Ecological Impact Assessment

Pope's Hill

Residential Development

Doherty Environmental Consultants Ltd

April 2026

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Pope's Hill

Cork

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Document Stage	Document Version	Prepared by
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1.0 INTRODUCTION

Doherty Environmental Consultants (DEC) Ltd. has been commissioned by Pontarac Limited to undertake an ecological baseline assessment for a proposed residential development at Pope's Hill, Cork. The location of the proposed site is shown on Figure 1.1 while an aerial view of the proposed site is shown on Figure 1.2.

1.1 LEGISLATION

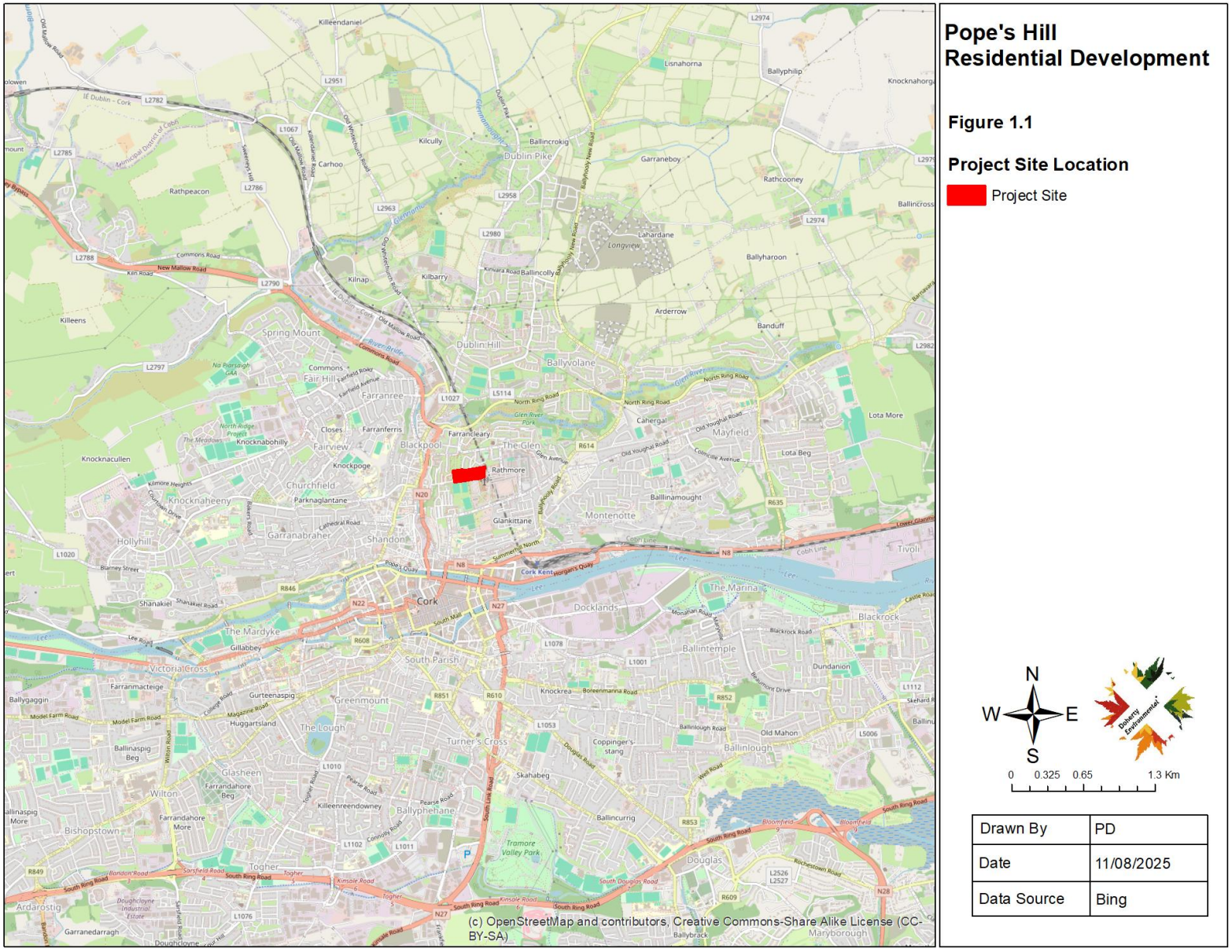
Flora and fauna in Ireland is protected at a national level by the Wildlife Act, 1976 and the Wildlife (Amendment) Act, 2000 and the Flora (Protection) Order, 1999 (SI 94/1999). They are also protected at a European level by the EU Habitats Directive (92/43/EEC) and the EU Birds Directive (79/409/EEC).

The transposition of the EU Habitats Directive by the European Communities (Birds and Natural Habitats) Regulations 2011 – 2021 (referred to as the Habitat Regulations) provides the legal basis for the protection of habitats and species of European importance in Ireland.

The legislative protection of habitats and species provided by the Habitats Directive has been implemented in Ireland and throughout Europe through the establishment of a network of designated conservation areas known as the Natura 2000 (N2K) network (with individual sites being referred to as Natura 2000 Sites). The N2K network includes sites designated as Special Areas of Conservation (SACs), under the EU Habitats Directive and Special Protection Areas (SPAs) designated under the EU Birds Directive. SACs are designated in areas that support habitats listed on Annex I and/or species listed on Annex II of the Habitats Directive. SPAs are designated in areas that support: 1% or more of the all-Ireland population of bird species listed on Annex I of the EU Birds Directive; 1% or more of the population of a migratory species; and more than 20,000 waterfowl. Under the National Habitat Regulations all designated Natura 2000 Sites are referred to as European Sites.

The Wildlife Act 1976 (as amended) also provides for the statutory designation of nature conservation areas. These areas are referred to under the Wildlife Acts as Natural Heritage Areas and are designated in areas that support habitats and/or species of national importance. Other relevant national legislation concerning the protection of flora, fauna and fisheries include the:

- Planning and Development Act, 2000 as amended;
- European Communities (Quality of Salmonid Waters) Regulations, 1988;
- The Freshwater Fish Directive 1978 (78/659/EEC); and
- The Surface Water Regulations, 2009.


Pope's Hill
Residential Development
Figure 1.1
Project Site Location
Project Site
N
W
E
S
0 0.325 0.65 1.3 Km
Drawn By PD
Date 11/08/2025
Data Source Bing
(c) OpenStreetMap and contributors, Creative Commons-Share Alike License (CC-BY-SA)

Pope's Hill Residential Development

Figure 1.2

Aerial View of the Project Site

Site Boundary

N
W E
S

0 0.015 0.03 0.06 Km

Drawn By	PD
Date	11/08/2025
Data Source	Bing

2.0 ECOLOGICAL BASELINE ASSESSMENT METHODS

2.1 DESKTOP REVIEW

A range of scientific site investigations have been completed to inform the preparation of this ecological baseline assessment.

Desk-based investigations were completed to identify pathways connecting the proposed project to European Sites. Datasets used to assist with the desk-based investigations include:

- NPWS European Sites and site-specific conservation objectives datasets;
- EPA Rivers and Lakes dataset;
- EPA surface water catchment and sub-catchment datasets;
- NPWS Article 17 Habitats and Species Reports datasets;
- OSI Geohive and OSI Historic townlands online mapping portal;
- National Biodiversity Data Centre (NBDC) online mapping portal; and
- NPWS Protected Species Dataset for the proposed development site and surrounding area.

2.2 MULTIDISCIPLINARY SURVEY

Multidisciplinary ecological surveys of the project site were undertaken by DEC Ltd during May, July and September 2024 and during April 2026.

The methodology used during this survey was based on the Heritage Councils *Best Practice Guidance for Habitat Survey and Mapping* (2011). The classification of habitats recorded during the field survey is based on the Heritage Council's *A Guide to Habitats in Ireland*.

The *Guide to Habitats in Ireland* classifies habitats according to a hierarchical framework with Level 1 habitats representing broad habitat groups, Level 2 representing habitat sub-groups and Level 3 representing individual habitat types. The field survey focused on identifying habitats to Level 3 of the *Guide to Habitats in Ireland*. During the field survey the project site was searched for the presence of and field signs indicating the presence of non-volant mammals. The search for field signs included burrows and resting places, prints, latrines, prey remains etc.

The annotation of vegetation occurring within sites was undertaken using the DAFOR scale. This scale refers to plant species in terms of dominance, abundance, frequency, occasional and rare (DAFOR). Plant nomenclature in this report follows Webb (1996) for vascular plants and Smith (2004) for mosses.

All bird species seen using the site (as opposed to simply flying over it) were recorded.

An appraisal of habitats occurring within the project site for their potential to support bat species was completed during the field surveys. These appraisals involved the inspection of buildings on site for field signs indicating the presence of bats, roost emergence surveys and bat activity surveys on site. The appraisal and inspection of buildings on site for bats were completed on the 27th May, 2024; 30th September 2024 and 20th April 2026.

Dedicated bat activity surveys were completed on site. This involved a manual roost emergence survey completed on the 27th May and 30th September, 2024.

The manual bat detector survey was completed using a hand held Echometer Touch Pro bat detector. A position was taken up within the internal courtyard of the project site to complete the survey. The dusk survey commenced 30 minutes prior to sunset and continued for 90 minutes after sunset.

Passive monitoring of bat activity was undertaken on site between the 27th May and 10th June 2024 using two no. Song Meter SM4 Full Spectrum bat detector. The detectors were deployed on site with grassland and woodland habitat to monitor bat activity continuously during the monitoring completed between these dates. **Figure 2.1** shows the location of the static bat detector. The static detectors were mounted at a height of c. 3m above the ground and were set


Pope's Hill
Residential Development
Figure 2.1
Bat Monitoring Points
Project Site
Monitoring Poiunt (MP) No.
Grassland MP
Woodland MP
N
W
E
S
0 0.015 0.03 0.06 Km
Drawn By PD
Date 11/08/2025
Data Source Maxar
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

to recorded bat activity continuously throughout each night of the monitoring periods, with recording commencing at 30 minutes prior to sunset and 30 minutes after sunrise.

Bat calls recorded by the SM4 Bat detectors during the automatic bat monitoring session were analysed using Kaleidoscope Pro (v. 5.7.0) software. Kaleidoscope automatic bat identification software was used to assign bat calls to species level. Bat calls assigned to Myotis species were grouped together under the Myotis genus.

2.3 ECOLOGICAL EVALUATION

Commentary on the ecological value of habitats is provided in Section 4 of this report.

The nature conservation value of habitats and ecological sites occurring within the proposed site are based upon an established geographic hierarchy of importance as outlined by the National Roads Authorities (NRA, 2009). The outline of this geographic hierarchy is provided below and this has been used to determine ecological value in line with the ecological valuation examples provided by the NRA (see NRA, 2009). The geographic evaluation hierarchy is as follows:

- International Sites (Rating A);
- National Importance (Rating B);
- County Importance (Rating C);
- Local Importance (higher value) (Rating D); and
- Local Importance (lower value) (Rating E)

The evaluation of bat activity recorded during static monitoring surveys follows the approach outlined by Kepel (2011) who assigned bat activity based on bat passes per hour as follows:

Pipistrelle species and Leisler's bat: Low = <3.5 passes per hour; Moderate = 3.6 – 6.5 passes per hour; High = >6.5 passes per hour

All Other Bat species: Low = <4.0 passes per hour; 4.1 to 10 passes per hour; high = >10 passes per hour.

These categories are apply to the median bat pass per hour per night recorded during monitoring. The median bat pass per hour per night has been recommended by Lintott & Matthews (2018) as the most accurate representation of bat activity as bat activity levels between nights can be highly variable.

2.4 IMPACT ASSESSMENT

The 'zone of influence' for a development is the area over which ecological features may be subject to significant impacts as a result of the Development and associated activities. The Zone of Influence (ZoI), or distance over which a likely significant effect may occur will differ across the Ecological Receptors identified for the proposed Development, depending on the potential impact pathway(s). The results of both the desk study and the suite of ecological field surveys undertaken has established the habitats and species present at and surrounding the Site. The ZoI is then informed and defined by the sensitivities of each of the ecological receptors present, in conjunction with the nature and potential impacts associated with the Development.

The ZoI of the proposed development in relation to terrestrial habitats is generally limited to the footprint of the proposed development, and the immediate environs. Disturbances to the hydrological regime of wetland/aquatic habitats from impact sources can often result in impacts occurring at distances beyond the immediate adjacent areas of the impact source. For instance the distances over which aqueous pollutants are likely to remain at concentrations that have potential to result in perturbations to water quality and associated wetland/terrestrial habitats is difficult to quantify. The potential for such effects to occur are also highly site-specific and related to the predicted magnitude of any pollution event. The impact of a pollution event will depend on the volumes of discharged waters, concentrations and types of pollutants (in the case of the proposed development these being comprised of sediment, hydrocarbons, cement-based products and other related construction solutions), volumes of receiving waters, and the sensitivity of the ecology of the receiving waters. With respect to the Development, this includes all freshwater habitats and fauna at and downstream of the Development that have been identified as ecological receptors.

The ZoI for terrestrial mammals in terms of potential impacts to breeding and resting places is 150m from the Development. This distance is in line with the maximum distance for potential disturbance to terrestrial mammals (otters and badgers) as specified by TII guidance documentation (NRA, 2009 a & b).

The ZoI for birds is species-specific and relates to the assemblage of avifauna recorded at project site and their sensitivity to disturbance. Goodship & Furness (2022) have published a review of disturbance distances for a range of bird species listed on Annex 1 of the EC Birds Directive. The habitat occurring at project site is not suitable for many of these species e.g. waders, geese etc.. However suitable breeding and foraging habitat for songbirds/passerines occur in woodland habitat beyond the eastern and northern boundaries of the project site. The only passerine species for which Goodship & Furness (2022) have assigned disturbance distances are crested tit and crossbill. For the purposes of this assessment and defining the ZoI for birds the disturbance distance for crested tit and crossbill is applied for the range of passerines occurring at project site.

The disturbance distance sensitivity assigned for passerines (based on crested tit and crossbill) is <50m. In light of the above the ZoI of the proposed development for birds is up to 50m.

The ZoI for herpetofauna is considered to be limited to the direct habitat loss arising from the Development.

2.4.1 Identification & Characterisation of Effects

When describing the scale of ecological impacts reference should be made to the following characteristics:

- Positive or negative
- Extent: the size of the affected area/habitat and/or the proportion of a population affected by the effect
- Duration: the period of time over which the impact will occur. The EPA's guidelines on information to be included in Environmental Impact Assessment Reports (EPA, 2022) sets out the following terms for defining the duration of an impact: Momentary Effects - effects lasting from seconds to minutes; Brief Effects - effects lasting less than a day; Temporary Effects - effects lasting less than a year; Short-term Effects - effects lasting one to seven years; Medium-term Effects - effects lasting seven to fifteen years; Long-term Effects - effects lasting fifteen to sixty years; Permanent Effects - effects lasting over sixty years.
- Frequency & Timing: how often the effect will occur; particularly in the context of relevant life-stages or seasons; and,

- Reversibility: will the effect be permanent or temporary. Will an impact reverse, either spontaneously or as a result of a specific action.

The assessment describes those characteristics relevant to understanding the ecological effect and determining the significance, and as such it does not need to incorporate all stated characteristics (CIEEM, 2024 v.1.3).

2.4.2 Significant Effects on Ecological Receptors

For the purpose of Ecological Impact Assessment, a 'significant effect', is an effect to an ecological feature from an impact, that either supports or undermines biodiversity conservation objectives for those ecological features which have been identified as important. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy). As such, effects can be considered significant in a wide range of geographic scales from international to local. Consequently, 'significant effects' should be qualified with reference to the appropriate geographic scale (CIEEM, 2024 v.1.3).

