable scientific doubt whether there will be an adverse effect on the integrity of these Natura site(s), based on
(inter alia) the nature of the impact and the effectiveness of any mitigation measures proposed. The appropriate assessment must (a) identify, in light of the best scientific knowledge, all aspects of the development that would affect Natura sites; and (b) contain complete and definitive findings capable of removing all reasonable scientific doubt that the development would adversely affect the integrity of those sites.
(Note, screening is often referred to as 'Stage 1', and appropriate assessment as 'Stage 2'.)
The above process cannot have any deficiencies or data / information gaps (or '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 the Natura site(s) concerned.

The above process is set out in Article 6(3) of the Habitats Directive and Regulation 42 of S.I.477 or 2011. Recent rulings from the European Court of Justice and Irish case law provide further legal clarification.
Furthermore, detailed guidance is set out in the European Commission (2018) Notice Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.

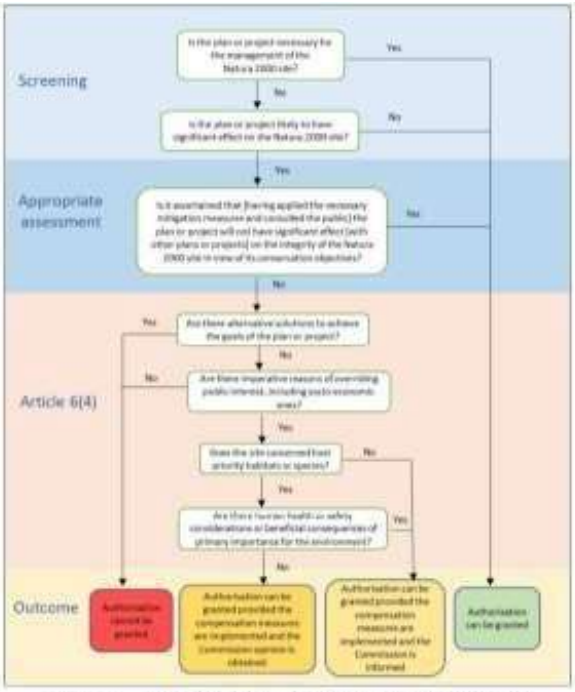


Figure 4.1 Stages of the Appropriate Assessment process (EC, 2021).

What is a NATURA Impact Statement?
S.I.477 of 2011 defines a Natura Impact Statement as "a report comprising the scientific examination of a plan or project and the relevant European Site or European Sites, to identify and characterize any possible implications of the plan or project individually or in combination with other plans or projects in view of the conservation objectives of the site or sites, and any further information including, but not limited to, any plans, maps or drawings, scientific information or data required to enable the carrying out of an Appropriate Assessment; ..."
The NIS is a scientific examination that identifies and characterizes any possible impact the project may have (either individually or in combination with other plans and projects) on the conservation objectives of any ‘screened-in’ Natura site(s), taking into account the full scope of these objectives, whether generic or site specific. It must also identify and detail any proposed mitigation measures needed to avoid, reduce or eliminate the risk of such impact. The NIS must also present the necessary analysis to demonstrate how any proposed mitigation measures will avoid or remove the

risks of those adverse effects identified, so that the final analysis is undertaken in the context of the predicted residual effects.
The precautionary principle should be applied throughout the preparation of the NIS. For example, if it cannot be demonstrated that no adverse effect will arise, such an effect must be assumed. As a scientific examination, all findings arrived at must be clear and precise, and must be supported by data, evidence and analysis and by best scientific knowledge and objective information, including baselines and trends. All sources of information must also be cited.
In addition to baseline information and survey results available online and elsewhere an ecological survey may be needed to assess if an Annex I habitat or Annex II species, or a supporting habitat or species(*), is present. The type of survey needed will vary greatly, from a general habitat walkover survey to a more detailed survey involving repeated visits. (* As per ECJ Case C-461/17 Brian Holohan and Others v An Bord Pleanála).
The following are examples of the types of surveys and field assessments that may be required.
➢ Ex situ, where the project is located outside the Natura site:
A habitat walkover survey to assess if the project area contains a habitat used by a species listed as a qualifying interest of the Natura site, or a habitat supporting a species upon which the qualifying interest depends. For example, the project area may contain a habitat used for foraging by a specific bird species listed as a Special Conservation Interest (SCI) of a nearby SPA.
A hydrological assessment to ascertain if proposed drainage associated with a project will disrupt the hydrological conditions underpinning a nearby SAC.

➢ In situ, where the project is located within a Natura site:
An ecological survey to determine if a habitat listed as a qualifying interest of the Natura site (i.e. an Annex I habitat, such as wet heath) is present or absent within the project area.
Similarly, in the case of a particular species listed as a qualifying interest of the Natura site (i.e. an Annex II such as Desmoulin's whorl snail (Vertigo moulinsiana)), a species survey or a species habitat survey to determine if that species occurs or has the potential to occur
within the project area.

The following indicate some of the general issues that can arise:
➢ Where there is a hydrological connection to a Natura site, the NIS must address potential impacts on water quality and aquatic species and habitats. This will include an assessment of likely sources

and pathways (such as relevant watercourses or 'hotspot' areas) for runoff from the site, in relation to both sediment and nutrients. Other issues such as altered hydrology and nutrient enrichment may also be relevant.

➢ In relation to SPAs, the NIS should consider (as relevant) the known location of breeding sites within the SPA, whether the project area contains suitable breeding, foraging or roosting habitats, and whether disturbance impacts arise.

Typically, a detailed field survey is required if the project is located within a Natura site and where the qualifying interests include terrestrial habitats and species. In situations where all the qualifying interests
are aquatic in nature, the focus of the scientific examination should be on avoiding or eliminating the risk of any potential impacts (e.g. sediment and nutrient runoff, altered hydrology, nutrient enrichment) on the aquatic habitat or species.

Regarding terrestrial-based qualifying interests, the nature of these will determine the type of survey(s) required. Given the range of Annex habitats and species, it is not possible to outline the appropriate survey
method(s) for each. Some Annex II terrestrial species require specialist expertise as they may not be easily observed.

Note, relevant data from recent or ongoing surveys undertaken by various bodies may be available, thereby possibly reducing the need for direct survey work during the preparation of the NIS.

Office of the Planning Regulator (2021) (OPR) Practice Note PN01 Appropriate Assessment Screening for Development Management states that the effects of a project may include direct or indirect effects on a European Site. Indirect effects can occur where further development is associated with a proposed development and it is this secondary element that is a risk factor to a site. For example: enabling works such as site clearance can lead to soil erosion with impacts on watercourses and downstream impacts to a European site, or ground investigations or haulage routes involving heavy machinery may have to traverse a European site to access the development site.

Indirect effects may also arise due to pathways or connections to a European site. For example, a proposed development may have no direct effect on a site due to distance, however a hydrological connection may result in indirect effects on that site due to changes in water flows or construction related emissions. Similarly there may be indirect impacts to European sites via impacts to non-Qualifying Interest habitats within a site or such habitats outside a site, or via impacts to species for which a site has been designated beyond the site where this might affect the conservation objectives of the site. This is particularly relevant in relation to SPAs where areas outside the European site are often important for bird species.

There are no qualifying species present on this site and in the context of SPAs there are no designated bird species present on or near this proposed development . There is a hydrological link from this proposed development to one of the Natura 2000 sites considered.

Impact v Effect: In the context of appropriate assessment there is a clear difference between the 'impact' which is the source (Source-Pathway-Receptor model) and the 'effect' which is how it relates to the conservation objectives. For example:

Impact: ground clearance and release of silt laden water into adjacent receiving watercourse.

Effect: possibility to undermine the conservation objective to restore the favourable conservation of those Annex II species including Atlantic Salmon and Freshwater Pearl Mussel, which require very low levels of sedimentation at their breeding gravels.

In-Combination Effects: Some projects are unlikely to have significant effects on their own. However, the effects in combination with other plans or projects could be significant. The in-combination assessment should concentrate on projects/plans that could in fact act in-combination with the current project to affect site conservation objectives. For example, in a site where Fresh Water Pearl Mussel is a Qualifying Interest, a key question is what other plans/projects may involve discharges to the relevant river. This allows the assessment of in-combination impacts to be focused on the relevant impacts. In the case of projects, in-combination impacts of both plans and projects must be considered (i.e. not solely other projects). It should also be noted that plans/projects extend beyond those covered by the 2000 Act. In-combination effects must examine plans or projects that are:

Projects completed,

Projects approved but not started or uncompleted,

Projects proposed, i.e. for which an application for approval or consent has been made, including refusals subject to appeal and not yet determined,

Proposals in adopted plans,

Proposals in finalized draft plans formally published or submitted for consultation or adoption.

Plans and projects that are not yet proposed do not generally have to be taken into account in the assessment of in-combination effects, even if they are part of an overarching masterplan. The exception is where the project is considered to be functionally interdependent with the development before the competent authority.

The consideration of in-combination effects is not restricted to similar types of plans or projects covering the same sector of activity (e.g. a series of housing projects). All types of plans or projects that could, in-combination with the project under consideration, have a significant effect, should be taken into account.

This proposed development has been considered from the perspective of the proposed development itself and also in terms of the potential for “in combination” effects with other projects planned for the area.
.In-combination effects can be defined as impacts on a Natura site that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project being assessed.
Appropriate assessment requires an assessment of possible in-combination effects. Section 3.5.3 of the EC Commission Notice Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (2018) details the process: "When determining likely significant effects, the combination with other plans and/or projects should also be considered to take account of cumulative impacts during the assessment of the plan or project in question. The in-combination provision concerns other plans or projects which have been already completed, approved but uncompleted or actually proposed."

