Russell Environmental and Sustainability Services Limited

ECOLOGICAL IMPACT ASSESSMENT STUDENT ACCOMMODATION, CORK ROAD, WATERFORD

Dr Jane Russell-O'Connor 19th February 2024.

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Executive Summary

This Ecological Impact Assessment has been prepared by Russell Environmental and Sustainability Services Limited (RESS Ltd.) on behalf of Noel Frisby Construction Ltd., in preparation for the planning application for the Student Accommodation Development, Cork Road, Waterford.

The aim of this Report is to identify, quantify and evaluate the impacts of the proposed development on ecosystems and their components, habitats, flora and fauna.

John's River flows through the site and discharges into the Lower River Suir Special Area of Conservation (SAC). In addition, Kilbarry Bog is situated approximately 0.8km from the site and is designated as a proposed Natural Heritage Area (pNHA). The main habitats within the development site are spoil and bare ground and recolonising bare ground, with a treeline, a small area of scrub, scattered trees and depositing lowland streams. These habitats are common and widespread in the surrounding area and are of negligible ecological importance. On the banks of the John's River there is tall-herb swamp and riparian woodland mosaic habitat is present, which is of local importance for nature conservation. No protected species were recorded. No species of Union Concern were recorded.

Some common bird species were recorded in the site, and it is likely that bird's nest in the trees in the treeline on the site. Impacts on nesting birds will be avoided by scheduling site clearance works outside the nesting season.

1.0 Introduction

1.1 Background

This Ecological Impact Assessment (EcIA) relates to the planning application to develop a Student Accommodation development on the Cork Road Waterford, on a green-field site.

The aim of this EcIA is to identify, quantify and evaluate the impacts of the proposed development on ecosystems and their components, including habitats, flora, and fauna. It has been prepared in accordance with the Guidelines for Ecological Impact Assessment in the UK and Ireland (2018). The purpose of this document is to:

- Provide an objective and transparent assessment of the potential ecological impacts of the proposed development for all interested parties, including planning authorities and the general public.
- Facilitate objective and transparent determination of the consequences of the development in terms of national, regional and local policies relevant to ecology.
- Propose the steps will be taken to adhere to legal requirements relating to designated sites and legally protected species (CIEEM 2018).

Although the above guidelines provide a framework for EcIA, many processes rely on the professional judgement of an ecologist, including survey design, the valuation of ecological features, and the characterisation of impacts.

1.2 Author of the Report

Russell Environmental and Sustainability Services Limited (RESS LTD) was contracted by Noel Frisby Construction Ltd. to conduct an ecological impact assessment for the proposed development at Cork Road, Waterford. This Report details the likely effect of the potential works on the habitats and species of the development site and surrounding environs. The site was surveyed by ecologists from RESS Ltd. on 1st October 2022, 22nd February 2024, 8th of April 2024 and the 22nd of June 2024. The conditions were dry on all visits and there were no constraints to the survey.

2.0 Scoping

The objective of this assessment is to identify any ecological features that may pose a constraint to the proposed development. It involves the following steps:

1. Identification of designated sites within an appropriate zone of influence
2. A walkover survey incorporating the following elements:
   i) Classification and mapping of habitats
   ii) A search for rare / protected flora, and for problematic non-native plant species (e.g., Japanese Knotweed)
   iii) A search for field signs of rare or protected fauna (e.g., badgers), and habitat suitability assessments for species that are secretive, nocturnal or seasonal.
   iv) Valuation of ecological features, review of legal considerations, and selection of important ecological features

       It is accepted that any development will have an impact on the receiving environment, but the significance of the impact will depend on the importance of the ecological features that would be affected. The following is outlined in the CIEEM guidelines:

       "One of the key challenges in an EcIA is to decide which ecological features (habitats, species, ecosystems, and their functions/processes) are important and should be subject to detailed assessment. Such ecological features will be those that are considered to be important and potentially affected by the project. It is not necessary to carry out detailed assessment of features that are sufficiently widespread, unthreatened, and resilient to impacts from the development, and that will remain viable and sustainable" (CIEEM, 2018).

   v) Assessment of impacts on important ecological features and development of appropriate mitigation strategies

       Potential direct, indirect, or cumulative impacts on ecological features can be described in relation to their magnitude, extent, duration, reversibility and timing/frequency, as outlined in the CIEEM (2018) guidelines. Depending on the type of impact and the sensitivities of the important ecological feature, the ecologist may determine that the impact would have a 'significant effect'. The following definitions are provided in the CIEEM guidelines:

       "A significant effect is simply an effect that is sufficiently important to require assessment and Reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project". "For the purpose of

EcIA, a 'significant negative effect' is an effect that undermines biodiversity conservation objectives for 'important ecological features', or for biodiversity in general" (CIEEM, 2018).

Where significant impacts are identified, measures will be taken to avoid, minimise or compensate for impacts (where possible). Based on these measures, any residual impacts are then described.

2.1 Description of the Proposed Development

Permission is being sought for the following Large-Scale Residential Development (LRD), comprising of the construction of a student accommodation development which will consist of the construction of 85 no. student accommodation apartments (ranging in size from 5-bed apartments to 8-bed apartments) comprising a total of 582 no. bed spaces in 4 no. blocks ranging in height from 4-6 storeys, with student amenity facilities including 1 no. retail/cafe unit, communal areas, laundry room, reception, student and staff facilities, storage, ESB substation/switch room, bin and general stores and plant rooms. The development also includes the provision of landscaping and amenity areas including a central courtyard space, public realm/plaza (fronting on to the Cork Road), the provision of a set down area, 1 no. vehicular access point onto Ballybeg Drive, car and bicycle parking, footpaths, signage, boundary treatment, pedestrian and cycle improvements to Lacken Road (including a pedestrian crossing) and all ancillary development including pedestrian/cyclist facilities, lighting, drainage (including 2 no. bio retention ponds), landscaping, boundary treatments and plant including PV solar at roof level.

2.2 Valuation of Ecological Features

Based on the information from the desktop and walkover surveys, each feature is assigned an ecological importance based on its conservation status at different geographical scales (Table 1). For example, a site may be of ecological importance for a given species if it supports a significant proportion of the national population.

Ecological Value	Geographical Scale of Importance
International	International or European Scale
National	The Republic of Ireland or the island of Ireland
Regional	Munster and/or Southeast of Ireland
County	County Waterford
Local	Waterford City
Negligible	None, the feature is common and widespread.

Table 1 The six-level ecological valuation scheme used in the CIEEM guidelines (CIEEM, 2018)

It is accepted that the proposed development will have an impact on the receiving environment, but the significance of the impact will depend on the importance of the ecological features that would be affected.

2.3 Ecological Impact Assessment

Potential, indirect or cumulative impacts on ecological features can be described in relation to their magnitude, extent, duration, reversibility and timing/frequency, as outlined in the CIEEM (2018) guidelines. Depending on the type of impact and the sensitivities of the important ecological features, it may be determined that the impact would have a significant effect. Where significant impacts are identified, measures will be taken to avoid, minimise or compensate for impacts (where possible). Based on these measures, any residual impacts are then described.

