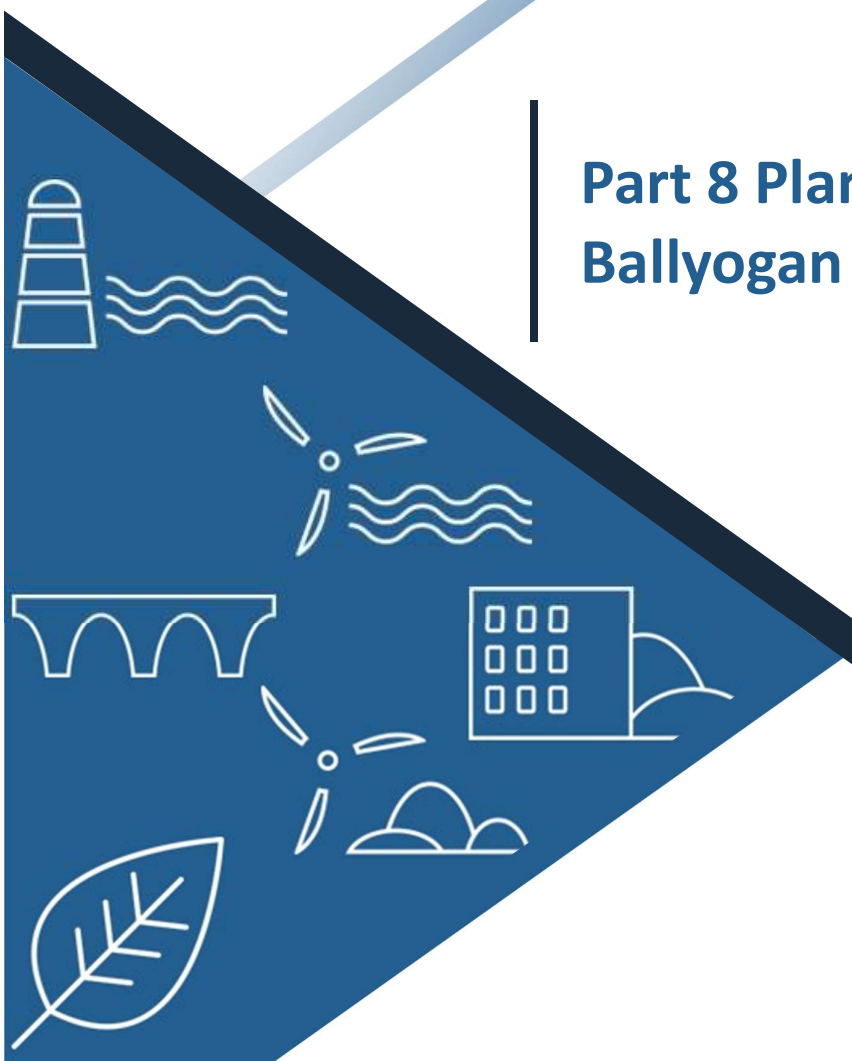
GDG
GAVIN & DOHERTY
GEOSOLUTIONS



Part 8 Planning Report, Ballyogan Road, Dublin

dlr
Comhairle Contae County Council

Client	**Dun Laoghaire Rathdown County Council**
Document Ref.	**24038-REP-03-01-Part 8**
Project Title	**Road Maintenance Operation Facility**
Date	**06/09/2024**

Project Title:	Road Maintenance Operation Facility
Report Title:	Part 8 Planning Report, Ballyogan Road, Dublin
Document Reference:	24038-REP-03-01-Part 8

Client:	Dun Laoghaire Rathdown County Council
Ultimate Client:	Dun Laoghaire Rathdown County Council
Confidentiality	Non Confidential

REVISION HISTORY

Rev	Date	Reason for Issue	Originator	Checker	Reviewer	Approver
00	17/07/2024	Draft Issue to Client	CM	RD	JD	JD
01	06/09/2024	First Issue	CM	RD	JD	JD

DISCLAIMER

REVISION SUMMARY

Rev	Date	Section(s)	Detail of Change
00	06/09/2024	5.3	Inclusion of EcIA

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1 INTRODUCTION

Dún Laoghaire-Rathdown County Council have appointed GDG to provide engineering consultancy services on a new project which involves constructing a new road maintenance operations facility on a site adjacent to the existing Operations Centre, located at Ballyogan, Dublin 18. This report constitutes the Part 8 Planning Application, along with supporting documents and plans:

- Appropriate Assessment (AA) Screening Report – Appendix A
- Appropriate Assessment (AA) Determination – Appendix B
- Environmental Impact Assessment (EIA) Screening Report - Appendix C
- Environmental Impact Assessment (EIA) Determination - Appendix D
- Ecological Impact Assessment (EcIA) Report – Appendix E
- Outline Construction Environmental Management Plan (CEMP) – Appendix F
- Planning-Stage Drawings including Proposed Layout and Cross-Sections – Appendix G
- Site-Specific Flood Risk Assessment – Appendix H
- DLR County Council Business Case – Appendix I

The Ballyogan site lies west of Junction 15 on the M50. Ballyogan Operations Centre lies directly west of the proposed area. To the south of the site is the Ballyogan landfill, now closed and restored. Between the site and the closed landfill there is a raised line of trees along a slight embankment / rise. The Carrickmines Stream is located within the line of trees and flows to the east. East of the site is the Ballyogan Recycling Centre, and a Post D18 Delivery Office. The site is accessed off Ballyogan Road, via a private access road. The nearest residential properties are adjacent to the private access road to the west. The Samuel Beckett Community Facility lies northwest of the proposed scheme.

The area of development is anticipated to be 4944m^2 (0.49ha).

Figure 1-1: Site Location Plan

2 DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1 OVERVIEW

The new road maintenance operations facility area will be reserved for the road maintenance fleet; the DLRCC road maintenance programme involves dealing with severe weather conditions on the public roads. The new road operations area will contain an operational hardstanding area, dedicated road maintenance fleet parking, salt storage barn, a brine manufacturing facility, a rainwater harvesting tank (from salt barn roof), an automated wheelwash, and dedicated washdown facilities for the road maintenance vehicles.

The new facility includes for a new access road allowing direct access to both the existing operations facility and the Red Entrance service road leading to Ballyogan Road. The site will be fully serviced with lighting, water, electricity and communications.

The proposed development will serve as a dedicated road maintenance facility within which the majority of the road maintenance fleet to be stored, freeing up space for other DLRCC departments within the existing operations centre. The facility will also enable DLRCC to transition the road maintenance fleet to a pre-wet (brine) salting operation as opposed to the current dry rock salt operation, ensuring the roads operation can continue to meet operational and policy demands.

There are a number of benefits from the proposed pre-wet salting operation. These are described in the DLR Winter Maintenance Business Case and include:

- Significant environmental benefits arising from the fact that less salt being spread resulting in less environmental impact and less salt in the water table.
- Significant financial benefits arising out of the reduction in the amounts of salt being applied in given winter situations.

- Reduction in salt haulage costs as frequency of salt delivery reduced, also contributing to reduction in carbon footprint for winter salting operations.
- More efficient salting operation arising from the reduction in the spread of salt outside the target zone (carriageway lanes).
- Greater operational efficiency as pre wet technologies will result in an increase in residual salt levels therefore leading to a reduction in treatment runs. This is more effective in severe weather and lower temperatures. Pre-wet can also be applied two days before snow and will still be effective.
- Transitioning to use pre-wet technology will also enable Dun Laoghaire Rathdown County Council to achieve an important action in the upcoming Climate Action Plan 2024-2029 arising from the Climate Adaption Strategy i.e. “to investigate the use of alternative systems, such as brine, for treating road surfaces during cold weather events”.

The completion of this project will make the DLRCC road maintenance operations more efficient, effective and environmentally friendly.

The overall development is outlined as follows:

- Dedicated Road Maintenance Operational Fleet Parking
- Operational Hardstand, Site Access, and Drainage
- Operational Vehicle Wash Facilities
- Salt Storage Barn
- Brine Manufacturing Facility
- Associated M&E including utilities, public lighting, telemetry, fencing, lighting etc.

2.2 WASH WATER

Vehicle wash facilities and an automated wheel wash form part of the new development. The Brine Plant will utilise a combination of harvested rainwater and mains supplied water. The road maintenance operation will be more efficient and sustainable than the existing dry salt system.

2.3 STORMWATER DRAINAGE

The collection and discharge of stormwater from the development will be collected and discharged via an oil interceptor and hydrobrake to the downstream storm sewer outfall.

2.4 WASTEWATER

Wastewater from the development, generated from the salt storage barn, brine plant, vehicle washing facilities and automated wheelwash will be isolated and discharged to the on-site foul sewer network.

2.5 CONSTRUCTION

In the construction of the Proposed Development both DLRCC and the Main Contractor will adhere to all relevant Irish and EU environmental legislation, guidelines and best practice measures during the construction phase, including legislation relating to ecology and biodiversity; air, water and groundwater; and noise and vibration.

The Contractor shall have regard for the guidance and advice of the ISO14001 environmental management standard (ISO 14001:2015 Environmental management systems), and relevant

Construction Industry Research and Information Association's (CIRIA) guidance including C811 Environmental good practice on site guide (fifth edition).

The Main Contractor, and any subcontractors, will comply with the outline CEMP and associated management plans to adhere to the relevant legislation and to meet relevant best practice measures during the construction phase.

Standard best practice methods will be employed during construction to mitigate potential impacts from pollution on the environment; including following the principles of the waste hierarchy as they apply to construction with an order of preference of actions to reduce and manage waste.

Construction waste where it does arise will be disposed of using licensed waste disposal facilities and contractors.

There will be potential for noise and dust nuisance during construction. Standard noise and dust prevention measures will be employed.

3 PLANNING

3.1 DLR COUNTY DEVELOPMENT PLAN

The DLR County Development Plan 2022-2028 zones the land the proposed development lies in as Objective E "*to provide for economic development and employment.*" As shown in Figure 3-1.

Existing planning applications were reviewed (Dun Laoghaire-Rathdown Planning Search & EIA Portal). There are no recent planning applications adjacent to the proposed development or in the nearby area. Wider planning applications are minor in nature.

Figure 3-1: Extract from County Development Plan

3.2 CONCLUSION

The proposed development is consistent with the proper planning and sustainable development of the area.

4 SCHEME JUSTIFICATION

A Business Case for the new road maintenance facility including the dedicated operational area, a new salt storage barn and brine manufacturing facility was developed by Dun Laoghaire Rathdown County Council. (refer: Appendix I).

4.1 DEDICATED ROAD MAINTENANCE OPERATIONAL AREA

The new facility provides direct operational site access from the Red Entrance service road to negate the requirement for an additional access from Ballyogan Road and avoiding road operational vehicle access via either Ballyogan Recycling Park or the Blue Entrance, or any operational vehicle movements on the internal back road.

The facility provides a self-contained road maintenance operational area including dedicated parking for the road maintenance fleet, vehicle wash facilities and working areas segregated from the existing Operations Centre Building improving both pedestrian and vehicle safety, while freeing up much needed space within the existing Operations Centre for other DLRCC departments.

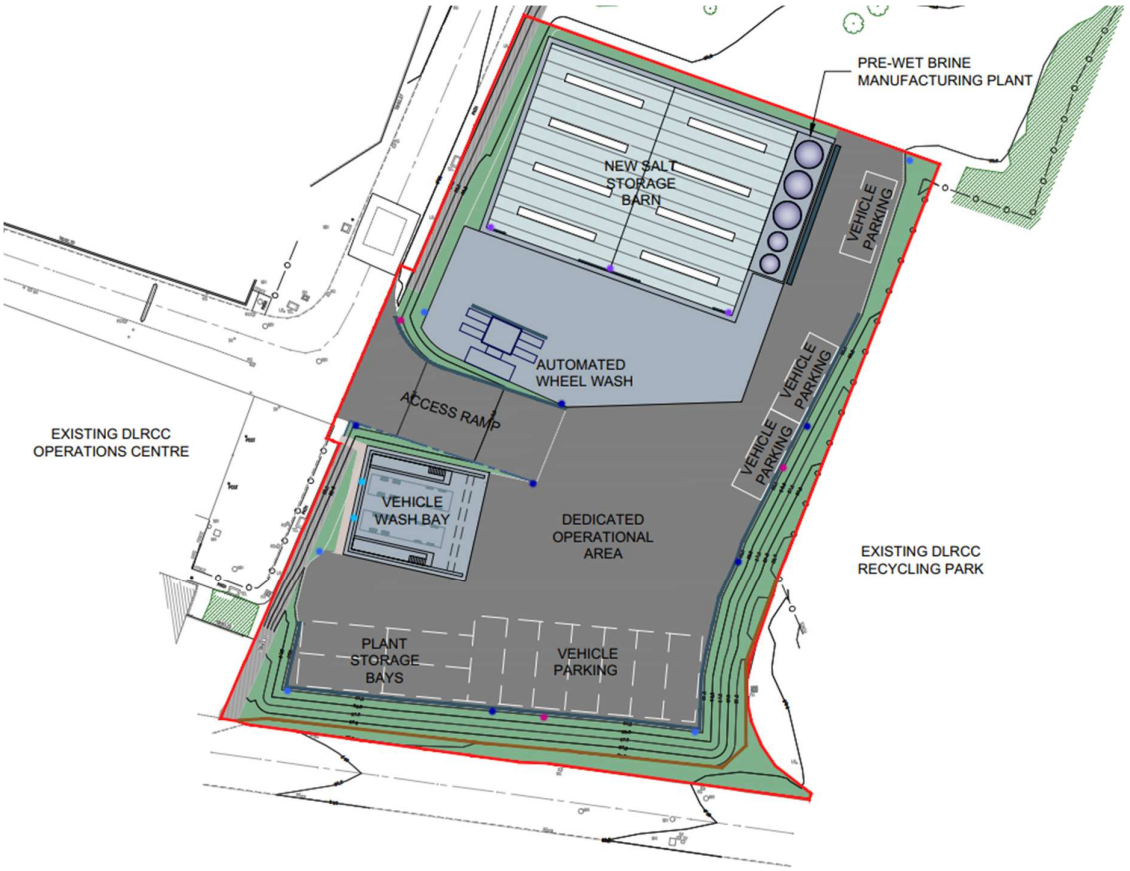


Figure 4-1: Proposed Road Maintenance Operations Layout

4.2 NEW SALT STORAGE BARN

The existing salt barn is undersized by a factor of two. In the context of a severe weather event, the capacity of the existing barn is in the region of 1,700 tonnes but a more appropriate capacity given the scale of the road maintenance operation would be in the region of 3,000 – 4,000 tonnes. A larger

capacity would allow the local authority to hold a contingency salt stock and better enable it to deal with prolonged cold spells and snow events which demand significant increases in salt usage.

The second issue with the existing salt barn relates to its design. The head height of the front door on the barn is much too low and as a result, trucks are unable to reverse into the barn to tip a load of salt. At present, trucks are forced to tip the rock salt on the pavement outside, resulting in double handling and increased costs and at the mercy of inclement weather.

A new salt barn on the proposed site would also ensure that the road operations are separate from the other activities at Ballyogan Operations Centre. This would achieve maximum efficiency of the operation and eliminate the risk of causing deterioration of other council vehicles due to salt contamination.

Moving the entire road maintenance operation to the proposed site and away from the domestic dwellings that are located adjacent to the depot would mean less night-time disruption to local residents.

Additional benefits also include rainwater harvesting from a new salt barn roof which will minimise operational cost and reduce freshwater usage.

4.3 PRE-WET BRINE MANUFACTURING

Significant environmental benefits arising from the reduction in the volume of salt being spread on the roads resulting in less environmental impact and less salt in the water table.

Significant financial benefits arising out of the reduction in the volume of salt being applied in given winter situations.

Reduction in salt haulage costs as frequency of salt delivery reduced, also contributing to reduction in the carbon footprint of the operation.

More efficient salting operation arising from the reduction in the spread of salt outside the target zone (carriageway lanes).

Greater operational efficiency as pre wet technologies will result in an increase in residual salt levels applied to the roads therefore leading to a reduction in treatment runs. More effective in severe weather and lower temperatures. Pre-wet can also be applied two days before snow and will still be effective.

5 NATURE & POTENTIAL EFFECTS

This section describes the nature and potential effects of the proposed development.

5.1 TRAFFIC

5.1.1 TRAFFIC OVERVIEW

The new Road Maintenance Operations Facility forms part of Dun Laoghaire Rathdown County Council's move away from using dry rock salt to the use of pre-wet (brine) salting technologies, as discussed in the attached Appendix A DLR Road Maintenance Business Case.

Dun Laoghaire Rathdown County Council currently treats 219km of road network using dry salt by deploying a fleet of 10Nr gritter trucks. As part of the transition to pre-wet salting the existing winter operations fleet are gradually being retrofitted to facilitate the use of brine (pre-wet operation), with the size of the operational fleet remaining unchanged.

The proposed pre-wet (brine) salting operations offers a number of traffic benefits over the traditional dry salt operations namely:

- Pre-wet salting of roads over traditional rock salting results in an increase in the residual salt levels therefore leading to a reduction in the total number of treatment runs per season i.e. reduced traffic.
- Pre-wet salting of roads over a traditional rock salting provides a more efficient salting operation arising from both the reduction in salt spread outside the target zone (road carriageways) and proven longevity on the road surface i.e. reduced salt usage and salt haulage requirements.

5.1.2 IMPACT ON TRAFFIC

Currently all road operational vehicle and delivery access to the Ballyogan Operations Centre is via the Red Entrance (Figure 5-1) directly off the Ballyogan Road. The new Road Operations Facility will be adjacent to the existing facility in the unused green field site that currently exists between the Ballyogan Operations Centre and the Ballyogan Recycling Facility; It is essentially an extension to the existing facility and all future road operational vehicle and delivery access will continue to use the Red Entrance directly off Ballyogan Road. As such, no changes to the interfaces with the public roads are proposed as part of the development.

Future site operations are predicted to generate vehicular traffic in the same range as current site operations. Due to there being no increase in the number of vehicle trips to and from the site it is not expected that there will be any additional vehicular noise, air pollution or other detrimental effect on the existing road network.

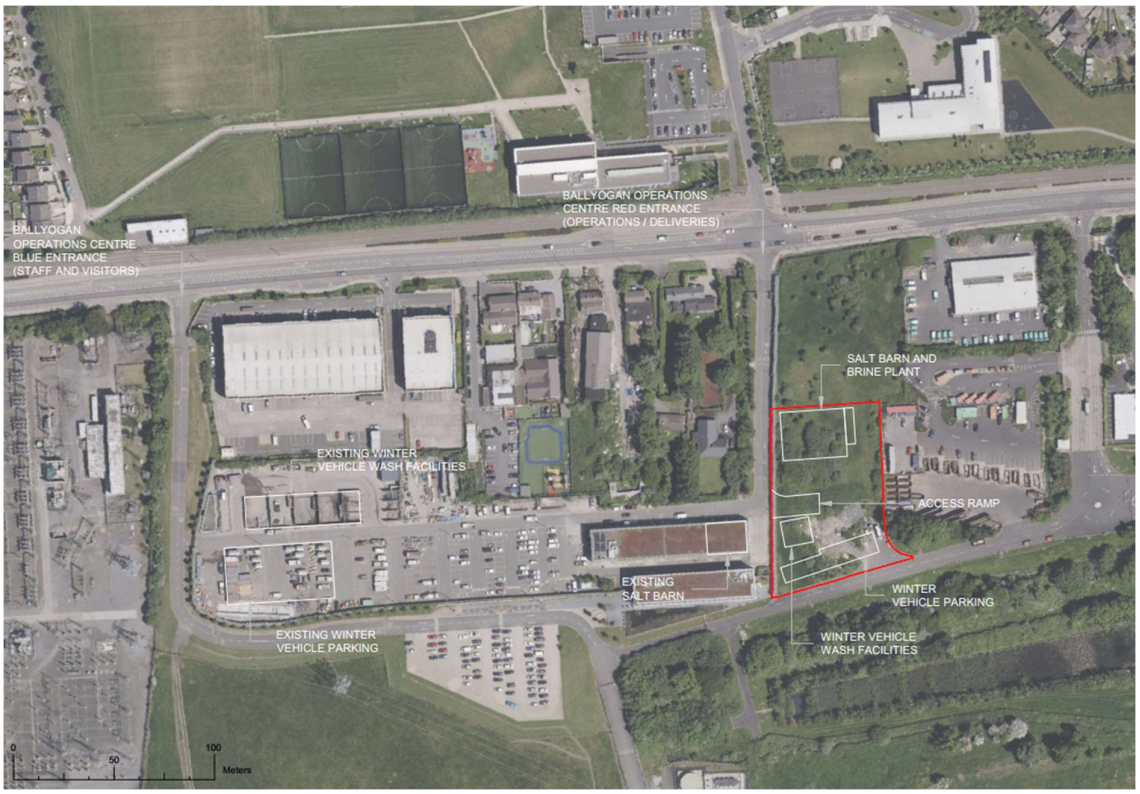


Figure 5-1: New Road Maintenance Operations Facility and Access

5.1.3 INTERNAL ROAD NETWORK

The proposed development collates the Road Maintenance Operations Facility to the east of the existing Ballyogan Operations Centre, with direct internal road access via a ramp off the existing Operations Centre operational / delivery vehicle access road via the Red Entrance.

The new location for the facility is inherently more efficient and safer with the road maintenance fleet parking, operational hardstanding, vehicle wash facilities, salt storage barn and brine manufacturing plant all located within the one self-contained area to the east of the existing Operations Centre.

The new facility eliminates the current situation of salt laden trucks and road maintenance vehicles having to traverse from the east to the west of the Operations Centre to access the existing vehicle parking and wash facilities, allowing immediate segregation of the road maintenance vehicles from other users of the internal road network and reducing the risk of deterioration of other vehicles due to salt contamination.

The new facility also negates the requirement for vehicles having to use the depot access route behind the domestic dwellings that are located in front of the Operations Centre, reducing any nighttime disruptions to local residents.

The new salt storage barn is designed to allow reverse access for articulated tipper vehicles to allow rock salt deliveries directly into the barn. At present the salt barn door height and restricted access for reversing forces rock salt deposits outside, resulting in operational staff having to manually double handle the salt into the salt barn with a loading shovel.

The brine manufacturing plant is located next to the salt barn with forward / reverse access for white salt deliveries and brine loading by articulated tanker vehicles.

All road maintenance operations are located to the north of the access ramp, with minimal requirement for operational pedestrian access within this area.

The surface of the salt storage barn, vehicle wash facilities, brine manufacturing plant and the automated vehicle wash facilities will be reinforced concrete hardstand.

To the south of the access ramp 12no spaces are provided for dedicated the road maintenance fleet including operational vehicles and storage of road maintenance equipment. All vehicle parking, storage and operational areas to be located on flexible hardstanding with controlled drainage and a discharge to surface water drainage network.

No dedicated parking bays are defined for articulated goods vehicles associated with the delivery and taking-away of rock or white salt; however, areas are reserved adjacent to the salt barn to allow vehicles to queue while waiting to load or unload.

Traffic movements within the facility will be delineated by markings and signs, which will be designed to minimise conflicting movements and provide clear unambiguous signals as to which movements have priority.

5.1.4 IMPACT ON PEDESTRIANS

The proposed development does not include for any staff or visitor parking, with the area intended for operational vehicle access only. Signage confirming operational vehicle access only will be provided at the start of the access ramp.

Operational pedestrian access to the site is via either concrete steps or down the access ramp with pedestrian access delineated by road markings and high viz bollards. The pedestrian access integrates with the existing operational pavements leading from both the Red Entrance and the Operations Centre Building.

Road markings will be used to delineate pedestrian routes throughout the new facility.

5.2 CONSTRUCTION

Standard best practice methods will be employed during construction to mitigate potential impacts from pollution on the environment. A full suite of measures to be implemented during the construction phase to avoid, reduce or minimise potential impacts on the receiving environment is included in the draft Construction Environmental Management Plan provided in support of this application.

5.3 ECOLOGY

The development will not impact on any Natura 2000 sites. The closest designated Natura 2000 site is 4.85km to the south, Knocksink Wood SAC. Section 7.1 gives an overview of the AA screening that also accompanies this report.

The Ecological Impact Assessment Report which accompanies the application describes the ecology of the site.

There are no habitats on Site that are listed in Annex 1 of the Habitats Directive, nor were there any plant species listed in the Flora (Protection) Order 2022 (S.I. No. 355/2022) observed during the Preliminary Ecology Assessment (PEA) Survey.

The Site does contain dense scrub, which is an important habitat for many plant, animal and insect species. Hedgerows on-site were not well established, and no treelines were recorded on the site.

This vegetation may provide habitats for mammals such as bats and birds. During the PEA Survey, evidence of deer (live sighting, droppings and footprints) and potential evidence of squirrel (food remains - broken hazelnuts, south of the Site) were recorded. A treeline habitat, located to the south of the site may be suitable for bats.

During the PEA Survey, three species of Medium Impact Invasive Species were observed by the ecologist within the Site; Winter Heliotrope, Butterfly-bush and Sycamore. These species are not listed in the Third Schedule; Part 1 Plants.

5.4 Built and Cultural Heritage

There is no Recorded Monument on the site. Recorded Monuments nearby include - Linear Earthworks to the south and a Recorded Monument enclosure to the west (built on).

No significant effects are predicted on the Recorded Monuments.

Archaeological excavations near to the site have shown the area has archaeological potential. The southern area of the site has been disturbed with the removal of topsoil and potentially impacting any archaeology present within this area.

The potential for archaeology within the site is considered low however the Pale Ditch is located to the south. The Pale Ditch is an important feature of the archaeology and heritage setting of the area.

The setting and screening of the proposed development has the opportunity to be sympathetic to the archaeological setting.

5.5 Overall Conclusions

It is expected that the proposed development will have some minor short-term negative impacts during construction but no longer-term impacts requiring mitigation are expected to arise.

An EIA screening was undertaken in respect of the Scheme – the EIA Screening Report forms part of the documentation supporting this planning application.

6 PRE-PART 8 CONSULTATIONS

Communication with the following Council departments we undertaken:

- Roads Maintenance Department
- Planning and Economic Development Department.
- Conservation Officer, Planning Department.
- Heritage Officer, Department of Community and Cultural Development.
- Water Services Department
- Drainage Planning Department.
- Environment and Climate Change Department

7 SCREENING REPORT

7.1 APPROPRIATE ASSESSMENT - STAGE 1 SCREENING

The Appropriate assessment screening was undertaken on the basis of the best scientific evidence available.

The report concludes that the proposed alterations to the proposed road maintenance depot, individually or in combination with another plan or project, will not have a significant effect on any European site. This conclusion was reached without considering or taking into account mitigation measures or measures intended to avoid or reduce any impact on European sites.

7.2 EIA SCREENING REPORT

The EIA Screening report concluded that an EIAR is not required for the proposed development.

It is considered that the proposed development will not have any significant impacts on the environment to warrant an EIAR. All recommended mitigation measures and standard practices will be employed throughout the construction and operation phase of the development to ensure that the proposed development will not create any significant impacts on the quality of the surrounding environment.

The potential construction impacts will be reduced to minimal with the implementation of standard construction practices.

Notwithstanding this, as part of any planning permission there will be a requirement to review and understand the biodiversity / ornithology of the site and archaeology and consult with stakeholders to agree mitigation measures and timing for construction activities.

9 PART 8 CONSULTATIONS

It is intended that details of the proposed scheme will be referred to the following in conjunction with the public advertising of the proposal.

9.1 COUNCILLORS

All sitting local elected representatives of the Dun Laoghaire Rathdown Local Authority area were notified of the application under Part 8 of the Planning and Development Act 2000, as amended.

9.2 PRESCRIBED BODIES

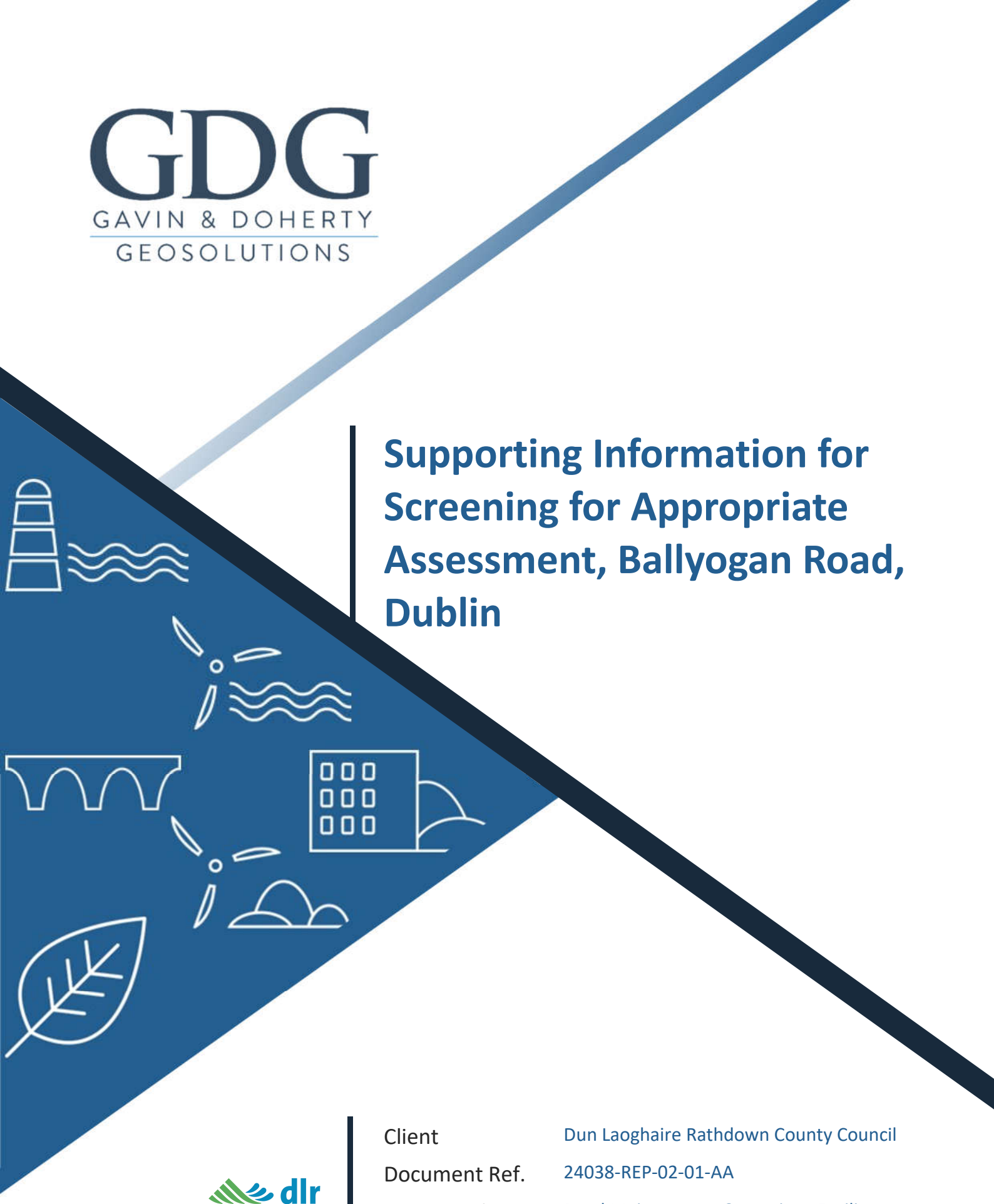
The following relevant prescribed bodies were notified under Article 82 of the Planning and Development Regulations 2001 (as amended).

Table 9-1: List of Prescribed Bodies for Consultation

	Prescribed Bodies
1	An Taisce
2	Heritage Council
3	Enterprise Ireland
4	Industrial Development Authority (IDA) Ireland
5	Minister for Arts, Heritage, Gaeltacht and the Islands.
6	Environmental Protection Agency

Appendix A – AA Screening Report

GDG
GAVIN & DOHERTY
GEOSOLUTIONS



Supporting Information for Screening for Appropriate Assessment, Ballyogan Road, Dublin

dlr
Comhairle Contae County Council

Client	Dun Laoghaire Rathdown County Council
Document Ref.	24038-REP-02-01-AA
Project Title	Road Maintenance Operations Facility
Date	08/07/2024

Project Title:	Road Maintenance Operations Facility
Report Title:	Supporting Information for Screening for Appropriate Assessment, Ballyogan Road, Dublin
Document Reference:	24038-REP-02-01-AA

Client:	Dun Laoghaire Rathdown County Council
Ultimate Client:	Dun Laoghaire Rathdown County Council
Confidentiality	Non Confidential

REVISION HISTORY

Rev	Date	Reason for Issue	Originator	Checker	Reviewer	Approver
00	02/04/2024	Draft Issue to Client	CM	MS	JOC	RD
01	08/07/2024	First Issue	CM	MS	JOC	RD

DISCLAIMER

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1 INTRODUCTION

1.1 OVERVIEW

Dún Laoghaire-Rathdown County Council (DLRCC) have appointed GDG to provide engineering consultancy services on a new project which involves constructing a new dedicated road maintenance operations area on a site adjacent to the existing Operations Centre, located at Ballyogan, Dublin 18. This AA screening report is part of a Part 8 Planning Application.

The overall project is to deliver a fully functioning & integrated new road maintenance operations area with vehicle parking, operational working areas, a road salt storage barn, a brine manufacturing facility, a rainwater harvesting tank, and dedicated washdown facilities for road maintenance vehicles.

1.2 AIM OF THE REPORT

This report includes information in support of Stage 1 of the Appropriate Assessment (Screening for Appropriate Assessment) process as required under the Habitats Directive (92/43/EEC).

This report aims to provide the necessary information to the competent authorities, to assist them in making an informed decision on the likely impact of the proposed works on Special Areas of Conservation (SACs) and their designated Annex I habitats and Annex II species Qualifying Interests (QIs) and Special Protection Areas (SPAs) and their designated Special Conservation Interest (SCI) species.

1.3 STRUCTURE OF THE REPORT

This report is structured into the following chapters to include information relating to the Appropriate Assessment (AA) process, proposed activities and potential impacts and the receiving environment, including relevant Natura 2000 sites and features. Specifically, the chapters of this report are as follows:

- Chapter 1 (this chapter): Introduction to the report and proposed activities
- Chapter 2: Habitats Directive (92/43/EEC) (outlines key aspects of the process)
- Chapter 3: Potential Environmental Impacts of proposed activities
- Chapter 4: Identification of relevant European Sites within Zone of Influence of works (using Source-Pathway-Receptor approach) and Assessment of Likely Significant Effects
- Chapter 5: Screening Statement Outcome

1.4 SCREENING AREA

The site under consideration for screening for Appropriate Assessment is located in Ballyogan, Dún Laoghaire-Rathdown, within an undeveloped area of land located between Ballyogan Recycling Park to the east and DLR Operations Centre to the west (Figure 1-1).

