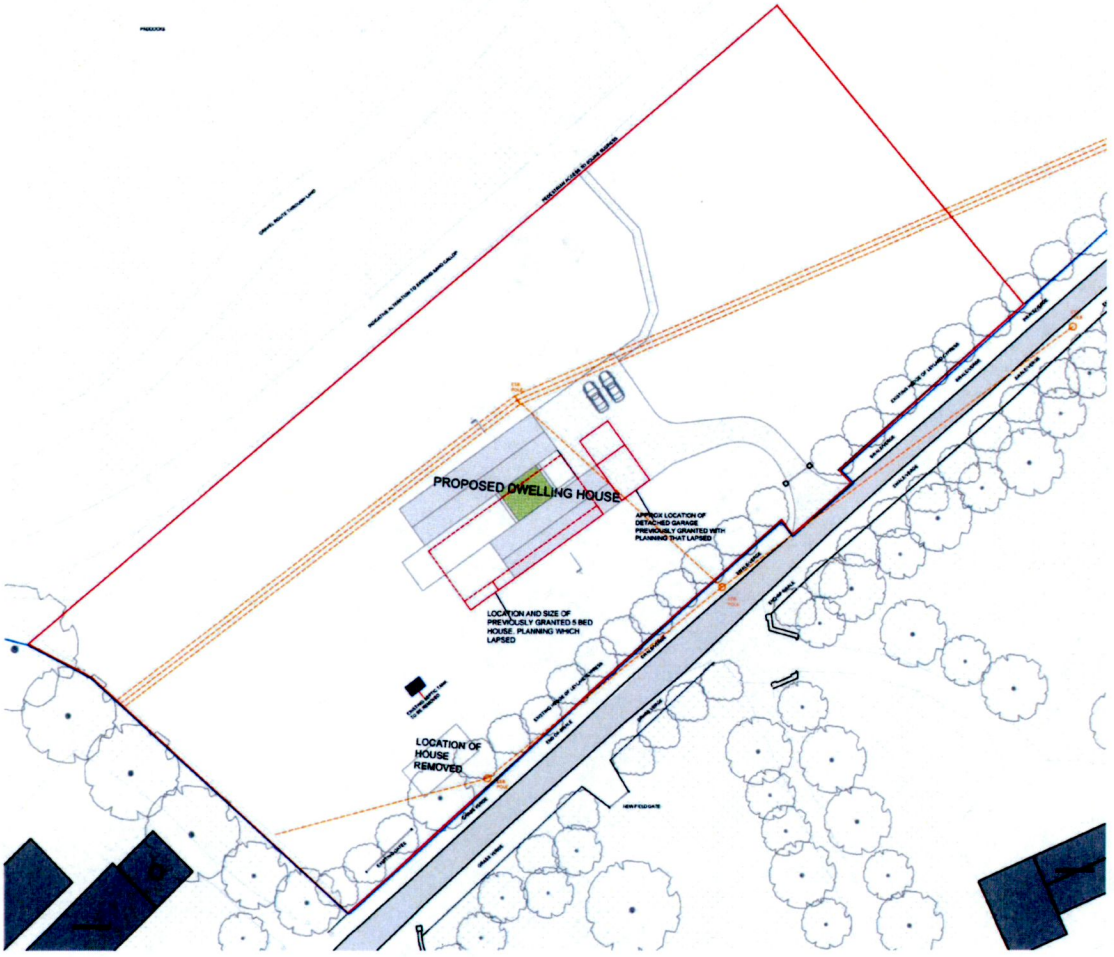
Ecological Impact Assessment

for a proposed house at Redgap, Rathcoole, Co. Dublin



REPORT

26th August 2022

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1. INTRODUCTION

1.1 Background

This report has been prepared by John Harte (an independent ecological consultant) who was appointed by Pearse Mc Kiernan (The Applicant) to prepare an ecological impact assessment report for a planning application for a proposed house at Redgap, Rathcoole, Co. Dublin. The planning history for the site shows that planning permission was granted for a 5 bed house with detached garage, which lapsed and it was a condition of planning to remove the existing property on the site.

The site hasn't changed from that previously submitted last year which planning was refused under Reg Ref SD21A/0073. It was stated in the Chief Executive's Order (PR/0672/21) Page 20 that in the event of a grant of permission that the lighting scheme for the development to be agreed with the SDCC Heritage Officer, utilising lower impact lighting fixtures such a bollard lighting. It also agreed that the mitigation measures which is stated within this report be implemented. These have been accepted by the applicant who is very happy to engage and implement all recommendations.

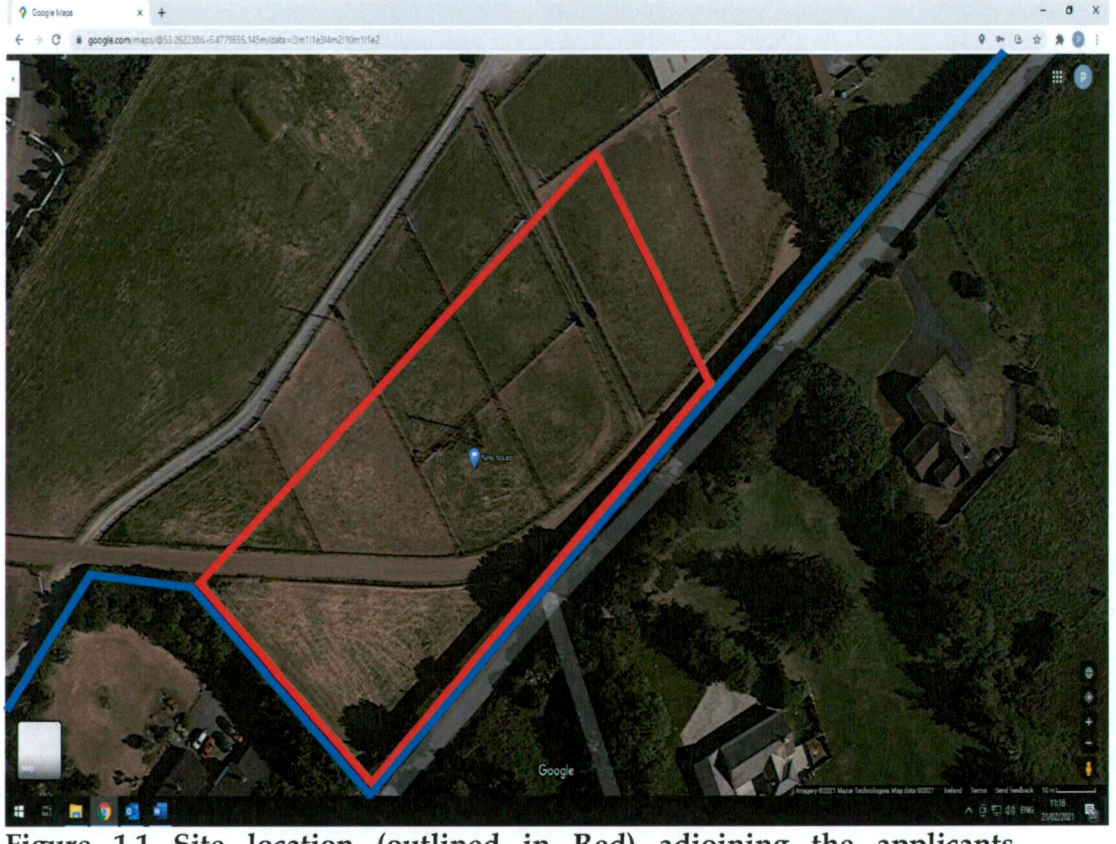

Figure 1.1 Site location (outlined in Red) adjoining the applicants 8-Hectares of leased land from his parents, which is designated for a thoroughbred breeding establishment at Redgap, Rathcoole, Co. Dublin.

