Preliminary Ecological Appraisal

Carrowreagh Road, Dundonald

September 2024

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1. Introduction

1.1 Proposed Works

1.1.1 The site is at Carrowreagh Road, Dundonald. A Digestate treatment building is planned.

1.2 Scope of document

1.2.1 A Preliminary Ecological Appraisal was required. A Preliminary Ecological Appraisal may not necessarily need to cover all species or habitats, only those of specific concern for the project and the assessment can be tailored accordingly. In this case a full assessment was carried out covering all species.

1.2.2 The red line area is here on referred to as 'the site'.

1.3 Statement of Authority

1.3.1 The assessment was carried out by Kerry Leonard BSc (Hons), MSc, MCIEEM. Kerry is the principal of Sterna Environmental Ltd, an ecological consultancy in Bangor, Co. Down. Kerry has 40 years of experience identifying and monitoring Northern Irish wildlife, with a principal interest in birds, mammals and Lepidoptera. He is knowledgeable in the identification, tracks and signs of these and other relevant species groups in Northern Ireland. Kerry has experience on a wide variety of projects including wind farms, single wind turbines and for large and small commercial development works of many types including bat roost assessments, bat surveys, mammal surveys, bird surveys, marine mammals, Biodiversity Checklists and Preliminary Ecological Assessments. He has been operating as a professional consultant ecologist for sixteen years. Kerry has a first-class honours degree in Environmental Biology from QUB, a Masters degree from UU and is a full Member of CIEEM, the Chartered Institute of Ecology and Environmental Management.

1.4 The Preliminary Ecological Appraisal process

1.4.1 A Preliminary Ecological Appraisal may be used:

- to gather baseline data on existing ecological and biodiversity at the site of a development.
- to determine if any more detailed studies are required on individual habitats or species to better inform the planning decision. Like a full Ecological Impact Assessment, the appraisal will assign value to protected habitats and species, and suggest mitigation measures.
- to identify constraints on the project.
- to identify mitigation measures required, as far as possible.
- to identify enhancement opportunities.

1.4.2 Within Northern Ireland the scope of a Preliminary Ecological Appraisal can be further refined by the Northern Ireland Biodiversity Checklist (Practice Guide 2017), and by specific requests from planners. Thus, a Preliminary Ecological Appraisal may not necessarily need to cover all species or habitats, only those of specific concern for the project.

1.4.3 At the heart of the process is the assigning of 'value' to features of ecological significance, the identification of potential impacts upon those features, and a determination of the probable significance of the impacts upon the features based upon the appraisal.

1.4.4 The process used in this document follows as closely as possible the guidelines for Preliminary Ecological Appraisal laid down by the Chartered Institute of Ecology and Environmental Management, namely the Guidelines for Preliminary Ecological Appraisal (2017). The Guidelines for Environmental Impact Assessment (2018 update) are also adhered to.

1.4.5 The magnitude of the impacts on the features during both construction and operational phases is considered. The magnitude of ecological impacts considers the size of an impact.

1.4.6 Significance of impacts on sites of conservation interest, and species, is based on their presence as determined by the Preliminary Ecological Appraisal, or any further detailed appropriate surveys which are subsequently required. An ecologically significant impact is defined as an impact (either negative or positive) on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographical area.

1.4.7 The probability of the predicted outcome occurring ranges from Near-Certain to Extremely Unlikely.

1.4.8 The practice guide outlines several steps which should be undertaken by an applicant.

- If required, completion of the Northern Ireland Biodiversity Sites and Habitats Checklist and the Sites and Habitats Evaluation;
- If required, completion of the Northern Ireland Biodiversity Protected Species Checklist;
- If required a full Preliminary Ecological Appraisal of possible impacts on designated sites and biological records searches for local data (exact requirement defined by the scope of the appraisal);
- Completion of an Ecology Statement and Mitigation Plan as appropriate for the development;
- Declaration.

1.5 General constraints on Preliminary Ecological Appraisals

1.5.1 A Preliminary Ecological Appraisal is a preliminary high-level survey used to assess the ecological potential of a site and is a snapshot at that moment. It is important for planners and

applicants to understand the constraints inherent in all such Preliminary Ecological Appraisals, what a Preliminary Ecological Appraisal is and what it is not.

1.5.2 Preliminary Ecological Appraisals are not expected to find or identify every species present or provide a detailed vegetation survey. Ecological surveys are limited by factors which affect the presence of plants and animals such as the time of year, migration patterns and behaviour.

1.5.3 A Preliminary Ecological Appraisal will therefore not produce a complete list of plants and animals for a site and the absence of evidence for any particular species during the preliminary survey should not be taken as conclusive proof that the species is not present, has never been present or that it will not be present in the future. This is particularly important for undesirable species (e.g. invasive plant species) or mobile animal species (e.g. Badger).

1.5.4 It is therefore not always possible to provide definitive evidence of a species' presence/likely absence at a site and so in the absence of direct evidence, assessments and recommendations will also be based on the presence of suitable habitat within/adjacent to a site, and the professional experience and judgement of the ecologist. This produces an intelligent preliminary assessment of the likelihood of ecological impacts for a site and whether further work is required.

1.6 Ecology Statement

1.6.1 The Ecology Statement and Declaration Chapters in this document fulfil the requirement for a signed Ecology Statement to be produced as Part 4 of the Northern Ireland Biodiversity Guidelines for any form of Preliminary Ecological Assessment.

1.7 Assigning value - sites

1.7.1 The biodiversity value of a site, as measured by such factors as:

- animal or plant species, subspecies or varieties that are rare or uncommon, either internationally, nationally or locally;
- endemic species;
- locally distinct sub-populations of a species;
- species-rich assemblages;
- ecosystems and their component parts, which provide the habitats required by species of conservation interest;
- habitat diversity and connectivity;
- notably large populations of animals or concentrations of animals considered uncommon or threatened in a wider context;
- plant communities that are typical of valued natural/semi-natural vegetation types.

1.7.2 A site may have secondary value as part of a corridor or complex of smaller sites that facilitate the migration or dispersal of species, or as a buffer zone that protects a valued site from adverse environmental impacts. A site or species may also have social or economic value.

1.8 Assigning value - site designations

1.8.1 The principal designations which may be used to protect species in Northern Ireland are Areas of Special Scientific Interest (ASSIs), Special Protection Areas (SPAs) and Special Areas of Conservation (SAC). Areas of Special Scientific Interest are areas of land that have been identified by scientific survey as being of the highest level of conservation value. They have a well-defined boundary and by and large remain in private ownership. The underlying philosophy is to achieve conservation by co-operation with landowners. NIEA have declared areas of land as ASSIs where that land is of special scientific interest because of the flora or fauna that is found on it, or because of geological features.

1.8.2 The Habitats Directive (92/43/EC) contains several stringent tests relating to the authorisation of projects which are likely to affect a European site such as a SAC or SPA. The Directive is transposed into NI law by the Conservation (Natural Habitats etc.) Regulations (NI) 1995 (as amended). For any development likely to have a significant effect on a European site, the Regulations require a competent authority to make a Habitats Regulations Assessment of the project in the context of the site's conservation objectives. The Northern Ireland Environment Agency, as the relevant competent authority, is therefore required by law to carry out this assessment.

1.8.3 An additional designation which may be relevant is a Site of Local Conservation and Nature Interest (SLNCI). A SLNCI is a local nature reserve, of local conservation value but not of such status to warrant ASSI designation.

1.9 Assigning value - species

1.9.1 The status of all individual species in Northern Ireland is periodically assessed by statutory conservation bodies and NGOs, the resulting output being a list of Northern Ireland priority species. Northern Ireland priority species are written into Northern Ireland planning policy. Species which meet any one of the following criteria are considered to be Northern Ireland Priority Species.

1. Rapid decline (2% per year).
2. Decline (1% year) with Northern Ireland being a stronghold consisting of either:

   >50% of the All-Ireland population or.

   >20% UK population/range or;

   the Irish or UK population is restricted to Northern Ireland.
3. Rare - confined to a small population of one or two sites in Northern Ireland with Northern Ireland being a stronghold consisting of either:

   >50% Irish population or;

   >20% UK population/range or;

   the Irish or UK population restricted (R) to Northern Ireland.