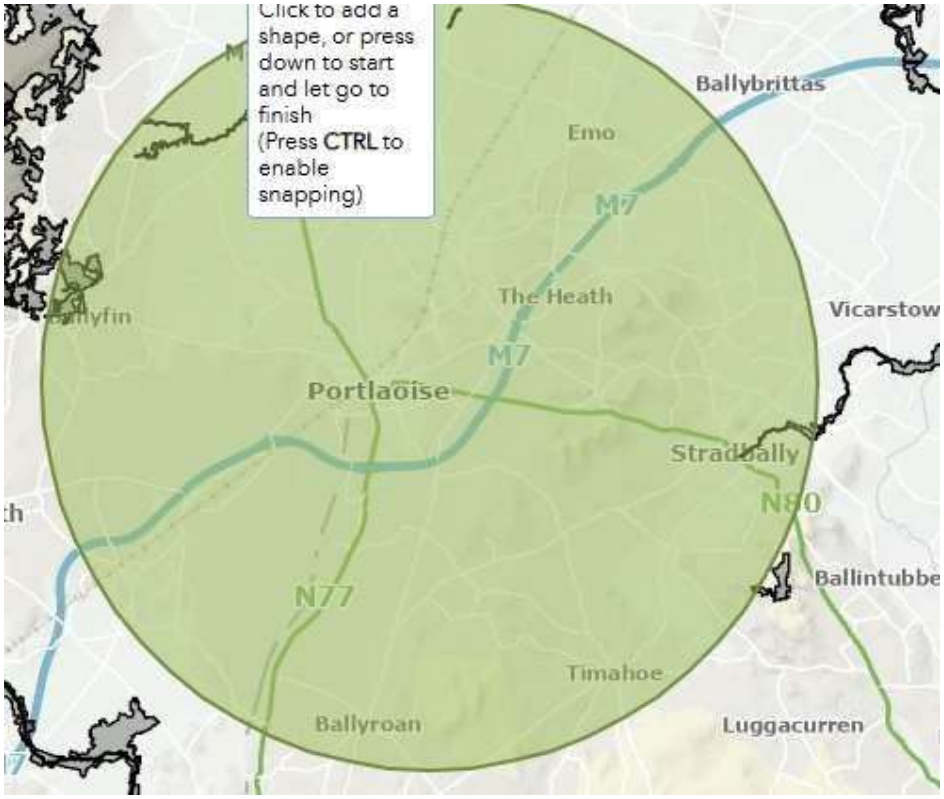
Stage 1 Screening

Description of project and project area characteristics -

Habitats were identified using “Guide to Habitats in Ireland”, Fossitt J., Heritage Council 2000.
The proposed development subject of this appropriate assessment screening is (a) 67 no. units, consisting of 32 no. 3-bedroom housing units, 6 no. 2-bedroom housing units, 6 no. 1-bedroom housing units, and 23 no. 1-bedroom apartment units.
b) External home zone and landscaped areas.
c) Open space and soft landscaping to private amenity space.
d) Boundary works including construction/remedial works new boundaries and a walkway.
e) Alteration to existing and construction of new site services including connection to service providers.
f) All associated site works along with culverting an existing drainage ditch.
This proposed development will occupy a site on Stradbally Road, Portlaoise, County Laois.
The key objectives are to
• Achieve a cohesive urban layout of blocks and street with sustainable residential densities, making the best us of existing local services and infrastructure.
• Ensure the new development integrates into the existing surrounding built environment.
• Achieve high quality residential units and public realm spaces.
• Create a visually attractive development that will provide appropriate accommodation and good quality living environments.

There are no works proposed other than what is reasonably required to facilitate the proposed construction. All consequent foul and grey water will be directed to existing waste water sewers for treatment by Irish Water at the treatment works. The proposed development occupies a site that is within 15 km of the following Natura 2000 sites: River Barrow/Nore Special Area of Conservation (SAC) site code 002162, Ballyprior Grassland SAC SITECODE 002256,Slieve Blooms Mountains SAC Site code 00412 and Slieve Blooms Mountains SPA SITECODE 004160.

Natura 2000 sites (hatched areas) within possible impact zone.



Receiving environment:

The following data was gathered during a site walkover dated 09th 10th /08/2023 and 07/04/2025. Field visits were undertaken to all points within the site on the 09th 10th /08/23 and 07th/04/2025. Binoculars (7x50) and telescope (x50) were used. Visual, auditory, olfactory and spraint evidence was used to determine the presence of species. Conservation status of species was ascertained using NPWS Data, “The Irish Red Data Book 2: Vertebrates” Whilde A., HMSO Belfast and Red List 3 Marnell, F., Kingston,
N. & Looney, D. (2009) Ireland Red List No. 3: Terrestrial Mammals, National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government,Dublin, Ireland and Red List 4 Regan, E.C., Nelson, B., Aldwell, B., Bertrand, C., Bond, K., Harding, J., Nash, D., Nixon, D., & Wilson,

C.J. (2010) *Ireland Red List No. 4 – Butterflies*. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Ireland and "Exploring Irish Mammals" Hayden T and Harrington R., Town House and Country House Ltd, 2000. Habitats were identified using "A Guide to Habitats in Ireland", Fossitt J., The Heritage Council, 2000.

A Garmin GPSmap handheld GPS unit was used to mark the location of items of interest on-site. Heavy tree cover may compromise the accuracy of GPS locations.

A digital camera (Canon 1000D and Canon IXUS)was used to document items of interest.

2 metre squared (m2) quadrants were sampled within the habitats on-site to establish the floral species composition at those points.
The area was inspected for bat use. Principally their signs, such as staining, lack of spider webs, feeding signs or droppings - indicate presence of bats though direct observations are also occasionally made. The nature and type of habitats present are also indicative of the species likely to be present.

The presence or absence of cavities in trees, suitable for bats, was used as an indicator of likely bat presence. Where suitable cavities were found a further visual examination of the area was undertaken using infra-red imaging equipment and a Ciel Electronique CDB 301 HD/FD Bat detector and an Echo Meter Touch 2 (for Android) Bat detector with software app on Samsung Galaxy GT along with both a "V-Scope" flexible fibre borescope and a fibre optic video camera capable of looking into small cavities.
A vantage point within the area allowed visual confirmation of possible bat, owl or pine marten presence in the area under examination.

Survey Constraints

A different floristic diversity may have been evident if the survey was undertaken at other times of year, as succession within plant communities is on-going.

The habitat on-site consists of:
Improved Agricultural Grassland (GA1)
Hedgerows (WL1)
Drainage Ditch (FW4).
Mixed Broadleaved Woodland (WD1)
The habitat on site has been compromised by intensive grazing by horses and plantings of estate trees (Beech Fagus sylvatica)

Improved Agricultural Grassland (GA1):
Silverweed (Potentilla anserine)
Perennial rye grass (Lollium perenne) (90%)
Annual meadow grass(Poa spp.)
Fescue(Festuca spp.)
Scutch grass(Elymus repens)
Daisy (Bellis perrennis)
Clover (Trifolium spp.)
Danelion (Taraxacum spp.)
Lady`s Smock (Cardamine pratensis)
Ragwort (Senecio jacobea)
Buttercup (Ranunculus spp).
Dock (Rumex acetosa)
Thistle (Cirsium spp.)
Chickweed(Stellaria media)
Plantain (Plantago major)
Common Knapweed (Centaurea nigra)
Bush vetch (Vicia sepium)
Common Violet (Viola riviniana)
Nettle (Urtica dioeca)
Cowslip (Primula veris)

Hedgerow (WL1)
Ash (Fraxinus excelsior), (Infected by Ash Dieback disease)
Foxglove (Digitalis purpurea),
Nettle (Urtica dioeca),),
Clover (Trifolium pratense),
Blackthorn (Prunus spinosa)
Ivy (Hedera helix)
Gorse (Ulex europeaus)
Broad Buckler Fern(Dryopteris dilitatis)
Sycamore (Acer pseudoplatanus)
Hawthorn (Crataegus monogyna)

Mixed Broadleaved Woodland (WD1)
Ash (Fraxinus excelsior),(Infected by Ash Dieback disease)
Beech (Fagus sylvatica)
Willow (Salix spp)
Poplar (Populus nigra cv Italica)
Foxglove (Digitalis purpurea),
Nettle (Urtica dioeca),),
Clover (Trifolium pratense),
Blackthorn (Prunus spinosa)

Ivy (Hedera helix)
Gorse (Ulex europeaus)
Broad Buckler Fern(Dryopteris dilitatis)
Sycamore (Acer pseudoplatanus)
Hazel (Corylus avellana)
Scots Pine (Pinus sylvestris)
Lords and Ladies (Arum maculatum)
Briar (Rubus spp.)

Drainage Ditch (FW4)
Mint (Mentha aquatica)
Silverweed (Potentilla anserine)
Common Reed (Phragmites communis)
Duckweed (Lemna minor)

Invertebrates
Crane Fly **(**Tipula Spp.) Shield Bug (Acanthasomosa haemorrhoidale)
Earwig (Forficula auricularia) Honey Bee (Apis mellifera spp.)
Ladybird (Coccinella 7-punctata) Garden Spider (Araneus diadematus)
Woodlouse (Oniscus asellus)
This is not an exhaustive list of the invertebrate species and is merely representative of the species found during field work.

Birds
Birds which were all seen, heard (or can be expected to occur;), Grey wagtail (Motacilla cinerea), Thrush (Turdus philomelos), Blackbird (Turdus merula), Blue Tit (Parus caerulus), Great Tit (Parus major), Chaffinch (Fringilla coelebs), Magpie (Pica pica), Jackdaw (Corvus monedula), , Rook (Corvus frugilegus), Robin (Erithacus rubecula), Starling (Sturnus vulgaris), Wren (Trogolodytes trogolodytes), Dunnock (Prunella modularis), Woodpigeon (Columba palumbus), House Sparrow (Passer domesticus). Greater Spotted Woodpecker (Dendrocopus major).Heron (Ardea cinerea).
There is a heronry in trees on site boundary with pond.
There is a large rookery on site in the Esker Ridge trees and the pond boundary trees.

Mammals
Rat (Rattus norvegicus), Mouse (Mus musculus). Fox (Vulpes vulpes), Hedgehog (Erinaceus europaeus), Mouse (Apodemus sylvaticus), Pygmey Shrew (Sorex minutus), Rabbit (Orcytolagus cuniculus), Stoat (Mustela erminea)
There are no bat roosts but there is a foraging presence.
There is no evidence of active badger presence and there is a disused badger sett on the South West boundary at IG S 47800 97937. The area is now

surrounded by urban development and it is unlikely that there is a foraging presence for this species.

There are no Key Ecological Receptors (KERs) on site. Habitats on site are common locally as are insect, mammal and bird spoecies.

Identification of Natura 2000 sites and compilation of information on their qualifying interests and conservation objectives.

There are three Special Areas of Conservation (SAC) and one Special Protection Area (SPA) within the possible impact zone of the site, as set out for plans in the Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities;
River Barrow and River Nore SAC site code 002162
Ballyprior Grassland SAC SITECODE 002256,
Slieve Blooms Mountains SAC Site code 00412
and Slieve Blooms Mountains SPA SITECODE 004160.