1.2 Relevant Legislation

1.2.1 Nature Conservation Designations

International Conservation Designations
The land proposed for the development of a house at Redgap, Rathcoole (henceforth referred to as the site) are not currently designated for any nature conservation purposes under international conservation legislation. There are six Natura 2000 designated sites within a 15km radius of the site. These are as follows:

- Glenasmole Valley SAC (Site Code: 001209)
- Red Bog, Kildare SAC (Site Code: 000397)
- Rye Water Valley/Carton SAC (Site Code: 001398)
- Wicklow Mountains SAC (Site Code: 002122)
- Wicklow Mountains SPA (Site Code: 004040)
- Poulaphouca Reservoir SPA (Site Code: 004063)

Special Areas of Conservation (SACs) are habitats of international significance that have been identified by NPWS and submitted for designation to the EU. SAC is a statutory designation, which has a legal basis under the EU Habitats Directive (92/43/EEC) as transposed into Irish law through the European Communities (Natural Habitats) Regulations, 1997, which were amended in 1998, 2005 and 2011. The European Communities (Birds and Natural Habitats) Regulations 2011 consolidate the European Communities (Natural Habitats) Regulations 1997 to 2005 and the European Communities (Birds and Natural Habitats)(Control of Recreational Activities) Regulations 2010, as well as addressing transposition failures identified in the Court of Justice of the European Union (CJEU) judgements.

A Special Protection Area (SPA) is a statutory designation, which has a legal basis under the EU Birds Directive (79/409/EEC). The primary objective of SPAs is to maintain or enhance the favourable conservation status of the birds for which the SPAs have been designated.

National Conservation Designations
Proposed NHAs are habitats or sites of interest to wildlife that have been identified by NPWS. These sites become NHAs once they have been formally advertised and land owners have been notified of their designation. NHAs are protected under the Wildlife (Amendment) Act, 2000, from the date they are formally proposed. NHA is a statutory designation according to the Wildlife (Amended) Act, 2000 and requires consultation with NPWS if any development impacts on a pNHA.

All of the Natura 2000 sites listed above (with the exception of the Wicklow Mountains SAC/SPA) are also designated as pNHAs.

There are 12 pNHAs in total within a 15km radius of the lands at Redgap, Rathcoole. The other pNHAs include:

- Dodder Valley pNHA (Site Code: 00991)
- Grand Canal pNHA (Site Code: 002104)

- Kilteel Wood pNHA (Site Code: 001394)
- Liffey at Osberstown pNHA (Site Code: 001395)
- Liffey Valley pNHA (Site Code: 000128)
- Liffey Valley Meander Belt pNHA (Site Code: 000393)
- Lugmore Glen pNHA (Site Code: 001212)
- Royal Canal pNHA (Site Code: 002103)
- Slade of Saggart and Crooksling Glen pNHA (Site Code: 000211)

NHAs are considered to be of national importance, while SACs and SPAs are of international importance for nature conservation.

The land proposed for development of a house at Redgap, Rathcoole are not currently designated for any nature conservation purposes under national conservation legislation.

A report for Screening for Appropriate Assessment (Harte, 2022) to assess any potential impacts of the proposed development on any Natura 2000 sites has been completed for the development.

1.2.2 Bats

Eleven species of bats have been recorded in Ireland and all are protected under both national and international law.

Wildlife Act 1976

In the Republic, under Schedule 5 of the Wildlife Act 1976, all bats and their roosts are protected by law. It is unlawful to disturb either without the appropriate licence. The Act was amended in 2000.

Bern and Bonn Convention

Ireland has also ratified two international conventions, which afford protection to bats amongst other fauna. These are known as the 'Bern' and 'Bonn' Conventions. The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982), exists to conserve all species and their habitats, including bats. The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention 1979, enacted 1983) was instigated to protect migrant species across all European boundaries, which covers certain species of bat.

EU Habitats Directive

All bat species are given strict protection under Annex IV of the EU Habitats Directive, whilst the lesser horseshoe bat (*Rhinolophus hipposideros*) and greater horseshoe bat (*Rhinolophus ferrumequinum*) are given further protection under Annex II of the EU Habitats Directive. Both are listed as a species of community interest that is in need of strict protection and for which E.U. nations must designate Special Areas of Conservation (SACs). The latter is only known from a single site and no breeding populations have been recorded to date. The former are a species of the western seaboard of Ireland and have not yet been recorded on the east coast.

The principal pressures on Irish bat species have been identified as follows:

- urbanized areas (e.g. light pollution);
- bridge/viaduct repairs;
- pesticides usage;
- removal of hedges, scrub, forestry;
- water pollution;
- other pollution and human impacts (e.g. renovation of dwellings with roosts);
- infillings of ditches, dykes, ponds, pools and marshes;
- management of aquatic and bank vegetation for drainage purposes;
- abandonment of pastoral systems;
- speleology and vandalism;
- communication routes: roads; and
- inappropriate forestry management.

1.2.3 Badgers

Badgers (*Meles meles*) are common and widespread in Ireland, and are found in all lowland habitats where the soil is dry and not subject to flooding (Hayden and Harrington, 2000). Badgers are social animals that live in complex underground tunnel systems called setts. Badger territories may vary in size from about 60-200 ha (Smal, 1995).

Badgers and their setts legally are protected under the provisions of the Wildlife Act, 1976, and the Wildlife Amendment Act, 2000. It is an offence to intentionally kill or injure a protected species or to wilfully interfere with or destroy the breeding site or resting place of a protected wild animal. It is standard best practice to ensure that mitigation measures are taken to limit impacts on badgers and badger populations during developments.

The removal of badgers from affected setts and subsequent destruction of these setts must be conducted under licence by experienced badger experts or other suitably qualified personnel. The National Parks and Wildlife Service (NPWS) of the Department of the Environment, Heritage and Local Government grant licences to the experts undertaking the badger operations and not to the developer or contractor. An application for a wildlife licence should be submitted to the NPWS with the relevant ecological information from the detailed badger survey. At least three weeks is normally required to process a licence application, but early discussions with NPWS can expedite the procedure. Conditions are usually attached to each wildlife licence granted in respect of badgers. It is normal practice to impose seasonal constraints e.g. that breeding setts are not interfered with or disturbed during the badger breeding season (December to June inclusive). No active sett should be interfered with or disturbed during the breeding season as any sett category may contain cubs. Closure of setts during the breeding season requires monitoring to demonstrate no sett activity occurs.

1.2.4 Invasive Species

Until recently there has been no legal framework for the control or eradication of non-native invasive species in the Republic of Ireland. The

Birds and Habitats Regulations (2011) which were signed on 21st September 2011 by the then Minister for Arts, Heritage and the Gaeltacht Jimmy Deenihan, included new legislation on invasive and non-native species in Sections 49 and 50.

