

Waste Soils Recovery Facility, Midleton, Co. Cork

EIAR Chapter 12: Biodiversity

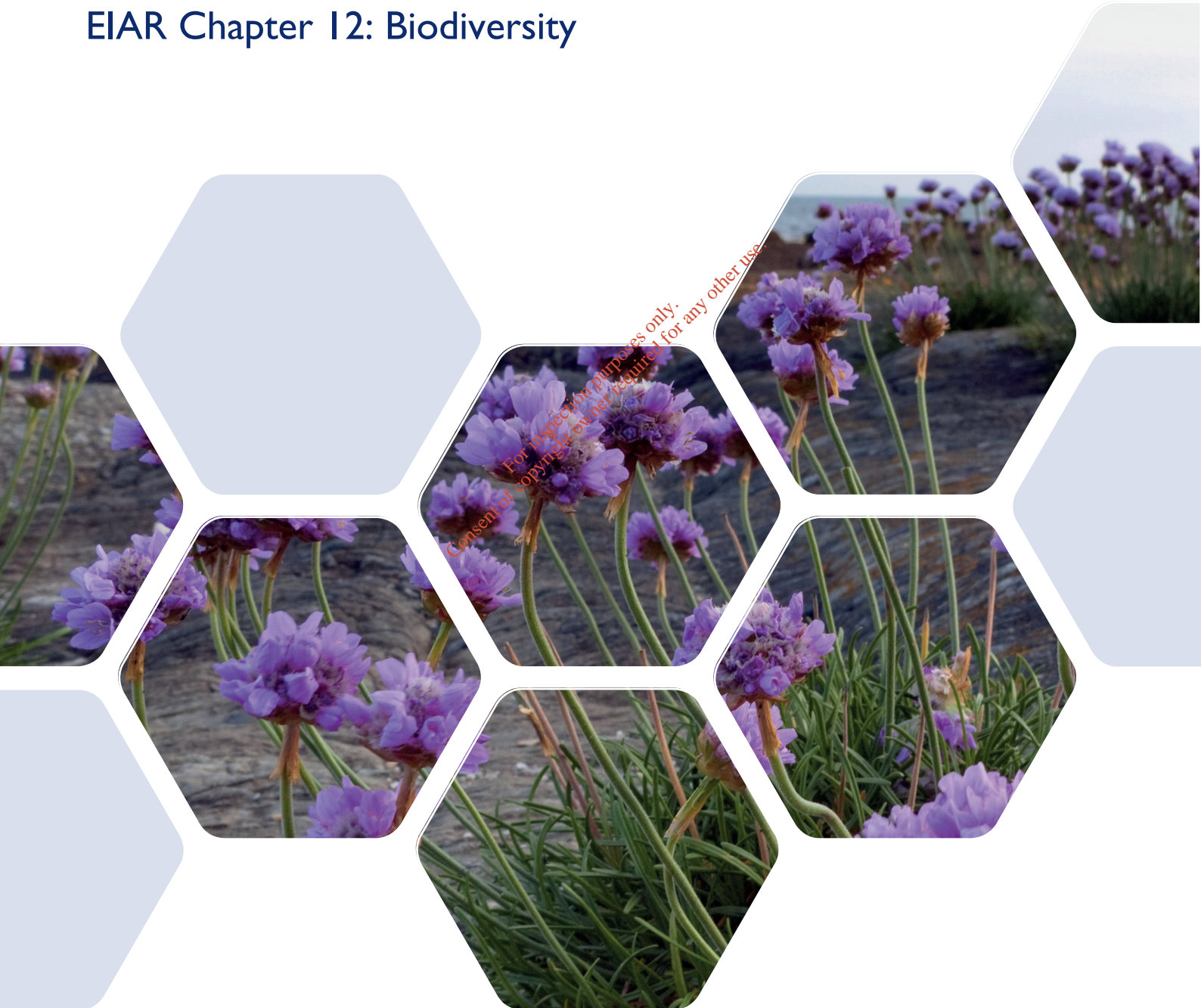


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12 BIODIVERSITY

12.1 INTRODUCTION

This chapter assesses the ecological impacts associated with the proposed Waste Soils Recovery Facility, Midleton, Co. Cork. The principal aims of the assessment are to:

- Complete a desk study and all necessary field surveys to obtain relevant terrestrial and ecological data for the Zone of Influence (Zoi)¹ of the proposed works;
- Identify and describe sites of known or potential ecological interest;
- Assess the significance of the likely impacts of the proposed soils recovery facility on each of these environmental aspects for the construction / operational phase of the activity and for the post-remediation phase; and
- Where possible, propose mitigation measures to remove or reduce those impacts at the construction/operational stage of the proposed facility and post-remediation as necessary.

This Chapter initially sets out the methodology to be used for the assessment (**Section 12.2**), then describes the existing environment (**Section 12.3**), sets out the predicted impacts of the proposed facility (**Section 12.4**), describes the avoidance and mitigation measures to be implemented (**Section 12.5**), describes any residual impacts (**Section 12.6**) and details relevant monitoring and reinstatement measures proposed (**Section 12.7**).

12.2 CHARACTERISTICS OF THE DEVELOPMENT

The site currently comprises an active quarry operated by Roadstone collectively known as Midleton Quarry.

A full description of the proposed waste soils recovery facility is provided in **Chapter 2** of this EiAR, '**Need for the Development and Project Description**'. In summary, the proposed development comprises a waste soils recovery facility. This development will restore the quarry voids by infilling them with imported soil and stones material. Following remediation, the land use will be agricultural.

The nature of the material proposed to be imported to the subject site comprises inert soil and stones which fall under the European Waste Category of 17 05 04² as described further in **Chapter 2**. This material will largely originate from excavations to accommodate large scale infrastructural or other construction works. Material will be subject to acceptance criteria as set out in **Chapter 2**.

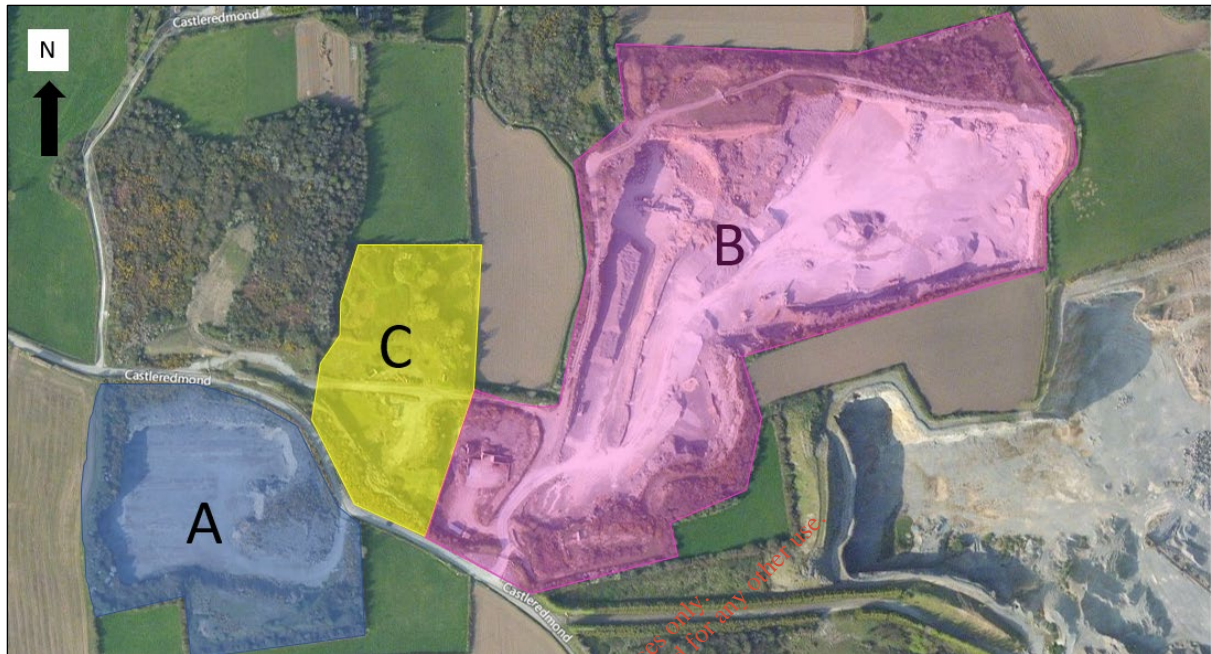
The underlying concept for the end use of this site is to revert to agricultural use and to restore the land profile to approximately what it would have been prior to the commencement of extraction activities. It is proposed to profile the imported soils material according to a site-specific landscape plan.

¹ Zone of Influence (Zoi) – area over which ecological features may be subject to significant effects as a result of the proposed project and associated activities. (CIEEM, 2016)

² Environmental Protection Agency, (2015) *Waste Classification: List of Waste & Determining if Waste is Hazardous or Non-hazardous*. Dublin: Environmental Protection Agency

For ease of reference in this report, the site has been subdivided into three separate and identifiable zones, Zones A, B and C which are at various stages of quarrying completion. These are identified on **Figure 12.1** below.

Figure 12.1: Zones A, B and C



The key characteristics of the development with potential for impact on ecology include disturbance to fauna and loss of nesting sites for avifauna during the infilling operation.

12.3 METHODOLOGY

12.3.1 Assessment Guidance Methodology

The assessment had regard to the following guidelines:

- CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Chartered Institute of Ecology and Environmental Management, Winchester;
- DoEHLG (2010) *Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities*. Department of the Environment, Heritage and Local Government;
- European Communities (2000) *Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC*, Office for Official Publications of the European Communities, Luxembourg. European Commission;
- EC (2002) *Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*, Office for Official Publications of the European Communities, Luxembourg. European Commission;

- EC (2007) *Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission*. European Commission;
- EC (2013) *Interpretation Manual of European Union Habitats. Version EUR 28*. European Commission;
- EPA (2002) *Guidelines on the Information to be contained in Environmental Impact Statements*. Environmental Protection Agency;
- EPA (2017) *Guidelines on the information to be contained in Environmental Impact Assessment Reports. Draft*. Environmental Protection Agency;
- EPA (2003), *Advice Notes on current practice in the preparation of Environmental Impact Statements*. Environmental Protection Agency;
- Fossitt, J., 2000. *A Guide to Habitats in Ireland*. The Heritage Council, Kilkenny;
- HA (2001) *DMRB Volume 10 Section 4 Part 4 - Ha 81/99 - Nature Conservation Advice In Relation To Otters*. The Highways Agency;
- National Parks and Wildlife Service (NPWS) (2013) *The Status of EU Protected Habitats and Species in Ireland*. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland;
- NRA (2008) *Environmental Impact Assessment of National Road Schemes – A Practical Guide Rev. 1*. National Roads Authority;
- NRA (2009) *Guidelines for the Assessment of Ecological Impacts of National Road Schemes Rev. 2*. National Roads Authority;
- NRA (2008) *NRA Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes*. National Roads Authority;
- NRA Various Environmental Assessment and Construction Guidelines (both adopted and draft versions);
- O'Neill, F.H., Martin, J.R., Devaney, F.M. & Perrin, P.M. (2013) *The Irish semi-natural grasslands survey 2007-2012. Irish Wildlife Manuals, No. 78*. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Ireland;
- Smith, G. F., O'Donoghue, P., O'Hara, K., Delaney, E., 2011. *Best Practice Guidance for Habitat Survey and Mapping*. The Heritage Council, Kilkenny.

Studies were also carried out in accordance with the following legislation:

- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) and Directive 2009/147/EC (codified version of Directive (79/409/EEC as amended ((Birds Directive)) – transposed into Irish law as European Communities (Birds and Natural Habitats) Regulations 2011;
- European Communities (Environmental Impact Assessment) Regulations, 1989 to 2006;
- European Communities (Environmental Liability) Regulations, 2008 (S.I. No. 547 of 2008);
- European Communities (Quality of Salmonid Waters) Regulations, 1988 (S.I. No. 84 of 1988);
- Flora Protection Order, 2015;
- Planning and Development Act, 2000 (as amended);
- Water Framework Directive (2000/60/EC); and
- Wildlife Act 1976, as amended.