Conservation objectives:

Conservation objectives can be stated as follows:

- Avoid deterioration of the habitats of the qualifying species and species of special conservation interest or significant disturbance to these species thus ensuring the integrity of the sites are maintained.
- To ensure for the qualifying species and species of special conservation interest that the following are maintained in the long-term:
  (1) The population of the species as a viable component of the site

  (2) The distribution and extent of habitats supporting the species

Qualifying species and habitats: River Barrow and River Nore SAC

1016 Desmoulin's whorl snail Vertigo moulinsiana : Not present on site and not vulnerable to this development.
1029 Freshwater pearl mussel Margaritifera margaritifera: No increase in suspended particulate loading anticipated and therefore not affected by to this development.
1092 White-clawed crayfish Austropotamobius pallipes: No increase in suspended particulate loading anticipated and therefore not affected by to this development
1095 Sea lamprey Petromyzon marinus: No increase in suspended particulate loading anticipated and therefore not affected by to this development
1096 Brook lamprey Lampetra planeri: No increase in suspended particulate loading anticipated and therefore not affected by to this development

1099 River lamprey Lampetra fluviatilis: No increase in suspended particulate loading anticipated and therefore not affected by to this development
1103 Twaite shad Alosa fallax: No increase in suspended particulate loading anticipated and therefore not affected by to this development
1106 Atlantic salmon (Salmo salar) (only in fresh water): No increase in suspended particulate loading anticipated and therefore not affected by this development
1130 Estuaries: No increase in suspended particulate loading anticipated and therefore not affected by to this development
1140 Mudflats and sandflats not covered by seawater at low tide: No increase in suspended particulate loading anticipated and therefore not affected by to this development
1310 Salicornia and other annuals colonizing mud and sand: No increase in suspended particulate loading anticipated and therefore not affected by to this development
1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae): No increase in suspended particulate loading anticipated and therefore not affected by to this development
1355 Otter Lutra lutra; Not present on site and no anticipated effect on either habitats or resting places for this species.
1410 Mediterranean salt meadows (Juncetalia maritimi): No increase in suspended particulate loading anticipated and therefore not affected by to this development
1421 Killarney fern Trichomanes speciosum: Not present on site.
1990 Nore freshwater pearl mussel Margaritifera durrovensis: No increase in suspended particulate loading anticipated and therefore not affected by to this development
3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation: No increase in suspended particulate loading anticipated and therefore not affected by to this development
4030 European dry heaths: Not present on site or in the vicinity.
6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels: Not present on site or in the vicinity.
7220 * Petrifying springs with tufa formation (Cratoneurion): Not present and not affected by this development.
91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles: Not present on site and not vulnerable to this development.
91E0 * Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae): Not present on site and not vulnerable to this development.
Source NPWS accessed 11/10/20

Qualifying species and habitats: Slieve Blooms Mountains SAC

Northern Atlantic wet heaths with Erica tetralix [4010] : Not present on site and not vulnerable to this development.
Blanket bogs (* if active bog) [7130] : Not present on site and not vulnerable to this development.
Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] : Not present on site and not vulnerable to this development.

Qualifying Species and Habitats :Slieve Blooms SPA
Hen Harrier (Circus cyaneus) [A082] (Not vulnerable to this development)
There is no pathway or mechanism by which this Natura 2000 site can be impacted.

Qualifying Species and Habitats: Ballyprior Grassland SAC
Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210] (Not Vulnerable to this development).
There is no pathway or mechanism by which this Natura 2000 site can be impacted.

Natura 2000 sites

Site Name	Area reduction	Disturbance	Fragmentation	Density reduction	Water Quality Modification
River Barrow And River Nore SAC	None anticipated	None anticipated	None anticipated	None anticipated	Some anticipated but addressed in stage 2
Slieve Blooms Mountain SAC	None anticipated	None anticipated	None anticipated	None anticipated	None anticipated
Slieve Blooms Mountain SPA	None anticipated	None anticipated	None anticipated	None anticipated	None Anticipated
Ballyprior Grassland SAC	None anticipated	None anticipated	None anticipated	None anticipated	None Anticipated

Assessment of Likely Effects

Potential impacts on Natura 2000 sites from the proposed development are not anticipated but a stage two assessment has been completed to ensure no negative impact on the Natura sites occurs.

Based on the available information and data is not expected that the proposed project will cause any impact on the SAC's or SPA`s located within 15 km of the project site. It is of such a scale that it will cause neither change nor have any significant adverse direct, indirect or secondary impacts on the integrity of any Natura 2000 sites within the threshold distance.

More specifically, there will be no reduction in habitat area; no disturbance of key species, habitat or species fragmentation; no reduction in species density; no changes in key indicators of conservation value. Little significant negative impact to local flora will occur because these habitats are common locally and much of the flora will remain post works. Fauna in the footprint of the development is likely to be adversely affected during works. Any relocation of fauna during the proposed development may relocate back to undeveloped parts of the site post construction. No Key Ecological Receptors are currently found on site. Bats are using the boundary to commute/forage.

Potential impacts on Natura 2000 sites from the proposed development is restricted to discharge of surface and foul water from the site. All foul water from the site eventually discharges to waste water treatment works and then disposal, and therefore will not impact on the aquatic habitats of the Natura sites within the 15km threshold distance.

To meet the requirements of the surface water policy the surface water treatment will be based on an attenuation techniques, the surface water will be attenuated on site by the use of permeable paving, together with necessary attenuation tanks.

Based on the available information and data is not expected that the proposed project will cause any impact on the SAC's or SPA's located within 15 km of the project site. It is significantly removed and of such a scale within an existing serviced area that it will cause neither changes nor have any significant adverse direct, indirect or secondary impacts on the integrity of any Natura 2000 sites within the threshold distance.

More specifically, there will be no reduction in habitat area; no disturbance of key species, habitat or species fragmentation; no reduction in species density; no changes in key indicators of conservation value and no climate change brought about

Because there is a potential for water quality deterioration in the local watercourse a stage two assessment has been carried out to ensure no

change in water quality and no climate change is brought about to the SAC and SPA sites within the likely impact zone.

Likely Significant Effects

Identification of Potential Impacts

The identification of potential impacts in this section uses the "*source- pathway-receptor*" model. According to this model, for an impact to exist, all three of the following criteria must be met: -

· Some aspect of the plan or project must act as a source of an impact,

· There must be a pathway capable of conveying the impact to a receptor, and

· The receptor must be sensitive to the impact.

In Combination/Cumulative Impacts

This proposed development will have no significant negative impact in combination or cumulatively with other planned projects proposed for the locale. There are a small number of applications for planning in the immediate area:

Stradbrook Apartments,

Glendowns Estate

Tyrells land – new entrance.

Work at St Finians Hospital.

The area is heavily developed with many residential and commercial projects completed.

Any projects within the scope of this assessment including construction of new domestic dwellings or extensions to such dwellings, and retention of existing developments, typically extensions to domestic dwellings will have to comply with the EPA's Code of Practice for Wastewater Treatment Systems for Development sites and have conditions attached to their planning permission, such as foul and surface water drainage, and clean surface water run-off drainage facilities. Projects of this scale are not expected to give rise to significant disturbance of hydrological impacts. Therefore, the proposed works are not likely to significantly affect the River Barrow and River Nore SAC or other European sites in combination with these projects.

None of the habitat loss is locally, nationally or internationally important.

Key Environmental Receptors are not present on site. As such, there is no potential for the proposed development to contribute to any significant cumulative habitat loss when considered in combination with any other plans and projects.

No significant effects as a result of the proposed development in relation to disturbance, displacement or mortality of faunal species has been identified. The proposed development will not result in any significant residual effects on biodiversity and will not contribute to any cumulative effect when considered

in combination with other plans and projects. In the review of the projects that was undertaken, no connection that could potentially result in additional or cumulative impacts was identified. Neither was any potential for different (new) impacts resulting from the combination of the various projects and plans in association with the proposed development.
Specifically there will be no loss of Key Ecological Receptor habitats or species.
There will be no impact on population numbers of Key Ecological Receptors.
There will be no fragmentation of Key Ecological Receptor habitats or species.
There is a possibility for negative impact on aquatic Natura 2000 sites within the potential impact zone.
There will be no effect on the natural range of protected habitats or species, and areas they cover within that range, are stable or increasing
The specific structure and functions which are necessary for the long-term maintenance of species and habitats exist and are likely to continue to exist for the foreseeable future
The conservation status of habitats and species is favourable.

There will be no effects on the population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats
The natural range of the species will neither be reduced nor is likely to be reduced for the foreseeable future
There is and will probably continue to be, a sufficiently large habitat to maintain its population on a long-term basis. There will be no works within the River Barrow and River Nore SAC. The SAC is 13km downstream from the proposed works along the Triogue River.
During the proposed works, there will be some disturbance to habitats and species within the area of the proposed works, associated with the main works items and access and egress by vehicles, plant and personnel. While there will be impacts on pond side vegetation, removal of emergent vegetation along the pond banks is not part of this proposal;
Hydrological impacts
Water quality
Due to the nature of the proposed works, they give rise to potential impacts on water quality through the input or resuspension of fine sediment and input of hydrocarbons, as follows: -
· Sources of potential fine sediment input include release of soil from the banks of the lake due to disturbance during construction and working by the excavator. Sources of fine sediment resuspension include any silts generated when moving the excavator between working points. Plumes of silt or fine sediment can directly affect aquatic fauna, e.g. by clogging their gills, and can also reduce habitat quality, e.g. by smothering of spawning gravels for

salmonid species. Suspended sediment can also interact with other pollutants, magnifying their effects.
Sources of hydrocarbon input include leaks of substances such as fuel, e.g. petrol or diesel, or lubricating oil from vehicles, plant or equipment. Hydrocarbons can have direct toxic effects on the flora and fauna of contaminated waters and soils.
The probability of any pollution incident occurring is low and any such incident would likely be localised and of a small magnitude and short duration.
Flooding regime
The Office of Public Works (OPW) Flood Risk Mapping identifies Stradbally Road at the outflow from Glendowns Pond as an area subject to repeat flooding (MCOS, 2004). A trash gate, often fitted as part of flood relief works is fitted on the outflow channel from the Lake (just before it is culverted under Stradbally Road, N80). No changes to the current quality or quantity of water at this outflow are anticipated during construction works or in the operational phase of this proposed development.

Screening Conclusion and Statement

This process was carried out to ascertain if the project was likely to have significant effects on the Natura 2000 sites within the threshold distance of the project site. A secondary, minor, negative impact on the River Barrow And River Nore SAC could occur. It is of such a scale that it will cause neither change nor have any significant adverse direct, indirect or secondary impacts on the integrity of any Natura 2000 sites within the threshold distance with the changes made at design stage as outlined at Natura Impact Assessment.
There are no “in combination” effects from this proposed development anticipated. More specifically, there will be no reduction in habitat area; no disturbance of key species, habitat or species fragmentation; no reduction in species density; no changes in key indicators of conservation value, and no climate change brought about to the SAC and SPA sites within the 15 kms zone.

Following the review of the project in accordance with the Guidance for Planning Authorities entitled “Appropriate Assessment of Plans and Projects in Ireland”, this screening has established that the project poses a potential for minor secondary impacts on the aquatic Natura 2000 site and as such requires further Natura Impact Assessment.

Gerry Tobin BSc, MA
Environmental Consultant

Stage 2 Natura Impact Statement

Measures at design stage that will prevent negative impacts on Natura sites within the potential impact zone:

Potential impacts on Natura 2000 sites from the proposed development are largely restricted to discharge of surface water from the site. All foul water from the site eventually discharges to the waste water treatment works and then disposal, and therefore will not impact on the habitats of the Natura sites within the 15km threshold distance.