4. At least 20% of the international population of species or well-recognised subspecies occurring in Northern Ireland.
5. Irish Red Data Book (RDB) species classed as critically endangered (CR), endangered (EN) or vulnerable (VU).
6. Red-listed species in either Birds of Conservation Concern in Ireland (BOCCI) or the UK Birds of Conservation Concern (UK BOCC) lists. The current Northern Ireland Priority species list uses species listed in BOCCI 2 (200-2013).
7. Rare - confined to a small population of one or two sites in Northern Ireland with Northern Ireland being a stronghold consisting of either:

   >50% Irish population or;

   >20% UK population/range or;

   the Irish or UK population restricted (R) to Northern Ireland.
8. At least 20% of the international population of species or well-recognised subspecies occurring in Northern Ireland.
9. Irish Red Data Book (RDB) species classed as critically endangered (CR), endangered (EN) or vulnerable (VU).
10. Red-listed species in either Birds of Conservation Concern in Ireland (BOCCI) or the UK Birds of Conservation Concern (UK BOCC) lists.

1.10 Protected Birds

1.10.1 The main ways value can be assigned to bird species are: species listed in Schedule 1 of the Wildlife Order (1985) as amended by the Northern Ireland Wildlife Act (2011); species protected under the EU Birds Directive; feature species of designated sites; species listed in the Birds of Conservation Concern in Ireland (2020-2026); and Northern Ireland Priority Species. These are not mutually exclusive categories - species have been listed on Schedule 1 for example, or designated as site feature species, because of their presence on priority species lists.

1.10.2 European protected species which are listed in Annex 1 of the EU Directive on the conservation of wild birds are specially protected. Most often this protection is enacted by the designation of SPAs (see above). However, developments outside a SPA may also impact upon such species, particularly where that species is mobile and may only spend part of its life cycle within the SPA. Species which are listed as features of SPAs or ASSIs will receive extra protection, and are therefore of higher value, as the integrity of the protected site should be protected. At a European level, SPAs are the highest level of protection possible for a species in Europe.

1.10.3 The Birds of Conservation Concern in Ireland (BOCCI) list operates as a 'traffic light' system where the status of each species is reviewed against a set of quantitative criteria and assigned to Red, Amber or Green lists, providing a simple and understandable mechanism for identifying

priorities (Gilbert *et al*. 2021). The list covers the whole of the island of Ireland. While it has no formal role in Northern Ireland planning policy this list is integral when identifying Northern Ireland priority species. Red-listed species are those of highest conservation priority. Several criteria were used to assess every bird species and assign to the Red or Amber list, including:

- International Union for Conservation of Nature status.
- European Conservation status.
- Historical decline in breeding population.
- Breeding population declines.
- Non-breeding population declines.
- Declines in breeding range.
- Breeding rarity.
- Localised breeding or wintering population within Ireland.
- International importance of breeding or wintering populations.

1.10.4 Under the Northern Ireland Wildlife Order (1985), as amended by the Northern Ireland Wildlife Act (2011), it is an offence to recklessly disturb or destroy the nest of a breeding bird in Northern Ireland. The only exception to this is the nests of a small number of species listed under the General Licence which can be removed humanely if there is a risk to Public Health and Safety.

1.10.5 All nests are thus legally protected and cannot be removed or destroyed. The breeding season is defined as 1st March to 31st August, although an active nest is protected at all times. Inactive or disused nests are not protected and could be removed, with the exception of a small number of species on Schedule A1 of the legislation.

1.10.6 Observation of bird behaviour and activity in an area can indicate the presence of a nest, even though the nest itself is not found. To remove or damage trees or buildings where, based on expert opinion, it is highly probable that a bird is actively nesting, would be considered reckless and in contravention of the law.

1.11 Bats in Northern Ireland

1.11.1 There are currently eight known species of bat in Northern Ireland:

- Brown Long-eared Bat *Plecotus auritus*
- Common Pipistrelle *Pipistellus pipistrellus*
- Soprano Pipistrelle *Pipistrellus pygmaeus*
- Nathusius' Pipistrelle *Pipistrellus nathusii*
- Daubenton's Bat *Myotis daubentonii*
- Natterers's Bat *Myotis nattereri*
- Whiskered Bat *Myotis mystacinus*

- Leisler's Bat *Nyctalus leisleri*

1.11.2 All Northern Ireland bats are listed in Annex IV of the EU Habitats Directive which requires that they are accorded strict protection. Under the Conservation (Natural Habitats etc.) Regulations (NI) 1995 (as amended in 2009) which enacts this directive, it is an offence to damage or destroy a bat's breeding or resting place. In summary, the regulations state it is an offence to;

- disturb such an animal while it is occupying a structure or place which it uses for shelter or protection;
- disturb such an animal in such a way as to be likely to;
  - (i) affect the local distribution or abundance of the species to which it belongs;
  - (ii) impair its ability to survive, breed or reproduce, or rear or care for its young;
  - (iii) impair its ability to hibernate or migrate;
- obstruct access to a breeding site or resting place of such an animal;
- damage or destroy a breeding site or resting place of such an animal.

1.11.3 The Convention on the Conservation of European Wildlife and Natural Habitats (known as the Bern Convention) places obligations on EU Member States to protect threatened or endangered species and their habitats and to ban the use of many unselective methods of capture. It was translated into domestic legislation through the Wildlife (Northern Ireland) Order 1985.

1.11.4 The Convention on the Conservation of Migratory Species of Wild Animals (known as the Bonn Convention) is intended to encourage co-operation between Member Parties in the conservation of species that move between range states. Member States can set up Agreements to co-operate for the conservation benefit of listed species, which includes all European bats.

1.12 Badgers in Northern Ireland

1.12.1 Badgers *Meles meles* are a nationally protected species and they are susceptible to impacts from development such as disturbance or direct impacts on their places of refuge (normally setts).

1.12.2 Badgers are a large mammal which is traditionally associated with woodlands. However, they are widespread across Northern Ireland where they have a high tendency to use hedgerows for their setts due to lower cover of woodland in Northern Ireland compared to the rest of the United Kingdom.

1.12.3 Badgers are omnivores, meaning they feed on both plants and animals. Earthworms and other invertebrates make up a large part of their diet. They mainly forage in woodland, pasture, parkland, farmland, amenity grassland and gardens.

1.12.4 Badgers leave characteristic marks on the ground, called snuffle holes, when foraging. Badgers live in underground structures called setts and social groups of badgers will have a number of setts in their territory with the main sett being the focus of activity and the place where the badgers normally live throughout the year.

1.12.5 Badgers are listed on schedules 5, 6 and 7 of the Wildlife (Northern Ireland) Order 1985 (as amended). Under the Order it is an offence to:

- intentionally or recklessly kill, injure or take a badger; or
- intentionally or recklessly damage or destroy, or obstruct access to, any structure or place (normally a sett) that badgers use for shelter or protection; or
- intentionally or recklessly damages or destroys anything which conceals or protects any such structure; or
- intentionally or recklessly disturbs a badger while it is occupying a structure or place which it uses for shelter or protection.

1.12.6 In addition, any person who knowingly causes or permits to be done an act which is made unlawful by any of these provisions shall also be guilty of an offence.

1.13 Otters in Northern Ireland

1.13.1 Otters *Lutra lutra* are a European protected species (EPS) and a Northern Ireland priority species. Development can cause disturbance or impact directly on their places of refuge or feeding areas. Otters are listed on Annex IV of the EC Habitats Directive (92/43/EEC) and are protected under the Conservation (Natural Habitats etc.) Regulations 1995 (as amended), known as the Habitats Regulations.

1.13.2 Otters in Northern Ireland inhabit freshwater rivers and lakes as well as coastal areas. They also use suitable surrounding habitat including woodland, scrub, bogs, marshes and reed beds.

1.13.3 Within its territory, an Otter will have a number of resting places called couches and holts. Couches are above ground resting places used during the day. They can be an uncovered nest like structure but often are not as conspicuous as this and may simply be an area of flattened vegetation in long grass or reed beds which does not appear to offer any protection from disturbance. A holt is essentially a hole in the ground which is used by an otter for sleeping and resting.

1.14 Smooth Newts in Northern Ireland

1.14.1 Smooth Newts *Lissotriton vulgaris* are fully protected in Northern Ireland under Schedules 5 to 7 of the Wildlife (Northern Ireland) Order 1985 (as amended) and are afforded additional protection under Annex III of the Habitats Directive.

1.14.2 Newts are found in a diversity of habitats including uplands, farmland and urban areas, but are most likely to be found in small to medium sized ponds. The breeding habitat varies from large to small ponds to densely weeded ditches.

1.15 Common Lizards in Northern Ireland

1.15.1 In Northern Ireland the Common Lizard *Zootoca vivipara* is protected under Article 10 of the Wildlife (Northern Ireland) Order 1985 (as amended). This species is highly likely to be present in most sand dunes, upland peatland and adjacent semi-natural grassland areas but can also be found in scrub or woodland near these key habitats.