The methodology comprises the following elements: desk study and field assessments. These elements are used to identify, describe and map areas of known or potential ecological value.

The habitats of the site were assessed by means of a desk study of literature pertinent to the site and surrounding area, and field surveys of the site.

A review of Ordnance Survey maps and of detailed high resolution ortho-rectified aerial photography was also carried out to assist in delineating the extents and boundaries of different habitat types. Multidisciplinary and taxon specific site surveys were undertaken by RPS ecologists and appointed sub-consultants in 2018.

The surveys were carried out in accordance with best practice and the NRA'S *Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes* (2008).

12.3.2 Desk Study

A desktop review was carried out to identify features of ecological value within the study area and surrounding region. Sources of information that were used to inform the assessment were:

- The National Parks and Wildlife Service (NPWS) natural heritage database (www.npws.ie) was consulted for designated sites of nature conservation interest in the study area;
- The National Biodiversity Data Centre (NBDC) species database (www.biodiversityireland.ie) was consulted to obtain historical species records in the study area;
- Online Atlas of the British and Irish Flora (www.brc.ac.uk/plantatlas/);
- Andrews, H. (2013). *Bat Tree Habitat Key*. Available from: www.arcol.co.uk;
- Balmer, D., Gillings, S., Caffrey, B., Swann, B., Downie, I. & Fuller, R. 2013. *Bird Atlas of 2007-2011: The Breeding and Wintering Birds of Britain and Ireland* (British Trust for Ornithology);
- Bat Conservation Ireland, (2010). Guidance notes for Planners, Engineers, Architects, and Developers;
- Collins, J. (ed.) (2016). *Bat Surveys for Professional ecologists: Good Practice Guidelines* (3rd ed.). The Bat Conservation Trust, London;
- Kelleher, C. & Marnell, F. (2006). *Bat Mitigation Guidelines for Ireland*;
- Gibbons, D.W., Reid, J.W. & Chapman, A. 1993. *The New Atlas of Breeding Birds in Britain and Ireland: 1988-1991*. T. & A.D. Poyser, London, UK;
- Bat Conservation Ireland's National Bat Records Database and the National Parks and Wildlife Service's National Lesser Horseshoe Bat Roost Database was consulted for bat records in the vicinity of the study area;
- Literature review to identify and collate relevant published information on both ecological aspects of the study area and relevant ecological studies conducted in other areas;
- A review of Ordnance Survey maps and ortho-photography;
- Review of the Butterfly Ireland website (www.butterflyireland.com) and Irish Butterflies website (www.irishbutterflies.com) to identify the presence of any rare species within the study area including; Marsh Fritillary, Small Blue, Green Hairstreak, Purple Hairstreak, Dingy Skipper, Large Heath and Brimstone;
- Environmental Protection Agency map viewer www.gis.epa.ie/Envision;

- Water Framework Directive (WFD) website and Water Maps viewer www.wfdireland.ie/maps; and
- The NBDC database provides details on species records held for the study area. The database was reviewed for details on species recorded within 2km of the proposed site. The resulting lists of species records were then searched for rare and protected species, including:
 - The presence of any Annex IV (Habitats Directive) species of flora and fauna, and their breeding sites and resting places, which are strictly protected under the European Communities (Birds and Natural Habitats) Regulations, 2011;
 - The presence of Annex II (Habitats Directive) species;
 - Species of fauna and flora which are protected under the Wildlife Act, 1976 (as amended);
 - Flora Protection Order (FPO) 2015 species;
 - ‘Protected species and natural habitats’ as defined in the Environmental Liability Directive (2004/35/EC) and European Communities (Environmental Liability) Regulations, 2008; and
 - Irish Red Data Book (IRDB) Species.

12.3.3 Study Area and Zone of Influence

Determination of this project’s Zone of Influence (Zoi) was achieved by assessing the project’s requirements and deliverables against the ecological receptors within the project footprint, in addition to all ecological receptors that could be connected to and subsequently impacted by the project through abiotic and biotic vectors. To this end, the zone of influence extends outside of the proposed waste soils recovery facility footprint to include ecological receptors connected to the project through overlap / intersection, proximity and habitat connectivity through features such as hedgerows/ woodland habitats.

12.3.4 Field Survey

12.3.4.1 General Habitat and Species Surveys

Site visits of the proposed waste soils facility were undertaken on 23rd May and 22nd August 2018 to identify any constraints which may affect the nature and extent of the proposal; and to map the habitats and identify key flora and fauna species within the site. All habitats were mapped and categorised in accordance with the Heritage Council’s *Guide to Habitats in Ireland* (Fossitt, 2000). The classification is a standard scheme for identifying, describing and classifying wildlife habitats in Ireland. The classification is hierarchical and operates at three levels, using codes to differentiate habitats based on the plant species present. Species recorded in this report are given both their Latin and common names, following the nomenclature as given in the ‘*New flora of the British Isles*’ (Stace, 2010).

The survey was extended to include further information on the potential of the habitats identified to support species protected by law or of natural heritage importance including badger, red squirrel, pine marten and frog. The survey was conducted in accordance with the standard protected species survey guidelines used to inform ecological impact assessments in Ireland, as contained in the National Roads Authority (NRA) publication ‘*Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes*’ (2008). The survey was conducted for areas of habitat that might support protected mammals in addition to recording any field signs, such as well-used pathways, droppings, places of shelter and features or areas likely to be of particular value as foraging resources. Field boundaries were also checked for badger setts and pine marten den sites. In addition, the

suitability of the habitats for pygmy shrew, hedgehog, hares, Irish stoat and pine marten, and incidental observations of hares were recorded.

Survey for invasive species was conducted during the walkover survey in accordance with the NRA publication “*Guidelines for the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads*”.

12.3.4.2 Bat Survey

Bat surveys were conducted by an experienced and licenced bat ecologist. To comprehensively research, and accordingly understand, the existing behaviour of bats within the proposed site and its environs the approaches detailed in the following guidelines were followed:

- Andrews, H. (2013). *Bat Tree Habitat Key*. Available from: www.arcol.co.uk;
- Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn). The Bat Conservation Trust, London;
- Kelleher, C. & Marnell, F. (2006). *Bat Mitigation Guidelines for Ireland*;
- National Roads Authority 2006, *Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes*, NRA, Dublin; and
- National Roads Authority 2006, *Guidelines for the Treatment of Bats during the Construction of National Road Schemes*, NRA, Dublin.

Preliminary Ecological Appraisal for Bats

An appraisal of the suitability of any structures and trees at the proposed site that could be suitable for bats to roost in was undertaken on 22nd August 2018. The subject site was walked, and habitats of potential value to bats were noted and marked on a map. The value of each feature was noted according to its potential for use by bats for roosting and foraging/ commuting. The value of habitat features for bats was defined in accordance with the *Bat Surveys: Good Practice Guidelines* publication, as shown in **Table 12.1**.

Preliminary Roost Assessment

The buildings and quarry faces on site were surveyed in conjunction with the preliminary ecological appraisal for potential roost sites and signs of bats. The survey utilised a high powered torch and close focus binoculars. The external inspection involved looking for bat droppings on the ground, stuck to rock, walls, windowsills or in crevices in stonework/ quarry face and recording suitable entry and exit points. Where access to the inside of the buildings was gained, an internal inspection was undertaken which involved looking for features that may be suitable for roosting bats, such as joints and crevices in wood, holes or crevices between stonework in the walls and searching for bat droppings, urine stains and feeding signs on the floor.

Table 12-1: Potential Suitability of Habitats for Bats

Suitability	Description Roosting Habitats	Commuting and Foraging Habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	<p>A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).</p> <p>A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.</p>	<p>Habitat that could be used by small numbers of commuting bats such as gappy hedgerow or un-vegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat.</p> <p>Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.</p>
Moderate	<p>A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only - the assessments are made irrespective of species conservation status, which is established after presence is confirmed).</p>	<p>Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens.</p> <p>Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.</p>
High	<p>A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.</p>	<p>Continuous, high quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge.</p> <p>High quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland.</p> <p>Site is close to and connected to known roosts.</p>

A list of Potential Roost Features (PRFs) found on the proposed development site can be found in **Section 12.3.2.4**.

Emergence and Activity Survey

Dusk surveys were undertaken in order to watch and listen for bats exiting roosts to determine the presence or absence of bats at the time of survey. Dusk emergence surveys commenced approximately 15 minutes before sunset and ended approximately 1.5 hours after sunset. A total of two dusk surveys were completed and were undertaken on 24th August and 1st September 2018.

The dusk surveys were undertaken in Zone A, where quarrying activity has been completed. No activity survey of Zone B was undertaken due to its status as an active quarry, which is likely to deter bats from roosting in the quarry face. No activity survey of Zone C was undertaken as quarrying has not commenced in this area and no potential roosting features were present (see **Section 12.3.2.4**).

Bat activity surveys were conducted across Zone A in conjunction with the emergence surveys using an Anabat Walkabout detector, which records bat echolocation calls directly on to an internal SD memory card. Each time a bat is detected, an individual time and location stamped (date and time to the second, GPS location) file is recorded. Data was then downloaded and bat calls were later analysed by the Anabat Insight spectrogram sound analysis software Version 1.2. The location of the calls was then mapped using the GPS location recorded with each sound file.

All surveys were conducted in optimum weather conditions (avoiding periods of very heavy rain, strong winds (> Beaufort Force 5), mists and dusk temperatures below 10°C).

12.3.5 Impact Assessment Criteria

All ecological receptors within the project's zone of influence were assessed according to criteria for site evaluation outlined in the NRA *Guidelines for Ecological Impact Assessment of National Road Projects* (NRA, 2009). The geographic frames of reference used to determine the ecological value / importance of receptors identified within the project zone of influence are presented in **Table 12.2**.

Table 12-2: Ecological Site Assessment Scheme

Ratings for Ecological Sites
<p>International Importance:</p> <p>‘European Site’ including Special Area of Conservation (SAC), Site of Community Importance (SCI), Special Protection Area (SPA) or proposed Special Area of Conservation. Proposed Special Protection Area (pSPA). Site that fulfils the criteria for designation as a ‘European Site’ (see Annex III of the Habitats Directive, as amended). Features essential to maintaining the coherence of the Natura 2000 Network. Site containing ‘best examples’ of the habitat types listed in Annex I of the Habitats Directive. Resident or regularly occurring populations (assessed to be important at the national level) of the following: Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and/or Species of animal and plants listed in Annex II and/or IV of the Habitats Directive. Ramsar Site (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971). World Heritage Site (Convention for the Protection of World Cultural & Natural Heritage, 1972). Biosphere Reserve (UNESCO Man & the Biosphere Programme). Site hosting significant species populations under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979). Site hosting significant populations under the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1979). Biogenetic Reserve under the Council of Europe. European Diploma Site under the Council of Europe. Salmonid water designated pursuant to the European Communities (Quality of Salmonid Waters) Regulations, 1988, (S.I. No. 293 of 1988).</p>
<p>National Importance:</p> <p>Site designated or proposed as a Natural Heritage Area (NHA). Statutory Nature Reserve. Refuge for Fauna and Flora protected under the Wildlife Acts. National Park. Undesignated site fulfilling the criteria for designation as a Natural Heritage Area (NHA); Statutory Nature Reserve; Refuge for Fauna and Flora protected under the Wildlife Act; and/or a National Park. Resident or regularly occurring populations (assessed to be important at the national level) of the following: Species protected under the Wildlife Acts; and/or Species listed on the relevant Red Data list. Site containing ‘viable areas’ of the habitat types listed in Annex I of the Habitats Directive.</p>
<p>County Importance:</p> <p>Area of Special Amenity. Area subject to a Tree Preservation Order. Area of High Amenity, or equivalent, designated under the County Development Plan. Resident or regularly occurring populations (assessed to be important at the County level) of the following: Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; Species of animal and plants listed in Annex II and/or IV of the Habitats Directive; Species protected under the Wildlife Acts; and/or Species listed on the relevant Red Data list. Site containing area or areas of the habitat types listed in Annex I of the Habitats Directive that do not fulfil the criteria for valuation as of International or National importance.</p>

Ratings for Ecological Sites
<p>County important populations of species or viable areas of semi-natural habitats or natural heritage features identified in the National or Local BAP, if this has been prepared.</p> <p>Sites containing semi-natural habitat types with high biodiversity in a county context and a high degree of naturalness, or populations of species that are uncommon within the county.</p> <p>Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level.</p>
<p>Local Importance (higher value):</p> <p>Locally important populations of Priority species or habitats or natural heritage features identified in the Local Biodiversity Action Plan (BAP), if this has been prepared;</p> <p>Resident or regularly occurring populations (assessed to be important at the Local level) of the following:</p> <p>Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive;</p> <p>Species of animal and plants listed in Annex II and/or IV of the Habitats Directive;</p> <p>Species protected under the Wildlife Acts; and/or</p> <p>Species listed on the relevant Red Data list.</p> <p>Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality;</p> <p>Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value.</p>
<p>Local Importance (lower value):</p> <p>Sites containing small areas of semi-natural habitat that are of some local importance for wildlife;</p> <p>Sites or features containing non-native species that are of some importance in maintaining habitat links.</p>

12.3.5.1 Characterising Impacts

The methodology for the assessment of impacts is derived from the *Guidelines for Ecological Impact Assessment in the UK and Ireland* (CIEEM, 2018). Potential changes and impacts on ecosystem and receptor structure and function make reference to the parameters discussed in **Table 12.3**.