In order to predict likely ecological impacts and effects, the assessor must take account of the relevant aspects of the ecosystem structure and function, which include (CIEEM, 2024 v.1.3):

- The resources available (e.g. territory, prey availability, habitat connectivity etc.);
- Environmental processes (e.g. eutrophication, drought, flooding etc.);
- Ecological processes and relationships (e.g. population / vegetation dynamics, food webs etc.);
- Human influences (e.g. fertilisation, turbary, grazing, burning etc.);
- Historical context (natural range, trends etc.);
- Ecosystem properties (e.g. the carrying capacity, fragility etc.); as well as,
- Other environmental influences such as air quality, hydrology, water quality, nutrient inputs and salinity etc.

The determination of significance is made in line with the terminology set out in the EPA's guidelines on information to be included in Environmental Impact Assessment Reports. These criteria are as follows:

- No change – no discernible change in the ecology of the affected features
- Imperceptible effect - An effect capable of measurement but without noticeable consequences
- Not Significant - An effect which causes noticeable changes in the character of the environment but without significant consequences.
- Slight effect - An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
- Moderate effect - An effect that alters the character of the environment that is consistent with existing and emerging trends.
- Significant effect - An effect which, by its character, its magnitude, duration or intensity alters a sensitive aspect of the environment
- Very Significant - An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment
- Profound effect - An effect which obliterates sensitive characteristics

2.4.3 Integrity

The integrity of an ecological receptor refers to the coherence of the ecological structure and function that enables the ecological receptor to be sustained (NRA, 2009). The term 'integrity' is most often used when determining impact significance in relation to designated areas for nature conservation (e.g. SACs, SPAs or pNHA/NHAs) but can often be the most appropriate method to use for non-designated areas of biodiversity value where the component habitats and/or species exist with a defined ecosystem at a given geographic scale.

An impact on the integrity of an ecological site or ecosystem is considered to be significant if it moves the condition of the ecosystem away from a favourable condition: removing or changing the processes that support the sites' habitats and/or species; affect the nature, extent, structure and functioning of component habitats; and/or, affect the population size and viability of component species.

2.4.4 Conservation Status

An impact on the conservation status of a habitat or species is considered to be significant if it will result in a change in conservation status.

As per the definitions provided in the EU Habitats Directive, the conservation status of a habitat is favourable when:

- Its natural range and areas it covers within that range are stable or increasing
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future
- The conservation status of its typical species is favourable as defined below under species

The conservation status of a species is favourable when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis

According to the TII/CIEEM methodology, if it is determined that the integrity and/or conservation status of an ecological feature will be impacted on, then the level of significance of that impact is related to the geographical scale at which the impact will occur (i.e. local, county, national, international). In some cases, an impact may not be significant at the geographic scale at which the ecological feature has been valued but may be significant at a lower geographical level. For example, a particular impact may not be considered likely to have a negative effect on the overall conservation status of a habitat which is considered to be internationally important. However, an impact may occur at a lower geographic scale on this internationally important habitat. Under such a scenario, such an impact on an internationally important habitat is considered to be significant only at the lower scale e.g. local, county, rather at the international scale.

3.0 PROJECT DESCRIPTION

3.1 OVERVIEW

The proposed development will consist of a Large-Scale Residential Development (LRD) on a site at Pope's Road, Blackpool, Cork which will include the demolition of a terrace of 4no. existing dwellings, 3no. of which are derelict, and ancillary sheds and their replacement with 1no. single-storey 3-bed detached bungalow accessed via a modified private driveway; and the construction of 103no. dwellings to include 50no. townhouses and 53no. duplex apartments. A total of 104no. dwellings (18no. 1 bed, 9no. 2-beds, 69no. 3-beds, and 8no. 4-beds) are proposed, accessed via Pope's Road. The proposed development will also include a crèche with rear garden and front set down area; 104no. car parking spaces; 128no. cycle spaces; internal roads and pathways; hard and soft landscaping, including boundary treatments; retaining walls; 2no. pedestrian connections with Glentrasna Park to the north; and all associated site development, landscaping and boundary treatment and drainage works, including SuDS.

3.2 SURFACE WATER MANAGEMENT

3.2.1 Existing Stormwater Drainage

There is an existing surface water network discharging water from Popes Hill and Popes Road located west of the proposed development site. This network was identified based on utilities surveys, inspections and record drawings provided by Cork City Council and Uisce Éireann. This network however discharges into an existing combined storm sewer network. In accordance with the confirmation of feasibility issued by Uisce Éireann, no surface water runoff from the site will be discharged into this network.

There is a separate surface water and foul water network within the Glentrasna area to the north of the site, which was picked up in an extended topographical survey carried out in November 2025 in Glentrasna.

The 225mm surface water pipework extends to the boundary of the Popes Hill site with an existing manhole in the hammerhead of the Glestrasna Crescent and a 225mm spur pipe left out of the manhole in the direction of the site. The 225mm pipework drains through Glentrasna and onto Glen Avenue. This network is suitable for an attenuated outfall for the proposed site.

3.2.2 Proposed Stormwater Drainage

The proposed surface water drainage system will be designed using Causeway Flow software in accordance with the Department of Environment and Local Government's guidance document "Recommendations for Site Development Works for Housing Areas", Further design parameters and guidance were adopted from the following documents:

Table 3.1 describes the stormwater drainage design parameters which have been used in design.

Table 3.1: Stormwater Drainage Design Parameters

Description	Value	Standard Reference / Notes
Site Area (Ha)	2.368 Ha	Redline Boundary
Return period target	Pipe Design 1 in 5-year. Network Design 1 in-30 year + CC. Check 1 in 100-year + CC for flooding.	GDSDS
Climate Change	20%	GDSDS
M5-60	18.500	Met Éireann Rainfall Data (2023 Model)
Ratio R	0.264	Met Éireann Rainfall Data (2023 Model)
SAAR	1152mm	Met Éireann Rainfall Data (2023 Model)
SOIL type	2 (sandy gravelly clay)	Site Investigation
Soil value	0.3	Site Investigation
Infiltration Rate	6.23 x 10^{-6}m/s (22.4 mm/hr) TP03 1.598 x 10^{-5}m/s (57.2 mm/hr) TP07 6.53 x 10^{-6}m/s (23.5 mm/hr) TP09	Site Investigation.
Flow reduction parameter	QBAR	Institute of Hydrology report No. 124

Controlled Outflow	Hydrobrake Detention Basin I= 2.91l/s Hydrobrake Detention Basin II= 6.81l/s	
Flow restriction method	Hydrobrake	
Attenuation Storage Volume	Soakaway I = 18 m^3 Detention Basin I = 324m^3 Detention Basin II= 346m^3 Total volume storage= 688m^3	BRE365 & SUDS Guidance
Permeable paving	186.58m^3 (Porosity = 0.3)	
Interception Volume	N/A	Interception treatment requirement satisfied by detention basins and upstream Suds features.
Treatment Volume	N/A	Treatment volume requirement satisfied by detention basins and upstream Suds features.
Max. velocity at pipe full	3.0 m/s	
Min. velocity	1.0 m/s 0.75 m/s where not practicable	GDSDS Table 6.4
Minimum cover	1.2m under roadways 0.9m elsewhere	GDSDS Table 6.4
Rougness – ks	0.6mm	GDSDS Table 6.4

3.3 PROPOSED STORMWATER OUTFALL

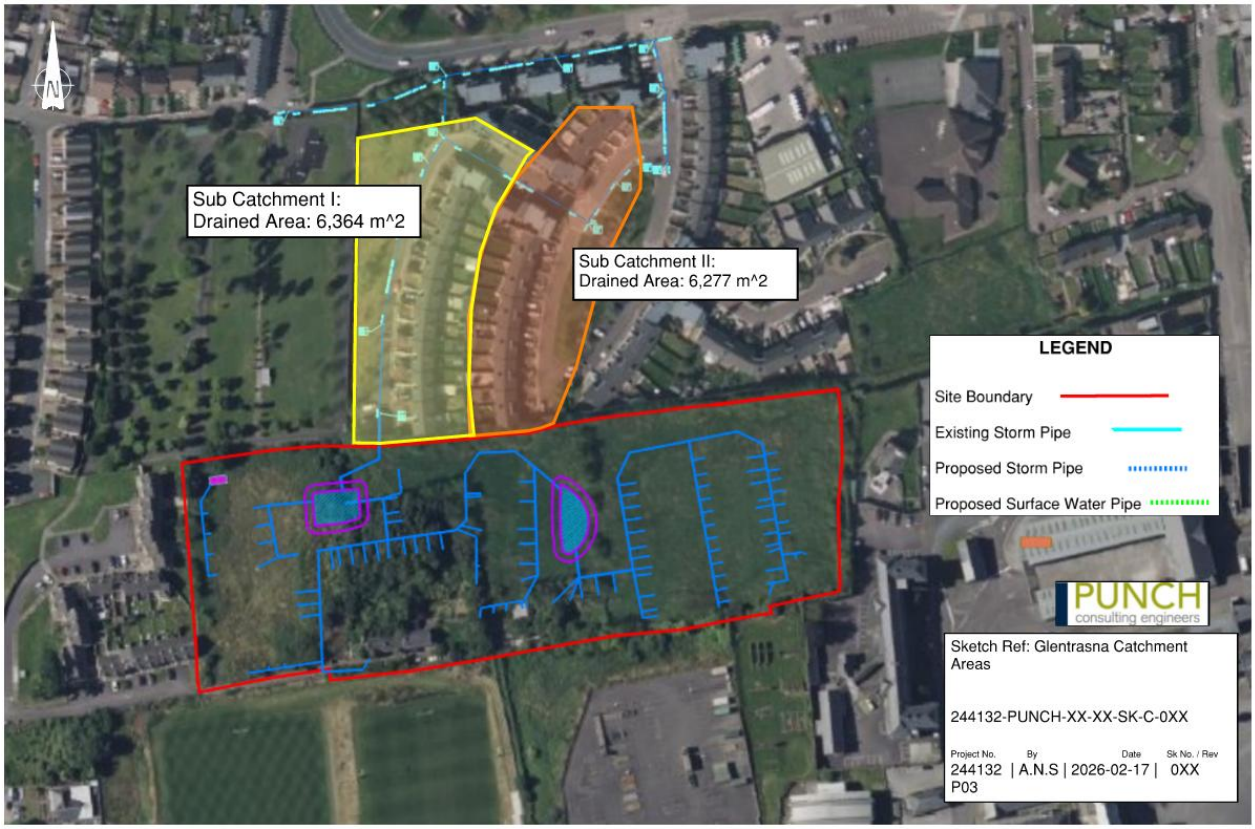
Surface water from the proposed development is designed to discharge to the existing surface water network within Glentrasna Estate. As part of the capacity assessment, the contributing drainage catchment entering the relevant pipes in the estate were split into Sub-Catchment I, with a contributing area of 6,364 m², and Sub-Catchment II, with a contributing area of 6,277 m². Refer to Figure 3.1 for the mapping.

To confirm the feasibility of this connection, the capacity of the existing surface water sewer network in the Glentrasna Estate has been reviewed. The existing pipe network has an estimated capacity of 165 l/s at the outfall from Glentrasna to Glen Avenue where the pipework is at a

gradient of 1/10 with a flow of 114l/s from Glentrasna based on a conservative rainfall intensity of 50 mm/hr (50 mm/hr is greater than a 1 in 120 year event) – refer to calculation below for Catchment Areas 1+2. Gradients on Glen Avenue are also c. 1/10.

The calculated QBAR for the proposed development is 6.81 L/s, which is 4% of the pipework capacity of the existing network of 165 l/s at the outfall from Glentrasna to Glen Avenue. Further up the Glentrasna Estate in Catchment I, the surface water pipework flattens to a gradient 1/70 between manholes MH 101 & MH 103, however the existing drainage area is much less with a capacity calculation for this section of pipework also included below. Therefore, the Glentrasna Estate drainage system is capable of accommodating the greenfield flow from the proposed development.

Figure 3.1: Glentrasna Outfall Catchments



3.4 PROPOSED SURFACE WATER DRAINAGE NETWORK

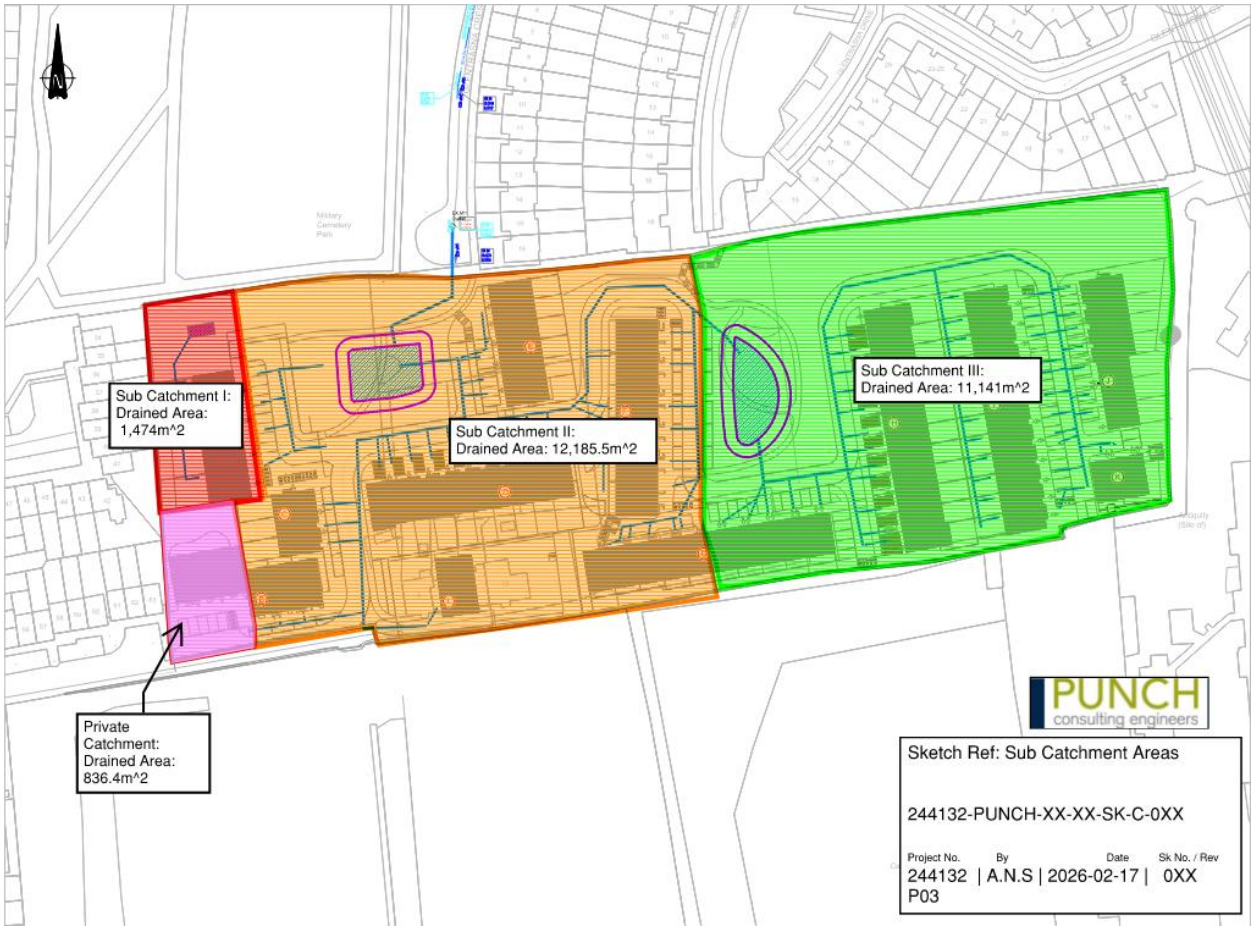
The surface water drainage strategy for the proposed development will adhere to the principles of Sustainable Drainage Systems (SuDS). It is noted in the Uisce Éireann Confirmation of Feasibility included that surface water generated from the proposed site is not permitted to discharge into the Uisce Éireann network at this location. A new surface water sewer network, entirely separate from the foul water sewer network, will be provided for the development.