1.16 Red Squirrels

1.16.1 Red Squirrels *Sciurus vulgaris* and their dreys are protected under Article 10 of the Wildlife (Northern Ireland) Order 1985 (as amended).

2. Relevant policies, legislation and guidance

2.1 Overview

2.1.1 This section outlines the relevant legislation, polices and guidance (government and otherwise) that have been consulted while preparing this report.

2.2 Policies and guidance

2.2.1 This report has been prepared with reference to the following policies and guidance, further references are given at the end of the report. The British Standard 42020:2013: Biodiversity Code of practice for planning and development is followed.

- Bat Conservation Trust Good Practice Guidelines (4th Edition).
- NIEA Bat Survey Guidelines (2024), Newt Survey Guidelines (2017), Badger Survey Guidelines (2017), Lizard Survey guidelines (2017), Otter survey guidelines (2017).
- Wildlife and Natural Environment Act (Northern Ireland) 2011.
- The Planning (Environmental Impact Assessment) Regulations (Northern Ireland) 2017.
- The Planning (Trees) Regulations (Northern Ireland) 2015.
- The Conservation (Natural Habitats etc.) Regulations (NI) 2015 (as amended).
- The Environment (Northern Ireland) Order 2002.
- Strategic Planning Policy Statement for Northern Ireland.
- Planning Policy Statement (PPS) 2 – Natural Heritage.
- Planning Standing Advice for Badgers, Smooth Newts, Common Lizards, Hedgerows, Otters, Bats, Wild Birds, Hedgerows and Priority Habitats.
- EU Directive on the Conservation of natural habitats and of wild fauna and flora (92/43/EEC - The Habitats Directive).
- List of Northern Ireland Priority Species.
- CIEEM Guidelines to preparing Preliminary Ecological Appraisals (2017).
- CIEEM Guidelines to preparing Environmental Impact Assessments (2018 update).

3. Methods

3.1 Desktop Survey

3.1.1 A request for biodiversity records within 2km was made to the Centre for Environmental Data and Recording (CEDaR) at the Ulster Museum.

3.1.2 The websites and documents (or their replacements) outlined on page 4 of the Northern Ireland Biodiversity Checklist Practice Guide were consulted to identify nearby sites of conservation importance.

3.2 Assessment area

3.2.1 Assessment and survey took place within the site and any buffer area specified by the results of the Northern Ireland Biodiversity Checklist or the species-specific advice supplied by DAERA (typically features up to 25-50m metres from the site).

3.3 Birds

3.3.1 Evidence of active or recent nests was looked for within the site.

3.3.2 All bird species encountered were recorded.

3.3.3 The requirement for further survey work was assessed.

3.4 Badgers

3.4.1 A careful examination of all potentially suitable badger habitat including field boundaries, scrub and hedgerow habitats was made for setts and field signs indicative of badger activity, within the site and a 25m buffer as specified by *Badger Survey – Specific Requirements* (NIEA, 2017).

3.4.2 Field signs are characteristic and sometimes obvious, and include sett entrance holes, tufts of hair caught on barbed wire fences, conspicuous badger paths, footprints, small excavated pits of latrines in which droppings are deposited, scratch marks on trees and snuffle holes.

3.4.3 Badgers use different kinds of setts for different purposes and at different times of year. The sett categories adopted for this assessment follow nationally recognised definitions (Table 1).

3.4.4 Usage of a sett is assessed using a three-level grading system (Table 2).

3.4.5 The requirement for further survey work was assessed.

Table 1 Sett classifications

Sett type	Description
Main	Main setts are normally in continuous use and are usually used for breeding. They generally include a large number of entrance holes with significant amounts of earth spoil piled around the surrounding ground. The holes and surrounding area generally show strong signs of current active use, including well used paths and well-worn tracks and sett entrances.
Annex	Usually quite close to a main sett - normally only tens of metres. They are usually clearly linked to the nearby main sett by well-worn paths. Usually have multiple holes, not all of which may appear active but some holes usually show signs of recent activity at most times of year. An accumulation of spoil around the sett area Is possible.
Subsidiary	Setts with only a small number of holes (generally 1-5) at some distance from a main sett. Often without obvious linking paths. The holes can be very variable in signs of usage. Often much less consistently in use than those of main or annex setts. Generally, do show signs of recent use. They tend to be repeatedly used and accumulations of spoil are usually present.
Outlying	Outlying setts usually consist of a single or double hole but may occasionally have more. Generally, they have only a small accumulation of spoil at the hole entrance. Not clearly linked to other setts by worn trails. They are usually only used sporadically.

Table 2 Grading of activity

Usage grade	Description
A	Active sett or hole displaying evidence of recent use. For example, fresh bedding in the entrance or around the sett, fresh, earth around the sett, footprints, well-used trails in the vicinity of the sett and the presence of fresh latrines.
B	A potentially active hole, which may have been used within the past 12 months. A Grade B sett would tend to display relatively recently excavated earth mounds around the entrance, but may show some plant colonisation.
C	Disused sett or hole with no evidence of current or recent usage. Often contain accumulations of dead leaves or other debris in their entrances and their associated. Grade C holes are sometimes partly obstructed, by soil, twigs or as a result of collapsed tunnels.

3.5 Otters

3.5.1 A careful examination of all potentially suitable Otter habitat was carried out. The need for further survey work was assessed.

3.5.2 Guidance was sought from *Otter Survey – Specific Requirements* (NIEA 2017). The range of field signs indicative of otter presence includes:

- Live Sightings;
- Spraints;
- Food remains;
- Rolling places;
- Slides down river banks;
- Footprints or paths; and
- Shelters/resting/breeding holts.

3.5.3 The survey followed broadly the best practice survey methodology as recommended by Lenton *et al.* (1980), Chanin (2003) and Bailey & Rochford (2006).

3.5.4 The need for further survey work was assessed.

Table 3 Otter site classification

Usage grade	Description
Natal Holt	A heavily used cavity or hole in a river bank, in the ground, under tree roots, within rocks or caves where the back cannot be readily seen. If active this will usually contain field evidence such as spraints. Evidence of frequent use or breeding.
Holt	A cavity or hole in a river bank, in the ground, under tree roots, within rocks or caves where the back cannot be readily seen. If active this will usually contain field evidence such as spraints.
Hover	A bolt hole or ledge that will afford an otter temporary cover or a place to feed on captured prey. The back of the hover can usually be seen. If active there may be footprints, feeding evidence or spraints. In practice there may be some overlap on any one site being defined as a hover or a holt, but a hover is really a shallower more temporary site. Over time some hovers may become deeper holts. The use of the term hover separates such types of site from couches.
Couch	above ground where an otter can lie up or groom; these may take the form of a simple swirl or depression in tall grasses where the otter has laid, or may be covered in a vegetated grass or reed 'roof';

3.6 Smooth Newts

3.6.1 A search for, and careful examination of, all potentially suitable Smooth Newt habitat was carried out. Notes were made of potential breeding water bodies recorded within the development footprint and immediate surrounds along with the presence of frogs/tadpoles, fish, and predatory birds.

3.6.2 The Preliminary Appraisal was guided by the Smooth Newt specific full survey requirements (NIEA 2017) and standing advice.

3.6.3 A Habitat Suitability Index (HSI) was developed for Great Crested Newt *Triturus cristatus* by Oldham *et al*. (2000), and this can be adapted to use with Smooth Newts. This index was *not* specifically designed to be used with Smooth Newt. However, it is generally accepted that it has some value as an objective quantification tool for Smooth Newt habitat. It provides an index value which can be of coarse value for assessing Smooth Newt habitat. This can be combined with surveyor knowledge and experience (Table 4).

3.6.4 The HSI is a geometric mean of ten suitability indices: HSI = (SI1 x SI2 x SI3 x SI4 x SI5 x SI6 x SI7 x SI8 x SI9 x SI10) x 1/10. Ten factors are scored for a pond, in the field and from map work (field scores).

3.6.5 The ten field scores are converted to SI scores, on a scale from 0.01 to 1 (0.01 is used as the lower end of the scale instead of 0, because multiplying by 0 reduces all other SI scores to 0). The ten SI scores are multiplied together. The tenth root of this number is calculated (x) 1/10 i.e. x to the power of 0.1. The higher the score, the better the habitat.

3.6.6 A HSI Pond suitability of < 0.5 = poor; 0.5-0.59 = below average; 0.6-0.69 = average; 0.7-0.79 = good; > 0.8 = excellent.