Table 12-3: Characteristics Used in Describing Impacts on Ecosystem Structure and Function

Characteristics	Definition of Impact Characteristics³
Positive or negative	<p>Positive and negative impacts/effects should be determined according to whether the change is in accordance with nature conservation objectives and policy:</p> <ul style="list-style-type: none"> - Positive impact - a change that improves the quality of the environment e.g. by increasing species diversity, extending habitat or improving water quality. Positive impacts may also include halting or slowing an existing decline in the quality of the environment; - Negative impact - a change which reduces the quality of the environment e.g. destruction of habitat, removal of species foraging habitat, habitat fragmentation, pollution.
Extent	The extent is the spatial or geographical area over which the impact/effect may occur.

³ CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester

Characteristics	Definition of Impact Characteristics ³
Magnitude	Magnitude refers to size, amount, intensity and volume. It should be quantified if possible and expressed in absolute or relative terms e.g. the amount of habitat lost, percentage change to habitat area, percentage decline in a species population.
Duration	Duration should be defined in relation to ecological characteristics (such as a species' lifecycle) as well as human timeframes. For example, five years, which might seem short-term in the human context or that of other long-lived species, would span at least five generations of some invertebrate species. The duration of an activity may differ from the duration of the resulting effect caused by the activity. For example, if short-term construction activities cause disturbance to birds during their breeding period, there may be long-term implications from failure to reproduce that season. Effects may be described as short, medium or long-term and permanent or temporary. Short, medium, long-term and temporary will need to be defined in months/years.
Frequency and timing	The number of times an activity occurs will influence the resulting effect. For example, a single person walking a dog will have very limited impact on nearby waders using wetland habitat, but numerous walkers will subject the waders to frequent disturbance and could affect feeding success, leading to displacement of the birds and knock-on effects on their ability to survive. The timing of an activity or change may result in an impact if it coincides with critical life-stages or seasons e.g. bird nesting season.
Reversibility	An irreversible effect is one from which recovery is not possible within a reasonable timescale or there is no reasonable chance of action being taken to reverse it. A reversible effect is one from which spontaneous recovery is possible or which may be counteracted by mitigation. In some cases, the same activity can cause both reversible and irreversible effects. For example, placement of a temporary access through an ancient wood could cause the loss of food and shelter for common woodland birds that may be reversible, but the compaction of fragile woodland soils and damage to ancient woodland ground flora along the access route is effectively irreversible.

12.4 RECEIVING ENVIRONMENT

12.4.1 Desktop Study Results

12.4.1.1 Designated Sites

A review of European designated sites within a 10km radius of the proposed waste soils recovery facility was undertaken www.biodiversityireland.ie. SACs, as noted in **Table 12.4**, are sites of international importance due to the presence of Annex I habitats and / or Annex II species listed under the EU Habitats Directive. Special Protection Areas (SPAs) are designated for birds based on the presence of internationally significant populations of listed bird species under the Birds Directive. Designated sites within 10km of the site are listed in **Table 12.4** and **Figure 12.2** below. There is one SAC and one SPA within 10km of the proposed waste soils recovery facility. A Screening for Appropriate Assessment was prepared for the proposals by RPS for submission with a Planning Application in January 2019 and subsequently with a licence application to the EPA. This screening concluded that the proposed Waste Soils Recovery Facility, either alone or in-combination with other

plans and/or projects, would not have the potential to significantly affect any European Site, in light of their conservation objectives. Cork County Council during its assessment of the proposals concurred with this assessment. On foot of screening by the EPA in June 2020 in respect of a licence application however, the EPA determined that an Appropriate Assessment of the proposed activity is required based on a potential hydrological connectivity via groundwater to Cork Harbour SPA and Great Island Channel SAC. A Natura Impact Statement was therefore prepared.

Table 12-4: European Sites within 10km of the Proposed Site

Site Name and Code	Qualifying Interests	Distance from Proposed Site (km)	Connectivity
Great Island Channel SAC (001058)	<p>Annex I Habitats</p> <p>Mudflats and sandflats not covered by seawater at low tide [1140]</p> <p>Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330]</p>	1.11	There is no surface water or habitat connectivity. However, the proposed site and this SAC are situated within the same groundwater body and have potential hydrological connectivity via groundwater.
Cork Harbour SPA (004030)	<p>Species of Conservation Importance (SCI)</p> <p>Wetland and Waterbirds [A999]</p> <p>Little Grebe (<i>Tachybaptus ruficollis</i>) [A004]</p> <p>Great Crested Grebe (<i>Podiceps cristatus</i>) [A005]</p> <p>Cormorant (<i>Phalacrocorax carbo</i>) [A017]</p> <p>Grey Heron (<i>Ardea cinerea</i>) [A028]</p> <p>Shelduck (<i>Tadorna tadorna</i>) [A048]</p> <p>Wigeon (<i>Anas penelope</i>) [A050]</p> <p>Teal (<i>Anas crecca</i>) [A052]</p> <p>Pintail (<i>Anas acuta</i>) [A054]</p> <p>Shoveler (<i>Anas clypeata</i>) [A056]</p> <p>Red-breasted Merganser (<i>Mergus serrator</i>) [A069]</p> <p>Oystercatcher (<i>Haematopus ostralegus</i>) [A130]</p> <p>Golden Plover (<i>Pluvialis apricaria</i>) [A140]</p> <p>Grey Plover (<i>Pluvialis squatarola</i>) [A141]</p> <p>Lapwing (<i>Vanellus vanellus</i>) [A142]</p> <p>Dunlin (<i>Calidris alpina</i>) [A149]</p> <p>Black-tailed Godwit (<i>Limosa limosa</i>) [A156]</p> <p>Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]</p> <p>Curlew (<i>Numenius arquata</i>) [A160]</p> <p>Redshank (<i>Tringa totanus</i>) [A162]</p> <p>Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]</p> <p>Common Gull (<i>Larus canus</i>) [A182]</p>	1.13	There is no surface water or habitat connectivity. However, the proposed site and this SPA are situated within the same groundwater body and have potential hydrological connectivity via groundwater.

Site Name and Code	Qualifying Interests	Distance from Proposed Site (km)	Connectivity
	Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183] Common Tern (<i>Sterna hirundo</i>) [A193]		

Natural Heritage Areas (NHAs) are sites deemed to be of national ecological importance and are afforded protection under the Wildlife (Amendment) Act, 2000. There are also proposed Natural Heritage Areas (pNHAs) which were published on a non-statutory basis in 1995 but which have not been statutorily proposed or designated. These however do have some limited protections under agri-environmental farm planning schemes; Forestry Service requirements for NPWS approval prior to payment of afforestation grants on pNHA lands; and recognition of their ecological value by County Development Plans and Licensing Authorities. There are twelve pNHAs within 10km of the site as detailed in **Table 12.5** and **Figure 12.3**.

Table 12-5: Nationally Designated Sites within 10km of the Proposed Site

Site Name and Code	Qualifying Interests	Distance from Proposed Site (km)	Connectivity
Ballycotton, Ballynamona and Shanagarry pNHA (000076)	No site synopsis available	9.3km	None
Cuskinny Marsh (001987)	This site is located 2.5km east of the centre of Cobh on the shores of Cork Harbour. Cuskinny Marsh is of interest because it contains a nice mix of habitats, within a small area, and supports locally important numbers of wildfowl.	9.2km	None
Rostellan Lough, Aghada Shore and Poul nabibe Inlet (001076)	No site synopsis available	4.8km	None
Clasharinka Pond pNHA (001183)	Clasharinka Pond is located c. 1km north-east of Castlemartyr and c. 13km south-west of Youghal on the southern coast of East Cork. The rare species Orange Foxtail (<i>Alopecurus aequalis</i>) is found on peaty mud around the pond at the summer water level. It is important to protect this site for conservation and to monitor the rare species' population, which is at present, very healthy.	7.0km	There is no surface water or habitat connectivity. The proposed site and this pNHA are situated within the same groundwater body, however the groundwater from the proposed site

Site Name and Code	Qualifying Interests	Distance from Proposed Site (km)	Connectivity
			flows in a south-westerly direction away from this pNHA.
Loughs Aderry And Ballybutler pNHA (000446)	Lying approximately 6km east of Midleton, this site includes two rich lakes surrounded by farmland and marshy ground. This site is of particular interest because of the presence of two rare plant species and nationally important numbers of birds.	1.9km	There is no surface water or habitat connectivity. The proposed site and this pNHA are situated within the same groundwater body, however the groundwater from the proposed site flows in a south-westerly direction away from this pNHA.
Carrigacrum p Caves (001408)	This site is situated 3km due south-west of Cloyne in an area of outcropping limestone in east Co. Cork. The core system has eight entrances and most of the passages are of the canyon type and water floored. The entrances of the caves are in a disused quarry which contains some areas of undisturbed limestone grassland that includes some locally rare plants such as Carline Thistle (<i>Carlina vulgaris</i>) and Long-stalked Crane's-bill (<i>Geranium columbinum</i>). In addition, the naturalised flora is unusual.	7.0km	None
Great Island Channel (001058)	See SAC details in Table 12.4	1.1km	There is no surface water or habitat connectivity. However, the proposed site and this pNHA are situated within the same groundwater body.
Whitegate Bay (001084)	This site is situated in the south-east corner of Cork Harbour, immediately to the west of Whitegate in County Cork. Whitegate Bay is an NHA of local significance for its waterfowl. This status is enhanced, though, as the whole of Cork Harbour is of international importance and as such is a proposed Special Protection Area.	9.8km	None
Leamlara Wood pNHA (001064)	This site is situated 6km north-west of Midleton in the steep sided valley of the Leamlara River. This area is of local importance as there are few areas of semi-natural oak woodland in east Cork,	7.0km	None