The overall strategy involves collecting runoff from the roofs, impermeable road, footpath and parking surfaces to a series of tree pits and bioretention areas and interconnecting filter drains. The drainage systems will allow for some infiltration at source through a Nature Based Solution approach with the filter drain pipework collected to buried surface water pipework. The buried surface water pipework will also collect runoff from the residential properties and private permeable parking areas and together with the runoff collected from filter drainage pipework all will be directed to two detention basins in areas of the site which will be levelled off to

provide public parks. Soakaways are proposed to the west of the site to cater for the lower areas of the site. The design ensures outflow is limited to QBAR calculated on the basis of the effective drained area only such as impermeable areas. The combined attenuated outflow will then connect to the surface water pipe network within Glentrasna Estate.

The site is split in three main sub-catchments with a private catchment for the Creche building as shown below in Figure 3.2. Site investigations have been carried out on site which show that the existing ground conditions typically comprise original material, which is topsoil on firm sandy gravelly Clay on Gravel soils over weathered bedrock. In conjunction with the Site Investigations, soakaway tests to BRE 365 were completed at 3 locations on the site installations.

Figure 3.1: Drainage Sub-Catchment Strategy



The majority of the surface water runoff from the proposed development will be collected through a series of Suds systems to a piped network and brought to two landscaped detention basins, where a portion of the runoff will infiltrate naturally into the ground through the Suds systems and the detention basins. The southwest portion of the site, which includes a creche, siting at a significantly lower level relative to the main drainage network. Therefore, this area will drain to both a private soakaway with the front of the property and road surface and to an outfall to the adjacent road to the west which currently caters for runoff from the existing roadway.

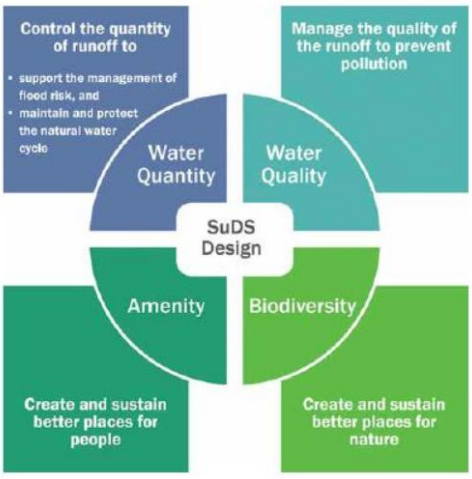
The minimum diameter of the mainline surface water sewers is 225mm. The minimum horizontal and vertical separation distances between the proposed drainage and other services are as per the Uisce Éireann Code of Practice.

The surface water drainage network has been analysed for the risk of flooding for a 1 in 5-year flood event, 1 in 30-year rainfall event and a 1 in 100-year rainfall event by means of simulating such events in the drainage model with no flooding occurring. An increase of 20% in rainfall has been included to account for climate change.

3.5 SUDS STRATEGY

SuDS decrease the negative impact developments have on the environment by providing amenity and biodiversity, while also reducing runoff. There are 4 main objectives which are critical to meet in the design of SuDS. The objectives comprise of water quality, water quantity, Amenity and Biodiversity. Refer to Figure 3.3 below:

Figure 2.3



To expand on the four principles:

- **Water Quality:** Water Quality to be improved by providing treatment to the storm water prior to discharge
- **Water Quantity:** Infiltration to be encouraged where appropriate, and peak flows to be attenuated for in the design
- **Amenity:** The design must be functionable for the end users of the site
- **Biodiversity:** The design should provide habitat to wildlife so that they can co-exist with people. This is particularly important for flora and fauna near watercourses for feeding and nesting.

3.6 COMPLIANCE WITH GDSDS & SUDS PRINCIPLES

The proposed development is designed in full accordance with the principles of Sustainable Drainage Systems (SuDS) as recommended by the Greater Dublin Strategic Drainage Study (GDSDS). The GDSDS promotes sustainability by requiring designs to comply with specific drainage criteria that aim to minimize the impact of urbanization by replicating the runoff characteristics of the greenfield site. These criteria ensure a consistent approach to managing the increase in both the rate and volume of runoff, as well as protecting the environment from pollution caused by roads and buildings. The drainage design criteria are as follows:

- Criterion 1: River Water Quality Protection

- Criterion 2: River Regime Protection
- Criterion 3: Level of Service
- Criterion 4: River Flood Protection

To satisfy SuDS requirements, developments typically incorporate:

- Interception storage
- Treatment storage (unnecessary if interception storage is adequate)
- Attenuation storage
- Long-term storage (unnecessary if QBAR growth factors are not applied in attenuation storage design)

In this case, surface water discharge will be managed entirely through infiltration via 2 no. detention basins to the east and one smaller soakaway to the northwest of the site, which are equipped to handle attenuation storage needs for storm events up to the 1% AEP event. This approach negates the need for off-site surface water discharge, ensuring full interception storage within the site and eliminating the requirement for treatment or long-term storage.

3.6.1 Criterion 1 GDSDS – River Water Quality Protection

Natural greenfield areas typically contribute minimal pollution and sediment to rivers, as most rainfall percolates into the ground, preventing direct runoff to rivers during most rainfall events. In contrast, urban areas with pipe drainage systems experience runoff from almost every rainfall event, often carrying higher levels of pollution, especially during the initial phase of runoff, with minimal percolation into the ground. To manage this, Criterion 1 mandates the provision of interception storage and/or treatment storage to replicate the runoff characteristics of pre-development greenfield sites.

3.6.1.1 Interception Storage

Interception storage should ensure that at least the first 5mm of rainfall is retained on-site and does not reach receiving waters. For the subject site, surface water discharge will be managed via infiltration through two large detention basin systems, one small soakaway and private soakaway systems, ensuring by default compliance with the 5mm interception requirement.

3.6.1.2 Treatment Storage

According to the GDSDS, interception and treatment storage are interchangeable. Since full interception storage is provided through the detention basins and soakaway systems, additional treatment storage is not necessary.

3.6.2 Criterion 2 GDSDS – River Regime Protection

Unchecked runoff from developed sites through traditional pipe networks discharges into receiving waters at rates significantly higher than pre-development levels, causing flash flows that can lead to scour and erosion in rivers and streams, as such the following requirements are to be met:

1. "Discharge rate equal to 1 – year Greenfield site peak runoff rate or 2 l/s/ha, whichever is the greater. Site critical duration storm to be used to assess attenuation storage volume".

2. "Discharge rate equal to 1 in 100-year Greenfield site peak runoff rate or 2 l/s/ha, whichever is the greater. Site critical duration storm to be used to assess attenuation storage volume".

No runoff shall be leaving the site, with all runoff being collected by proposed stormwater drainage and ultimately infiltrating into the ground, therefore the development meets the requirements of Criterion 2.

3.6.3 Criterion 3 GDSDS – Level of Service (Flooding) for the site

The GDSDS states that no flooding should occur on-site for storms up to and including the 1 in 30-year event. The pipe network and attenuation storage volumes must be sufficient to prevent site flooding, though partial surcharging is acceptable as long as it does not lead to flooding.

For the 1 in 100-year + 20% climate change (CC) event, the pipe network can fully surcharge and cause site flooding, but the peak water level must be at least 500mm below any vulnerable internal floor levels, and floodwaters must be contained within the site. The top water level in any attenuation device during this event must also be at least 500mm below any vulnerable internal floor levels.

The stormwater drainage calculations included in Appendix A of the Drainage Impact Assessment prepared by Punch Consulting Engineers (provided under separate cover with the planning application documentation), including detention basin volumes, demonstrates that the detention basin systems will not flood during the 1 in 100-year + 20% CC event. The peak volume for this event is as follows for the three sub-catchments:

1. Sub-Catchment I – 17.5m³ for the sub-catchment I, corresponding to a depth of 0.5m in the soakaway structure, resulting in a top water level of 55.300, which is more than 500mm below any adjacent floor levels.

2. Sub- Catchment II- 346m³ for the sub-catchment II, corresponding to a depth of 0.8m in the detention basin, resulting in a top water level of 62.427m, which is more than 500mm below any adjacent floor levels fronting onto the open space area where the soakaway is located.

3. Sub- Catchment III – 324 m³ for the sub-catchment III, corresponding to a depth of 0.8in the detention basin, resulting in a top water level of 71.214m, which is more than 500mm below any adjacent floor levels fronting onto the open space area where the soakaway is located.

Therefore, Criterion 3 is satisfied.

3.6.4 Criterion 4 GDSDS – River Flood Protection

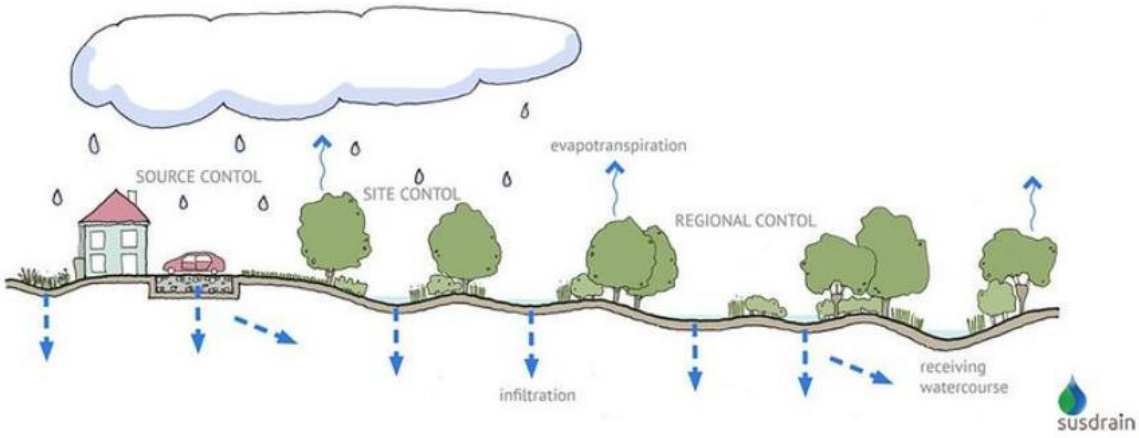
Criterion 4 aims to prevent flooding of the receiving system or watercourse by either limiting the runoff volume to pre-development levels using "long-term storage" (Option 1) or by limiting the runoff rate for the 100-year storm to QBAR without growth factors using "extended attenuation storage" (Option 2).

As the proposed development includes two detention basins and a soakaway that manage all surface water on-site, there will be no discharge to river networks. The detention basins and soakways have been designed to provide sufficient storage thus meeting design Criterion 4.

3.7 SUDS MANAGEMENT TRAIN

A suds management train system was used during the design of the surface water drainage system. The main principles involve source control and prevention of overland flow from a site, and to improve the water quality of a site. Refer to Figure 3.4 below:

Figure 3.3: SuDS Principles Infographic (ref: sdcc.ie)



3.8 SUDS PROPOSALS

The proposed development has been assessed in relation to Sustainable Urban Drainage Systems (SuDS). A variety of SuDS measures may be adopted to comply with Council recommendations. All SuDS measures are to be implemented with reference to the UK SuDS Manual and Cork City Council drainage requirements.

SUDS measures will be provided to ensure interception storage of the first 5 to 10mm of rainfall for all storm events. Relatively small volumes of rainwater collected on the respective SuDS devices will enter the public sewer network during typical low intensity storms. SuDS measures will retain rainwater until it is either used via evapotranspiration in the green areas or discharged into the proposed surface water infrastructure network.

The SuDS processes will decrease the impact of the development on the receiving environment by providing amenity and biodiversity in many cases. Regular maintenance of the SuDS proposals will be required to ensure they are operating to their optimal level throughout their design life, refer to Section 6 for detailed information on the maintenance of SuDS in this proposed development.

Figure 3.5 demonstrates the selection process for SuDS measures.

Figure 3.4: SUDS Selection Hierarchy for Large Scale Development

SuDS Measure	Measures to be used on site	Rational for selecting/ not selecting measure	Area of feature (m^2)	Attenuation volume feature (m^3)
Swales	No	The contours of the site with road gradients of typically 5% are not suitable for road drainage to swale installations	-	-
Integrated constructed tree pits	yes	Roadside tree planting will be availed of to treat surface water runoff	26 No. x 1.5m2 = 39 m2	Not accounted for
Rainwater Butts	yes	Considered suitable in private areas.	-	Not accounted for
Downpipe Planters	yes	Considered suitable in private areas.	-	Not accounted for
Rainwater Harvesting	No	Considered unsuitable for proposed development.	-	-
Soakaways	Yes	Allowing for delayed release and reducing the immediate pressure on stormwater infrastructure.	Soakaway I = 21m2 Private Soakaway = 15m2	Soakaway I = 18m3
Infiltration trenches	No	Soakaway system addresses SuDs requirements	-	-
Permeable pavement	Yes	Providing treatment and storage.	287m2	Not accounted for
Green Roofs	No	Considered unsuitable for proposed development.	-	N/A
Green wall	No	Considered unsuitable for proposed development.	-	-
Filter Strips	No	Considered unsuitable for proposed development.	-	-
Rain Gardens	Yes	Considered suitable in private areas.	-	Not accounted for
Bio-retention	Yes	Soakaway system addresses SuDs requirements	73.9m2	Not accounted for
Blue Roofs	No	Considered unsuitable for proposed development.	-	-
Filter Drains	Yes	Providing treatment and storage.	207.1m length x 0.6m wide = 124.26m2	Not accounted for
Detention Basins	Yes	Allowing for delayed release and reducing the immediate pressure on stormwater infrastructure.	Detention Basin I = 522m2 Detention Basin II= 524m2	$324m^3$ $346m^3$
Ponds	No	Considered unsuitable for proposed development.	-	-

SuDS Measure	Measures to be used on site	Rational for selecting/ not selecting measure	Area of feature (m^2)	Attenuation volume feature (m^3)
Wetlands	No	Considered unsuitable for proposed development.	-	-
Petrol Interceptor	No	Considered unnecessary for the proposed development with a treatment train provided for the road and parking runoff.	-	-
Attenuation Tank	No	Considered unsuitable for proposed development.	-	-

3.8.1 Bio-Retention Systems

Bio-retention systems have been included in the design of the SuDS system. The bio-retention areas will incorporate drainage stone and subsoil. The basin will allow stormwater to percolate downwards through a carefully selected filter medium, facilitating the removal of suspended solids and other finer contaminants. The performance of the bioretention system can vary based on the particle size and composition of the filter media, with different qualities achievable depending on specific site requirements. To prevent lateral seepage and ensure controlled infiltration, the base and sides of the system will be lined.

As outlined in CIRIA C753 (The SuDS Manual), bio-retention areas are highly effective in managing runoff by promoting natural infiltration and groundwater recharge. Table 24.6 specifies that interception designs for infiltration systems can be assumed to provide complete interception, with zero runoff expected from the first 5 mm of rainfall for 80% of events during the summer and 50% in winter. This applies to systems designed to infiltrate runoff from events exceeding a 1-month return period, contributing to significant runoff reduction for smaller, more frequent storms.