3.6.7 Graphs in Table 4 courtesy of Amphibian and Reptile Groups of the United Kingdom.

3.6.8 The need for further survey work was assessed.

3.7 Common Lizards

3.7.1 A search for, and careful examination of, all potentially suitable Lizard habitat was carried out.

3.7.2 The Preliminary Appraisal was guided by the specific full survey requirements (NIEA 2017) and standing advice.

3.7.3 The need for further survey work was assessed.

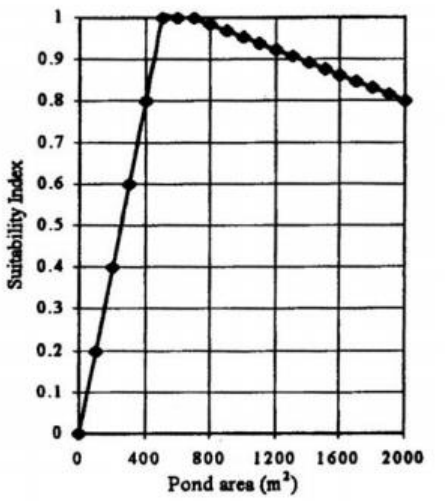
3.8 Red Squirrels

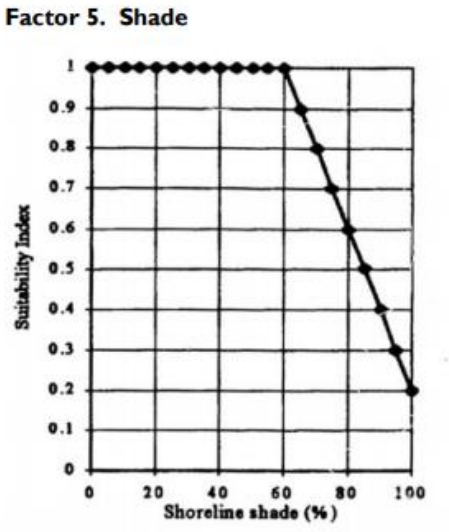
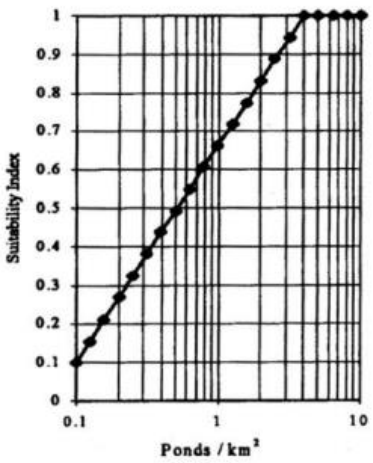
3.8.1 An assessment was made of the site suitability for Red Squirrels, search for signs and dreys.

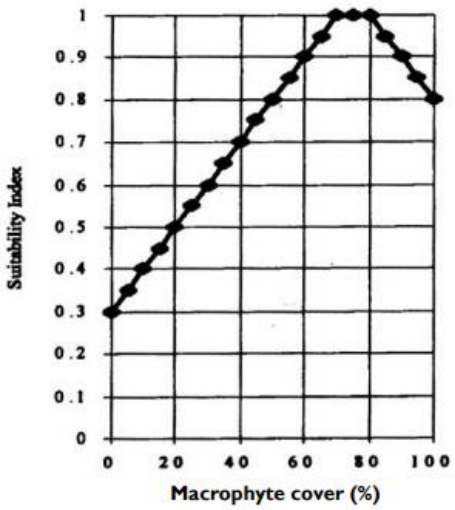
3.8.2 The need for further survey work was assessed.

Table 4 Newt Habitat Suitability Index

(Graphs courtesy of Amphibian and Reptile Groups of the United Kingdom)

	Usage grade	Description
1	Geographic location	There is no evidence of any difference in Smooth Newt distribution any part of Northern Ireland. Therefore, for Smooth Newt in Northern Ireland this is scored 1.
2	Pond Area	A score is given for the area of the pond. It can be particularly difficult to read off SI scores for very small ponds. Smooth Newts are more likely to be found in smaller ponds than Great Crested Newt, so professional judgement should be factored into this assessment. 
3	Pond Permanence	Pond permanence should be deduced from local knowledge and personal judgement. • Never dries 0.9 (Never dries); • Rarely dries 1.0 (Dries no more than two years in ten or only in drought); • Sometimes dries 0.5 (Dries between three years in ten to most years); • Dries annually 0.1 (Dries annually).
4	Water quality	• Good 1.0 Water supports an abundant and diverse invertebrate community. Handfuls of diverse invertebrates, including groups such as mayfly larvae and water shrimps. • Moderate 0.67 Moderate invertebrate diversity. • Poor 0.33 Low invertebrate diversity (e.g. species such as midge and mosquito larvae). Few submerged plants. • Bad 0.01 Clearly polluted, only pollution-tolerant invertebrates (such as rat-tailed maggots), no submerged plants.

5	Shade	Estimate percentage pond perimeter shaded. 
6	Waterfowl	• Absent 1 No evidence of waterfowl impact (moorhens may be present). • Minor 0.67 Waterfowl present, but little indication of impact on pond vegetation. Pond still supports submerged plants and banks are not denuded of vegetation. • Major 0.01 Severe impact of waterfowl. Little or no evidence of submerged plants, water turbid, pond banks showing patches where vegetation removed, evidence of provisioning waterfowl.
7	Fish	• Absent 1 No records of fish stocking and no fish revealed. • Possible 0.67 No evidence of fish, but local conditions suggest that they may be present. • Minor 0.33 Small numbers of crucian carp, goldfish or stickleback known to be present. • Major 0.01 Dense populations of fish known to be present.
8	Pond count	Divide the number of ponds within 1km by π (3.14) to calculate the density of ponds per km^2 and read off the SI value from graph. 

9	Terrestrial habitat	Good terrestrial habitat offers cover and foraging opportunities and includes meadow, rough grassland with tall sward height, scrub, woodland or mature gardens. • Good 1 Habitat that offers good opportunities for foraging and shelter (e.g. most seminatural environments, such as rough grassland, scrub or woodland, also brownfield sites and low intensity farmland) covers more than 75% of available area. • Moderate 0.67 Habitat offers opportunities for foraging and shelter but may not be extensive (25- 75%) of available area. • Poor 0.33 Habitat with poor structure (e.g. amenity grassland, improved pasture and arable) that offers limited opportunities (less than 25% of available area) for foraging and shelter. • None 0.01 No suitable habitat around pond (e.g. centre of arable field or large expanse of bare habitat)
10	Macrophytes	Estimate the percentage of the pond surface area occupied by macrophyte cover. 

3.9 Habitats

3.9.1 The habitats were assessed and mapped using the JNCC Phase 1 methodology.

3.9.2 The need for further survey work was assessed.

3.10 Protected Plants

3.10.1 An assessment was made of the potential impacts on protected plants and whether any further survey work was required.

3.11 Invasive species

3.11.1 A preliminary survey of invasive species was carried out. An assessment was made of the potential impacts of invasive species and whether any further survey work was required.

3.12 Invertebrates and Butterflies

3.12.1 An assessment was made of the potential impacts on invertebrates and butterflies, and whether any further survey work was required.

3.13 Bat Roost Potential - structures

3.13.1 An external Potential Roost Assessment is used to identify features of buildings which may hold roosting bats. This non-invasive survey is carried out by looking for signs in and around buildings which could indicate that bats are present, and for potential roosting features. This includes: droppings on the outside of buildings; staining; cavities or holes in walls or soffit; cracks or gaps behind fascia board.

3.13.2 Should a bat roost be found then the observer would not disturb the roost or investigate further without a licence, it then becomes a bat roost protected under the legislation.

3.13.3 An EM3+ bat broadband bat detector is used around the building to listen for social calls of roosting bats.

3.13.4 A scale of roost potential is provided by the Bat Conservation Trust Guidelines 4th Edition. Table 4.1 of the Guidelines presents five levels of potential roost value (None, Negligible, Low, Moderate, High).

3.13.5 Sites assessed as 'None' have no potential roost features.

3.13.6 Negligible sites are assessed as having very limited (perhaps only one) features which normally would not be used by bats, but occasional use, typically by one bat, could not be ruled out.

3.13.7 Low potential sites have one or more potential roost feature suitable for roosting or are unlikely to have features which could be used by significant numbers of bats.

3.13.8 Moderate and High sites have more potential roost features, features which are more likely to support significant roosts, or are closer to superior habitat.