Site Name and Code	Qualifying Interests	Distance from Proposed Site (km)	Connectivity
	and it is a good example of this community.		
Ballyquirk Pond (001235)	Ballyquirk Pond is located 2km south-west of Killeagh and 9km west of Youghal, on the south-west of East Cork. on the northern, muddy edge of the pond are found a few flowering plants of the rare Orange Foxtail (<i>Alopecurus aequalis</i>), a species mainly distributed on the midlands and south-east of England and not previously recorded in Ireland.	9.0km	There is no surface water or habitat connectivity. The proposed site and this pNHA are situated within the same groundwater body, however the groundwater from the proposed site flows in a south-westerly direction away from this pNHA.
Carrigshane Hill pNHA (001042)	This site is situated 4km south-east of Midleton. This area is important as a representative of the herb rich community grassland community found near the exposed limestone - a habitat under threat from quarrying. The presence of Thick-leaved Stonecrop adds further interest to this site.	Within	Direct
Ballynaclashy House, North of Midleton pNHA (000099)	Designated due to the presence of a nursery colony of whiskered bat in Ballynaclashy House.	5.9km	None

Figure 12.2: European Sites within 10km of the Proposed Site

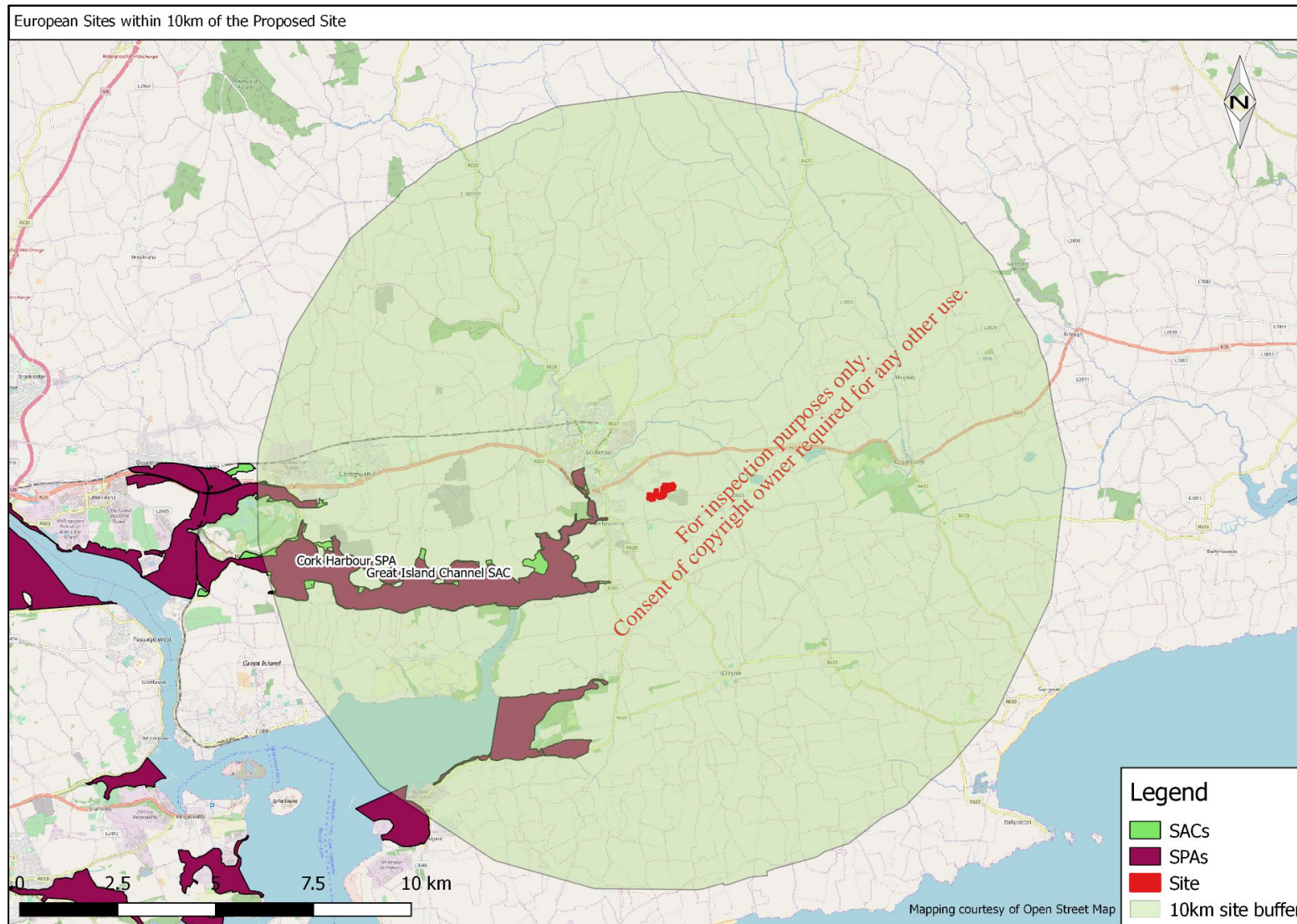
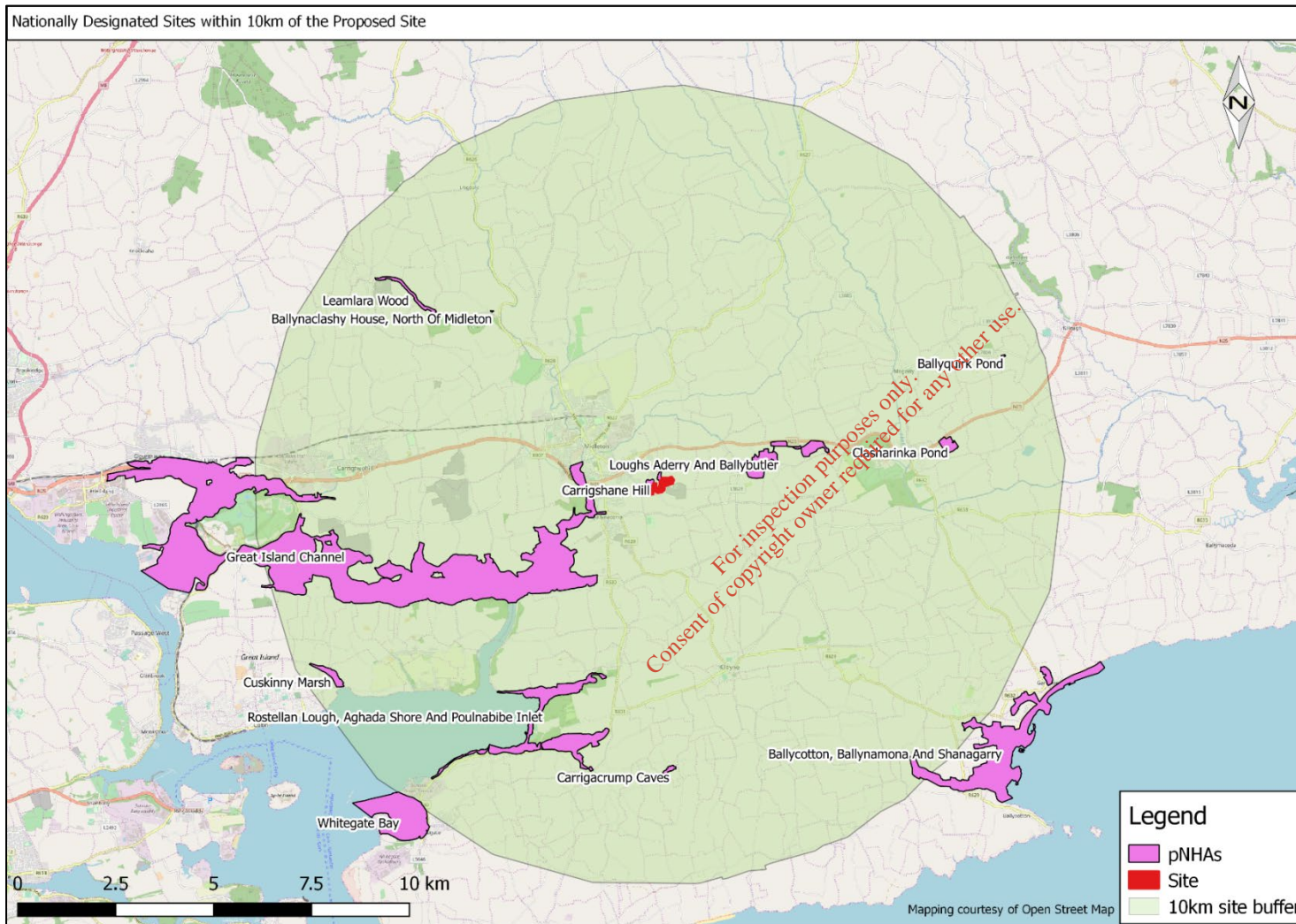


Figure 12.3: Nationally Designated Sites within 10km of the Proposed Site



12.4.1.2 Protected Species Records

Records of rare and protected species from within 2km of the proposed site are detailed in **Table 12.6⁴**.

Table 12-6: Protected Species Records from within 2km of the Proposed Site

Species	Date of Last Record	Designation
Common Frog (<i>Rana temporaria</i>)	12/07/2015	Wildlife Acts
Daubenton's Bat (<i>Myotis daubentonii</i>)	08/08/2014	Annex IV; Wildlife Acts
Eurasian Badger (<i>Meles meles</i>)	27/07/2016	Wildlife Acts
Eurasian Pygmy Shrew (<i>Sorex minutus</i>)	31/12/1983	Wildlife Acts
Eurasian Red Squirrel (<i>Sciurus vulgaris</i>)	31/12/2007	Wildlife Acts
European Otter (<i>Lutra lutra</i>)	20/04/1990	Annex II; Annex IV; Wildlife Acts
Fallow Deer (<i>Dama dama</i>)	31/12/2008	High Impact Invasive Species; Invasive Species Regulation S.I. 477 (Ireland); Wildlife Acts
Pipistrelle (<i>Pipistrellus sensu lato</i>)	04/08/2013	Annex IV; Wildlife Acts
Sika Deer (<i>Cervus nippon</i>)	31/12/2008	High Impact Invasive Species; Invasive Species Regulation S.I. 477 (Ireland); Wildlife Acts
Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>)	04/08/2013	Annex IV; Wildlife Acts
West European Hedgehog (<i>Erinaceus europaeus</i>)	15/07/2015	Wildlife Acts

12.4.1.3 Birds

The National Biodiversity Centre's (NBDC) online map viewer supports records for breeding and overwintering birds for the proposed site and its environs. The majority of these records originate from *The Bird Atlas 2007-2011: The Breeding and Wintering Birds of Britain and Ireland* (British Trust for Ornithology) (Balmer *et al.*, 2013). **Table 12.7** presents records for species protected under Annex I of the EU Birds Directive, in addition to red and amber listed species on the BoCCI that occur within 2km of the proposed site.

The following sources of information were consulted in order to determine the conservation status of bird species:

- NBDC online map viewer <http://maps.biodiversityireland.ie/#/Home>;
- Annex I of the EU 'Birds Directive';

⁴ <https://maps.biodiversityireland.ie/Map>, last accessed 8th November 2018

The ‘Red List’ of Birds of Conservation Concern in Ireland (BoCCI) (Cummins and Colhoun, 2013); and The Irish Red Data Book (RDB) (Whilde, 1993).