Figure 1-1 Location of the site ('Project boundary') under consideration for screening for Appropriate Assessment

1.5 RECEIVING ENVIRONMENT

The Ballyogan site lies west of Junction 15 on the M50, directly east of the Ballyogan Operations Centre. To the south of the site is the Ballyogan landfill, now closed and restored. Between the site and the closed landfill there is a raised line of trees along a slight embankment / rise. The Ballyogan Stream is located within the line of trees and flows to the east. East of the site is the Ballyogan Recycling Centre, and an An Post D18 Delivery Office. The nearest residential properties are adjacent to the private access road to the west. The Samuel Beckett Community Facility lies northwest of the proposed scheme.

The area of the site is approximately 4,944 m^2 (0.49 ha).

The site comprises rough grassland with areas of trees and hedges (northwestern corner). The southern area has an area of hardstanding and rough vegetation with storage of bins and evidence of waste materials.

1.6 DESCRIPTION OF THE PROPOSED DEVELOPMENT

The new operations facility will be reserved for road maintenance operations; the DLRCC road maintenance programme deals with severe weather conditions on public roads. The new road operations area will contain a new access road, salt barn, a brine batching facility, a rainwater harvesting tank (from salt barn roof), dedicated parking for road maintenance vehicles / equipment, an automated wheelwash, and dedicated washdown facilities for the road maintenance vehicles. A new access ramp to the new site will be from the private road off Ballyogan Road and concrete / asphalt hardstands will be required throughout the site. The site will be fully serviced with lighting, water, electricity grid connection and communications. The completion of this project will make DLRCC winter maintenance operations more efficient, effective and environmentally friendly.

Outline Design, followed by Detailed Design:

- Dedicated Road Maintenance Operational Fleet Parking
- Operational Hardstand, Site Access, and Drainage
- Operational Vehicle Wash Facilities
- Salt Storage Barn
- Brine Manufacturing Facility
- Associated M&E including utilities, public lighting, telemetry, fencing, lighting etc.

Vehicle wash facilities and an automated wheel wash form part of the new development. The Brine Manufacturing Plant will utilise a combination of harvested rainwater and mains supplied water. The road maintenance operation will be more efficient and sustainable than the existing dry salt system.

The collection and discharge of stormwater from the development will be via an oil interceptor and hydrobrake to the downstream storm sewer outfall.

Wastewater from the development, generated from operations including the salt storage barn, brine manufacturing plant, vehicle washing facilities and automated wheelwash, will be isolated and discharged to the on-site foul sewer network.

1.6.1 CONSTRUCTION

Construction activities associated with the proposed development are described in Table 1-1.

Table 1-1: Summary of construction activities

Activity	Description
Site Setup and mobilisation	Includes the set-up of on-site compound for plant, equipment, welfare, stores and materials management.
Earthworks and vegetation clearance	Removal of vegetation and excess topsoil. Earthworks cut and fill operations to achieve design profile.
Main construction	Foundations and hardstand areas (concrete and tarmacadam). Salt barn building construction. Vehicle wash bay construction. Automated wheelwash installation Drainage / surface water infrastructure. Utilities and services installation including lighting.

Activity	Description
	Brine Manufacturing Plant installation.

1.6.2 OPERATION

The operation of the winter maintenance depot will include the activities described inTable 1-2.

Table 1-2: Summary of operation activities

Activity	Description
Vehicle movements and parking	Both vehicle movement within and to the public roads from the site. The surface water drainage network will be fitted with hydrocarbon separators with silt chambers prior to discharge.
Vehicle wash plant	Run off from the wash plant will be separate from the surface water drainage network. Wastewater will be recycled, and surplus discharged to the local foul sewage network.
Salt brine manufacturing	This mixes white salt and water in a controlled plant that, when required, is transferred to vehicles for application to the local road network.
Salt storage	Storage of rock salt within enclosed barn, when required rock salt is transferred to vehicles for application to the local road network.
Ancillary activities, such as oil/chemical storage. Site lighting.	Oil/chemical storage will meet oil storage regulations.

2 HABITATS DIRECTIVE

2.1 OVERVIEW

The purpose of this report is to inform the AA process as required under the Habitats Directive (92/43/EEC). The AA Screening contained in Section 5 of this report will determine whether the proposed construction activities, both alone and in combination with other planned activities under the remit of this project and others, are likely to have a significant effect on any Natura 2000 site or its qualifying interests. This document includes Stage 1 of the Appropriate Assessment process.

This report has been prepared in accordance with the following guidance:

1 Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (Department of Environment, Heritage and Local Government, 2010 revision)
2 Appropriate Assessment under Article 6 of the Habitats Directive; Guidance for Planning Authorities. Circular NPW 1/10 and PSSP 2/10
3 Guidelines for Good Practice: Appropriate Assessment of Plans under Article 6(3) Habitats Directive (International Workshop on Assessment of Plans under the Habitats Directive, 2011)
4 Managing Natura 2000 Sites - The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (European Commission - 21 November 2018)
5 Office of the Planning Regulator – Practice Note 01 – PN01 AA Screening for Development Management (OPR, 2021).

2.2 LEGISLATIVE BACKGROUND

The Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna) adopted in 1992, transposed into Irish Law in 1997 and subsequently amended and consolidated aims to promote the maintenance of biodiversity, taking account of economic, social, cultural and regional requirements. It provides a framework for the legal protection to ensure the conservation of a wide range of rare, threatened, or endemic animal and plant species throughout the European Union. The Birds Directive (Conservation of Wild Birds Directive (79/409/EEC) aims to protect the 500 wild bird species naturally occurring in the European Union. The Habitats Directive, along with the Birds Directive forms the cornerstone of Europe's nature conservation policy. Together they form a coherent network of protected areas (Special Areas of Conservation and Special Protection Areas), called Natura 2000, safeguarded against potentially damaging developments.

The requirement for "Appropriate Assessment" is set out in Articles 6(3) and 6(4) of the Habitats Directive (92/43/EEC). If a project is likely to have a significant effect on a Natura 2000 site, either alone or in combination with other plans or projects, it must undergo an Appropriate Assessment (AA). According to Article 6(3) of the Habitats Directive:

"Any plan or project not directly connected with or necessary to the management of the site (Natura 2000 site) but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to Appropriate Assessment of its implications for the site in view of the site's conservation objectives."

In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only having ascertained that it will not adversely affect the integrity of the site concerned and if appropriate, after having obtained the opinion of the general public.

Article 6(4) states: "If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted. Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for environment or, further to an opinion from the Commission to other imperative reasons of overriding public interest.".

2.3 THE APPROPRIATE ASSESSMENT REPORT

The European Commission's methodological guidance (EC, 2021) promotes a three-stage process to complete an AA and outlines the issues and tests at each stage. An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required. The steps and procedures involved in completing each stage, as described in the guidance, are shown below (Figure 2-1).

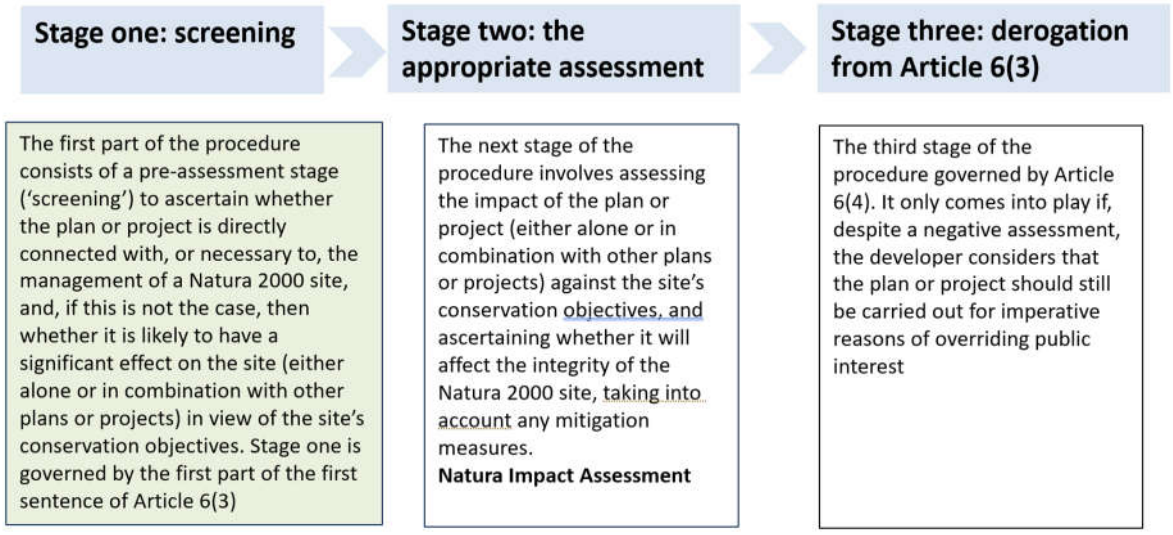


Figure 2-1: Stages in the AA process

Stage 1. Screening for Appropriate Assessment

Screening is the process that considers the first two tests of Article 6(3), namely:

i. whether a plan or project is directly connected to or necessary for the management of the site, and

ii. whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a Natura 2000 site in view of its conservation objectives.

If the effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2 (AA). Screening should be undertaken without the inclusion of mitigation, unless potential impacts clearly can be avoided through the modification or redesign of the plan or project, in which case the screening process is repeated on the altered plan. The greatest level of evidence and justification will be needed in circumstances when the process ends at screening stage on grounds of no impact.

Stage 2. Appropriate Assessment

This stage considers whether the plan or project, alone or in combination with other projects or plans, will have adverse effects on the integrity of a Natura 2000 site, and includes any mitigation measures necessary to avoid, reduce or offset negative effects. The proponent of the plan or project will be required to submit a Natura Impact Statement, i.e. the report of a targeted professional scientific examination of the plan or project and the relevant Natura 2000 sites, to identify and characterise any possible implications for the site in view of the site's conservation objectives, taking account of in combination effects. This should provide information to enable the competent authority to carry out the appropriate assessment. If the assessment is negative, i.e. adverse effects on the integrity of a site cannot be excluded, then the process must proceed to Stage 3, or the plan or project should be abandoned. The AA is carried out by the competent authority and is supported by the NIS.

Stage 3. Imperative Reasons of Overriding Public Interest (IROPI)/Derogation

Stage 3 is the main derogation process of Article 6 (4) which examines whether there are imperative reasons of overriding public interest (IROPI) for allowing a plan or project that will have adverse effects on the integrity of a Natura 2000 site to proceed in cases where it has been established that no less damaging alternative solution exists. The extra protection measures for Annex I priority habitats come into effect when making the IROPI case. Compensatory measures must be proposed and assessed. The Commission must be informed of the compensatory measures. Compensatory measures must be practical, implementable, likely to succeed, proportionate and enforceable, and they must be approved by the Minister for Housing, Planning and Local Government.

2.4 METHODOLOGY FOR THE PREPARATION OF THE REPORT

This document includes information to support Stage 1 Screening of the Appropriate Assessment process as detailed in Section 2.3 above and has been prepared in accordance with the guidance numbered 1 to 5 in the first paragraphs of Section 2.1 above.

As the proposed works are not directly connected to or necessary for the management of a Natura 2000 site, this document focuses on assessing whether the works, alone or in combination with other plans and projects, are likely to have significant effects on any Natura 2000 site in view of its conservation objectives.

This report has been informed by a review of the publicly available datasets and the available literature that allowed for the characterisation of the receiving environment and supported the identification and assessment of potential impacts and their significance. The sources of the information used are cited throughout the report and listed in the References section.

The examination, analysis and evaluation of the relevant information that supported the Appropriate Assessment process conducted and documented in this report followed the precautionary principle throughout.

The report methodology followed the steps below, corresponding to the chapters which constitute the structure of the report:

1. Description of the proposed project (see Chapter 1)
2. Description of legislative background, of the Appropriate Assessment process and Methodology for the preparation of the report (Chapter 2)
3. Identification and description of the potential direct and indirect effects on the Natura 2000 sites (see Chapter 3)
4. Identification of the relevant Natura 2000 sites and their Qualifying Interests (QIs), and their Stage 1 AA Screening against the identified potential impacts (see Chapters 4, and 5).

2.4.1 Evidence of technical Competence and Experience

This report has been completed by Charlotte Manwaring and Maggie Starr (BSc. (Hons) Marine Sciences).

Charlotte is a Senior Environmental Scientist with extensive experience as an environmental consultant, undertaking various multi-disciplinary projects within consulting engineering.

Maggie is a Marine Ecologist and Ornithologist with experience in terrestrial, aquatic and marine/coastal ecology and marine ornithology and is a trained Marine Mammal Observer (MMO). Her current work includes ecological and environmental desktop studies for terrestrial, aquatic and marine environments, specialised mammal surveys, ornithological surveys, map preparation, data collection, analyses, interpretation, and report writing.

This report has been checked and reviewed by Joey O'Connor (BSc. (Hons) Marine Science, MSc. Engineering in the Coastal Environment). Joey is a Marine Ecologist with coastal engineering expertise and extensive experience of offshore benthic survey and Marine Protected Area monitoring who has undertaken multiple environmental assessments under the Habitats Directive for GDG and as a statutory adviser to the UK government and its devolved administrations with the Joint Nature Conservation Committee.

3 POTENTIAL ENVIRONMENTAL IMPACTS OF THE PROPOSED WORKS

3.1 INTRODUCTION

The road maintenance operations facility includes the construction of a salt storage barn, brine manufacturing plant and operational vehicle wash facilities, vehicle access and vehicle parking. Both construction and operational activities have the potential to cause direct and indirect environmental impacts.

3.2 POTENTIAL IMPACTS DURING CONSTRUCTION

The potential for significant direct and indirect environmental impacts during construction identified for appraisal are set out in Table 3-1 and described below in section 4.3, given the activities proposed.

Table 3-1 Potential direct and indirect environmental impacts of activities identified for appraisal.

Potential Impact	Direct/Indirect
Habitat loss or alteration (for mammals and birds)	Direct
Noise and vibration disturbance	Direct
Spread of invasive plant species	Indirect
Potential pollution event	Indirect
Changes in water quality	Indirect

3.3 POTENTIAL IMPACTS DURING OPERATION

The potential for significant direct and indirect environmental impacts during operation identified for appraisal are set out in Table 3-1 and described below in section 4.3, given the activities proposed.

Table 3-2 Potential direct and indirect environmental impacts of activities identified for appraisal.

Potential Impact	Direct/Indirect
Habitat loss or alteration (for mammals and birds)	Direct
Noise and vibration disturbance	Direct
Potential pollution event	Indirect
Changes in water quality	Indirect

4 IDENTIFICATION OF RELEVANT NATURA 2000 SITES

4.1 OVERVIEW

This chapter outlines the criteria used for defining the Zone of Influence[1] relevant to the potential impacts of the proposed works, outlines how European Natura 2000 sites have been identified (i.e. using the Source-Pathway-Receptor model, OPR, 2021) and describes the sites which have been identified as having the potential to be affected by the proposed works. A European site is only at risk of likely significant effects where the Source-Pathway-Receptor link exists between the proposed development and the European site (OPR 2021). Potential connectivity is considered where there is overlap with the Planning Application Area and a Natura 2000 site (direct effects) or where a Natura 2000 site is within range of the effects of the proposed activity (indirect effects).

In determining the potential impacts from the proposed works, information was collated on the qualifying features, and known vulnerabilities and threats to site integrity arising from the proposed works pertaining to any potentially affected Natura 2000 sites. The European Natura 2000 site information is based on the most up-to-date data available from the National Parks and Wildlife Service (NPWS, www.npws.ie).

4.2 ZONE OF INFLUENCE

The Zone of Influence (ZoI) of a project should be evaluated on a case-by-case basis with reference to nature, size and location of the Proposed Project, the sensitivities of the ecological receptors, if there are hydrological links beyond the site boundaries, and the potential for in-combination effects (cumulative). The ZoI will vary for different ecological features depending on their sensitivity to an environmental change (CIEEM, 2016).

The Office of the Planning Regulator (OPR, Practice Note PN01, 2021) recommends the ZoI of a project should be considered using the Source-Pathway-Receptor model, stating:

"*A European site will only be at risk from likely significant effects where the Source-Pathway-Receptor link exists between the proposed development and the European site*". A proposed development can be screened out with confidence if no pathway exists between the source and receptor site. If no direct/indirect effect exists to the Special Conservation Interests (SCIs) or Qualifying Interests (QIs) of the designated SPA/SAC, respectively, from any impact resulting from the proposed development, during the screening process a likely significant effect can then also be ruled out.

The OPR Practice Note (2021) states that "*The zone of influence of a proposed development is the geographical area over which it could affect the receiving environment in a way that could have significant effects on the qualifying interests of a European site. This should be established on a case-by-case basis using the Source-Pathway-Receptor framework and not by arbitrary distances.*

NPWS guidance (DEHLG, 2009) states for certain projects the ZoI can be less than 100m and advises that this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project the sensitivities of the ecological receptors, and the potential for in-combination effects.

For this project, given the scale and nature of the proposed activities, and the location of the Site (i.e. within an urban area), the ZoI was determined through a review of the nature of the project, the

[1] The zone of influence (ZOI) of a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities. This has the potential to extend far beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries.

distances between the project and Natura 2000 Sites, the types of potential impacts/effects, and the SCIs and QIs of the Natura 2000 Sites.

4.3 DEFINING THE ZONE OF INFLUENCE OF THE WORKS

As described below, the source- pathway- receptor model has been used to define the ZoI for this assessment. The ZoI identifies the Natura 2000 sites that directly overlap with, or are hydrologically and/or ecologically linked to, the Site.

4.3.1 DIRECT OVERLAP

The site does not directly overlap with any Natura 2000 sites (Figure 4-1).

4.3.2 WATER CONNECTIVITY

The Ballyogan Stream, 30 m to the south of the proposed development across a small private road, flows in an easterly direction that joins the Carrickmines River, eventually merging with the Loughlinstown River. Loughlinstown River later merges with the Shanganagh River and eventually discharges to the Irish Sea. The water quality status is "good" (River Waterbody WFD Status 2016-2021).

There is potential connectivity between the Ballyogan Stream water course and the Proposed Site, however, the surface water drainage network will be fitted with hydrocarbon separators with silt chambers prior to discharge, run off from the wash plant will be separate from the surface water drainage network, and wastewater will be recycled, and surplus discharged to the local foul sewage network.

There are no Natura 2000 sites downstream of the Proposed Site that are directly connected hydrologically. Rockabill to Dalkey Island SAC is located offshore in the western Irish Sea, approximately 10km as the river flows from the Proposed Site. In the unlikely event contaminated surface run off water enters the Ballyogan Stream, any contaminants will be diluted within the network of streams adjoining Shanganagh River in Loughlinstown.

There is no potential connectivity via water courses to any Natura 2000 sites.

4.3.3 BIOLOGICAL CONNECTIVITY

Bird SCIs and mammal QIs of nearby Natura 2000 sites could move into the site during construction and/or operation activities. For this project, given the scale and nature of the proposed activities, that do not result in emissions to air or water or where such emissions are so low that any effect would not be appreciable, and the location of the Site (i.e. within an urban area), a precautionary range of 3 km has been used to identify Natura 2000 sites which support bird SCIs and mammal QIs that could move into the Site during construction and/or operation activities, however it is likely to be much less than this. Note while Wicklow Mountains SPA, located 5.85 km from the Site, is designated for the SCI species peregrine falcons (*Falco peregrinus*) and merlin (*Falco columbarius*), with both species capable of ranging further than 3 km from their colonies, the Proposed Development Site is considered to be

unsuitable as breeding and wintering grounds for merlin[2] and peregrine[3] and therefore not considered relevant justification for expanding the extent of the biological connectivity Zone of Influence.

The Site is bounded by urban areas to the east, north and west of the site. There are limited ecological corridors to the Site for species such as protected mammals. To the south of the Site is the Ballyogan landfill, now closed and restored, situated ~60m south across a private industrial road. Although the Ballyogan landfill has now recovered to a site with ecological value, the location of the Proposed Development is within a busy urban area (industrial/retail) with already existing visual and noise disturbances. Considering this, the ecological attributes of the site, the urban/industrial environment the Site is situated in, and accessibility to the Site for QIs and SCIs, the Site's ecological value (capability in supporting high biodiversity and important communities/assemblages) for QI and SCI species is assessed as low to moderately low ecological value.

[2] Merlin undergoes altitudinal migration, undertaking seasonal movements away from upland breeding and nesting locations (nests on the ground in upland blanket bogs and heath, mountains, woodlands and forestry plantations adjacent to moorland) to the coast during the wintering season, where there is an abundance of other birds as prey species. Merlin becomes more widely distributed during the wintering season, and during the breeding season the uncommon and elusive merlin are more concentrated in the west of Ireland, with scattered populations in the midlands with high numbers in the Wicklow Mountains (BirdWatch Ireland, online – species information).

[3] Coastal breeding sites for peregrines are typically located on the south, west and north coasts of Ireland, as the east coast is limited by the availability of suitable nesting cliffs. Inland peregrines can be found breeding at lower levels; however, most peregrines breed on mountain cliffs. During the wintering season, peregrines exhibit some movement away from their breeding grounds, migrating to other coastal locations, especially estuarine environments where they hunt on concentrations of waterbirds (BirdWatch Ireland, online website – species information).

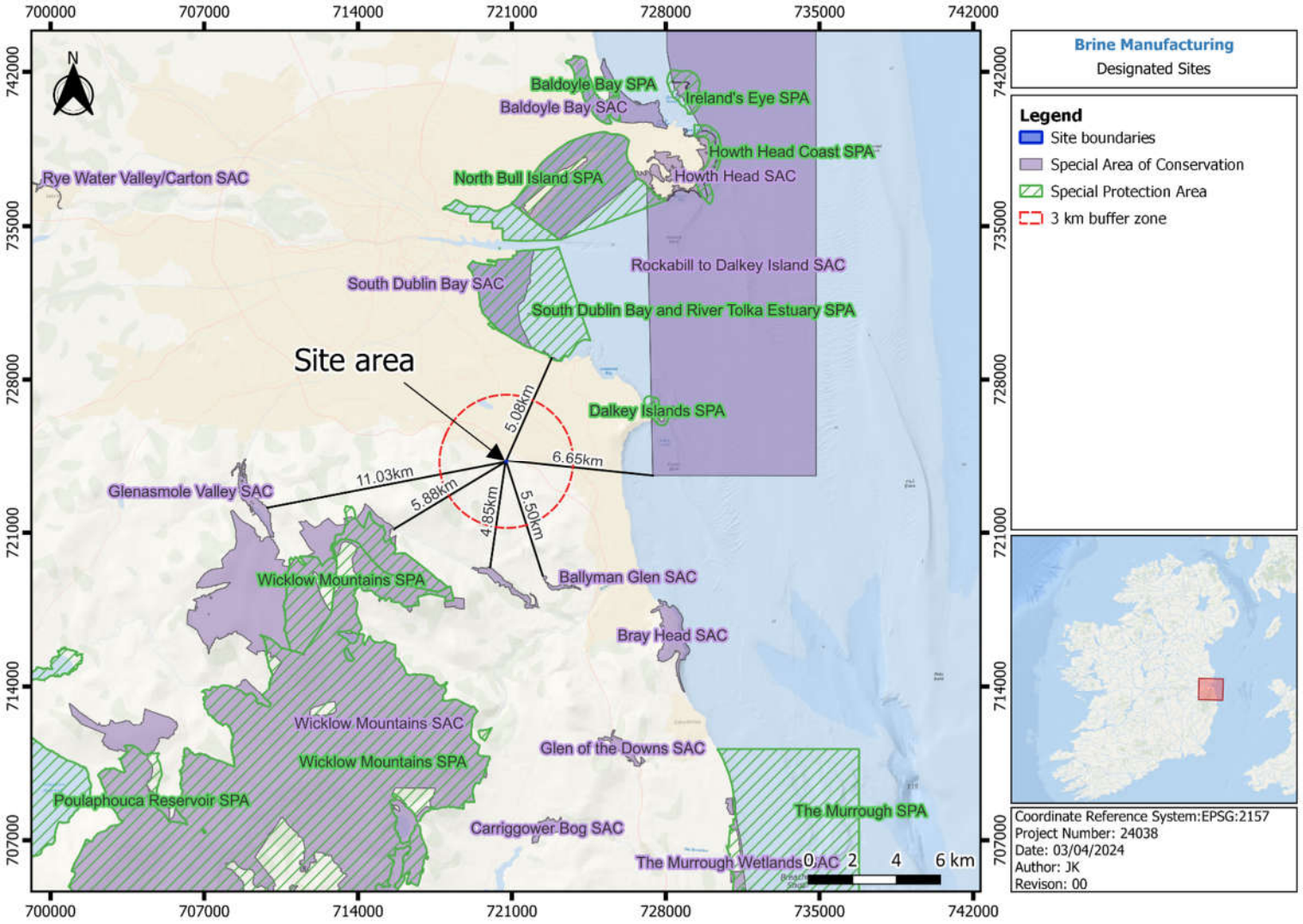


Figure 4-1 Location of the Natura 2000 under consideration for Appropriate Assessment.

4.4 IDENTIFICATION OF RELEVANT NATURA 2000 SITES USING SOURCE-PATHWAY-RECEPTOR MODEL AND COMPILATION OF INFORMATION QUALIFYING INTERESTS AND CONSERVATION OBJECTIVES

A Source-Pathway-Receptor (SPR) model has been used to identify the existence and characteristics of the pathways that could link these European sites in the ZOI of the Proposed Site, and their qualifying interests to the proposed works, as outlined in OPR Practice Note 01: PN01 (2021).

It should be noted that distance measurements are from the site to the nearest boundary of the Natura 2000 site and are also direct straight-line measurements "as the crow flies".

Full European site and feature background information has not been reproduced from the NPWS website as PN01 states "short paraphrasing and/or cross reference to NPWS is acceptable – it is not necessary to reproduce the full text on the QI/SC"; instead, the relevant information has been paraphrased with NPWS resources referenced as appropriate**.**

4.4.1 RELEVANT NATURA 2000 SITES AND SOURCE-PATHWAY-RECEPTOR CONNECTION IDENTIFICATION

There are no Natura 2000 sites within the Zone of Influence of this project.

4.5 SCREENING FOR LIKELY SIGNIFICANT EFFECTS

4.5.1 OVERVIEW

No Natura 2000 sites were identified within the 3km ZoI in Section 4.4 for consideration for screening.

4.5.2 IN-COMBINATION EFFECTS

Existing planning applications for the area were reviewed (Dun Laoghaire-Rathdown Planning Search & EIA Portal). There are no recent planning applications adjacent to the proposed development or in the nearby area. Wider planning applications are minor in nature.

It is understood from the Council that Phase 2 of the Samuel Beckett development is considered for planning and Part 8 documents have been prepared. The development is for swimming pool and leisure facilities.

No in-combination effects anticipated.

4.5.3 SUMMARY OF SCREENING

No Natura 2000 sites are located within the ZoI of the project, and as such no Natura 2000 site was identified for screening (i.e. no Natura 2000 sites were identified with the potential to be impacted upon by the Proposed Development).

5 SCREENING STATEMENT / CONCLUSION

This assessment was undertaken on the basis of the best scientific evidence available.

This report concludes that the proposed alterations to the proposed winter maintenance depot, individually or in combination with another plan or project, will not have a significant effect on any European sites. This conclusion was reached without considering or taking into account mitigation measures or measures intended to avoid or reduce any impact on European sites.

GLOBAL PROJECT REACH

Offices

Dublin (Head Office)
Gavin & Doherty Geosolutions
Unit A2, Nutgrove Office Park
Rathfarnham
Dublin 14, D14 X627
Phone: +353 1 207 1000

Belfast
Gavin & Doherty Geosolutions (UK) Limited
Scottish Provident Building
7 Donegall Square West
Belfast, BT1 6JH

Edinburgh
Gavin & Doherty Geosolutions (UK) Limited
21 Young Street
Edinburgh
Scotland, EH2 4HU

Rhode Island
Gavin & Doherty Geosolutions Inc.
225 Dyer St, 2nd Floor
Providence, RI 02903
USA

Bath
Gavin & Doherty Geosolutions (UK) Limited
The Guild High Street, Bath
Somerset
BA1 5EB

Cork
Gavin & Doherty Geosolutions
Unit 4E, Northpoint House,
North Point Business Park
Cork, T23 AT2P

London
Gavin & Doherty Geosolutions (UK) Limited
85 Great Portland Street, First Floor
London
W1W 7LT

Utrecht
Gavin & Doherty Geosolutions
WTC Utrecht, Stadsplateau 7
3521 AZ Utrecht
The Netherlands

Website: www.gdgeo.com
Email: info@gdgeo.com

Appendix B – AA DETERMINATION

Dún Laoghaire-Rathdown
County Council Comhairle Contae
Dhún Laoghaire-Ráth an Dúin

County Hall, Dún Laoghaire, Co. Dublin, Ireland
Halla an Chontae, Dún Laoghaire, Co. Átha Cliath, Éire
Tel: 01 205 4700 Fax: 01 280 6969 corp@dlrcoco.ie www.dlrcoco.ie

ICC - Road Maintenance Section,
Dun Laoghaire Rathdown County Council
Marine Road, Dún Laoghaire, Co. Dublin
Tel: 01 205 4700
rmulhall@dlrcoco.ie

APPENDIX B

Appropriate Assessment Screening Determination under the European Communities (Birds and Natural Habitats)

Dún Laoghaire-Rathdown County Council is proposing to develop a new fully functioning & integrated road operations facility with vehicle parking, operational working areas, a road salt storage barn, a brine manufacturing facility, a rainwater harvesting tank, and dedicated washdown facilities for road maintenance vehicles.

The project consists of: -

- Construction of an operational hardstanding area
- Construction of a dry salt storage barn
- Installation of a rainwater harvesting tank (from salt barn roof)
- Installation of a brine manufacturing facility with associated salt and brine storage tanks
- Construction of operational vehicle washdown facilities including installation of an automated wheelwash
- Associated operational site access and vehicle parking facilities
- Installation of utilities, CCTV, public lighting, fencing, and drainage systems

The total area of the proposed development is 0.49ha.

Having regard to the Habitats Directive (92/43/EEC) and the Birds Directive (2009/147/EC), the Council determines that the proposal does not need to be subject to a Stage Two Appropriate Assessment (Natura Impact Statement).

It is considered that the Appropriate Assessment (AA) Screening Report prepared by Gavin & Doherty Geosolutions Ltd gives full consideration to the Directives.

Through an assessment of the pathways for effects and an evaluation of the project characteristics, taking account of the processes involved and the distance of separation from European sites, it has been evaluated that there are no likely significant adverse effects on the Qualifying Interests, Special Conservation Interests or the Conservation Objectives of any designated European site.

Dún Laoghaire-Rathdown
County Council Comhairle Contae
Dhún Laoghaire-Ráth an Dúin

County Hall, Dún Laoghaire, Co. Dublin, Ireland
Halla an Chontae, Dún Laoghaire, Co. Átha Cliath, Éire
Tel: 01 205 4700 Fax: 01 280 6969 corp@dlrcoco.ie www.dlrcoco.ie

Given the nature and scale of the proposed work and the localised and temporary nature of the potential effects, the proposed development will not lead to significant in-combination effects with any other plans or projects.

This evaluation is made in view of the Conservation Objectives of the habitats and species for which the sites have been designated.

Signature _____

Signatory (Approved Officer) _____

Date 10/09/24

[1]Except as provided for in Article 6(4) of the Habitats Directive, viz. There must be:

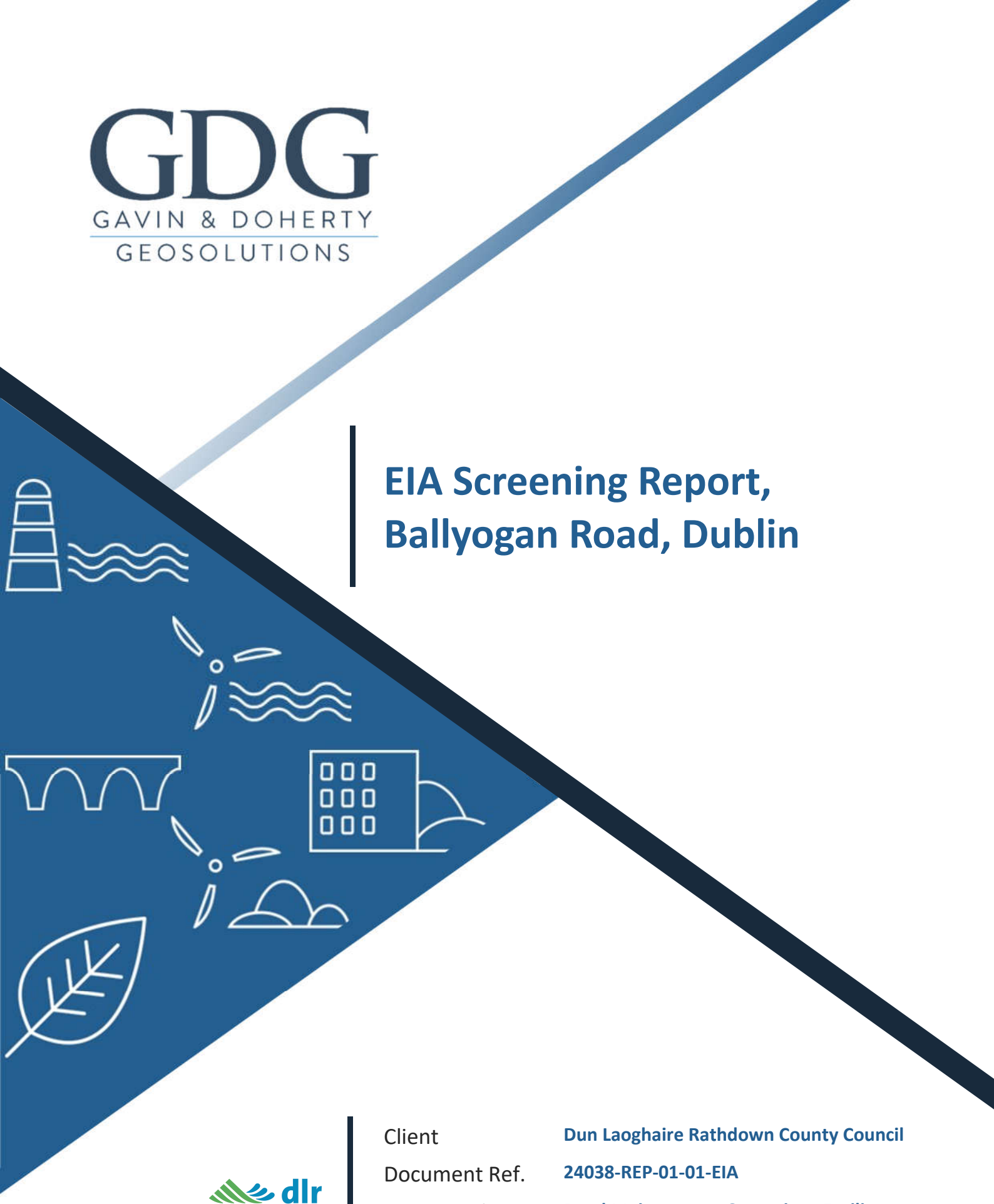
a) No alternative solution available,

b) Imperative reasons of overriding public interest for the plan to proceed; and

c) Adequate compensatory measures in place.