This Report found that, in the absence of appropriate measures, the proposed works have the potential to adversely affect the conservation objectives for a number of qualifying interests of River Barrow and River Nore SAC.

The potential for such effects arises in the main due to the risk of water quality impacts associated with the works. This section prescribes environmental protection measures to address these potential impacts and, thereby, eliminate the possibility of adverse effects.

The development of the environmental protection measures prescribed in this section has followed the "*mitigation hierarchy*", which prioritises avoidance over reduction, and actions at source over pathway over receptor, as follows:

-

1. Eliminate the source of the impact,
2. Minimise or reduce the impact at its source,
3. Block or weaken the pathway for effects, and
4. Abate effects at the receptor.

This approach assists with more complete removal of the effects, minimises the risk of effects occurring by less obvious pathways, also protects non-target receptors, and minimises the risks of unintended harm associated with measures focussed at or near the receptors.

General Measures

An Ecological Clerk of Works (ECoW) will be appointed and will supervise all aspects of the critical works on site, in particular initial site set up, use of cement, demobilisation etc.

The ECoW appointed must have demonstrable experience in providing ecological/environmental oversight on construction sites, including sites where sensitive watercourses are present.

The ECoW will ensure compliance with required environmental protection measures on site and liaise with IFI and NPWS staff where required. The ECoW will be required to report on their site attendance / findings to Laois County Council.

All site staff will be informed of best practice methodologies to be employed on site via the dissemination of a tool-box talk to be given by the ECoW. This shall include the requirement for protection of aquatic habitats, the sensitivity of the SAC. No invasive species were recorded in the vicinity of the works area.

Works will be carried out during day-time hours, except in the event of an emergency (to be agreed with Laois County Council).
Operators will check the machinery on site on a daily basis before starting work to confirm the absence of leakages. Any leakages should be reported immediately. Any items of plant machinery found to be defective will be removed from site immediately or positioned in a place of safety until such time that it can be removed. All items of plant will be checked prior to use before each shift for signs of wear/damage.
There can be no entry of debris and / or waste material from the works area to the drainage ditch or pond area. All debris must be collected within the dry work area, removed from the work area and disposed of appropriately off site.
All material used on site, including the silt fences /sedimats, will be removed from site and disposed of at an appropriate offsite facility.

Specific Measures

Vegetation
Removal / pruning of any shrubs in the vicinity of the compound / works area should be kept to a minimum during proposed works. Trees along the banks of the pond form effective shelter belts which create areas of high local insect abundance which will be exploited by foraging bats. Lines of trees create wildlife corridors along which bats may navigate and commute between roost and foraging sites. As noted, rubber mats will be used where necessary to prevent damage to the ground where machine will be working/travelling. This shall be supervised by the ECoW.
Removal of emergent vegetation along the banks of the pond is to be minimised. This shall be supervised by the ECoW.
No works are to take place in the inflow stream (Little Borris Stream).
Works are to be avoided at the confluence of the inflow stream (Little Borris Stream) and the pond. Works in this area shall be supervised by the ECoW. These initial works will also allow the ECoW to observe and advise the excavator operator on undertaking works while minimising ecological impacts.

Water Quality

The following measures shall apply to prevent water quality impacts generally:-
During all stages of construction, site management shall ensure that good housekeeping is maintained at all times and that all site personnel are made aware of the importance of the freshwater environments and the requirement to avoid pollution.
Tools and equipment shall not be cleaned in any watercourse and wash water shall not be discharged directly into any watercourse or road drains without appropriate treatment.
The Contractor shall make daily checks for elevated water levels/flows in the stream and weather warnings or flood alerts from Met Éireann and/or Laois

County Council. All areas of exposed soil (slippage) shall be securely covered with hessian matting if heavy rain is predicted. Works may resume once any flood waters have receded and any warning/alert been lifted.
If heavy rainfall is predicted, works carrying the greatest risk of pollution (e.g. any works involving wet concrete or other cementitious material) shall be suspended and all plant, equipment, construction materials and personnel shall be removed from the potential flood zone.
The Contractor shall undertake daily visual checks of water coloration (turbidity) for signs of silt escapement from the works area downstream of silt control measures. Should signs of silt escapement be identified works will be suspended until remedial measures are put in place.
In addition, the measures in the following sub-sections shall apply to control the risk of water quality impacts from specific sources.
Silt / Run-off
The following measures shall be implemented to minimise the quantity of surface water run-off from the works area entering the drainage channel, and to minimise any potential contamination of such run-off by fine sediment or other deleterious matter: -
The following measures are proposed to prevent silt laden waters entering the drainage channel.
a. A series of 3 no. silt fences / sedimats will be placed along the length of the channel as culverting is undertaken. These will be placed c. 10m apart.
b. The placement of these measures will be supervised by the ECoW.
c. The proposed arrangement would be to place a Sedimat initially to absorb the bulk of the silt followed by 2 no. silt fences.
d. Silt fences will be checked daily by the site foreman and also by the ECoW when they attend site. Should signs of silt escapement be identified works will be suspended until remedial measures are put in place.
At no point will any equipment be washed out within the work area or adjacent to a watercourse.
Biosecurity protocols
No invasive species were recorded in the vicinity of the drainage ditch.
Biosecurity protocols shall be implemented during the construction phase of the proposed project to prevent the introduction of invasive species listed on the third schedule of the EC (Birds and Natural Habitats) Regulations 2011 to site and the further spread of diseases.
1. All equipment intended to be used at the site shall be dry, clean and free from debris prior to being brought to site.
2. If drying out of equipment is not feasible, equipment should be either: -
Power steam washed at a suitably high temperature of at least 65 degrees, or
Disinfected with an approved disinfectant, e.g. Virkon or an iodine-based product. It is important that the manufacturer’s instructions are followed and if required, the correct contact times are allowed for during the disinfection

process. Items that are difficult to soak should be sprayed or wiped down with disinfectant.
3. During the duration of the proposed project, if equipment is removed off-site to be used elsewhere, the said equipment shall be cleaned and disinfected prior to being brought back to the works area of the proposed project.
4. Appropriate facilities shall be used for the containment, collection and disposal of material and/or water resulting from washing facilities of vehicles, equipment and personnel.
5. Importation of materials shall comply with Regulation 49 of the EC (Birds and Natural Habitats) Regulations 2011.
A pre-construction invasive species survey will be conducted prior to the commencement of works on site. If any invasive species are recorded, these shall be fenced off using a 7m buffer from the outermost edges of the invasive species plant(s).

Surface water flows during the construction phase of the proposed development will be attenuated through permeable soils on site.
The surface water discharged during the operational phase of the proposed development will enter sewer network and consequentially there will no net decrease in the quality of water discharged.
All activities and storage of materials will be carried out in such a way as to minimise impact. All vehicles will be refuelled on a bunded surface. This will prevent fouling of road surfaces and subsequent discharge to gulley traps in the roads.
The contractor's compound and temporary fencing required by the contractor for his use during this contract shall be removed completely by the contractor on completion of the works and re-instated to the architect/engineer's satisfaction.
The sequence of work generally is subject to agreement before commencement on site.
No works shall take place after 20.00 hrs each Day.

Pollution:
Prevention: Protect the site, the works and the general environment (including streams and waterways) against pollution.
Contamination: If pollution occurs, report immediately, including to the appropriate authorities, and provide relevant information.
Pesticides: Use: Not permitted.
Dangerous or Hazardous Substances
Duty: Report immediately suspected materials discovered during execution of the works.
Do not disturb.
Agree methods for safe removal or remediation.

Fire Prevention

Duty: Prevent personal injury, death, and damage to the Works or other property from fire.

Standard: Comply with Joint Code of Practice 'Fire Prevention on Construction Sites', published by Construction Industry Publications and The Fire Protection Association (The "Joint Fire Code").

Burning on Site: Burning on site not permitted.

Waste: Includes rubbish, debris, spoil, containers and packaging, and surplus material requiring disposal.

Requirement: Minimize production and prevent accumulation of waste. Keep the site and works clean and tidy. Clean out voids and cavities in the construction before closing.

Disposal: Collect and store in suitable containers. Remove from site and dispose of in a safe and competent manner, as approved and directed by the waste regulation authority.

Recyclable material: Sort and dispose of at a materials recycling facility approved by the waste regulation authority.

Documentation: Retain on-site.

Removal contractors must hold: A waste collection permit issued by the waste management authority.

A license issued by the Environment Protection Agency (EPA) for specified waste recovery and disposal activities.. A permit from a local authority or certificate of registration from the EPA/ local authority.

Invasive Species

There is currently (07/04/2025) no invasive species present on site.

General: Prevent the spread of species (e.g. plants or animals) that may adversely affect the site or works economically, environmentally or ecologically.

Duty: Report immediately any suspected invasive species discovered during execution of the works.

Do not disturb. Agree methods for safe eradication or removal.

Roads and Footpaths:

Duty: Maintain roads and footpaths within and adjacent to the site and keep clear of mud and debris.

Damage caused by site traffic or otherwise consequent upon the Works: Make good to the satisfaction of the Employer, Local Authority or other owner.

Wildlife Species and Habitats

There are currently (07/04/2025) no protected species or habitats present on site. During the course of construction works should protected habitats and species be discovered to have entered the site immediately advise. Do not proceed until instruction is received.

Education: Ensure that employees and visitors to the site receive suitable instruction and awareness training.

Boundaries: No trees on Esker ridge will be removed unless there is a public safety necessity.
The wet area at the North east boundary with Glendowns Estate will be allowed remain post construction.
Culverting of drainage ditch: Machine will move to position beside bank of the ditch and remain a minimum of 1.5m from the edge. Silt traps will be put in place along the outflow channel to minimise the silt travelling downstream. The excavator will clear silt and debris within its reach and stack/pile in neat stacks on the ditch bank. This will allow for natural drainage of material and allow insects etc. to make their way back into the aquatic habitats.
Biodiversity Interactions:
All environmental factors are interlinked to a degree such that interrelationships exist on numerous levels. Interactions within the study area can be one-way interactions, two-way interactions and multiple-phase interactions which can be influenced by the proposed development. The purpose of examining these interactions is to draw attention to significant interaction and interrelationships in the existing environment and to ensure that appropriate measures were incorporated into the design process.
Biodiversity / Soils
When soil is exposed after vegetative clearance there may be increased run-off and evaporation. Mitigation measures will be implemented during construction to prevent this run-off water from discharging directly to watercourses. Potential construction stage effects arising from the general loss and fragmentation of some habitats and reduction of associated opportunities for biodiversity are considered neutral to slight negative during the construction phase, while potential operational stage effects are considered imperceptible neutral as new planting/landscaping matures. Residual soils arising as a result of excavation at the development site will be used in landscaping works in the proposed public open space as much as possible rather than transporting off-site.