Table 12-7: Breeding and Wintering Records for Annex I Bird species and Birds of High Conservation Concern from within 2km of the Proposed Site

Species	Date of Last Record	Source	Designation
Barn Owl (<i>Tyto alba</i>)	31/12/2011	Balmer <i>et al.</i> (2013)	Wildlife Acts; Red List
Barn Swallow (<i>Hirundo rustica</i>)	21/05/2016	Birds of Ireland	Wildlife Acts; Amber List
Barnacle Goose (<i>Branta leucopsis</i>)	29/02/1984	Lack (1986)	Wildlife Acts; Amber List
Bar-tailed Godwit (<i>Limosa lapponica</i>)	31/12/2011	Balmer <i>et al.</i> (2013)	Wildlife Acts; Annex I Bird Species; Amber List
Black Guillemot (<i>Cepphus grylle</i>)	31/12/2011	Balmer <i>et al.</i> (2013)	Wildlife Acts; Amber List
Black-headed Gull (<i>Larus ridibundus</i>)	02/12/2017	Birds of Ireland	Wildlife Acts; Red List
Black-tailed Godwit (<i>Limosa limosa</i>)	19/11/2016	Birds of Ireland	Wildlife Acts; Amber List
Canada Goose (<i>Branta canadensis</i>)	31/12/2011	Balmer <i>et al.</i> (2013)	High Impact Invasive Species, Invasive Species Regulation S.I. 477 (Ireland); Wildlife Acts
Common Coot (<i>Fulica atra</i>)	31/12/2011	Balmer <i>et al.</i> (2013)	Wildlife Acts; Amber List
Common Goldeneye (<i>Bucephala clangula</i>)	31/12/2011	Balmer <i>et al.</i> (2013)	Wildlife Acts; Amber List
Common Grasshopper Warbler (<i>Locustella naevia</i>)	31/12/2011	Balmer <i>et al.</i> (2013)	Wildlife Acts; Amber List
Common Greenshank (<i>Tringa nebularia</i>)	19/11/2016	Birds of Ireland	Wildlife Acts; Amber List
Common Kestrel (<i>Falco tinnunculus</i>)	31/12/2011	Balmer <i>et al.</i> (2013)	Wildlife Acts; Amber List
Common Kingfisher (<i>Alcedo atthis</i>)	31/12/2011	Balmer <i>et al.</i> (2013)	Wildlife Acts; Annex I Bird Species; Amber List
Common Linnet (<i>Carduelis cannabina</i>)	31/12/2011	Balmer <i>et al.</i> (2013)	Wildlife Acts; Amber List
Common Pochard (<i>Aythya ferina</i>)	31/12/2011	Balmer <i>et al.</i> (2013)	Wildlife Acts; Amber List
Common Quail (<i>Coturnix coturnix</i>)	31/07/1972	Sharrock, J.T.R. (ed.) (1976)	Wildlife Acts; Red List
Common Redshank (<i>Tringa totanus</i>)	19/11/2016	Birds of Ireland	Wildlife Acts; Red List
Common Sandpiper (<i>Actitis hypoleucos</i>)	31/12/2011	Balmer <i>et al.</i> (2013)	Wildlife Acts; Amber List
Common Shelduck (<i>Tadorna tadorna</i>)	31/12/2011	Balmer <i>et al.</i> (2013)	Wildlife Acts; Amber List

Species	Date of Last Record	Source	Designation
Common Snipe (<i>Gallinago gallinago</i>)	02/12/2017	Birds of Ireland	Wildlife Acts; Amber List
Common Starling (<i>Sturnus vulgaris</i>)	02/12/2017	Birds of Ireland	Wildlife Acts; Amber List
Common Swift (<i>Apus apus</i>)	22/05/2016	Birds of Ireland	Wildlife Acts; Amber List
Common Tern (<i>Sterna hirundo</i>)	31/07/1972	Sharrock, J.T.R. (ed.) (1976)	Wildlife Acts; Annex I Bird Species; Amber List
Dunlin (<i>Calidris alpina</i>)	02/12/2017	Birds of Ireland	Wildlife Acts; Annex I Bird Species; Amber List
Eurasian Curlew (<i>Numenius arquata</i>)	19/11/2016	Birds of Ireland	Wildlife Acts; Red List
Eurasian Oystercatcher (<i>Haematopus ostralegus</i>)	19/11/2016	Birds of Ireland	Wildlife Acts; Amber List
Eurasian Teal (<i>Anas crecca</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Amber List
Eurasian Tree Sparrow (<i>Passer montanus</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Amber List
Eurasian Wigeon (<i>Anas penelope</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Amber List
Eurasian Woodcock (<i>Scolopax rusticola</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Amber List
European Golden Plover (<i>Pluvialis apricaria</i>)	19/11/2016	Birds of Ireland	Wildlife Acts; Annex I Bird Species; Red List
European Turtle Dove (<i>Streptopelia turtur</i>)	31/07/1991	Gibbon et al. (1993)	Wildlife Acts; Amber List
Gadwall (<i>Anas strepera</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Amber List
Great Black-backed Gull (<i>Larus marinus</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Amber List
Great Cormorant (<i>Phalacrocorax carbo</i>)	19/11/2016	Birds of Ireland	Wildlife Acts; Amber List
Great Crested Grebe (<i>Podiceps cristatus</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Amber List
Great Northern Diver (<i>Gavia immer</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Annex I Bird Species
Greater Scaup (<i>Aythya marila</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Amber List
Greater White-fronted Goose (<i>Anser albifrons</i>)	29/02/1984	Lack (1986)	Wildlife Acts; Annex I Bird Species; Amber List
Grey Plover (<i>Pluvialis squatarola</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Amber List
Greylag Goose (<i>Anser anser</i>)	31/12/2011	Balmer et al. (2013)	Invasive Species Regulation S.I. 477 (Ireland); Wildlife Acts; Amber List
Hen Harrier (<i>Circus cyaneus</i>)	29/02/1984	Lack (1986)	Wildlife Acts; Annex I Bird Species; Amber List
Herring Gull (<i>Larus argentatus</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Red List

Species	Date of Last Record	Source	Designation
House Martin (<i>Delichon urbicum</i>)	24/05/2016	Birds of Ireland	Wildlife Acts; Amber List
House Sparrow (<i>Passer domesticus</i>)	28/05/2016	Birds of Ireland	Wildlife Acts; Amber List
Jack Snipe (<i>Lymnocyptes minimus</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts
Leach's Storm-petrel (<i>Oceanodroma leucorhoa</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Annex I Bird Species; Amber List
Lesser Black-backed Gull (<i>Larus fuscus</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Amber List
Little Egret (<i>Egretta garzetta</i>)	02/12/2017	Birds of Ireland	Wildlife Acts; Annex I Bird Species
Little Grebe (<i>Tachybaptus ruficollis</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Amber List
Little Gull (<i>Larus minutus</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Annex I Bird Species
Mediterranean Gull (<i>Larus melanocephalus</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Annex I Bird Species; Amber List
Merlin (<i>Falco columbarius</i>)	19/11/2016	Birds of Ireland	Wildlife Acts; Annex I Bird Species; Amber List
Mew Gull (<i>Larus canus</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Amber List
Mute Swan (<i>Cygnus olor</i>)	27/05/2016	Birds of Ireland	Wildlife Acts; Amber List
Northern Lapwing (<i>Vanellus vanellus</i>)	19/11/2016	Birds of Ireland	Wildlife Acts; Red List
Northern Pintail (<i>Anas acuta</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Red List
Northern Shoveler (<i>Anas clypeata</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Red List
Peregrine Falcon (<i>Falco peregrinus</i>)	19/11/2016	Birds of Ireland	Wildlife Acts; Annex I Bird Species
Red Knot (<i>Calidris canutus</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Red List
Ringed Plover (<i>Charadrius hiaticula</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Amber List
Ruddy Duck (<i>Oxyura jamaicensis</i>)	31/12/2011	Balmer et al. (2013)	High Impact Invasive Species EU Regulation No. 1143/2014, Invasive Species Regulation S.I. 477 (Ireland)
Sand Martin (<i>Riparia riparia</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Amber List
Short-eared Owl (<i>Asio flammeus</i>)	29/02/1984	Lack (1986)	Wildlife Acts; Annex I Bird Species; Amber List
Sky Lark (<i>Alauda arvensis</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Amber List
Slavonian Grebe (<i>Podiceps auritus</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Amber List

Species	Date of Last Record	Source	Designation
Spotted Flycatcher (<i>Muscicapa striata</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Amber List
Stock Pigeon (<i>Columba oenas</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Amber List
Tufted Duck (<i>Aythya fuligula</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Amber List
Water Rail (<i>Rallus aquaticus</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Amber List
Whooper Swan (<i>Cygnus cygnus</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Annex I Bird Species; Amber List
Yellowhammer (<i>Emberiza citrinella</i>)	31/12/2011	Balmer et al. (2013)	Wildlife Acts; Red List

12.4.1.4 Bats

The bat landscape association model⁵ suggests that the proposed waste soils recovery facility site is part of a landscape that is moderately favourable for bats in general (Table 12.8). However, the landscape model shows a high suitability in the area for soprano pipistrelle, brown long-eared bat and Leisler’s bat and there is potential for these species to forage and commute along scrub and hedgerow habitats present at the margins of the site.

Table 12-8: Bat Suitability Index

Species	Suitability Index
All Bats	31.22
<i>Pipistrellus pygmaeus</i>	46
<i>Plecotus auritus</i>	44
<i>Pipistrellus pipistrellus</i>	39
<i>Rhinolophus hipposideros</i>	0
<i>Nyctalus leisleri</i>	44
<i>Myotis mystacinus</i>	35
<i>Myotis daubentonii</i>	30
<i>Pipistrellus nathusii</i>	6
<i>Myotis nattereri</i>	37

A review of existing bat records within 5km of the proposed facility (sourced from Bat Conservation Ireland’s National Bat Records Database and the National Lesser Horseshoe Bat Database) reveals that, currently, five of the ten known Irish bat species have been observed in this area. These include soprano pipistrelle and pipistrelle spp. (*Pipistrellus pygmaeus* & *P. spp.* respectively), Leisler’s

⁵ Lundy MG et al (2011) Landscape conservation for Irish bats & species specific roosting characteristics. Bat Conservation Ireland.

(*Nyctalus leisleri*), brown long-eared (*Plecotus auritus*) and Daubenton’s (*Myotis daubentonii*) bats as shown in **Table 12.9** below. No bat roosts have been identified within 5km of the proposed facility.

Table 12.9 below outlines records of each bat species within a 5km radius of the proposed facility.

Table 12-9: Bat Species Recorded within 5km of the Proposed Site

Common Name	Scientific Name	5km Radius	Known Roosts	Source
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	Present		Bat Conservation Ireland
Unknown pipistrelle	<i>Pipistrellus</i> spp.	Present		Bat Conservation Ireland
Leisler’s bat	<i>Nyctalus leisleri</i>	Present		Bat Conservation Ireland
Brown long-eared bat	<i>Plecotus auritus</i>	Present		Bat Conservation Ireland
Daubenton’s bat	<i>Myotis daubentonii</i>	Present		Bat Conservation Ireland

12.4.1.5 Invasive Species Records

Records of invasive species of flora and fauna from within 2km of the proposed site were obtained from the NBDC online database and are detailed in **Table 12.10**.