3.0 The Receiving Environment

3.1 Site Description, Location and Topography

The development site is that of a green-field site. The vegetation is an area where spoil was deposited that has now been levelled and vegetation has started to colonise the area. There is also a stream (John's River) running through the northern and eastern section of the site. The site is adjacent to the Cork Road and the L5021 Road (Figure 1).

The central co-ordinates are Longitude: -7.1312663 and Latitude: 52.2446197 (EPA, 2024). Figure 1 shows the location of the site. The site has varying levels, ranging from 4m at its lowest point and 9m at its highest point (OSI, 2024).

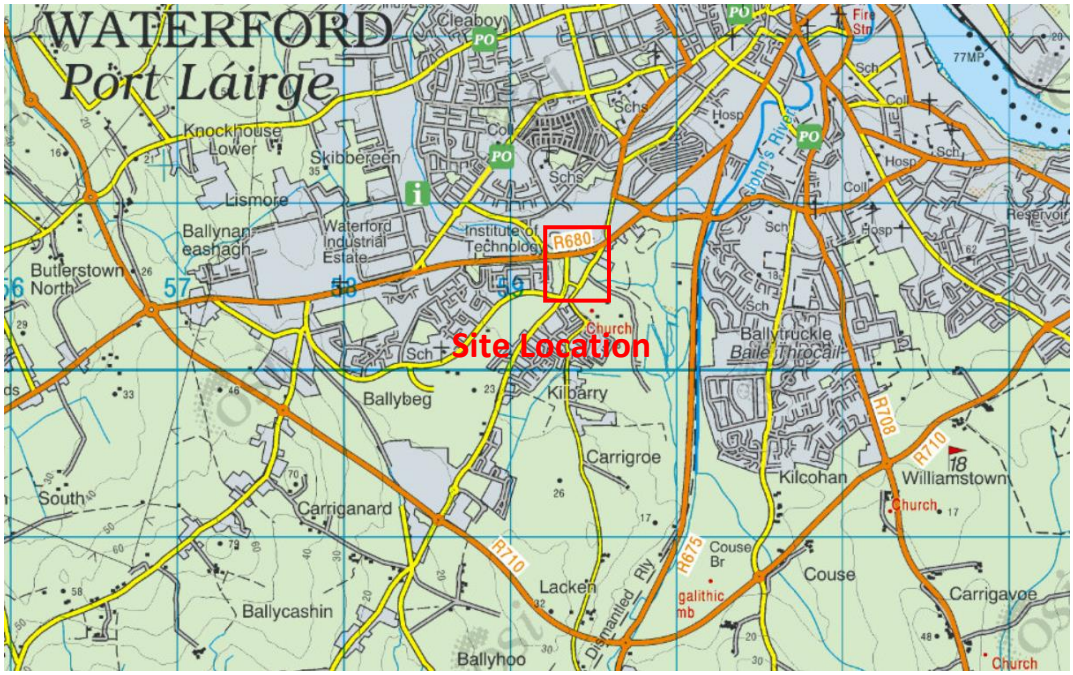

Figure 1 Site location (OSI, 2024)

3.2 Geology and Soils

There is one type of bedrock on the site, which is from the Palaeozoic, middle-upper Ordovician period comprised of greywacke, Ordovician slate,

sandstone, and conglomerate (EPA, 2024; GSI, 2024). There are 3 types of soils on the site, two of which are well drained shallow brown earths and podzolics comprised of fine loamy drift from the Clonroche Series and the third is more poorly drained lake alluvium from the Gurteen Series (Teagasc, 2024).

3.3 Hydrology

As can be seen in Figure 2, the John's River flows at the northern and eastern boundaries of the site (EPA, 2024). Figure 3 shows the high probability (1 in 10) of a flood incident for the area, illustrating that the site is outside the flood zone (Floodmaps.ie, 2024).

Figure 2 Flow network through the site and sampling points for water quality testing (EPA, 2024)

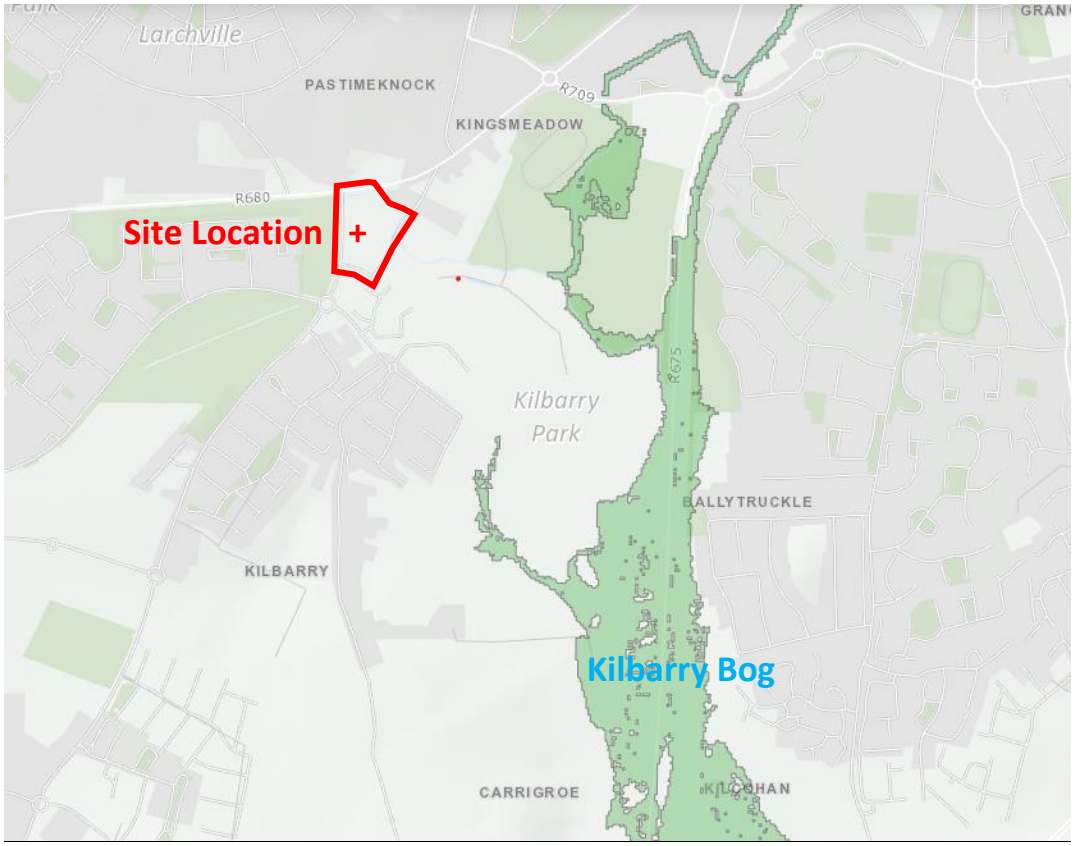

Figure 3 Flood map showing 1 in 10 likelihood of flooding (Floodmap.ie, 2024).

3.4 Desk Based Survey

A desk-based study was undertaken to determine the proximity of any designated sites within the vicinity of the proposed development site.