Appendix C - EIA SCREENING REPORT

GDG
GAVIN & DOHERTY
GEOSOLUTIONS



EIA Screening Report, Ballyogan Road, Dublin

dlr
Comhairle Contae County Council

Client	**Dun Laoghaire Rathdown County Council**
Document Ref.	**24038-REP-01-01-EIA**
Project Title	**Road Maintenance Operations Facility**
Date	**08/07/2024**

Project Title:	Road Maintenance Operations Facility
Report Title:	EIA Screening Report, Ballyogan Road, Dublin
Document Reference:	24038-REP-01-01-EIA

Client:	Dun Laoghaire Rathdown County Council
Ultimate Client:	Dun Laoghaire Rathdown County Council
Confidentiality	Non Confidential

REVISION HISTORY

Rev	Date	Reason for Issue	Originator	Checker	Reviewer	Approver
00	09/04/2024	Draft Issue to Client	CM	RD	JD	JD
01	08/07/2024	First Issue	CM	RD	JD	JD

DISCLAIMER

REVISION SUMMARY

Rev	Date	Section(s)	Detail of Change
	[Selec]	[Section]	[Enter details]

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1 INTRODUCTION

Dún Laoghaire-Rathdown County Council has appointed GDG to provide engineering consultancy services on a new project which involves constructing a new road maintenance operations facility on a site adjacent to the existing Operations Centre, located at Ballyogan, Dublin 18. This EIA screening report is part of a Part 8 Planning Application.

The question of whether EIA is required arises only in relation to projects which come within the scope of one or more of the project classes listed in Annex I or Annex II of the EIA Directive 2011/92/EU and/or the corresponding classes of project listed in Schedule 5, Parts 1 and 2, of the Planning and Development Regulations 2001, as amended.

The report initially describes the proposed site and its environmental setting (Section 2). The proposed development is outlined in Section 3. Section 4 describes the EIA Screening and consideration of the potential environmental effects associated with the proposed development. Section 5 concludes this EIA screening report.

The overall project is to deliver a fully functioning & integrated new road operations facility with vehicle parking, operational working areas, a road salt storage barn, a brine manufacturing facility, a rainwater harvesting tank, and dedicated washdown facilities for road maintenance vehicles.

2 SITE DESCRIPTION AND ENVIRONMENTAL SETTING

2.1 INTRODUCTION

The proposed development (the site) is within an undeveloped area of land located between the DLR Ballyogan Recycling Park to the east and DLR Operations Centre to the west (Figure 2-1).

This EIA Screening report has considered the area shown in Figure 2-1 where the Council wishes to locate its new road maintenance operations facility. The site is bound on its easter side by the Ballyogan Recycling Park.

Figure 2-1 Site location (red outline boundary) and surrounds.

2.2 SITE DESCRIPTION AND SURROUNDINGS

The Ballyogan site lies west of Junction 15 on the M50. The DLRCC Ballyogan Operations Centre lies directly west of the proposed area. To the south of the site is the Ballyogan landfill, now closed and remediated. Between the site and the closed landfill there is a raised line of trees along a slight embankment / rise. The Ballyogan Stream is located within the treeline and flows to the east. East of the site is the Ballyogan Recycling Centre, and a Post Delivery Office. The nearest residential properties are adjacent to the private access road to the west. The Samuel Beckett Community Facility lies northwest of the proposed scheme.

The area of development is anticipated to be 4944m^2 (0.49ha). This will be located within the EIA report area (Figure 2-1**Error! Reference source not found.** and Figure 2-2).

The site comprises rough grassland with areas of trees and hedges (western area). The southern area has an area of hardstanding and rough vegetation with storage of bins and evidence of waste materials. Current access to the site is along the southern boundary.

Figure 2-2: Site Aerial View

2.3 GROUND CONDITIONS

The underlying ground conditions are anticipated to consist of:

- Topsoil, overlying
- Localised Made Ground, overlying
- Medium to very high strength sandy gravelly clay with cobbles (likely glacial deposits), With interbedded clayey gravel or sand (it should be noted that blowing sands and gravels may be a drilling risk on-site), overlying

- Caledonian Granite.

The ground condition will be verified in advance of construction by ground investigation works.

2.4 WATER ENVIRONMENT

The closest surface water feature is approximately 30m to the south, the Ballyogan Stream. The water quality status is "good" (River Waterbody WFD Status 2016-2021). The stream flows towards the east, joining the Carrickmines River, eventually merging with the Loughlinstown River that joins the Shanganagh River that discharges into the Irish Sea, approximately 6.5km as the river flows to the east.

CFRAM River Flood information is shown in Figure 2-3. The site is located within a low probability area.

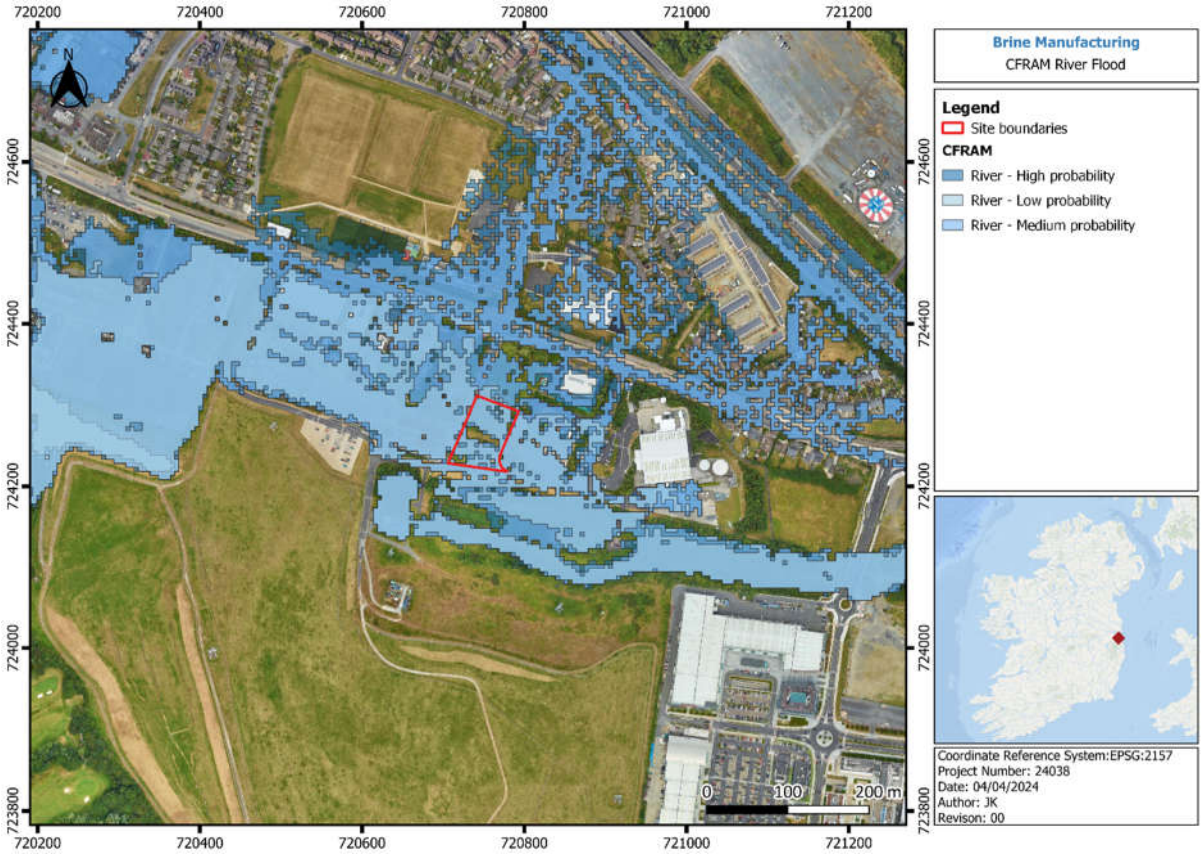


Figure 2-3: Map depicting the CFRAM River Flood of the Site and surrounding area.

2.5 BIODIVERSITY AND NATURAL ENVIRONMENT

An AA Screening report was prepared alongside this EIA Screening Report. A 3km Zone of Influence was used in the screening, given the small scale of this proposed project. The closest designated Natura 2000 site is located 4.85km to the south, Knocksink Wood SAC, situated outside the ZoI for this project. Designated sites are shown in Figure 2-4.

A Preliminary Ecological Survey Report (PEAR) was also prepared by GDG and included within the Part 8 Planning report. The habitats present on the site as described by habitat classification and code, as per Fossitt (2000) includes:

Table 2.1 Habitats recorded within the Survey Area

Habitat Name	Habitat Code (as per Fossitt, 2000)
Scrub	WS1
Treelines	WL2
Hedgerows	
Recolonising Bare Ground	ED3
Stone Walls and other Stonework	BL1
Buildings and Artificial Surfaces	(BL3)
Earth Banks	BL2
Wet Grassland	GS4

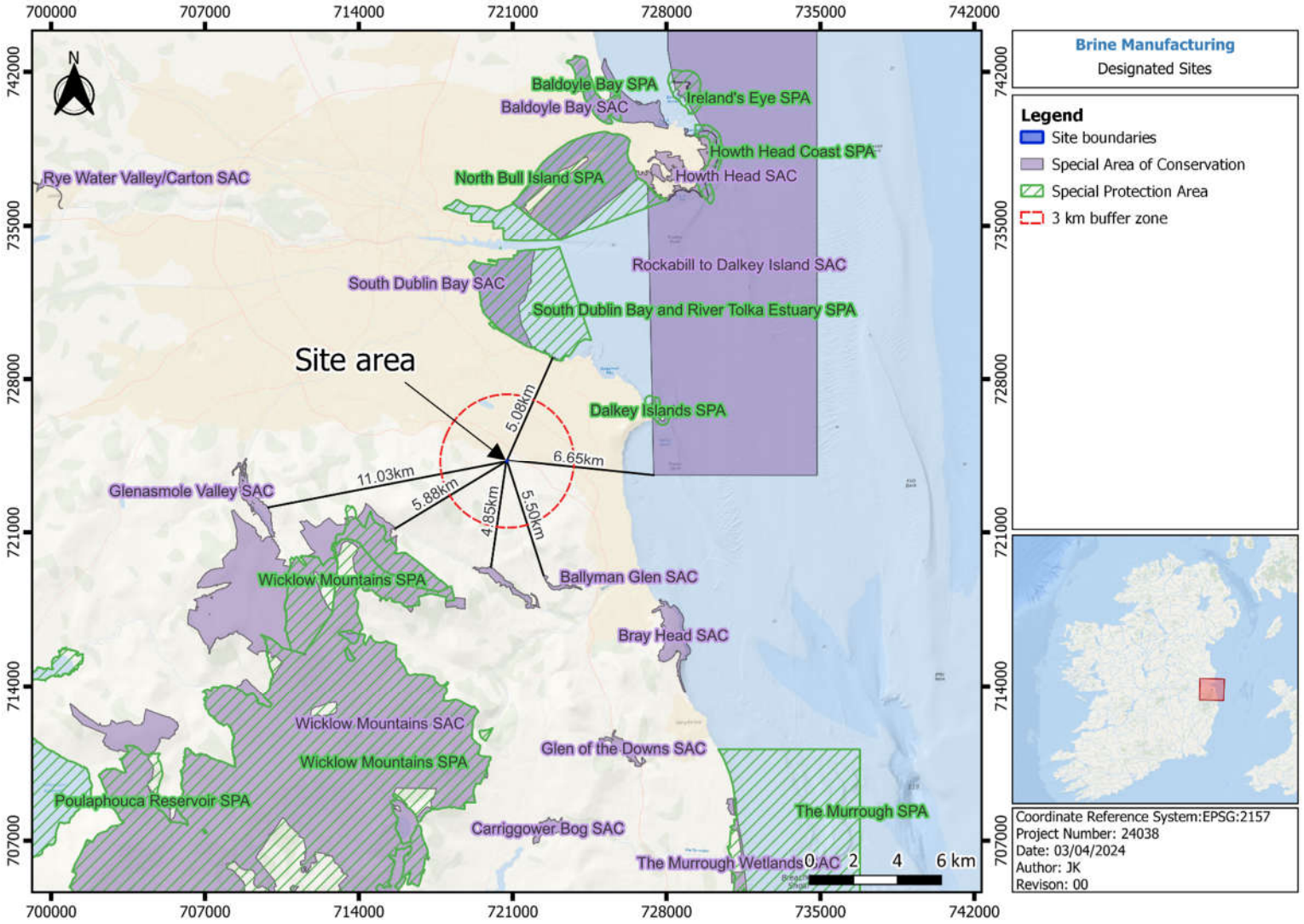


Figure 2-4 Designated sites in the surrounding area of the proposed site.

2.6 ARCHAEOLOGY AND CULTURAL HERITAGE

The outline desk study review has included a review of the following and gives an overview of the archaeological setting of the proposed development:

- National Monument Service https://heritagedata.maps.arcgis.com/apps/webappviewer/index.html?id=0c9eb9575b544081b0d296436d8f60f8
- Dublin County Heritage https://www.heritagemaps.ie/WebApps/DublinCountyHeritage/index.html
- Sites and Monuments Record (SMR) / Archive files of the Archaeological Survey of Ireland – www.archaeology.ie
- Excavations – Summary Accounts of Archaeological Excavations in Ireland – www.excavations.ie
- National Inventory of Architectural Heritage – www.buildingsofireland.ie
- Historic O.S. Map series – www.osi.ie
- County Development Plan

2.6.1 NATIONAL MONUMENT SERVICE

Table 2-2 below summarises the two Sites and Monuments Records (SMR) closest to the proposed development and shown in Figure 2-5.

Table 2-2: Sites and Monuments Records

ID	Monument	Location	Description
DUO26-115	Linear earthwork	South of the sites running approximately west - east	Linear earthwork identified that may be part of the Pale Ditch. It runs on a line between Carrickmines Castle (DU026-005---) and Kilgobbin castle (DU025-017001-). It comprises a high, flat-topped bank (H 2.50m, Wth 2-3m) with contiguous ditches on both sides. The ditch on the northern side (Wth 2.4m, D 0.40m) is shallower than that on the southern side (Wth.3m, D 1m).
DU026-001	Enclosure: Jamestown	Located west of the site	This enclosure site is located in an urban area, to the south of the Ballyogan Road. The site was marked as a tree ring on the 1843 OS 6-inch map. (diam. c. 22m). The site has been built on and is not visible at ground level

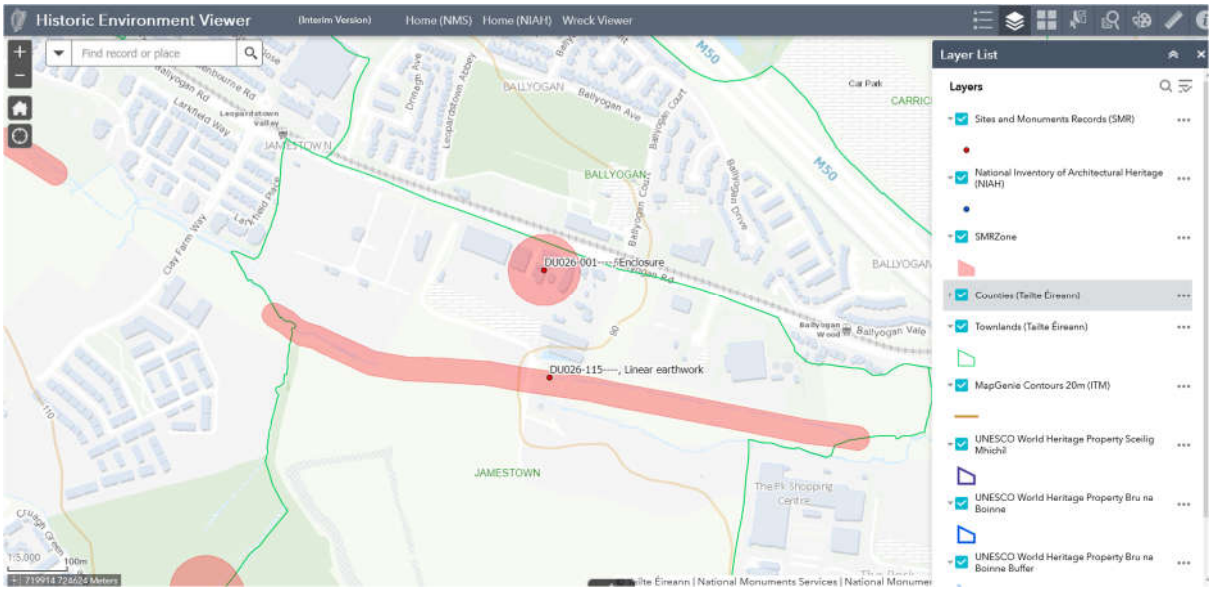


Figure 2-5: Sites and Monument Records within the Surrounds

2.6.2 NATIONAL INVENTORY OF ARCHAEOLOGICAL HERITAGE

There is no National Inventory of Archaeological heritage within the site boundary or in close proximity to the site (within 0.5km).

2.6.3 HISTORICAL MAPS

OS Maps 6 inch and 25-inch 1st edition 1837- 1842 (black and white and colour versions) were reviewed along with OS 6 inch 2nd edition 1888-1913 maps. Aerial photographs were also viewed. The site is shown to be part of open fields in all the historical OS maps. The aerial photographs dated 1996 and 2001 also show the site as part of a field. The 1996 aerial photo shows the landfill site to the south. The 2001 edition adds to this and illustrates the adjacent development to the east and wider development including the M50 motorway.

The google earth 2009 image illustrates an area of made ground in the southern part of the site and a number of bins and other man-made items and construction materials. Vegetation on the remainder of the site remains rough grassland.

2.6.4 ARCHAEOLOGICAL EXCAVATIONS IN IRELAND

Archaeological Excavations Ireland database was reviewed and there were three nearby excavations identified and these are summarised in Table 2-3.

Table 2-3: Archaeological Excavations

Site Name / reference	Overview	
Murphystown (Site 6) 2000:0330	Proposed routeway of the South-Eastern Motorway and is to the south-west of Leopardstown racecourse. Topographical survey had revealed a series of cultivation ridges, which were investigated by hand prior to the stripping of soil for the new roadway. The subsequent investigations revealed that the cultivation ridges were post-medieval in date. No	https://excavations.ie/report/2000/Dublin/0005153/

Site Name / reference	Overview	
	archaeological features or stratigraphy were revealed. A series of post-medieval drains were discovered during the period of investigations.	
Carrickmines Great (Site 58) 2002:0482	This site was discovered during monitoring of the South-Eastern Motorway. Three possible features were identified when the site was cleaned back. The first, a linear feature, proved to be a modern drain for a water pipe; the second proved to be a stone socket; and the third was an irregularly shaped pit measuring 1.07m by 0.9m by 0.18m deep	https://excavations.ie/report/2002/Dublin/0007799/
Ballyogan Recycling Park Jamestown, 2001:434	The site is located on land due to be developed as part of the development of Ballyogan Recycling Park. The Pale Ditch itself appears as a wooded bank flanked by a double ditch running some 55m east–west in a straight line.	https://excavations.ie/report/2001/Dublin/0006372/

2.6.5 County Development Plan

The green strip of land (026-115 on Figure 2-6 below) highlighted to the south of the proposed site location is designated as an Architectural feature in the County Development Plan 2022-2028.

Figure 2-6: Extract from County Development Plan

The linear earthwork is considered part of the Pale Ditch. It is located on a valley floor at the foot of the Dublin Mountains. It runs on a line between Carrickmines Castle (DU026-005---) and Kilgobbin castle (DU025-017001-).

The County Development Plan describes these defences as "*Both these castles formed part of the Pale defences; a series of strategic fortifications intended to form the boundary of the area around Dublin under the control of the Crown. The Pale boundary was defined by these strategic fortifications and also by stretches of palisaded earthen ramparts and ditches known as the 'Pale Ditch'. Surviving sections of the 'Pale Ditch' (RMP Nos. 026-115 & 026-087) run parallel to Ballyogan Road and it is believed that it was dug by the Walsh family to connect their castles at Kilgobbin and Carrickmines, which were some three kilometres apart. It is believed that the Pale Ditch was not constructed as a continuous structure, but rather as a 'line on the map' that was implemented sporadically by individual landowners.*"

3 DESCRIPTION OF THE PROPOSED DEVELOPMENT

The new operations facility will be reserved for road maintenance operations; the DLRCC road maintenance programme deals with severe weather conditions on public roads. The new road operations area will contain a new access road, salt barn, a brine batching facility, a rainwater harvesting tank (from salt barn roof), dedicated parking for road maintenance vehicles / equipment, an automated wheelwash, and dedicated washdown facilities for the road maintenance vehicles. A new access ramp to the new site will be from the private road off Ballyogan Road and concrete / asphalt hardstands will be required throughout the site. The site will be fully serviced with lighting, water, electricity grid connection and communications. The completion of this project will make DLRCC winter maintenance operations more efficient, effective and environmentally friendly.

Outline Design, followed by Detailed Design:

- Dedicated Road Maintenance Operational Fleet Parking
- Operational Hardstand, Site Access, and Drainage
- Operational Vehicle Wash Facilities
- Salt Storage Barn
- Brine Manufacturing Facility
- Associated M&E including utilities, public lighting, telemetry, fencing, lighting etc.

Vehicle wash facilities and an automated wheel wash form part of the new development. The Brine Manufacturing Plant will utilise a combination of harvested rainwater and mains supplied water. The road maintenance operation will be more efficient and sustainable than the existing dry salt system.

The collection and discharge of stormwater from the development will be via an oil interceptor and hydrobrake to the downstream storm sewer outfall.

Wastewater from the development, generated from operations including the salt storage barn, brine manufacturing plant, vehicle washing facilities and automated wheelwash, will be isolated and discharged to the on-site foul sewer network.

4 ENVIRONMENT IMPACT ASSESSMENT

4.1 OVERVIEW

The purpose of the Council Directive 2011/92/EU as amended by Directive 2014/52/EU on the assessment of effects of certain public and private projects on the environment (Environmental Impact Assessment (EIA) Directive) is to ensure that, in considering whether to grant consents for developments that are likely to have significant environmental effects, the consenting authorities have all the necessary environmental information on which to base their decision.

EIA is an iterative tool for examining and assessing the impacts and effects of the construction, operation, and decommissioning stages of a development on the environment. The purpose of an EIA is to carry out an independent assessment of the 'likely significant effects' of a project, both adverse and beneficial. It is a systematic and evidence-based process.

Screening is the first stage of the EIA process, whereby a decision is made on whether an EIA is required. The decision-making process then proceeds by examining the relevant legislation which transposes Annexes I and II of the Directive.

Annex I projects listed in Schedule 5 part 1 developments always require an EIA; and

Annex II projects listed in Schedule 5 part 2 developments requires EIA if it is likely to have significant effects on the environment by virtue of factors such as is size, nature or location.

Where a project is of a specified type but does not meet, or exceed the applicable threshold then the likelihood of the project having significant effects on the environment needs to be considered. This is done by reference to the criteria specified in Annex III of the Directive.

4.2 EIA SCREENING

4.2.1 PART 1 & PART 2 EIA THRESHOLD DEVELOPMENTS

The proposed development does not correspond to any Annex I development as described in Schedule 5, Part 1, therefore a mandatory EIA is not required.

Schedule 5 Part 2 identifies the following infrastructure projects and thresholds that are of relevance to the proposed development:

> *"10. Infrastructure projects*
> *(a) Industrial estate development projects, where the area would exceed 15 hectares."*
> or
> *(b) (iv) Urban development which would involve an area greater than 2 hectares in the case of a business district, 10 hectares in the case of other parts of a built-up area and 20 hectares elsewhere. (In this paragraph, "business district" means a district within a city or town in which the predominant land use is retail or commercial use.)"*

The proposed project does not fall under the description of either industrial estate development project or urban development. In addition, the 0.49 ha proposed development is below the applicable threshold.

Within Schedule 5 Part 2 there is also section 13 which considers –

> *"13 Changes, extensions, development and testing".*
> *(a) Any change or extension of development already authorised, executed or in the process of being executed (not being a change or extension referred to in Part 1) which would:-*

(i) result in the development being of a class listed in Part 1 or paragraphs 1 to 12 of Part 2 of this Schedule, and
(ii) result in an increase in size greater than –
- 25 per cent, or
- an amount equal to 50 per cent of the appropriate threshold, whichever is the greater."

The proposed development is relocating the existing road maintenance operations and therefore not an extension of the overall council depot operations. However, the relocated area is less than 25% and the criteria described above if applied is not met.

A mandatory EIA is not therefore required in respect of 10(a), 10(b)(iv) or 13(a).

4.2.2 SUB-THRESHOLD DEVELOPMENT REQUIREMENTS

Schedule 5 Part 2 also requires the consideration of section 15 as outlined below:

"15. Any project listed in this Part which does not exceed a quantity, area or other limit specified in this Part in respect of the relevant class of development but which would be likely to have significant effects on the environment, having regard to the criteria set out in Schedule 7."

The criteria set out in Schedule 7 falls under three main headings and is described with commentary to the proposed development in the table below.

Criteria	Information
1) Characteristic of the Proposed Development	
(a) the size and design of the whole of the proposed development	The proposed development site has an area of 0.49 ha. It will comprise: • Operational vehicle parking facilities • Operational working hardstand areas • Salt storage barn (700m^2) • Brine manufacturing facility (56m^2) • Vehicle wash facilities • Hardstand, ramp access, and pavement design. Other ancillary elements include: • Earthworks, including site clearance, drainage etc. • Brine and rainwater storage tanks • Associated M&E including utilities, public lighting, telemetry, fencing, lighting etc. *The size and design will make the DLRCC road maintenance operations more efficient, effective and environmentally compliant.*
(b) cumulation with other existing development and/or development the subject of a consent for proposed development for the purposes of section 172(1A)(b) of the Act and/or development the subject of any development consent for the purposes of the Environmental Impact Assessment Directive by or under any other enactment,	Existing planning applications were reviewed (Dun Laoghaire-Rathdown Planning Search & EIA Portal). There are no recent planning applications adjacent to the proposed development or in the nearby area. Wider planning applications are minor in nature. Consideration of potential construction nuisances such as dust / noise can be minimised by effective communication between projects particularly during construction. *With effective communication it is considered that cumulative impacts with other existing and/or approved projects are not likely to cause significant negative effects on the environment.*

Criteria	Information
(c) the nature of any associated demolition works,	None required.
(d) the use of natural resources, in particular land, soil, water and biodiversity,	i) Land & soil - The DLR County Development Plan 2022-2028 zones the land the proposed development lies in as Objective E "*to provide for economic development and employment.*" (*https://www.dlrcoco.ie/sites/default/files/atoms/files/chapter_13.pdf*) The underlying soils are described as Brown Earth, well drained soils with little differentiation between horizons (Irish Soils Information). There is localised made ground that overlay likely glacial deposits and gravel and sand. The underlying solid geology is Caledonian Granite. ii) Water – the closest surface water feature is the Ballyogan Stream to the south. The water quality status is "good" (River Waterbody WFD Status 2016-2021). During operation the site will utilise rainwater harvesting; supplemented by mains water supply. iii) Biodiversity – an AA Screening report was prepared alongside this EIA Screening Report. The closest designated Natura 2000 site is 4.85km to the south, Knocksink Wood SAC, situated outside the 3km ZoI for this project. The habitats present on the site include disturbed ground and a small area of immature trees and small patch woodland. This vegetation may provide habitats for birds and mammals such as bats, hedgehog, otter and badger. The proposed development will result in a permanent loss of this disturbed ground and woodland. However, the site is small, offering a small section of suitable habitat for potential species mentioned above, and this is a common and widely occurring habitat. Therefore, *no significant effects on biodiversity are anticipated. A Preliminary Ecological Assessment would assess the habitats on the site and inform the planning process.* Vehicle wash facilities and an automated wheel wash are part of the new development and will utilise a mains water supply. The Brine Manufacturing Plant will utilise a combination of harvested rainwater and mains supplied, with rainwater being the principal source of water supplemented by the mains supply as required. The water usage of the new winter maintenance operation will be more efficient and sustainable. *The construction works are envisaged to utilise imported tankered water for dust suppression, concrete works and power washing vehicles / plant.* *No negative impacts arising from the use of land, soil or water are anticipated.* *During construction there is the potential to effect local biodiversity and birds. Mitigation measures will be agreed to reduce any construction effects, such as site clearance to be undertaken outside of the breeding bird season.*

Criteria	Information
(e) the production of waste,	During construction, standard best practice methods will be employed to mitigate the production of waste. Construction waste where it does arise will be disposed of using licensed waste disposal facilities and contractors. **Stormwater Drainage** The collection and discharge of stormwater from the development will be collected and discharged via an oil interceptor and hydrobrake to the downstream storm sewer outfall. **Wastewater** Wastewater from the development, generated from the salt storage barn, brine plant, vehicle washing facilities and automated wheelwash will be isolated and discharged to the on-site foul sewer network. *No significant effects on the environment are likely to arise due to the production of waste.*
(f) pollution and nuisances,	Standard best practice methods will be employed during construction to mitigate potential impacts from pollution on the environment. There will be potential for noise and dust nuisance during construction. Standard noise and dust prevention measures will be employed. *No significant effects on the environment are likely to arise due to pollution or nuisance.*
(g) the risk of major accidents, and/or disasters which are relevant to the project concerned, including those caused by climate change, in accordance with scientific knowledge	Standard construction practices will be employed throughout the construction phase. The proposed development site is not proximate to any Seveso/COMAH designated sites. The subject site is within an area with a low probability of flooding. The proposed development is not considered vulnerable to major accidents and / or disasters. *No significant effects are anticipated.*
(h) the risks to human health (for example, due to water contamination or air pollution)	Foul water and vehicle wash water will discharge to the public sewer. Surface water will discharge to a surface water drain following attenuation and standard construction stage treatment. *During the construction phase, there may be possible short-term nuisances to human beings from noise and dust during construction. Once standard mitigation measures are implemented, in accordance with an agreed Outline Construction Environmental Management Plan (CEMP), it is not anticipated that the construction works would result in significant environmental impacts for the local population and human health.* *There are no operational impacts associated with this residential development that would be likely to cause significant effects in terms of human health.*

Criteria	Information
2 Location of the Proposed Development	
a) the existing and approved land use,	The current land use is partially vegetated with a small area of immature trees and local hardstanding area to the south. The DLR County Development Plan 2022-2028 zones the land the proposed development lies in as Objective E "*to provide for economic development and employment.".* *The current proposal for the site is considered to be consistent with the DLR County Development Plan.*
(b) the relative abundance, availability, quality and regenerative capacity of natural resources (including soil, land, water and biodiversity) in the area and its underground,	The proposed development will not significantly impact the relative abundance, availability, quality and regenerative capacity of natural resources. *Overall, the residual effects are not anticipated to be significant.*
(c) the absorption capacity of the natural environment, paying particular attention to the following areas: (i) wetlands, riparian areas, river mouths; (ii) coastal zones and the marine environment; (iii) mountain and forest areas (iv) nature reserves and parks; (v) areas classified or protected under legislation, including Natura 2000 areas designated pursuant to the Habitats Directive and the Birds Directive and; vi) areas in which there has already been a failure to meet the environmental quality standards laid down in legislation of the European Union and relevant to the project, or in which it is considered that there is such a failure; (vii) densely populated areas; (viii) landscapes and sites of historical, cultural or archaeological significance.	The proposed development site itself is not located within a wetland, river mouth, coastal zone, marine environment, mountain, forest, nature reserve, park, or protected site. The Statement of Screening for Appropriate Assessment completed by GDG and submitted with this application confirms that the "*proposed development, individually or in combination with other plans or projects, will not have a significant effect on any European sites*" and therefore "*the proposed project does not need to proceed to Stage II of the Appropriate Assessment Process, i.e., a Natura Impact Statement (NIS*)". The site is not located within a densely populated area. Archaeology There is no Recorded Monument on the site. Recorded Monuments nearby include - Linear Earthworks to the south and a Recorded Monument enclosure to the west (built on). No significant effects predicted on the Recorded Monuments. Archaeological excavations near to the site have shown the area has archaeological potential. The southern area of the site has been disturbed

Criteria	Information
	with the removal of topsoil and potentially impacting any archaeology present within this area. The potential for archaeology within the site is considered low, however the Pale Ditch is located to the south but not in the site. The Pale Ditch is an important to the archaeology and heritage setting of the area. The setting and screening of the proposed development has the opportunity to be sympathetic with the archaeological setting through material choice.
3 Types and characteristics of potential impacts	
(a) the magnitude and spatial extent of the impact (for example, geographical area and size of the population likely to be affected),	It is expected that the proposed development will not have any environmental impact beyond the site and immediate vicinity.
(b) the nature of the impact,	**Human Health and Population** During construction there is the potential to affect local amenity from dust and noise nuisance. However, there are likely to be no significant effects with the implementation of a Construction Environmental Management Plan (CEMP). During operation the development will have negligible effect on the adjoining land uses. **Land and Soil** During construction there is the potential for pollution impacts. However, with the implementation of standard best practice construction methods there are no significant effects. **Water** During construction there is the potential for pollution impacts. However, with the implementation of a Construction Environmental Management Plan (CEMP) and standard best practice construction methods there are no significant effects. **Biodiversity** The Statement of Screening for Appropriate Assessment completed by GDG and submitted with this application confirms that the "*proposed development, individually or in combination with other plans or projects, will not have a significant effect on any European sites*" and therefore "*the proposed project does not need to proceed to Stage II of the Appropriate Assessment Process, i.e., a Natura Impact Statement (NIS)*". Overall, the residual effects from an ecological perspective will not be significant. **Air and climate** During construction there is the potential for local amenity impacts. However, with the implementation of a Construction Environmental

Criteria	Information
	Management Plan (CEMP) and standard best practice construction methods there are no significant effects. **Material assets landscape and cultural heritage** The development will not give rise to a revaluation of or change in the development potential of adjoining lands / properties. The construction of the Project is not expected to have a significant effect on the visual amenity. There are no protected views within the area that will be affected by the proposed development. The potential for archaeology within the site is considered low, however the Pale Ditch is located to the south. The Pale Ditch is important to the archaeology and heritage setting of the area. The setting and screening of the proposed development has the opportunity to be sympathetic with the archaeological setting through material choice.
(c) the transboundary nature of the impact,	There are no transboundary impacts associated with this project.
(d) the intensity and complexity of the impact,	No impacts of significant complexity or intensity are envisaged.
(e) the probability of the impact,	Negative impacts are associated with the construction stage only. These are probable / near certain, but will be minor and temporary in Nature.
(f) the expected onset, duration, frequency and reversibility of the impact,	Construction stage impact and nuisances will be temporary in nature coinciding with the construction phase of the project.
(g) the cumulation of the impact with the impact of other existing and/or development the subject of a consent for proposed development for the purposes of section 172(1A)(b) of the Act and/or development the subject of any development consent for the purposes of the Environmental Impact Assessment Directive by or under any other enactment, and	It is considered that cumulative impacts with other existing and/or approved projects are not likely to cause significant effects on the environment.
(h) the possibility of effectively reducing the impact.	Appropriate mitigations measures will be undertaken in order to ameliorate effects on the environment arising from the proposed development. Any mitigations measures to manage noise, dust and/or pollution during the construction phase will be based on standard best practice, policies and guidance, and will be agreed with the County Council. It is noted that such measures are incorporated into the proposal.