3.13.9 An individual building must be rated using these categories.

3.13.10 For a building rated Low-High further bat roost survey work is required.

3.14 Bat Roost Potential -trees

3.14.1 The methodology for assessing the bat roost potential of trees follows guidance laid out in Chapter 6 of Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th Edition), produced by the Bat Conservation Trust.

3.14.2 A Ground Level Tree Assessment (GLTA) was carried out on each tree, looking for potential roost features such as holes, cracks, knotholes and very thick latticed ivy.

3.14.3 Trees categorised 'None' have no potential roost features or are assessed as highly likely to have no features.

3.14.4 Trees categorised as FAR require further assessment.

3.14.5 Trees categorised as PRF have at least one PRF. Each PRF is further categorised as PRF-I or PRF-M. PRF-I features are suitable for individual bats but require no further work,

3.14.6 PRF-M features have features suitable for multiple bats. PRF-I features are treated as Low suitability. PRF-M features are treated as having High suitability.

4. Results and baseline conditions

4.1 Overview

4.1.1 The site is at lands at Carrowreagh Road. The site was visited on 12th April 2024, it was revisited on 19th September 2024. This section covers the results of the Preliminary Ecological Appraisal.

4.2 Specific Constraints

4.2.1 See the Constraints section in Chapter 1 for general constraints on the Preliminary Ecological Assessment process.

4.3 Desktop survey

4.3.1 There are 2497 records available from CEDaR within 2km of the site, although many of these records were non-localised within the 10km square and well outside the 2km limit.

4.3.2 There are no records for the site itself.

4.3.3 Where there were significant species recorded these records are discussed under the pertinent species/species group headings below. None of the species locations recorded were directly pertinent to this development.

4.4 Protected sites (local)

4.4.1 Craigantlet Woods Site of Local Nature Conservation Interest is approximately 100m from the site.

4.5 Protected sites (national and international)

4.5.1 There are no nationally or internationally designated sites within 100m.

4.5.2 There are nationally designated sites within 2km.

4.5.3 There are internationally designated sites within 15km.

Table 5 Nationally designated sites within 10km

Site	Description	Approximate distance
Craigantlet Woods ASSI ASSI164	The woods are composed of a mature Ash Fraxinus excelsior canopy with frequent Wild Cherry Prunus avium. The dense understorey is predominantly by Hazel with Rowan Sorbus aucuparia and Hawthorn the most frequent associates. The ground flora is typical of flushed, base-rich woods and is characterised by the lush growth of a rich variety of herbs and ferns. Wet rock faces are frequent along the rivers and streams. The woodland flora includes a number of rare plants such as Wood Millet *Milium effusum,* Wood Fescue *Festuca altissima* and Toothwort *Lathraea squamaria*. In addition, Craigantlet Woods provide an extensive area of semi-natural habitat for woodland animals, and a range of breeding birds.	0.32km

Table 6 Internationally designated sites within 10km

Site	Description	Approximate distance
Strangford Lough SAC (UK0016618)	This area has been designated as a Special Area of Conservation (SAC) because it contains habitat types and/or species which are rare or threatened within a European context. *Qualifying features:* • Coastal lagoons • Large shallow inlets and bays • Annual vegetation of drift lines • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) • Mudflats and sandflats not covered by seawater at low tide • Perennial vegetation of stony banks • Common Seal • Reefs • Salicornia and other annuals colonising mud and sand	6.2km
Strangford Lough SPA (UK9020111)	The site qualifies under Article 4.1 of EC Directive 79/409 on	6.2km

	the Conservation of Wild Birds by supporting internationally important breeding populations of both Sandwich Tern *Thalasseus sandvicensis* and Common Tern *Sterna hirundo* and nationally important breeding populations of Arctic Tern *Sterna paradisaea*. The site qualifies under Article 4.2 of the Directive by regularly supporting in winter over 20,000 waterfowl.	
Strangford Lough RAMSAR	The site further qualifies under Criterion 1 by virtue of supporting a variety of important wetland features. Areas of fringing saltmarsh and freshwater habitats support a diversity of wetland plant species. Strangford Lough supports one of the most extensive saltmarsh areas in Northern Ireland. Strangford also qualifies under Criterion 2a by supporting an important assemblage of vulnerable and endangered wetland plants and animal species. These include a number of marine sponges, marine hydroids, marine mollusc and sea urchins. The mudflats support luxuriant beds of eelgrass. Strangford Lough is the most important breeding site in Ireland for the Common Seal. North Boretree Rock which is located at the north of the Lough supports one of the largest colonies. This site also qualifies under Criterion 3a by regularly supporting over 20,000 wintering waterfowl. It qualifies under Criterion 3c by regularly supporting, in winter, internationally important numbers of Light-bellied Brent Geese *Branta bernicla hrota*, Knot *Calidris canutus* and Redshank *Tringa totanus*.	6.2km
Outer Ards SPA (UK9020271)	The principal interests are the breeding colony of Arctic Tern, together with the wintering populations of Light-bellied Brent Goose, Golden Plover *Pluvialis apricaria*, Turnstone *Arenaria Interpres* and Ringed Plover *Charadrius hiaticula*.	13.5km
Outer Ards RAMSAR	The boundary of the Ramsar site is entirely coincident with the Outer Ards Area of Special Scientific Interest together with the Ballymacormick Point ASSI. This site has been selected for designation as a Ramsar site because of its	13.5km

	important breeding and wintering populations of waterfowl. The principal interests are the wintering populations of Light-bellied brent goose, Golden Plover, Turnstone and Ringed Plover. It qualifies under Criterion 6 for regularly supporting 1% of the individuals in the population of those species.	
Belfast Lough SPA (UK9020101)	Belfast Lough is a large intertidal sea lough situated at the mouth of the River Lagan on the east coast of Northern Ireland. The inner part of the lough comprises a series of mudflats, shell dominated banks and artificial lagoons. The outer lough is mainly rocky shores with a number of sandy bays on the southern shore with more extensive mixed sediment intertidal areas on the northern side. It is designated for feature bird species: Redshank; Bar-tailed Godwit *Limosa lapponica*; Black-tailed Godwit *Limosa limosa*; Common Tern; Arctic Tern.	6.1km
Belfast Lough Open Water SPA (UK 9020290)	The Belfast Lough open water area comprises the marine area below the mean low water mark. Seawards it extends to a notional boundary between the eastern limits on the north and south shores of the Outer Belfast Lough Area of Special Scientific Interest at Kilroot and Horse Rock respectively. The boundary towards the head of the lough is a notional line between Greencastle on northern shore and Holywood Bank on the southern shore. It is designated for the Great Crested Grebe *Podiceps cristatus*.	6.2km
Belfast Lough RAMSAR	The site qualifies under Criterion 3c by regularly supporting internationally important numbers of Redshank in winter. The site also regularly supports nationally important numbers of many other wader and waterbird species.	6.1km

4.6 Habitats

4.6.1 Figure 1 identifies the main habitats in the area using standard JNCC Phase 1 Vegetation codes (JNCC 2010, Handbook for Phase 1 Habitat Survey).

4.6.2 Table 7 gives target notes relating to Figure 1.

4.6.3 Table 8 gives further details of the plant species present. Note that, for clarity, for all plant species the Latin names are given in Table 8, rather than in the text.

4.6.4 The site is in two parts. Access will be along a new laneway from the Carrowreagh Road which will pass through an improved grass field (B4).

4.6.5 The new laneway will pass through a new field entrance, at an existing hedge, into the adjacent field.

4.6.6 The next field is an arable crop (J1.1).

4.6.7 The boundary to the road is a broken Hawthorn hedge with trees spaced out along its length, particularly at the southern end.