Table 12-10: Invasive Species Recorded within 5km of the Proposed Site

Species	Date of Last Record	Designation
Butterfly-bush (<i>Buddleja davidii</i>)	24/05/2015	Medium Impact Invasive Species
Japanese Knotweed (<i>Fallopia japonica</i>)	16/02/2016	High Impact Invasive Species, Invasive Species Regulation S.I. 477 (Ireland)
Three-cornered Garlic (<i>Allium triquetrum</i>)	24/05/2015	Medium Impact Invasive Species, Invasive Species Regulation S.I. 477 (Ireland)
Traveller's-joy (<i>Clematis vitalba</i>)	19/05/2016	Medium Impact Invasive Species
Harlequin Ladybird (<i>Harmonia axyridis</i>)	23/08/2014	High Impact Invasive Species, Invasive Species Regulation S.I. 477 (Ireland)
American Mink (<i>Mustela vison</i>)	31/12/1990	High Impact Invasive Species, Invasive Species Regulation S.I. 477 (Ireland)
Brown Rat (<i>Rattus norvegicus</i>)	22/05/2015	High Impact Invasive Species, Invasive Species Regulation S.I. 477 (Ireland)
Feral Ferret (<i>Mustela furo</i>)	26/03/2012	High Impact Invasive Species
House Mouse (<i>Mus musculus</i>)	14/12/1968	High Impact Invasive Species

12.4.1.6 Hydrology

The site is located in the Owennacurra River surface water catchment within the South Western River Basin District. A regional hydrology map is shown in **Figure 12.4** below

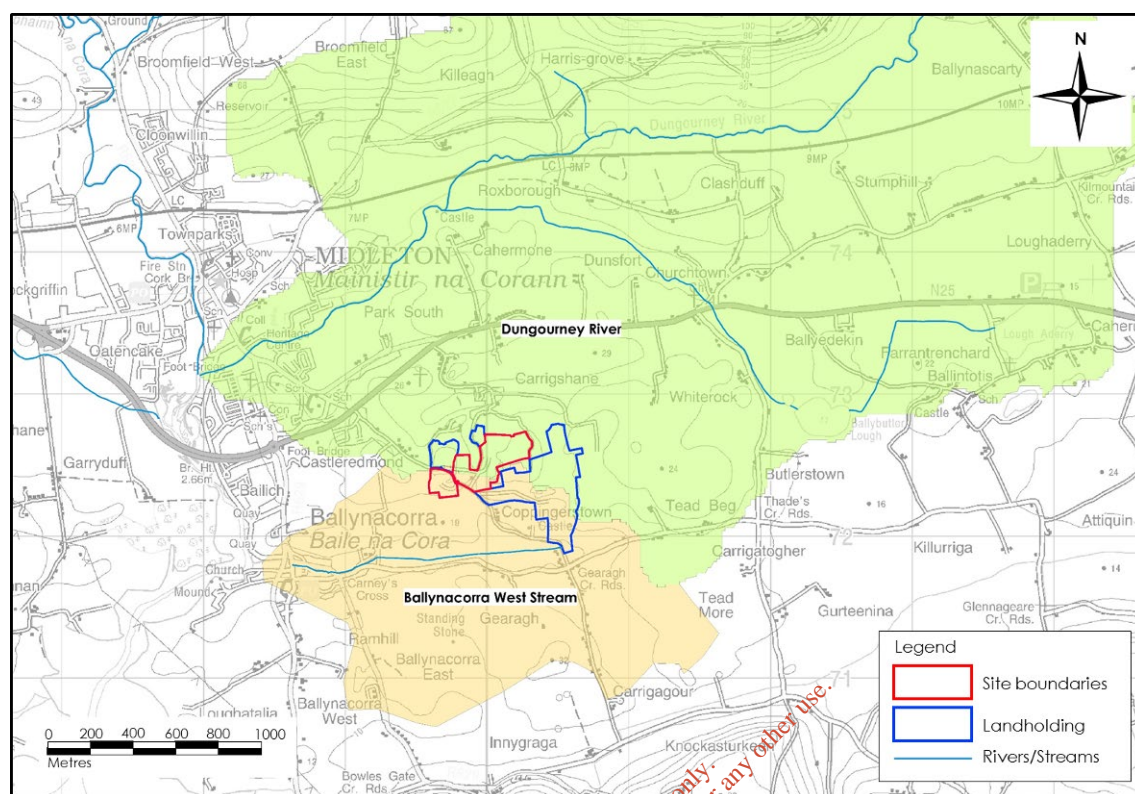
Regionally, the site is located in the Owennacurra River surface water catchment within the South Western River Basin District. The Owennacurra River flows through Midleton town, approx. 1.5km to the west of the site. Downstream of Midleton town this watercourse is referred to as the Ballynacorra River which flows into Cork Harbour further south. In terms of mapped local hydrology the northern section of the site is located in the Dungourney River catchment which flows in a westerly direction approx. 1.9km north of the site. The Dungourney River discharges into the Owennacurra River at Midleton town. The southern section of the site drains to an unnamed stream but which is referred to on EPA mapping as the West Ballynacorra Stream. The source of the West Ballynacorra Stream is a karst spring which is located in the most southeastern part of the applicants landholding (approximately 650m to the south east of the proposed application site boundary). The West Ballynacorra Stream flows westerly and discharges into the Ballynacorra River estuary, which is part of the Great Island Channel SAC and pNHA and Cork Harbour SPA. Similarly, groundwater flow direction in the area of the quarry is to the west / southwest.

Other than the West Ballynacorra Stream, there are no other natural surface water features within the site or in close proximity to the boundary of the site. A local hydrology map is shown as **Figure 12.5** below.

Figure 12.4: Regional Hydrology Map



Figure 12.5: Local Hydrology Map



12.4.2 Existing Environment – Site Surveys

12.4.2.1 Habitats

Active quarries (ED4)

Zone B of the site comprises an active open pit quarry system. Colonisation of the majority of this area by plants or animals is completely prevented by the constant excavation and moving of rock, stone, gravel and sand.

Exposed calcareous rock (ER2)

Extraction in Zone A has been completed and the majority of this area comprises exposed calcareous rock. Butterfly Bush (*Buddleja davidii*) and Gorse (*Ulex europaeus*) have begun to colonise the quarry floor. Species found locally at the southernmost edge of the quarry floor and the north facing quarry face include Large-flowered Evening-primrose (*Oenothera glazioviana*), Salad Burnet (*Sanguisorba minor ssp minor*), Wood Sage (*Teucrium scorodonia*), Fairy Flax (*Linum catharticum*); and the fern species Rustyback (*Ceterach officinarum*), Hard-shield Fern (*Polystichum aculeatum*), Hart's-tongue (*Phyllitis scolopendrium*), Polypody spp. (*Polypodium spp*), Black Spleenwort (*Asplenium adiantum-nigrum*), Wall Rue (*A. ruta-muraria*) and Maidenhair Spleenwort (*A. trichomanes*). Mexican Fleabane (*Erigeron karvinskianus*) was also recorded growing on the south-facing quarry face.

Scrub (WS1)

Large areas of the quarry margins have developed a cover of scrub, comprising Gorse (*Ulex europaeus*), Hawthorn (*Crataegus monogyna*), Sycamore (*Acer pseudoplatanus*), Ash (*Fraxinus excelsior*), Hazel (*Corylus avellana*), Bracken (*Pteridium aquilinum*) and Butterfly Bush. Bramble (*Rubus fruticosus*), is frequent throughout the areas of scrub and is dominant in formerly open areas adjacent to the access road to Coppingerstown Quarry.

Recolonising bare ground (ED3)

Some areas of bare ground around the quarry margins and within open areas of scrub are recolonising. The ground flora in these areas comprise graminoids including Smooth Meadow-grass (*Poa pratensis*), Red Fescue (*Festuca rubra*) and Glaucous Sedge (*Carex flacca*). Herbs include Common Knapweed (*Centaurea nigra*), Great Mullein (*Verbascum thapsus*), Scarlett Pimpernell (*Anagallis arvensis*), Germander Speedwell (*Veronica chamaedrys*), Silverweed (*Potentilla anserina*), Salad Burnet, Wood Sage, Black Nightshade (*Solanum nigrum*), White Ramping-fumitory (*Fumaria capreolata*), Eyebright (*Euphrasia* agg), Black Medick (*Medicago lupulina*), Autumn Hawkbit (*Leontodon autumnalis*), Fairy Flax, Mouse-ear Hawkweed (*Pilosella officinarum*) and Bird's-foot trefoil (*Lotus corniculatus*). Field Scabious (*Knautia arvensis*), Carlina Thistle (*Carlina vulgaris*) and Oxeye Daisy (*Oxalis acetosella*) are rare components of this habitat.

Hedgerow (WL1)

Much of the site boundary is bound by hedgerows comprising species such as Hawthorn, Blackthorn (*Prunus spinosa*), Crab Apple (*Malus sylvestris*), Gorse, Ash, Sycamore, Hazel, Bramble, Honeysuckle, Fox Glove (*Digitalis purpurea*) and Cleavers (*Galium aparine*).

Treeline (WL2)

The access road to Coppingerstown Quarry is lined by Cypress (*Cupressus* spp) trees.

Buildings and artificial surfaces (BL3)

On site buildings and tracks.

Surrounding land

The surrounding land is predominantly made up of Tilled land (BC3), Oak-Ash-Hazel Woodland (WN2), Active quarries (ED4) and Improved Grassland (GA1).

12.4.2.2 Flora

There are no historical records of rare plants from within 2km of the proposed site (**Table 12.6**). No rare or protected species of plants were recorded within the site during the site walkover undertaken on 22nd August 2018.

12.4.2.3 Invasive Species

There are a number of records of invasive non-native plant species from the vicinity of the site (see **Table 12.10**). No high impact invasive species or species listed on the Third Schedule the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) were observed within the proposed development site or its immediate environs. However, Butterfly Bush, a plant considered to be of Medium Impact⁶ was scattered throughout the vegetated areas of the site.

12.4.2.4 Fauna

Amphibians

Common Frog has been recorded within 2km of the proposed site. There is limited potential for amphibians to shelter in the vegetated quarry margins. However, there is no suitable breeding habitat on site and no signs of newt or frog were observed during the site surveys.

Invertebrates

There are no historical records of protected species of invertebrate within the vicinity of the proposed site. Speckled Wood (*Parage aegeria*) and Red Admiral (*Vanessa Atalanta*) were recorded on site during the site survey; these are common and widespread species of butterfly in Ireland.

Bats

Three species of bat have been recorded within 2km of the site; Daubenton's bat (*Myotis daubentonii*), soprano pipistrelle (*Pipistrellus pygmaeus*) and pipistrelle species (*P. pipistrellus sensu lato*).

Preliminary Survey

There are buildings constructed of concrete in Zone B and Zone C (**Figure 12.6**). The majority of these structures were derelict and none contained any features of suitable use by bats as roosting or resting places. There were no trees at the quarry margins that were suitable to support roosting bats.

The south facing quarry face in Zone B contains a number of crevices of potential use by bats. However, the quarry in Zone B is active and as such bats would be unlikely to roost in the quarry face in this area. The quarry face in Zone A also supports several crevices of potential use by bats. Quarrying has been completed in Zone A and there is reasonable connectivity from this part of the site to suitable foraging habitat in the scrub and woodland habitats in Carrigshane Hill pNHA to the north. The quarry face in Zone A is considered to be of moderate potential for bats (as defined in **Table 12.1**). No potential roost features were recorded in Zone C during the site surveys undertaken in 2018.

The scrub around the margins of the quarry and areas of woodland adjacent to the site boundary provide suitable foraging areas for bats.

⁶ <http://invasivespeciesireland.com>

Figure 12.6: Images of Structures Present on Site

	
<p>concrete building located in Zone C</p>	<p>concrete building with a missing roof located in Zone C</p>
	
<p>Pump house located in Zone B</p>	<p>Visible crevices in the south facing quarry face in Zone A</p>

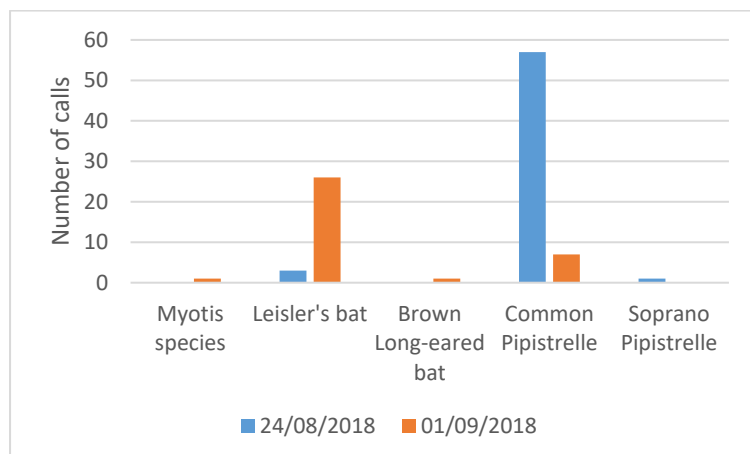
Activity Survey

Five species of bat were recorded during the dusk activity surveys, namely common pipistrelle, soprano pipistrelle, leisler’s, brown long-eared and *Myotis* species (unidentifiable to species level).

No emergent bats or bat roosts were identified during the emergence surveys undertaken at the site in August and September 2018. While no roosts were observed on site, bats do commute to the site to forage.