5 CONCLUSIONS

In conclusion, an EIAR is not required for the proposed development.

It is considered that the proposed development will not have any significant impacts on the environment to warrant an EIAR. All recommended mitigation measures and standard practices will be employed throughout the construction and operation phase of the development to ensure that the proposed development will not create any significant impacts on the quality of the surrounding environment.

The potential construction impacts will be reduced to minimal with the implementation of standard construction practices.

Notwithstanding this, as part of any planning permission there will be a requirement to review and understand the biodiversity / ornithology of the site and archaeology, consult with stakeholders to agree mitigation measures and timing for construction activities.

Appendix A Ecological Description

TECHNICAL NOTE

Project title:	Road Maintenance Operations Facility		
Subject:	Ecological Note		
To:	Dun Laoghaire Rathdown County Council		
Project number:	24038	Document ref.:	24038-TN-01-01
Prepared by:	Maggie Starr	Revision:	01
Checked by:	Charlotte Manwaring	Date of issue:	08/07/2024
Approved by:	Joey O'Connor		

Table of Contents

1 INTRODUCTION

Dún Laoghaire-Rathdown County Council has appointed GDG to provide engineering consultancy services on a new project which involves constructing a new road maintenance operations facility on a site adjacent to the existing Operations Centre, located at Ballyogan, Dublin 18. This Technical Note has been prepared to set out the findings of a rapid desktop review of the Proposed Site and to describe the habitats within the Proposed Site from photographs taken of the Site.

The overall project will deliver a fully functioning & integrated new road maintenance operations facility with dedicated operational fleet parking, operational working areas, a road salt barn, a brine manufacturing facility, a rainwater harvesting tank, and dedicated washdown facilities for road maintenance vehicles.

1.1 AIM OF THIS TECHNICAL NOTE

This note summarises a preliminary habitat identification undertaken by the GDG Ecologist through reviewing photographs taken during the winter months of 2023 by the contractor. Habitats were classified in accordance with the system outlined by Julie Fossitt, (The Heritage Council, 2000).

1.2 BACKGROUND

A site visit by an ecologist has not formed part of this preliminary habitat identification with no survey comprising a walk-over of the habitats of interest conducted. This preliminary habitat identification therefore does not fully consider the following key attributes:

- Area or extent of the habitat
- Presence of typical species of the relevant habitats
- Presence of 'negative species' / non-native invasive species
- Potential of the habitat to support important species of conservation importance, especially Annex I bird species (Birds Directive), Annex II species (Habitats Directive), and Red-listed species (IUCN)
- Potential connectivity with Natura 2000 sites and potential use by Qualifying Interests or Special Conservation Interests of such sites; and
- Potential sensitive ecological receptors present on the Site.

2 METHODOLOGY

2.1 CLASSIFICATION OF HABITATS

A habitat survey is a standardised method of recording habitat types and characteristic vegetation, as set out in the 'Best Practice Guidance for Habitat Survey Mapping' (The Heritage Council, 2011). A habitat survey is a method of collecting information about the ecology of a site.

According to the Heritage Council (2011), the fundamental piece of information collected is the habitat type to which a particular area can be assigned. Habitat types are determined by reference to a system of habitat classification, which must be clearly identified. The location and extent of different habitat types that are present in a site are mapped to provide a clear spatial record. Additional information on habitats may also be collected, such as dominant species or conservation status, depending on the objectives of the particular habitat survey. The results of a habitat survey provide basic ecological information that can be used for biodiversity conservation, planning and/or management, including targeting of more detailed botanical or zoological investigations.

This ecological note provides a characterisation of habitats present in photographs taken at a point in time and does not represent an assessment of the ecological value of the Site. Consideration of all features of particular ecological interest is not possible from the photographic evidence available to inform this work. In order to support a Preliminary Ecological Appraisal (PEA), it will be necessary to conduct a field survey to support the findings of these observations/identifications from photographs of the Site as set out in CIEEM, 2017.

2.2 RAPID/PRELIMINARY DESKTOP STUDY (FLORA AND FAUNAL RECORDS)

National Biodiversity Data Centre (NBDC) records of flora species documented within the grid cell O2024 (see Figure 3-1) were reviewed.

No protected species listed in the Flora (Protection) Order or vascular plant species listed on the Irish Red List (Wyse Jackson et al. 2016) are recorded on NBDC within or surrounding the Site.

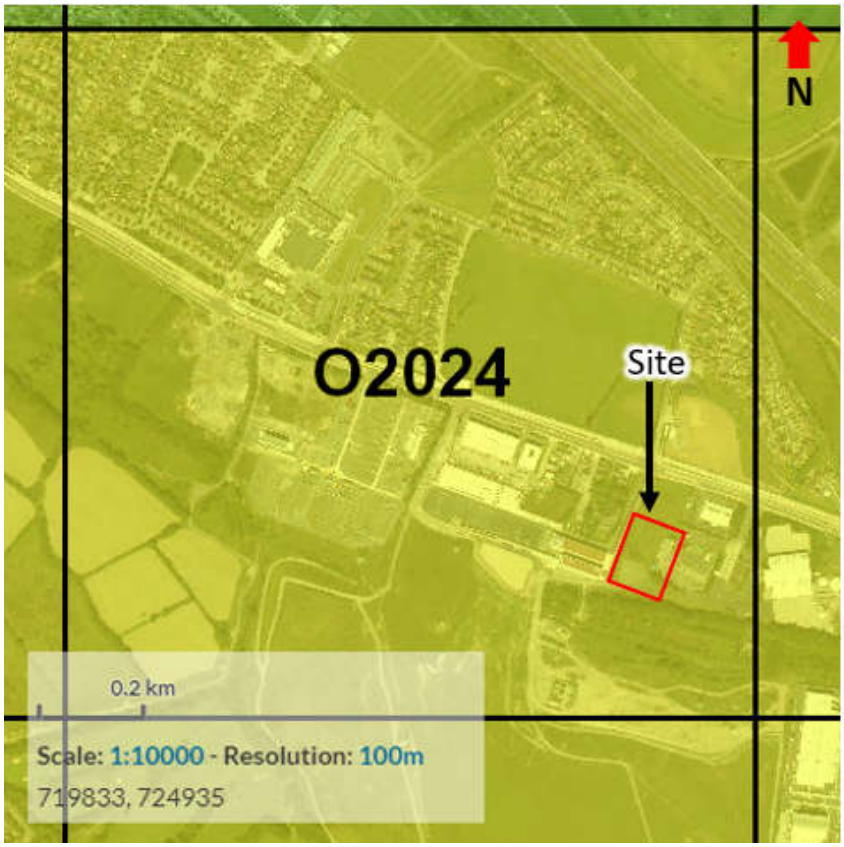


Figure 2-1 NBDC records of flora and fauna within the 1km grid square containing the Site.

3 RESULTS

3.1 HABITAT CLASSIFICATION (BASED ON PHOTOGRAPHS)

Habitats identified from photographs in the Study Area are listed below in Table 3-1 and described in Appendix D, where each habitat is defined as per Fossitt (2000) and is shown in *italics* for visual reference. Thereafter, a description of the habitat in the context of the study area is provided with photographic evidence of the habitat observed at the Site.

It has not been possible to consider spatial distribution and extent of habitats using available photographic evidence.

Table 3-1 Habitats (as per Fossitt, 2000) identified within the Study Area.

Habitat Name	Habitat Code (as per Fossitt, 2000)
Recolonising Bare Ground	ED3
Buildings and Artificial Surfaces	BL3
Hedgerow	WL1
Treeline	WL2
Scrub	WS1

3.1.1 SPOIL AND BARE GROUND (ED2)

Figure 3-1 Spoil and Bare Ground (ED2, as per Fossitt, 2000).

This category includes heaps of spoil and rubble, and other areas of bare ground that are either very transient in nature or persist for longer periods of time because of ongoing disturbance or maintenance. Spoil is generally associated with the excavation or construction of roads and buildings, or with drainage and dredging activities. Once the disturbance ends, spoil is readily colonised by plants. Note that heaps of unconsolidated material associated with ongoing mining or quarrying activity should be considered under active quarries and mines - ED4. Bare ground can include land that has

recently been cleared for agriculture (but not yet tilled - see tilled land - BC3) or construction, and other areas with unconsolidated surfaces that are largely unvegetated because they are heavily trampled or regularly driven over or maintained (weeded or treated with chemicals). Examples of the latter can include unpaved forestry roads, paths and car parks, and derelict land in urban areas. If disturbance or maintenance ceased, these areas would readily be invaded by plants. Note that vegetation cover should not exceed 50% (see recolonising bare ground - ED3) and that any paved areas should be considered under buildings and artificial surfaces - BL3.

This habitat is recorded along the southerly entrance of the Site, where spoil and bare ground can be seen in the photographs (i.e. the driveway entering the Site and the steel containers). Recolonising Bare Ground (ED3, as per Fossitt, 2000) can be seen along the fringes of this habitat.

3.1.2 TREELINES (WL2)

Figure 3-2 Silver Birch (Betula pendula) - Treelines (WL2, as per Fossitt, 2000).

A treeline is a narrow row or single line of trees that is greater than 5 m in height and typically occurs along field or property boundaries. This category includes tree-lined roads or avenues, narrow shelter belts with no more than a single line of trees, and overgrown hedgerows that are dominated by trees. Most treelines are planted and trees are often regularly spaced. They commonly comprise a high proportion of non-native species such as Beech (Fagus sylvatica), Horse Chestnut (Aesculus hippocastanum), Sycamore (Acer pseudoplatanus), limes (Tilia spp.), some poplars (Populus spp.) and conifers. Trees may occur on level ground or on banks of earth. The presence or absence of hedgerow or scrub at the base should be noted. If treelines are greater than 4 m wide at the base they should be considered as narrow stretches of woodland.

Silver Birch (*Betula pendula*) can be seen in the photographs at the south end of the Site at the entrance (see photo above). Other tree species forming treelines appear to be present on the Site also, however, identification of the tree species was not possible from photographs.

3.1.3 HEDGEROWS (WL1)

Figure 3-3 Hedgerows (WL1, as per Fossitt, 2000)

Linear strips of shrubs, often with occasional trees, that typically form field or property boundaries. Most hedgerows originate from planting and many occur on raised banks of earth that are derived from the excavation of associated drainage ditches. Dimensions of hedgerows vary considerably, depending largely on management and composition, and are taken here as being mainly less than 5 m high and 4 m wide. When wider or taller than this, or dominated by trees, the habitat should be considered as a narrow strip of scrub or woodland, or as a treeline - WL2. Some hedgerows may be overgrown or fragmented if management has been neglected, but they should still be considered in this category unless they have changed beyond recognition. Linear strips of low scrub are included in this category if they occur as field boundaries.

Species composition varies with factors such as age, management, geology, soils and exposure. Hedgerows commonly support a high proportion of spinose plants such as Hawthorn (Crataegus monogyna), Blackthorn (Prunus spinosa), Gorse (Ulex europaeus), Holly (Ilex aquifolium), Dog-rose (Rosa canina) or Bramble (Rubus fruticosus agg.), in addition to many other native and non-native trees and shrubs including, for example, Ash (Fraxinus excelsior), Hazel (Corylus avellana), Beech (Fagus sylvatica), Elder (Sambucus nigra), elms (Ulmus spp.) and willows (Salix spp.). Some of these may occur as scattered tall trees. Fuchsia (Fuchsia magellanica), an introduced shrub, is a common component of hedgerows in parts of the south and west of Ireland. Hedgerows frequently support climbing plants such as Ivy (Hedera helix), Honeysuckle (Lonicera periclymenum), Hedge Bindweed (Calystegia sepium), Cleavers (Galium aparine) and Bush Vetch (Vicia sepium). Tall grasses, including False Brome (Brachypodium sylvaticum) and Hairy-brome (Bromopsis ramosa), ferns, and woodland herbs are characteristic.

Drainage ditches are often closely associated with hedgerows and should be recorded separately if they contain standing water or support aquatic plants (see drainage ditches - FW4). Dry ditches are not distinguished as separate habitats. Linear boundaries of low scrub, Gorse (Ulex europaeus) and Bramble (Rubus fruticosus agg.) in particular, should be included here, but note that earth banks - BL2 and stone walls and other stonework - BL1 are treated as separate categories.

The exact location and identification of this habitat is not precisely known from the photographs as for a linear stretch of trees to be identified as Hedgerow, the trees must be less than 5m high and 4m wide. From photographs, the height of the trees cannot be determined, however, it appears that Hedgerows are within this Site, with patches of scrub that are not maintained.

3.1.4 SCRUB (WS1)

Figure 3-4 Scrub (WS1, as per Fossitt, 2000) with immature trees.

This broad category includes areas that are dominated by at least 50% cover of shrubs, stunted trees or brambles. The canopy height is generally less than 5 m, or 4 m in the case of wetland areas. Scrub frequently develops as a precursor to woodland and is often found in inaccessible locations, or on abandoned or marginal farmland. In the absence of grazing and mowing, scrub can expand to replace grassland or heath vegetation. Trees are included as components of scrub if their growth is stunted as a result of exposure, poor soils or waterlogging. If tall trees are present, these should have a scattered distribution and should not form a distinct canopy. This category does not include areas that are dominated by young or sapling trees (<5 or 4 m in height) or young conifer plantations (see immature woodland – WS2 or conifer plantation - WD4). Linear boundary features of scrub that are less than 4 m wide should be considered under hedgerows - WL1.

Scrub can be either open, or dense and impenetrable, and it can occur on areas of dry, damp or waterlogged ground. Common components include spinose plants such as Hawthorn (Crataegus monogyna), Blackthorn (Prunus spinosa), Gorse (Ulex europaeus), Juniper (Juniperus communis), Bramble (Rubus fruticosus agg.) and erect or scrambling roses (Rosa spp.), in addition to a number of willows (Salix spp.), small birches (Betula spp.) and stunted Hazel (Corylus avellana). Scrub may also contain Bog-myrtle (Myrica gale) and Broom (Cytisus scoparius). The field layer is often impoverished and poorly-developed but, in some situations, may be similar to that of woodland. Low growing Western Gorse (Ulex gallii) and prostrate Juniper (Juniperus communis) can also be components of heath. Note that any areas that are dominated by non-native shrubs should be excluded (see ornamental/non-native shrub – WS3).

From the photographs of the Site, scrub is scattered along the boundaries of the Site and merges with hedgerows and treelines.

3.1.5 DRY MEADOWS AND GRASSY VERGES (GS2)

Figure 3-5 Dry Meadows and Grassy Verges (GS2, as per Fossitt, 2000) with immature trees.

Dry meadows that are rarely fertilised or grazed and are mown only once or twice a year for hay are now rare in Ireland. Most have been improved for agriculture and this type of grassland is now best represented on grassy roadside verges, on the margins of tilled fields, on railway embankments, in churchyards and cemeteries, and in some neglected fields or gardens. These areas are occasionally mown (or treated with herbicides in the case of some railway embankments), and there is little or no grazing or fertiliser application. This pattern of management produces grasslands with a high proportion of tall, coarse and tussocky grasses such as False Oat-grass (Arrhenatherum elatius) and Cock's-foot (Dactylis glomerata). Other grasses may include Yorkshire-fog (Holcus lanatus), Smooth Meadow-grass (Poa pratensis), Barren Brome (Anisantha sterilis) and Meadow Foxtail (Alopecurus pratensis). The broadleaved herb component is characterised by a range of species that either grow tall, such as Cow Parsley (Anthriscus sylvestris), Hogweed (Heracleum sphondylium), Goat's-beard (Tragopogon pratensis), Nettle (Urtica dioica) and Common Knapweed (Centaurea nigra), or climb the stems of others, as in the case of Bush Vetch (Vicia sepium) and Meadow Vetchling (Lathyrus pratensis). Grassy verges may support other smaller broadleaved herbs such as Pignut (Conopodium majus), Creeping Cinquefoil (Potentilla reptans) and clovers (Trifolium spp.).

Links with Annex I: Corresponds to the annexed habitat, 'lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) (6510)'.

This habitat appears to cover the largest proportion of the Site and includes immature trees growing in different sections of the Site. It appears to be mowed maybe once or twice a year and does not appear to be fertilised or reseeded.

3.1.6 Woodland and Scrub ((Mixed) Broadleaved Woodland (WD1) or Immature Woodland (WS2)).

Note, identification of this habitat could not be classified lower to habitat level from the photographs and due to the season in which this picture was taken (i.e. no leaves on trees to aid in identification). From satellite imagery (see Figure 3-7), it appears that this is a block of mixed woodland, however, as the height of the trees in this picture cannot be determined this habitat cannot be distinguished between (Mixed) Broadleaved Woodland (WD1) or Immature Woodland (WS2).

Figure 3-6 Woodland and Scrub ((Mixed) Broadleaved Woodland (WD1) or Immature Woodland (WS2)).

Figure 3-7 Satellite imagery of the Site (red boundary) showing the block of trees (circled in yellow).

3.2 FAUNA

This section presents the result of a rapid desktop study of the species

3.2.1 MAMMALS

3.2.1.1 MAMMALS (VOLANT)

The 'Bat Landscape' layer in the NBDC maps for the area within and surrounding the Site is colour coded orange, giving a very high habitat suitability for all bat species in Ireland. Data is acquired from the National Bat Database and The National Lesser Horseshoe Bat database. These data are then used to inform the habitat suitability of an area for each species of bat. This is accomplished through gathering factors such as climate, pH of soil, riparian habitats, human bias, landcover (CORINE) and topography all of which are details on habitat preference of each species of bat. These factors are then incorporated into a model known as a Maximum Entropy Modelling (MaxEnt) to produce habitat suitability models for each species (Lundy *et al.*, 2011). Information on the 'habitat suitability index' is provided below and ranges between 0 and 100, where 0 is least favourable and 100 most favourable habitats for bats.

The 'Bat Landscape' of the area within and surrounding the Site (within the grid cells, NBDC), and the colour-coded 'habitat suitability index' are outlined in Figure 3-8. The area is colour-coded yellow indicating a medium suitability score for bats. The score from the index for each species of bat is shown in Table 3-2. Within the Site and surrounding landscape, the habitat suitability is medium to medium-high for Soprano pipistrelle (*Pipistrellus pygmaeus*), Common pipistrelle (*Pipistrellus pipistrellus*), Leisler's bat (*Nyctalus leisleri*) and Natterer's bat (*Myotis nattereri*).

Figure 3-8 Bat Habitat Suitability Index of the Ballyogan area (NBDC).

Table 3-2 Habitat Suitability Index for all species of bats within and surrounding the Site.

Scientific Name	Common Name	Suitability Index
All bats (Overall)		26.56
Pipistrellus pygmaeus	Soprano pipistrelle	40
Plecotus auritus	Brown long-eared bat	31
Pipistrellus pipistrellus	Common pipistrelle	45
Rhinolophus hipposideros	Lesser horseshoe bat	0
Nyctalus leisleri	Leisler's bat	40
Myotis mystacinus	Whiskered bat	19
Myotis daubentonii	Daubenton's bat	19
Pipistrellus nathusii	Nathusius' pipistrelle	3
Myotis nattereri	Natterer's bat	42

No records of bats are documented within the 1km grid cell O2024 on the NBDC records.

3.2.1.2 MAMMALS (NON-VOLANT)

Two terrestrial mammal records are within O2024:

- Red Fox (*Vulpes vulpes*) recorded on 12/01/2013; and
- Eastern Grey Squirrel (*Sciurus carolinensis*) recorded on 27/01/2022.

The Red Fox is not afforded protection under EU or national legislation due to its widespread distribution and abundance throughout the island.

The Eastern Grey Squirrel were introduced early in the twentieth century and became widespread and is classed as a high impact invasive species under EU Regulation 1143/2014 and Ireland Regulations 2011 (**S.I. 477**/2011).

3.3 ORNITHOLOGY

No records of birds were documented on NBDC. However, it is likely that the patch of woodland, treelines and scrub habitat on the Site within the footprint of the works are used by breeding birds. All wild birds and their nests and eggs are protected under the Wildlife Acts (as amended).

The main provisions for the felling of trees are contained within the Forestry Act (2014) (which replaced the 1946 Act). Under this act it is an offence for any person to uproot or cut down any tree unless the owner has obtained a felling licence (i.e. permission) from the Forest Service. There are certain conditions where the felling of a tree is exempted from the need to obtain a felling licence, the details of which are outlined in Section 19 of the Forestry Act 2014.

However, under the Wildlife Acts (as amended) the cutting or felling of trees is prohibited during the period 1st of March to 31st of August with limited exceptions. This includes the cutting, burning, or destruction of hedges, with restrictions in place to coincide with the nesting and breeding season in order to protect nesting birds.

The site is wooded and a dry meadow, therefore the Site is not of importance for wintering waterfowl and waders.

3.4 FLORA

This section presents the results of a rapid desktop study and identification of plant/tree species from photographs. The photographs were taken during the winter months. While Preliminary Ecological Appraisals can be undertaken all year, April to September is optimal as the plant species are active/growing and therefore better reflects the vegetation on site.

3.4.1 INVASIVE PLANT SPECIES

Butterfly Bush (*Buddleja davidii*), also known as Buddleia, was observed from the photographs within the Site – see Figure 3-9. The potential impacts of Butterfly Bush forms monocultures and can prevent the growth and regeneration of native species, where it may displace primary colonisers across different habitats. It can reproduce via seeds where seeds may be viable for up to 2.5 years, and through stem and root fragments. Each plant can produce up to 3 million seeds that can remain viable in the soil. This species can shade out ground flora and outcompete native flora species as this species may readily colonise a site which may lead to a decline in native species. Butterfly Bush tolerates very poor soils and it favours highly disturbed ground, such as the Site, and colonises bare ground rapidly where it often forms monotypic stands. Butterfly Bush is widespread in urban environments.

NBDC records of Butterfly bush are documented within the grid cell O2024, dated 14/04/2016, precision of 1km.

Figure 3-9 Butterfly Bush (*Buddleja davidii*) on the Site.

Butterfly Bush is not a scheduled species listed on the Third Schedule of the EC (Birds and Natural Habitats) Regulations 2011 and 2015 (S.I. No. **477**/2011), however, this species is listed as a Medium Impact invasive species listed on the NBDC Prioritization Risk Assessment. In addition, Butterfly Bush is on the Invasive Species Ireland "Amber List: Recorded Species" and is included in the NRA Guidelines on the Management of Noxious Weeds and Non-native Species on National Roads (NRA, 2010) as adverse impacts on landscape quality, native biodiversity and infrastructure are known from the spread of Butterfly Bush.

Butterfly Bush does not pose a risk to infrastructure associated with this project, however, disturbed ground and semi-natural habitats associated with construction activities is likely to cause a spread of this invasive species if this invasive species is not removed correctly or if biosecurity measures are not in place prior to removal of vegetation and construction.

Standard biosecurity measures as outlined the Construction Environmental Management Plan (CEMP) will be implemented to ensure this species does not spread within the Site or invade neighbouring land. An Invasive Species Management Plan (ISMP) is intended to be a working document, so that the appointed contractor can update the plan prior to construction works to form a detailed and final ISMP.

It should be noted, a Habitats and Species Walkover Survey is required in order to GPS reference the location(s) of the Butterfly Bush to inform the ISMP and to search the site for further invasive species.

REFERENCES

CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester. Available at: https://cieem.net/wp-content/uploads/2019/02/Guidelines-for-Preliminary-Ecological-Appraisal-Jan2018-1.pdf

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

Lundy, M.G., Aughney, T., Montgomery, W.I., & Roche, N., (2011) Landscape conservation for Irish bats & species specific roosting characteristics. Bat Conservation Ireland.

National Biodiversity Data Centre (NBDC). – 1km square species reports. [Online] Available at: https://maps.biodiversityireland.ie/Map (Accessed: 10/04/2024)

Wyse Jackson, M., FitzPatrick, Ú., Cole, E., Jebb, M., McFerran, D., Sheehy Skeffington, M. & Wright, M. (2016) Ireland Red List No. 10: Vascular Plants. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, Dublin, Ireland.

GLOBAL PROJECT REACH

Offices

Dublin (Head Office)
Gavin & Doherty Geosolutions
Unit A2, Nutgrove Office Park
Rathfarnham
Dublin 14, D14 X627
Phone: +353 1 207 1000

Belfast
Gavin & Doherty Geosolutions (UK) Limited
Scottish Provident Building
7 Donegall Square West
Belfast, BT1 6JH

Edinburgh
Gavin & Doherty Geosolutions (UK) Limited
21 Young Street
Edinburgh
Scotland, EH2 4HU

Rhode Island
Gavin & Doherty Geosolutions Inc.
225 Dyer St, 2nd Floor
Providence, RI 02903
USA

Bath
Gavin & Doherty Geosolutions (UK) Limited
The Guild High Street, Bath
Somerset
BA1 5EB

Cork
Gavin & Doherty Geosolutions
Unit 4E, Northpoint House,
North Point Business Park
Cork, T23 AT2P

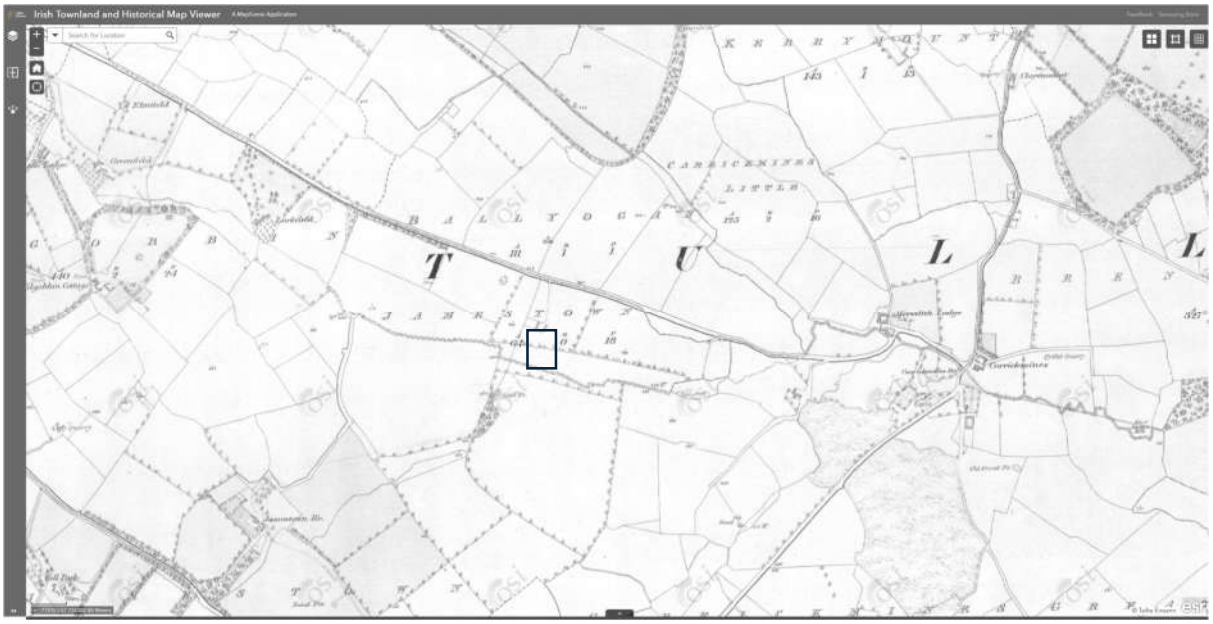
London
Gavin & Doherty Geosolutions (UK) Limited
85 Great Portland Street, First Floor
London
W1W 7LT

Utrecht
Gavin & Doherty Geosolutions
WTC Utrecht, Stadsplateau 7
3521 AZ Utrecht
The Netherlands

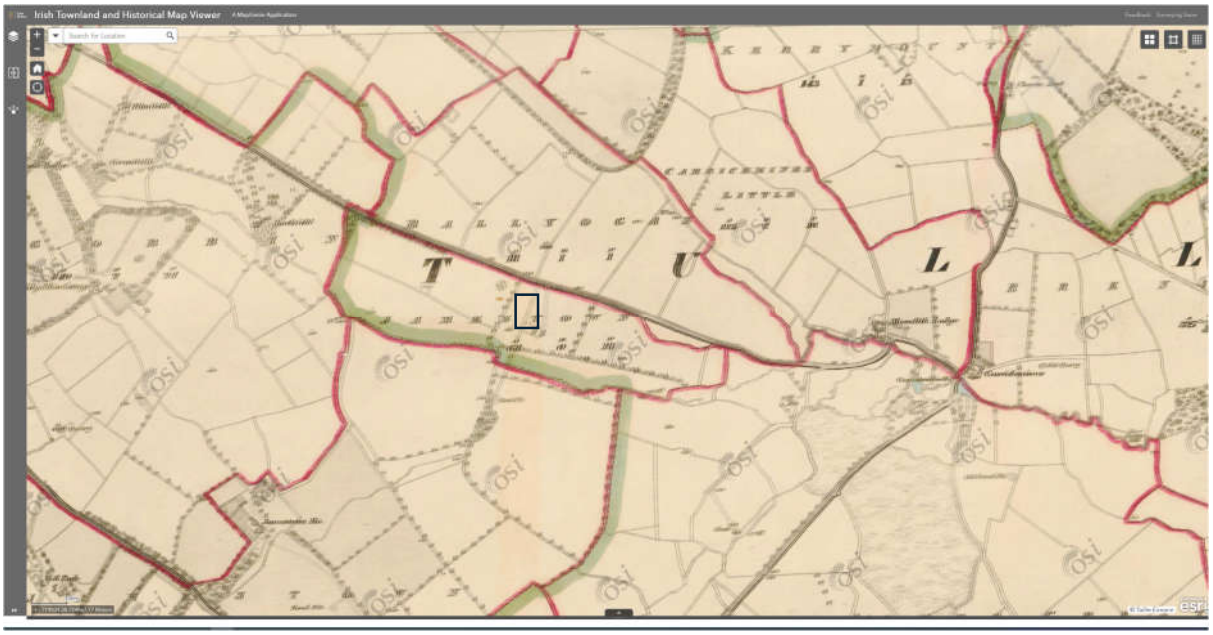
Website: www.gdgeo.com
Email: info@gdgeo.com

Appendix B HISTORICAL MAPS

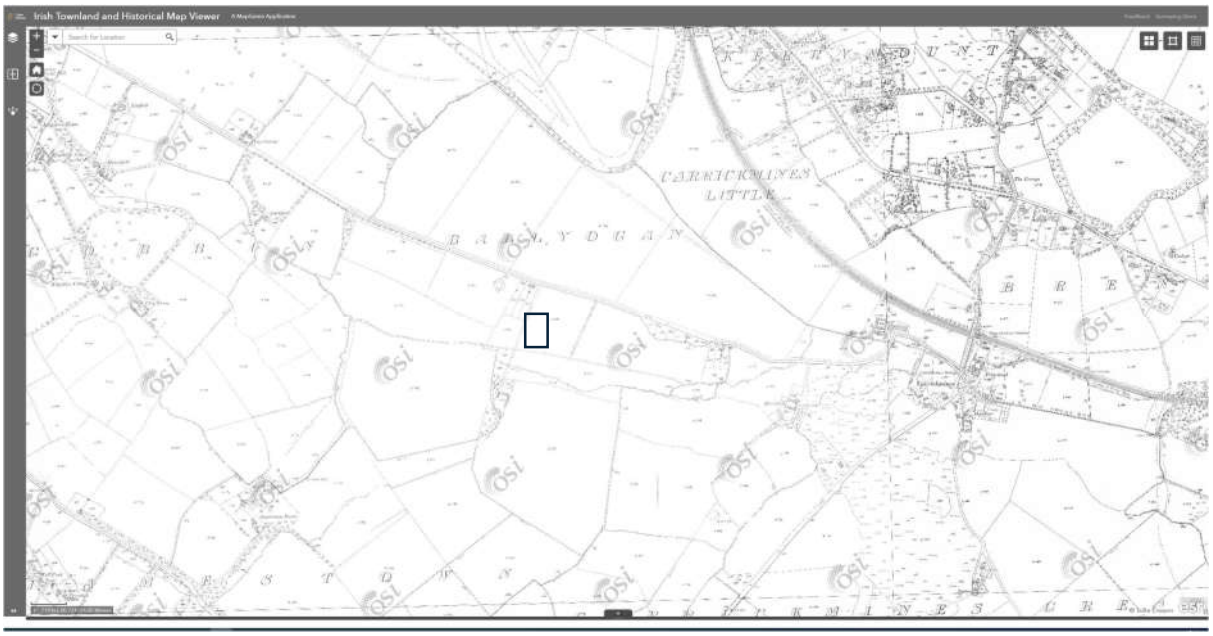
OS Maps 6 inch 1st edition 1837- 1842

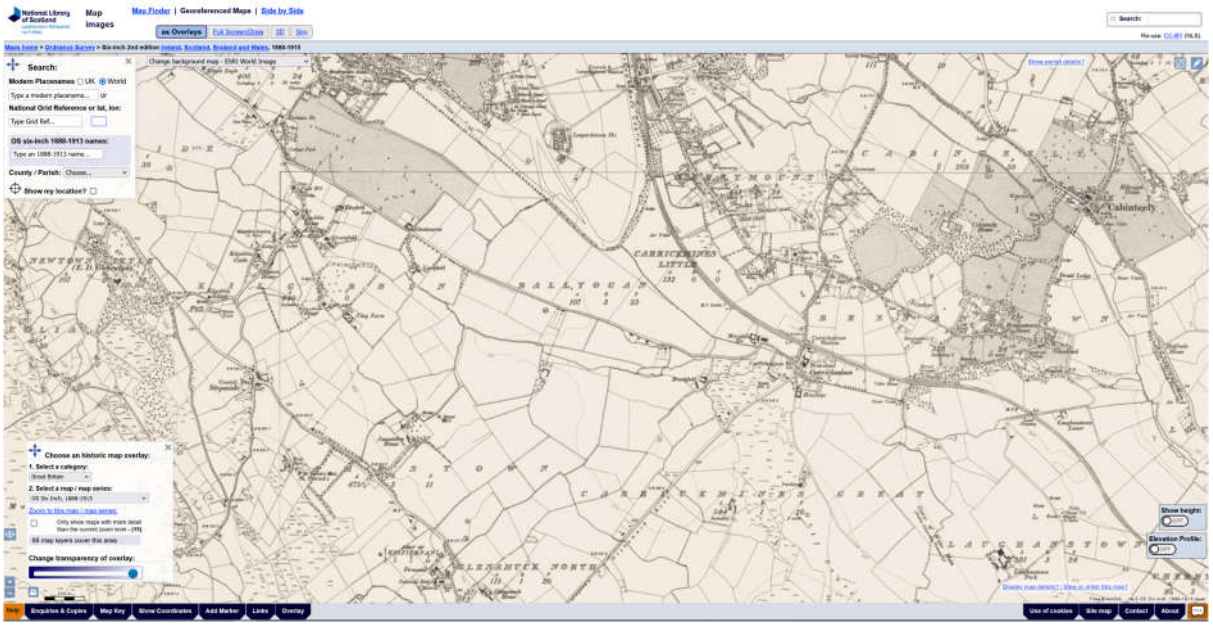


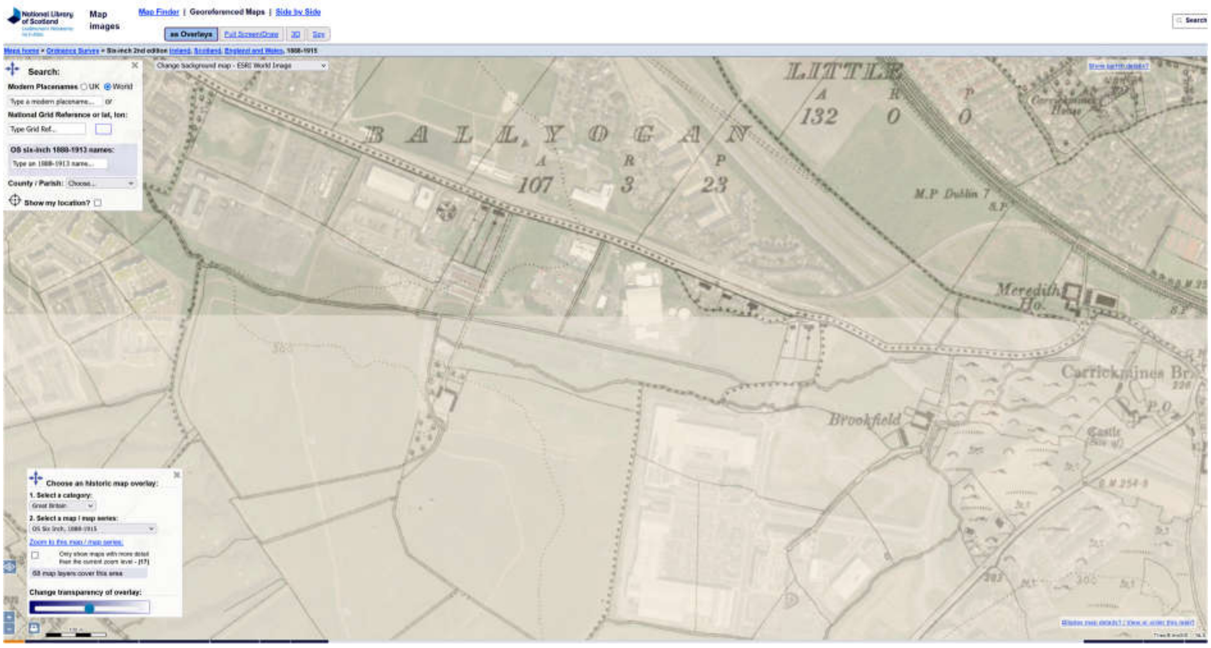
OS 1st edition 6-inch coloured 1837- 1842



OS 1st edition 25-inch 1837- 1842






Map Finder | Georeferenced Maps | Side by Side
BALLYOGAN
LITTLE
Meredith Ho.
Carrickmines Br.
Brookfield
Castle
P.O.