Since then the EU Regulation on Invasive Alien Species (EU Regulation 1143/2014) also came into force on the 3rd August 2016.

The plant and animal species to which the Birds and Habitats Regulations (2011) apply are presented in Schedule Three. Part 1 details the plants species, while Part 3 outlines those animal or plant vector materials and are presented below.

Third Schedule: Part 1 Plants

Non-native species subject to restrictions under Regulations 49 and 50.

First column	**Second column**	**Third column**
Common name	**Scientific name**	**Geographical application**
American skunk-cabbage	*Lysichiton americanus*	Throughout the State
A red alga	*Grateloupia doryphora*	Throughout the State
Brazilian giant-rhubarb	*Gunnera manicata*	Throughout the State
Broad-leaved rush	*Juncus planifolius*	Throughout the State
Cape pondweed	*Aponogeton distachyos*	Throughout the State
Cord-grasses	*Spartina* (all species and hybrids)	Throughout the State
Curly waterweed	*Lagarosiphon major*	Throughout the State

First column	Second column	Third column
Common name	**Scientific name**	**Geographical application**
Dwarf eel-grass	*Zostera japonica*	Throughout the State
Fanwort	*Cabomba caroliniana*	Throughout the State
Floating pennywort	*Hydrocotyle ranunculoides*	Throughout the State
Fringed water-lily	*Nymphoides peltata*	Throughout the State
Giant hogweed	*Heracleum mantegazzianum*	Throughout the State
Giant knotweed	*Fallopia sachalinensis*	Throughout the State
Giant-rhubarb	*Gunnera tinctoria*	Throughout the State
Giant salvinia	*Salvinia molesta*	Throughout the State
Himalayan balsam	*Impatiens glandulifera*	Throughout the State
Himalayan knotweed	*Persicaria wallichii*	Throughout the State
Hottentot-fig	*Carpobrotus edulis*	Throughout the State
Japanese knotweed	*Fallopia japonica*	Throughout the State

First column	Second column	Third column
Common name	**Scientific name**	**Geographical application**
Large-flowered waterweed	*Egeria densa*	Throughout the State
Mile-a-minute weed	*Persicaria perfoliata*	Throughout the State
New Zealand pigmyweed	*Crassula helmsii*	Throughout the State
Parrot's feather	*Myriophyllum aquaticum*	Throughout the State
Rhododendron	*Rhododendron ponticum*	Throughout the State
Salmonberry	*Rubus spectabilis*	Throughout the State
Sea-buckthorn	*Hippophae rhamnoides*	Throughout the State
Spanish bluebell	*Hyacinthoides hispanica*	Throughout the State
Three-cornered leek	*Allium triquetrum*	Throughout the State
Wakame	*Undaria pinnatifida*	Throughout the State
Water chestnut	*Trapa natans*	Throughout the State
Water fern	*Azolla filiculoides*	Throughout the State

First column	Second column	Third column
Common name	**Scientific name**	**Geographical application**
Water lettuce	*Pistia stratiotes*	Throughout the State
Water-primrose	*Ludwigia* (all species)	Throughout the State
Waterweeds	*Elodea* (all species)	Throughout the State
Wireweed	*Sargassum muticum*	Throughout the State

EU Regulation 1143/2014 on Invasive Alien Species

On 14 July 2016 the European Commission published Commission Implementing Regulation 2016/1141 which sets out an initial list of 37 species to which EU Invasive Alien Species Regulation 1143/2014 will apply. The associated restrictions and obligations came into force on 3rd August 2016.

Three distinct types of measures are envisaged under the Directive, which follow an internationally agreed hierarchical approach to combatting IAS:

- Prevention: a number of robust measures aimed at preventing IAS of Union concern from entering the EU, either intentionally or unintentionally.
- Early detection and rapid eradication: Member States must put in place a surveillance system to detect the presence of IAS of Union concern as early as possible and take rapid eradication measures to prevent them from establishing.
- Management: some IAS of Union concern are already well-established in certain Member States and concerted management action is needed so that they do not spread any further and to minimize the harm they cause.

Plant species listed on the directive include:

- American skunk cabbage *Lysichiton americanus*
- Asiatic tearthumb *Persicaria perfoliata* (*Polygonum perfoliatum*)
- Curly waterweed *Lagarosiphon major*
- Eastern Baccharis *Baccharis halimifolia*
- Floating pennywort *Hydrocotyle ranunculoides*
- Floating primrose willow *Ludwigia peploides*
- Green cabomba *Cabomba caroliniana*

- Kudzu vine *Pueraria lobata*
- Parrot's feather *Myriophyllum aquaticum*
- Persian hogweed *Heracleum persicum*
- Sosnowski's hogweed *Heracleum sosnowskyi*
- Water hyacinth *Eichhornia crassipes*
- Water primrose *Ludwigia grandiflora*
- Whitetop weed *Parthenium hysterophorus*

Animal species listed on the directive include:

- Amur sleeper *Perccottus glenii*
- Asian hornet *Vespa velutina*
- Chinese mitten crab *Eriocheir sinensis*
- Coypu *Myocastor coypus*
- Fox squirrel *Sciurus niger*
- Grey squirrel *Sciurus carolinensis*
- Indian house crow *Corvus splendens*
- Marbled crayfish *Procambarus* spp.
- Muntjac deer *Muntiacus reevesii*
- North american bullfrog *Lithobates (Rana) catesbeianus*
- Pallas's squirrel *Callosciurus erythraeus*
- Raccoon *Procyon lotor*
- Red swamp crayfish *Procambarus clarkii*
- Red-eared terrapin/slider *Trachemys scripta elegans*
- Ruddy duck *Oxyura jamaicensis*
- Sacred ibis *Threskiornis aethiopicus*
- Siberian chipmunk *Tamias sibiricus*
- Signal crayfish *Pacifastacus leniusculus*
- Small Asian mongoose *Herpestes javanicus*
- South American coati *Nasua nasua*
- Spiny-cheek crayfish *Orconectes limosus*
- Topmouth gudgeon *Pseudorasbora parva*
- Virile crayfish *Orconectes virilis*

On 13 July 2017 the European Commission published Commission Implementing Regulation 2017/1263 which added a further 12 species to the current list of 37 species regulated under the EU Invasive Alien Species Regulation (1143/2014). These are:

Plant species

- Alligator weed *Alternanthera philoxeroides*
- Milkweed *Asclepias syriaca*
- Nuttall's waterweed *Elodea nuttallii*
- Chilean rhubarb *Gunnera tinctoria*
- Giant hogweed *Heracleum mantegazzianum*
- Himalayan balsam *Impatiens glandulifera*
- Japanese stiltgrass *Microstegium vimineum*
- Broadleaf watermilfoil *Myriophyllum heterophyllum*
- Crimson fountaingrass *Pennisetum setaceum*

Animal species

- Egyptian goose *Alopochen aegyptiacus*

- Raccoon dog *Nyctereutes procyonoides*
- Muskrat *Ondatra zibethicus*

The associated restrictions and obligations will come into force from 2 August 2017 for all these species apart from the Raccoon dog, where they will not come into force until 2 February 2019.

Other Invasive Species
The main guidance document that has been prepared dealing with invasive species/noxious weeds on sites is the NRA *'Guidelines on The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads'* which was published in 2010. This document details other non-native species of note. A detailed survey for such species was conducted.