Biodiversity / Water
When land surfaces are exposed after vegetative clearance there may be increased run-off and evaporation. Mitigation measures will be implemented during construction to prevent this run-off water from discharging directly to watercourses. The implementation of construction and operational phase soils and water management proposals, together with the site drainage design will adequately reduce such potential impacts arising from the proposed development site on these aquatic habitats in the wider area. Potential construction and operational phase effects on biodiversity associated with aquatic habitats in the wider area are considered imperceptible neutral with the implementation of soils and water management proposals.

Biodiversity / Noise /Air Quality

Increased noise levels during the construction phase will only be temporary and are not expected to have a long-term significant adverse effect upon remaining fauna within the wider landscape. Operational noise will be audible at a low level in the ambient noise and the impact is predicted to be minor.

Exposed soil during the construction phase of the proposed scheme may give rise to increased dust emissions. However, the implementation of dust management and dust control measures will ensure that the proposed development will not give rise to the generation of any significant quantities of dust.

Biodiversity / Landscape

The landscape masterplan proposed as part of the proposed development will retain and enhance the remaining hedgerows features with native planting, tree cluster/treelines, small areas of wildflower meadow and parkland/garden habitat. Potential construction stage effects arising from the general loss and fragmentation of some habitats and reduction of associated opportunities for biodiversity are considered neutral to slight negative during the construction phase, while potential operational stage effects are considered imperceptible neutral as new planting/landscaping matures. Due to the existing degraded nature of the habitats on site the loss of these will have little residual negative impact on this locality and no residual impact in the national or international context. Otherwise the successful implementation of the measures as outlined, together with the landscape masterplan will minimise the potential impacts of the proposed development on local biodiversity such that its residual impact on other habitats, flora and fauna will be imperceptible neutral overall. There will be an increase in ecological niche availability associated with the post construction phase of this proposed development. The removal of some vegetation within the development footprint and surrounding areas is likely to result in a change to the visual landscape during the construction phase, which will become part of the normal landscape of the wider area for the duration of the operational phase. The visual effect of this change is considered to be long-term, localised and slight.

Following desktop and fieldwork scoping studies it can be shown that there will be no significant adverse effects as a result of the proposed development in relation to disturbance, displacement or mortality of faunal species has been identified.

Equally it has been shown that there will be no significant adverse impacts on habitats or species of conservation concern.

Therefore, there is no potential for the proposed development to contribute to any cumulative effect to a loss of Key Environmental Receptors. The proposed development will not result in any significant residual effects on biodiversity and will not contribute to any cumulative effect when considered in combination with other plans and projects.

Lighting:

Lighting has increased dramatically over the last number of years as a result of many new developments. This includes aesthetic lighting of bridges, monuments and buildings, flood lighting of sports grounds, street and road lighting and security lighting of urban and rural areas to name but a few. Lighting can impact on bats' roosting sites, commuting routes and foraging areas. Contrary to common belief, bats are not blind. While bats tend to rely on a type of sonar, known as echolocation, for orientation and hunting during the hours of darkness, vision is still an important sense for bats. When bats emerge from roosts early in the evening, they tend not to echolocate but rely on eyesight to fly from the roost to adjoining treelines or hedgerows. Various studies have shown that bats' eyesight works best in dim light conditions. Where there is too much luminance, bats' vision can be reduced resulting in disorientation. While light sensitivity varies between species, bats tend to have a higher tolerance for red visual light than white light. Short wave frequency (UV) light is most disturbing for bats. This is due to the fact that bats have a higher proportion of rods in their retina compared to cones. The rods allow greater absorption of light in dim conditions. Too much luminance at bat roosts may cause bats to desert a roost. Light falling on a roost exit point can delay bats from emerging and miss peak levels of insect activity at dusk. Any delays of emergence can reduce feeding periods. Lighting can also disturb bats' feeding behaviour. Many night flying insects are attracted to lights especially those lamps that emit UV light. A single source of light in a dark area can cause local insect populations to congregate in concentrations around the light source. While some Irish bat species such as Leisler's bats will opportunistically feed on such insect gatherings, the majority of Irish bat species are too sensitive to such light sources and suffer from insect populations being reduced in traditional feeding areas. In addition, artificial lighting can increase the chances of bats being preyed on. Lighting can be particularly harmful to bat populations along river corridors, woodland edges, along hedgerows and treelines and at lake edges.

Types of light

Low Pressure Sodium (SOX) – this light (typically orange light) is emitted at a single wavelength with a very low amount of UV. Therefore very few insects are attracted to this light source and it has a minimal effect on bats. High Pressure Sodium (SON) – this light (typically pinkish-yellow light) is emitted over a slightly broader wavelength spectrum. It is a more intense light so attracts more insects and has a greater impact on bats. Metal Halide & Mercury vapour– these are white light sources that emits light at wavelengths across the colour spectrum and emits high levels of UV. These light types can attract high levels of insects and because it is a close match to daylight has a greater impact on bats. Metal halide typically comes in three types: Quartz arc tube; Ceramic arc tube and Cosmo ceramic. Luminary (Light) accessories Shields – these can be mounted at the front or back of luminaire. Masking –

by painting a section of the luminaire protectors, light will be blocked from penetrating through. Louvres – these can be either internal or external rows of slates angled to block light in a certain direction.
Avoid lighting along rivers, lakes and canals. Avoid lighting along important commuting routes. Avoid the use of mercury or metal halide lamps Minimise light spills using shields, masking & louvres Keep light columns as low as possible Restrict lights to ensure that there are dark areas Restrict lights to ensure that there are dark hours.
Sensor lighting to reduce energy wastage.
Use of planting to reduce impacts of lighting.
Use of demountable columns.
Screening to reduce impacts of lighting.
Assessment of lighting regime after installation.
Greater use of the solar clock to control timing of lighting.

Predicted and Residual impact of the proposal

This Natura Impact Statement Report has examined the details of the proposed development at Tyrells Land, Stradbally Road, Portlaoise, Co. Laois and the European sites in the Zone of Influence. It has analysed the potential impacts of the proposed works on the receiving natural environment and evaluated their effects, both individually and in combination with other plans and projects, in view of the conservation objectives of the relevant European sites. This report has been prepared in line with the Habitats Directive, as transposed into Irish law by the Habitats Regulations, relevant case law and guidance from the European Commission, the Department of the Environment, Heritage and Local Government and the Office of the Planning Regulator, on the basis of objective information and adhering to the precautionary principle.
Following a comprehensive evaluation of the potential direct, indirect and cumulative impacts on the qualifying interests for the SAC, and the implementation of the proposed environmental protection measures, it has been concluded by the author of this report that there will be no residual impacts and the proposed project will not have an adverse effect on the integrity of River Barrow and River Nore SAC or any other European site.

Bibliography

- **CIRIA, (2002). Control of Water Pollution on Construction Sites-Guide to Good Practice (SP156). 6 Storey's Gate, Westminster, London.**
- **CIRIA, (2001). Control of Water Pollution from Construction sites-Guidance for Consultants and Contractors (C532). 6 Storey's Gate, Westminster, London.**
- **CIRIA, (2006). Control of Water Pollution from Linear Construction Projects -Technical Guidance (C649). 6 Storey's Gate, Westminster, London.**
- **CIRIA, (2006). Control of Water Pollution from Linear Construction Projects- Site Guide (C649). 6 Storey's Gate, Westminster, London.**
- **CIRIA, (2005). Environmental Good Practice – Site Guide (C650). 6 Storey's Gate, Westminster,London.**
- **Dempsey E.,O'Cleary M. "The Complete Guide to Ireland's Birds" 2nd Edition., Gill and Macmillan 2002.**
- **DoEHLG, (2010) 'Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities'. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin.Town D0177-01. Environmental Protection Agency..**
- **EEC" (2019/C 33/01) "Managing Natura 2000 sites - The provisions of Article 6 of the 'Habitats' Directive 92/43/**
- **EEC" (2021/C 437/01) "Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/**
- **DoEHLG, (2010) 'Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities'. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin. Town D0177-01. Environmental Protection Agency..**
- **EC Directive on The Conservation of Natural habitats and of Wild Fauna and Flora (HabitatsDirective) 1992.**
- **European Commission. 2000. Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC. Office for Official Publications of the European Communities, Luxembourg.**
- **European Commission. 2002. 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. Office for Official Publications of the European Communities, Luxembourg.**
- **European Commission (2000) Communication from the Commission on the Precautionary Principle. Office for Official Publications of the European Communities, Luxembourg.**
- **European Commission (2000a) Managing Natura 2000 sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.**

Luxembourg: Office for Official Publications of the European Communities.

- **European Commission (2002) Assessment of Plans and Projects significantly affecting Natura 2000 sites, Methodological guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EC. Luxembourg: Office for Official Publications of the European Communities.**
- **European Commission (2002) Managing Natura 2000 sites: The provisions of Article 6 of 'The Habitats' Directive 92/43/EEC.**
- **European Commission (2006) Nature and Biodiversity Cases: Ruling of the European Court of Justice. Office for Official Publications of the European Communities, Luxembourg.**
- **European Commission (2007) Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC.**
- **European Commission (2007a) EU Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons for overriding public interest, compensatory measures, overall coherence. Opinion of the Commission.**
- **European Commission (2007) Directorate-General for Environment, Terry, A. and Temple, H., The status and distribution of European mammals, Publications Office, 2007,**
- **European Commission (2013) Interpretation Manual of European Union habitats EUR 28.**
- **European Commission (2017) Natura 2000 and spatial planning, Publications Office, 2017, https://data.europa.eu/doi/10.2779/2947.**
- **European Commission (2019) Managing Natura 2000 sites: The provisions of Article 6 of 'The Habitats' Directive 92/43/EEC. (Commission Notice 2018)**

- **European Commission (2020) Directorate-General for Environment, Guidance document on wind energy developments and EU nature legislation, Publications Office of the European Union, 2021, https://data.europa.eu/doi/10.2779/095188**
- **European Commission (2021) Assessment of plans and projects in relation to Natura 2000 Sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EC. Available at: https://eur-lex.europa.eu/legalcontent/EN/TXT/?uri=CELEX%3A52021XC1028%2802%29**
- **European Commission (2021) Guidance document on the strict protection of animal species of Community interest under the Habitats Directive. (Commission Notice 2018) Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=PI_COM:C(2021)7301**