GLOBAL PROJECT REACH

Offices

Dublin (Head Office)
Gavin & Doherty Geosolutions
Unit A2, Nutgrove Office Park
Rathfarnham
Dublin 14, D14 X627
Phone: +353 1 207 1000

Belfast
Gavin & Doherty Geosolutions (UK) Limited
Scottish Provident Building
7 Donegall Square West
Belfast, BT1 6JH

Edinburgh
Gavin & Doherty Geosolutions (UK) Limited
21 Young Street
Edinburgh
Scotland, EH2 4HU

Rhode Island
Gavin & Doherty Geosolutions Inc.
225 Dyer St, 2nd Floor
Providence, RI 02903
USA

Bath
Gavin & Doherty Geosolutions (UK) Limited
The Guild High Street, Bath
Somerset
BA1 5EB

Cork
Gavin & Doherty Geosolutions
Unit 4E, Northpoint House,
North Point Business Park
Cork, T23 AT2P

London
Gavin & Doherty Geosolutions (UK) Limited
85 Great Portland Street, First Floor
London
W1W 7LT

Utrecht
Gavin & Doherty Geosolutions
WTC Utrecht, Stadsplateau 7
3521 AZ Utrecht
The Netherlands

Website: www.gdgeo.com
Email: info@gdgeo.com

Appendix D - EIA DETERMINATION

Dún Laoghaire-Rathdown
County Council Comhairle Contae
Dhún Laoghaire-Ráth an Dúin

County Hall, Dún Laoghaire, Co. Dublin, Ireland
Halla an Chontae, Dún Laoghaire, Co. Átha Cliath, Éire
Tel: 01 205 4700 Fax: 01 280 6969 corp@dlrcoco.ie www.dlrcoco.ie

ICC - Road Maintenance Section,
Dun Laoghaire Rathdown County Council
Marine Road, Dún Laoghaire, Co. Dublin
Tel: 01 205 4700
rmulhall@dlrcoco.ie

APPENDIX D

Environmental Impact Assessment (EIA) Screening Determination under the Planning and Development Regulations 2001 (as amended) for DLRCC Road Maintenance Operations Facility at Ballyogan

Dún Laoghaire-Rathdown County Council is proposing to develop a new fully functioning & integrated road operations facility with vehicle parking, operational working areas, a road salt storage barn, a brine manufacturing facility, a rainwater harvesting tank, and dedicated washdown facilities for road maintenance vehicles.

The project consists of: -

- Construction of an operational hardstanding area
- Construction of a dry salt storage barn
- Installation of a rainwater harvesting tank (from salt barn roof)
- Installation of a brine manufacturing facility with associated salt and brine storage tanks
- Construction of operational vehicle washdown facilities including installation of an automated wheelwash
- Associated operational site access and vehicle parking facilities
- Installation of utilities, CCTV, public lighting, fencing, and drainage systems

The total area of the proposed development is 0.49ha.

Having regard to the EIA Directive 2011/92/EU as amended, Dún Laoghaire-Rathdown County Council determines that the scheme individually and in combination with other plans and projects, does not need to be subject to Environmental Impact Assessment and no Environmental Impact Assessment Report is required for it.

It is considered that the EIA Screening Report prepared by Gavin & Doherty Geosolutions Ltd gives full consideration to the Directive and in particular to the requirements set out in the Directive for mandatory and sub-threshold EIA.

Dún Laoghaire-Rathdown
County Council Comhairle Contae
Dhún Laoghaire-Ráth an Dúin

County Hall, Dún Laoghaire, Co. Dublin, Ireland
Halla an Chontae, Dún Laoghaire, Co. Átha Cliath, Éire
Tel: 01 205 4700 Fax: 01 280 6969 corp@dlrcoco.ie www.dlrcoco.ie

It has been found that the proposed development does not correspond to any project type in the Planning and Development Regulations 2001 (as amended). The proposed scheme has nonetheless been assessed in accordance with the criteria given in Annex III of the Directive to determine whether or not it would be likely to have any significant effects on the environment.

It is considered that the EIA Screening Report contains a fair and reasonable assessment of the likelihood of significant effects on the environment having regard to the foregoing and in particular to:

- The characteristics of the proposed development
- The location of the proposed development
- The types and characteristics of potential impacts
- Cumulation of effects with those arising from other existing and/or proposed projects
- Mitigation measures to avoid or prevent what might otherwise have been significant adverse effects on the environment
- The Appropriate Assessment Screening Report (by Gavin & Doherty Geosolutions Ltd) carried out pursuant to the requirements of the Habitats Directive
- The Ecological Impact Assessment Report (by Gavin & Doherty Geosolutions Ltd) carried out to identify, quantify and evaluate the potential effects of the proposed project on the ecological features of the area.

It is considered that there is no real likelihood of significant effects on the environment arising from the proposed development.

Signature _____

Signatory (Approved Officer) _____

Date 10/09/24

Appendix E – Ecological Impact Assessment

GDG
GAVIN & DOHERTY
GEOSOLUTIONS

Road Maintenance Operation Facility Ecological Impact Assessment (EcIA), Ballyogan Road, Dublin

dlr
Comhairle Contae County Council

Client	**Dún Laoghaire Rathdown County Council**
Document Ref.	24038-REP-005-01-EcIA
Project Title	Road Maintenance Operation Facility - EcIA
Date	05/09/2024

Project Title:	Road Maintenance Operation Facility - EcIA
Report Title:	Road Maintenance Operation Facility Ecological Impact Assessment (EcIA), Ballyogan Road, Dublin
Document Reference:	24038-REP-005-01-EcIA

Client:	Dún Laoghaire Rathdown County Council
Ultimate Client:	Dún Laoghaire Rathdown County Council
Confidentiality	Non Confidential

REVISION HISTORY

Rev	Date	Reason for Issue	Originator	Checker	Reviewer	Approver
00	05/09/2024	For Client Review	MS	CW	JOC	JOC
01	09/09/2024	First Issue	MS	CW	JOC	JOC

DISCLAIMER

REVISION SUMMARY

Rev	Date	Section(s)	Detail of Change

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1 INTRODUCTION

1.1 OVERVIEW

Dún Laoghaire-Rathdown County Council (DLRCC) have appointed GDG to provide consultancy services, including production of an Ecological Impact Assessment (EcIA), for a project which involves constructing a new dedicated road maintenance operation area on a site adjacent to the existing Operations Centre, located at Ballyogan, Dublin 18 (Figure 1.1).

The overall project is to deliver a fully functioning and integrated new road maintenance operations area with vehicle parking, operational working areas, a road and salt storage barn, a brine manufacturing facility, a rainwater harvesting tank, and dedicated washdown facilities for road maintenance vehicles.

It should be noted, the terms "Proposed Development Site", "Proposed Site" and "Site" are used interchangeably throughout this report. All terms refer to the specific area under consideration for development, where ecological surveys and assessments have been conducted, and where potential impacts of the proposed works are being evaluated.

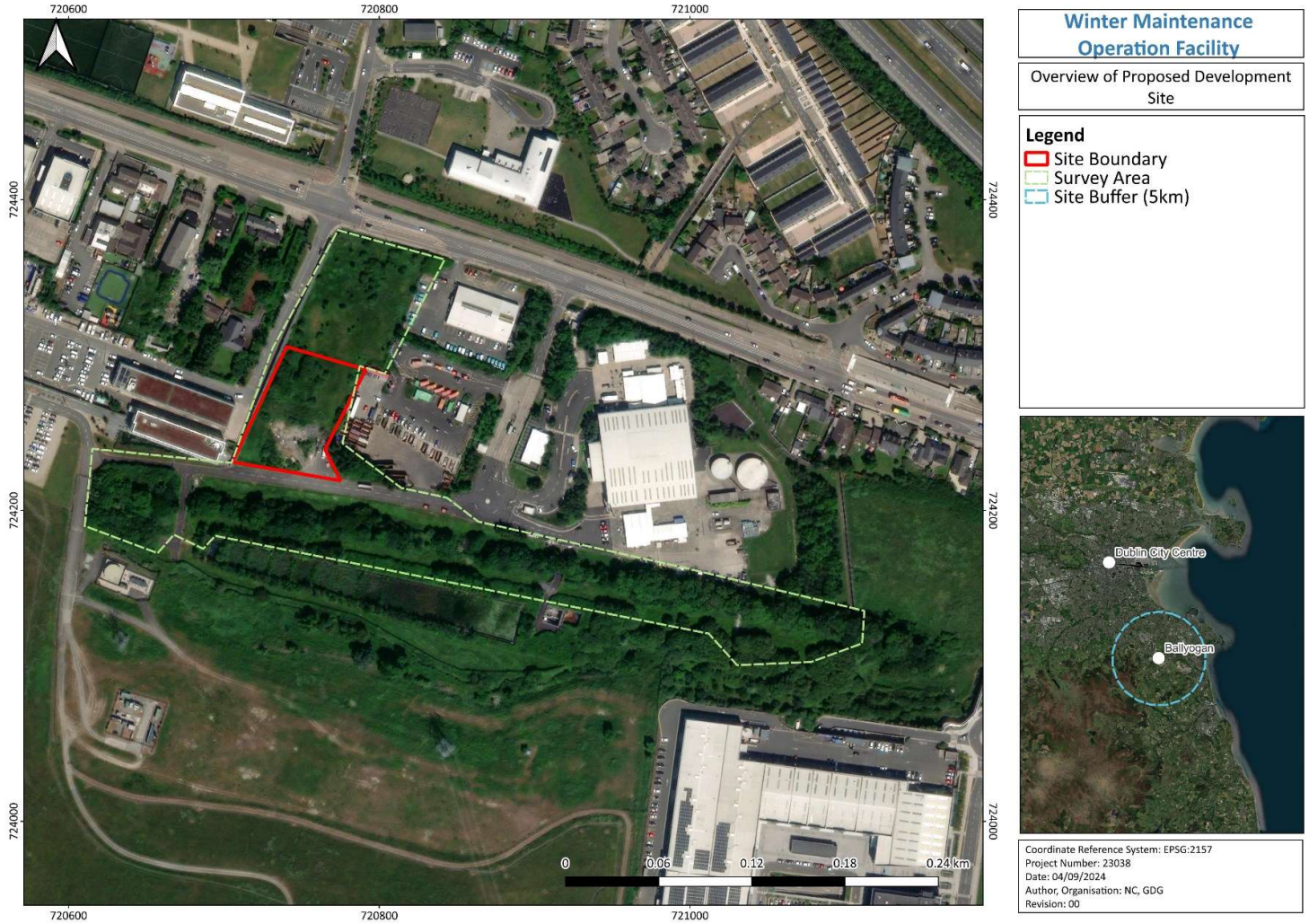


Figure 1.1 Location of the Site Boundary (red outline) and the Survey Extent (blue hatched area) under consideration for Preliminary Ecological Appraisal.

1.2 AIMS AND OBJECTIVES OF THE ECOLOGICAL IMPACT ASSESSMENT

EcIA is the process of identifying, quantifying and evaluating the potential effects of a proposed project on ecological features[1] based on objective assessment of the best information available (CIEEM, 2018).

This report represents the results of the Ecological Impact Assessment (EcIA) undertaken, comprising a review of available ecological information in a desktop study, area-specific survey data shared by the DLRCC biodiversity officer and project-specific field survey data collected by GDG to provide an assessment of the ecology and biodiversity of the area, assess the impact of the proposed development and identify any mitigation measures where required.

The aims and objectives of this Ecological Impact Assessment (EcIA) are to:

1. **Identify and Evaluate Ecological Features**: Assess the presence, distribution, and significance of habitats, species, and ecological features within and around the proposed development site.
2. **Determine Potential Impacts**: Identify and evaluate the potential impacts of the proposed development on ecological features, both during construction and operation phases.
3. **Mitigate Adverse Effects**: Propose measures to avoid, minimise, or compensate for any adverse ecological impacts, ensuring the protection and enhancement of biodiversity.
4. **Enhance Biodiversity**: Identify opportunities to enhance biodiversity within the proposed development, promoting ecological resilience and connectivity.
5. **Inform Decision-Making**: Provide clear, evidence-based information to inform planning decisions and ensure compliance with relevant environmental legislation and policies.
6. **Monitor and Manage Impacts**: Develop monitoring and management plans to ensure that mitigation measures are effectively implemented, and ecological impacts are minimised throughout the project's lifecycle.

1.3 DESCRIPTION OF THE SITE

The Proposed Site, which is circa 4,900 m^2 (0.49 ha) in area, is located approximately 12km southeast of Dublin city centre, along the Ballyogan Road. The M50 motorway is situated approximately 400m to the north-northeast of the Site. The Site is located within a predominantly urban/industrial landscape and is dominated by hardstanding (roads) and buildings.

The Site lies west of Junction 15 on the M50, directly east of the DLRCC Ballyogan Operations Centre. To the south of the site is the Ballyogan landfill, now closed and restored. Between the site and the closed landfill there is a raised line of trees along a slight embankment / rise. The Barnacullia Stream is located within the line of trees and flows to the east. East of the site is the Ballyogan Recycling Centre, and the An Post D18 Delivery Office. The nearest residential properties are adjacent to the

[1] An ecological feature is defined as a species, habitat or ecosystem that has the potential to be affected by a proposed project.

private access road to the west. The Samuel Beckett Community Facility lies northwest of the proposed scheme.

The site comprises rough grassland with areas of trees, scrub and hedges (northwestern corner). The southern area has an area of hardstanding and rough vegetation with storage of bins and evidence of waste materials. Current access to the site is along the southern boundary off Ballyogan Road, via a private access road.

1.4 BRIEF DESCRIPTION OF THE PROPOSED WORKS

The new operations facility will be used for road maintenance operations; the DLRCC road maintenance programme deals with severe weather conditions on public roads. The new road operations area will contain a new access road, salt barn, a brine batching facility, a rainwater harvesting tank (from salt barn roof), dedicated parking for road maintenance vehicles / equipment, an automated wheel wash, and dedicated washdown facilities for the road maintenance vehicles. A new access ramp to the new site will be from the private road off Ballyogan Road and concrete / asphalt hardstands will be required throughout the site. The site will be fully serviced with lighting, water, electricity grid connection and communications. The completion of this project will make DLRCC Road maintenance operations more efficient, effective and environmentally friendly.

The project will deliver:

- Dedicated Road Maintenance Operational Fleet Parking
- Operational Hardstand, Site Access, and Drainage,
- Operational Vehicle Wash Facilities,
- Salt Storage Barn,
- Brine Manufacturing Facility, and
- Associated M&E including utilities, public lighting, telemetry, fencing, lighting etc.

Vehicle wash facilities and an automated wheel wash form part of the new development. The Brine Manufacturing Plant will utilise a combination of harvested rainwater and mains supplied water.

Surface water / storm water and wastewater management is designed into the project. Surface water and storm water from the outside tarmac areas will be collected and discharged via an oil interceptor, attenuation tank and hydrobrake to the surface water sewer system.

Wastewater from the development, generated from the salt storage barn, brine plant, vehicle washing facilities and automated wheel wash, will be isolated and discharged to the on-site foul sewer network.

1.5 STATEMENT OF AUTHORITY

This report has been prepared by Maggie Starr (BSc. (Hons) Marine Sciences). Maggie is an Ecologist and Ornithologist with experience in terrestrial, aquatic and marine/coastal ecology and is a trained Marine Mammal Observer (MMO). Her current work includes ecological and environmental desktop studies for terrestrial, aquatic and marine environments, specialised mammal surveys, ornithological surveys, and map preparation.

This report has been checked by Charlotte Manwaring. Charlotte is a Senior Environmental Scientist with extensive experience as an environmental consultant, undertaking various multi-disciplinary projects within consulting engineering.

This report has been reviewed and approved by Joey O' Connor (BSc. Hons Marine Science, MSc. Engineering in the Coastal Environment). Joey is a Principal Environmental Scientist with coastal engineering expertise and extensive experience of survey and Marine Protected Area monitoring who has undertaken multiple environmental assessments under the Habitats and EIA Directives for GDG and as a statutory adviser to the UK government and its devolved administrations with the Joint Nature Conservation Committee.

2 RELEVANT PLANNING POLICY, LEGISLATION AND GUIDANCE

The planning policy and legislation that is relevant to the proposed development is set out in the following sections.

2.1 LOCAL PLANNING POLICY

2.1.1 THE DLR COUNTY DEVELOPMENT PLAN 2022-2028

The Proposed Site falls within the DLR County Development Plan 2022 – 2028.

The policies and objectives concerning natural heritage and green infrastructure for this Proposed Development are detailed in Chapter 11 of the DLR County Development Plan. A comprehensive list of these policies can be found in Appendix A of this report.

In summary, the primary goal of these policies is to safeguard, conserve, enhance, and manage DLR County's natural heritage and green infrastructure by ensuring effective management, thoughtful enhancement, and suitable development are undertaken.

2.1.2 THE DLR COUNTY BIODIVERSITY ACTION PLAN 2021 -2025

The latest DLR County Biodiversity Action Plan (CBAP) aims to enhance understanding of the county's natural resources, increase awareness and appreciation of its biodiversity and the essential roles it plays, and promote sustainable development that respects and safeguards biodiversity.

The DLR County Biodiversity Action Plan outlines comprehensive objectives to protect and enhance biodiversity through various strategies. It focuses on mapping and managing important habitats, species, and ecosystem services, integrating biodiversity into local policies and planning, and restoring ecosystems with projects like re-wilding and green infrastructure expansion. The plan also emphasises education, awareness, and community involvement, promoting biodiversity through training, events, and public engagement. Collaboration is key, with partnerships across local communities, businesses, government bodies, and conservation organisations to implement projects, protect marine and terrestrial ecosystems, and advance biodiversity research.

2.2 LEGISLATION

This EcIA was prepared with reference to the following legislation.

Further information and details of both national and European legislation for those species which are formally protected is defined in Appendix A, which are considered throughout the assessment.

This report has been informed by the following key national and European legislation and due regard for relevant case law, including but not limited to:

- The Wildlife Act 1976 (No. 39 of 1976) as amended by the Wildlife (Amendment) Act 2000 (No, 38 of 2000) (The Wildlife Act);
- The Flora (Protection) Order 2022 (S.I. No. 355/2022);

- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (The Habitats Directive);
- Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds (codified version of Directive 79/409/EEC as amended) (The Birds Directive);
- European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477/2011) (European Communities Regulations);
- OPR Practice Note PN01; Appropriate Assessment Screening for Development Management (OPR 2021)
- The Bern Convention[2] (The Convention on the Conservation of European Wildlife and Natural Habitats)
- The Bonn Convention: CMS[3] (The Convention on the Conservation of Migratory Species of Wild Animals)

2.2.1 INTERNATIONAL DIRECTIVES

The establishment of a network of nature protection areas under the Habitats Directive and Birds Directive is a key measure in preserving and restoring habitats and biodiversity across Europe. Areas that are designated under these legislations are known collectively as Natura 2000 Sites.

2.2.1.1 COUNCIL DIRECTIVE ON THE CONSERVATION OF NATURAL HABITATS OF WILD FAUNA AND FLORA (92/43/EEC) (THE HABITATS DIRECTIVE)

The aim of the **Council Directive on the Conservation of Natural Habitats of Wild Fauna and Flora (92/43/EEC), known as the Habitats Directive**, in Ireland is to ensure the conservation of natural habitats and wild species of flora and fauna that are of European interest. These species are listed on the Annexes of the Directive. Member States are required to take measures to maintain or restore, at favourable conservation status, biodiversity whilst taking account of economic, social, cultural requirements and regional and local characteristics. This is achieved through:

1. **Protecting Biodiversity**: Safeguarding a wide range of rare, threatened, or endemic animal and plant species, as well as their natural habitats, by maintaining or restoring them to a favourable conservation status.
2. **Establishing the Natura 2000 Network**: Creating a coherent network of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), known as Natura 2000 sites, to provide a comprehensive protection framework for Europe's most valuable and threatened habitats and species.
3. **Promoting Sustainable Development**: Ensuring that economic activities, land use, and other developments are carried out in a manner that is compatible with the conservation of natural habitats and species, fostering sustainable development across the EU.

[2] https://www.coe.int/en/web/bern-convention
[3] https://www.cms.int/

4. **Enhancing Cross-Border Cooperation**: Encouraging cooperation among EU member states, including Ireland, to ensure consistent and effective conservation efforts across the European Union's territory.

2.2.1.2 ANNEXED HABITATS AND SPECIES

Protected habitats and species are outlined by the directive through the different Annexes (as defined in 92/43/EEC):

- **Annex I**: habitat types whose conservation require the designation of SAC. Habitats within Europe that are in danger of disappearing are additionally assigned as 'Priority Habitats' and are highlighted with an asterisk (*).
- **Annex II**: Animal and plant species whose conservation requires the designation of SAC.
- **Annex IV**: Animal and plant species in need of strict protection.
- **Annex V**: Animal and plant species whose taking in the wild and exploitation may be subject to management measures.

Animals and plant species which are particularly threatened within EU countries are under strict protection and these species are listed in Annex IV of the Habitats Directive, both inside and outside Natura 2000 sites.

The terrestrial and semi-aquatic fauna species listed in Annex IV, which occur in Ireland, are:

- Otter (*Lutra lutra*)
- All bat species (*Chiroptera* spp.)
- Natterjack toad (*Epidalea calamita*)
- Kerry slug (*Geomalacus maculosus*)

The plant species listed in Annex IV, which occur in Ireland, are

- Slender Naiad (Najas flexilis)
- Yellow Marsh Saxifrage (*Saxifraga hirculus*)
- Killarney Fern (*Trichomanes speciosum*)

2.2.1.3 EU BIRDS DIRECTIVE

The EU Birds and Natural Habitats (S.I. No. 293/2021) Regulations as well as its amending acts seek to:

- protect, manage and regulate all bird species naturally living in the wild within the European territory of the Member States, including the eggs of these birds, their nests and their habitats;
- to conserve wild birds and require the designation of a network of habitats for birds, based on scientific criteria; and

- regulate the exploitation of these species. Assessment of these designated sites is through the regular monitoring of waterbirds from which the conservation value and subsequent basis for SPA (Council Directive 79/409/EEC) selection in Ireland is appointed. The Regulations also require the designation of SACs for the protection of certain habitats and species of plants and animals (other than birds) (EU Habitats Directive 92/43/EEC). It is a requirement under Article 6(3) and 6(4) of the Directive for the undertaking of an Appropriate Assessment (AA) for proposed projects that are likely to be affect designated sites.

Five hundred (500) wild bird species naturally occurring in Europe are protected in various ways through the Annexes of the Birds Directive (European Union website, accessed on 01/08/2023):

- **Annex I**: 197 species and subspecies listed (threatened). Member States must classify Special Protection Areas (SPAs) for Annex I of the Birds Directive, as well as for other migratory birds, paying particular attention to the protection of wetlands of international importance.
- **Annex II**: 84 huntable species are listed under Annex II provided this is done in a sustainable manner that does not jeopardise their survival. Hunting periods are limited and is forbidden when birds are at their most vulnerable stages: periods during their return migration to breeding areas, reproduction and raising their young.
- **Annex III**: overall, activities that directly threaten birds, such as their deliberate killing, capture or trade, or the destruction of their nests, are banned. With certain restrictions, Member States can allow some of these activities for 26 species listed here.
- **Annex IV**: the Directive provides for the sustainable management of hunting, but Member States must outlaw all forms of non-selective and large-scale killing of birds, especially the methods listed in this Annex.
- **Annex V**: the Directive promotes research to underpin the protection, management and use of all species of birds covered by the Directive, which are listed in this Annex.

2.2.1.4 RAMSAR CONVENTION

The intergovernmental environmental treaty 'The Ramsar Convention on Wetlands' (or "Wetlands Convention") was established by UNESCO. This treaty designates sites containing representative, rare, or unique wetlands, or are wetlands identified as importance in conserving biological diversity. Once wetland site is designated, they become what is known as Ramsar Sites and are of international importance under the Ramsar Convention.

The Convention's "three pillars" of activity are:

I. the designation of wetlands of international importance as Ramsar Sites;

II. the promotion of the wise use[4] of all wetlands in the territory of each country; and

[4] "Wise use of wetlands is the maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development" – definition revised in Resolution IX.1 Annex A (2005).

III. international co-operation with other countries to further the wise use of wetlands and their resources.

2.2.1.5 ADDITIONAL INTERNATIONAL OBLIGATIONS

The Bern Convention (The Convention on the Conservation of European Wildlife and Natural Habitats) came into force in 1982 and the European Community adopted the EC Habitats Directive to implement this agreement.

Ireland has also signed The Bonn Convention (The Convention on the Conservation of Migratory Species of Animals) and is therefore party to both agreements.

2.2.2 IRISH LEGISLATION

S.I. No. 355 of 2015 provides that the following shall be construed together as one:

- Wildlife Acts (1976, as amended);
- European Communities (Birds and Natural Habitats) (Restrictions of the Use of Poison Bait) Regulations 2010;
- European Communities (Birds and Natural Habitats) Regulations 2011;
- European Communities (Birds and Natural Habitats) (Amendment) Regulations of 2013, 2015; and
- Wildlife Amendment Bill 2016

2.2.2.1 WILDLIFE ACTS (1976, AS AMENDED)

The Wildlife Act (as amended) is the principal national legislation providing for the protection of wildlife and the control of some activities that may adversely affect wildlife. The primary purpose of this Act is the conservation of wildlife, rather than with animal welfare per se. It is the Dept. of Agriculture and Food that holds responsibility of animal welfare. Currently, under the Wildlife Act, all species of birds, 157 species of flora and 23 other animal species are afforded protection.

"*The aims of the Wildlife Act, 1976, are to provide for the protection and conservation of wild fauna and flora, to conserve a representative sample of important ecosystems, to provide for the development and protection of game resources and to regulate their exploitation, and to provide the services necessary to accomplish such aims*" - NPWS.

Under the act it is an offence to wilfully interfere with or destroy the breeding place or resting place of any protected wild animal, and/or injure or kill any protected species. A derogation licence from the Minster of Housing, Local Government and Heritage (NPWS) must be awarded to disturb or interfere with protected fauna and flora species. In addition, terms and conditions may be attached to any derogation licence by the Minister under the Act.

2.2.2.2 NATURAL HERITAGE AREAS (NHA)

The Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs) are areas considered important for habitats present or which holds species of plants and animals whose habitat requires protection, i.e., basic national designation areas for wildlife and their habitats. They are designated under the Wildlife Amendment Act 2000.

Note: NHAs are not part of the Natura 2000 network, hence the Appropriate Assessment process does not apply to these areas.

Under the Wildlife Amendment Act (2000) NHAs are afforded legal protection from damage and/or disturbance. pNHAs are areas that were published in 1995 on a non-statutory basis and have not since been statutorily designated. These areas can be very small in coverage in comparison to NHAs and Natura 2000 sites, e.g., the areas can cover the roosting site for rare bats. There are 630 pNHAs in Ireland, covering approximately 65,000ha, and designation of these areas will occur on a phased basis over the coming years (NPWS, 2023).

2.2.2.3 WILDLIFE AMENDMENT BILL 2016

The aim of the **Wildlife Amendment Bill 2016** in Ireland is to enhance the protection of Ireland's natural heritage by amending and updating the existing Wildlife Acts. Specifically, the Bill seeks to:

- **Strengthen the Protection of Natural Heritage Areas (NHAs)**: Improve the process for the designation and management of NHAs, ensuring that these areas, which are important for conserving Ireland's biodiversity, are effectively protected and managed.
- **Update Wildlife Legislation**: Modernise and address gaps in the existing wildlife legislation, including provisions related to the protection of specific species and habitats, in order to better align with current conservation needs and international obligations.
- **Facilitate Sustainable Management**: Promote the sustainable management and use of natural resources, balancing the needs of conservation with those of landowners and other stakeholders.
- **Enhance Legal Compliance**: Improve legal compliance and enforcement mechanisms to ensure that wildlife protection measures are effectively implemented and that violations are appropriately addressed.

2.2.2.4 EUROPEAN COMMUNITIES (BIRDS AND NATURAL HABITATS) REGULATIONS 2011 TO 2015

The **European Communities (Birds and Natural Habitats) Regulations 2011** is a key piece of legislation in Ireland that implements the EU Birds Directive (Directive 2009/147/EC) and the EU Habitats Directive (Directive 92/43/EEC). The Regulations are designed to protect and conserve wild bird species, natural habitats, flora, and fauna of European importance across Ireland. The Regulations place obligations on all public authorities to have regard to the requirements of the Habitats Directive

beyond the realms of planning related consents issued under the Planning and Development Act 2000, as amended (the PDA).

The 2011 Regulations establish a legal framework for:

1. **Designation and Protection of Sites**: The regulations provide for the designation and management of Special Protection Areas (SPAs) for birds and Special Areas of Conservation (SACs) for other species and habitats of European importance. These sites form part of the EU-wide Natura 2000 network, aimed at ensuring the long-term survival of Europe's most valuable and threatened species and habitats.
2. **Conservation Measures**: The regulations require the implementation of appropriate conservation measures to maintain or restore the favourable conservation status of protected habitats and species. This includes the development and enforcement of site-specific conservation objectives and management plans.
3. **Assessment of Plans and Projects**: Any plan or project that might significantly affect a Natura 2000 site must undergo an Appropriate Assessment (AA) to ensure it will not adversely impact the site's integrity. This process is designed to prevent deterioration of natural habitats and disturbances to the species for which the site has been designated.
4. **Protection of Species**: The Regulations also provide specific protections for certain species, prohibiting activities that could harm them, their breeding sites, or their resting places.
5. **Enforcement and Penalties**: The Regulations outline enforcement powers and penalties for non-compliance, ensuring that Ireland meets its obligations under the EU Birds and Habitats Directives.