1.2.5 Fisheries and Water Quality

According to the EPA Envision Map Viewer the proposed development site is located within the Liffey and Dublin Bay catchment within hydrometric area 09. The land at Redgap, Rathcoole drain towards the Tootenhill Stream (IE_EA_09L012100). This stream joins the Griffeen River (IE_EA_09L012100) beyond the N7 to the north. This is a tributary of the River Liffey. The water quality of the Griffeen River is measured as Q2-3 on College Road near the Greenogue Business Park. The Griffeen and Liffey Rivers are both described as a waterbody at risk of not achieving 'good water status' under the Water Framework Directive.

1.3 Surveys

The assessment was carried out in accordance with the following best practice methodology: 'Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland' by the Institute of Ecology and Environmental Management (IEEM, 2016).

The habitat assessment and botanical surveys were completed on 11th June 2022 and 9th March 2022 inside the flowering period for plants. The site was surveyed in accordance with the Heritage Council's Best Practice Guidance for Habitat Survey and Mapping (Smith et al., 2010). Habitats were identified in accordance with Fossitt's Guide to Habitats in Ireland (Fossitt, 2000).

The nomenclature for vascular plants is taken from The New Flora of the British Isles (Stace,2010) and for mosses and liverworts A Checklist and census Catalogue of British and Irish Bryophytes (Hill et al., 2009).

June lies within the optimal period for general habitat surveys (Smith et al., 2010) and so a full evaluation of habitats was possible. It was possible to classify all habitats on the site to Fossitt Level 3. June and March lie within the season for surveying breeding birds, while March is within the optimal season for surveying amphibians and large mammals, especially Badgers.

A bat activity survey for the site was completed on the 14th & 15th June 2022 during the active bat season.

2. METHODOLOGY

2.1 Project Description

Planning permission is sought for the erection of a three bedroom detached dwelling house (233.6sqm), single storey, installation of a packaged wastewater sewage treatment system and polishing filter, stormwater harvesting tank and soakaways, well, new vehicular access, landscaping, and ancillary site works, all in association with equine business at Hillcrest House, Crockaunadreenagh Road, Red Gap, Rathcoole, Co. Dublin as shown on **Figure 2.1** and **2.2**.

The planning history for the site shows that planning permission was granted for a 5 bed house with detached garage, which lapsed and it was a condition of planning to remove the existing property on the site.

The site hasn't changed from that previously submitted last year which planning was refused under Reg Ref SD21A/0073. It was stated in the Chief Executive's Order (PR/0672/21) Page 20 that in the event of a grant of permission that the lighting scheme for the development to be agreed with the SDCC Heritage Officer, utilising lower impact lighting fixtures such a bollard lighting. It also agreed that the mitigation measures which is stated within this report be implemented. These have been accepted by the applicant who is very happy to engage and implement all recommendations.

Figure 2.1. Site proposed for development at Redgap, Rathcoole, Co. Dublin.

Figure 2.2. The proposed dwelling at Redgap, Rathcoole, Co. Dublin.

2.2 Desk Study

A study was carried out again to collate the available information on the ecological environment potentially impacted by the proposed development. The National Parks and Wildlife Service (NPWS) of the Department of Culture, Heritage and the Gaeltacht (DCHG) database of designated conservation areas and NPWS records of rare and protected plant species were checked with regard to the location of the proposed development.

Information on protected species of fauna and flora listed for protection under Annex II of the EU Habitats Directive (92/43/EEC), Annex I of the Birds Directive (79/409/EEC) and the Wildlife (Amendment) Act (2000) was also sought from NPWS and published sources. Recent, high resolution, colour aerial photographs were also used to identify and map potential habitats. Findings were consistent with previous desk study.

2.3 Field Surveys

All surveys were carried out again and results are consistent with initial surveys carried out on site. The site was visited on the 11th June 2022 & 9th March 2022 for the habitat assessment and botanical surveys for faunal/biodiversity interest were examined. On the 9th March 2022 a survey of badger and other large mammal was also carried out.

The site was also visited on the 14th and 15th June 2022 and a bat survey was carried out.

No sign of the previous house structure on the land is present apart from the old septic tank which is being removed as part of this application.

Habitat & Botanical Survey

The habitats present were recorded and described to level 3 (Fossitt, 2000) and a check was made for the presence of any invasive species as described above.

Mammal Surveys

Bat Survey

The bat survey consisted of three elements. This included a desktop review and consultation with Bat Conservation Ireland and an inspection of trees within the site for their potential to support roosting bats was made. A bat activity survey of the site was carried out, on the 14th and 15th June 2022.

The aim of the tree roost survey was to determine the potential use of any mature trees in the site as roosting sites and based on the desktop research coupled with the results of the bat activity survey to identify what bat species are known/or likely to occur. There are no built structures in which bats might roost affected by the proposed development.

Trees/hedgerow impacted by new entrance to the development were assessed for their potential use by bats using the following standard criteria, which were created by bat specialists from Bat Conservation Ireland for use in the assessments of tree roosts on large infrastructural projects and are summarised in NRA (2006):

- Presence or absence of bat droppings (these can be hard to find amongst leaf litter or may be washed away following periods of wet weather),
- Bat droppings may also be seen as a black streak beneath holes, cracks, branches, etc.,
- Presence or absence of smooth edges with dark marks at potential entrances to roosts,
- Presence or absence of urine stains at potential entrances to roosts,
- Presence of natural cracks and rot holes in the trunk or boughs of the tree,
- Hollow trees,
- Presence or absence of creepers such as ivy or honeysuckle on trees (ivy clad trees are often used by bat species such as pipistrelles as roosts),
- Presence or absence of loose bark such as that of sycamore, or flaky bark on coniferous species such as cedars, cypress and Scot's pine,
- Presence or absence of bracket fungi which may indicate a rotten or potentially hollow centre to the tree,
- Known bat roosts previously identified,
- Trees with storm or machinery damage or broken boughs,
- Clutter level - where the branches and trunk are easily accessible, this is considered a better tree for bat roosts,
- Adjoining habitat - if there are a variety of feeding opportunities for bats, this increases the potential of a tree as a bat roost,

- Adjoining potential roosts / known roosts. This raises the likelihood of a tree being of benefit as bats may move roosts if the roost becomes too hot or cold during roosting and a nearby alternative roost is highly desirable.

The tree survey completed by Felim Sheridan (Arborist Associates, 2022) was also reviewed from the perspective of roosting bats.

Badger Survey
A badger survey was conducted in the general environs of the site by searching for signs of badger activity. These include setts, old bedding material, feeding signs, latrines, badger tracks or paw prints, badger paths and badger hair caught on vegetation or fences.

The survey was carried out, in accordance with best practice as described in the 'Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes' (NRA 2009) and 'Guidelines for the treatment of badgers prior to the construction of National Road Schemes' (NRA 2005).

Breeding Birds
The breeding bird season was complete and general observations of birds using the site were made.

3 RESULTS

3.1 Field Surveys

The site at Redgap, Rathcoole proposed for development consist of a several paddocks of improved agricultural grassland (GA1), which are currently grazed by horses. A sand gallop cuts through the proposed site, which will be re-directed outside the red line on the northern boundary of site. The site is rectangular in shape and is located on the northern side of the public road. Each paddock is cordoned off with stud rail fencing and this fencing runs along the outside of sand gallop. The lands to the north are part of the applicant's 8-Hectares of leased land which is designated for a thoroughbred breeding establishment. The site is adjoined to its west by a residential property. The existing house to east of site is the applicant's family home. The site is elevated and slopes down to the north.