Refer to Figures 3.6-3.8 for an illustration of the components of a bioretention system, section through a permeable pavement system and example photos of bioretention features in a development.

Figure 3.5: Components of a bioretention system (ref: CIRIA SuDS Manual)

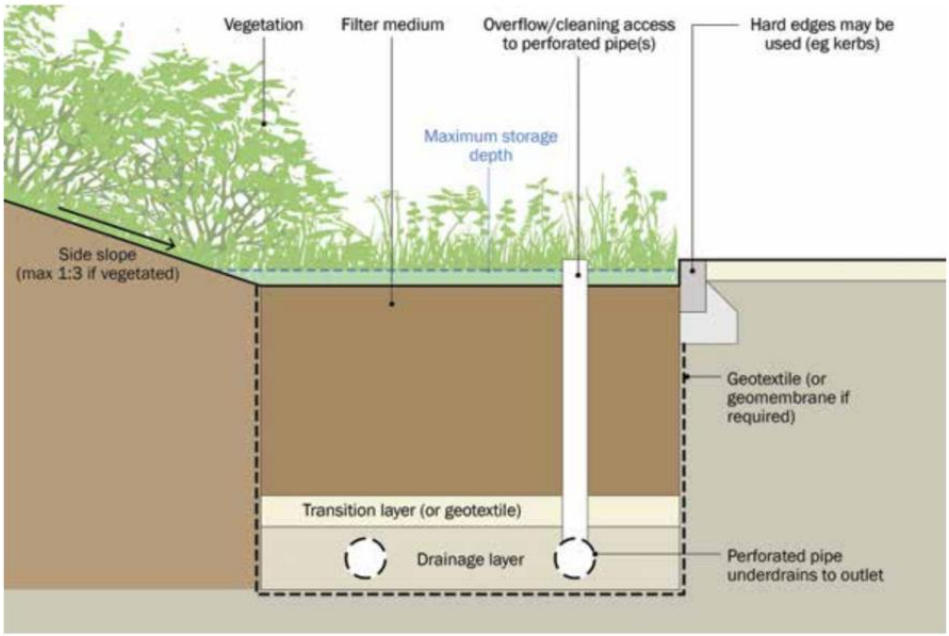


Figure 3.6: Section through a typical permeable pavement system (ref: CIRIA SuDS Manual)

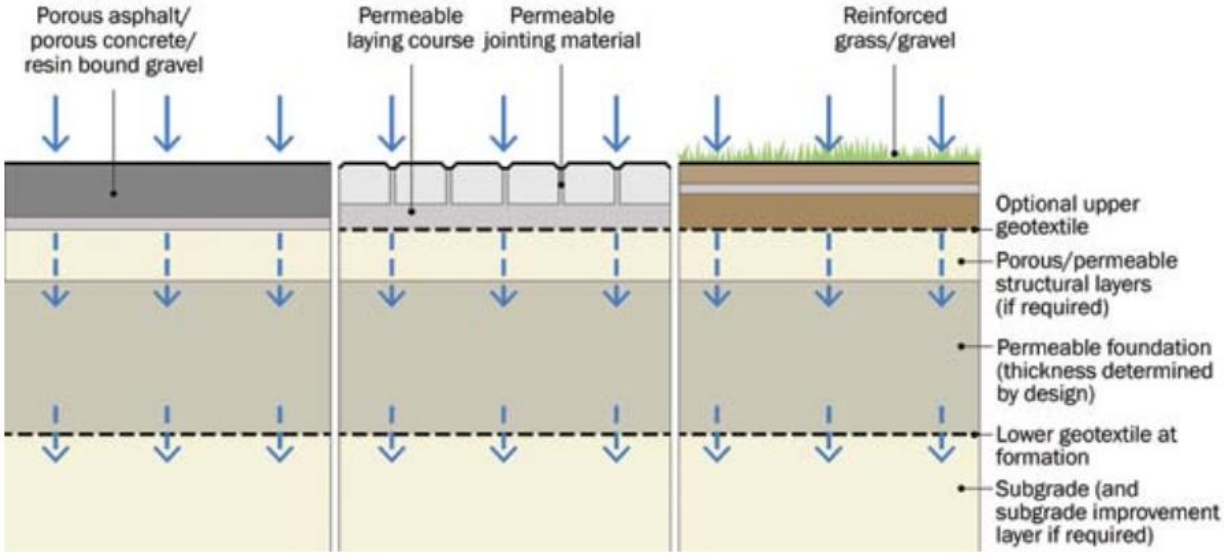


Figure 3.7: Bioretention Systems and Rain Gardens (ref: CIRIA SuDS Manual)

Figure 10.5 Bioretention systems and rain gardens (courtesy Illman Young)

3.8.2 Soakaways

The rate at which water can be infiltrated depends on the infiltration capacity (permeability) of the surrounding soils. Soakaways are below-ground infiltration structures designed to collect and disperse surface water runoff into the surrounding soil. They provide attenuation and promote infiltration, helping to mimic natural drainage processes and reduce the volume of water entering the drainage network. The proposed soakaway will provide an additional level of attenuation storage within the voids in the stone within the proprietary cellular storage system.

The base and sides of the soakaway will be lined and a high-level overflow within the build-up will accommodate removal of excess water to the drainage network. The proposed soakaway will accommodate the 1% AEP (annual exceedance probability) rainfall event with an allowance for 20% climate change, using an infiltration rate of TP03, 22.4 mm/hr according to a specific site investigation carried out on 09th of July 2025, following the requirements of the (BRE Digest 365 – Soakaway design, 2016).

The proposed soakaway will be made up of geocellular AquaCell Core-R type modular unit, which has been designed for use in deep applications and long-lasting solutions with the following measurements:

- Soakaway = volume 17.5m³ - 7m long by 3m wide by 0.5 m deep

The soakaway will have a voids ratio of approximately 95%. Additionally, the soakaway will have a 0.5m sump located upstream of the soakaway inlet.

A private Soakaway is also proposed within rear gardens to the creche to cater for the runoff from the rear roofs of these units.

The design proposed follows guidelines set out in Infiltration systems Guidelines: CIRIA SuDS Manual 2015, chapter 13. Refer to Figure 3.9 for an illustration of components of soakaways system.

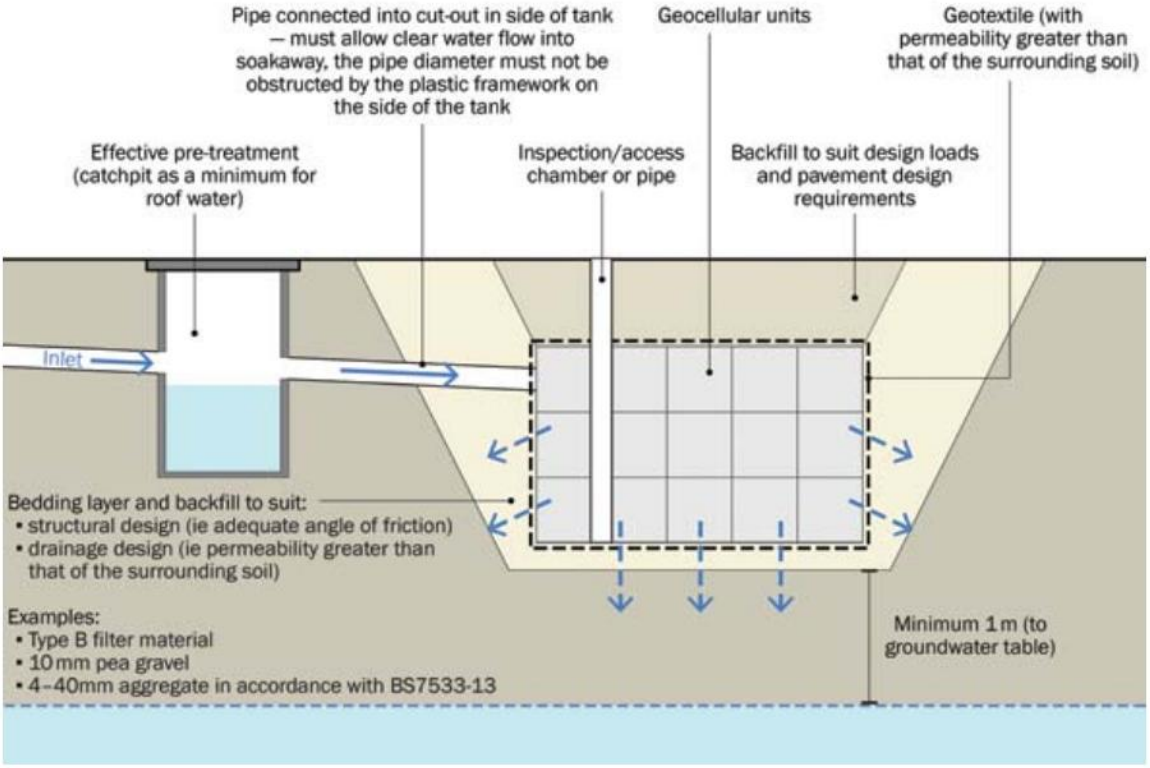


Figure 3.8 Indicative components of soakaways system

3.8.3 Tree Pits

Tree pits act as bioretention systems, allowing stormwater to filter down through engineered soil or bioretention media, which removes pollutants and promotes water infiltration. The proposed tree pits will serve both as landscape elements and as stormwater management features, providing a dual function of urban greening and surface water attenuation. Proposed surface water along the development's landscaped paved areas where possible will discharge to a SuDS element such as tree pits for interception and treatment prior to entering the drainage network.

According to CIRIA C753 (The SuDS Manual), tree pits contribute to sustainable urban drainage by capturing and retaining the first flush of stormwater, particularly for smaller, more frequent rainfall events. As per Table 24.6 of CIRIA C753, tree pits designed for interception can retain the first 5 mm of rainfall, reducing runoff for 80% of summer events and 50% of winter events, in alignment with SuDS principles. The design ensures zero runoff for many smaller events, making tree pits an effective solution for urban stormwater management.

The tree root systems will incorporate drainage stone/subsoil and will provide a level of additional attenuation. The base and sides of the tree root system will be lined to prevent lateral infiltration into surrounding structures, ensuring water is directed into the subsoi**l.** A high-level overflow and underdrain will be incorporated to ensure excess water is effectively drained away to the stormwater network, preventing waterlogging.

The surface water runoff from areas of the road, footpath and parking will be collected to gullies or through gaps in the road kerbing and drained to tree pits. Filter pipework will run in line with the trees pits and discharge to the piped surface water system to allow for some infiltration at source enroute to the detention basins. For the purpose of the outline design, as a conservative measure, no attenuation storage has been assumed within tree pits. Refer to Figure 3.9 Tree Pit Schematic – Cross Section (ref: DMURS Advice Note 5) a tree pit schematic diagram.

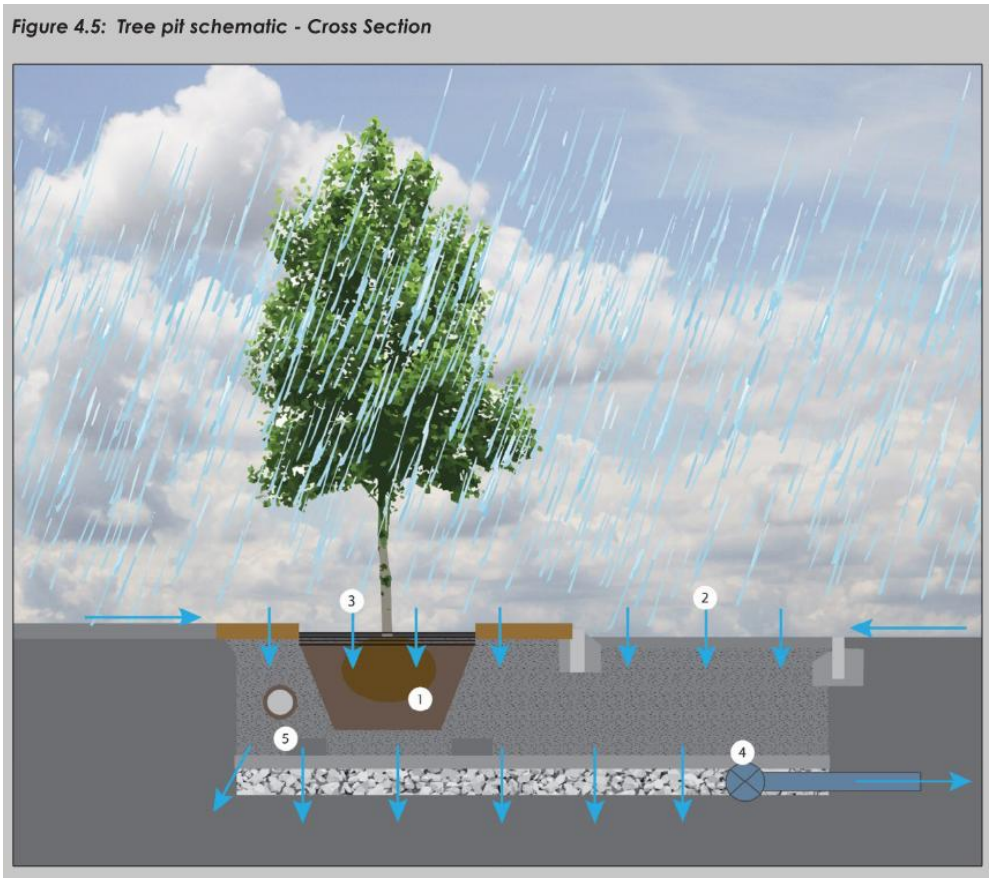


Figure 3.9 Tree Pit Schematic – Cross Section (ref: DMURS Advice Note 5)

3.8.4 Permeable Paving

Permeable pavements allow rainfall and surface runoff to infiltrate through the surface into a permeable sub-base, where it is temporarily stored, treated, and either infiltrated or conveyed away at a controlled rate. Permeable pavements are a multifunctional SuDS measure providing source control, attenuation, water-quality treatment, and reduced surface flooding. Typical systems include permeable block paving, porous asphalt, and permeable concrete surfaces.
Permeable block paving is proposed for the private car parking bays within the site. The treatment processes that occur within permeable block paving build ups include:

- Filtration of silt and the attached pollutants – the majority of silt is trapped within the top 30mm of the jointing material between the blocks.
- Biodegradation of organic pollutants, such as petrol and diesel within the pavement construction.
- Adsorption of pollutants (pollutants attach or bind to surfaces within the construction) which depends on factors such as texture, aggregate structure and moisture content.

- Settlement and retention of solids.

The use of permeable block paving for the private driveways is proposed. The use of permeable block paving for this purpose is supported by the treatment processes outlined above. CIRIA C753 (The SuDS Manual) notes that regarding interception design of permeable pavements, studies have shown that runoff typically does not occur from permeable pavements for rainfall events up to 5 mm. For the purpose of the outline design, as a conservative measure, no attenuation storage has been assumed within the sub-base of the parking areas.

3.8.5 Detention Basins

Detention basins will form part of the site's sustainable stormwater strategy, providing both attenuation and water-quality benefits. Designed as shallow, landscaped depressions, detention basins temporarily store runoff during rainfall events before releasing flows at a controlled rate through a restricted outlet, in accordance with CIRIA C753 guidance. During storms they fill to provide effective peak-flow attenuation. Where vegetated, the basin base filters runoff as it passes across the surface, supporting sediment removal and improving water quality. This approach aligns with SuDS principles by using a nature-based solution to manage runoff close to source, reducing peak discharge rates, and integrating a functional drainage component within the landscaped environment. Refer to Figure 3.10 for an indicative cross-section of a detention basin, and refer to Figure 3.11 for an example of a detention basin within a residential development.