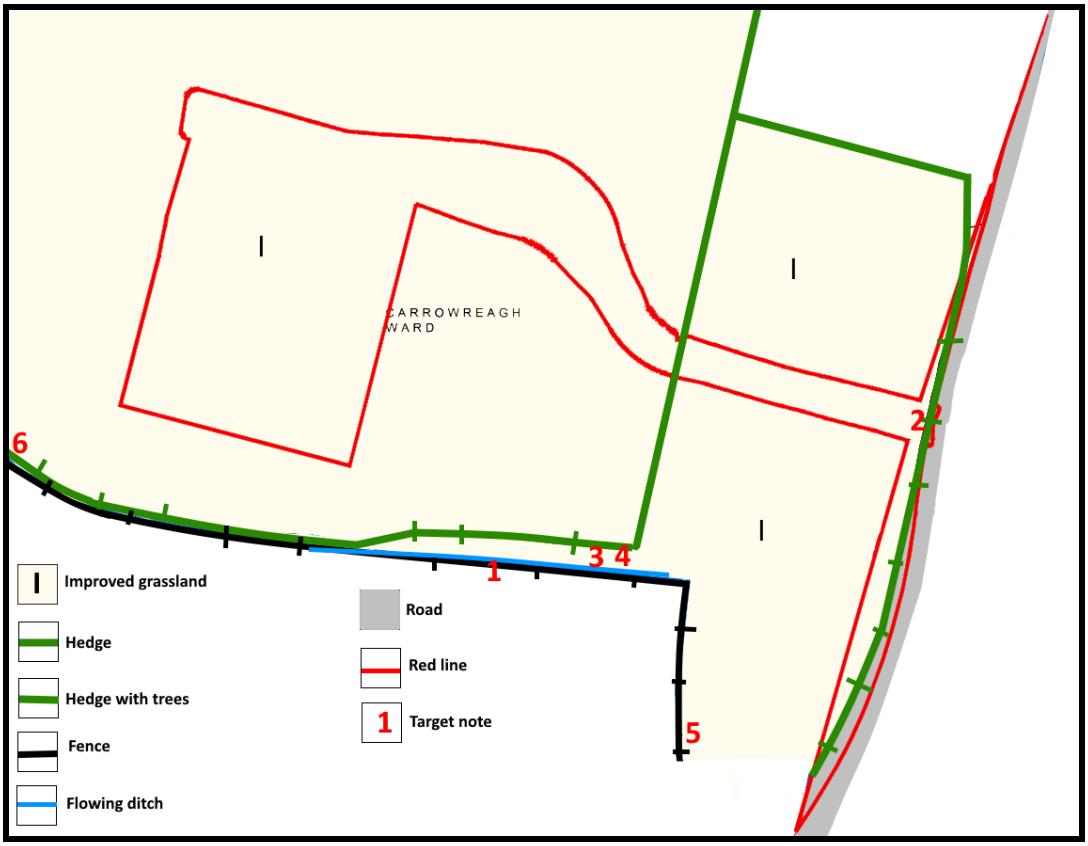
4.6.8 The hedge between the fields is a managed Hawthorn hedge with three individual Ash trees (which will not be impacted).

4.6.9 The red lines of the access is bounded by similar surrounding habitat.

Table 6 Target Notes (for codes see JNCC 2010)

Map Code	Target Notes for Figure 1
1	Trickling muddy ditch
2	Access through hedge
3	Japanese Knotweed
4	Badger latrine
5	Fox spraint
6	Fox kill

Figure 1 Phase 1 habitat map



4.7 Priority Habitats

4.7.1 Two hedgerows are present, along the side of the road and between the fields.

4.8 Invasive species

4.8.1 Himalayan Balsam was commonly present along the edge of the field in April but was subsequently treated as part of normal farm management and did not grow, being absent on subsequent visits.

4.8.2 There is an area of Japanese Knotweed in the hedge to the south of the red line. The approximate position is 54.598102, -5.781006, approximately 70m from the red line.

4.9 Plant list on site

4.9.1 The were recorded. Species marked with a * are considered non-native, or unnaturally occurring outside their normal range. All other species are either native or considered established semi-naturals.

Table 8 Plant species recorded

Species
Blackthorn *Prunus spinosa*
Broad-leaved Willowherb *Epilobium montanum*
Bush Vetch *Vicia sepium*
Cat's-ear *Hypochaeris radicata*
Chickweed *Stellaria media*
Cleavers *Galium aparine*
Common Mouse-ear *Cerastium fontanum*
Common Nettle *Urtica dioica*
Cow Parsley *Anthriscus sylvestris*
Creeping Bent *Agrostis stolonifera*
Creeping Buttercup *Ranunculus repens*
Creeping Thistle *Cirsium arvense*
Cut-leaved Crane's-bill *Geranium dissectum*
Dandelion *Taraxacum officinale*
Daisy *Bellis perennis*
Dog Rose *Rosa canina* agg.
Field Bindweed *Convolvulus arvensis*
Foxglove *Digitalis purpurea*
Garlic Mustard *Alliaria petiolata*
Germander Speedwell *Veronica chamaedrys*
Gorse *Ulex europaeus*
Hogweed *Heracleum sphondylium* ssp. *sphondylium*
Knotgrass *Polygonum aviculare* agg.
Lesser Swinecress *Coronopus squamatus*
Lesser Trefoil *Trifolium dubium*
Marsh Cudweed *Gnaphalium uliginosum*
Meadow Foxtail *Alopecurus pratensis*
Nipplewort *Lapsana communis*
Perennial Rye-grass *Lolium perenne*
Pineapple Weed *Matricaria discoidea*
Prickly Sow-thistle *Sonchus asper*
Ribwort Plantain *Plantago lanceolata*
Red Clover *Trifolium pratense*
Red Dead-nettle *Lamium purpureum*
Redshank *Persicaria maculosa*
Rosebay Willowherb *Chamerion angustifolium*
Short-fruited Willowherb *Epilobium obscurum*
Shepherd's-purse *Capsella bursa-pastoris*
Spear Thistle *Cirsium vulgare*
Stinging Nettle *Urtica dioica*
Sycamore *Acer pseudoplatanus*
Yorkshire-Fog *Holcus lanatus*

Photo 1 Hedgerow adjacent to the road	
Photo 2 Hedgerow adjacent to the road	

Photo 3 Improved grassland field adjacent to the road, access laneway to pass through the field	
Photo 4 Improved grassland field adjacent to the road, access laneway to pass through the field	

Photo 5 Improved grassland field adjacent to the road, access laneway to pass through the field	
Photo 6 Hedge dividing the field of the new treatment building and the field adjacent to the road. Small amount of hedgerow removed for the new access.	

Photo 7 Hedge dividing the field of the new treatment building and the field adjacent to the road. Small amount of hedgerow removed for the new access.	
Photo 8 Hedge dividing the field of the new treatment building and the field adjacent to the road. Small amount of hedgerow removed for the new access.	

Photo 9 Improved grassland field adjacent to the road, access laneway to pass through the field, looking back towards the road.	
Photo 10 Hedge dividing the field of the new treatment building and the field adjacent to the road. Small amount of hedgerow removed for the new access.	

Photo 11 Area of the proposed Digestate treatment building	
Photo 12 Area of the proposed Digestate treatment building, view looking south from the top of the field	

Photo 13 Area of the proposed Digestate treatment building in the distance, view looking south-east from the top of the field	
Photo 14 Area of the proposed Digestate treatment building	

Photo 15 Area of the proposed Digestate treatment building	
Photo 16 Southern boundary of the field. Note no real hedge, a serious of individual Hawthorn and Willow spp.	

Photo 17 Himalayan Balsam	
Photo 18 Muddy flowing ditch to the south, approximately 20m outside the red line	

Photo 19 Muddy flowing ditch to the south, approximately 20m outside the red line	
Photo 20 Muddy flowing ditch to the south, approximately 20m outside the red line	

4.10 Badgers

4.10.1 There are no setts within 25m. There is a sett within 100m of the site. More details are provided in a confidential addendum. A latrine was also found.

4.10.2 There were no other signs of Badger such as snuffle holes, hairs or droppings were located.

4.10.3 There are 14 records within 2km in the CEDaR database.

4.10.4 No further survey work is required.

4.11 Otters

4.11.1 There was no evidence of Otters on the site and no suitable habitat.

4.11.2 There is one record within 2km in the CEDaR database.

4.11.3 No further survey work is required.

4.12 Smooth Newts

4.12.1 There was no evidence of Smooth Newt activity within the survey area and no suitable habitat.

4.12.2 There are no records within 2km in the CEDaR database.

4.12.3 No further survey work is required.

4.13 Red Squirrels

4.13.1 There was no evidence of Red Squirrels on the site and no suitable habitat.

4.13.2 There is one record within 2km in the CEDaR database.

4.13.3 No further survey work is required.

4.14 Pine Marten

4.14.1 There was no evidence of Pine Marten on the site.

4.14.2 There are no records within 2km in the CEDaR database.

4.14.3 No further survey work is required.

4.15 Common Lizards

4.15.1 There was no evidence of Common Lizards on the site and no suitable habitat.

4.15.2 There are no records within 2km in the CEDaR database.

4.15.3 No further survey work is required.

4.16 Bats

4.16.1 The habitat is open and assessed as having Low bat foraging potential. The heavily managed hedges are assessed as having Low bat foraging potential.

4.16.2 There are three trees along the edge of the road which had some light ivy and have been assessed as having a bat roost potential of PRF-I. Some of these trees will be removed, precautionary mitigation is required but no further work is required..