A habitat map of the property showing the habitats mapped to Fossitt level 3 is presented on **Figure 3.1** below. None of the habitats present correspond to any habitat type listed under Annex I of the EU Habitats Directive. Hedgerow (WL1) is located on the site side of the original boundary hedge along the southern boundary with the public road. Planted on the inside of the original hedgerow soil bank is a line of Leyland Cypress trees. It forms a good screen barrier along this road. Just outside the hedgerow running along the roadside edge is a swale/verge (FW4). Treeline (WL2) runs at ninety degrees to Hedge No.1 and extends down along the western boundary. It is located on the adjoining property side of the stud rail fence and is on the adjoining property side of the boundary. It consists of a double line of Leyland Cypress.

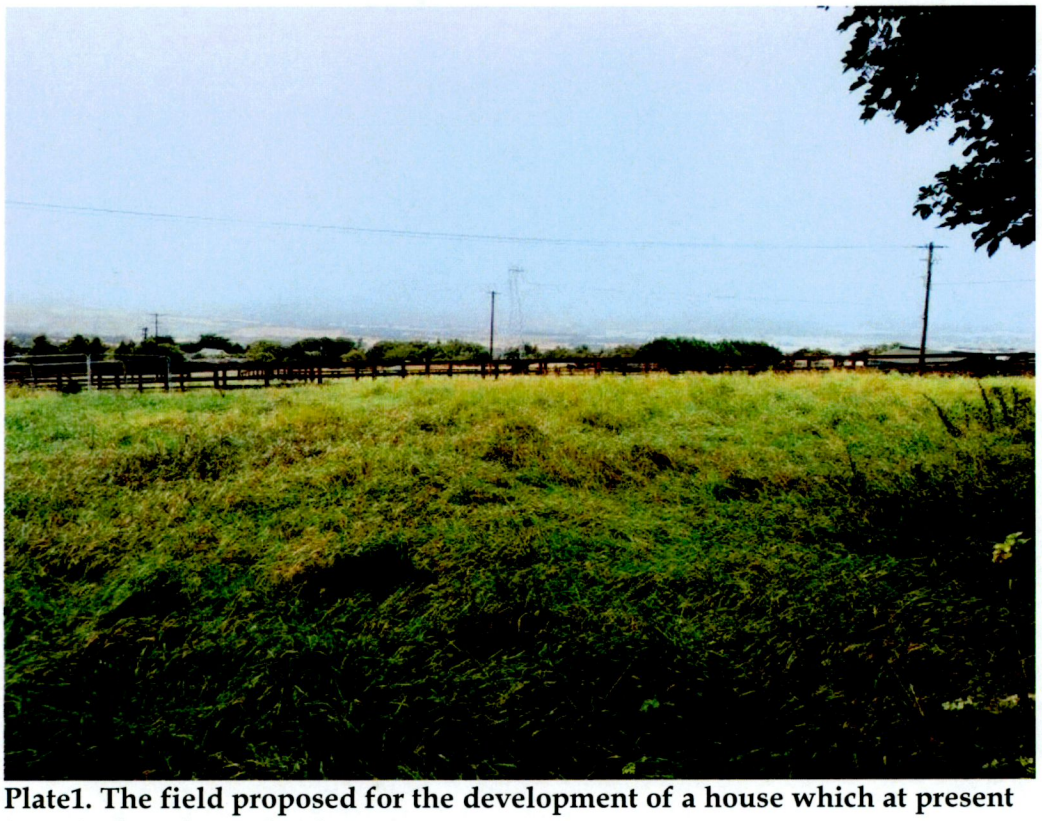

Plate1. The field proposed for the development of a house which at present is agricultural grassland.

Hedgerow (WL1) within the site boundaries are dominantly Leyland Cypress trees of an early mature age class in fair condition both physiologically and structurally. This hedgerow along the southern boundary of the site are formed on earthen banks. Tree No.1 is located at the western end of hedgerow (WL1) to the right of an existing field entrance. This is a Sycamore (*Acer pseudoplatanus*) of an early mature age class in fair/good condition both physiologically and structurally.

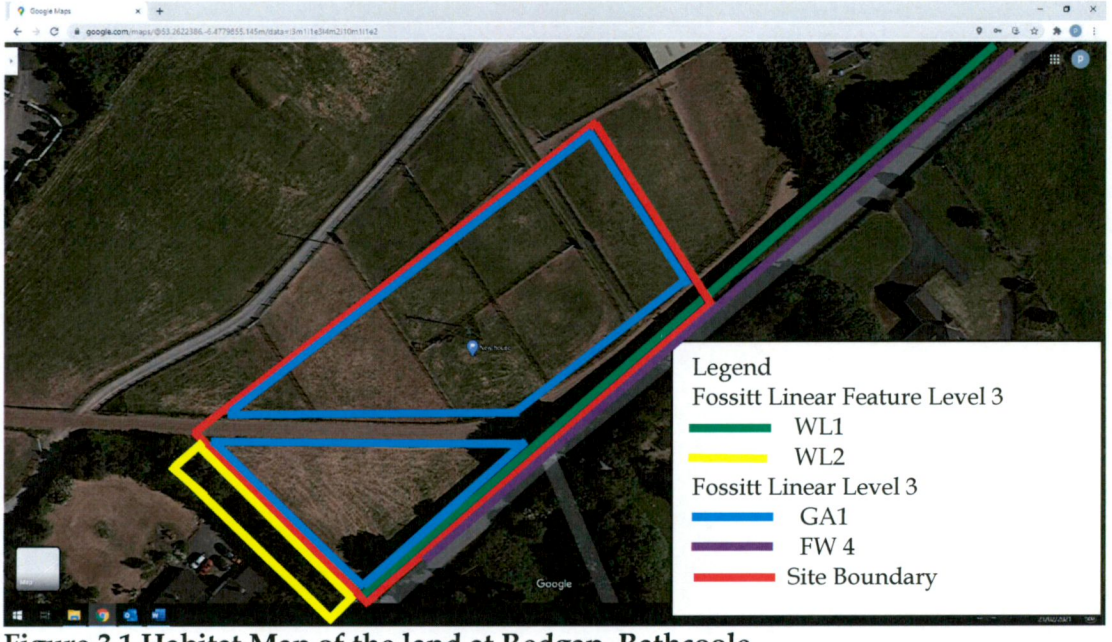

Figure 3.1 Habitat Map of the land at Redgap, Rathcoole.

Vegetation at the base of the hedgerows and treelines included; creeping buttercup (*Ranunculus repens*), creeping thistle (*Cirsium repens*), cow parsley (*Anthriscus sylvestris*), docks (*Rumex* sp.), ivy (*Hedera helix*), cleavers (*Galium aparine*), groundsel (*Senecio vulgaris*), ragwort (*Senecio jacobaea*), male fern (*Dryopteris filix-mas*), alexanders (*Smyrnium olusatrum*), nettle (*Urtica dioica*), germander speedwell (*Veronica chamaedrys*), red fescue (*Festuca rubra*), bush vetch (*Vicia sepium*), dandelion (*Taraxacum* agg.), creeping cinquefoil (*Potentilla reptans*), ground ivy (*Glechoma hederacea*), yarrow (*Achillea millefolium*), wood avens (*Geum urbanum*), hart's tongue fen (*Phyllitis scolopendrium*), false oat grass (*Arrhenatherum elatius*) and cock's-foot grass (*Dactylis glomerata*).