2.2.2.5 FAUNAL PROTECTION

Wild animals that have been afforded protection under the Wildlife Acts include all deer species (*Cervus* spp.), otter (*Lutra lutra*), pine marten (*Martes martes*), Irish stoat (*Mustela erminea hibernica*), badger (*Meles meles*), all species of bats (*Chiroptera* spp.), Irish hare (*Lepus timidus hibernicus*), red squirrel (*Sciurus vulgaris*), hedgehog (*Erinaceous europaeus*), pygmy shrew (*Sorex minutus*), common frog (*Rana temporaria*), natterjack toad (*Bufo calamita*), common lizard (*Zootoca vivipara*), smooth newt (*Lissotriton vulgaris*), freshwater pearl mussel (*Margaritifera margaritifera*), freshwater white-clawed crayfish (*Austropotamobius pallipes*), all species of birds (*Aves* spp.), and the Kerry slug (*Geomalacus maculosus*) as well as marine mammals.

2.2.2.6 FLORAL PROTECTION

Floral protection in Ireland is guided by a combination of national legislation and European directives aimed at conserving native plant species and their habitats. Key regulations include the **Wildlife Acts** and the **Flora (Protection) Order**, which provide legal protection to certain plant species, prohibiting their picking, uprooting, or destruction. Additionally, the **European Communities (Birds and Natural Habitats) Regulations 2011** implement the EU Habitats Directive, which helps protect rare and

threatened habitats that support a diverse range of plant species. Conservation efforts focus on safeguarding these species and habitats from threats such as habitat loss, invasive species, and pollution, ensuring the survival of Ireland's rich botanical diversity.

2.3 GUIDANCE

This report has been informed by the following key guidance notes including but not limited to:

- CIEEM Guidelines for Ecological Impact Assessment in the United Kingdom (CIEEM, 2006);
- CIEEM Technical Guidance Series Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017);
- Fossitt's *A guide to habitats in Ireland*. The Heritage Council (Fossitt 2000);
- Best Practice Guidance for Habitat Survey and Mapping (Smith et al., 2011);
- CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM 2018);
- BS42020:2013 Biodiversity – Code of practice for planning and development (BSI, 2013);
- NPWS (2009) Appropriate Assessment for plans and projects in Ireland; guidance for Planning Authorities. Environment, Heritage and Local Government (NPWS 2009); and
- Kelleher, C. & Marnell, F. (2006) Bat Mitigation Guidelines for Ireland. Irish Wildlife Manuals, No. 25. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland. (NPWS 2006).

3 METHODOLOGY

This Ecological Impact Assessment has been prepared for the Proposed Development following a desktop review of the available ecological information for the area, including survey data provided by DLRCC, and completion of a field survey conducted by GDG on 16/04/2024.

The assessment method for this report was informed by the impact assessment guidance published in 2018 by Chartered Institute of Ecology and Environmental Management (CIEEM, 2018).

3.1 DEFINING THE ZONE OF INFLUENCE

The zone of influence (ZOI) of a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities. This has the potential to extend far beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries. The ZoI will vary for different ecological features depending on their sensitivity to an environmental change (CIEEM, 2016). NPWS guidance (DEHLG, 2009) states for certain projects the ZoI can be less than 100m and advises that this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project the sensitivities of the ecological receptors, and the potential for in-combination effects.

The ZoI of the project has been evaluated on a case-by-case basis with reference to nature, size and location of the Proposed Project, the sensitivities of the ecological receptors, the hydrological links beyond the site boundaries, and the potential for in-combination effects.

3.1.1 SOURCE-PATHWAY-RECEPTOR

The Office of the Planning Regulator (OPR, Practice Note PN01, 2021) recommends the zone of influence of a project should be considered using the Source-Pathway-Receptor model, stating:

"*A European site will only be at risk from likely significant effects where the Source-Pathway-Receptor link exists between the proposed development and the European site*".

The source-pathway-receptor model has been applied in this EcIA, where, in order for an effect to be established, all three elements of this mechanism must be in place. The absence or removal of one of the elements of the mechanism is sufficient to conclude that a potential effect is not of any relevance or significance, i.e. the proposed development can be screened out with confidence.

The relevant ecological **receptors** considered in this Ecological Impact Assessment (EcIA) include all species and habitats located within the boundaries of the site and those downstream of the Proposed Development Site. These receptors encompass both flora and fauna, such as the deer population, native plant communities, and any other wildlife utilising the habitat on-site. Additionally, downstream habitats and species are considered receptors, as they could be affected by changes in water quality resulting from the construction and operation of this proposed development. A **source** is any identifiable component of the proposed development that interacts with a protected species and/or habitat, or the ecological processes supporting them. A **pathway** is the connection or link between the source and the receptor, such as a river. This report evaluates whether the proposed development could result in direct, indirect, or cumulative significant effects on these receptors.

If there are no direct/indirect effects to theecological receptors from any impact resulting from the Proposed Development, including the construction and operation phase, a likely significant effect can be ruled out.

A receptor is only at risk of likely significant effects where the Source-Pathway-Receptor (S-P-R) link exists between the Proposed Development and the receptor (OPR 2021). Potential connectivity is considered if there is direct spatial overlap with the Planning Application Area and an SAC/SPA (direct effects), or if an SAC/SPA is within range of the effects of the proposed activity (indirect effects).

3.1.1.1 INDIRECT EFFECTS PATHWAY

The Site Specific Flood Risk Assessment (Sweco, 2024) describes the existing site drainage:

"Based on the topographic survey as detailed in Section 3, the existing greenfield site drains from the north west corner (89.1 m OD – approximately 1m lower than the adjacent roadway falling towards the south east corner (86.06 m OD). DLRCC have an existing entrance into the site from the south east off the Recycling Park Road and they are utilising part of the lower portion of the site for temporary storage for road maintenance activities. Existing site drainage includes an existing stormwater manhole in the storage yard here that has a piped connection to the main sewer to the south west of the site".

The primary watercourse that runs to the south of the site for the proposed development is the Carrickmines or Barnacullia Stream that flows from west to east. The Barnacullia Stream is a tributary of the wider Carrickmines/Shanganagh River system. Therefore, there is the potential for a hydrological connection (potential source-pathway-receptor) between the Proposed Development Site and the Carrickmines River (Figure 4.1).

No other pathway for indirect effects to receptors outside of the boundary of the proposed development has been identified.

3.2 DESKTOP REVIEW

A desk study was carried out to identify nature conservation designations and records of protected and notable habitats/species potentially linked to the proposed development.

The desk study included a review of the following sources of information:

- Article 17 Reports (NPWS, 2019)
  o GIS spatial data for Article 17 Reports1
- National Biodiversity Data Centre (NBDC, 2023) – 1km-square species reports (accessed online on 17/03/2024):
- Irish Red Data Books 1 (plants) and 2 (animals)
- Invasive Species Ireland: Third Schedule Part 1 (plants) and Part 2 (animals) of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477/2011) (as amended) – subject to restrictions under Regulations 49 and 50, those of EU concern under

the EU Invasive Alien Species Regulation, and those listed by the National Biodiversity Data Centre as invasive in Ireland.

- Environmental Protection Agency (EPA) rivers and water quality data and Water Framework Directive (WFD) status at EPA map viewer – shapefile containing spatial data on the integrated flow network of known flow connections through rivers, lakes and groundwater aquifers (EPA, 2017);
- 2019 Spatial data for breeding distributions and ranges of bird species protected under Article 12 of the Bird Directive (79/409/ECC) (NPWS, 2019a);
- 2019 Spatial data for habitats (Annex I) and species (Annexes II, IV and V) protected under Article 17 of the Habitats Directive (92/43/EEC) (NPWS, 2019b)

The following websites were accessed for information and data:

- Dún Laoghaire-Rathdown County Council– https://www.dlrcoco.ie/
- National Parks and Wildlife Service (NPWS) - https://www.npws.ie/
- National Biodiversity Data Centre (NBDC) – https://biodiversityireland.ie/ https://www.npws.ie/maps-and-data/habitat-and-species-data/article-17
- The Vincent Wildlife Trust Ireland - https://www.vincentwildlife.ie/
- DATA.GOV.IE – https://data.gov.ie/
- Ordinance Survey Ireland - https://osi.ie/
- Environmental Protection Agency, Ireland – https://www.epa.ie/
- European Commission – https://commission.europa.eu/index_en

3.2.1 WILDLIFE RECORDS

The National Biodiversity Data Centre (NBDC) is an Irish organisation responsible for collecting, managing, analysing, and sharing data on the country's biodiversity. It is funded by the Heritage Council and the Department of Arts, Heritage and the Gaeltacht. The NBDC makes all validated biodiversity data available through Biodiversity Maps, an online data portal.

Users can view and examine biodiversity records and detailed species information through the interactive Biodiversity Maps portal (http://maps.biodiversityireland.ie/#/Home). This tool is useful for conducting a preliminary assessment of biodiversity considerations for specific proposed development sites.

For this purpose, the NBDC search tool was tailored to include all records within the proposed development site and to include the Barnacullia Stream downstream of the Proposed Site by a further 1km, as shown throughout section 4 of this assessment. The main goal of this exercise is to identify any records of protected species or species of natural heritage significance near the site boundary. The proposed development's zone of influence for protected species does not extend beyond this radius.

NBDC database was searched for the listed species records above within the 1 km square grids O2024 and O2124 (in blue) covering the footprint of the Site, as illustrated in Figure 3.1.

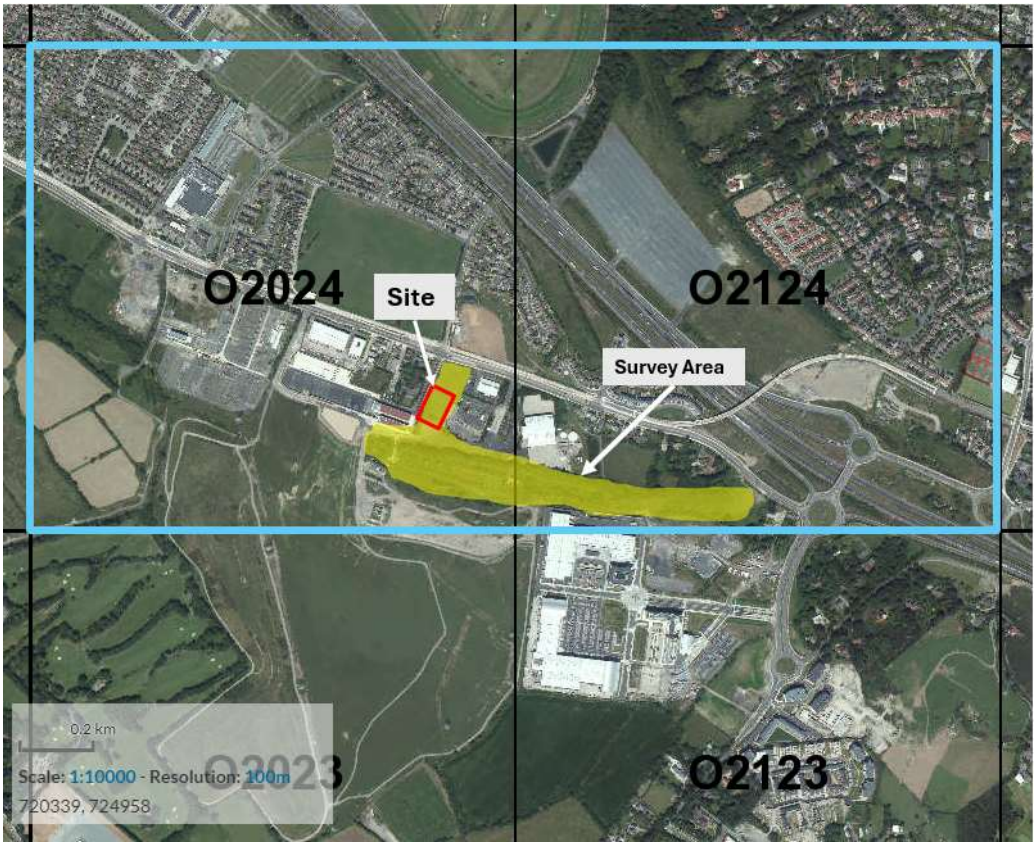


Figure 3.1 1km square grids (O2024 and 2124 in blue) sourced from NBDC records (accessed 2024) of the project footprint (Site is red square) and the Survey Area extent (in yellow).

3.2.2 CONSULTATION AND DLRCC DATA RECEIVED

As part of the assessment process, a consultation was conducted with the Biodiversity Officer of Dún Laoghaire-Rathdown County Council (DLRCC). DLRCC provided data from previous surveys that had been carried out within the DLR area. These surveys cover a range of ecological receptors, providing species distributions, habitat types, and potential ecological sensitivities information. The following received datasets have been integrated into this assessment:

- Blackthorn Ecology. (2021). DLR Hedgerow Review and Evaluation. Report prepared for DLRCC.
- Brazier, B. & Macklin, R. (2020). Dún Laoghaire-Rathdown otter survey. Report prepared by Triturus Environmental Ltd. for Dún Laoghaire-Rathdown County Council. November 2020.
- Denyer Ecology. (2023). Dún Laoghaire–Rathdown Petrifying Springs Review. Final Report. May 2023.

- Denyer Ecology. (2020). Dún Laoghaire–Rathdown Habitat Review. Final Report. October 2020.
- Handby, T. (2022). Understanding patterns of urban habitat use in overwintering lightbellied Brent geese in Dublin, Ireland. University of Exeter, Cornwall in collaboration with the Irish Brent Goose Research Group (IBGRG). November 2022.

3.3 FIELD SURVEY

A Preliminary Ecological Assessment (PEA) survey was undertaken on 16/04/2024 following the best practice guidance as set out in Guideline for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2018), Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes (NRA, 2009), and Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017).

The PEA Survey methodology is detailed within the PEA Report attached as Appendix of this EcIA.

3.4 ECOLOGICAL IMPACT ASSESSMENT

The information gathered from consultation with the DLRCC Biodiversity Officer, desk study and PEA survey was used to inform this EcIA.

3.4.1 APPROACH TO IMPACT ASSESSMENT

The impact assessment involved the following steps:

1. **Ecological Evaluation**:
    - Evaluation of the ecological importance of identified features, including habitats and species, at various scales (e.g., local, regional, national, or international) considering criteria such as rarity, diversity, naturalness, fragility, and the role of the feature in the ecosystem.
2. **Impact Assessment**:
    - Identification and description of potential impacts of the proposed development on identified ecological features during different project phases (e.g., construction, operation, and decommissioning).
    - Assessment of the magnitude, extent, duration, positive/negative, frequency and reversibility of each impact and determination of its significance relative to the conservation status and ecological value of the affected features.
3. **Mitigation and Enhancement Measures**:
    - Propose mitigation measures to avoid, minimise, or compensate for significant adverse ecological impacts.

- Identify opportunities for biodiversity enhancement to promote net gains for biodiversity, in line with the principles of sustainable development.

4. **Residual Impact Assessment**:
    - Evaluation of the significance of any residual impacts remaining after mitigation measures have been applied, considering both negative and positive outcomes.
5. **Reporting and Documentation**:
    - Preparation of EcIA report

3.4.2 DETERMINING IMPORTANCE

The importance of an ecological feature should be considered within a defined geographical context (CIEEM, 2016) to ensure that the evaluation is relevant to the specific area affected by the Proposed Development or activity. The geographical context could range from the following scales, depending on the distribution and ecological significance of the feature in question.

These are based upon criteria identified in the CIEEM (2018) and NRA (2009) guidance, which categorise the geographic context of ecological importance as within one of the following:

- International and European;
- National;
- Regional;
- County or local authority; and,
- Local Importance (High or Low Value).

In this case, the assessment utilises a specific frame of reference to determine the importance of each ecological feature. This frame of reference relies on known or published accounts of species distribution and rarity, where available, to provide an evidence-based evaluation. Additionally, professional experience and expert judgment are employed to interpret the data and fill any gaps in knowledge. This approach ensures that the assessment of importance is both scientifically grounded and informed by local or regional ecological knowledge, leading to more accurate and meaningful conclusions about the potential impacts on ecological features.

According to the CIEEM (2018) guidelines for impact assessment, only ecological features—such as habitats, species, ecosystems, and their functions or processes—that are deemed “important ecological features” (habitats, species and ecosystems, including ecosystem function and processes that may be affected, with reference to a geographical context in which they are considered important) and potentially impacted by the proposed development need to undergo a detailed assessment. It is not required to perform a detailed assessment on receptors that are widespread, unthreatened, and resilient enough to withstand the effects of the proposed development and will continue to be viable and sustainable. Consequently, this report focuses on conducting detailed assessments only for ecological features that are of Local importance or higher and/or are legally protected.

3.4.3 SIGNIFICANT EFFECTS

Significant effects refer to impacts on ecological features—such as species, habitats, or ecosystems—that are substantial enough to potentially alter their conservation status or ecological function. A significant effect is one that may lead to a noticeable change in the extent, integrity, or resilience of a habitat or population of a species, either positively or negatively.

A significant effect, for the purposes of EcIA, is defined as an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity).

Significant effects are determined based on several criteria, including:

1. **Magnitude**: The scale or intensity of the impact (e.g., minor habitat loss vs. extensive habitat destruction).
2. **Extent**: The geographic area over which the impact will occur. CIEEM (2018) guidelines sets out information, in paragraphs 5.24 through to 5.28, of the document, about the concept of ecological significance. Significant effects are qualified with reference to an appropriate geographic scale, and the scale of significance of an effect may or may not be the same as the geographic context in which the feature is considered important
3. **Duration**: How long the impact will last (short-term, medium-term, or long-term).
4. **Reversibility**: Whether the impact is reversible or irreversible.
5. **Timing and Frequency**: The timing of the impact relative to sensitive periods (e.g., breeding seasons) and how often the impact occurs.

An effect is considered significant if it leads to changes that are likely to affect the long-term viability of a species or the ecological function of a habitat within its context or if it affects the achievement of conservation objectives set for the area.

3.4.4 CUMULATIVE EFFECTS

Cumulative effects refer to the combined impacts on ecological features that result from multiple activities or developments over time and space. These effects are not just the sum of individual impacts but include interactions between them, which can lead to more significant overall effects than each impact considered separately.

Cumulative effects can occur in several ways:

1. **Additive Effects**: When multiple impacts add up to create a greater overall effect (e.g., several small habitat losses leading to a significant reduction in habitat availability).
2. **Synergistic Effects**: When combined impacts interact in a way that amplifies the effect, making it greater than the sum of the individual impacts (e.g., habitat fragmentation and pollution together causing more harm to a species than either impact alone).

3. **Temporal Effects**: When repeated or continuous impacts occur over time, leading to gradual degradation or accumulation of effects (e.g., repeated disturbances during breeding seasons causing population decline).
4. **Spatial Effects**: When impacts from different projects overlap in space, potentially affecting the same ecological features or populations (e.g., multiple developments within a wildlife corridor reducing its effectiveness).

Cumulative effects are important to consider in EcIA because they can lead to significant changes in the conservation status or ecological integrity of species, habitats, or ecosystems that might not be apparent when considering individual impacts in isolation.

3.5 MITIGATION

Where significant impacts have been identified, the mitigation hierarchy has been taken into account, as suggested in the 2018 CIEEM Guidelines, which sets out a sequential approach of avoidance of impacts where possible, application of mitigation measures to minimise unavoidable impacts and then compensation for any remaining impacts. Once avoidance and mitigation measures have been applied, along with any necessary compensation measures, and opportunities for enhancement incorporated, residual impacts have then been identified

3.6 LIMITATIONS /DIFFICULTIES ENCOUNTERED

Survey could not access Ballyogan landfill site (Jamestown Park) during PEA Survey.

Although the survey was conducted outside the flowering season (typically May to September), this was not considered a limitation. The habitats on site are relatively species-poor, containing only commonly occurring plant species, which allowed for accurate identification even in their vegetative state.

4 BASELINE ECOLOGICAL CONDITIONS

4.1 IDENTIFICATION OF THE POTENTIAL ZONE OF INFLUENCE

For this project, given the scale and nature of the proposed activities, and the location of the Site (i.e. within an urban area), the ZoI was determined through a review of the nature of the project, the distances between the project and Natura 2000 Sites (the SCIs and QIs), RAMSAR sites, and national conservation designations (i.e. Natural Heritage Area (NHAs) and Proposed NHAs (pNHAs)) the types of potential impacts/effects, and protected ecological receptors utilising the Site.

For this proposed project, the Source-Pathway-Receptor (S-P-R) model has been used to define the ZoI for this assessment.

Given the scale of the project, **a precautionary 5 km ZoI was applied** (Figure 4.1).

Figure 4.1 Site overview including the 5km ZoI.

4.2 DESK STUDY

4.2.1 DESIGNATED SITES FOR NATURE CONSERVATION

The Proposed Development Site is not located within the boundary of statutory or non-statutory designated site of international, national or local nature conservation importance. Designated sites within the Zone of Influence (ZoI) of the proposed project are outlined in Table 4.1 below. The boundaries of these designated sites in relation to the proposed project are shown in Figure 4.2.

Table 4.1 Designated Sites of Natural Heritage Importance within the 5km ZoI (site name in bold where an impact pathway has been recognised).

Designated Site/Feature	Distance from Site (km)	Description	Pathway
Dingle Glen pNHA [1207]	1.6km (closest point to closest point)	Dingle Glen is a secluded mature broadleaf woodland, mixed with rocky outcrops, within a glacier meltwater channel, thus providing a diversity of habitats within a small undisturbed area.	There are no hydrological pathways connecting the Site to Dingle Glen pNHA, nor are there any direct effects to the Project foreseen as a result of the Proposed Development
Fitzsimon's Wood pNHA [1753]	~ 3km (closest point to closest point)	This site features a mix of native tree species, including oak, ash, and hazel, along with a diverse ground flora. The woodland provides important habitat for a range of species, including birds, small mammals, and various invertebrates.	There are no hydrological pathways connecting the Site to Fitzsimon's Wood pNHA, nor are there any direct effects to the Project foreseen as a result of the Proposed Development.
Ballybetagh Bog pNHA [1202]	~3.4km (closest point to closest point)	This bog comprises a mix of wet heath, blanket bog, and areas of open water, supporting a range of plant species adapted to these wet, acidic conditions, including sphagnum mosses, bog cotton, and various sedges. The site is ecologically important for its role in supporting a diversity of invertebrates, birds, and other wildlife, some of which are	There are no hydrological pathways connecting the Site to Ballybetagh Bog pNHA, nor are there any direct effects to the Project foreseen as a result of the Proposed Development.

		associated with peatland environments.	
Loughlinstown Woods pNHA [1211]	**~ 4.3km (by river)B**	**This woodland is characterised by a mix of native broadleaf trees and understorey vegetation, providing valuable habitat for a variety of wildlife, including birds, mammals, and invertebrates. The wood supports a diversity of plant species and plays a significant role in maintaining local biodiversity**	**There is a hydrological pathway connecting the Site to Loughlinstown Woods pNHA.**
Dalkey Coastal Zone and Killiney Hill pNHA [1206]	~ 4.6km (closest point to closest point)	This area includes a variety of habitats such as rocky shorelines, coastal heath, grasslands, and mixed woodlands. It is known for its rich biodiversity, supporting a range of plant and animal species, including several that are rare or of conservation concern. The coastal zone provides important breeding and feeding grounds for seabirds, while Killiney Hill offers scenic landscapes and supports diverse flora and fauna.	There are no hydrological pathways connecting the Site to Dalkey Coastal Zone and Killiney Hill pNHA, nor are there any direct effects to the Project foreseen as a result of the Proposed Development.
Knocksink Wood SAC [0725]	~ 4.8km (closest point to closest point)	Qualifying Interests: • Petrifying springs with tufa formation (Cratoneurion) [7220] • Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0]	No recognised impact pathway from the Proposed Development Site to the QIs of the SAC.

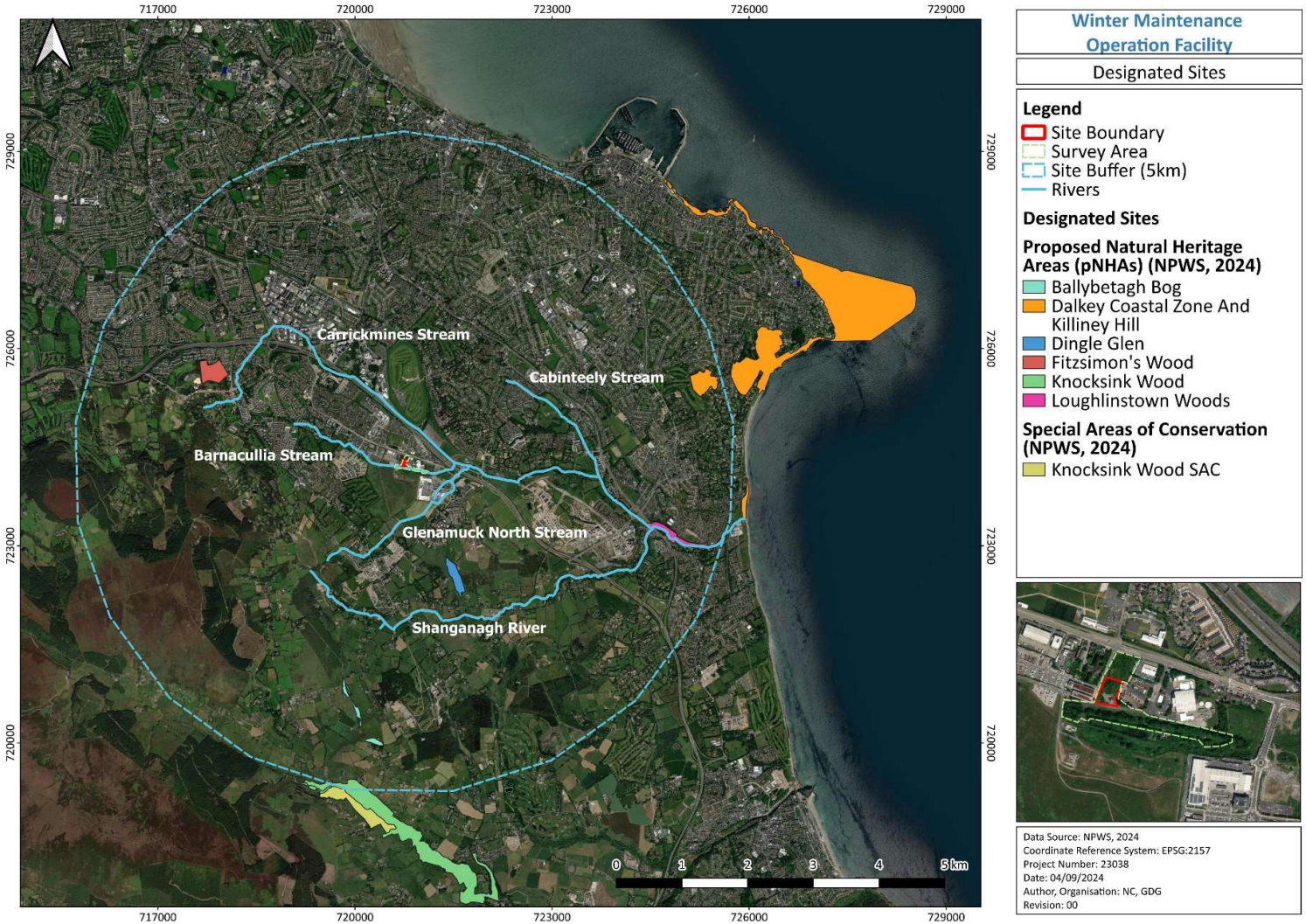


Figure 4.2 National and International Designated Sites within the 5km ZoI of the Proposed Development.

4.2.2 RARE AND PROTECTED FLORA AND FAUNA RECORDS (NBDC)

No protected or threatened flora species were documented within the 1km square grid O2024 where the Proposed Development Site is located. Four invasive plant species were documented within O2024 – see Table 4.2.

Table 4.2 Invasive plant species documented within O2024 square grid (NBDC).

Species name	Record count	Date of last record	Designation
American Skunk-cabbage (*Lysichiton americanus*)	3	28/03/2022	Invasive Species: Medium Impact EU Regulation No. 1143/2014
Butterfly-bush (*Buddleja davidii*)	1	14/05/2016	Invasive Species: Medium Impact
Sycamore (*Acer pseudoplatanus*)	1	14/05/2016	Invasive Species: Medium Impact
Three-cornered Garlic (*Allium triquetrum*)	1	14/05/2016	Invasive Species: Medium Impact Regulation S.I. 477 (Ireland)

NBDC records of non-volant mammals recorded within the grid squares O2024 are summarised in Table 4.3. The non-volant mammal species recorded within the NBDC grid are not protected (either national or international protection), with one species listed as High Impact Invasive Species. Due to their high mobility, the NBDC 1km square gird O2124 was also searched for protected non-volant mammals, however, none had been documented.

Table 4.3 Non-volant mammal records from NBDC grid cells O2024.

Species Name	Record Count	Date of Last Record	Designation
Red Fox (*Vulpes vulpes*)	2	08/05/2017	N/A
Eastern Grey Squirrel (*Sclurus carolinensis*)	1	27/01/2022	Invasive Species: High Impact Regulation S.I 477 (Ireland) EU Regulation No. 1143/2014

No records of volant mammals (bats) are documented within the 1km grid cell O2024, the square grid where the Site is situated in. Due to their high mobility, the bats recorded within the 1km square grid O2124 are summarised (NBDC) Table 4.4.

Table 4.4 Summary of NBDC records of protected bats recorded within the 1km square grid O2124.

Species Name	Record Count	Date of Last Record	Designation
Brown Long-eared Bat (*Plecotus auritus*)	2	05/09/2012	Habitats Directive (92/43/EEC), Annex IV Wildlife Acts Bern Convention; Appendix II
Common Pipistrelle (*Pipistrellus pipistrellus sensu stricto*)	5	10/08/2017	Habitats Directive (92/43/EEC), Annex IV Wildlife Acts Bern Convention; Appendix II
Lesser Noctule (*Nyctalus leisleri*)	4	10/08/2017	Habitats Directive (92/43/EEC), Annex IV Wildlife Acts Bern Convention; Appendix II

The 'Bat Landscape' layer in the NBDC maps for the area within and surrounding the Site is colour coded orange, giving a very high habitat suitability for all bat species in Ireland. The 'habitat suitability index' ranges between 0 and 100, where 0 is least favourable and 100 most favourable habitats for bats.

The 'Bat Landscape' of the area within and surrounding the Site (within the grid cells, NBDC) is colour-coded yellow indicating a medium suitability score for bats. The score from the index for each species of bat is shown in Table 4.5 below. Within the Site and surrounding landscape, the habitat suitability is medium to medium-high for Soprano pipistrelle (*Pipistrellus pygmaeus*), Common pipistrelle (*Pipistrellus pipistrellus*), Leisler's bat (*Nyctalus leisleri*) and Natterer's bat (*Myotis nattereri*).

Table 4.5 Habitat suitability index for all species of bats within and surrounding the site

Scientific Name	Common Name	Suitability Index
All bats (Overall)		26.56
Pipistrellus pygmaeus	Soprano pipistrelle	40
Plecotus auritus	Brown long-eared bat	31
Pipistrellus pipistrellus	Common pipistrelle	45
Rhinolophus hipposideros	Lesser horseshoe bat	0
Nyctalus leisleri	Leisler's bat	40
Myotis mystacinus	Whiskered bat	19
Myotis daubentonii	Daubenton's bat	19
Pipistrellus nathusii	Nathusius' pipistrelle	3
Myotis nattereri	Natterer's bat	42

No other records of fauna were recorded within the NBDC 1km square grids O2024 and O2124 such as birds, herpetofauna and other mammals.

4.2.3 SURVEY DATA RECEIVED FROM DLRCC

The data received from the DLRCC Biodiversity Officer provided several key insights into the ecological characteristics of the DLR area. The findings from the various surveys include:

- **Species Distribution**: The surveys documented the presence of several notable species within the area such as the otter (*Lutra lutra*), including protected and locally important species. The data highlighted key areas where these species are most frequently observed, which are considered sensitive to potential disturbances.
- **Habitat Types**: A range of habitat types were identified, including areas of woodland, grassland, and wetland habitats.
- **Invasive Species**: The surveys identified the presence of invasive species in certain areas.
- **Ecological Sensitivities**: Several areas within the DLR region were identified as ecologically sensitive due to the presence of rare or vulnerable species, or due to the high quality of their habitats.

4.2.3.1 OTTER

From the results of the designated otter survey along the major watercourses within DLR jurisdiction (Brazier and Macklin, 2020), evidence (one spraint and one slide) of otter were recorded along the Carrickmines Stream to the north of the Site across the M50 road and further downstream after the Barnacullia Stream and Glenamuck North Stream join the Carrickmines Stream. Within this survey, most of the otter evidence was located further downstream the Carrickmines Stream and along the Shanganagh River.

Table 4.6 summarises the total number of otter signs recorded (ranked in order of total abundance per watercourse) for the five watercourses surveyed which are within the ZoI of the Proposed Development. The survey data show otters were present in the ZoI of the Proposed Development Site during the survey period.

Table 4.6 Summary of the total number of otter signs recorded within the study area, 2019-2020, ranked in order of total abundance (Brazier and Macklin, 2020).

Watercourse	Spraint	Holt	Latrine	Prints	Couch	Slide	Smear	Total no. signs	% of total signs
Shanganagh River	18	3	2	3	0	2	0	**28**	19%
Carrickmines Stream	8	1	1	2	1	1	0	**14**	9%
Barnacullia Stream	0	0	1	0	0	0	0	**1**	1%
Cabinteely Stream	1	0	0	0	0	0	0	**1**	1%
Glenamuck North Stream	0	0	0	0	0	0	0	**0**	0%

4.2.3.2 AVIFAUNA

A study on habitat use and movement patterns of a sub-population of Light-bellied Brent Geese (LBBG), *Branta bernicla hrota*, overwintering in Dublin city and the surrounding area was conducted as part of a PhD programme at the University of Exeter, Cornwall in collaboration with the Irish Brent Goose Research Group (IBGRG) (Handby, 2022). In Appendix C, Figure C.1, a map showing the terrestrial sites used by LBBG, identified using the GPS data and/or records in the IBGRG resighting database resighting database from this report.