The EPA provides the AA Geotool that is a database of the protected sites and associated flow network for water courses within Ireland. The flow network was identified for water courses on or near to the site (Figure 2) (EPA, 2024).

EU Habitats

Article 6(1) and article 6(2) of Council Directive 92/43/EEC of 21st May 1992 on the conservation of natural habitats and of wild fauna and flora aims to promote the maintenance of biodiversity. It forms the cornerstone of Europe's nature conservation policy with the Birds Directive and establishes the EU wide Natura 2000 ecological network of protected areas, safeguarded against potentially damaging developments." (EEC, 1992). These sites are known as European Sites or Natura 2000 Sites.

The development site is not designated as a European Site. John's River on the site flows into the Lower River Suir SAC which is a European Site (EPA, 2024). There are no other designations for the site.

With reference to the accompanying Stage 1 Screening Report, the Lower River Suir SAC and River Barrow and River Nore are European Sites that

were screened in for Appropriate Assessment. The Qualifying Interests (species and habitats) for both of these SACs were evaluated based on known records and suitability of habitats. The details of this Appropriate Assessment is in the accompanying Natura Impact Statement (NIS) in support of Stage 2 Appropriate Assessment Report.

The National Biodiversity Data Centre (Biodiversity Ireland, 2024) provides a national database of biological records from Ireland. The database was consulted with regard to species identified on the site.

Waterford City and County Council (WCCC) People and Place Waterford Heritage Plan 2017-2022 document was investigated and there were no specific actions for the area where the site is located. Chapter 9 of the draft WCCC Development Plan 2022-2028, is Climate Action, Biodiversity and Environment, which in relation to the development site, has two Water Quality Policy Objectives, the relevant sections are:

WQ 01 Water Framework Directive and associated legislation

We will contribute towards, as appropriate, the protection of existing and potential water resources, and their use by humans and wildlife, including rivers, streams, wetlands, the coastline, groundwater and associated habitats and species in accordance with the requirements and guidance in the EU Water Framework Directive 2000 (2000/60/EC), the European Union (Water Policy) Regulations 2003 (as amended), the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (as amended), the Groundwater Directive 2006/118/EC and the European Communities Environmental Objectives (groundwater) Regulations 2010 (as amended) and other relevant EU Directives, including associated national legislation and policy guidance (including any superseding versions of same). To support the application and implementation of a catchment planning and management approach to development and conservation, including the implementation of Sustainable Drainage System techniques for new development.

WQ 02 Achieving High/ Good Water Quality Status

In order to maintain water quality at high status and a return to good status for rivers that are not meeting this threshold at present we will:

- Provide for the efficient and sustainable use and development of water resources and water services infrastructure.
- Manage and conserve water resources in a manner that supports a healthy society, economic development requirements and a cleaner environment.
- Ensure that all development does not negatively impact on water quality and quantity, including surface water, ground water, designated source protection areas, river corridors and associated wetlands, estuarine waters, coastal and transitional waters.

- Ensure new development complies with the relevant EPA Code of Practice: Wastewater Treatment and Disposal Systems Serving Single Houses (2009) or any amendments thereto.
- Screen planning applications according to their Water Framework Directive status and have regard to their status and objectives to achieve 'good' status or protect and improve 'high or good status'. A catchment-based approach shall be applied to the assessment of planning applications which may impact on water quality, and to ensure that the development would not result in a reduction in the water quality status of a water body in that catchment.

3.4.1 Designated Sites

Within 5km of the site there are three designated sites which are detailed in Table 2.

Designated Site	Distance	Qualifying Interests – Key Ecological Receptors (KER)
Lower River Suir SAC	2.31km	**Habitats** Atlantic Salt Meadows Mediterranean Salt Meadows Floating River Vegetation Hydrophilous Tall Herb Communities Old Oak Woodlands Alluvial Forests* Annex Habitat Yew Woodlands*Annex Habitat **Species** Freshwater Pearl Mussel (Margaritifera margaritifera) White-clawed Crayfish (Austropotamobius pallipes) Sea Lamprey (Petromyzon marinus) Brook Lamprey (Lampetra planeri) River Lamprey (Lampetra fluviatilis) Twaite Shad (Alosa fallax) Atlantic Salmon (Salmo salar) Otter (Lutra lutra)
Kilbarry Bog pNHA	0.8km	**Habitats** Reed swamp Fen
Granny Ferry pNHA	4.1km	**Habitats** Reed swamp, Marshes and wet fields Salt marsh communities **Species** Meadow Barley (Hordeum secalinum) Mallard Winter Rail