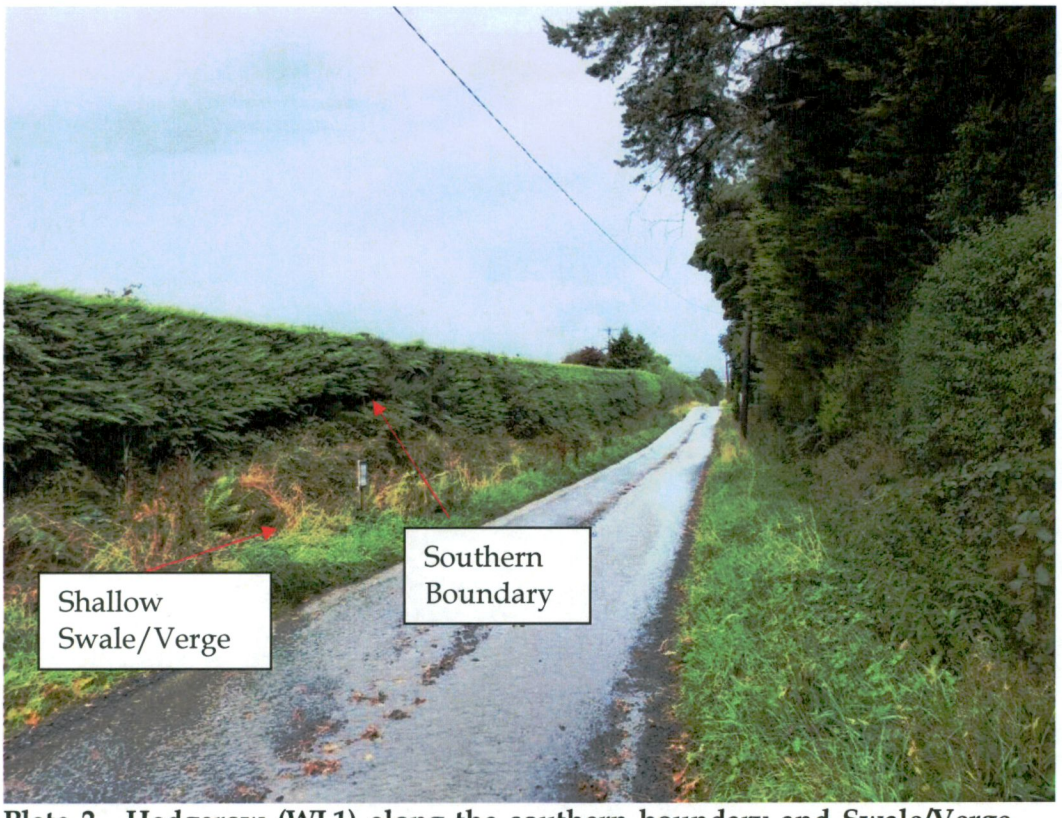

Plate 2. Hedgerow (WL1) along the southern boundary and Swale/Verge (FW4).

Plate 3. Treeline (WL2) along the western site boundary.

Rare, Threatened, and Protected Flora
There are historic records of narrow leaved helleborine (*Cephalanthera longifolia*), bog orchid (*Hammarbya paludosa*), red hemp nettle (*Galeopsis angustifolia*) and opposite leaved hairy violet (*Viola hirta*) from the 10km square in which the development is proposed (O02). There is no suitable habitat for any of these species on the site and they were not found during the site visit.

Invasive Species
No invasive non-native species were recorded during any of the site surveys.

Faunal Interest
The terrestrial fauna consists of few species because of the intensive agricultural management of the lands and the openness of the habitat.

There are some rabbits present as evidenced by burrows and droppings seen during the site visit. Other common fauna that would be expected include brown rat, long tailed field mouse, house mouse, hedgehog, Irish stoat and pygmy shrew.

The Bat Conservation Ireland Database of bat records was searched for records of bats from the area. These include records of roosts, ad hoc observations and the results of surveys such as the BATLAS 2010 project and the All Ireland Brown Long-eared Monitoring Project recorded within the 10km square in which the site is located (O02) and adjoining 10km squares include:

- Common pipistrelle (*Pipistrellus pipistrellus*),
- Soprano pipistrelle (*Pipistrellus pygmaeus*),
- Daubenton's bat (*Myotis daubentonii*),
- Leisler's bat (*Nyctalus leisleri*),
- Brown long-eared bat (*Plecotus auritus*),
- Several unidentified *Myotis* species, and
- an unidentified pipistrelle species (*Pipistrellus* sp.).

The bat detector survey, was undertaken on the 14th to 15th June 2022. The assessment commenced with an examination of the Hedgerow (WL1) of Leyland Cypress trees that would be removed because of the new entrance location prior to dusk. This involved an examination of the hedge during a slow walk around the hedge while keeping an eye for bats approaching from any surrounding buildings.

The trees and land were assessed for bat activity both through an examination at emergence time (approx. sunset) and return time (prior to sunrise). This involved an examination with the assistance of an Echometer 3 and a Pettersson D240X and by placing a Songmeter2Bat+ at the location for the new entrance to the site. Following this, a transect passing through the site and assessing all hedgerow was followed.

The survey was undertaken at a highly suitable period to identify feeding and commuting bats and the activity of the young of the 2021 breeding season. Many bats are still within their breeding roost and bat activity is very high overall. The mating season is under way and the bats are very detectable given the frequency of social calls by males in addition to feeding and commuting signals of all bats.

No bats emerged from any tree within the site however a bat was noted on the land further north but the roost site was not determined. No evidence of bats roosting, feeding, or commuting were recorded on the land.

One species of bat was recorded commuting on the land further north outside of the site boundary. This was the Leisler's bat. The Leisler's bat was recorded and seen flying towards the stable facilities approaching from the west. No roosts were confirmed within the site and there were no trees within the site identified as being suitable for roosting bats. There are no built structures present within the site which bats might roost.

The bird fauna recorded was typical of the open farmed countryside and only a handful of breeding species are likely to occur. The most important features for breeding birds is the treeline along west in the adjoining neighbours land and the boundary hedgerow. Species recorded include woodpigeon, jackdaw, blackbird, robin, wren, coal tit, blue tit, chaffinch, bullfinch and greenfinch, which were all seen in during the site visit. Large species in the general area are rook, magpie, hooded crow and pheasant.

Amphibians and Reptiles

The presence of amphibians such as the common frog (*Rana temporaria*) was not confirmed during any of the field surveys conducted. No spawn or tadpoles were observed in the swale/verges etc. during the surveys and there was no suitable ponds for Smooth Newt (*Lissotriton vulgaria*).

4. ASSESSMENT OF SIGNIFICANCE

There are no examples of habitat listed on Annex I of the Habitats Directive or records of rare or protected plants. There are no species listed as alien invasive as per SI 477 of 2011 or as 'most unwanted' by Invasive Species Ireland.