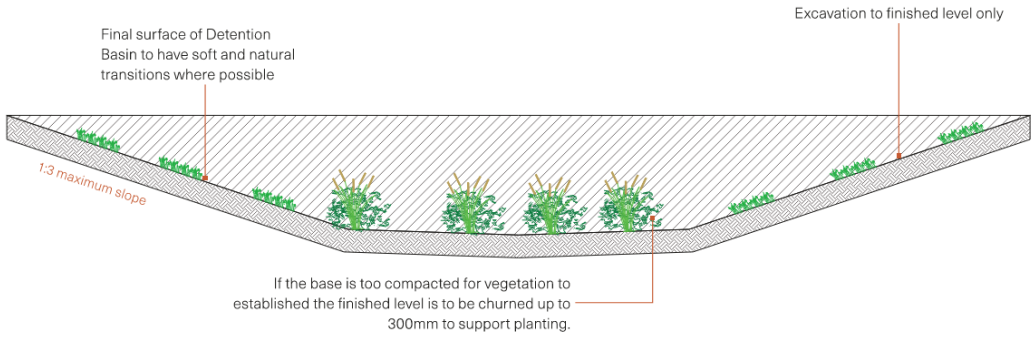


Figure 3.10 Indicative Detention Basin Cross Section

Figure 3.11 Detention Basin Example (ref: SUDS Manual)

Trial pits, soakaway tests and boreholes have been carried out as part of the ground investigation works at the locations of the detention basins to examine the underlying ground conditions including the infiltration characteristics, sub-soil characteristics, groundwater levels and depth to bedrock.

Detention basin I at the centre of the site has a minimum invert level of 70.475mOD. Rotary Borehole BH03 was drilled at this location which indicates the top of the weathered sandstone at 66.66mOD, approx. 3.8m below the detention basin. The highest ground water level was found at 67.82mOD, approx. 2.65m below the detention basin. Refer to Figure 3.13 for a section through proposed Detention basin I.

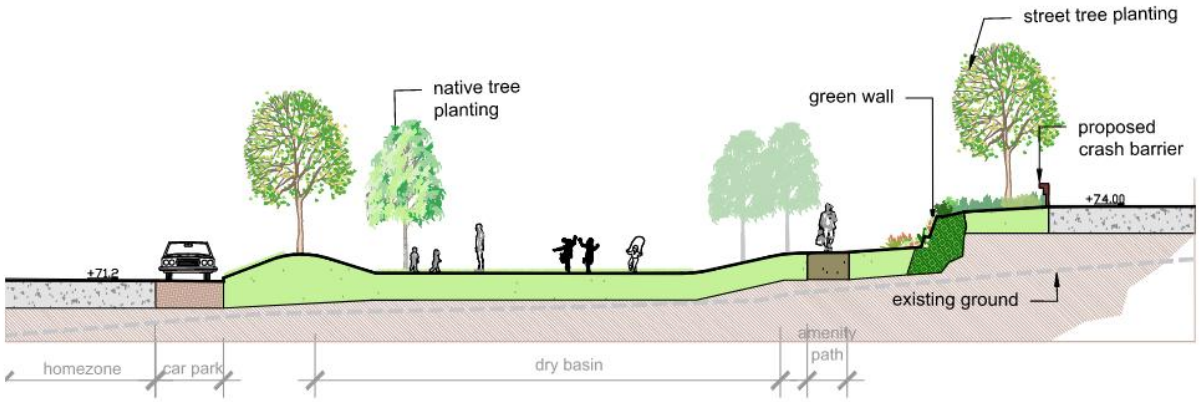


Figure 3.12 Detention Basin I Section

Detention basin II is located at the northwest boundary of the site has a minimum invert level of 61.590mOD. Rotary Borehole BH02 was drilled at this location which indicates the top of the weathered sandstone at 59.02mOD, approx. 2.6m below the detention basin. The ground water level was found at approx. 5.6m below ground level (55.92Mod), approx. 5.67m below the detention basin.

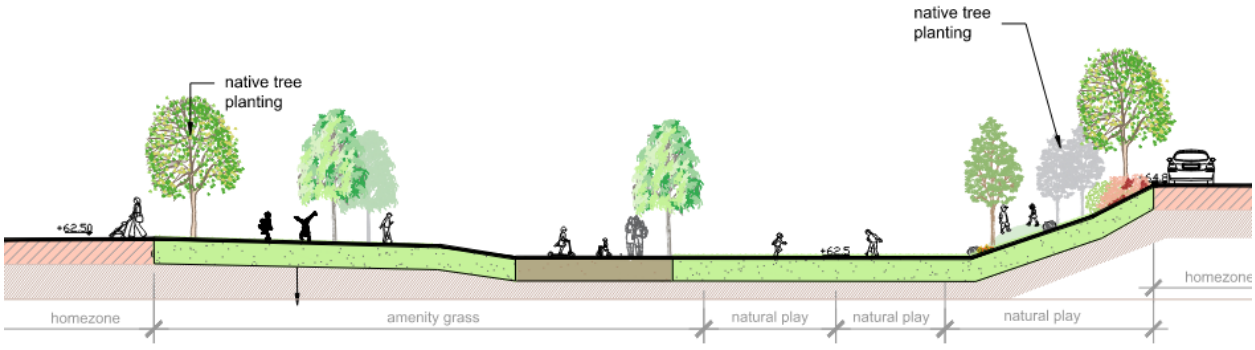


Figure 3,13 Detention Basin II Section

3.8.6 Flow Control Devices

Flow control devices are required at the outlet of each detention basin to ensure that discharge from the proposed development is restricted to the QBAR and that the downstream capacity within the receiving surface water network at Glentrasna is not exceeded. Each unit has been sized to regulate flows during the 1-in-100-year storm event including 20% climate change allowance ensuring that attenuation storage within the basins is fully utilised before discharge begins to increase.

The following are the proposed Hydrobrakes:

- Detention basin I has a proposed hydrobrake with a design flow of 2.91l/s. The cover level is 71.275m, and the invert level is 70.475m.
- Detention basin II has a proposed hydrobrake with a design flow of 6.81l/s. The cover level is 62.390m, and invert level is 61.590m.

3.9 FOUL WATER DRAINAGE

3.9.1 Existing Foul Water Drainage

On-site inspections, utilities surveys and a review of record drawings provided by Cork City Council and Uisce Éireann indicate that the existing 150mm foul sewer network running east-west direction on the western side of the site located on Popes Road servicing the residential development. There is also a 150 mm diameter combined sewer extending in an east-west direction.

It is noted on the northern boundary of the site in the Glentrasna residential estate, ramifications (Drive, Avenue, and Hill), there are three 225 mm diameter dedicated foul sewer drainage lines flowing in a south-north direction.

An extract from Cork City Council and Uisce Éireann Record Drawings illustrating the existing foul water drainage arrangement is shown in Figure 3.15 below.

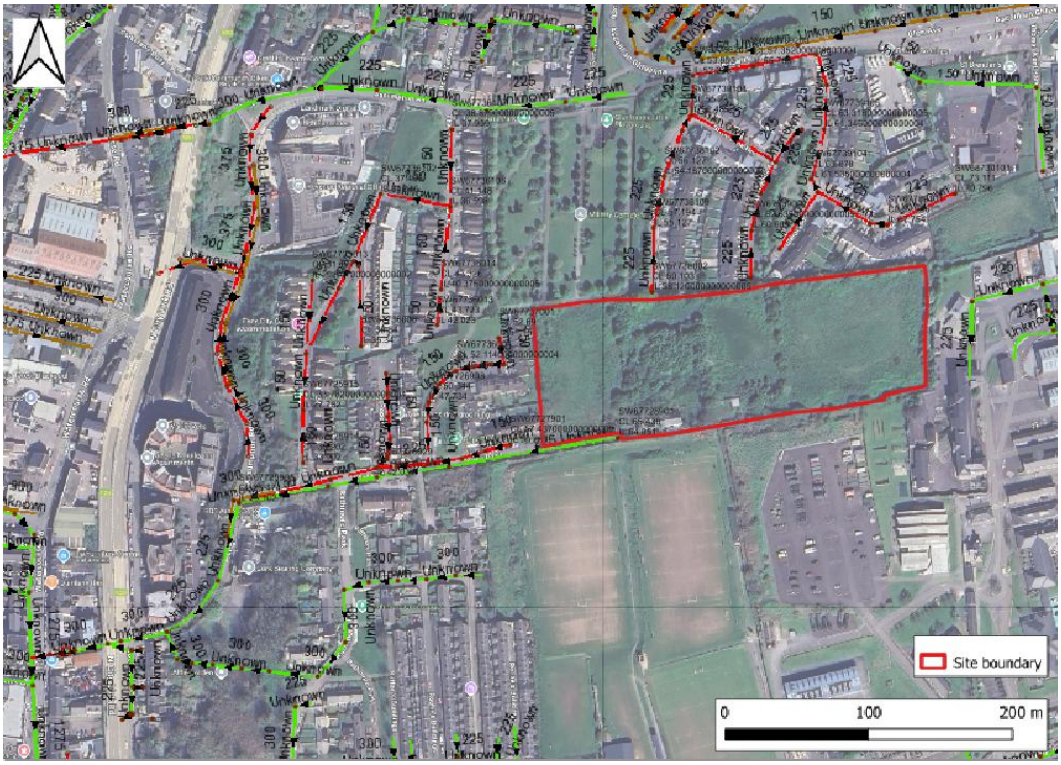


Figure 3.14: Existing foul drainage adjacent to site (extract from IW records, site boundary outlined in red)

3.9.2 Proposed Foul Water Drainage

The proposed foul water sewers will be designed using Causeway Flow software in accordance with the DOE's "*Recommendations for Site Development Works for Housing Areas*". The foul loading will be calculated in accordance with "Code of Practice for Wastewater Infrastructure" (particularly clause 36, Appendix C and Appendix D) published by Uisce Éireann.

It is proposed that the foul sewer will be discharged by gravity to the existing foul sewer network located on Popes Road flowing east-west. A Confirmation of Feasibility Ref. CDS25009768 has been received from Uisce Éireann noting that the connection is feasible subject to upgrades to the foul drainage network. It is required to upsize approximately, 60 meters of sewer pipes downstream of the proposed development from 300mm to 450mm in diameter.

All relevant foul water information for the proposed development was included as part of a Design Submission for review by the Uisce Éireann Quality Assurance team. Following a pre-

planning meeting under section 247 of the Planning and Development Act 2000, that took place on 10th of January 2025 to discuss the scope of the proposed development, it was agreed with Cork City Council that the planning submission could proceed prior to receiving the Statement of Design Acceptance from Uisce Éireann. PUNCH contacted Uisce Éireann in relation to progress of the review of the Design Submission on the 10th March 2026 and were advised that the review was on-going.

Figure 3.15: Foul Water Drainage Design Parameters

Sector	Value
Residential Flow Rate	150 l/person/day
Persons per Dwelling	2.7
Infiltration	10% (New development)
Peaking Factor	6 (Residential)
Minimum Self Cleansing Velocity	0.75m/s
Minimum Pipe Diameter	150mm

3.9.3 Proposed Foul Water Flows

Figure 3.17 summarises the proposed foul flows for the development. The daily foul loading for the proposed development has been calculated as 48.972m³. The dry weather flow has been calculated as 0.566l/s. The sewers are designed for a peak flow of 6 times dry weather flow (6*DWF) 3.355 l/s.

Figure 3.16: Foul Water Drainage Calculations

Category	Quantity	Flow Rate (l/per/day)	Daily Flow (l/day) +10% infiltration	DWF (l/s)	Design Peak Flow (6 * DWF) (l/s)
Standard residential	104	150	46,332	0.536	3.217
Creche	13 Staff 38 Children	50	2,640	0.030	0.138
Total			**48.972**	**0.566**	**3.355**

3.10 WATER SUPPLY

It is proposed to construct 1 new watermain line of 150mm diameter, also ramifications of 100mm and 90mm diameter to serve the proposed development. The proposed watermains will connect to the existing mains on Popes Road. Watermain sizing is in accordance with the Uisce Éireann Code of Practice for Water Infrastructure.

This feed will provide potable and firefighting water to the proposed development. A bulk water meter shall be provided at the site boundary at the location of the proposed connection to the existing watermain. The watermain layout will be designed in accordance with "Uisce Éireann Code of Practice for Water Infrastructure". All watermains are to be constructed in accordance with Uisce Éireann Code of Practice and the Local Authority's requirements. Fire coverage is to be reviewed and certified by the fire consultant.

To reduce the water demand on Local Authority water supplies and to reduce the foul discharge from the development, water conservation measures will be incorporated in the sanitary facilities throughout the development, e.g. dual flush toilets, monobloc low volume push taps and waterless urinals.

A Confirmation of Feasibility Ref. CDS25009768 has been received from Uisce Éireann. The proposed water connection to an external existing network is Feasible subject to infrastructure upgrade on the existing 3-inch diameter cast iron watermain located along Pope's Road. It is required to upsize approximately 80m of the existing 3-inch diameter cast iron watermain to a minimum of 150mm internal diameter to connect from a 6-inch diameter watermain pipe.

All relevant watermain information for the proposed development was included as part of a Design Submission for review by the Uisce Éireann Quality Assurance team. Following a pre-planning meeting under section 247 of the Planning and Development Act 2000, that took place on 10th of January 2025 to discuss the scope of the proposed development, it was agreed with Cork City Council that the planning submission could proceed prior to receiving the Statement of Design Acceptance from Uisce Éireann. PUNCH contacted Uisce Éireann in relation to progress of the review of the Design Submission on the 10th March 2026 and were advised that the review was now on-going.

3.11 CONSTRUCTION PHASE

Details of the approach to the construction phase are set out in the following subsections below. The approach to the construction phase will be subject to agreement with the construction contractor upon appointment. The agreed approach to the construction phase will be required to adhere to all standard best construction practices set out in the following subsections below.

3.11.1 Construction Sequence

As set out in more detail below, the construction of the project will be carried out in the following phases:

- Phase 1: Site Setup.
- Phase 2:Groundworks and Foundations.
- Phase 3: Superstructure Construction.
- Phase 4: Internal Works
- Phase 5: Landscaping and External Works.
- Phase 6: Testing, Commissioning and Inspections
- Phase 7: Final Handover and Occupation

3.11.2 Site Hoarding

The site area will be enclosed with hoarding details of which are to be agreed with CCC. Hoarding panels will be maintained and kept clean for the duration of the works. This will involve erecting hoarding around the proposed site perimeter in line with the finished development extents. A waterproof membrane will be fixed to the base of the hoarding and the ground. The available site footprint will enable the Contractor to set up the site compound within the site boundary.

3.11.3 Site Access

An existing vehicular access to the site is located on Pope's Road, at the western boundary. This will serve for all demolition, clearance, piling, and excavation works on the site.

Security personnel will be present at the entrance/exit of the site to ensure all exiting traffic will do so safely. A self-contained wheel wash system will be installed at the exit from the site, to minimise dirt being carried out into the public road. Side baffles prevent the dispersal of washed dirt, and an inbuilt reservoir collects all runoff from the wheel wash system. Water is filtered and recirculated within the system, reducing water usage. All washed solids are segregated by settlement and are either reused on site or removed and disposed of in the same manner as other spoil material.

A road sweeper will be employed as required to keep public roads around the site clean.

3.11.4 Excavation

The construction works will involve the excavation of material from the site.