4.16.3 There are no buildings within the site.

4.16.4 The new building will have some external lighting, mitigation is required.

4.17 Birds

4.17.1 Ten bird species were recorded on the site or within 50m.

4.17.2 CEDaR has 226 records of 63 species within 2km, generally woodland, farmland and coastal species.

4.17.3 No further survey work is required.

4.18 Invertebrates and Butterflies

4.18.1 CEDaR has 347 records of 15 butterfly species within 2km.

4.18.2 No further surveying is required.

4.19 Other species

4.19.1 There was no other evidence of protected species on the site.

Table 9 Alphabetic list of bird species recorded on the site visit

Species	Site and boundary	Within 50m	NI Priority?
Blackbird *Turdus merula*	0	1	Yes
Blue Tit *Cyanistes caeruleus*	0	2	No
Dunnock *Prunella modularis*	1	1	No
Hooded Crow *Corvus cornix*	0	1	No
Magpie *Pica pica*	0	2	No
Robin *Erithacus rubecula*	1	1	No
Rook *Corvus frugilegus*	0	5	No
Starling *Sturna vulgaris*	0	5	No
Woodpigeon *Columba palumbus*	0	1	No
Wren *Troglodytes troglodytes*	1	1	No

5. Ecology Statement

5.1 Overview

5.1.1 This section summarises the results of the Preliminary Ecological Appraisal, identifies the value of the development site in relation to protected species and provides an assessment of likely impact using the standardised impact assessment technical terms outlined in the Appendices.

5.1.2 This section constitutes the Ecology Statement of the Preliminary Ecological Appraisal as required by the Northern Ireland Biodiversity Checklist.

5.2 Summary of baseline conditions

5.2.1 The site is part of an arable crop field. It is accessed from the Carrowreagh Road through an improved field.

5.2.2 A Badger sett was found within 100m, a confidential annex is provided.

5.2.3 There was no evidence of Otters utilising the site.

5.2.4 There was no evidence of Common Lizards utilising the site and there is no suitable habitat.

5.2.5 There was no evidence of Smooth Newts utilising the site and no suitable habitat.

5.2.6 There was no evidence of Red Squirrels being present on site and no suitable habitat.

5.2.7 There was no evidence of Pine Martens being present on site and no suitable habitat.

5.2.8 A limited number of common bird species were recorded.

5.2.9 A small number of trees with ivy classed as PRF-I will be removed. Mitigation is required.

5.2.10 Non-native Himalayan balsam was present on the site.

5.3 Assessment of impacts on protected species

5.3.1 Impacts are assessed at a Northern Ireland level. The assessment assumes the mitigation outlined below is implemented.

5.3.2 The long-term Magnitude of the impact with regards to Priority Habitats is near-Certain Negligible as long as the mitigation outlined in the Mitigation Plan is followed. The significance of the impact with regards to Priority Habitats is near-Certain Negligible as long as the mitigation outlined in the Mitigation Plan is followed.

5.3.3 The long-term Magnitude of the impact with regards to Protected Sites is near-Certain Negligible. The significance of the impact with regards to Protected Sites is near-Certain Negligible.

5.3.4 The Magnitude of the impact with regards to Badger populations is near-Certain Negligible as long as the mitigation below is followed. The significance of the impact with regards to Badger populations is near-Certain Negligible as long as the mitigation below is followed.

5.3.5 The Magnitude of the impact with regards to Otter populations is near-Certain Negligible. The significance of the impact with regards to Otter populations is near-Certain Negligible.

5.3.6 The Magnitude of the impact with regards to Common Lizard populations is near-Certain Negligible. The significance of the impact with regards to Common Lizard populations is near-Certain Negligible.

5.3.7 The Magnitude of the impact with regards to Red Squirrel populations is near-Certain Negligible. The significance of the impact with regards to Red Squirrel populations is Near-Certain Negligible.

5.3.8 The Magnitude of the impact with regards to Invertebrate and Butterfly populations is near-Certain Negligible. The significance of the impact with regards to Invertebrate and Butterfly populations is near-Certain Negligible.

5.3.9 The Magnitude of the impact with regards to Protected Plant populations is near-Certain Negligible. The significance of the impact with regards to Protected Plant populations is near-Certain Negligible.

5.3.10 The Magnitude of the impact with regards to freshwater habitats is near-Certain Negligible as long as the mitigation outlined in the Mitigation Plan is followed. The significance of the impact with regards to freshwater habitats is near-Certain Negligible as long as the mitigation outlined in the Mitigation Plan is followed.

5.3.11 The Magnitude of the impact with regards to priority bird populations is near-Certain Negligible as long as the mitigation outlined in the Mitigation Plan is followed. The significance of the impact with regards to bird populations is near-Certain Negligible as long as the mitigation outlined in the Mitigation Plan is followed.

5.3.12 The Magnitude of the impact with regards to bat species is near-Certain Negligible as long as the mitigation outlined in the Mitigation Plan is followed. The significance of the impact with regards to bat species is near-Certain Negligible as long as the mitigation outlined in the Mitigation Plan is followed.

5.4 Further work required

5.4.1 Based on the results of this Preliminary Ecological Appraisal, no further ecological surveying is required.

6. Mitigation Plan

6.1 Overview

6.1.1 The results of this Preliminary Ecological Assessment will feed into the detailed design of this project.

6.1.2 Mitigation is suggested based on the results of the ecological appraisal and what is present on site.

6.2 Breeding Birds - timing

6.2.1 Under the Northern Ireland Wildlife Order (1985), as amended by the Northern Ireland Wildlife Act (2011), it is an offence to recklessly disturb or destroy the active nest of any breeding bird in Northern Ireland.

6.2.2 The bird breeding season is by convention usually taken to be 1st March to 31st August. Ideally tree, scrub and building removal should take place outside this period. If they are to be removed, they must be checked before removal by a qualified Ornithologist, to confirm no nests are present. ***Note that active nests are protected at all times of the year.***

6.2.3 The presence of actively nesting birds *will* delay construction work.

6.3 Bats and lighting

6.3.1 There is already extensive lighting adjacent to the site, in the adjacent industrial estate, new non-residential lighting may be required.

6.3.2 Ambient light levels near hedgerows and tree lines should be kept as low as possible. In recent years NIEA have required a light level of 1 lux (maximum) within 5m of hedges, moonlight can have a level of 0.5 to 2 lux.

6.3.3 The 2023 UK Bat Trust Guidance Note GN08/23 (https://www.bats.org.uk/news/2023/08/bats-and-artificial-lighting-at-night-ilp-guidance-note-update-released) makes suggestions with regards to external lighting. The main suggestions and requirements of the Bat Trust Guidance Note 08/23, with regards to external lighting are shown below.

- All luminaires should lack UV elements when manufactured. Metal halide, fluorescent sources should not be used.
- LED luminaires shall be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
- The Lighting Plan should use the minimum number of low power lights.

- A warm white light source (2700 Kelvin or lower) should be adopted to reduce blue light component.
- As far as possible, luminaires should feature wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
- Column heights should be carefully considered to minimise light spill.
- Lights should be mounted close to ground level.
- Only luminaires with an upward light ratio of 0% and with good optical control shall be used.
- Accessories such as baffles, hoods or louvres should be used to reduce light spill and direct it only to where it is needed.
- Luminaires shall always be mounted on the horizontal, i.e. no upward tilt.
- Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be considered.
- Luminaires shall not be shone on any of the surrounding trees and directed away from vegetation.
- Where appropriate, external security lighting should be set on motion sensors and set to as short a possible a timer as the risk assessment will allow. For most general purposes, a 1 or 2 minute timer is likely to be appropriate.

6.3.4 A Lighting Plan, which includes an isolux map illustrating the light levels, *may* be required to illustrate compliance. This should take account of the details on pages 37-38 of GN08/23.

6.4 Water pollution

6.4.1 Precautionary mitigation is required to prevent pollution.

6.4.2 Pollution effects may not be immediate. Run-off from the works may settle in the soil, and only later be leached out. The main risks to the habitat during the works are from oil, hydrocarbons, fuel, chemicals, paint, suspended solids, concrete, cement and grout. During the work there must be no leakage of materials including, but not limited to:

- Concrete, dust and water from foundations, including leaching during rain when foundations are being laid, mixing of mortar for pointing work etc.;
- Dewatering and pumping of excavations and subsequent disposal of water;
- Runoff from exposed ground resulting in silt entering the water;
- Plant and wheel washing;
- Fuel spillages and;
- Waste storage and disposal.