The main interest in the site is in the shrubs within the hedgerows and the tree within the hedgerow which form the field boundaries and the flora within the field margins.

The land is used by a variety of fauna and provide a habitat for rabbits and a variety of birds in terms of cover for hunting and foraging as well as breeding habitat.

Common pipistrelle and Leisler's bat were recorded on the land further north as a passageway to other sites for foraging purposes. No bat roosts were confirmed.

These habitats are assessed as being of Local importance of lower value (E site) for biodiversity within the context of Redgap, Rathcoole and environs.

5.0 ECOLOGICAL IMPACT ASSESSMENT

5.1 Potential Impacts

This section provides a description of the potential impacts that the proposed development may have on the flora and fauna in the absence of mitigation during the Construction and Operational Phases of the proposed development. The activities associated with the proposed development of the land for a house has the potential to affect the ecology of the site and surrounding area include:

- Direct Habitat Loss;
- Disturbance;
- Fragmentation; and
- Potential Water Pollution;

The repositioned entrance has been required to improve safety and sightlines for access and egress. The proposed new entrance to the development will have negligible impact on flora and fauna arising from the removal of a small area of non-native hedgerow for the proposed new entrance.

5.1.1 Construction Phase:

No habitat designated for nature conservation purposes, or plant species protected under the Floral Protection Order 2015, will be impacted by the proposed development of this land, which would be deemed of local importance for biodiversity.

The project will require the removal of a non-native hedgerow for the new proposed entrance.

The arboricultural impact assessment (Arborist Associates, 2022) assesses these impacts as follows;

'To facilitate the proposed development, it will be necessary to remove the following vegetation:

Hedge No.1 at the eastern end off the public road will require the removal of a c. 8m section to accommodate the proposed new entrance.

This is illustrated on **Figure 3.4** below.

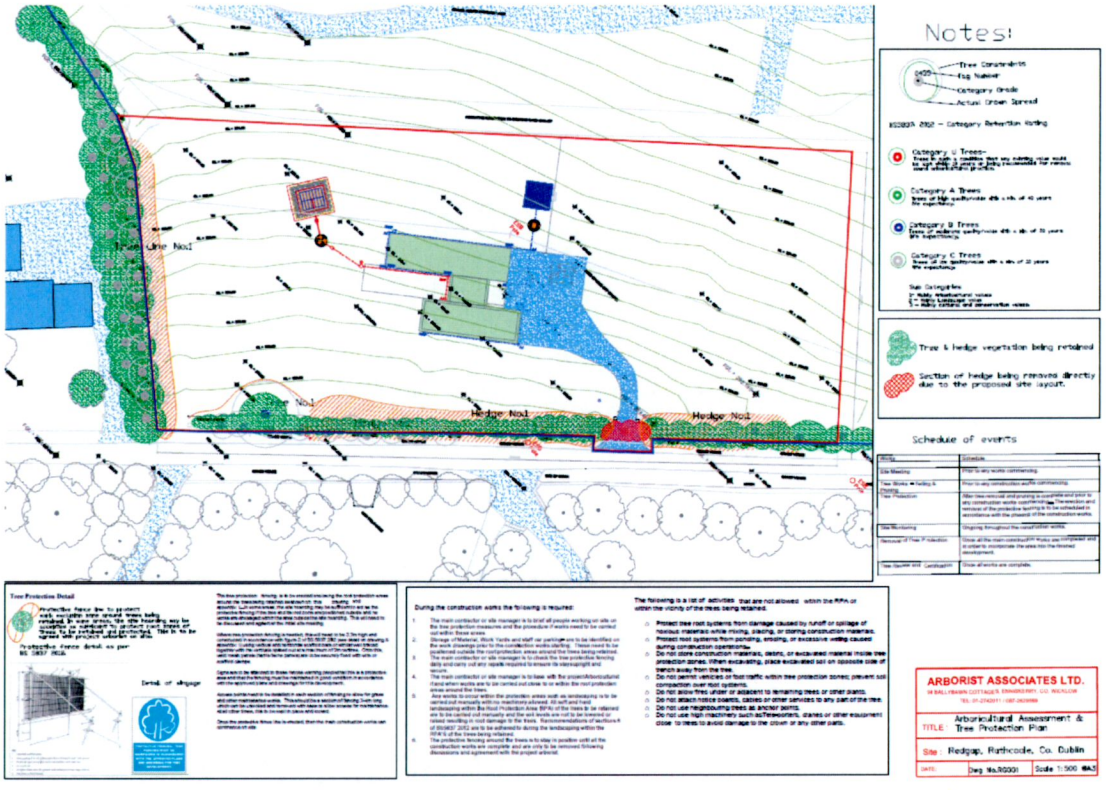

Figure 3.4. Arboricultural impact assessment showing tree and hedgerow loss (Arborist Associates, 2022).

From a biodiversity point of view the majority of the structurally important boundary hedgerow and treeline are being retained which provides some cover for foraging birds and other fauna.

However, the works could also potentially result in damage to the roots of retained non-native hedgerow if mitigation measures are not implemented thereby posing a risk to their long-term stability and longevity. There is also the potential for damage to retained hedgerows arising from site clearance works unless protective measures are put in place prior to the commencement of construction activities on the site.

5.1.2 Operational Phase:

Once constructed there will be no losses for biodiversity as the various planting and landscaping measures will mature and offer additional habitat.

6.0 PROPOSED MITIGATION MEASURES

A number of mitigation measures are presented below.

6.1 Sediment Control

Sediment control practices are used on building sites to prevent sand, soil, cement and other building materials from reaching waterways and water dependent habitats such as the adjoining drainage ditches, reedbeds and saltmarshes. Even a small amount of pollution from a site can cause significant environmental damage by killing aquatic life, silting up streams and blocking storm water pipes. Storm water can contain many pollutants which can enter our local drainage ditches, streams, rivers and marine systems, causing harm to native animals, plants, fish breeding habitats and recreational areas.

Soil erosion, sediment and litter from building sites can be major sources of storm water pollution, and can cause:

- significant harm to the environment e.g. loss of valuable foraging areas in adjoining mudflats for wintering birds
- weed infestation of waterways caused by sediment settling on river beds and transporting nutrients
- loss of valuable topsoil
- significant public safety problems when washed onto roads and intersections
- blocked drains creating flooding and increased maintenance costs
- damage to recreational and commercial fishing.

Sediment control usually requires little effort and results in:

* Cleaner waterways and healthier aquatic life.
* Improved site conditions.
* Improved wet weather working conditions.
* Reduced wet weather construction delays.
* Reduced losses from material stockpiles.
* Fewer mud and dust problems.

Good site management in relation to sediment control during the construction phase should prevent this from occurring and possible mitigation measures for consideration are outlined below.

Minimising site disturbance:

Prevention is better than cure. Careful design and an efficient construction sequence will minimise disturbance to the site and this has been included in the design rationale for the project. This will both save money and reduce environmental impact.

The project has been designed to avoid excessive cut and fill, unnecessary clearing of vegetation and to preserve existing site drainage patterns. Clear only those areas necessary for building work to occur. Preserve grassed areas and vegetation where possible. This helps filter sediment from storm water run off before it reaches the drainage system and stops rain turning exposed soil into mud. Delay removing vegetation or commencing earthworks until just before building activities start. Avoid building activities that involve soil disturbance during periods of expected heavy or lengthy rainfall.