LBBG favours coastal habitats in Ireland for overwintering, typically from October to April. These geese prefer estuaries, saltmarshes, and intertidal mudflats, where they forage on eelgrass (Zostera spp.) and other marine vegetation, which are their primary food sources. As winter progresses and eelgrass becomes depleted, they shift to nearby coastal grasslands, agricultural fields, and pastures, feeding on grasses, winter cereals, and other crops (Crowe and Holt, 2013).

During the overwintering period in Ireland, LBBG are known to extend their foraging range several kilometres inland in search of food, particularly as their primary coastal food sources become scarce (eelgrass (Zostera spp.) found in estuaries, saltmarshes, and intertidal mudflats). However, as the winter season progresses and eelgrass beds are depleted, the geese increasingly rely on alternative food sources (Handby, 2022, and references therein (Inger, *et al*., 2006)).

The availability of both marine and terrestrial feeding grounds, along with the presence of safe roosting sites, makes these coastal and near-coastal habitats ideal for sustaining Light-Bellied Brent Geese throughout the winter months in Ireland.

The surveyed site is situated in a predominantly urban to peri-urban setting, characterised by built-up areas, residential developments, and limited natural habitats. However, to the south of the site, the raised Ballyogan Landfill Site is located, now closed and recolonised with plant species, may provide suitable foraging grounds for species such as LBBG. This closed landfill site, with its potential grassland habitats and open spaces, could offer an alternative feeding area for the geese, particularly during times when they move inland from coastal zones in search of food. The presence of such habitats within the landfill area highlights the potential for urban-adjacent sites to support wildlife, even in settings that are largely urbanised.

However, no records of LBBG terrestrial sites were identified by the study. Therefore, the potential for overwintering habitat loss for LBBG is considered negligible/insignificant.

4.2.3.3 PETRIFYING (TUFA) SPRINGS

Denyer Ecology (2020, updated 2023) was commissioned to undertake a review of the Annex I priority habitat 'Petrifying springs with tufa formation (Cratoneurion)' [7220] within Dún Laoghaire–Rathdown (DLR) area (Appendix C, Figure C.2).

Further downstream, there are three (3) Annex I petrifying springs with a potential hydrological impact pathway. The closest location (hydrologically linked downstream) of a spring habitat is circa 2.7 km downstream of the Proposed Development Site at Druid's Glen. Two (2) springs are located further downstream circa 3.5km.

4.2.3.4 HABITATS

Denyer Ecology (2020) conducted a review of terrestrial semi-natural habitats within Dún Laoghaire-Rathdown (DLR) area for DLRCC. The main aim of the review was to collate ecological surveys that had been undertaken in DLR area in order to identify habitats of high ecological value within DLR jurisdiction, including Locally Important Biodiversity Sites (LIBS). DLR LIBS within the ZoI of the Proposed Development Site can be seen in Appendix C, Figure C.4.

A separate report on a hedgerow review and evaluation study was conducted for the DLRCC (Blackthorn Ecology, 2021) within the DLR jurisdiction. To the south of the Proposed Development Site (c. 30m south across the private access road) the hedgerow called the Pale Ditch[5] is considered to be of County Value and is within the ZoI.

4.2.3.5 INVASIVE ALIEN PLANT SPECIES

Invasive alien (plant) species (IAS) data provided by DLRCC show no IAS were recorded within the Site Boundary or immediate surrounds – see Appendix C, Figure C.5.

4.3 FIELD SURVEY RESULTS

The field survey results of the PEA Survey are detailed in the PEA Report attached as Appendix E within the EcIA.

4.3.1 HABITATS

The habitats recorded in the survey area during the PEA Survey are listed in Table 4.7 below, with the habitat name and code (as per Fossitt, 2000). The location of the habitats within the Survey Extent is shown in Figure 4.3 below.

Table 4.7 Habitats recorded within the Survey Area

Habitat Name	Habitat Code (as per Fossitt, 2000)
Scrub	WS1
Treelines	WL2
Hedgerows	WL1
Recolonising Bare Ground	ED3

[5] The Pale in Ireland was a region around Dublin that, during the late Middle Ages and early modern period, was under direct English control. It was marked by a boundary that separated the English-influenced area from the rest of Ireland, which was predominantly Gaelic and under the control of native Irish lords. The Pale Ditch was part of this broader set of fortifications and natural boundaries.

Stone Walls and other Stonework	BL1
Buildings and Artificial Surfaces	(BL3)
Earth Banks	BL2
Wet Grassland	GS4

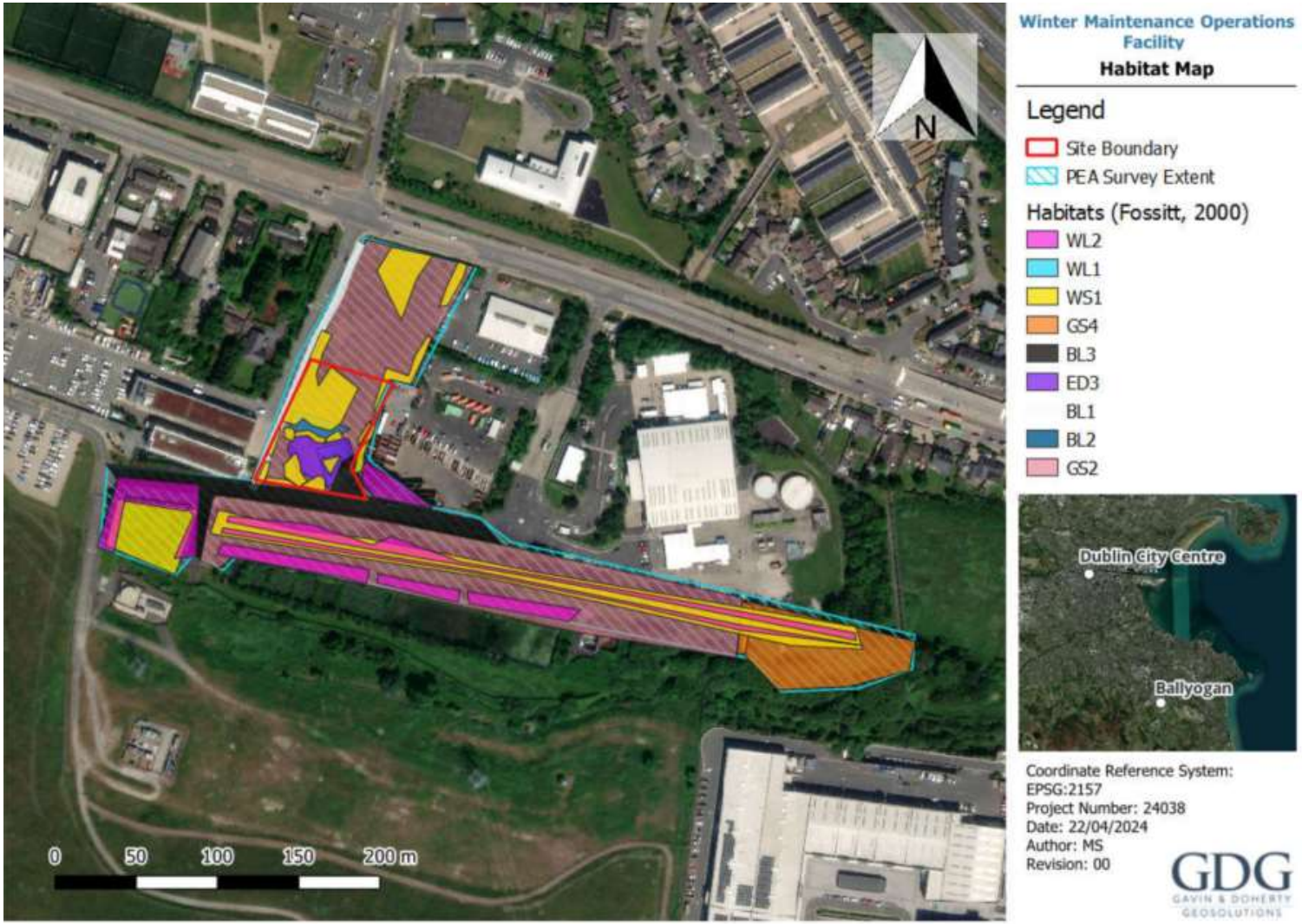


Figure 4.3 Habitat map within the Survey Extent.

4.3.2 INVASIVE NON-NATIVE PLANT SPECIES

No species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. No. 477 of 2011), were found within the Site. However, during the PEA Survey three (3) invasive plant species were identified see Table 4.8. In Figure 4.4 below, the locations of the 3 invasive alien plant species are illustrated, along with photographic records taken on Site in Appendix D, Figure D.1 and Figure D.2. For further details, see the PEA Report attached as Appendix E within this EcIA document.

Table 4.8 Invasive plant species observed during the Site Survey

Common Name	Scientific Name	Location
Butterfly-bush	*Buddleja davidii*	Within the Proposed Development Site.
Winter Heliotrope	*Petasites fragrans*	Within the Proposed Development Site.
Sycamore	*Acer pseudoplatanus*	Recorded outside the Proposed Development Site as well as within the Site (immature). Across the access road to the South of the Site, along the entrance to the Ballyogan landfill site (now covered over).

Butterfly Bush, Winter Heliotrope and Sycamore are not included in the Third Schedule. Therefore, its presence at the Site does not have the potential to lead to an offence under the Birds and Natural Habitats Regulations 2011 (SI 477 of 2011) or under the Wildlife Acts (as amended). However, both sycamore and butterfly bush are classified as Medium Impact Invasive Species on the National Biodiversity Data Centre (NBDC), who maintains the National Invasive Species Database and provides distribution data on high and medium impact species. Winter heliotrope is classified on the Amber List by Invasive Species Ireland, indicating that while it poses a moderate risk to local ecosystems, its spread is not considered as highly aggressive as some other invasive species. However, this species in recent years has been known to spread aggressively and disrupt natural habitats. Proper management and removal within the site are still essential to prevent further spread and protect surrounding biodiversity.

Figure 4.4 Invasive species including Butterfly-bush, Winter Heliotrope and Sycamore recorded within the Site and surrounds

4.3.3 FAUNA

Live sightings and evidence (as outlined in section 3.3) of species recorded during the PEA Survey are described within the PEA Report in Appendix E of this EcIA.

4.4 SUMMARY OF ECOLOGICAL FEATURES IDENITIFIED WIHTIN THE ZOI OF THE PROPOSED DEVELOPMENT

Table 4.9 summarises the ecological features described and evaluated in the preceding section of this chapter (section 4.1 – 4.3). The importance of these ecological features is summarised along with their potential to occur within the ZoI and rationale for not carrying forward any features for detailed assessment.

Table 4.9 Summary of Evaluation of Key Ecological Receptors.

Ecological Feature	Scale at which the feature is important	Sensitivity / Protected Status	Within footprint of Proposed Development Site	Potential to occur within the Construction ZoI	Ecological Features carried forward for detailed assessment
Natura 2000 sites	International	EU Habitats Directive	No	Yes	No - Natura 2000 sites have been screened out in the Appropriate Assessment screening report prepared as part of this application.
Loughlinstown Woods pNHA	National	Wildlife Act (2000);	No	No	No - pNHA have been scoped out. No connectivity for impact pathway from the Proposed Development.
Habitats within the Site (Willow Scrub)	Local (Higher)	N/A	Yes	Yes	Yes - The habitats present evaluated as important at the site level are sufficiently widespread and commonly occurring within the landscape.
Annex I Habitats – Petrifying Springs	International (European) Importance	Annex I of the EU Habitats Directive	No	Yes	Yes - A hydrological impact pathway exists between Annex I petrifying springs and the Proposed Development. Therefore, the Proposed Development could potentially have a direct impact on these Annex I habitats without careful design measures to ensure water quality remains unaffected from

					the construction and/or operation of the Proposed Development.
Surrounding Flora – Invasive Species	National – Low Local	Non-native Medium Impact Invasive Species	Yes	Yes	Yes
Otter	National	Wildlife Act (2000); Annex II and Annex IV of the EU Habitats Directive	No	Yes	Yes
Badger, Deer and Other Mammals	Local (Higher Value)	Wildlife Act (2000)	No	Yes	Yes - Mammal species which may use the Site for foraging and breeding/hibernating such as the willow scrub and earth bank that occurs within and proximate to the Proposed Development Site.
Bats	Local (Higher Value)	Wildlife Act (2000); Annex II and Annex IV (certain species) EU Habitats Directive.	No	Yes	Yes

Breeding Birds	Local (Higher Value)	Wildlife Act (2000)	Yes	Yes	Yes – Potential breeding bird habitat occurs within and proximate to the Proposed Development Site.
Herpetofauna	Local (Higher)	Wildlife Act (2000)	No	This Site area is suitable for Common Frog and Smooth Newt. Due to the stone wall running along the west side of the Site, there is potential to support the Common Lizard. But since there are no instream works and the works onsite are small in scale and not affecting the outer walls, further detailed assessment of amphibians is not required, and they can be scoped out of further consideration in this report	No

5 ASSESSMENT OF IMPACTS

The potential impacts and their effects on Key Ecological Receptors (KERs) with an existing impact pathway identified from the desk and field studies as summarised in Table 4.9 above will be discussed in the following section. The information available from the desk study and fieldwork has been used to identify impacts and the significant effects including positive, negative, direct, indirect and cumulative effects.

5.1 EMBEDDED / DESIGN-IN MITIGATION

The following design principles and "designed-in" operation embedded mitigation have informed the assessment of impacts, as detailed in 24038-REP-003-00-Part-8 Planning-Report:

5.1.1 SURFACE WATER / STORMWATER MANAGEMENT

Rainwater from the building roof runoff will be collected in the rainwater harvesting tank.

Surface water from the outside tarmac areas is collected via surface water sewers. Surface water management will include:

- petrol interceptor located in the south east of the site
- Stormwater attenuation tank
- Surface water / storm water hydro brake with a proposed maximum discharge of 1.5l/s
- Incorporation of penstock to isolate upstream surface water drainage
- Provision of filter drain for treatment and collection of storm water runoff (450mm wide x 900mm deep filter drain).

This surface water management design will connect into the current system (outside the Site Boundary) which discharges to the Barnacullia Stream and / or Reed bed system.

5.1.2 OPERATIONAL NOISE

A 2.4m high acoustic reflective timber fence will be located along the southern boundary and southern part of the eastern boundary. The western boundary follows the gabion wall that is already on site.

In addition, a traffic management plan will be developed to include noise management measures.

5.1.3 LANDSCAPED AREAS

Landscaped areas are located along all the site boundaries with the widest areas along the southern and eastern boundaries. These areas will be planted with native trees and vegetation. A final landscape plan will be provided in consultation with Parks and Biodiversity.

5.1.4 LIGHTING

Operational lighting is proposed including 8m and 12m lighting column with LED floodlight and wall mounted LES floodlights. Lighting has been kept to minimum levels and is directional where possible as required for health and safety of the operational site.

5.2 DO NOTHING IMPACT

In the "Do Nothing" scenario, the site would remain unchanged, and the existing ecological features would continue to develop naturally. The deer observed on the site would continue to utilise the area, and the patch of immature willow scrub would likely mature and expand over time, potentially enhancing habitat quality and providing additional foraging resources for deer and other wildlife. However, the presence of invasive species such as butterfly bush (*Buddleja davidii*) and winter heliotrope (*Petasites fragrans*) could pose a significant risk to the site's ecological balance. These invasive species, if left unmanaged, could spread further, potentially outcompeting native flora and reducing biodiversity. This could lead to a decline in habitat quality, impacting not only the plant community but also the deer and other fauna that rely on native vegetation for food and shelter. Furthermore, without management, there may also be a risk of overgrazing by deer, which could inhibit the regeneration of certain plant species, including the immature willow scrub.

Overall, the "Do Nothing" approach would maintain the current ecological dynamics, allowing natural succession and ecological processes to continue, but it would also enable the unchecked spread of invasive species, which could alter the site's ecological dynamics over time and potentially degrade the habitat.

5.3 POTENTIAL IMPACTS

This section of the report will outline the potential impacts of the Proposed Development, focusing on both the construction phase (section 5.3.1) and operational phase (section 5.3.2). It will provide an overview of the anticipated effects on local ecological features during these phases.

These potential impacts will then be discussed for each ecological receptor (sections 5.3.3 and 5.3.4) previously identified through impact pathways (see summary in Table 4.9).

5.3.1 CONSTRUCTION PHASE IMPACTS

The following outlines potential impacts identified associated during the construction phase:

- **Direct Loss of Habitat:** There is potential for a permanent loss of habitat associated with the Proposed Development.
- **Surface and Storm Water Run-off:** There is potential for impacts to surface water during the construction phase of this Proposed Development.
- **Disturbance and Displacement due to Noise:** There is potential for a temporary increase in noise during the construction of the proposed works.
- **Disturbance and Displacement due to Lighting:** During the construction phase, the proposed Road maintenance operation facility will require temporary lighting.

- **Spread of Invasive Species:** Medium-impact invasive species have been identified on-site (within the Proposed Development Site), which could potentially be disturbed or spread during the construction phase.

5.3.2 OPERATION PHASE IMPACTS

The following outlines potential impacts identified associated with the operation phase:

- **Surface and Storm Water Run-off:** There is potential for impacts to surface water caused during operation.
- **Disturbance and Displacement due Noise:** There is potential for a permanent increase in noise during operation of the proposed winter maintenance operation facility.
- **Disturbance and Displacement due to Lighting:** Lighting will be required within the proposed Road maintenance operation facility.

5.3.3 LIKELY SIGNIFICANT IMPACTS IDENTIFIED: CONSTRUCTION PHASE

5.3.3.1 HABITATS

Relevant impacts identified:

- Direct habitat loss

The following habitat was identified within the Proposed Development Site to have local (higher) importance:

- Willow Scrub comprising of an area c. 0.09 ha.

The impact to the habitat is therefore assessed as being a **permanent slight negative effect** at a local scale.

5.3.3.2 ANNEX I HABITATS

Relevant impacts identified:

- Direct habitat loss
- Impacts from surface and storm water run-off

The impact to Annex I priority habitat 'Petrifying springs with tufa formation (Cratoneurion)' and rare flora species associated with this habitat, due to possible contaminated surface and storm water run-off, constitutes **a moderate negative effect**, in the absence of mitigation measures.

5.3.3.3 OTTER

Relevant impacts identified:

- Disturbance and displacement due to noise

The likelihood of water pollution from the construction of the Proposed Development affecting this species is considered minimal. It is considered that the Proposed Site has extremely limited potential value for otter. Therefore, impacts from the Proposed Development such as noise disturbance to otter within the vicinity of the Proposed Development during the construction phase within this urbanised setting is considered unlikely to occur.

The impacts are assessed as short term **slight temporary negative effect**.

5.3.3.4 BADGER AND OTHER MAMMALS

Relevant potential impacts identified:

- Disturbance and displacement due to noise
- Direct habitat loss

Given the Site's limited size, it is unlikely to independently sustain mammal populations such as sika deer without the extensive agricultural lands that provide the necessary resources for the herd. Therefore, the Proposed Development is not expected to result in significant habitat modification or loss for this species. Additionally, sika deer typically forage over a large area, further reducing the potential impact of the development on their habitat. Therefore, the Site is not considered a priority habitat for the fitness and survival of the sika deer.

Furthermore, no signs of badger or any other mammals were recorded during the PEA Survey throughout the Survey Extent area. The Proposed Development is not anticipated to cause significant habitat modification or loss for these species (willow scrub with an area of 0.09ha).

There is potential for direct impacts and disturbance effects should badger setts become established within the Proposed Development Site. Clearance of the bushy scrub vegetation may disturb the deer population if the deer were on Site or any other mammals that may occur within the Site Boundary.

The impacts are assessed as **short term moderate negative effect**.

5.3.3.5 BAT SPECIES

Relevant potential impacts identified:

- Direct habitat loss

No active roost sites were identified within the site. There is potential for roosts to become established within the scrub habitat or stone wall as it has low potential as a bat roost.

The loss of these features will constitute a **permanent slight negative effect** on local bat populations.

5.3.3.6 BREEDING BIRDS

Relevant potential impacts identified:

- Direct habitat loss
- Disturbance and displacement due to noise

Vegetation clearance has potential to result in a loss of nesting habitat for these species.

Furthermore, if vegetation clearance occurs during the nesting season (March 1st to August 31st), there is a risk of directly impacting nesting birds within the scrub and treeline habitats of the Proposed Development Site area. Such disturbances during the construction phase could cause temporary displacement of these species from the Site and surrounding affected area. This impact is considered to be a **low, slight negative effect**, in the absence of mitigation.

Bird species present on the Site are likely to be habituated to noise associated with the operation of recycling machinery/vehicles from the Ballyogan Recycling Unit and road traffic from the M50 motorway and private access road. However, there may be some temporary disturbance of birds if construction work is carried out close to breeding birds in the hedgerow and scrub within the Proposed Site and surrounds.

This impact is considered to be a **low, slight negative effect**, in the absence of mitigation.

5.3.3.7 INVASIVE SPECIES

Relevant potential impacts identified:

- Spread of invasive species

While no invasive species listed on the Third Schedule of the 2011 European Communities (Birds and Natural Habitats) Regulations were found on the Site, three medium impact invasive plant species were noted – Butterfly-bush, Winter Heliotrope and Sycamore.

There is potential for the invasive plant species recorded on-site to spread during construction activities. In the absence of mitigation measures, this could lead to a **permanent slight negative effect**.

5.3.4 LIKELY SIGNIFICANT IMPACTS IDENTIFIED: OPERATION PHASE

5.3.4.1 HABITATS

No relevant impacts identified to habitats during the operational phase.

5.3.4.2 ANNEX I HABITATS

Relevant potential impacts identified:

- Impacts from surface and storm water run-off

Surface and storm water run-off has the potential to reduce the water quality to the Annex I priority habitat 'Petrifying springs with tufa formation (Cratoneurion)'. The designed-in mitigation for surface and storm water management will be in place and will prevent this impact from affecting the habitat.

The Annex I habitats are unlikely to be affected and the operational activities are assessed as **not significant**.

5.3.4.3 OTTER

No relevant impacts identified to otter during the operational phase.

5.3.4.4 BADGER AND MAMMALS

No relevant impacts identified to badger and other mammal receptors during the operational phase.

5.3.4.5 BAT SPECIESS

Relevant potential impacts identified:

- Lighting

The increase in lighting could lead to a **permanent slight negative impact** on bats that may be foraging in the area.

The embedded designed-in mitigation of operational lighting will reduce the impact on bats to negligible to minor negative impact

5.3.4.6 BREEDING BIRDS

No relevant impacts identified to breeding birds during the operational phase.

5.3.4.7 INVASIVE SPECIES

No impacts identified relevant to invasive species during the operational phase.

5.4 CUMULATIVE IMPACTS

The effects of the proposed development are likely to be confined to the immediate area of the Site and will be limited to habitat loss and habitat degradation of commonly occurring and widespread habitats as well as temporary disturbance and displacement of species within the immediate surrounds of the Site. These effects are not thought to be significant. Therefore, it is considered that there is no pathway for other plans and projects to act in-combination and to give rise to cumulative effects.

6 AVOIDANCE AND MITIGATION MEASURES

The mitigation measures that will be implemented to prevent significant adverse effects on biodiversity from the proposed works are outlined below.

6.1 CONSTRUCTION

6.1.1 DIRECT LOSS OF HABITAT

Direct loss of habitat may affect:

- Badger and other mammal receptors
- Breeding Birds
- Otter
- Bat Species

The following avoidance and mitigation measures are proposed to address and minimise effects on the direct loss of habitat for species occurring within the Proposed Development Site and surrounds:

- Schedule vegetation clearance outside of the breeding season (typically March 1st to August 31st inclusive) to avoid disturbing nesting birds.

- Pre-construction survey checks by a suitably qualified ecologist (ECoW) for protected species prior to vegetation clearance / construction, to include but not limited to:

    - Prior to any works commencing a confirmatory badger survey will be carried out by a qualified Ecologist (ECoW). The extent of survey area will be defined with regard to Guidelines for the Treatment of Badgers during the Construction of National Road Schemes (NRA, 2006) as 150m beyond all works areas within suitable habitat. Should a sett be recorded within the scheme extents prior to construction, a derogation licence for works will be required and appropriate mitigation strategies will need to be devised and implemented. Good practice guidelines during construction as described below in section 6.1.4, will be implemented to mitigate construction impacts on badgers potentially commuting and foraging in the Proposed Site.

    - Pre-construction surveys should be undertaken prior to the commencement of any works during this Proposed Development in order to identify any changes in otter activity, holt locations, etc., since this report. No more than 10-12 months in advance of construction should the pre-construction surveys be conducted. This will allow for sufficient time to comply with all licensing requirements and undertaking of necessary actions can be implemented prior to the commencement of construction to protect otter populations (NRA, 2008). If any evidence of otter activity/habitat are observed during the above-mentioned survey, appropriate mitigation measures/guidance should be adhered to ensure any potential disturbances are avoided. Good practice

guidelines during construction as described below in section 6.1.4, will be implemented to mitigate construction impacts on otters potentially commuting and foraging in the Proposed Site.

- Prior to the clearance of vegetation, a confirmatory bat emergence survey shall be conducted by a qualified Ecologist with bat expertise to confirm that no roosts have become established within the scrub willow scrub habitat in the time period prior to construction. **Note**, where evidence of a roost, or roosting bats has been determined, a license for destruction of a roost and/or exclusion of bats will be required from the NPWS. The procedures for the exclusion of bats and destruction of roost as detailed in the license document will be obeyed, at all times, by the Contractor.

- Prior to the clearance of vegetation, a confirmatory survey should be conducted by a qualified ecologist (ECoW) to ensure that no sika deer or other mammals are within the willow scrub habitat in the period leading up to vegetation clearance. This precaution will ensure compliance with wildlife protection guidelines. Good practice guidelines during construction as described below in section 6.1.4, will be implemented to mitigate construction impacts on deer and any other mammals potentially resting (hibernating hedgehogs), commuting and foraging in the Proposed Site.

- If roosting/foraging bats are identified, the Design and Construction of bat mitigation measures will comply with the requirements of the bat specialist, the Standards, the TII's "Guidelines for the Treatment of Bats During the Construction of National Road Schemes", the National Parks and Wildlife Services Bat Mitigation Guidelines for Ireland, the National Parks and Wildlife Service Circular 2/07 Guidance on Compliance with Regulation 23 of the Habitats Regulations 1997.

6.1.2 IMPACTS ARISING FROM SURFACE/STORM WATER RUN-OFF DURING CONSTRUCTION

Potential impacts to the water environment (surface water and groundwater), soils, land and geology during the construction period will be managed through a combination of mitigation measures and design features embedded into the design of the Proposed Development of the Proposed Development.

Features of the design include:

- All water required during construction will be taken from the mains and the completed development will be connected to mains with additional rainwater harvesting water (i.e., there will be no new groundwater or surface water abstractions).
- Stormwater collection and discharge from the Proposed Development will be collected and discharged via an oil interceptor and hydrobrake to the downstream storm sewer outfall.
- Wastewater will be isolated and discharged to the on-site foul sewer network.

- Pollution management measures will be implemented to prevent contamination by machinery pollutants, such as fuels, oils and lubricants during construction and operation activities. These measures will be informed by guidance provided in relevant documents, such as the CIRIA guides to environmental good practice on site.

All pollution control measures will be designed, installed, and maintained in accordance with measures outlined within the CEMP.

6.1.3 SPREAD OF INVASIVE SPECIES

To address the three medium-impact invasive species identified on-site, the following mitigation measures will be implemented, in line with the Invasive Species Management Plan (ISMP):

1. Conduct a detailed survey to confirm the locations and extent of invasive species infestations before construction begins. This mapping will guide targeted removal efforts and help prevent the spread of invasive species during site preparation and construction activities.
2. Invasive species will be carefully removed using appropriate methods, such as manual uprooting or mechanical excavation, as specified in the ISMP. All removed material will be securely contained and disposed of following legal requirements and guidelines to prevent the spread of plant fragments or seeds to other areas.
3. Establish washing and cleaning stations for machinery and equipment on-site to prevent the spread of invasive species from contaminated areas to uncontaminated areas until the clearance of invasive species has been confirmed. All vehicles and machinery working in infested areas will be cleaned before moving to other parts of the Site and/or outside the Site.
4. Where physical removal is not feasible or effective, appropriate herbicides will be used, as recommended in the ISMP. All herbicide applications will be conducted by certified professionals following best practices to minimise impacts on non-target species and surrounding habitats.
5. Regular inspections will be conducted post-removal to identify any regrowth or new infestations. Follow-up treatments will be carried out as needed to ensure complete eradication
6. Implement preventive measures to avoid the introduction and spread of invasive species during construction, such as using certified, invasive-free materials and ensuring that all plantings and landscaping use native or non-invasive species.
7. Provide training (ECoW) for construction personnel on the identification of invasive species and the importance of biosecurity measures. All staff involved in ground disturbance activities will be briefed on the ISMP protocols to ensure compliance.

6.1.4 GOOD PRACTICE GUIDELINES DURING THE CONSTRUCTION PHASE

The following good practice guidelines during the Construction Phase will be implemented for all mammal species (to protect inquisitive animals that are more nocturnally inclined):

- Any excavations left open overnight should have a means of escape for otters (and all other mammals), a ramp at least 30cm in width and angled no greater than 45° should be placed inside the hole/trench overnight to allow the mammal to escape;
- Temporary fencing is essential and should be placed around the machinery at the end of the working day (cordoned off) and any machinery that could potentially harm mammals should be made safe overnight;
- All proposed works for this Project during the construction phase should be restricted to daylight hours (where possible), so as to cause as little disturbance to these largely nocturnal creatures;
- To avoid risking mammals becoming trapped in excavations created during site works, holes and trenches may also be covered with timber mats or appropriately fenced off. Fencing should be designed with adequate height to keep deer out while being low enough to prevent entry by smaller mammals, such as badgers and otters. **N.B.** Fencing should be checked regularly to ensure no animals are trapped.
- Timber mats should be places on wet concrete as this can present a hazard to wildlife where small mammals may become stuck.

6.2 OPERATION

6.2.1 DISTURBANCE AND DISPLACEMENT DUE TO LIGHT DURING OPERATION

Disturbance and displacement due to light during operation is relevant to:

- Bats.

The following avoidance and mitigation measures are proposed to address and minimise effects of lighting on bats occurring within the Proposed Development Site:

- Restrict the hours of lighting operation, where possible, to minimise nighttime illumination during peak bat activity times, particularly during dusk and dawn when bats are most active.
- Utilise directional lighting fixtures to focus light away from bat foraging and commuting routes, and where possible cowled to reduce significant light splay into foraging features, as well as from any roosting sites (if identified during pre-commencement bat emergence survey). This helps reduce light spillage into areas that bats use.
- Implement only low-pressure sodium, high pressure sodium or LED luminaires with a “warm” lighting colour temperature (ideally less than 3000 Kelvin), on site to minimise disruption to bats. These lights are less likely to interfere with bat activity.

- Where possible, install motion-activated lights instead of continuous illumination. This reduces the duration of lighting in areas that are not actively in use, thereby reducing potential disturbance to bats
- Consider height of columns to minimise fugitive lighting in areas where placement cannot be altered

7 ENHANCEMENT

Enhancement measures aimed at improving the ecological value of the Proposed Development Site have been considered to support local biodiversity.

The following enhancement measure has been identified:

- Provide alternative habitats by planting native shrubs and trees in nearby areas to compensate for any loss of breeding, foraging or hibernating habitats.

By integrating these enhancements, the development will contribute positively to the surrounding environment, providing long-term benefits for local wildlife and plant species.

8 RESIDUAL EFFECTS

With the 'designed-in' mitigation measures and additional mitigation measures identified, as detailed above, it is considered that there will be no significant residual negative effects on the receiving environment.

9 CONCLUSION

The key habitats and species within the respective survey area were identified during the completion of baseline surveys: Desktop study, Data received from DLRCC, and Field Survey. From the baselines surveys and assessment carried out, significant effects on ecological receptors were identified. Several best practice measures have been identified along with a number of species-specific mitigation measures in order to reduce ecological effects as far as possible resulting in no significant effects from the construction and operational phases of the Proposed Development.

REFERENCES

Blackthorn Ecology. (2021). DLR Hedgerow Review and Evaluation. Report prepared for DLRCC.

Brazier, B. & Macklin, R. (2020). Dún Laoghaire-Rathdown otter survey. Report prepared by Triturus Environmental Ltd. for Dún Laoghaire-Rathdown County Council. November 2020.

CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2. Chartered Institute of Ecology and Environmental Management, Winchester.

Crowe, O., & Holt, C. A. (2013). *Estuarine and Coastal Habitats of the Light-bellied Brent Goose (Branta bernicla hrota) in Ireland: A Review of Current Knowledge.* Irish Birds, 9(3), 343-356.

Denyer Ecology. (2023). Dún Laoghaire–Rathdown Petrifying Springs Review. Final Report. May 2023.

Denyer Ecology. (2020). Dún Laoghaire–Rathdown Habitat Review. Final Report. October 2020.

DHLGH (2022). Ireland's first captivebred Natterjack toadlets released into the wild – Press release. Available online: https://www.gov.ie/en/press-release/3168a-irelands-first-captive-bred-natterjack-toadletsreleased-into-the-wild/#

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

Handby, T. (2022). Understanding patterns of urban habitat use in overwintering lightbellied Brent geese in Dublin, Ireland. University of Exeter, Cornwall in collaboration with the Irish Brent Goose Research Group (IBGRG). November 2022.

Inger, R., Bearhop, S., Robinson, J. A., & Ruxton, G. D. (2006). *Prey choice affects the trade-off balance between predation and starvation in an avian herbivore.* Animal Behaviour, 71(1), 133-143.

Lundy, M.G., Aughney, T., Montgomery, W.I., & Roche, N., (2011) Landscape conservation for Irish bats & species specific roosting characteristics. Bat Conservation Ireland.

OPR (2021) Practice Note PN01; Appropriate Assessment Screening for Development Management

NRA (2008). guidelines for the Treatment of Otters prior to the Construction of National Road Schemes. National Roads Authority, Dublin (now Transport Infrastructure Ireland - TII). https://www.tii.ie/media/wsmlbxmv/guidelines-for-the-treatment-of-otters-prior-to-the-construction-of-national-road-schemes.pdf

NRA (2009). Guidelines for the Assessment of Ecological Impacts f National Road Schemes. National Roads Authority, Dublin (now Transport Infrastructure Ireland - TII).

NRA (2006) Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes (1 ed.). Dublin National Roads Authority. https://www.tii.ie/media/dv2dnea4/guidelines-for-the-treatment-of-badgers-prior-to-the-construction-of-a-national-road-scheme.pdf

NRA (2010) Guidelines on the Management of Noxious Weeds and Non-Native Invasive.