Table 2 Designated sites within 5km of the development site

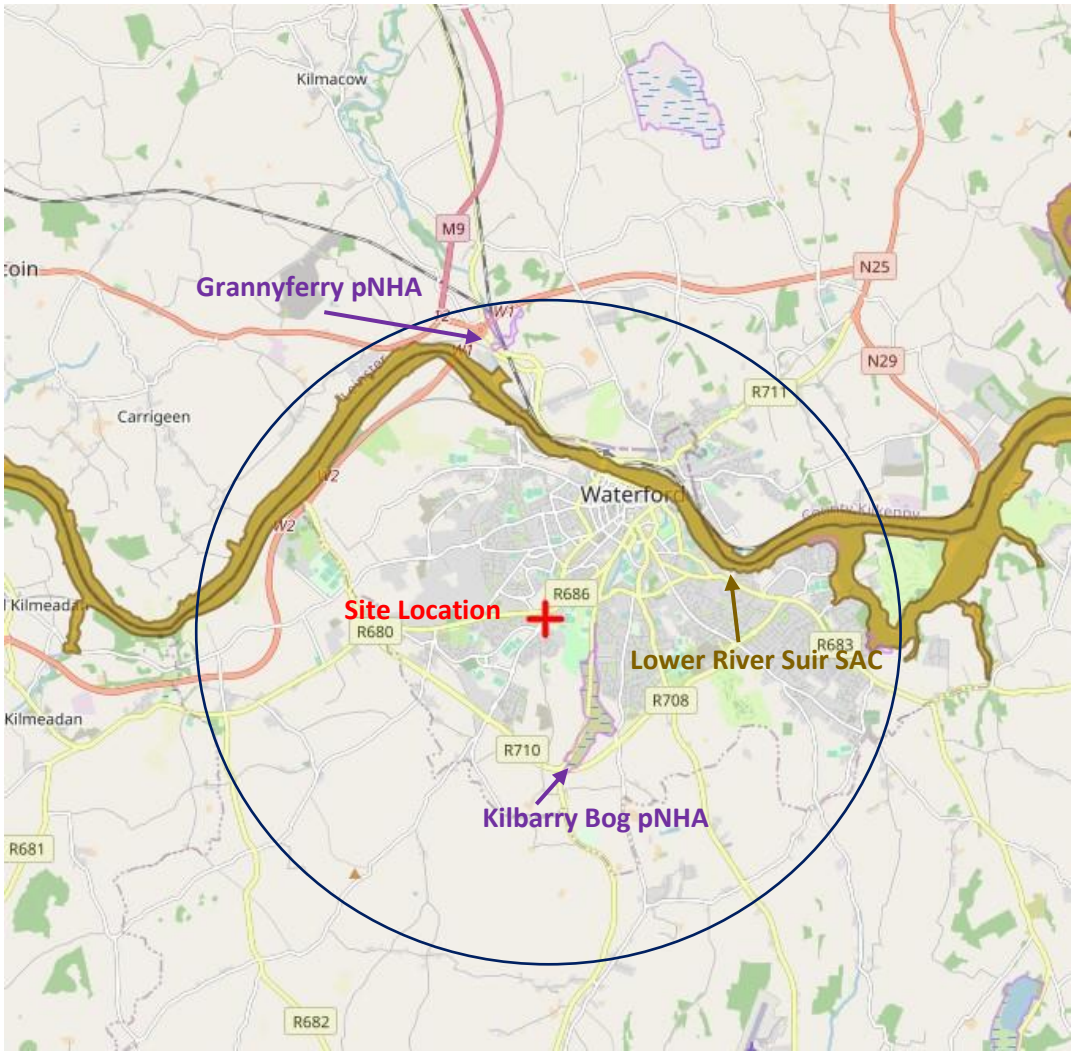

Figure 4 Designated sites within a 5km radius (EPA, 2024)

3.5 Walkover Survey

As detailed in section 1.2 walkover field surveys took place by ecologists from RESS Ltd. on 1st October 2022, 22nd February 2024, 8th of April 2024 and the 22nd of June 2024. The conditions were dry and there were no constraints to the survey.

3.5.1 Water Quality Survey

As there is a stream running through part of the site, Biotic kick sampling was done in two locations on the 22nd June 2024, to determine the water quality of the stream (Points A and B, Figure 2).

Biotic Kick Sampling

Macro-invertebrates are small aquatic animals such as insect larva, snails, worms, beetles etc. and are excellent indicators of water quality (Teagasc, 2017). The range and diversity of these species varies with changes in water quality. Kick sampling is a standard method for investigating and

identifying the species of macro-invertebrates present in a flowing water course such as a stream or river (Field Studies Council, 2024).

During the day many freshwater macro-invertebrates are generally found in the substrate (stones and mud) at the base of the stream, river or pond.

By utilising disturbance sampling is to dislodge the invertebrates from the substrate and trap them in a net. They can then be taken out of the net for counting and identification. Kick sampling was selected as the appropriate method as it is suitable for shallow running water with a gravel or muddy bottom, as identified in section 3.3 (FSC, 2024).

The method involved the following:

A fine-mesh net was held at the base of the stream bed in the opposite direction to the flow, downstream of the surveyor. One foot was used to kick the bottom of the stream, which dislodged the substrate in the direction of the net. Animals dislodged from the substrate were washed into the net.

The kick sampling was standardised at 30 seconds for each and was carried out in two locations (Figure 2). The net was then emptied out into a white container containing stream water and the macro-invertebrates were identified and counted.

Water Testing

Also on 22nd June 2024, in the same locations that the biotic kick sampling was carried out, water samples were taken in sterilised bottles and sent for testing at a professional laboratory. The samples were tested for pH, Biological Oxygen Demand (BOD) and Chemical Oxygen Demand (COD).

3.5.2 Flora and Fauna Survey

The flora and fauna survey that took place was based on the Best Practice Guidance for Habitat Surveying and Mapping (Smith *et al.*, 2011). The habitats were classified according to Fossitt (2000). In addition, the habitats mapped, and their species were compared with Annex species and habitats of the E.U. Habitats Directive.

Both the common name and the Latin names have been provided for the main plant and animal species identified. The Latin names are in italics. The letter and number codes i.e., GA1 for *Improved grassland* are the standard codes for habitat classification in Ireland (Fossitt, 2000).

In addition, the site was surveyed for invasive species. There were no species of Union Concern recorded on the site.

4.0 Results

4.1 Water Quality Survey

Observation of physical properties of the stream

The details of the stream were identified in Section 3.3. The water flow in the stream will have variable rates throughout the year, but as observed on all dates surveyed, was free flowing. The clarity of the water was clear, the day the samples were taken, but on the site surveys on 1st October 2022, 22nd February 2024 and 8th of April 2024 the clarity of the water was poor and a discoloured grey colour.

Biotic Kick Sampling

Of the two samples taken the species present are detailed in Table 3.

Species	Sample A	Sample B
Worms *Glycera sp.*	Approximately 20	Approximately 24
Midge larvae *Chironomus sp.*	1	1
Leech (*Glossiphonidae, Hirudidae, Erpobdellidae, Piscicolidae*)	1	0
Hoglouse *Asellus sp.*	0	1

Table 3 Biotic kick sampling results

Due to the number of worms *Glycera sp.*, Midge larva *Chironomus sp.*, Leeches and Hoglouse *Asellus sp.* the water quality has a Biotic score of 2. This usually means that the water quality is of poor quality (Hughes, 2019). However, it should be noted that in June when the samples were taken many of the mayfly, stonefly, caddis-fly and dragonfly larvae that would normally be found in freshwater would have hatched at this time.

There was a number of caddis-fly cases found in the samples taken, which suggests that the water quality may be better than the species present in the samples and the score could be as high as 5.

Water Testing

Test	Sample A	Sample B
pH	7.4	7.2
BOD	2mg/l	8mg/l
COD	5mg/l	39mg/l

Table 4 Water test results

As detailed in Table 4, the pH levels are within the normal range for freshwater in Ireland (pH 6.5 – 8.5). Similarly for the Biological Oxygen Demand (BOD) indicating that there is very little organic matter in the water. The Chemical Oxygen Demand (COD) is higher in Sample B compared with Sample A and this may be due to the depth that the sample was taken, where in deeper water there may be increased levels of

chemicals such as surfactants, cleaning materials etc. that would result in a higher reading. However, the COD is not that high when polluted water would have values typical of >200mg/l of COD. Drinking water has a COD of <10mg/l. Overall, although there may not be a diverse fauna of invertebrates the general quality of the water is moderate.

4.2 Flora and Fauna

Flora

This Report presents the results of site visits by ecologists from RESS Ltd. on 1st October 2022, 22nd February 2024, 8th of April 2024 and the 22nd of June 2024 when the site was surveyed. The conditions were dry and there were no constraints to the survey.

Within the site, there were nine habitats identified and are illustrated in Appendix i (Fossitt, 2000). These are as follows:

WD5 Scattered Trees

There are approximately eight trees that have either been planted or self-seeded on the amenity grassland. The species present are:

Holme oak *Quercus ilex,* Goat willow *Salix caprea* and Field maple *Acer campestre* (Figure 7).