All excavated material will need to be removed offsite for appropriate reuse, recovery and/or disposal. If material is removed off-site it could be reused as a by-product (and not as a waste). If this is done, it will be done in accordance with Regulation 27 of the European Communities (Waste Directive) Regulations 2011, as amended, which requires that certain conditions are met and that by-product notifications are made to the EPA via their online notification form. Excavated material should not be removed from site until approval from the EPA has been received. The potential to reuse material as a by-product will be confirmed during the course of the excavation works, with the objective of eliminating any unnecessary disposal of material. Clean inert material may be used as fill material in other construction projects or engineering fill for waste licensed sites. Beneficial reuse of surplus excavation material as engineering fill may be subject to further testing to determine if materials meet the specific engineering standards for their proposed end use.

It should be noted that a trial pit excavation report was completed by Ground Investigation Ireland Ltd, and it was found that no hydrocarbon contamination was present in all the soil samples collected from the site.

3.11.5 Site Compound

The compound area will be of hardstanding material.

All materials will be stored within the site compound. Any temporary stockpiles stored onsite will be covered to prevent runoff.

3.11.6 Work on Public Roads

Works on public roads outside the site will be co-ordinated and will be co-ordinated with Cork City Council and the adjoining businesses and residents. These works include: footpath replacement and/or repair works; public lighting; and improved public realm works. Any existing dropped kerbs, not intended to serve as a vehicle access route or pedestrian crossing, are to be removed and replaced with full height kerbs.

3.11.7 Hours of Work

Working hours during site clearance and construction shall be restricted to 08:00-18:00 hours on Monday to Fridays and to 08:00-16:00 hours on Saturdays. Activities outside these hours shall require the prior approval of the Planning Authority.

3.11.8 Demolition

The demolition stage will involve the demolition and removal of 4 no. existing buildings on site. The demolition areas are identified in the planning drawings provided with this application.

3.11.9 Construction Phase Water Management

During the construction phase surface water will drain to ground at existing greenfield areas surrounding the footprint of areas under construction. All surface water pooling in excavations etc will be pumped to a holding tank to be provided on site. From here the water will be pumped to a series of settlement tanks. These tanks will act as primary and secondary settlement. The settlement tanks will be of sufficient number and size to allow the necessary retention time for solids to settle. The discharge water from the final tank will be routed to the existing surface water system with approval from the local authority. Only settled and clean water will be permitted to be released from the settlement tanks to the existing surface water system. Visual checks of the pumping and settlement system will be carried out on a daily basis.

A self-contained wheel wash will be provided on site as per Section 3.5.3 above.

In addition to the above the following suite of standard and generic construction measures will be put in place to protect against the generation of contaminated waters at the project site during the construction phase:

- Storage – all equipment, materials and chemicals will be stored a minimum distance of 25m away from any surface water body. Chemical, fuel and oil stores will be sited on impervious bases and within a secured bund of 110% of the storage capacity, within the lay down area.

- The integrity and water tightness of all the bunding structures and their resistance to penetration by water or other materials stored therein shall also be tested and demonstrated.

- All fuel oil fill areas will have an appropriate spill apron and spill kits will be provided on site.

- Vehicles and refuelling – standing machinery will have drip trays placed underneath to prevent oil and fuel leaks causing pollution. Where practicable, refuelling of vehicles and machinery will be carried out on an impermeable surface in designated areas, well away from any surface waterbody.

- Maintenance – maintenance to construction plant will not be permitted on site, unless vehicles have broken down necessitating maintenance at the point of breakdown. All necessary pollution prevention measures will be put in place prior to commencement of maintenance in this instance;

- Concrete - Wet concrete operations will be carried out in dry conditions. Runoff from wastewaters or contaminated surface water runoff will be directed to construction phase surface water drainage system to be installed on site;

- Mess, sanitation and welfare facilities will be required during construction and will be located at the construction compound. Foul effluent will make use of chemical facilities with periodic removal for offsite disposal.

4.0 DESCRIPTION OF THE RECEIVING ENVIRONMENT

4.1 OVERVIEW

The project site is located at Blackpool, Cork City. It is situated within the urban area of the city and is surrounded by existing residential development to the west and north, Collin's Barracks to the east and south and Christian Brothers College to the south. Military Cemetery is also located to the north of the project site.

4.2 REVIEW OF HISTORICAL MAPPING & AERIAL IMAGERY

A review of historical mapping (6-inch colour map (1829 to 1842; 6 inch Cassini, 1830's) and the 25 inch map, 1888 to 1913) has been completed for the project site and surrounding area.

The first 6-inch historical map of 1845 shows the sub-division of the site into three no. plots, which are still broadly apparent today. The western, northern and eastern boundaries of the site are as per the 1845 6-inch map. The two internal boundaries currently on site are broadly similar to those shown on the 1845 map. The 1845 map shows Pope's Hill road continuing along the southern boundary of the project site to the east with likely access provided around the northern boundary of Collin's Barracks. The only change apparent in the later 25 inch map from 1901 is the termination of the Pope's Hill lane within the site, with the connection to the east severed. By this time the existing terrace within the project site was in place and is labelled as Sandy Hill Terrace.

A review of aerial imagery from c. 2000 to current shows no land cover changes within the project site. Changes in land cover are apparent to the west of the site with the development of the existing residential c. 2004. Further residential development associated with the Glentrasna housing estate to the north of the project site is then shown on the aerial imagery for c. 2007. There has been no apparent change in land cover surrounding the project site since 2007.

4.3 HYROLOGY

The project site is located within the River Bride sub-catchment (Water Framework Directive (WFD) catchment code: Kiln_SC_010). No artificial drainage ditches or natural streams or rivers occur within or bounding the project site. The Glen River is the nearest natural

watercourse to the project site and is located approximately 500m to the north. A subterranean culverted section of the Bride River flows from north to south, approximately 300m to the west of the project site. The Glen River from east to west through the Glen Vally Park to the north of the project site before passing through a culverted section upstream of its confluence with the Bride River. The Glen River drains into the Bride River which flows through an existing pipe culvert under the Ballyhooly Road flows east to west and drains into the Bride River at Blackpool. The Glen River drains into the Cork City section of the Bride River to the west of Blackpool Shopping Centre. The Cork City section of the Bride River flows south from Blackpool, through culverted sections and drains into the River Lee at Christy Ring Bridge.

The River Lee in turn drains into Cork Harbour, within which is located the Cork Harbour SPA and the Great Island Channel SAC.

The pathway of the local hydrology in the wider sub-catchment area surrounding the project site is shown on Figure 4.1.

4.4 EUROPEAN SITES

The project site is not subject to any statutory designations for nature conservation. The spatial relationship between the project site and SACs and SPAs occurring in the wider area surrounding the project site are shown on **Figure 4.2** to **4.3** below. The nearest European Site to the project site is the Cork Harbour SPA, located approximately 3.4km to the southeast. The nearest SAC to the project site is the Great Island Channel SAC, located within areas of Cork Harbour approximately 8km to the east.

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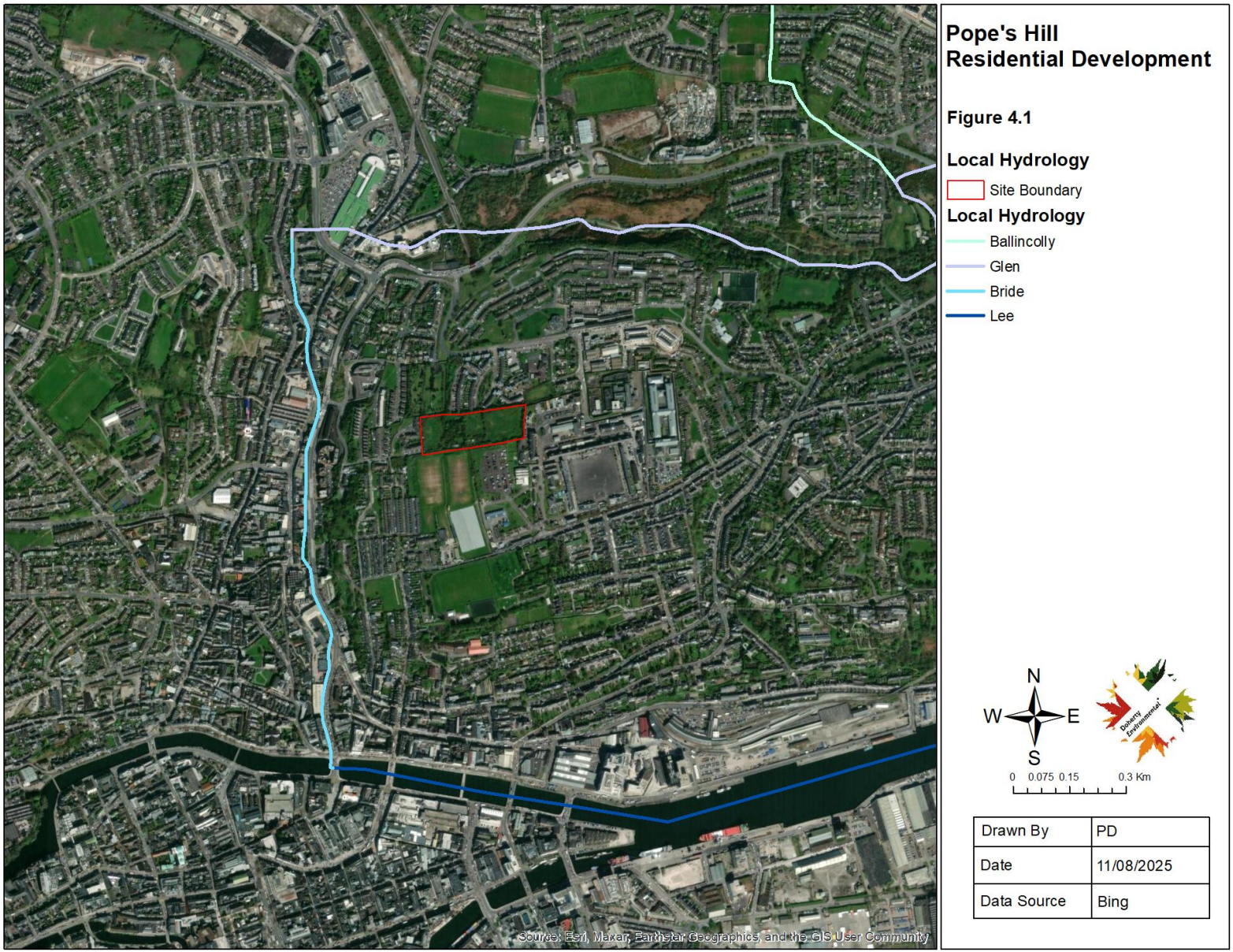