As shown in the simple summary chart of bat survey data in **Figure 12.7**, the level of bat activity recorded at the site was relatively low. The main activity recorded was from two common pipistrelle that were observed flying into the site from the north to forage around the quarry edge. Soprano pipistrelle was recorded on one occasion during the survey undertaken on 24th August 2018. Leisler’s bat was recorded commuting and foraging over the site and a single *Myotis* species and a single brown long-eared bat were recorded during the survey undertaken on 1st September 2018.

Figure 12.7: Bat calls recorded at Zone A, Midleton Quarry



Other Mammals

Badger, pygmy shrew, hedgehog, otter, red squirrel, fallow deer and sika deer have been recorded within 2km of the proposed site, but there are no records of these species from within the footprint of the site. The habitats present within the site are not suitable to support red squirrel, otter and deer. The scrub around the quarry margins would provide limited shelter for hedgehog and pygmy shrew. No evidence of a badger sett was recorded during the site surveys, however badger droppings were recorded at the quarry margin to the north of Zone B and several badger droppings were present in the quarry floor of Zone A. Several mammal tracks were also recorded in a small area of woodland adjacent to the site boundary at the south of the site.

Birds

The proposed site is located c. 1.13km east of Cork Harbour SPA, consequently a large number of birds of high conservation concern have been recorded within 2km of the proposed site (**Table 12.7**).

A total of seven species of bird were recorded during the site surveys undertaken in May and August 2018 (**Table 12.11**). No species of High or Moderate Conservation Concern (Red or Amber listed respectively) were identified during the site surveys.

Between 3 – 4 Buzzards were seen circling above the northern end of Zone C during the site survey undertaken on 23rd May 2018 and a single buzzard was observed flying over Carrigshane Hill to the west of the proposed site on 22nd August 2018. Ravens were recorded nesting in the quarry face in Zone A and Zone B. Dunnock, blackbird, wren, wood pigeon and goldfinch were all recorded in the scrub at the quarry margins. The species recorded on site are all relatively common species and are Green listed.

Table 12-11: Bird Species Recorded within the Proposed Site, 2018

Common Name	Species Name	Conservation BoCCI ⁷		
		23 rd May 2018	22 nd August 2018	
Raven	<i>Corvus corax</i>		√	Green
Buzzard	<i>Buteo buteo</i>	√	√	Green
Dunnock	<i>Prunella modularis</i>		√	Green
Blackbird	<i>Turdus merula</i>		√	Green
Wren	<i>Troglodytes troglodytes</i>		√	Green
Wood Pigeon	<i>Columba palumbus</i>		√	Green
Goldfinch	<i>Carduelis carduelis</i>		√	Green

12.4.3 Evaluation of Ecological Receptors

Table 12.12 summarises all identified ecological features. Ecological features have been identified as being at risk of potentially significant impacts via a source-pathway-receptor link. Ecological features are valued as being of local ecological importance (higher value) or above as per the criteria set out in **Table 12.2**.

Table 12-12: Ecological Features within the Proposed Site and its Receiving Environment

Habitat/ Species	Ecological Value ⁸	Ecological Feature
European Site	International	Yes
Natural Heritage Area	National	Yes
Active quarries (ED4)	Negligible	No
Exposed calcareous rock (ER2)	While an interesting flora was recorded in one location of exposed rock in Zone A, this area was small and isolated and overall this habitat is considered to be of Local importance (lower value)	No
Recolonising bare ground (ED3)	While an interesting flora was recorded in places in Zone B, these areas were small and isolated and overall this habitat is considered to be of Local importance (lower value)	No
Buildings and artificial surfaces (BL3)	Negligible	No
Hedgerow (WL1)	Local importance (higher value)	Yes
Treeline (WL2)	Local importance (lower value). Treelines at the site were comprised of Cypress trees that are of limited conservation value	No
Scrub (WS1)	Local importance (lower value)	No

⁷ Follows status attributed under the Birds of Conservation Concern (BoCCI) in Ireland 2014-2019 (Colhoun and Cummins, 2013).

⁸ In accordance with NRA (2009) Guidelines for the Assessment of Ecological Impacts of National Road Schemes Rev. 2. National Roads Authority.

Habitat/ Species	Ecological Value ⁸	Ecological Feature
Bats	Bat species as they occur within the site are considered to be of Local Importance (Higher Value)	Yes
Badger	Evidence of badger foraging was recorded within the proposed site. Badgers are protected under the Irish Wildlife Acts and are considered to be of Local Importance (Higher Value).	Yes
Avifauna	Nesting birds are protected under the Irish Wildlife Acts and are considered to be of Local Importance (Higher value).	Yes

12.5 POTENTIAL IMPACTS

This section will identify in detail the impact of the proposed works on ecological features in the receiving environment, in the absence of mitigation.

12.5.1 Construction / Operational Phase

12.5.1.1 Designated Conservation Areas

There is no surface water connectivity between the proposed site and any designated site. Groundwater flow in the area of the proposed site is expected to flow in the direction of the Ballynacora River/Estuary and therefore this forms a potential indirect hydrogeological flowpath to Great Island Channel SAC and pNHA and Cork Harbour SPA.

As stated in **Chapter 11: Water Services, Hydrology and Flood Risk**, infilling of the site with inert soil will pose a low risk to groundwater quality as no harmful contaminants will be present. In addition, inert soil and stone will not contain either organic matter or liquids that will form a source of organic contaminants of microbial pathogens, nor provide a substrate to feed microbial pathogens. Other potential sources of contaminants include accidental spillage during refuelling of construction/excavation plant with petroleum hydrocarbons, which can pose a contamination risk to groundwater and surface water and associated aquatic organisms. The employment of standard good practice pollution prevention measures will readily contain pollutants. Therefore, no significant groundwater quality impacts are anticipated.

Nevertheless, following a screening by the EPA in June 2020 a Natura Impact Statement was requested by the Agency on foot of the potential hydrological connectivity via groundwater to Cork Harbour SPA and Great Island Channel SAC. An NIS has subsequently been prepared which sets out best practice pollution prevention mitigation measures to protect against any possible adverse impacts due to the potential hydrogeological connectivity.

During infilling there will be no pathway for surface water to leave the site other than by recharging into groundwater. However, as stated above, no significant groundwater quality impacts are anticipated, with the effective implementation of best practice pollution prevention measures as set out in the NIS.

Carrigshane Hill pNHA is in three sections, two of which are adjacent to Zone C. The third is located within the north-east area of Zone B and therefore the majority of this section of the pNHA has already been excavated, with a small area of scrub remaining. No works are proposed to the two intact areas of Carrigshane Hill pNHA. In view of these factors, no significant impacts on Carrigshane Hill pNHA as a result of the proposed infill and landscaping proposals are anticipated.

There is no habitat, hydrological or hydrogeological connectivity to any other designated site.

The NIS concludes that subject to mitigation measures specified there will be no significant adverse effects on the integrity of Cork Harbour SPA or Great Island Channel SAC in view of the sites conservation objectives and that the conservation status of the qualifying interests will not be compromised by the proposal either directly, indirectly or cumulatively.

12.5.1.2 Terrestrial Habitats

It is proposed to cut back the vegetation and lower the boundary treatments on both sides of the existing access to Zone A however, (which are under the ownership of the applicant) to optimise sight visibility to both the north and south of the access junction. This will incorporate removing approximately 340m² of vegetation and sod and stone walls to the northwest of the access point to Zone A, and 115m² to the southeast.

New post and chain-link fencing will be installed in the area to the northwest where vegetation is removed. This fencing will be a similar nature to that currently in situ at the entrance to Zone B as shown in the image below. The area to the southeast will result in a lower hedgerow and no new boundary is proposed.

This will result in a long-term/ permanent adverse impact that is significant at the local level.

12.5.1.3 Aquatic Habitats

There are no watercourses or waterbodies present within the site and its immediate environs and no hydrological connectivity available to watercourses located in the vicinity of the site. Therefore, there will be no adverse impacts on aquatic habitats.

Potential impacts on surface and groundwater quality are assessed in **Chapter 11 'Water Services, Hydrology and Flood Risk'**.

12.5.1.4 Invasive Species

There is potential for the proposed works to cause the spread of the Medium Impact invasive species Butterfly Bush.

12.5.1.5 Bats

No emergent bats or bat roosts were recorded on site, therefore no significant adverse impacts on the breeding or resting places of bats are anticipated. Bats do commute to the site to forage along the vegetated margins of the quarry. As noted above, the hedgerows at the site boundary, which provide

foraging and commuting habitat for bats, will be retained. The scrub growing around the quarry margins will also be retained. The quarry floor currently supports little or no vegetation and in turn does not support a high volume of insects; as such the areas of the site proposed for infill are of low value for foraging bats. In view of the low value of the quarried areas for foraging and commuting bats and the proposed retention of hedgerows and scrub, no significant effects on foraging and commuting bats are anticipated.

Some of the concrete structures referenced previously will be removed as part of the permitted extraction development. As stated earlier however these do not provide any features of suitable use by bats as roosting or resting places and therefore no significant adverse impacts are predicted.

12.5.1.6 Badger

No evidence of badger setts was recorded within the proposed site. However, badgers create new setts regularly. There is evidence that badgers forage across Zone A, the margins of Zone B and an area of woodland outside of the southern site boundary. There are areas of suitable habitat for sett excavation in scrub located around the quarry margins. There are no proposals to remove scrub at the quarry margins, therefore there will be no direct impacts on badgers. A small area of bramble scrub will be cleared to facilitate the installation of a soakaway, however, no badger setts were recorded at this location. There is potential for indirect impacts on badgers as a result of disturbance should badgers establish setts in scrub directly adjacent to the proposed site. There is also potential for temporary disturbance to badgers during the operational phase of the proposals should badgers be reluctant or unable to cross the infilled areas. These potential indirect impacts on badgers would be temporary and reversible and would be significant on a local level.

12.5.1.7 Birds

Potential impacts on birds during the operational phase are limited to disturbance to Raven nesting on the quarry face in Zone A and Zone B during the period of infilling. As Raven are nesting in Zone B, which is an active quarry, it appears that this species is habituated to quarrying activities, therefore there is potential that this species will also habituate to infilling activities. Ultimately, however, there will be loss of nesting habitat for Raven in Zone A and Zone B once infilling and landscaping is complete. Raven are of low conservation concern, therefore this would be a significant adverse impact at the local level.

There will be no removal of hedgerows or scrub at the quarry margins, therefore no adverse impacts on birds that nest in these habitats are expected.

12.5.2 Post-Restoration Phase

It is proposed that the site will revert to agricultural use after restoration. No significant impacts on designated sites are expected to arise post restoration. The hedgerows present at the site boundary and scrub at the quarry margins will provide habitat suitable for foraging and shelter by fauna, including bats, badger and birds. No significant adverse impacts on ecological features are expected to arise post restoration.

12.5.3 ‘Do Nothing’ Scenario

In the absence of development the site would re-vegetate following quarrying activities and may begin to support an interesting flora on areas of exposed limestone. It is likely that scrub would continue to develop and would encroach on to re-vegetating areas. The quarry face would continue to support Raven. Following cessation of quarrying activity, there is potential that the biodiversity value of the site would increase as a result of lack of disturbance.

12.5.4 ‘Worst Case’ Scenario

In the worst-case, the proposed development would result in the disturbance to fauna considered to be of local conservation value and loss of nesting habitat to birds of low conservation concern.

12.5.5 Cumulative Impact

Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location⁹. A search of Myplan (Myplan.ie) and the Cork County Council planning enquiry system was conducted for developments that may have in-combination effects on ecological features with the proposed works. Plans relevant to the area were searched in order to identify any elements of the Plans that may act cumulatively or in-combination with the proposed development.

Based on this search a list of those projects and Plans which may potentially contribute to Cumulative or In-Combination Impacts with the proposed works was generated, as listed in **Table 12.13** below.