WL2 Treeline

This is adjacent to the Cork Road and appears to be mostly self-seeded as opposed to planted. The treeline does have some gaps and is comprised of Ash *Fraxinus excelsior,* Alder *Alnus glutinosa,* Goat willow *Salix caprea,* Hawthorn *Crataegus monogyna* and Sycamore *Acer pseudoplatanus* with Bramble *Rubus fruiticosus agg.,* Gorse *Ulex europeaus* and Ivy *Hedera helix.*

FW2 Depositing Lowland Stream

This stream is John's River that discharges into the Lower River Suir SAC. It runs partially within the site boundary and just outside, adjacent to it. The water quality was investigated in more detail, the results of which are discussed in Section 4.1. The flow of this river, which is more like a stream at this point was moderate on all of the four site visits. The predominant species present at the stream margins are Water-cress *Apium nodiflorum*, Figwort (Water) *Scrophularia auriculata* and Water mint *Mentha aquatic.* The species present on the banks of this habitat are discussed under FS2/WN5 Tall-Herb Swamp/Riparian Woodland Mosaic (Figure 5).

WS1 Scrub

There is a small section of scrub adjacent to the amenity grassland and also present on the bank of the stream (John's River).

ED2 Spoil and Bare Ground

This is the habitat that covers for the majority of the site and is where spoil has been levelled and colonisation of plants has begun. However, the plant cover is significantly less than 50% and thus falls into this habitat classification. A range of mostly broad-leaved species are present with some grass species also colonising. The predominant species present are: Creeping bent *Agrostis stolonifera*, False oat-grass *Arrhenatherum elatus,* Perennial rye grass *Lolium perenne,* Bindweed (Hedge) *Calystegia sepium,* Black medick *Medicago lupulina*, Broadleaf plantain *Plantago major*, Chickweed (Common) *Stellaria media,* Dandelion *Taraxacum officinale,* Dock *Rumex obtusifolius,* Perennial Sowthistle *Sonchus arvensis,* Petty Spurge *Euphorbia peplus,* Common Poppy *Papaver rhoeas,* Ragwort *Jacobaea vulgaris,* Ribwort plantain *Plantago lanceolata,* Silverweed *Potentilla anserine,* Smooth Hawksbeard *Crepis capillaris,* Spear thistle *Cirsium vulgare,* Teasel *Dipsacus fullonum,* Weld *Reseda luteola,* Wild mustard *Sinapsis arvensis*, Willowherb (hoary) *Epilobium parviflorum* and Yarrow *Achillea millefolium* (Figure 5).

ED3 Recolonising Bare Ground

The spoil and bare ground grades into more established vegetation, where there has been less disturbance. The species present here are similar to those above with the addition of additional grass species Cocks-foot *Dactylis glomerata*, Annual meadow grass *Poa annua* and Yorkshire Fog *Holcus lanatus.* False oat-grass *Arrhenatherum elatus* is much more prolific in this habitat and is the dominant monocotyledon species. The broad leaved species are as above and with the additional species: Birds-foot trefoil *Trifolium repens,* Bramble *Rubus fruiticosus agg.,* Buddleia *Buddleja davidii,* Cleavers *Galium aparine,* Clover (red) *Trifolium pratense,* Clover (white) *Trifolium repens,* Cow Parsley *Anthriscus sylvestris,* Creeping buttercup *Ranunculus repens,* Narrowleaf Dock *Rumex stenophyllus,* Fat hen *Chenopodium album,* Great Mullein *Verbascum thapsus,* Hawksbit (Rough)*Leontodon hispidus,* Hogweed *Heracleum sphondylium,* Knapweed *Centaurea nigra,* Nettle *Urtica dioica,* Nipplewort *Lapsana communis,* Scentless mayweed *Tripleurospermum inodorum* and Woundwort *Stachys palustris* (Figure 6).

Figure 5 Stream to the left with FS2/WN5 Tall-Herb Swamp/Riparian Woodland Mosaic and ED2 Spoil and Bare Ground

Figure 6 ED2 Spoil and Bare Ground and ED3 Recolonising Bare Ground

FS2/WN5 Tall-Herb Swamp/Riparian Woodland Mosaic

This habitat grades from the *ED3 Recolonising Bare Ground* habitat down the bank of the stream where there are wet woodland species and tall herb species. Common reed *Phragmites australis* is present, but not in sufficient quantities to classify this habitat as FS1 Reed and Large Sedge Swamp. The habitat is more indicative of FS2 Tall-herb Swamp with WN5 Riparian Woodland species also colonising this area. The species present are the aforementioned Common reed *Phragnmites australis* together with Figwort (Water) *Scrophularia auriculata,* Bindweed (Hedge) *Calystegia sepium,* Nettle *Urtica dioica,* Yellow Flag (Iris) *Iris pseudacorus* and Pendulous sedge *Carex pendula.* The woodland species are Crack willow *Salix fragalis,* Grey willow *Salix cinerea,* White willow *Salix alba,* Elder *Sambucus nigra,* Bramble *Rubus fruiticosus agg.,* Gorse *Ulex europeaus* and Ivy *Hedera helix* with Sycamore *Acer pseudoplatanus,* Hawthorn *Crataegus monogyna* mostly on the opposite bank.

GA2 Amenity Grassland

This habitat is the grass verge that is regularly mown adjacent to the L5021 road. The species present are typical of this habitat with a mixed grass sward of Bents *Agrostis spp.* and Meadow grasses *Poa spp.* as well as Perennial rye-grass *Lolium perenne* and Yorkshire Fog *Holcus lanatus*. The broad-leaved species are Clover (white) *Trifolium repens,* Daisy (Common) *Bellis perennis*, Dandelion *Taraxacum officinale* and Selfheal *Prunella vulgaris* (Figure 7).

BL3 Artificial Surfaces

This habitat relates to the tarmacadam road and concrete pavements that are included in the red line boundary.

Himalayan honeysuckle *Leycesteria formosa* and Three-cornered leek *Alium triquetrum* non-native invasive species are also present on the banks of the stream.

Both species have medium impact (Biodiversity Ireland, 2024) and Three-cornered leek is covered by the Third Schedule listed species under Regulations 49 & 50 in the European Communities (Birds and Natural Habitats) Regulations 2011, where it is an offense to plant or release into the wild.

However, there are no species listed in either the of Third Schedule or species of Union Concern recorded on the site. In addition, there are no priority habitats identified on the site.

Figure 7 Amenity grassland and scattered trees

Fauna

The species of birds seen or heard on the site were Blackbird *Tardus merula*, House sparrow *Passer domesticus,* Woodpigeon *Columba palumbus,* Great tit *Parus major,* Blue tit *Cyanistes caeruleus,* Starling *Sturnus vulgaris* and Wren *Troglodytes troglodytes.*

No other mammals were recorded at the time of surveying, but small mammals are likely to be found on the site such as Shrew *Sorex spp.* and Field mouse *Apodemus sylvaticus*. A dead Rat *Rattus spp*. was found in the stream (John's River). There was no evidence of Water voles *Arvicola amphibius* in the vicinity of the stream. There was no evidence, at the time of surveying, of Otter *Lutra lutra* activity (spraints, resting or breeding sites).

There was no evidence, at the time of surveying, of reptiles and amphibians. Considering that all habitats within the site boundary are well-represented elsewhere in the county and with more superior diversity, they are considered to be of Negligible importance for these taxa.

The habitats within the Site are common in urban landscapes in Ireland, so it is considered to be of Negligible importance for invertebrates.