Pope's Hill Residential Development

Figure 4.1

Local Hydrology

Site Boundary

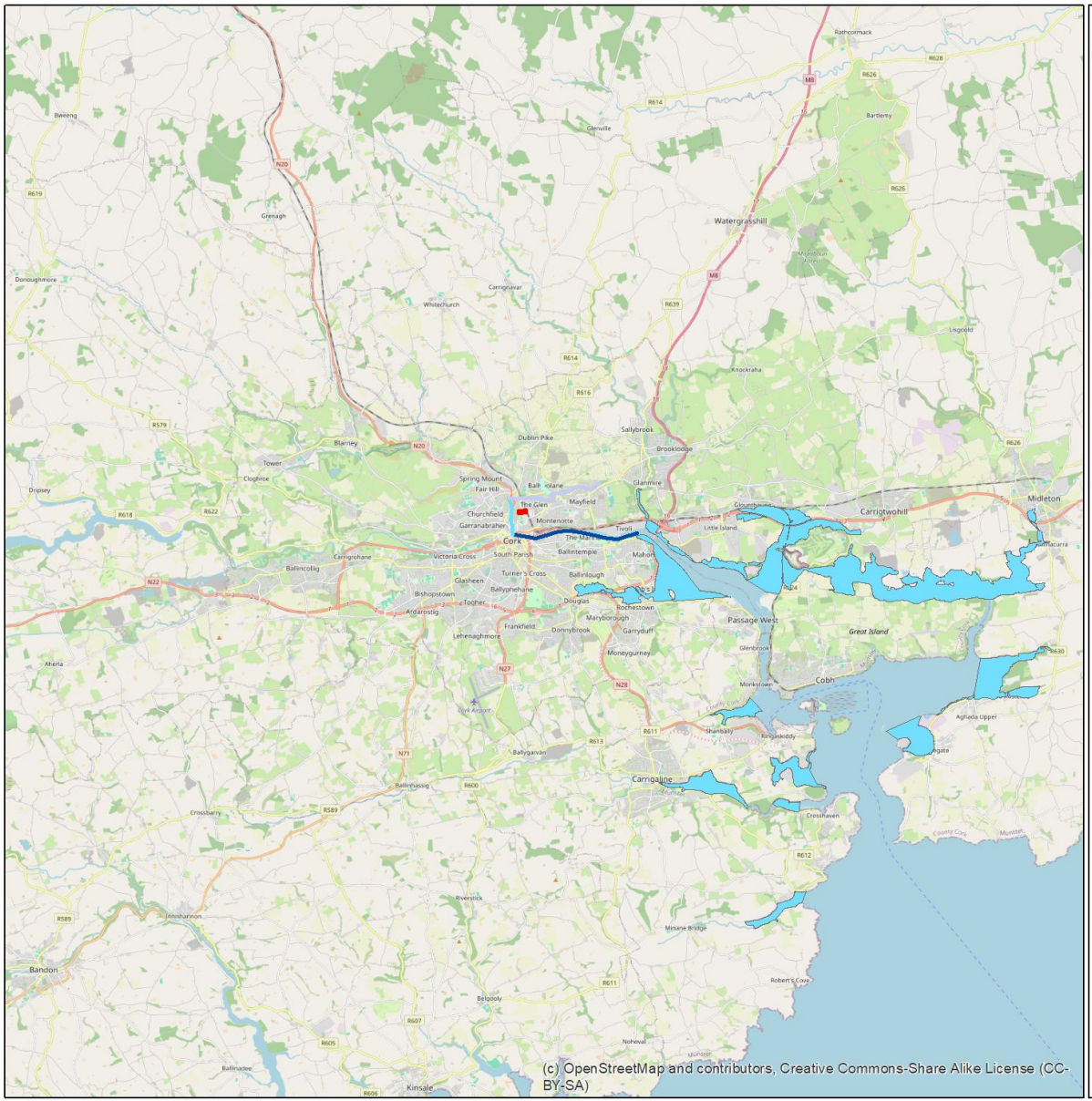
Local Hydrology

Ballincolly
Glen
Bride
Lee

N
W E
S

0 0.075 0.15 0.3 Km

Drawn By	PD
Date	11/08/2025
Data Source	Bing



Pope's Hill Residential Development

Figure 4.2

SPAs in the Wider Surrounding Area

Project Site
Cork Harbour SPA

Local Hydrology

Ballincolly
Glen
Bride
Lee

N
W E
S

0 1.5 3 6 Km

Drawn By	PD
Date	11/08/2025
Data Source	Bing

Pope's Hill Residential Development

Figure 4.3

SACs in the Wider Surrounding Area

Project Site

SACs

Great Island Channel SAC

Blackwater River SAC

Local Hydrology

Ballincolly

Glen

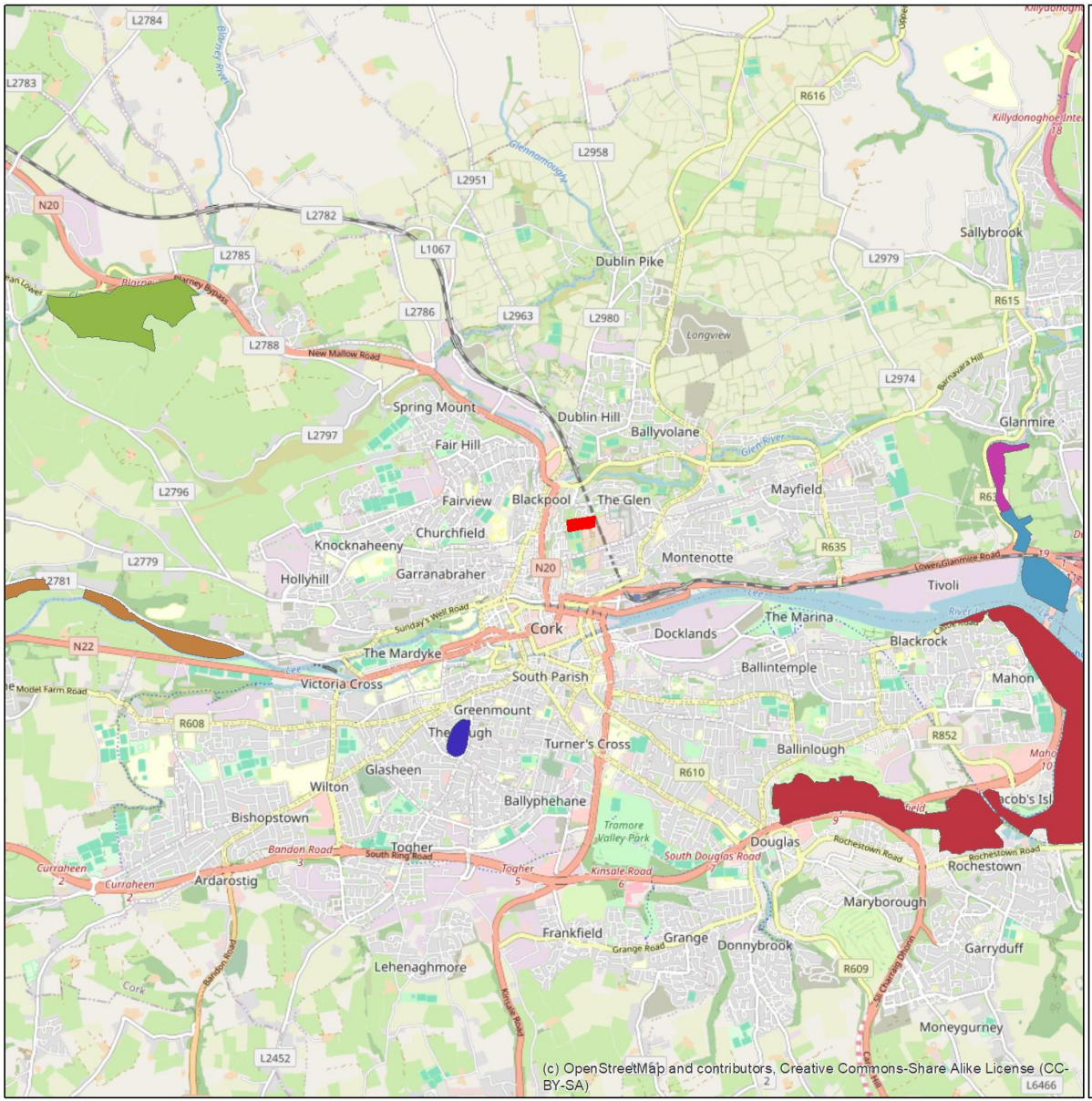
Bride

Lee

N
W E
S

0 1.5 3 6 Km

Drawn By	PD
Date	11/08/2025
Data Source	OSM, NPWS



Pope's Hill Residential Development

Figure 4.4

pNHAs in the Wider Surrounding Area

- Project Site

pNHA

- Blarney Bog
- Cork Lough
- Douglas River Estuary
- Dunkettle Shore
- Glanmire Wood
- Lee Valley

N
W E
S

0 0.45 0.9 1.8 Km

Drawn By	PD
Date	11/08/2025
Data Source	Bing

4.4.1 Protected Species Records

A search of the National Biodiversity Data Centre (NBDC) for records of rare and/or threatened species previously identified within the area of search shown on Figure 4.5 has been completed. completed on the April 2026.

Figure 4.5: Polygon Area (shown in red) searched for records of Rare, Threatened and/or Protected Species

No records for rare, threatened or protected species are held for the area of search as shown on **Figure 4.5**.

4.5 SURVEY RESULTS

4.5.1 Habitats

The following Sub-Sections describe the habitats occurring within and immediately adjacent to the project site. Each habitat described below has been identified to Level 3 of Fossitt's *Guide*

to Habitats in Ireland. The alpha-numeric code for each habitat is also provided alongside the habitat name (e.g. hedgerow WL1). The locations and extent of each habitat described below are illustrated in **Figure 4.6**: Habitat Map.

The habitats at the project site are comprised of:

Buildings and artificial surfaces BL3: this habitat within the project site consists of the dilapidated dwellings and the one remaining intact dwelling associated with the Sandy Hill Terrace, as well as the existing areas of hardstand within the project site.

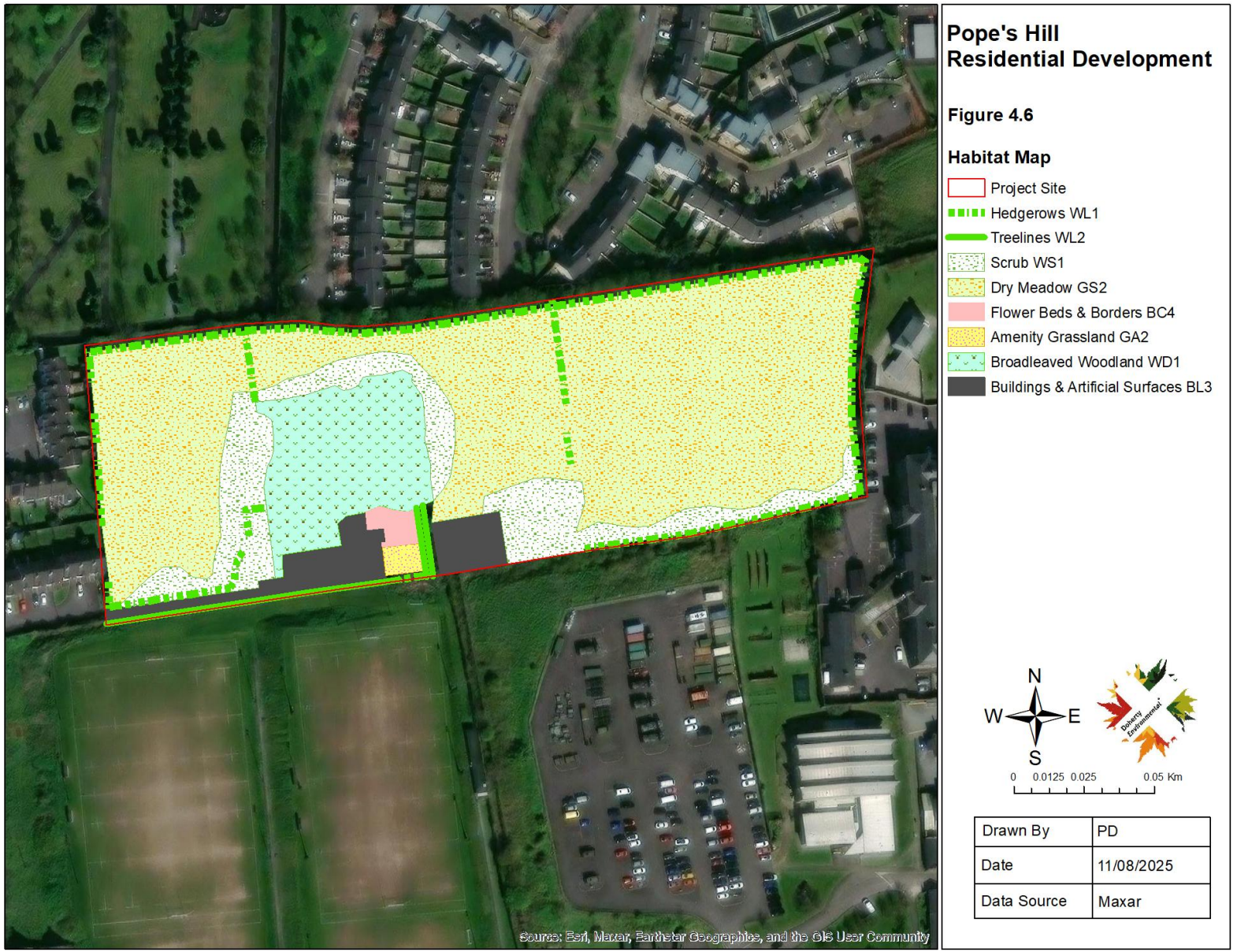
Hedgerows WL1: the hedgerows within the site are dominated by *Crataegus monogyna, Prunus spinosa, Acer pseudoplatanus* and *Fraxinus excelsior*. *Ilex aquifolium* occurs rarely along the northern hedgerow, whilst a pear tree (*Pyrus* sp.) occurs along the western boundary. *Acer pseudoplatanus* is the dominant species along the hedgerows within the project site. Approximately 614m of hedgerow habitat occur at the project site. Of this approximately 523m of hedgerow habitat occurs along the boundary of the project site, whilst the remaining 91m occur as internal hedgerows running south from the northern boundary of the project site.

Treelines WL2: A treeline occurs along the southern verge of the Pope's Road access to the project site.

Scrub WS1: scrub habitat occurring at the project site is dominated by dense stands of Rubus fruticosus agg. along with Ulex europeaus that have colonised the verges of broad-leaved woodland and hedgerows.

Broad-leaved woodland WD1: the broad-leaved woodland at the project site is dominated by Acer pseudoplatanus with a species poor ground layer dominated by *Hyacinthoides non-scripta; Heracleum sphondylium* and *Urtica dioica* with *Dryopteris filix-mas* also occurring. *Salix cinerea* occurs at the northeast corner of the woodland, whilst a number of *Malus sylvestris* trees, most likely associated with the dwelling garden area occur within the woodland to the rear of the dwelling.

Dry meadow GS2: species-poor dry meadow that is subject to relaxed management with high swards present dominate the land cover within the project site. The vegetation associated with this habitat is dominated by commonly occurring tussocky grasses such as Dactylus glomerata,


Pope's Hill
Residential Development
Figure 4.6
Habitat Map
Project Site
Hedgerows WL1
Treelines WL2
Scrub WS1
Dry Meadow GS2
Flower Beds & Borders BC4
Amenity Grassland GA2
Broadleaved Woodland WD1
Buildings & Artificial Surfaces BL3
N
W
E
S
0 0.0125 0.025 0.05 Km
Drawn By PD
Date 11/08/2025
Data Source Maxar
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Lolium perenne, Phleum pratense, Alopecurus pratensis and Holcus lanatus along with commonly occurring herb species

Amenity grassland GA2: a small area of amenity grassland occurs to the west of the intact dwelling within the project site. This is a well mowed and maintained short sward lawn surrounded by a treeline and woodland.

Flower Beds and Borders BC4: flower beds with non-native species occur to the west of the intact dwelling.

The project site does not provide suitable habitat for supporting bird species that are listed as special conservation interest bird species of SPAs in Ireland. As noted above the Cork Harbour SPA is the nearest SPA to the project site. This SPA is designated for its role in supporting populations of waterbirds. The grassland, woodland and built land habitats occurring at the project site do not provide suitable foraging, loafing or roosting habitat for such species

4.6 FAUNA

4.6.1 Non-volant mammals

No protected non-volant mammals were observed on site during field surveys. Rabbit burrows and droppings were recorded towards the western edge of the stand of sycamore to the north of the remaining dwelling. A number of guard dogs are present within the project site and their presence is likely to limit the suitability of the site to support non-volant mammals.

4.6.2 Bats

The buildings within the project site were inspected on the 27th May 2024 and again on the 30th September 2024 and 20th April 2026 for their potential to function as roost sites for bats and for the presence of roosting bats.

The buildings on site are of low potential for supporting roosting bats. Four of the former dwellings along the Sandy Hill Terrace are in an advance state of dilapidation with no roofing intact and little shelter provided for roosting bats. The remaining intact dwelling is a dormer dwelling with no loft space and limited opportunities to support roosting bats. This dwelling is

rated as a structure of low roost potential. During an external examination of the remaining dwelling, completed on the 27th May and 30th September 2024 and on the 20th April 2026 no field signs, in the form of droppings or staining etc. were recorded. No changes to the condition of the structures on site were noted between each of the above survey dates.

No roosting bats were observed emerging from the intact dwelling during the emergence roost surveys completed at the project site on the 27th May and the 30th September 2024. Weather conditions during both surveys were ideal for bat activity with low winds, mild temperatures and dry conditions prevailing. Based on the results of the emergence surveys the intact dwelling is not considered to function as a roost site for bats.

Automatic static bat detectors were installed at the project site, with one installed in the sycamore woodland to the north of the intact dwelling and the second installed in grassland habitat to the east of the dwelling. Monitoring was completed over a 15-night period between the 27th May and 10th June 2024. Bat activity was very low during the monitoring session with only 2 no. Soprano pipistrelle passes being recorded at the detector within the grassland habitat and a further 2 Soprano pipistrelle passes being recorded in the woodland. The calls recorded by the detector in the grassland habitat were from the 3rd and 8th June, whilst the 2 calls within the woodland were recorded on the 30th May. Overall the results of the extended bat activity monitoring at the project site indicates very low levels of activity and that the project site is not relied upon by local bat populations for foraging or roosting.

4.6.3 Birds

A survey of the project site for the presence of birds and nest sites was completed on the 27th May and again on the 10th July 2024. No occupied nests were identified within the structures occurring at the project site.

The bird fauna recorded was typical of hedgerow habitat. Woodpigeon, rook, hooded crow jackdaw and magpie were the larger species seen and heard. Other species seen and heard during field surveys include blackbird, blackcap, blue tit, chaffinch, chiffchaff, coal tit, dunnock, goldfinch, great tit, pied wagtail, robin, song thrush, starling, swallow and wren. No red-listed bird species were seen or heard on site during field surveys.

5.0 NATURE CONSERVATION VALUE

The project site is dominated by species-poor dry meadows and grassy verges, spreading bramble scrub and non-native sycamore woodland. The habitats are of Local importance (lower value) (Rating E). The western, northern and eastern boundary hedgerows are representative of mature, historic hedgerow boundaries and are considered to be of local importance (higher value) (Rating D). The southern boundary is of Local importance (lower value) being dominated by spreading scrub.

The project site does not play a role in supporting rare, threatened or protected fauna species. It is considered to be of low nature conservation value (Rating E) for populations of native fauna.

6.0 IMPACT ASSESSMENT

6.1 CONSTRUCTION PHASE

6.1.1 Designated Conservation Areas

The potential for the project to result in likely significant effects to the Cork Harbour SPA and the Great Island Channel SAC has been examined as part of a Screening Report for Appropriate Assessment. This examination has concluded that the project will not have the potential to result in likely significant effects to these or any other European Sites, alone or in-combination with other plans or projects. The Screening Report for Appropriate Assessment is provided under separate cover with the planning application documentation.

No NHAs occur within the wider area surrounding the project site and there are no pathways that could connect the project site to NHAs. As such there will be no potential for the project to result in negative impacts to NHAs.

There will be no direct impacts to pNHAs occurring in the wider area surrounding the project site. The nearest pNHA to the project site is the Lough pNHA located approximately 2.5km to the south. There are no pathways connecting the project site to this pNHA or any other pNHAs in the wider area surrounding the project site. As such the project will not have the potential to result in negative impacts to any pNHAs.