6.2 Contractor Briefing

All site contractors should be briefed regarding the importance of tree and hedgerow protection for those retained features within the site.

Contractors should also be made aware of the biosecurity risks posed by invasive species such as Japanese knotweed and ensure that all machinery, tools, plant, etc. brought on site are clean and have been assessed for biosecurity risks and that there are no accidental or unintentional actions conducted during the works that could lead to the spread of same. Such matters often arise through ignorance or by accident rather than as a result of an intentional action.

6.3 Avoidance/Protection Measures for Retained Vegetation and Trees

It is proposed to retain a number of hedgerows and treelines adjoining the site. Protective fencing will be erected in advance of any construction works commencing. Fencing will be erected outside the drip-line of the canopy of retained trees along the site boundaries in order to prevent damage by machinery, compaction of soil, etc. in accordance with BS 5837:2012. This will be signed off on by a qualified arborist or ecologist to ensure it has been erected properly before any machinery is allowed on site. No ground clearance, earth moving, stock-piling or machinery movement will occur within these protected areas.

6.4 Protection Measures for Birds

Section 40 of the Wildlife Act 1976, as amended by Section 46 of the Wildlife (Amendment) Act 2000, restricts the cutting, grubbing, burning or destruction by other means of vegetation growing on uncultivated land or in hedges or ditches during the nesting and breeding season for birds and wildlife, from 1 April to 31 August. **No clearance of vegetation suitable for nesting birds within the site (shrubs, bramble tangles, etc.) will take place during this period. Should such clearance be required than the area proposed for clearance should be inspected by an ecologist to ascertain if any nesting birds are present.**

6.5 Protection Measures for Bats

It is recommended that as much native vegetation, immature and mature trees are retained adjoining and surrounding the site as possible. These areas support large numbers of invertebrates on which both bats and birds rely for feeding and foraging and also provide cover and shelter for a variety of species.

Although no trees have been identified as potential bat roosts within the site. The site should be examined again from the perspective of roosting bats and nesting birds before the works take place as some time will have lapsed between the current survey and the commencement of construction.

Any trees subsequently identified as potential bat roosts that require felling will be subject to appropriate felling measures as detailed in NRA Guidelines for the Treatment of Bats during the Construction of National Road Schemes (National Roads Authority 2006) once the project commences. If any trees are confirmed as bat roosts a bat derogation licence must be sought from National Parks and Wildlife Service in advance of their removal.

The felling/clearance of trees should be scheduled for the autumn months of September/October when bats are less likely to be using trees. This also avoids the bird breeding season.

The felling of all trees, which have been identified as potential bat roosts must be supervised by a bat specialist holding a bat handling licence issued by the National Parks and Wildlife Service, (Department of Environment, Heritage and Local Government). If bats are encountered they should be removed by the licence holder to a bat box, to be sited on a nearby tree and the NPWS notified.

Identified trees must be felled carefully. Specific advice in relation to individual trees will be given on site by a bat specialist. Gradual dismantling of some mature trees may be necessary to ensure the safety of any bats which may be roosting within significant sized boughs or in the trunk. The tree should be inspected by a bat specialist, and depending on the structure of the tree they may need to be left intact on the ground for 24 hours to allow any bats within them to escape prior to processing.

6.6 Soil Handling

The topsoil and subsoil layers should be stripped, stored and maintained separately. Topsoil will be temporarily stored upon geotextile such as Terram 1000 (www.terram.com). This should be a nonwoven geotextile manufactured from UV stabilised, high tenacity, virgin polypropylene fibres that have been both mechanically and thermally bonded with a minimum of 5 years lifespan in all soil conditions. Note that soil levels within the root spread of those treelines and hedgerows that are to be retained should not be raised.

From this temporary storage heap the topsoil will be distributed across the site for landscaping purposes. In general the topsoil should not be firmed, consolidated or compacted when laying. Tipping and grading to approximate levels should be done in one operation with minimum of trafficking by plant.

The topsoil, which is to be retained and reused should not be mixed with: subsoil, stone, hardcore, rubbish or material from demolition work, or the other grades of topsoil, including those contaminated with non-native

invasive species. The topsoil should be handled in the driest condition possible. Topsoil should not be handled during or after heavy rainfall or when it is wetter than the plastic limit less 3%, to BS 1377-2.

Depending on how long the construction period is expected to last it might be necessary to seed the stored topsoil to prevent weed establishment. A recommended mixture is: 35% Chewings fescue, 35% Slender red fescue, 20% Smooth stalked meadow grass and 10% Brown top bent. This should be applied to the manufacturer's recommendations (min. 15g/m2) and the following wildflower mix @ 5g/m2 added:

- Native Origin Irish Wildflower Seed Mixture: Range: Meadow Mixtures (Code MM)
- Product Name: MM01 - Wild Flora for Fertile Top Soil (new top soil)
- Product Code: MM01
- Supplier: Design by Nature www.wildflowers.ie
- Species List: Birdsfoot Trefoil, Black Meddick, Corn Marigold, Corn Poppy, Corncockle, Cornflower, Devil's bit, Field Scabious, Fleabane, Hemp Agrimony, Lesser Knapweed, Meadowsweet, Mullein, Ox-eye Daisy, Ragged Robin, Red Campion, Ribwort Plantain, Self heal, Scented Mayweed, Sorrel, St Johnswort, Wild Angelica, Wild Carrot, Yarrow, Yellow Agrimony.

6.7 Landscaping

Native Irish species, which have been sourced locally should be used in any planting proposals and should be certified as being of Irish origin to ensure genetic diversity.

6.8 Lighting

The lighting proposed for the house should be wildlife friendly. Design recommendations from the BCT (2010) for wildlife-friendly lighting include:

1. Do not "over" light. This is a major cause of obtrusive light and is a waste of energy. Use only the minimum amount of light needed for safety. There are published standards for most lighting tasks, adherence to which will help minimise upward reflected light.
2. Eliminate any bare bulbs and any light pointing upwards. The spread of light should be kept near to or below the horizontal.
3. Use light sources that emit minimal ultra-violet light. Insects are attracted to light sources that emit ultra-violet radiation.
4. In general any lighting used should not overspill onto the adjoining trees and woodland thereby ensuring that a dark corridor for foraging and commuting bats and movement for other wildlife is maintained.

7.0 CONCLUSIONS

The site for the proposed dwelling at Redgap, Rathcoole has been assessed from the perspective of ecology and several mitigation measures are presented to avoid any negative impacts on same in the vicinity of the proposed development and surrounding lands.

This report recommends that the above mitigation measures be reflected in the Construction Management Plan/Method Statements prepared for the site.

With mitigation in place, negligible effects are predicted to occur to biodiversity. Overtime the various planting and landscaping measures will mature and offer additional habitat for common species which can adapt to these settings.

As stated earlier within the report the applicant is very happy to engage and implement all recommendations stated in the Chief Executive's Order (PR/0672/21) Page 20 under Reg Ref SD21A/0073. In the event of a grant of permission that the lighting scheme for the development be agreed with the SDCC Heritage Officer, utilising lower impact lighting fixtures such a bollard lighting. The applicant also agreed that the mitigation measures which are stated within this report will be implemented.

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