- **European Commission (2021) The strict protection of animal species of Community interest under the Habitats Directive, Guidance document – A summary. Directorate-General for Environment, Publications Office of theEuropean Union, Available at: https://data.europa.eu/doi/10.2779/3123**
- **European Commission (2022) Directorate-General for Environment, Europeanredlist of birds 2021, https://data.europa.eu/doi/10.2779/959320**
- **European Commission. 2007. Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC**
- **European Commission. 2007. EU Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC. Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the Commission. IEEM. 2006.**
- **Fossitt J., "A Guide to Habitats in Ireland", The Heritage Council 2000.**
- **Hayden T and Harrington R., 2000, "Exploring Irish Mammals" Town House and Country House Ltd, .**
- **IFI, (2010). IFI Biosecurity Protocol for Field Survey Work. Inland Fisheries Ireland, Swords Business Campus, Swords, Co. Dublin, Ireland.**
- **IFI, (2016). Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters. Inland Fisheries Ireland, Swords Business Campus, Swords, Co. Dublin, Ireland.**
- **Marnell, F, Kingston, N and Looney, D. NPWS, Ireland Red List no. 3 Terrestrial Mammals, Dept. Of the Environment, Heritage and Local Govt. Dublin 2009.**
- **NPWS . Site synopses of Natura sites accessed July 2022**
- **NPWS (2013a) The Status of EU Protected Habitats and Species in Ireland. Habitat Assessments Volume 2. Version 1.0. Unpublished Report, National Parks & Wildlife Services. Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.**
- **NPWS (2013b) The Status of EU Protected Habitats and Species in Ireland. Species Assessments Volume 3, Version 1.0. Unpublished Report, National Parks & Wildlife Services. Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.**
- **NPWS Conservation Objectives Natura Sites accessed July 2022**
- **NRA, (2010). Guidelines on the Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads. National Roads Authority, St Martin's House, Waterloo Roads, Dublin 4.**

- **OPR (2021) Appropriate Assessment Screening for Development Management, Practice Note PN01. Office of the Planning Regulator March 2021.**
- **OPR (2021) Environmental Impact Assessment Screening, Practice Note PN02. Office of the Planning Regulator June 2021.**
- **Regan, E.C., Nelson, B., Aldwell, B., Bertrand, C., Bond, K., Harding, J., Nash, D., Nixon, D., & Wilson, C.J. (2010)Ireland Red List no. 4 Butterflies, NPWS, Dept. Of the Environment, Heritage and Local Govt. Dublin 2009.**
- **Webb D.A., Parnell J. and Doogue D., 1996 "An Irish Flora", Dungalgan Press Ltd, Dundalk.**
- **Whilde A., 1993 "The Irish Red Data Book 2: Vertebrates", HMSO Belfast**
- **https://www.opr.ie/wp-content/uploads/2021/03/9729-Office-of-the-Planning-Regulator-Appropriate-Assessment-Screening-booklet-15.pdf**

Appendix
Natura 2000 Sites

Site Name: River Barrow and River Nore SAC
Site Code: 002162
This site consists of the freshwater stretches of the Barrow and Nore River catchments as far upstream as the Slieve Bloom Mountains, and it also includes the tidal elements and estuary as far downstream as Creadun Head in Waterford. The site passes through eight counties – Offaly, Kildare, Laois, Carlow, Kilkenny, Tipperary, Wexford and Waterford. Major towns along the edge of the site include Mountmellick, Portarlington, Monasterevin, Stradbally, Athy, Carlow, Leighlinbridge, Graiguenamanagh, New Ross, Inistioge, Thomastown, Callan, Bennettsbridge, Kilkenny and Durrow. The larger of the many tributaries include the Lerr, Fushoge, Mountain, Aughavaud, Owenass, Boherbaun and Stradbally Rivers of the Barrow, and the Delour, Dinin, Erkina, Owveg, Munster, Arrigle and King's Rivers on the Nore.

Both rivers rise in the Old Red Sandstone of the Slieve Bloom Mountains before passing through a band of Carboniferous shales and sandstones. The Nore, for a large part of its course, traverses limestone plains and then Old Red Sandstone for a short stretch below Thomastown. Before joining the Barrow it runs over intrusive rocks poor in silica. The upper reaches of the Barrow also run through limestone. The middle reaches and many of the eastern tributaries, sourced in the Blackstairs Mountains, run through Leinster Granite. The southern end, like the Nore runs over intrusive rocks poor in silica. Waterford Harbour is a deep valley excavated by glacial floodwaters when the sea level was lower than today. The coast shelves quite rapidly along much of the shore.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):
[1130] Estuaries
[1140] Tidal Mudflats and Sandflats
[1170] Reefs
[1310] Salicornia Mud
[1330] Atlantic Salt Meadows
[1410] Mediterranean Salt Meadows
[3260] Floating River Vegetation
[4030] Dry Heath
[6430] Hydrophilous Tall Herb Communities
[7220] Petrifying Springs*
[91A0] Old Oak Woodlands Version date: 9.2.2016 2 of 7
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[91E0] Alluvial Forests*
[1016] Desmoulin's Whorl Snail (Vertigo moulinsiana)
[1029] Freshwater Pearl Mussel (Margaritifera margaritifera)
[1092] White-clawed Crayfish (Austropotamobius pallipes)
[1095] Sea Lamprey (Petromyzon marinus)
[1096] Brook Lamprey (Lampetra planeri)
[1099] River Lamprey (Lampetra fluviatilis)
[1103] Twaite Shad (Alosa fallax)
[1106] Atlantic Salmon (Salmo salar)
[1355] Otter (Lutra lutra)
[1421] Killarney Fern (Trichomanes speciosum)
[1990] Nore Freshwater Pearl Mussel (Margaritifera durrovensis)

Good examples of alluvial forest (a priority habitat on Annex I of the E.U. Habitats Directive) are seen at Rathsnagadan, Murphy's of the River, in Abbeyleix estate and along other shorter stretches of both the tidal and freshwater elements of the site. Typical species seen include Almond Willow (Salix triandra), White Willow (S. alba), Rusty Willow (S. cinerea subsp. oleifolia), Crack Willow (S. fragilis) and Osier (S. viminalis), along with Iris (Iris pseudacorus), Hemlock Water-dropwort (Oenanthe crocata), Wild Angelica (Angelica sylvestris), Thin-spiked Wood-sedge (Carex strigosa), Pendulous Sedge (C. pendula), Meadowsweet (Filipendula ulmaria), Common Valerian (Valeriana officinalis) and the Red Data Book species Nettle-leaved Bellflower (Campanula trachelium).
A good example of petrifying springs with tufa formations occurs at Dysart Wood along the Nore. This is a rare habitat in Ireland and one listed with priority status on Annex I of the E.U. Habitats Directive. These hard water springs are characterised by lime encrustations, often associated with small waterfalls. A rich bryophyte flora is typical of the habitat and two diagnostic species, Palustriella commutata and Eucladium verticillatum, have been recorded.
The best examples of old oak woodlands are seen in the ancient Park Hill woodland in the estate at Abbeyleix; at Kyleadohir, on the Delour, Forest Wood House, Kylecorragh and Brownstown Woods on the Nore; and at Cloghristic Wood, Drummond Wood and Borris Demesne on the Barrow, though other patches occur throughout the site. Abbeyleix Woods is a large tract of mixed deciduous woodland which is one of the only remaining true ancient woodlands in Ireland. Historical records show that Park Hill has been continuously wooded since the 16th century and has the most complete written record of any woodland in the country. It supports a variety of woodland habitats and an exceptional diversity of species including 22 native trees, 44 bryophytes and 92 lichens. It also contains eight indicator species of ancient woodlands. Park Hill is also the site of two rare plants, Nettle-leaved

bellflower and the moss Leucodon sciuroides. The rare Myxomycete fungus, Licea minima has been recorded from woodland at Abbeyleix.

Oak woodland covers parts of the valley side south of Woodstock and is well developed at Brownsford where the Nore takes several sharp bends. The steep valley side is covered by oak (Quercus spp.), Holly (Ilex aquifolium), Hazel (Corylus avellana) and Downy Birch (Betula pubescens), with some Beech (Fagus sylvatica) and Ash (Fraxinus excelsior). All the trees are regenerating through a cover of Bramble (Rubus fruticosus agg.), Foxglove (Digitalis purpurea), Great Wood-rush (Luzula sylvatica) and Broad Buckler-fern (Dryopteris dilatata). On the steeply sloping banks of the River Nore, about 5 km west of New Ross, in Co. Kilkenny, Kylecorragh Woods form a prominent feature in the landscape. This is an excellent example of relatively undisturbed, relict oak woodland with a very good tree canopy. The wood is quite damp and there is a rich and varied ground flora. At Brownstown, a small, mature oak dominated woodland occurs on a steep slope. There is younger woodland to the north and east of it. Regeneration throughout is evident. The understorey is similar to the woods at Brownsford. The ground flora of this woodland is developed on acidic, brown earth type soil and comprises a thick carpet of Bilberry (Vaccinium myrtillus), Heather (Calluna vulgaris), Hard Fern (Blechnum spicant), Common Cow-wheat (Melampyrum pratense) and Bracken (Pteridium aquilinum). Borris Demesne contains a very good example of a semi-natural broadleaved woodland in very good condition. There is quite a high degree of natural re-generation of oak and Ash through the woodland. At the northern end of the estate oak species predominate. Drummond Wood, also on the Barrow, consists of three blocks of deciduous woods situated on steep slopes above the river. The deciduous trees are mostly oak species. The woods have a well-established understorey of Holly, and the herb layer is varied, with Bramble abundant. The whitebeam Sorbus devoniensis has also been recorded here. Eutrophic tall herb vegetation occurs in association with the various areas of alluvial forest and elsewhere where the floodplain of the river is intact. Characteristic species of the habitat include Meadowsweet, Purple Loosestrife (Lythrum salicaria), Marsh Ragwort (Senecio aquaticus), Ground Ivy (Glechoma hederacea) and Hedge Bindweed (Calystegia sepium). Indian Balsam (Impatiens glandulifera), an introduced and invasive species, is abundant in places. Floating river vegetation is well represented in the Barrow and in the many tributaries of the site. In the Barrow the species found include water-starworts (Callitriche spp.), Canadian Pondweed (Elodea canadensis), Bulbous Rush (Juncus bulbosus), water-milfoils (Myriophyllum spp.), the pondweed Potamogeton x nitens, Broad-leaved Pondweed (P. natans), Fennel Pondweed (P. pectinatus), Perfoliated Pondweed (P. perfoliatus) and crowfoots (Ranunculus spp.). The water quality of the Barrow has improved since the vegetation survey was carried out (EPA, 1996). Dry heath at the site occurs in pockets along the steep valley sides of the rivers especially in the Barrow Valley and along the Barrow tributaries where they occur in the foothills of the Blackstairs Mountains. The dry heath vegetation along the

slopes of the river bank consists of Bracken and Gorse (Ulex europaeus) with patches of acidic grassland vegetation. Additional typical species include Heath Bedstraw (Galium saxatile), Foxglove, Common Sorrel (Rumex acetosa) and Creeping Bent (Agrostis stolonifera). On the steep slopes above New Ross the Red Data Book species Greater Broomrape (Orobanche rapum-genistae) has been recorded. Where rocky outcrops are shown on the maps Bilberry and Great Wood-rush are present. At Ballyhack a small area of dry heath is interspersed with patches of lowland dry grassland. These support a number of clover species, including the legally protected Clustered Clover (Trifolium glomeratum) - a species known from only one other site in Ireland. This grassland community is especially well developed on the west side of the mud-capped walls by the road. On the east of the cliffs a group of rock-dwelling species occur, i.e. English Stonecrop (Sedum anglicum), Sheep's-bit (Jasione montana) and Wild Madder (Rubia peregrina) These rocks also support good lichen and moss assemblages with Ramalina subfarinacea and Hedwigia ciliata. Dry heath at the site generally grades into wet woodland or wet swamp vegetation lower down the slopes on the river bank. Close to the Blackstairs Mountains, in the foothills associated with the Aughnabrisky, Aughavaud and Mountain Rivers there are small patches of wet heath dominated by Purple Moor-grass (Molinia caerulea) with Heather, Tormentil (Potentilla erecta), Carnation Sedge (Carex panicea) and Bell Heather (Erica cinerea).

