Appropriate Assessment 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.

Ste walkover 09th/10th/08/2023

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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 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.

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Screening for Appropriate Assessment

This screening for appropriate assessment has been 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 and stage 2 assessment at which the necessary amendments to the proposed plan will be identified:

- 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
- Screening conclusion and statement.
- Stage 2 Appropriate Assessment

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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 and new boundaries.
e) Alteration to existing and construction of new site services including connection to service providers.
f) All associated site works.
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.

Receiving environment:
The following data was gathered during a site walkover dated 09th 10th /08/2023. Field visits were undertaken to all points within the site on the 09th 10th /08/23. 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 .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)
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).
There is a large rookery on site in the Esker Ridge 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.

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 to 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)

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)

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 mitigated 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 is anticipated..
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. In the event that a change in water quality is anticipated then a stage two assessment has been carried out to ensure no change in water quality and no climate change brought about to the SAC and SPA sites within the 15 kms zone.

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 Stage 2 Assessment.
There are no “in combination” effects from this proposed development as it exists in an already serviced area with existing connections to sewers and services and is limited to the construction of a limited number of dwellings on an already serviced site.
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 Natura site and as such requires further Stage Two Appropriate Assessment.

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Stage 2 Appropriate Assessment
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 and foul 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.

The surface water discharged will enter sewer network and consequentially there will no net increase in quantity of water discharging into the local waste sewer network or the quality.

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.
Netting will be used around the buildings during construction/demolition to intercept possible dust and debris arising.
Pesticides: Use: Not permitted.
Asbestos Containing Material
Duty: Report immediately any suspected materials discovered during execution of the works.
Do not disturb.
Agree methods for safe removal or encapsulation.
Notification: To the HSA 28 days before any asbestos is removed.
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 (10/08/2023) 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 (10/08/2023) 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.

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

No impact on Natura 2000 sites is anticipated with the implementation of these measures at design stage..

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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.