There were no likely locations on the site for summer bat roosts and all potential trees were searched for possible cavities suitable for roosts. Therefore, it was not deemed necessary to complete a dawn or dusk

survey. The stream (John's River) and bank side vegetation may be used for foraging.

4.3 Identification of Important Ecological Features

Based on the desk-based survey and walkover surveys, Table 5 has identified a summary of ecological features on the development site, together with their importance and legal/conservation status.

Ecological Feature	Valuation	Legal Status *	Important Feature?
ED2 Spoil and Bare Ground	Negligible	-	No
ED3 Recolonising Bare Ground	Negligible	-	No
FS2/WN5 Tall-Herb Swamp/Riparian Woodland Mosaic	Local	-	Yes
GA2 Amenity Grassland	Negligible	-	No
WD5 Scattered trees	Negligible	-	No
WS1 Scrub	Negligible	-	No
WL2 Treeline	Negligible	-	No
FW2 Lowland stream	Negligible	-	No
BL3 Artificial Surfaces	Negligible		No
Birds	Negligible	Wildlife Act (WA)*	No
Terrestrial mammals	Negligible	Wildlife Act (WA)*	No
Reptiles and amphibians	Negligible	-	No
Invertebrates	Negligible	-	No

Table 5 Important ecological features within the site (CIEEM 2018) * Wildlife [Amendment] Act 2000.

5.0 Predicted Impacts of the Proposed Development

Designated Sites

Although Kilbarry Bog pNHA is very close to the site, there is no hydrological connection as the section of John's River which is within the development site is down river of the Bog, therefore there is no potential pathway for impact.

Grannyferry is also not hydrologically connected to the development site as it is upriver of where John's River discharges into the River Suir (Lower River Suir SAC), therefore there is no potential pathway for impact.

As identified in the Stage 1 Screening Report and evaluated in the NIS in support of Stage 2 Appropriate Assessment Report, there is a potential indirect pathway to number of the qualifying habitats and species of the Lower River Suir SAC (and down river to the River Barrow and River Nore SAC) from particulate matter and pollution during the construction phase of the development. Therefore, to protect these European Sites and comply with the EU Water Framework Directive 2000 (2000/60/EC) and other legislation pertaining to surface water quality, as detailed in WCCC Development Plan, a number of mitigation measures should be implemented as detailed in Section 6.0.

Provided the mitigation measures in the NIS and this report are implemented, the potential negative effects to the qualifying interests of the SAC's will be removed.

Birds

Disturbance of nesting birds / breeding fauna may occur during the removal of the treeline as they are likely to be used by nesting birds. If site clearance works are carried out during the bird nesting season (between March and August, inclusive), it is possible that active nests could be destroyed. The killing of any birds, or the disturbance of their nesting sites, would constitute an offence under the Wildlife Act 2000 (as amended). Therefore, removal of the treeline and individual trees should be completed outside of this time period.

Habitats

A number of habitats will be lost as a result of the development. These habitats cover a combined area of approximately 0.1 km^2, providing vegetation for nesting birds, mammals and invertebrates and if lost then may result in the loss of species in the area, unless compensatory measures are implemented.

Furthermore, the section of John's River that runs through the site should not be interfered with in any way and mitigation measures implemented to ensure the water quality is maintained. In addition, there should be minimal interference with the FS2/WN5 Tall-Herb Swamp/Riparian Woodland Mosaic habitat on the banks of the John's River.

Bats

Common Pipistrelle *Pipistrellus pipistrellus* range is widespread throughout Ireland and is commonly found during bat surveys. Overall, the population is stable, and the trend is that of increasing. In addition, there are currently no pressures or threats that would relate to the development (NPWS, 2019).

Although a dusk and dawn survey was not completed, it is likely that bats forage along the John's River, as bats commonly follow water courses for

navigation and to access insects, hence maintaining an open water course is essential. In addition, 'Bat-sensitive lighting' should be implemented for this development and during construction all lighting should be directed away from the John's River.

6.0 Proposed Mitigation and Compensatory Measures

Birds

Birds should be protected during site clearance works as under Section 22 of the Wildlife Act 1976 (as amended 2000), it is an offence to kill or injure a protected bird, or to disturb their nests. Most birds nest between March and August (inclusive), so it is strongly recommended that all tree felling and site clearance works are carried out between September and February (inclusive), i.e., outside the nesting season.

If this is not possible, an ecologist will survey the affected areas in advance in order to assess whether any breeding birds are present. If any are encountered, vegetation clearance will be delayed until the breeding period has been completed, i.e., after chicks have fledged and a nest has been abandoned.

Provision of 'Bat-sensitive lighting'

Bats are highly sensitive to artificial lighting and may be displaced from the Site if lights are particularly intense, or if they are directed towards John's River. However, if 'bat-sensitive' lighting techniques are incorporated into the lighting plan, bats should continue to use the site.

'Bat-sensitive lighting' for this development should adhere to the following design principles, which are taken from the Bats and Lighting guidelines (BCT 2018):

- Zero-UV LEDs or low / high pressure sodium lamps will be the preferred bulb type, as they have least effect on bats. Mercury or metal halide bulbs will not be used.
- All external lights will be fitted with directional hoods and/or luminaires to direct the light onto targeted areas and to prevent unnecessary light-spill.
- No lights will be directed towards the stream.
- Where lighting is required for pedestrian safety (e.g., at site entrances and internal paths), lights will be installed at a low level, e.g., on lighting poles of up to one metre in height.
- Lights will be directed onto ground level, with no light spill above the horizontal. Lux levels will be the minimum required for pedestrian safety.
- External lights at site entrances will be fitted with motion sensors and timers in order to provide light only when required.

These measures will apply both to temporary lighting during the construction phase of the proposed development, and to permanent lighting during the operation of the development. In order to ensure that these techniques are effective, and that bat mitigation measures can be balanced with public safety requirements, the developer's ecologist will liaise with the contractor on the lighting design.

Water Quality

During the construction phase of the development, there is a likelihood of particulate matter entering the stream on the site. Therefore, a berm will be constructed of approximately 1m and a staked geotextile fencing erected throughout the construction phase. This will require regular checking to ensure that it is maintained.

Furthermore, there should be a buffer zone where there is no development 5m from the John's River. In addition, there should be minimal intervention of the vegetation on the banks of the John's River as this provides a valuable habitat for wildlife.

To minimise the risk of runoff from surface water and storm water during the operation of the development and to maintain the water quality in the John's River, a number of Sustainable Drainage Solutions (SuDs) have been suggested and are detailed in the accompanying Reports from Malone O'Regan.

The purpose of these measures is to mimic natural drainage, which is now reduced due to the creation of man-made surfaces in the form of buildings and associated impermeable footpaths and roadways as part of the development. The proposed wetland retention ponds will intercept and delay the runoff, thus slowing it down, to facilitate the settling out of any pollutants. Furthermore, the retention ponds will be kept open allowing for evaporation of surface water and infiltration through the ground.

In addition, there will be permeable paving in the development.

As the movement around the site, will involve the use of large construction vehicles, then care should be taken with re-fuelling and dust suppression on the site as detailed below.