Salt meadows occur at the southern section of the site in old meadows where the embankment has been breached, along the tidal stretches of in-flowing rivers below Stokestown House, in a narrow band on the channel side of Common Reed (Phragmites australis) beds and in narrow fragmented strips along the open shoreline. In the larger areas of salt meadow, notably at Carrickcloney, Ballinlaw Ferry and Rochestown on the west bank; Fisherstown, Alderton and Great Island to Dunbrody on the east bank, the Atlantic and Mediterranean sub types are generally intermixed. At the upper edge of the salt meadow in the narrow ecotonal areas bordering the grasslands where there is significant percolation of salt water, the legally protected species Borrer’s Saltmarsh-grass (Puccinellia fasciculata) and Meadow Barley (Hordeum secalinum) are found. The very rare and also legally protected Divided Sedge (Carex divisa) is also found. Sea Rush (Juncus maritimus) is also present. Other plants recorded and associated with salt meadows include Sea Aster (Aster tripolium), Thrift (Armeria maritima), Sea Couch (Elymus pycnanthus), Spear-leaved Orache (Atriplex prostrata), Lesser Sea-spurrey (Spergularia marina), Sea Arrowgrass (Triglochin maritima) and Sea Plantain (Plantago maritima).

Glassworts (Salicornia spp.) and other annuals colonising mud and sand are found in the creeks of the saltmarshes and at the seaward edges of them. The habitat also occurs in small amounts on some stretches of the shore free of stones.

The estuary and the other E.U. Habitats Directive Annex I habitats within it form a large component of the site. Extensive areas of intertidal flats, comprised of substrates ranging from fine, silty mud to coarse sand with pebbles/stones are present. Good quality intertidal sand and mudflats have developed on a linear shelf on the western side of Waterford Harbour, extending for over 6 km from north to south between Passage East and Creadaun Head, and in places are over 1 km wide. The sediments are mostly firm sands, though grade into muddy sands towards the upper shore. They have a typical macro-invertebrate fauna, characterised by polychaetes and bivalves. Common species include Arenicola marina, Nephtys hombergii, Scoloplos armiger, Lanice conchilega and Cerastoderma edule. An extensive area of honey-comb worm biogenic reef occurs adjacent to Duncannon, Co. Wexford on the eastern shore of the estuary. It is formed by the polychaete worm Sabellaria alveolata. This intertidal Sabellaria alveolata reef is formed as a sheet of interlocking tubes over a considerable area of exposed bedrock. This polychaete species constructs tubes, composed of aggregated sand grains, in tightly packed masses with a distinctive honeycomb-like appearance. These can be up to 25cm proud of the substrate and form hummocks, sheets or more massive formations. A range of species are reported from these reefs including: Enteromorpha sp.; Ulva sp.; Fucus vesiculosus; Fucus serratus; Polysiphonia sp.; Chondrus crispus; Palmaria palmate; Coralinus officialis; Nemertea sp.; Actinia equine; Patella vulgate; Littorina littorea; Littorina obtusata and Mytilus edulis.

The western shore of the harbour is generally stony and backed by low cliffs of glacial drift. At Woodstown there is a sandy beach, now much influenced by recreation pressure and erosion. Behind it a lagoonal marsh has been impounded which runs westwards from Gaultiere Lodge along the course of a slow stream. An extensive reedbed occurs here. At the edges is a tall fen dominated by sedges (Carex spp.), Meadowsweet, willowherbs (Epilobium spp.) and rushes (Juncus spp.). Wet woodland also occurs.

The dunes which fringe the strand at Duncannon are dominated by Marram (Ammophila arenaria) towards the sea. Other species present include Wild Clary/Sage (Salvia verbenaca), a rare Red Data Book species. The rocks around Duncannon ford have a rich flora of seaweeds typical of a moderately exposed shore and the cliffs themselves support a number of coastal species on ledges, including Thrift, Rock Samphire (Crithmum maritimum) and Buck's-horn Plantain (Plantago coronopus).

Other habitats which occur throughout the site include wet grassland, marsh, reedswamp, improved grassland, arable land, quarries, coniferous plantations, deciduous woodland, scrub and ponds.

Seventeen Red Data Book plant species have been recorded within the site, most in the recent past. These are Killarney Fern (Trichomanes speciosum), Divided Sedge, Clustered Clover, Basil Thyme (Acinos arvensis), Red Hemp-nettle (Galeopsis angustifolia), Borrer’s Saltmarsh-grass, Meadow Barley,

Opposite-leaved Pondweed (Groenlandia densa), Meadow Saffron/Autumn Crocus (Colchicum autumnale), Wild Clary/Sage, Nettle-leaved Bellflower, Saw-wort (Serratula tinctoria), Bird Cherry , (Prunus padus), Blue Fleabane (Erigeron acer), Fly Orchid (Ophrys insectifera), Ivy Broomrape (Orobanche hederae) and Greater Broomrape. Of these, the first nine are protected under the Flora (Protection) Order, 2015. Divided Sedge was thought to be extinct but has been found in a few locations in the site since 1990. In addition plants which do not have a very wide distribution in the country are found in the site including Thin-spiked Wood-sedge, Field Garlic (Allium oleraceum) and Summer Snowflake. Six rare lichens, indicators of ancient woodland, are found including Lobaria laetevirens and L. pulmonaria. The rare moss Leucodon sciuroides also occurs.

The site is very important for the presence of a number of E.U. Habitats Directive Annex II animal species including Freshwater Pearl Mussel (both Margaritifera margaritifera and M. m. durrovensis), White-clawed Crayfish, Salmon, Twaite Shad, three lamprey species – Sea Lamprey, Brook Lamprey and River Lamprey, the tiny whorl snail Vertigo moulinsiana and Otter. This is the only site in the world for the hard water form of the Freshwater Pearl Mussel, M. m. durrovensis, and one of only a handful of spawning grounds in the country for Twaite Shad. The freshwater stretches of the River Nore main channel is a designated salmonid river. The Barrow/Nore is mainly a grilse fishery though spring salmon fishing is good in the vicinity of Thomastown and Inistioge on the Nore. The upper stretches of the Barrow and Nore, particularly the Owenass River, are very important for spawning.

The site supports many other important animal species. Those which are listed in the Irish Red Data Book include Daubenton’s Bat, Badger, Irish Hare and Common Frog. The rare Red Data Book fish species Smelt (Osmerus eperlanus) occurs in estuarine stretches of the site. In addition to the Freshwater Pearl Mussel, the site also supports two other freshwater mussel species, Anodonta anatina and A. cygnea.

Three rare invertebrates have been recorded in alluvial woodland at Murphy’s of the River. These are: Neoascia obliqua (Order Diptera: Syrphidae), Tetanocera freyi (Order Diptera: Sciomyzidae) and Dictya umbrarum (Order Diptera: Sciomyzidae). The rare invertebrate, Mitostoma chrysomelas (Order Arachnida), occurs in the old oak woodland at Abbeyleix and only two other sites in the country. Two flies (Order Diptera) Chrysogaster virescens and Hybomitra muhlfeldi also occur at this woodland.

The site is of ornithological importance for a number of E.U. Birds Directive Annex I species, including Greenland White-fronted Goose, Whooper Swan, Bewick’s Swan, Bar-tailed Godwit, Peregrine and Kingfisher. Nationally important numbers of Golden Plover and Bar-tailed Godwit are found during the winter. Wintering flocks of migratory birds are seen in Shanahoe Marsh and the Curragh and Goul Marsh, both in Co. Laois, and also along the Barrow Estuary in Waterford Harbour. There is also an extensive autumnal

roosting site in the reedbeds of the Barrow Estuary used by Swallows before they leave the country. The old oak woodland at Abbeyleix has a typical bird fauna including Jay, Long-eared Owl and Raven. The reedbed at Woodstown supports populations of typical waterbirds including Mallard, Snipe, Sedge Warbler and Water Rail.

Land use at the site consists mainly of agricultural activities – mostly intensive in nature and principally grazing and silage production. Slurry is spread over much of the area. Arable crops are also grown. The spreading of slurry and fertiliser poses a threat to the water quality of the salmonid river and to the populations of E.U. Habitats Directive Annex II animal species within the site. Many of the woodlands along the rivers belong to old estates and support many non-native species. Little active woodland management occurs. Fishing is a main tourist attraction along stretches of the main rivers and their tributaries and there are a number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. Both commercial and leisure fishing takes place on the rivers. There is net fishing in the estuary and a mussel bed also. Other recreational activities such as boating, golfing and walking, particularly along the Barrow towpath, are also popular. There is a golf course on the banks of the Nore at Mount Juliet and GAA pitches on the banks at Inistioge and Thomastown. There are active and disused sand and gravel pits throughout the site. Several industrial developments, which discharge into the river, border the site. New Ross is an important shipping port. Shipping to and from Waterford and Belview ports also passes through the estuary.

The main threats to the site and current damaging activities include high inputs of nutrients into the river system from agricultural run-off and several sewage plants, over-grazing within the woodland areas, and invasion by non-native species, for example Cherry Laurel (Prunus laurocerasus) and Rhododendron (Rhododendron ponticum). The water quality of the site remains vulnerable. Good quality water is necessary to maintain the populations of the Annex II animal species listed above. Good quality is dependent on controlling fertilisation of the grasslands, particularly along the Nore. It also requires that sewage be properly treated before discharge. Drainage activities in the catchment can lead to flash floods which can damage the many Annex II species present. Capital and maintenance dredging within the lower reaches of the system pose a threat to migrating fish species such as lamprey and shad. Land reclamation also poses a threat to the salt meadows and the populations of legally protected species therein.

Overall, the site is of considerable conservation significance for the occurrence of good examples of habitats and of populations of plant and animal species that are listed on Annexes I and II of the E.U. Habitats Directive. Furthermore it is of high conservation value for the populations of bird species that use it. The occurrence of several Red Data Book plant species including three rare plants in the salt meadows and the population of

the hard water form of the Freshwater Pearl Mussel, which is limited to a 10 km stretch of the Nore, add further interest to this site.