Table 12-13: Cumulative and In-combination impacts of Other Plans and Projects

PLANS AND PROJECTS	KEY POLICIES/ISSUES/OBJECTIVES/PROPOSALS	IMPACT
Land Use and Spatial Plans		
Cork County Development Plan 2014-2020	The policies and objectives of this plan are intended to contribute to the delivery of a number of key aims for the county as a whole. They are as follows: Enhanced quality of life for all Sustainable patterns of growth in urban and rural areas Sustainable and balanced economic investment An effective physical and community Infrastructure A quality built environment A network of enhanced natural resources Responsible guardianship of the County	Policies and objectives of the Cork County Development Plan 2014 – 2020 ensure that local planning applications comply with proper planning and sustainability and with the requirements of relevant EU Directives and environmental considerations, there is no potential for adverse in combination effects on biodiversity.
River Basin Management Plan 2018-2021	The project should comply with the environmental objectives of the Irish Draft RBMP which are to be achieved generally by 2021.	The implementation and compliance with key environmental policies, issues

⁹ CIEEM (2016). Chartered Institute of Ecology and Environmental Management Guidelines for Ecological Impact Assessment in the UK and Ireland

PLANS AND PROJECTS	KEY POLICIES/ISSUES/OBJECTIVES/PROPOSALS	IMPACT
	Ensure full compliance with relevant EU legislation Prevent deterioration Meeting the objectives for designated protected areas Protect high status waters Implement targeted actions and pilot schemes in focus sub-catchments aimed at: <ul style="list-style-type: none"> ○ targeting water bodies close to meeting their objective; and ○ addressing more complex issues which will build knowledge for the third cycle. 	and objectives of this management plan will result in positive in-combination effects on biodiversity. It will not contribute to in-combination or cumulative impacts with the proposed facility.
Pollution Reduction Plans		
IPPC Programme Local Authority Discharge	There are no IPPC Licence holders discharging to proximal or downstream European Sites. The nearest IPCC facility is Mr Mark O'Connor (Ref. No. P0895) which is located 2.5km to the south west of the proposed works.	No impacts
Major Accident Emergency Plans		
Seveso II Sites	There are no Seveso sites within the vicinity of the proposed works.	No impacts
Fisheries Plans		
Inland Fisheries Ireland Corporate Plan 2016 -2020 The Inland Fisheries Act 2010.	To ensure that Ireland's fish populations are managed and protected to ensure their conservation status remains favourable; that they provide a basis for a sustainable world class recreational angling product, and that pristine aquatic habitats are also enjoyed for other recreational uses. To develop and improve fish habitats and ensure that the conditions required for fish populations to thrive are sustained and protected. To grow the number of anglers and ensure the needs of IFI's other key stakeholders are being met in a sustainable conservation focused manner. EU (Quality of Salmonid Waters) Regulations 1988. All works during development and operation of the project must aim to conserve fish and other species of fauna and flora habitat; biodiversity of inland fisheries and ecosystems and protect spawning salmon and trout.	Implementation and compliance with the goals of the IFI corporate plan and legislation will result in net positive in-combination effects on biodiversity.
Other Water Services Strategic Plans		
Irish Water Capital Investment Plan 2014-2016	Proposals to upgrade and secure water services and water treatment services countrywide.	Likely net positive impact due to water conservation and more effective treatment of water.

PLANS AND PROJECTS	KEY POLICIES/ISSUES/OBJECTIVES/PROPOSALS	IMPACT
Other Plans and Projects¹⁰		
NPWS Conservation Management Plans	To maintain the favorable conservation condition of Mudflats and sandflats not covered by seawater at low tide in Great Island Channel SAC. To maintain the favorable conservation condition of Qualifying Interests in Cork Harbour SPA.	The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. Generic conservation objectives aim to define favourable conservation condition for a particular habitat or species at that site to ensure the ecological integrity of these sites is maintained or restored. The resultant effects of conservation objectives are a net positive and there is no potential for adverse in combination effects on biodiversity.
Midleton GAA	Club house, pitches and associated facilities at Youghal Road, Midleton.	Adherence to the overarching policies and objectives of the Cork County Development Plan 2014-2020 will ensure that local planning applications and subsequent grant of planning comply with the core strategy of proper planning and sustainability and with the requirements of relevant EU Directives and environmental considerations; there is no potential for adverse in combination effects on biodiversity.
Irish Distillers	Change of use from warehouse to workshop with ancillary storage, training area and office, modifications to the façade, 2 no. attached exterior store areas and all ancillary site development works	Adherence to the overarching policies and objectives of the Cork County Development Plan 2014-2020 will ensure that local planning applications and subsequent grant of planning comply with the core strategy of proper planning and sustainability and with the requirements of relevant EU Directives and environmental considerations; there is no potential for adverse in combination effects on biodiversity.

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¹⁰ The Local Planning Applications included in this potential in-combination impacts assessment support the following criteria; planning applications granted within the past six years that may contribute to potential cumulative impacts on biodiversity. They include planning applications that support proximity or potential connectivity with the eastern area of Cork Harbour.

PLANS AND PROJECTS	KEY POLICIES/ISSUES/OBJECTIVES/PROPOSALS	IMPACT
Dunkettle Interchange	The proposed provision of an improved interchange at the location of the existing Dunkettle Interchange at the intersection of the N8, the N25 and the N40 in the townland of Dunkettle, Co. Cork.	Adherence to the overarching policies and objectives of the Cork County Development Plan 2014-2020 will ensure that local planning applications and subsequent grant of planning comply with the core strategy of proper planning and sustainability and with the requirements of relevant EU Directives and environmental considerations; there is no potential for adverse in combination effects on biodiversity.
Water Rock Urban Expansion Area (UEA) Infrastructure Works	New services corridor link road, surface water drainage for new infrastructure and for UEA, upgrade of Cork/ Midleton Road and Northern Relief Road Junction, traffic management measures, road to access railway station and bridge to cross over existing railway line, new railway stop, upgrade/realignment of existing Water Rock road, wastewater pumping station for future UEA development.	Adherence to the overarching policies and objectives of the Cork County Development Plan 2014-2020 will ensure that local planning applications and subsequent grant of planning comply with the core strategy of proper planning and sustainability and with the requirements of relevant EU Directives and environmental considerations; there is no potential for adverse in combination effects on biodiversity.

12.6 MITIGATION MEASURES

As with any development, all measures necessary should be taken to ensure comprehensive protection of local ecological features, in the first place by complete impact avoidance and as a secondary approach through mitigation by reduction and remedy.

12.6.1 Construction / Operational Phase

12.6.1.1 Designated Conservation Areas

Control of Infill Materials

Only material that is proven to be suitable prior to delivery to the site shall be accepted.

1. Pre-agreed source sites for inert material ensuring no pollutants, unauthorised material, invasive species as per the waste acceptance procedures.

2. The site will operate under an Environmental Management System.
3. All required pollution prevention measures will be implemented at the site.
4. The operator will prepare and implement an Emergency Response Procedure.
5. The operator will complete environmental monitoring, including local groundwater water monitoring.
6. A phased restoration of the site will be implemented, with an agricultural use implemented following restoration for the majority of the site.
7. The operator will have a documented waste recording procedure for all material entering the site.
8. No unauthorised dumping of waste will be allowed at the site.

Best Practice Pollution Prevention Measures

1. There will be no on-site storage of fuels permitted at the site.
2. All on-site refuelling will be completed in a designated area and from a mobile double skinned fuel bowser.
3. The designated refuelling area will be located in a hardstanding area with surface water drainage collected and passed through a class 1 full retention oil interceptor (with silt trap) and constructed wetlands.
4. All plant and machinery will be serviced before being mobilised to site, and regular leak inspections will be completed during the backfilling works.
5. No substantial plant maintenance will be completed on site, any broken-down plant will be removed from site to be fixed.
6. An emergency spill kit with oil boom, absorbers etc. will be kept on site for use in the event of an accidental spill.

12.6.1.2 Invasive Species

No species listed on the Third Schedule or High Impacts invasive plant species was recorded at the proposed site. Butterfly Bush, or *Buddleja*, is present throughout the site. Butterfly Bush is very fast growing and can reach 2m in its first year, producing flowers and setting seed. It is frequently found in waste ground in urban environments. It colonises bare ground very rapidly and can quickly form mono-typic stands. As Butterfly Bush is a plant that favours disturbed sites, physical grubbing of plants can provide ideal conditions for the germination of seeds. Care needs to be taken to ensure that revegetation of controlled areas is undertaken swiftly. The branches of Butterfly Bush are capable of rooting as cuttings, so care should also be taken to ensure material is disposed of in a manner to avoid this risk. Butterfly Bush should be managed in accordance with best-practice bio-security measures as set out in National Roads Authority Guidelines (2010).

The plants at the proposed site will either be dug out and chipped or removed from site and disposed of appropriately or cut back to the stump and treated with an appropriate herbicide. The site will be monitored for re-growth and any saplings will be pulled and disposed of appropriately or treated by an application of a suitable herbicide. The application of herbicide must be used in compliance with the product label and in accordance with Good Plant Protection Practice as prescribed in the European

Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (S.I. No. 83 of 2003) and shall be applied by trained professionals.

As stated in **Chapter 2**, 'Need for the Development and Project Description', an invasive species risk assessment will be undertaken as part of the waste pre-approval procedure.

12.6.1.3 Bats

As a precautionary measure, pre-infill bat emergence and activity surveys will be undertaken at each zone in order to check the status of bats in Zone B and Zone C; and to identify any changes in bat activity in Zone A since surveys for this report were completed to address possible impacts on bats. It is also important to ensure that no new roosts have been created in the intervening period. Mitigation measures will be drawn up, in accordance with *Bat Mitigation Guidelines for Ireland*¹¹, if and as required following pre-construction/infill surveys of the quarry.

12.6.1.4 Badger

A survey shall be undertaken prior to the commencement of clearance works to facilitate the installation of a soakaway at the south of the site and also prior to infill works at each Zone to identify active badger setts occurring within the site.

In the event of badger setts being identified within proximity to the proposed works area, the following mitigation measures are proposed to ensure no disturbance of the local badger population during the construction phase of the proposed works (NRA 2005):-

- A buffer distance of 10m from sett entrances should be employed in instances where light works such as digging by hand or in the event of scrub clearance.
- A buffer distance of 20m from Badger sett entrances should be incorporated where light machinery (generally wheeled vehicles) are in operation within the site.
- A buffer distance of 30m from Badger setts should be employed where heavy machinery is in operation within the site.
- None of the above activities should be undertaken within 50m of active setts during the breeding season (1st December to 31st June inclusive).

In the unforeseen event that the project requires works to be undertaken within the recommended buffer distances outlined above, further measures as outlined in NRA (2009) will be adopted in liaison with local NPWS staff.

12.6.1.5 Birds

Raven was recorded nesting in the quarry face in the north-east of Zone A and the north-east of Zone B. Where practicable, infill of these areas will occur outside of the bird breeding season.

¹¹ Kelleher, C. & Marnell, F. (2006). Bat Mitigation Guidelines for Ireland.

12.6.1.6 Hedgerows

Where feasible, no scrub clearance or other removal of vegetation will occur during the bird breeding season from 1st March to 31st August.

12.6.2 Post-Restoration Phase

No significant adverse impacts on ecological features are expected to arise post-restoration, therefore, no specific mitigation measures are required.

12.7 PREDICTED RESIDUAL IMPACTS

12.7.1 Construction / Operational Phase

Provided that the mitigation measures described in Section 12.5 are implemented in full then it is not anticipated that there will be any residual significant negative impacts on fauna as a result of the proposed scheme. There will, however, be a residual impact of the loss of approximately 340m² hedgerow at the access to Zone A.

12.7.2 Post-Restoration Phase

No residual impacts will occur during the post restoration phase.

12.8 MONITORING AND REINSTATEMENT MEASURES

The mitigation measures provided in **Section 12.5** are routinely applied in development projects. Therefore, no monitoring to test the efficacy of the terrestrial ecology mitigation measures provided for the Waste Soils Recovery Facility, Midleton, Co. Cork is required.