6.1.2 Habitat Loss

The project will result in the loss of dry meadows and grassy verges, bramble dominated scrub and non-native sycamore woodland. The loss of these habitats from the project site will represent a high magnitude impact in that these types of habitats will be removed from the project site. A high magnitude impact to these habitats of low ecological value will represent an impact of permanent and minor significance.

As noted in Section 4.5.1 above approximately 614m of hedgerow habitat occurs at the project site, with approximately 523m occurring along the boundary and the remaining 91m occurring within the project site. The c. 91m of hedgerow within the project site will be lost to the footprint of the proposed development whilst an additional c.25m of boundary hedgerow will be lost as a result of the proposed non-vehicular permeability connections at the northern boundary of the site and a proposed dwelling at the southern boundary of the site. The combined total extent of hedgerow habitat to be removed will amount to c. 116m or c. 20% of the existing hedgerow habitat occurring at the project site. The loss of c.20% of hedgerow habitat will represent an effect of moderate negative significance to the hedgerow habitat resource occurring at the proposed development. The extent of the hedgerow boundary vegetation habitat loss is illustrated in Figure 6.1 below.

It is noted that as part of the landscape design for the project areas of native wildflower meadow grassland and woodland planting will be provided.

The boundary vegetation across the site has been retained and enhanced where necessary as part of the proposed landscape design. Additional native hedgerow planting is proposed to strengthen existing boundaries and ecological corridors. This is complemented by additional street tree planting, open space tree planting, and shrub planting throughout the development. The habitat value of the overall site is enhanced with a wildlife friendly tree, shrub and meadow planting strategy developed in line with the principles and recommendations of the All Ireland Pollinator Plan.

The provision of such landscape elements will minimise the residual impact of the loss of existing hedgerow as well as low value grassland and woodland habitat from the project site.


Pope's Hill
Residential Development
Figure 6.1
Extent of Hedgerow Habitat Loss
Hedgerow Habitat to be Removed
Project Site
N
W
E
S
0 0.01 0.02 0.04 Km
Drawn By PD
Date 16/04/2026
Data Source Maxar
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

6.1.3 Disturbance to/Loss of Habitat for Terrestrial Fauna

The project site does not support any ground dwelling or volant mammal fauna. In addition no nesting birds were identified within structures at the project site.

There will be loss of potential nest habitat for bird species due to the loss of woodland and scrub habitat to the project footprint. The loss of these woodland habitats on site will represent an impact of moderate magnitude to this receptor of local importance (Rating D). A moderate magnitude impact to this receptor will have the potential to result in minor negative impacts to the local breeding bird population.

The potential will exist for disturbance to nests and fatalities of chicks in the event that woodland vegetation, supporting nests, is removed from the project site during the breeding bird season.

Noise will be generated during the construction phase and will have the potential to result in incidental noise disturbance in the immediate vicinity of the project site. The impact of noise generated during the construction phase (where noise levels are at or above 70 dB $L_{Aeq,11hr}$) will be limited to the immediate area (i.e. within 20m) surrounding the project site. Given the overall low sensitivity of the project site for birds and the restricted area that will be subject to elevated incidental noise levels at any one time during the construction phase, noise emissions as a result of construction works will represent, at most, a minor negative impact to birds occurring at the project site.

Based upon the results of surveys completed at the project site there will be no potential for the project to result in direct impacts (such as damage to roost sites or fatalities) to bats given the absence of any evidence recorded during roost surveys to indicate the presence of bat roosts at the project site.

Overall the levels of bat foraging activity occurring within the project site during site surveys was very low for all species indicating that bats do not rely on the project site for foraging. In light of the above the loss of vegetation such as woodland habitats on site will represent an impact of low magnitude to bat species which are identified at low (Rating E) nature conservation value in the context of the project site. A low magnitude impact to this receptor will have the potential to result in imperceptible impacts to the local bat population.

6.2 OPERATION PHASE

6.2.1 Designated Conservation Areas

As per the findings of the Screening Report for Appropriate Assessment the operation phase of the project, will not, alone or in-combination with other projects, have the potential to result in likely significant effects to European Sites. The findings of the Screening Report for Appropriate Assessment are also applicable to the pNHAs occurring in the wider surrounding area and as such no potential for likely significant effects to these sites are anticipated to arise as a result of the operation phase of the proposed development.

6.2.2 Habitat Loss

The operation phase of the development will not result in further habitat loss within the project site. The design of the project provides for green infrastructure in the form of the proposed SUDS design.

6.2.3 Impacts to Terrestrial Fauna

The operation phase of the project is not predicted to have the potential to result disturbance to protected terrestrial mammals or bird species. This is due to the absence of any evidence of protected terrestrial non-volant mammals within the project site during field surveys and the low value habitats within the project site for bird species.

7.0 MITIGATION MEASURES

The recommendations outlined in the following sections aim to ensure that all potential negative impacts associated with the project are avoided or minimised to an insignificant level.

7.1 MANAGEMENT OF WASTEWATER

All wastewater generated during the operation phase will be directed to the Uisce Eireann sewer network and then to the existing Uisce Eireann Wastewater Treatment Plant (WWTP). Uisce Eireann has confirmed that water supply and wastewater connections are feasible subject to local upgrades.

7.2 MEASURES TO PROTECT SURFACE WATER

In order to minimise the potential for pollution to storm waters generated on site all design measures and best practice construction phase measures set out in Section 3 above will be implemented in full.

7.3 MEASURES TO PROTECT FAUNA DURING CONSTRUCTION WORKS

In order to protect fauna during construction works the following measures will be implemented during the construction phase:

1. Wherever possible vegetation clearance will be scheduled for removal during the non-breeding bird season between the months of September to February inclusive. In the event that vegetation is to be removed during the bird breeding season, between the months of March and August (inclusive), a prior survey, completed by a professional ecologist/ornithologist, of the vegetation will be required to confirm the absence of breeding birds and their active nests. Vegetation removal will only be permitted to proceed where it is confirmed that no active nests are present. In the event that active nests are present vegetation removal will be postponed until after time when it is confirmed that the nests are inactive. This time will be confirmed by the professional ecologist/ornithologist engaged to complete the monitoring.

2. Prior to demolition of the existing structures on site, confirmatory pre-demolition surveys will be completed of the structures to confirm the continued absence of bird nests and roosting bats within these structures.

   The approach to nesting birds within structures on site will follow that outlined under Point 1 above for the removal of vegetation.

   The confirmation surveys to confirm the continued absence of bats from the structures on site will be completed by a professional bat ecologist. The surveys will be undertaken during the bat activity season (between May and September) immediately prior to the scheduled completion of the demolition works. Demolition works will only be permitted to proceed once it is confirmed that, as per the findings of the baseline surveys, that no bats are using the structures as roosts. In the event that the pre-demolition surveys identify the

presence of a bat roost at the structure then no demolition works will be permitted to proceed in the absence of a derogation licence, issued by the Department under Regulation 54 of the European Communities (Birds and Natural Habitats) Regulations, 2011, as amended. It is noted that on the basis of the baseline assessment for the project site, at the time of writing no requirement for a Regulation 54 derogation licence was identified.

7.4 GREEN INFRASTRUCTURE

The design of the project provides for green infrastructure in the form of the proposed SUDS design as described in Section 3 above and in the form of the proposed landscape masterplan prepared for the project. The provision of the latter in particular will provide for the retention and enhancement of boundary linear woodland features along the western, northern, eastern and southern boundary as well as providing:

New sections of native hedgerow;

Native scattered trees with native shrub and groundcover;

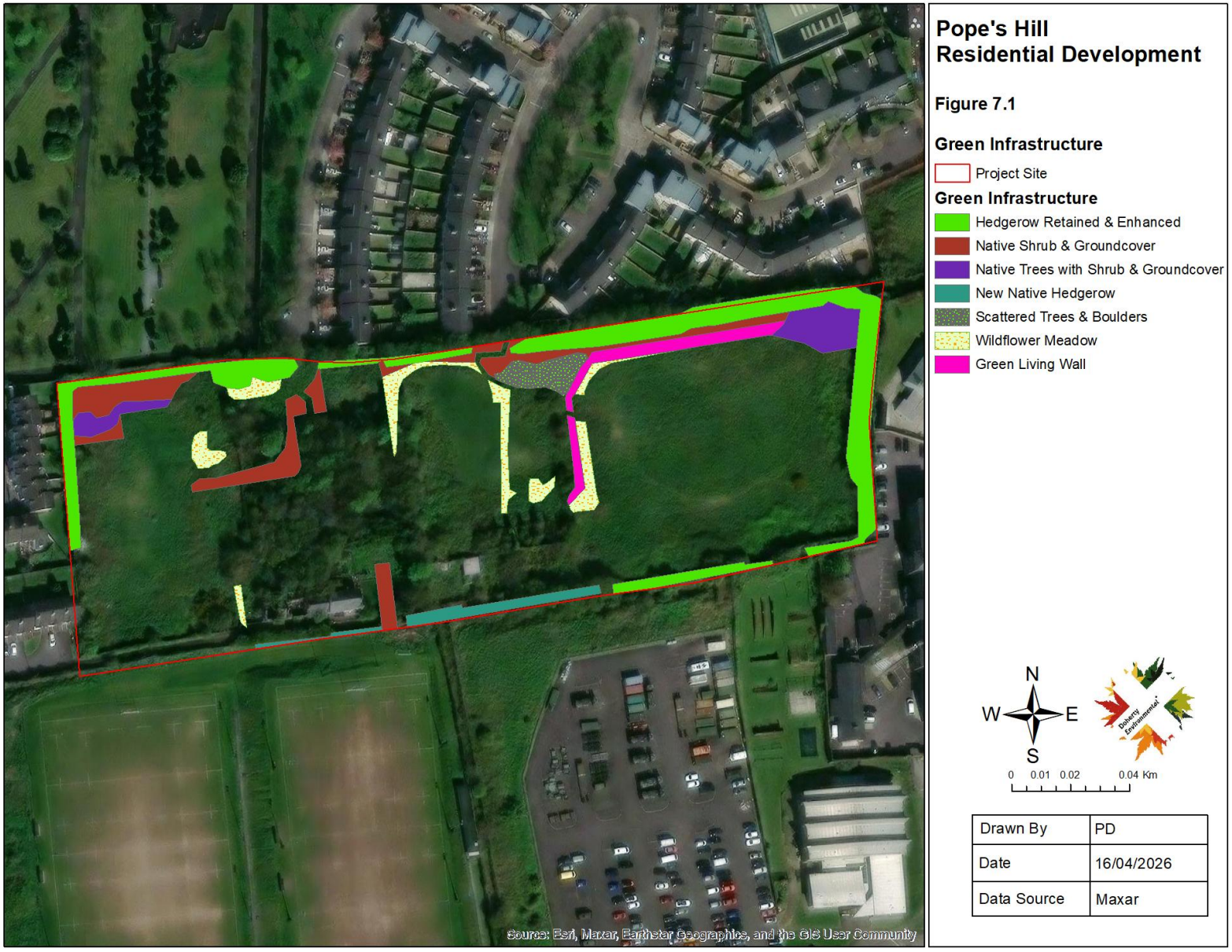
Native scattered trees with boulders;

Native shrub and groundcover;

Wildflower meadows; and

Green living wall.

The extent of the biodiversity green infrastructure to be provided as part of the Landscape Masterplan amounts to c. 0.55 Hectares.


Pope's Hill
Residential Development
Figure 7.1
Green Infrastructure
Project Site
Green Infrastructure
Hedgerow Retained & Enhanced
Native Shrub & Groundcover
Native Trees with Shrub & Groundcover
New Native Hedgerow
Scattered Trees & Boulders
Wildflower Meadow
Green Living Wall
N
W
E
S
0 0.01 0.02 0.04 Km
Drawn By PD
Date 16/04/2026
Data Source Maxar
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

7.5 RESIDUAL IMPACTS

The measures outlined above for the construction and operation phase of the project are taken from established best practice guidelines that have been successfully implemented for a wide range of project-level infrastructural developments. These measures have undergone extensive and rigorous monitoring for their effectiveness at development sites where they have previously been applied to ensure adverse environmental impacts are avoided.

The results of monitoring at these and other development sites and the recommendation of these measures as standard best practice guidelines is based upon their high degree of success in ensuring negative environmental impacts are avoided.

The best practice guidance that have informed the measures for water management in this assessment and that will be adhered to throughout the construction and operation of the proposed development include:

Objective 9.5, Objectives 9.6 and Objectives 9.7 of the Cork City Development Plan 2022 – 2028

The Good Practice Guidance notes proposed by EA/SEPA/EHS:

PPG1: General Guide to the Prevention of Water Pollution

PPG4: The disposal of sewage where no Main Drainage is Available

PPG5: Works In, Near or Liable to Affect Watercourses

PPG10: Working at Construction and Demolition Sites.

PPG21: Pollution Incident Response Planning

PPG26: Dealing with Spillages on Highways

CIRIA Environmental Good Practice on Site.

CIRIA Control of Water Pollution from Construction Sites. Technical Guidance C648.

CIRIA SuDS Manual Technical Guidance C697.

Development on Unstable Land. Department of Environment (DOE), UK.

Based on the above the project site will not result in any residual impacts to designated conservation areas.

As outlined in the baseline and impact assessment sections above no high-value habitat receptors at the county scale or greater have been identified within the project site. The habitats of highest value occurring at the project site are the existing boundary hedgerow habitat. The project has been designed to retain the majority of the existing boundary hedgerow habitat as shown on Figure 6.1 and Figure 7.1 above. In addition to their retention, these existing boundary hedgerows will be augmented with native tree planting to enhance the species richness and overall biodiversity value of these linear habitat features. In addition native pollinator friendly wildflower and shrub/groundcover planting as well as native pollinator friendly planting for the proposed living wall will be provided as part of the green infrastructure/landscape masterplan design. Whilst the overall area of green field cover will be reduced, it is considered that the provision of native, species rich landscaping will compensate for the loss of species-poor and non-native woodland to be lost to the footprint of the development and will ensure that no significant residual impacts to habitats or biodiversity arise.

REFERENCES

Fossitt J. A. (2000). A Guide to Habitats in Ireland. Heritage Council.

IEEM (2006). Guidelines for Ecological Impacts Assessment. IEEM.

Institute of Lighting Professionals (ILP) (2023). Bats and artificial lighting at night.

JNCC (1993). Handbook for Phase I habitat survey. JNCC.

Neal E. & Cheeseman C. (1996). Badgers. Poyser Natural History. London.

NRA (2006a). Guidelines for assessment of ecological impacts of National Road Schemes. National Road Authority.

8.0 APPENDIX 1: PLATES

Plate 1: View of the eastern and northern boundary and grassland habitat

Plate 2: View of the northern boundary and grassland habitat

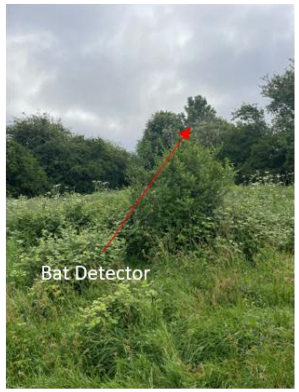


Plate 3: View of bat detector positioned in open grassland habitat

Plate 4: View of the eastern and northern boundary and grassland habitat

Plate 5: View of the eastern and northern boundary and grassland habitat

Plate 6: View of bat detector positioned within sycamore woodland

Plate 7: View of dilapidated structure at site entrance during May 2024 survey

Plate 8: View of roofless dilapidated structure during May 2024 survey

Plate 9: View of dilapidated structure during April 2026 survey

Plate 10: View of east facing gable end of the remaining dwelling on site

Plate 11: View of the north elevation of the remaining dwelling on site

Plate 12: View of open canopy of stand of sycamore to the north of the remaining dwelling on site