<u>Site based development work.</u>

- Earth works and concrete works will take place during periods of no rainfall to reduce run-off and potential siltation of watercourses.
- During the movement of development, good construction practices such as dust suppression on site roads and regular plant maintenance, will ensure minimal risk.

- The weather forecast will be checked prior to the movement of any development and no such works will be undertaken when bad weather is forecast. Any works at any time when water levels that may cause inundation of the works area will be avoided.
- All plant and machinery will be serviced before being mobilised to site. No plant maintenance will be completed on site, any broken-down plant will be removed from site to be fixed.
- Refuelling activities should be restricted adjacent to water courses (at least 50m) and be completed in a controlled manner using bund trays at all times.
- Fuel containers will be stored within a secondary containment system, e.g., bunds for static tanks or a drip tray for mobile stores.
- Taps, nozzles or valves will be fitted with a lock system.
- Fuel and oil stores including tanks and drums will be regularly inspected for leaks and signs of damage. Bunded trays will be used for fixed or mobile plant such as pumps and generators in order to retain oil leaks and spills. Only designated trained operators will be authorised to refuel plant on site.
- Procedures and contingency plans will be set up to deal with emergency accidents or spills. An emergency spill kit with oil boom, absorbers etc. will be kept on-site for use in the event of an accidental spill.
- The contractor will assign a member of the site staff as the environmental officer with the responsibility for ensuring the environmental measures prescribed are adhered to.
- A checklist will be completed on a weekly basis to show how the measures above have been complied with.
- Any environmental incidents or non-compliance issues will immediately be reported to the project team.
- The site managers will be continuously monitoring the works and will be fully briefed and aware of the environmental constraints and protection measures to be employed.
- The works will be periodically monitored (per calendar quarter until the development has been completed) during the construction phase by a qualified ecologist.
- Following completion of the works, the ecologist will complete a final audit Report to show how the works complied with the environmental provisions described in this document.

This audit Report will be archived for a period of 5 years by the developer and forwarded to WCCC for their records if required.

6.1 Habitat Net Loss/Net Gain

There is an accompanying landscape plan with the planning application that details of the planting for the Student Accommodation Development, Appendix ii).

WN5 Scattered Trees

There are 8 scattered trees that will be removed as part of the proposed development. However, there will be a large number of native tree species planted as part of the landscaping for the development. Therefore, there will a net gain for this habitat type

WL2 Treeline

The treeline will be removed as part of the proposed development. However, there will be a large number of native tree species as part of the landscaping for the development and there will be hedgerows established around the car parking area, that will also be planted with native tree species. Therefore, there will a net gain for this habitat type

FW2 Depositing Lowland Stream

This habitat will remain unchanged provided the mitigation measures are implemented. Therefore, there will be no net loss of biodiversity.

WS1 Scrub

There is a small section of scrub on the site, which will be removed as part of the proposed development. In addition to the measures mentioned above, pollinator planting and a native hedgerow has been incorporated into the landscaping plan and therefore, there will be no net loss of biodiversity.

ED2 Spoil and Bare Ground

This habitat will be lost as a result of the development; however, the conservation value is low and there are compensatory measures detailed in section 6.2, that will provide a more species rich habitat. Therefore, there will be no net loss of biodiversity.

ED3 Recolonising Bare Ground

This habitat will be lost as a result of the development; however, this habitat does not cover a large area and there are compensatory measures detailed in section 6.2, that will provide a more species rich habitat. Therefore, there will be no net loss of biodiversity.

FS2/WN5 Tall-Herb Swamp/Riparian Woodland Mosaic

This habitat will remain unchanged and in addition the retention ponds will be planted up with native species typical of the vegetation in Kilbarry Bog,

thus providing an additional wetland habitat. Therefore, there will be an overall net gain of biodiversity.

GA2 Amenity Grassland

This habitat will be lost as a result of the development; however, the conservation value is low and there are compensatory measures detailed in section 6.2 together with more species rich meadow creation within the development, will provide a more species rich habitat. Therefore, there will be no net loss, but net gain of biodiversity.

BL3 Artificial Surfaces

As this classification refers to the road and foot path surfaces, there is no flora or fauna present and therefore, there is no net loss of biodiversity.

6.2 Biodiversity Compensatory Measures

An area will be landscaped adjacent to the development (Appendix ii) where native trees will be planted together, and a meadow seed mix sown. This area will connect to the Student Accommodation via a pathway and will remain unmown during the summer months to provide a habitat for pollinators, invertebrates, birds and mammals.

As a result of the landscape plan and the compensatory measures, overall, there will be a net gain of biodiversity for the development and accompanying green area.

7.0 Residual Impacts

Treeline removal and other site clearance works will take place outside the season of peak nesting activity in birds, or the area will be surveyed by an ecologist to confirm that no protected fauna are present. As a result, there will be no impact on nesting birds, and no offence under the Wildlife Act 1976 (as amended).

Bat-sensitive lighting will be utilised throughout the construction phase and implemented in the development.

Site based measures during the construction phase, will ensure that there is not surface runoff of particulate matter or other pollutants into the John's River, therefore protecting the water quality and the freshwater habitat as well as the Lower River Suir SAC downriver.

The landscaped areas will be planted with appropriate species (as detailed in Section 6.2 to compensate for the loss of habitats together with native species hedgerow and tree planting around the development.

Subject to the successful implementation of these measures, it can be

concluded that the proposed development will not cause any significant negative impacts on the habitats, legally protected species, designated sites, or any other features of ecological importance.

Following consideration of the residual impacts it is considered that the development will not result in any likely significant impacts on any of the identified Qualifying Interests/Key Ecological Receptors (species and habitats) of the European Site (Lower River Suir SAC) or the National Site (Kilbarry Bog pNHA).

This assessment has been undertaken on the basis of the best scientific knowledge in the field and the Precautionary Principle.

Dr Jane Russell-O'Connor PhD, P.G.C.E, BSc.

Russell Environmental and Sustainability Services Limited

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Appendices

Appendix i


Habitat Map
N
R680
R680
Cork Road
80
0.00 0.01 0.01 0.03 0.04 0.06
Kilometers
Legend
WD5 Scattered Trees
WL2 Treeline
FW2 Depositing Lowland Stream
BL3 Artificial Surfaces
Boundary
WS1 Scrub
ED3 Recolonising Bare Ground
FS2/WN5 Tall-Herb Swamps/Riparian Woodland Mosaic
ED2 Spoil and Bare Ground
GA2 Amenity Grassland