6.4.3 Therefore, the construction shall follow the pertinent guidelines laid out in DAERA standing advice and NetRegs Pollution Prevention Guidance https://www.netregs.org.uk/environmental-

topics/pollution-prevention-guidelines-ppgs-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/

6.4.4 The following precautionary mitigation is required during construction, this may be included as conditions.

1. During construction: a buffer of at least 10m must be established and maintained between the waterway and the location of all refuelling, storage of oil/fuel, concrete mixing and washing areas, storage of machinery/material/spoil etc. Storage must be on an impermeable surface to catch spills.

2. During construction: silt fencing must be installed along the waterway. This is to stop accidental soil and sediment run-off reaching the waterway.

6.5 Bats

6.5.1 Three bat boxes (Elisa Bat Box or similar https://www.nhbs.com/elisa-bat-box) will be installed in trees within land ownership.

Elisa Bat Box



6.5.2 The boxes will be placed on the north-east facing side of trees, pointing into the site, at least 3m from the ground. The positions shall be shown on drawings.

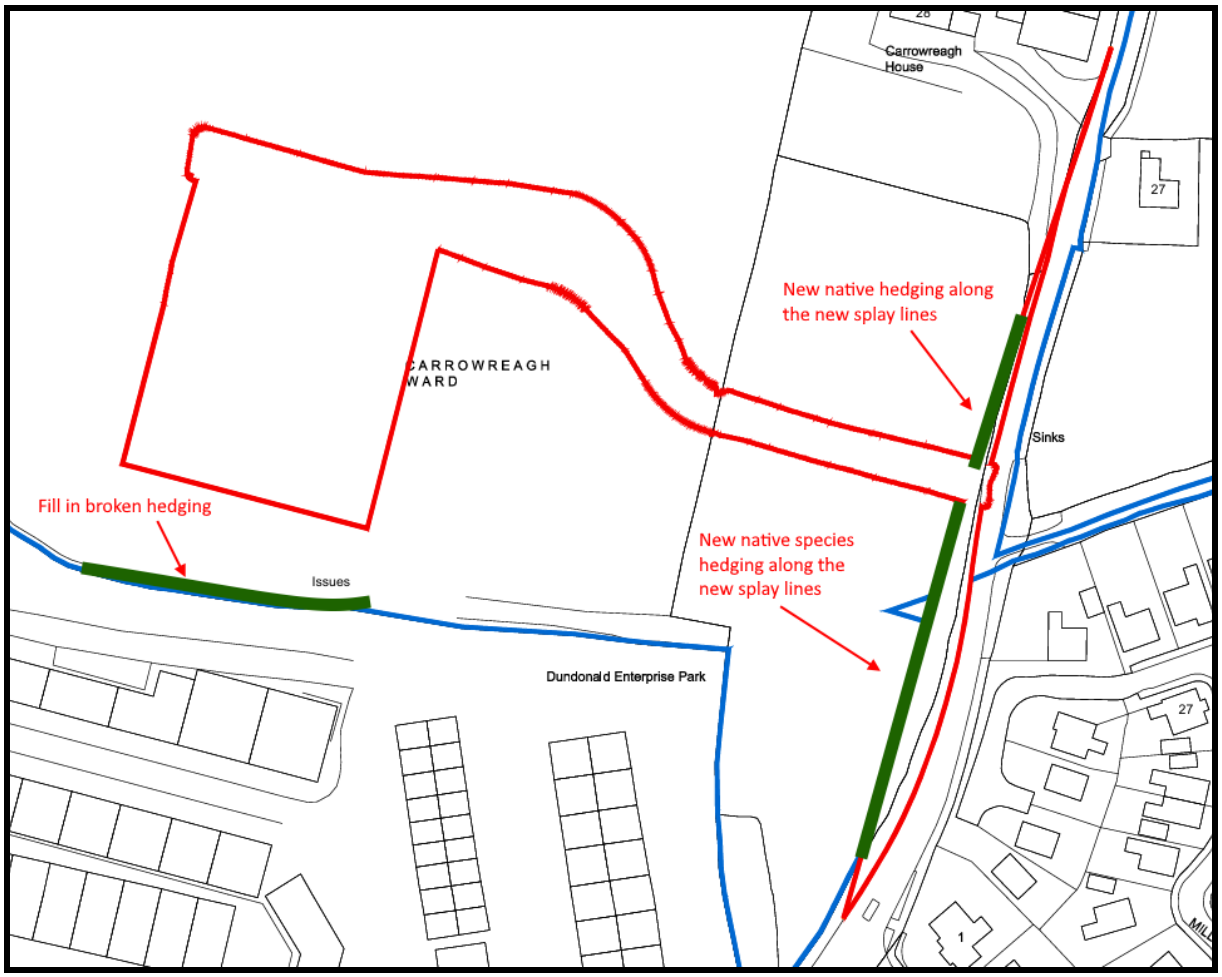
6.6 Hedgerow

6.6.1 A long stretch of hedgerow will be removed to improved splay lines. The hedge is mainly individual mid-sized Ash and Sycamore trees, and broken hawthorn hedging.

6.6.2 The hedge will be replaced along new splay lines, in its entirety, set back from the current hedge. The species shall be Hawthorn, Blackthorn, Holly, Silver Birch *Betula pendula*, Hazel *Corylus avellana* and Alder *Alnus glutinous*. This shall be marked on drawings.

6.6.3 The hedge at the southern end of the field being used for development is broken and missing in places, being only individual trees. That hedge will be filled with new planting. The species shall be Hawthorn, Blackthorn, Holly, Silver Birch *Betula pendula*, Hazel *Corylus avellana* and Alder *Alnus glutinous*. This shall be marked on drawings.

Figure 2 Hedging mitigation



6.7 Badger

6.7.1 A buffer of at least 25 metres will be installed between the site and all works and storage of materials.

7. Declaration

The data and evidence which I have gathered and provided is true, and has been prepared and provided in accordance with the Chartered Institute for Ecology and Ecology and Environmental Management's Code of Professional Conduct. I confirm that the opinions expressed are my true and professional bona fide opinions.

Name:	Kerry Leonard
Signature:	[redacted]
Date:	24th November 2024

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9. Appendices

9.1 Appendix 1 – Ecological Impact Assessments

Magnitude definitions

MAGNITUDE	DESCRIPTION
High	Major loss or alteration to key features of the baseline condition.
Medium	Loss or alteration to a key feature of the baseline condition, with the feature partially changed.
Low	Minor but perceptible change to baseline conditions.
Negligible	Very slight, imperceptible or no changes to baseline condition.

EcIA – factors which may influence the magnitude

PARAMETER	SITE DESCRIPTION
Extent	The area over which an impact occurs.
Duration	The duration of the impact. This will include the time taken for the feature to recover after the impact is complete i.e. the duration of an activity may have a shorter duration than the impact of the activity.
Reversibility	A permanent impact is one from which recovery is unlikely within a reasonable timescale. A temporary impact is reversible either through natural recovery or as a result of mitigation.
Timing	In some cases, an impact may only occur if it occurs during a critical season or part of a species' life-cycle, and may be avoided by careful scheduling of work activities.
Frequency	Frequency of an activity may also affect the magnitude of its impact by reinforcement of

Probability of predicted outcome

PROBABILITY OF OUTCOME	DESCRIPTION
near-Certain	probability estimated at 95% chance or higher.
Probable	probability estimated above 50% but below 95%.
Unlikely	probability estimated above 5% but less than 50%.
Extremely Unlikely	probability estimated at less than 5%.

EcIA – factors to consider when assessing the significance of an impact

PARAMETER	DEFINING CRITERIA
Site Integrity	Extent to which site/ecosystem processes will be removed or changed; Effect on the nature, extent, structure and function of component habitats; and Effect on the average population size and viability of feature species.
Conservation status	Habitats conservation status; Species conservation status; Conservation status may be evaluated for any defined study area at any defined level of ecological value; The extent of the area used in the assessment will relate to the geographical level at which the feature is considered important.
Probability of expected outcome	Known or likely trends and variations in population size and habitat extent; Likely level of ecological resilience.

Significance definitions

SIGNIFICANCE	DESCRIPTION
Positive	The proposal has a positive impact on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographical area.
Major Negative	The proposal is likely to adversely affect the integrity of a site across its whole area, or is likely to adversely affect the numbers, distribution or viability of a species or population of conservation concern. A major change in a site or feature of local importance may also enter this category.
Moderate Negative	The integrity of a site will not be adversely affected, but the effect on the site is likely to be significant in terms of its conservation / ecological objectives.
Minor Negative	A minor negative impact is evident.
Negligible	No observable impact.