SITE SYNOPSIS Version date: 22.08.2013

Site Name: Slieve Bloom Mountains SAC Site Code: 000412

The Slieve Bloom Mountains lie on the Offaly-Laois border, starting about 8 km north-east of Roscrea and running about 24 km north-east, towards Clonaslee. The mountains are of Old Red Sandstone, flanked by Silurian rocks. The site extends from approximately 180 m to 529 m O.D. The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes): [4010] Wet Heath [7130] Blanket Bogs (Active)* [91E0] Alluvial Forests* This site is remarkable for its mountain blanket bog habitat. Generally uniform in character, the vegetation consists of a deep, spongy mat of the bog moss Sphagnum capillifolium, with other mosses and lichens. Growing on this are Heather (Calluna vulgaris) and Crowberry (Empetrum nigrum), with smaller amounts of Cottongrasses (Eriophorum spp.), Bilberry (Vaccinium myrtillus), Deergrass (Scirpus cespitosus) and Bog Asphodel (Narthecium ossifragum). An unusual feature is the abundance of Bogrosemary (Andromeda polifolia) and Cranberry (Vaccinium oxycoccos), species usually associated with raised bogs. The uncommon Lesser Twayblade (Listera cordata) occurs under Heather at this site. This extensive site is dominated by blanket bog on a high plateau. However, on more steeply-sloping flanks wet heath vegetation occurs on shallower peat (typically 0.5- 1.5 m deep). The dominant species in the wet heath are Heather and Purple Moorgrass (Molinia caerulea), with species such as Cross-leaved Heath (Erica tetralix), Tormentil (Potentilla erecta), Lousewort (Pedicularis sylvatica) and the bog moss S. capillifolium also being frequent components. Often wet heath vegetation is associated with flushed areas along the margins of narrow streams. Alluvial forest occurs along the Camcor River in the northern part of the site, on the floodplain of the river and on adjacent slopes along the valley. The canopy consists of scattered tall Ash (Fraxinus excelsior), Pedunculate Oak (Quercus robur) and Alder (Alnus glutinosa). Rusty Willow (Salix cinerea subsp. oleifolia), Hawthorn (Crataegus monogyna), Hazel (Corylus avellana) and Downy Birch (Betula pubescens) form a lower canopy. The ground flora is species-rich, with Bluebell (Hyacinthoides non-scripta), Enchanter’s-nightshade (Circaea lutetiana), Wood-sorrel (Oxalis acetosella) and Bugle (Ajuga reptans). Marsh-marigold (Caltha palustris) and Meadowsweet (Filipendula Version date: 22.08.2013 2 of 2 000412_Rev13.Doc ulmaria) typify the wetter areas. The natural flood regime at the site has been altered by drainage activities for forestry (embankments, etc.), though the least disturbed areas in the floodplain still retain a substantial wetness. Seepage areas on the slopes also contribute to

the wetness of the woods. The uplands at this site provide excellent habitat for Peregrine, a species listed on Annex I of the E.U. Birds Directive. Breeding pairs occur here. For the main part, the site is fringed by forestry plantations, although in a few places there remains a relatively undisturbed transition downslope to poorly-drained acidic grassland. The primary threats to Irish blanket bogs in general are afforestation, drainage and over-grazing, and current habitat quality is often dependent on past land use. On the Slieve Blooms, the Heather forms tall, dense stands, with individual stems up to 20 years old, suggesting that burning has not been extensive in recent years. There is little evidence of grazing or erosion. Overall, vegetation structure is exceptionally well-conserved due to lack of disturbance. A large portion of the site lies within a Statutory Nature Reserve. Blanket bogs are an increasingly rare habitat in Europe, and in Ireland are continually under threat. The Slieve Bloom Mountains are an important link in the east-to-west gradient of bogs in Ireland, and are floristically linked to the midland raised bogs north of the site. The intactness of the blanket bog here is remarkable and is echoed in few other areas in Ireland, making this site of unique conservation value. Also of conservation importance is the presence of wet heath and an example of alluvial forest.

SITE SYNOPSIS SITE NAME: SLIEVE BLOOM MOUNTAINS SPA SITE CODE: 004160

The Slieve Bloom Mountains SPA is situated on the border between Counties Offaly and Laois, and runs along a north-east/south-west aligned ridge for approximately 25 km. Much of the site is over 200 m in altitude, rising to a maximum height of 527 m at Arderin. The mountains are of Old Red Sandstone, flanked by Silurian rocks. Several important rivers rise within the site, including the Barrow, Delour and Silver. The site has a near continuous ridge of mountain blanket bog, with wet and dry heaths also well represented. Species present in these habitats include Ling Heather (Calluna vulgaris), Crowberry (Empetrum nigrum), Bilberry (Vaccinium myrtillus), Cottongrasses (Eriophorum spp.), Deergrass (Scirpus cespitosus) and Bog Asphodel (Narthecium ossifragum). Much of the slopes are afforested, and overall coniferous plantations account for c. 60% of the site. The 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. The principal tree species present are Sitka Spruce (Picea sitchensis) and Lodgepole Pine (Pinus contorta). The remainder of the site is mostly rough grassland that is used for hill farming. This varies in composition and includes some wet areas with rushes (Juncus spp.) and some areas subject to scrub encroachment. Some stands of deciduous woodland also occur, especially within the river valleys. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for Hen Harrier. This SPA

is one of the strongholds for Hen Harrier in the country and, indeed, is the most easterly regular population. A survey in 2005 recorded eight pairs, whereas eleven pairs had been recorded in the 1998-2000 period. The numbers recorded in 2005 represent c. 3.7% of the all-Ireland total. The mix of forestry and open areas provides optimum habitat conditions for this rare bird, which is listed on Annex I of the E.U. Birds Directive. The early stages of new and second-rotation conifer plantations are the most frequently used nesting sites, though some pairs may still nest in tall heather of unplanted bogs and heath. Hen Harriers will forage up to c. 5 km from the nest site, utilising open bog and moorland, young conifer plantations and hill farmland that is not too rank. Birds will often forage in openings and gaps within forests. In Ireland, small birds and small mammals appear to be the most frequently taken prey. The site is also a traditional site for a breeding pair of Peregrine. Several pairs of Merlin are known to breed within the site but further survey is required to determine the exact status of this small falcon. 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 Redlisted. The Slieve Bloom Mountains SPA is of ornithological importance because it provides excellent nesting and foraging habitat for breeding Hen Harrier and is one of the top sites in the country for the species. The presence of three species, Hen Harrier, Merlin and Peregrine, which are listed on Annex I of the E.U. Birds Directive is of note. The Slieve Bloom Mountains is a Ramsar Convention site and a Biogenetic Reserve. Part of the Slieve Bloom Mountains SPA is a Statutory Nature Reserve.

Site Synopsis Site Name: Ballyprior Grassland SAC Site Code: 002256
Ballyprior Grassland, 4 km south of the village of Stradbally in Co. Laois, is located at the north end of the Castlecomer Plateau on largely limestone bedrock. The soils of the area are generally thin and well drained, varying from a deeper sandy loam in lower places (10-20 cm depth), to thin or stony soil over local drift (5-10 cm depth) on the elevated plateau. The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes): [6210] Orchid-rich Calcareous Grassland* Ballyprior Grassland SAC contains old grassland habitat of high quality and the site is important due to the loss of similar habitat in surrounding areas. The site has an exceptionally rich myco-flora (fungi) which is a good indication of grassland quality (in terms of continuity, lack of disturbance and low nutrient status). In the grassland there is abundant cover of grasses and herbs with a high species diversity, but low bryophyte cover. Quaking-grass (Briza media) is an abundant species, reflecting the calcareous conditions, in association with abundant Sheep’sfescue (Festuca ovina), Sweet Vernal-grass (Anthoxanthun odoratum), Crested Dog’stail

(Cynosurus cristatus) and Common Bent (Agrostis capillaris). Other species present include Heath-grass (Danthonia decumbens), the sedges Carex caryophyllea, C. flacca and C. pulicaris, and Field Wood-rush (Luzula campestris). The herb-rich, calcicole flora is characterised by Early-purple Orchid (Orchis mascula), Common Bird's-foottrefoil (Lotus corniculatus), Yarrow (Achillea millefolium), Lady's Bedstraw (Galium verum), Mouse-ear Hawkweed (Hieracium pilosella), Wild Thyme (Thymus praecox), Fairy Flax (Linum catharticum), Oxeye Daisy (Leucanthemum vulgare), Rough Hawkbit (Leontodon hispidus), Carline Thistle (Carlina vulgaris) and Autumn Gentian (Gentianella amarella), with Heath Dog-violet (Viola canina), Mountain Everlasting (Antennaria dioica) and Maidenhair Spleenwort (Asplenium trichomanes) prevalent around rock out-crops. On deeper soils, Wild Carrot (Daucus carota) and Pignut (Conopodium majus) are frequent. The presence in certain places of species such as Carnation Sedge (Carex panicea), Devil's-bit Scabious (Succisa pratensis), Tormentil (Potentilla erecta) and Heath Bedstraw (Galium saxatile) indicates variation in conditions with paucity of minerals, and adds to the species diversity. Hazel (Corylus avellana) scrub, with a well Version date: 4.01.2014 2 of 2 002256_Rev13.Doc developed ground flora, occurs on the extreme west margins of the grassland. There are also several ponds within the site adding further habitat diversity. The Irish Hare (Lepus timidus hibernicus) occurs in the site. This endemic sub-species is listed in the Red Data Book and is legally protected under the Wildlife Act, 1976. Ballyprior Grassland was traditionally managed as a commonage for grazing of cattle and horses. But the recent division of the lands into private holdings has led to a drive to improve the agricultural quality and output of these lands. Much of the farmland in surrounding areas is improved. Recent damage has occurred to parts of the site and some damaged habitat has been excluded. Semi-improved grassland has developed from enrichment and fertilising in the west of the site, with persistent Common Sorrel (Rumex acetosa) in places. South of the site, recent afforestation has resulted in loss of contiguous grassland habitat. Ballyprior Grassland is an important example of orchid-rich calcareous grassland, a habitat listed on Annex I of the E.U. Habitats Directive. The site contains a diverse flora and an exceptionally rich myco-flora. This site is also important in the context of the loss of most other similar species rich grasslands in the area to agricultural improvement.

Plate 1 View over site

Plate 2 Hedgerow

Plate 3 Improved Agricultural Grassland

Plate 4 Satellite View. Esker woodland to left.

Plate 5 Silt Matting used on construction sites to capture silt or suspended solids

The silt mats can be orientated to suit the channel type, channel dimensions and flow rate to give the most effective coverage. Typically the mats are staked directly into the channel bed but they can also be weighted with local material.

A key design aspect is that once the silt mats have captured sediment they will contain it very effectively within their natural fibre matrix, preventing resuspension during higher flows.

Plate 6 view across site towards Esker Ridge

Plate 7 View across pond towards woodland boundary (Rookery visible in trees)

Plate 8 Heron (Ardea cinerea) visible in boundary trees.

Plate 9 Silt fencing.