Appendix ii

LEGEND

- OPEN SPACE TREES
- NATIVE TREES
- TALL POLLINATOR SHRUBS
- PUBLIC AMENITY GRASS
- MEADOW
- POLLINATOR SHRUB AND GROUNDCOVER PLANTING
- ARTIFICIAL GRASS
- RETENTION POND PLANTING (Planting proposal in coordination with ecologist)
- RIPARIAN ZONE (Please refer to ecologist's habitat map)
- POLLINATOR HEDGE
- NATIVE HEDGE
- TARMAC
- HOT ROLLED ASPHALT Buff colour, to withstand occasional vehicle access
- PERMEABLE CONCRETE BLOCK PAVING Brown/Pink & Natural colours, 240x120x80mm
- PERMEABLE PLAZA SURFACE Concrete pavers, graphite & silver colours, 200x100x80mm
- CAST IN-SITU CONCRTE SURFACE To withstand occasional vehicle access
- RAISED TABLE Concrete setts, brown/pink colour, mix size x 80(d)mm
- FEATURE PAVING Concrete pavers, graphite & silver colour, 300x150x100mm
- CONCRETE PAVING Natural colour, 200x100x80mm, to withstand occasional vehicle access
- SELF COMPACTING GRAVEL Ballylusk or similar
- GREEN LINK Tar and buff chip
- STEPPING STONES
- SEATING
- CITY BIKE PARKING
- OUTDOOR GYM
- TABLE TENNIS AND SWING
- OUTDOOR CHESS GAME Concrete slabs, silver and charcoal colour, 400x400mmx80mm
- RAISED PLANTER
- COVERED BICYCLE SHELTER
- BICYCLE RACK
- FENCE
- GABION RETAINING WALL
- WAYLEAVE
- EXISTING STREAM
- PUBLIC LIGHTING
- SITE BOUNDARY

PLANTING SCHEDULE

Plant selection in line with the All Ireland Pollinator Plan recommendations

NATIVE AND POLLINATOR OPEN SPACE TREES - including fruit and nut trees	Height / girth
Amelanchier x grandiflora 'Robin Hill'	16-18cm gth. RB
Corylus avellana	16-18cm gth. RB
Malus domestica	16-18cm gth. RB
Prunus domestica	16-18cm gth. RB
Pyrus calleryana 'Chanticleer'	16-18cm gth. RB
Pyrus communis	16-18cm gth. RB
Castanea sativa	16-18cm gth. RB

NATIVE TREES - to be under-planted with bulbs	Height / girth
Quercus petraea	16-18cm gth. RB
Betula pendula	16-18cm gth. RB
Sorbus aria	16-18cm gth. RB
Sorbus aucuparia	16-18cm gth. RB
Prunus avium	16-18cm gth. RB
Prunus padus	16-18cm gth. RB
Alnus glutinosa	16-18cm gth. RB
Pinus sylvestris	120-150cm. RB

NATIVE HEDGEROW TRANSPLANT MIX planted 3/m	Height / girth
Crataegus monogyna	60-90cm high, BR
Corylus avellana	60-90cm high, BR
Prunus spinosa	60-90cm high, BR
Viburnum opulus	60-90cm high, BR
Ilex aquifolium	60-90cm high, BR
Euonymus europeus	60-90cm high, BR
Rosa canina	60-90cm high, BR

NATIVE AND POLLINATOR ORNAMENTAL HEDGE @ 3/m	Size
Brachyglottis 'Sunshine'	60-90cm, CG
Elaeagnus pungens 'Maculata'	60-90cm, CG
Ligustrum ovalifolium	60-90cm high, BR
Rosa canina	60-90cm high, BR
Sarcococca confusa	60-90cm, CG
Viburnum opulus	60-90cm high, BR
Viburnum tinus 'Eve Price'	60-90cm, CG

POLLINATOR SHRUB AND GROUNDCOVER PLANTING- plant in groups of same species ranging from min. 5-15no. @5/m2	Size
Rosmarinus officinalis	3L, PG
Hebe sp.	3L, PG
Prunus tenella	3L, PG
Potentilla fruticosa	3L, PG
Skimmia japonica	3L, PG
Lavandula angustifolia 'Hidcote'	3L, PG
Stachys byzantina	3L, PG
Erysimum 'Bowles's Mauve'	3L, PG
Berberis darwinii	3L, PG
Bergenia 'Eroica'	3L, PG
Rosmarinus officinalis	3L, PG
Cotoneaster conspicuus	3L, PG
Elaeagnus angustifolia	3L, PG
Jasminum nudiflorum	3L, PG
Hedera colchica 'Dentata Variegata'	3L, PG
Lonicera × purpusii 'Winter Beauty'	3L, PG
Cotoneaster conspicuus	3L, PG
Mahonia repens	3L, PG

EDIBLE SHRUBS	Size
Ribes nigrum	5L, PG
Ribes uva-crispa	5L, PG
Rosa sp.	5L, PG
Vitis sp.	5L, PG

RETENTION POND PLANTING - proposal coordinated with ecologist plant in groups of same species ranging from min. 5-15no. @10/m2	
Carex paniculata	2L, PG
Juncus articulatus	2L, PG
Juncus conglomeratus	2L, PG
Juncus inflexus	2L, PG
Lythrum salicaria	2L, PG
Phragmites australis	2L, PG

BULBS & PERENNIALS MIX- plant in drifts	Size
Typical species will include:	
Anemone nemorosa, Geranium robertianum, Hyacinthoides non-scripta, Muscari 'Blue Spike', Oxalis acetosella, Primula vulgaris, Viola riviniana, Colchicum sp., Crocus sp., Galanthus nivalis, Salvia sp., Anemone × hybrida, Anemone hupehensis, Aster sp., Chrysanthemum sp., Dahlia sp., Helleborus sp., Rudbeckia 'Goldstrum' Calamagrostis 'Karl Foerster', Stipa 'Ponytails'	bulbs, corms, & p9's

ALL-IRELAND POLLINATOR PLAN WILDFLOWER MIXTURE - sow @ 1.5g/m, seed mix to be native sourced irish seed	Size
Species List:	
Birdsfoot Trefoil, Black Meddick, Cowslip, Devil's Bit Scabious, Meadow Buttercup, Field Scabious, Hemp Agrimony, Kidney Vetch, Lady's Bedstraw, Lady's Ann lace, Lesser Knapweed, Meadowsweet, Mullein, Ox-eye Daisy, Purple Loosestrife, Ragged Robin, Red Campion, Red Clover, Ribwort Plantain, Rough Hawksbit, Sorrel, St Johnswort, Wild Angelica, Wild Carrot, Yarrow, Yellow Agrimony, Yellow Rattle, Teasel and more. Also includes 35% annuals: Corn Marigold, Corn Poppy, Corncockle, Cornflower, Scented Mayweed	Seed mix

GRASS SEEDING	
Amenity Grass. Supplier: McGuinness Parkland Grass Seed Mix or as approved.	

BOUNDARY TREATMENT

A 1.2m high galvanised steel fence

B 2.0m high galvanised steel fence

C Galvanised steel fence on gabion wall (overall height 2.0m)

NOTE: THIS DRAWING IS INTENDED FOR THE PURPOSE OF MAKING A PLANNING APPLICATION AND MAY NOT BE USED FOR ANY OTHER PURPOSE.

REV	DATE	AMENDMENT

CUNNANE STRATTON REYNOLDS

LAND PLANNING & DESIGN

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PROJECT: **STUDENT VILLAGE CORK ROAD, WATERFORD**	DATE:	FEBRUARY 2024
	SCALE:	1:500 @ A1
DRAWING: **LANDSCAPE MASTER PLAN**	DRAWN: / CHECKED:	NPC / CT / JK
	DRAWING NO:	**22338-2-101**