Plant Species on National RoadsWyse Jackson, M., FitzPatrick, Ú., Cole, E., Jebb, M., McFerran, D., Sheehy Skeffington, M. & Wright, M. (2016) Ireland Red List No. 10: Vascular Plants. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, Dublin, Ireland.

Smith, G.F., O'Donoghue, P., O'Hora, K and Delaney, E. (2011). Best Practice Guidance for Habitat Survey and Mapping. Heritage Council. Available at: https://www.heritagecouncil.ie/content/files/best_practice_guidance_habitat_survey_mapping_onscreen_version_2011_8mb.pdf

APPENDIX A – LOCAL PLANNING POLICIES

DLR COUNTY DEVELOPMENT PLAN 2022 – 2028.

The "Heritage and Conservation," chapter focuses on the preservation and management of the county's cultural, architectural, and natural heritage, and outlines specific objectives and policies designed to protect the area's heritage assets, which include historical buildings, archaeological sites, natural landscapes, and biodiversity. There are several key elements pertinent to an EcIA.

- **Protection of Built Heritage**: This section addresses the conservation of protected structures, architectural conservation areas (ACAs), and other elements of the built environment that contribute to the county's historical and architectural character. It emphasises maintaining the integrity of these structures while allowing for their adaptive reuse.
- **Archaeological Heritage**: The plan sets out strategies for safeguarding archaeological sites and monuments, ensuring that new developments respect and incorporate these historical elements when possible.
- **Natural Heritage**: This focuses on the conservation of natural landscapes, including coastal areas, woodlands, and other significant ecosystems. The chapter also includes measures for protecting biodiversity and managing green infrastructure.
- **Cultural Heritage**: Policies are included to support the preservation and promotion of intangible cultural heritage, such as local traditions, languages, and place names, contributing to the cultural identity of the area.
- **Implementation and Monitoring**: The chapter outlines how the heritage and conservation policies will be implemented and monitored throughout the duration of the plan. This includes collaboration with relevant stakeholders and ongoing assessment of the plan's effectiveness.

DLR COUNTY BIODIVERSITY ACTION PLAN 2021 -2025

The five main objectives/themes outlined in the DLR County Biodiversity Action Plan 2021-2025 are as follows:

- **Objective 1:** *Strengthen the knowledge base for conservation, management, and sustainable use of biodiversity.* The actions associated with objective one involves mapping all Locally Important Biodiversity Sites (LIBS) and important species, developing Habitat and Species Action Plans, and protecting important hedgerows. The plan also includes updating the County Ecological Network Map, identifying biodiversity areas vulnerable to climate change, and establishing measures to protect them. Additionally, it aims to centralise biodiversity data for decision-makers, provide public access to biodiversity information, and encourage volunteer networks and citizen science projects to contribute to biodiversity conservation efforts. Finally, it includes an assessment of the overall state of biodiversity within the county.

- **Objective 2:** *Mainstream biodiversity into decision-making and improve the management of this valuable resource.* The DLR County Biodiversity Action Plan outlines actions to improve biodiversity management and planning. It includes developing best management guidelines for important habitats and species, incorporating biodiversity into the County Development Plan and other local strategies, and auditing council policies to better integrate biodiversity. The plan also calls for creating an Invasive Alien Species Action Plan, developing biodiversity management plans for public spaces, and updating Ecological Network Maps for informed decision-making. Additional actions involve producing guidance on net biodiversity gains, managing greenways, protecting watercourses, mitigating the impact of artificial lighting on wildlife, and providing training on hedgerow management for land managers and local authority staff.
- **Objective 3:** *Conserve and restore biodiversity and ecosystems, and support ecosystem services in DLR, including coastal and marine.* Key actions include mapping habitats and species that provide ecosystem services, collaborating with the NPWS to assess these services locally, and integrating natural capital into policymaking. The plan also focuses on restoring and enhancing ecosystems, implementing re-wilding projects, and expanding the County Ecological Network and Green Infrastructure. Additional efforts include conducting ecological surveys, continuing the Dalkey Island Heritage Plan, supporting the All-Ireland Pollinator Plans, protecting swift nesting sites, and extending the Red Squirrel Project to Fernhill.
- **Objective 4:** *Increase awareness, training and appreciation of biodiversity, ecosystems and ecosystem services.* The DLR CBAP includes actions to educate and raise awareness about biodiversity and ecosystem services. These actions involve providing information through the DLR website and publications, organising activities and events, and establishing training and education programs. The plan also promotes community biodiversity projects, raises awareness of climate change impacts on biodiversity, highlights the health benefits of biodiversity, and offers public training on reptile and amphibian surveys in collaboration with the Herpetological Society of Ireland (HSI).
- **Objective 5:** *Strengthen the effectiveness of collaboration between all stakeholders for the conservation of biodiversity, including with Local Communities, Local Authority Biodiversity Officers, LAWPRO, the National Biodiversity Data Centre, BirdWatch Ireland, NPWS and other State Bodies.* Actions include engaging with local communities and businesses to develop biodiversity projects, working with Dublin Bay Biosphere Partners to promote sustainable use and implement conservation strategies, and conducting marine ecosystem studies. The plan also involves collaborating with government departments on Marine Protected Areas, partnering with other local authorities to study important habitats and species, and supporting bird conservation projects with BirdWatch Ireland. Additionally, the plan includes working with the Climate Action Regional Offices and Coillte Nature, developing woodland management plans, and engaging with third-level institutions to support biodiversity research.

APPENDIX B – LEGISLATION RELATING TO PROTECTED SPECIES

This section outlines the legislation relating to national and European protected species and their resting places.

BATS

All bats in Ireland and their roosts are protected in Ireland under national and EU legislation, and it is an offence to disturb/interfere with them without a derogation licence (NPWS, 2023). All bat species are listed under Appendix III of the Bern Convention and Annex IV of the EC Habitats Directive. In addition, bats and their habitats are listed under Appendix II of the Bonn Convention. Therefore, there is an obligation to protect the habitat of bats, including ecological corridors used as foraging areas. Bats are protected in Ireland under the Wildlife Act (1976, as amended) which makes it an offence to wilfully interfere with or destroy the breeding or resting place of these species.

In relation to European protected species, it is an offence to:

- Deliberately capture, injure or kill a bat;
- Intentionally or recklessly disturb a bat in its roost in such a way as to significantly affect their ability to survive, breed, or rear/nurture their young, or in a way that affects the local distribution or abundance of that species;
- Damage or destroy the breeding or resting place of a bat (unintentionally and/or when the animal is not present);
- Intentionally or recklessly obstruct access to a bat roost.

This is only a brief summary of the main points of the law (Wildlife Acts and Habitats Directive), not a complete statement.

This legislation applies to all life stages of these species, and a European protected species licence is required to conduct any activity that would otherwise involve committing an offence.

OTTER

The otter are a highly protected species under the Wildlife Acts (as amended), and is listed in Appendix III of the Bern Convention and under Annex II and IV of the EC Habitats Directive. In addition, otter has most recently been assessed as Near Threatened under criteria A2c for The IUCN Red List of Threatened Species in 2020.

Under these laws, it is an offence to:

- Deliberately capture, injure or kill an otter
- Intentionally or recklessly disturb an otter in its resting place
- Damage or destroy the breeding (maternal holts located underground) or resting place (couches located above ground) of an otter (all year-round breeding season)
- Possess an otter (alive or dead), or any part of an otter

- Intentionally or recklessly obstruct access to the resting place of an otter

This is only a brief summary of the main points of the law, not a complete statement.

This legislation applies to all life stages of these species, and a European protected species licence is required to conduct any activity that would otherwise involve committing an offence.

BADGERS

It is an offence under the Wildlife Acts (as amended) to:

- Intentionally hunt, injure or wilfully interfere with or destroy the breeding or resting place of a badger

Badger baiting is an offence under Section 15(1) of the Animal Health and Welfare Act, 2013, and also under Section 23(5) of the Wildlife Acts.

WINTERING/BREEDING BIRDS

All wild birds are protected under the Wildlife Act (as amended), making it an offence to:

- Hunt a wild bird (expect certain species during the open season and under licence)
- Injure a protected wild bird otherwise than while hunting it
- Wilfully take or remove the eggs or nest of a protected wild bird except under licence
- Wilfully destroy, injure or mutilate the eggs or nest of a protected wild bird
- Wilfully disturb a protected wild bird on or near a nest containing eggs or unfledged young

HERPETOFAUNA

There are three native species of amphibian in Ireland and one native species of reptile, all of which are protected under the Wildlife Acts (1976, as amended). The natterjack toad (*Epidalea calamita*) is listed under Annex IV of the Habitats Directive. The natural range of the natterjack toad is restricted to the coastal zones of the Dingle and Iveragh peninsulas in Co. Kerry (DHLGH, 2022).

The smooth newt (*Lissotriton vulgaris*) is the only species of newt found in Ireland and is afforded protection under Schedule 5 of the Wildlife Act (as amended). The species is also listed in Appendix III of the Convention on the Conservation of European Wildlife and Natural Habitats (The Bern Convention).

The Common frog (*Rana temporaria*) is the only species of frog found in Ireland. It is listed as an internationally important species and is protected by the following legal instruments; EU Habitats Directive [92/43/EEC] Annex V, Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) Appendix III. and the Wildlife Act (1976, as amended).

The Common Lizard (*Zootoca vivipara*) is Ireland's only native terrestrial reptile and is protected under the EU Habitats Directive [92/43/EEC] Annex IV, the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) Appendix III and the Wildlife Acts (1976, as amended).

Under these laws, it is an offence to:

- Deliberately capture, injure, kill, capture or sell these species (including eggs and frog spawn);
- Intentionally or recklessly damage or disturb these species (including eggs and frog spawn) in its resting place;
- Wilfully interfere with or destroy the breeding or resting place of these species (including eggs and frog spawn);
- To remove/translocate from these species (including eggs and frog spawn) from the wild.

This applies to all life-stages.

OTHER PROTECTED WILD ANIMALS

In addition to the abovementioned species, all deer species, hare, hedgehog, pine marten, red squirrel, pygmy shrew, stoat, freshwater crayfish, freshwater pearl mussel and the Kerry slug as well as marine mammals, are afforded protection under the Wildlife Acts (as amended).

PROTECTED PLANT SPECIES

Under the Flora (Protection) Order, 2022, a range of vascular and non-vascular plant species are afforded protection, whereby under the Wildlife Acts, it is not allowed to other than with a licence granted by the Minister for Arts, Heritage and the Gaeltacht, to "*cut, pick, collect, uproot or otherwise take, injure, damage, or destroy any specimen*" of the species listed in the Flora Protection Order; to "*purchase, sell, keep for sale, transport for sale or exchange, offer for sale or exchange or be in possession of any such specimen whether alive or dead or the flowers, roots, seeds, spores or any part, product or derivative thereof*"; or to "*wilfully alter, damage, destroy or interfere with the habitat or environment*" of any of the listed species.

INVASIVE PLANT SPECIES

The main regulations influencing Ireland's invasive species lists are:

- the Third Schedule list of the European Communities (Birds and Natural Habitats) Regulations 2011 [S.I.477/2011] – 76 listed species
- the Invasive Alien Species of Union concern listed under the EU IAS Regulation [1143/2014] – 88 listed species
- the European Union (Invasive Alien Species) (Freshwater Crayfish) Regulations 2018 [SI 354/2018] – 5 listed species

APPENDIX C – DLRCC DATA

AVIFAUNA

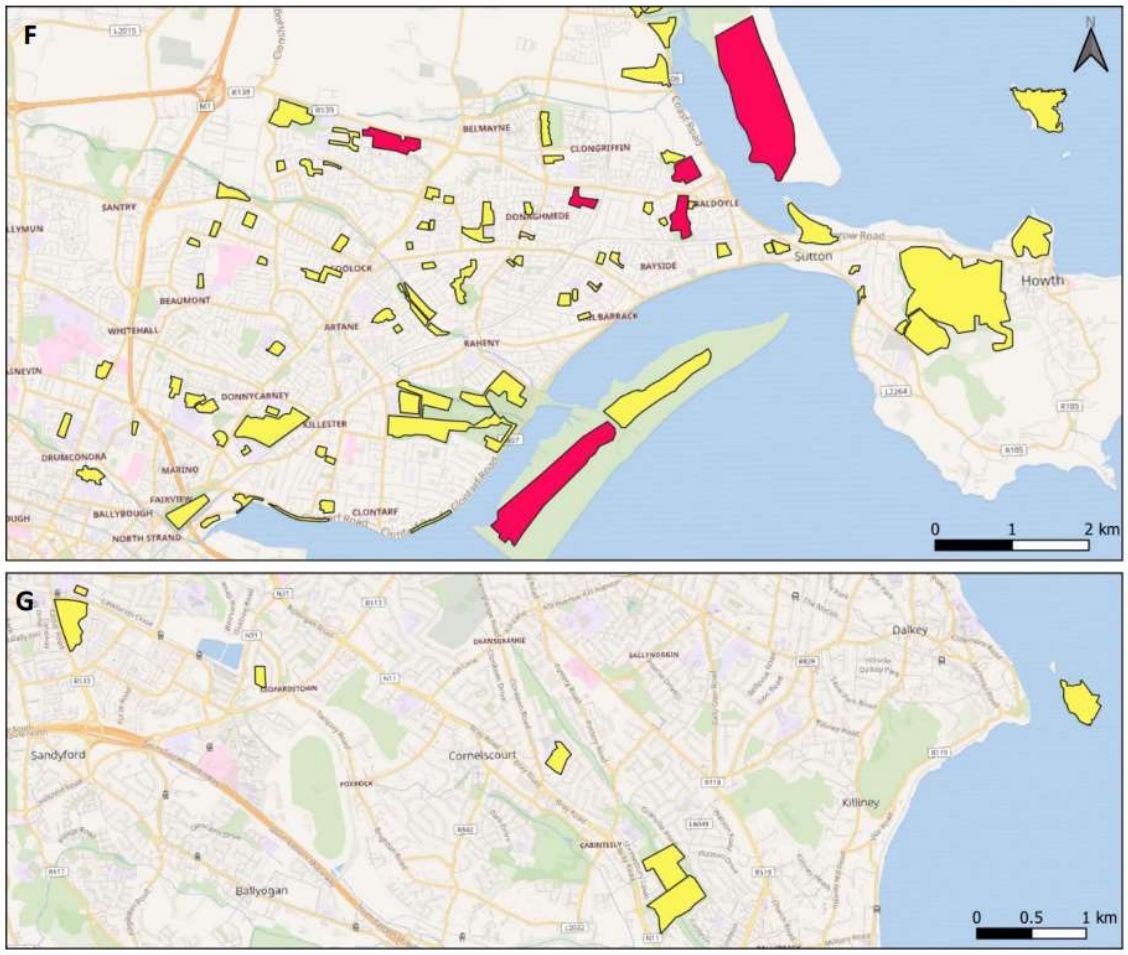


Figure C.1 Terrestrial sites used by Light-bellied Brent Geese, identified using the GPS data and/or records in the Irish Brent Goose Research Group (IBGRG) resighting database. Red polygons represent the key sites identified in both the 2018/19 and 2019/20 winter. Yellow polygons show sites with at least one resighting and/or GPS location recorded there.

PETRIFYING SPRINGS

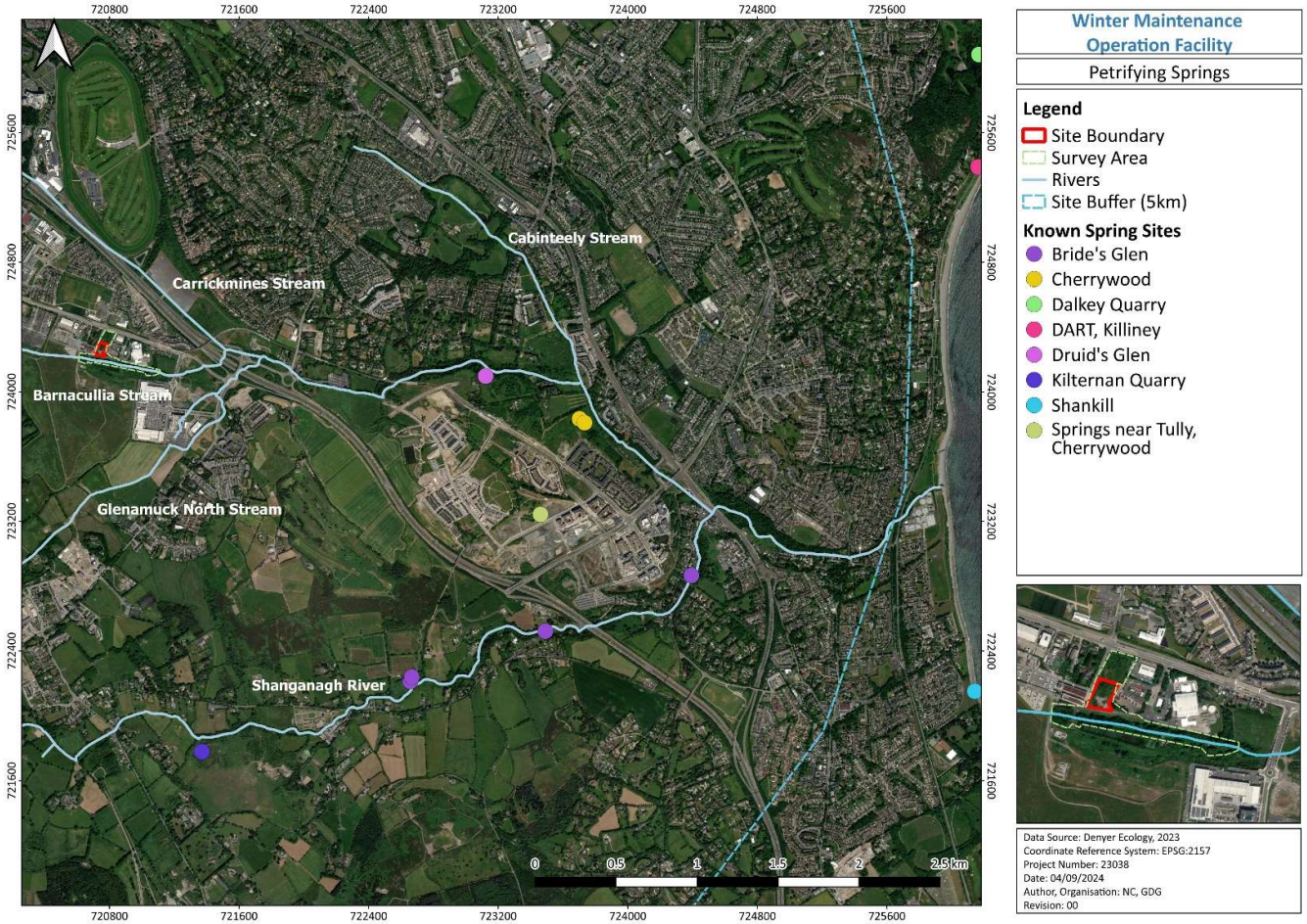


Figure C.2 Location of Petrifying Springs. Three springs located downstream of the Proposed Development at Druid's Glen (c. 2.7km downstream) and Cherrywood (c. 3.5km downstream).

HABITATS

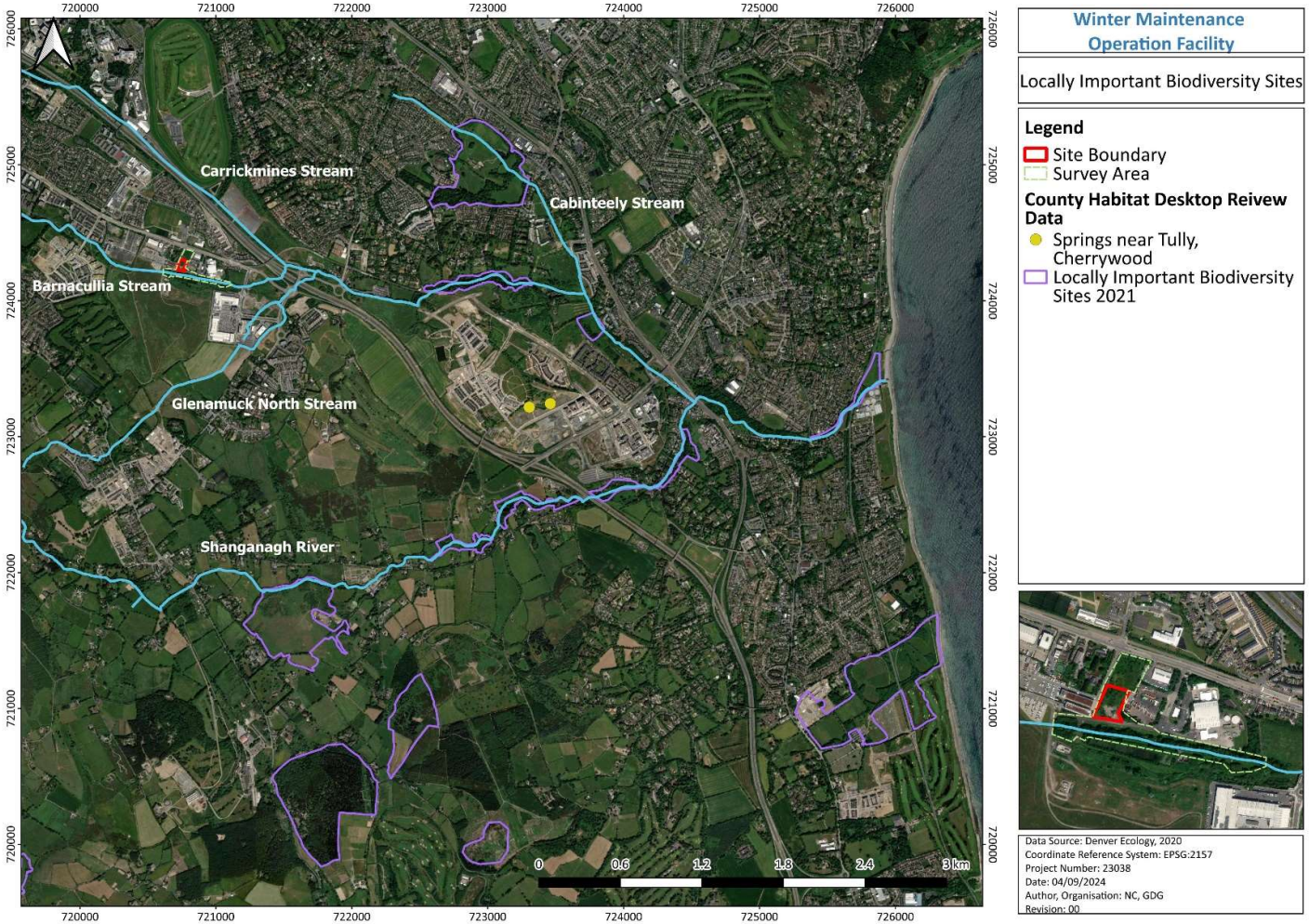


Figure C.3 DLR Locally Important Biodiversity Sites and Springs near Tully, Cherrywood.

INVASIVE ALIEN SPECIES

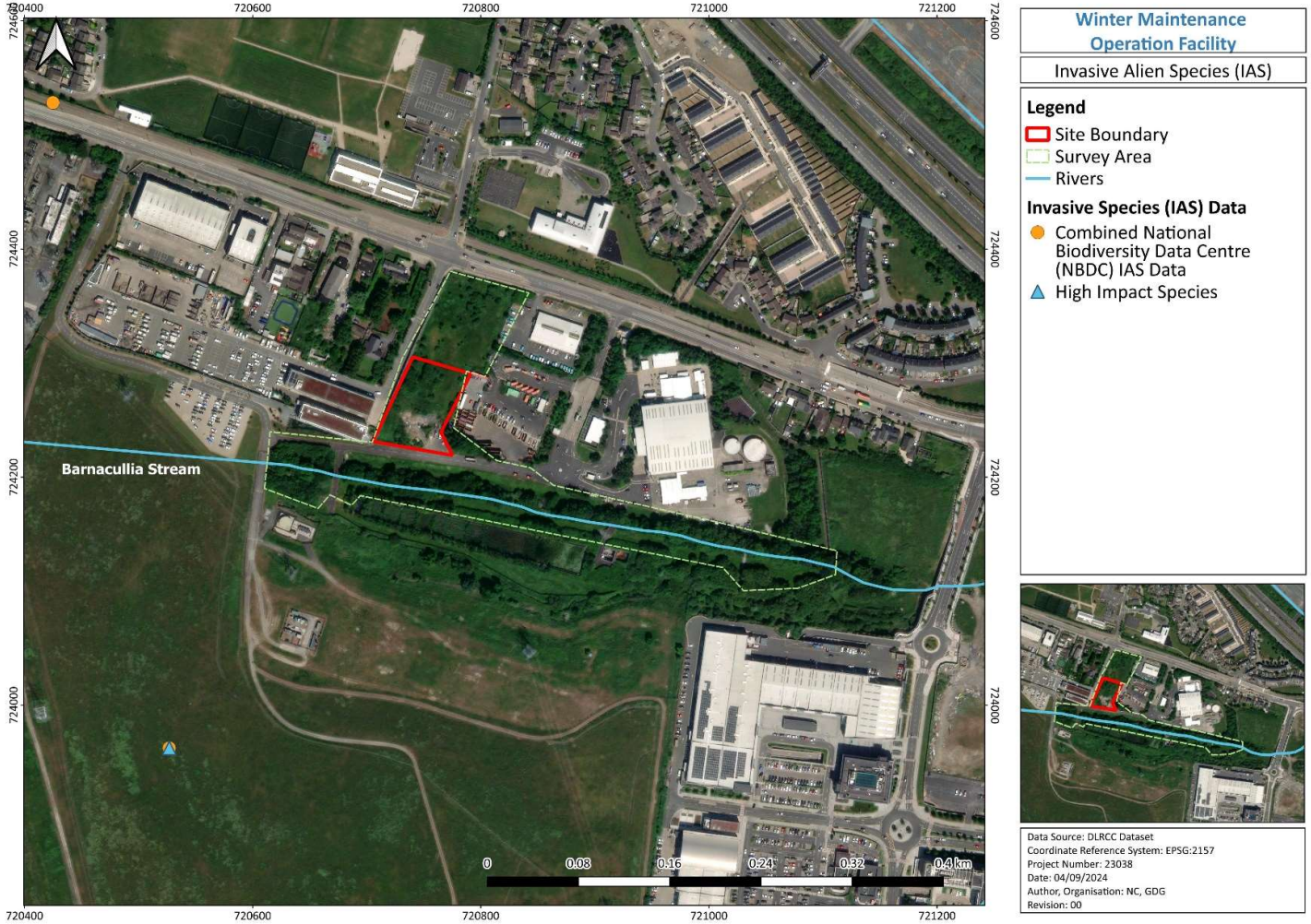


Figure C.4 IAS recorded within the surrounding area of the Proposed Development Site (DLRCC Dataset).

APPENDIX D – FIELD SURVEY PHOTO RECORDS

Figure D.1 Butterfly-bush within the Site, covering large areas of the Site – photo taken 16/04/2024.

Figure D.2 Winter Heliotrope scattered among the Site - photo taken 16/04/2024.

APPENDIX E – PEA REPORT

GDG
GAVIN & DOHERTY
GEOSOLUTIONS

Preliminary Ecological Appraisal, Ballyogan Road, Dublin

dlr
Comhairle Contae County Council

Client	**Dun Laoghaire Rathdown County Council**
Document Ref.	**24038-REP-004-01-PEAR**
Project Title	**Road Maintenance Operations Facility**
Date	**08/07/2024**

Project Title:	Road Maintenance Operations Facility
Report Title:	Preliminary Ecological Appraisal, Ballyogan Road, Dublin
Document Reference:	24038-REP-004-01-PEAR

Client:	Dun Laoghaire Rathdown County Council
Ultimate Client:	Dun Laoghaire Rathdown County Council
Confidentiality	Non Confidential

REVISION HISTORY

Rev	Date	Reason for Issue	Originator	Checker	Reviewer	Approver
[00]	18/04/2024	For Client review	Maggie Starr	Charlotte Manwaring	Joey O'Connor	Ross Downie
01	08/07/2024	First Issue	Maggie Starr	Charlotte Manwaring	Joey O'Connor	Ross Downie

DISCLAIMER

REVISION SUMMARY

Rev	Date	Section(s)	Detail of Change
[00]	[Selec]	[Section]	[Enter details]

TABLE OF CONTENTS

List of Tables

List of Figures

1 INTRODUCTION

1.1 OVERVIEW

Dún Laoghaire-Rathdown County Council (DLRCC) have appointed GDG to provide engineering consultancy services on a new project which involves constructing a new dedicated road maintenance operations area on a site adjacent to the existing Operations Centre, located at Ballyogan, Dublin 18.

This Preliminary Ecological Assessment Report is part of a Part 8 Planning Application.

The overall project is to deliver a fully functioning & integrated new road maintenance operations area with vehicle parking, operational working areas, a road salt storage barn, a brine manufacturing facility, a rainwater harvesting tank, and dedicated washdown facilities for road maintenance vehicles.

1.2 AIMS AND OBJECTIVES OF THE REPORT

This report presents the results of a Preliminary Ecological Appraisal (PEA), comprising a background desktop study and a habitat survey, with assessment for protected or otherwise notable species, at the Proposed Site. The extent of the Proposed Project is hereafter referred to as 'Site' and the area surveyed for the Proposed Project is hereafter referred to as the 'Survey Area'. In Figure 1.1, the Site boundary (red outline) and the Survey Extent (blue hatched area) under consideration for Preliminary Ecological Appraisal. GDG was commissioned by the applicant to carry out the PEA survey.

The aim of this PEA is to employ desk-based and field study approaches to:

- *Assess the ecological value of the pre-development application site;*
- *Identify any likely ecological constraints associated with the project;*
- *Identify any mitigation measures likely to be required by the project;*
- *Assess the need for further, specialist ecological surveys*.

Vegetation clearance and earthworks for foundation preparation are required as part of the proposed development

The results/information in support of the PEA, carried out on 16/07/2024, is presented here in the format of PEA report (PEAR). The PEAR identifies ecological constraints relevant to the Proposed Project, specifies any further survey or mitigation measures for an ecological impact assessment, gives recommendations for avoidance and protection through design changes, where these are deemed necessary, and suggest opportunities for ecological enhancement, in particular to deliver biodiversity net gain.

Figure 1.1 Location of the Site Boundary (red outline) and the Survey Extent (blue hatched area) under consideration for Preliminary Ecological Appraisal.

1.3 ECOLOGICAL CONTEXT

The site, which is circa 0.49 ha, is located approximately 12km southeast of Dublin city centre, along the Ballyogan Road. The M50 motorway is situated approximately 400m to the north-northeast of the Site. This is a site with a predominantly urban/industrial landscape and is dominated by hardstanding (roads) and buildings.

The Ballyogan site lies west of Junction 15 on the M50, directly east of the DLRCC Ballyogan Operations Centre. To the south of the site is the Ballyogan landfill, now closed and restored. Between the site and the closed landfill there is a raised line of trees along a slight embankment / rise. The Ballyogan Stream is located within the line of trees and flows to the east. East of the site is the Ballyogan Recycling Centre, and an An Post D18 Delivery Office. The nearest residential properties are adjacent to the private access road to the west. The Samuel Beckett Community Facility lies northwest of the proposed scheme.

The area of the site is approximately 4,944 m2 (0.49 ha).

The site comprises rough grassland with areas of trees and hedges (northwestern corner). The southern area has an area of hardstanding and rough vegetation with storage of bins and evidence of waste materials. Current access to the site is along the southern boundary off Ballyogan Road, via a private access road.

1.4 PROPOSED WORKS

The new operations facility will be reserved for road maintenance operations; the DLRCC road maintenance programme deals with severe weather conditions on public roads. The new road operations area will contain a new access road, salt barn, a brine batching facility, a rainwater harvesting tank (from salt barn roof), dedicated parking for road maintenance vehicles / equipment, an automated wheelwash, and dedicated washdown facilities for the road maintenance vehicles. A new access ramp to the new site will be from the private road off Ballyogan Road and concrete / asphalt hardstands will be required throughout the site. The site will be fully serviced with lighting, water, electricity grid connection and communications. The completion of this project will make DLRCC winter maintenance operations more efficient, effective and environmentally friendly.

Outline Design, followed by Detailed Design:

- Dedicated Road Maintenance Operational Fleet Parking
- Operational Hardstand, Site Access, and Drainage
- Operational Vehicle Wash Facilities
- Salt Storage Barn
- Brine Manufacturing Facility
- Associated M&E including utilities, public lighting, telemetry, fencing, lighting etc.

Vehicle wash facilities and an automated wheel wash form part of the new development. The Brine Manufacturing Plant will utilise a combination of harvested rainwater and mains supplied water. The road maintenance operation will be more efficient and sustainable than the existing dry salt system.

Stormwater Drainage

The collection and discharge of stormwater from the development will be via an oil interceptor and hydrobrake to the downstream storm sewer outfall.

Wastewater

Wastewater from the development, generated from the salt storage barn, brine plant, vehicle washing facilities and automated wheelwash, will be isolated and discharged to the on-site foul sewer network.

1.5 STATEMENT OF AUTHORITY

The desktop study, field survey and habitat mapping has been completed by Maggie Starr (BSc. (Hons) Marine Sciences). Maggie is a Marine Ecologist and Ornithologist with experience in terrestrial, aquatic and marine/coastal ecology and is a trained Marine Mammal Observer (MMO). Her current work includes ecological and environmental desktop studies for terrestrial, aquatic and marine environments, specialised mammal surveys, ornithological surveys, and map preparation.

This report has been checked and reviewed by Charlotte Manwaring. Charlotte is a Senior Environmental Scientist with extensive experience as an environmental consultant, undertaking various multi-disciplinary projects within consulting engineering.

This report has been approved by Joey O' Connor (BSc. Hons Marine Science, MSc. Engineering in the Coastal Environment). Joey is a Marine Ecologist with coastal engineering expertise and extensive experience of offshore benthic survey and Marine Protected Area monitoring who has undertaken multiple environmental assessments under the Habitats Directive for GDG and as a statutory adviser to the UK government and its devolved administrations with the Joint Nature Conservation Committee.

1.6 WILDLIFE LEGISLATION AND PLANNING POLICY

The appraisal was prepared with reference to the CIEEM Technical Guidance Series Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017); A Guide to Habitats in Ireland (Fossitt, 2000); and CIEEM Guidelines for Ecological Impact Assessment in the United Kingdom (CIEEM, 2006) and BS42020:2013 Biodiversity – Code of practice for planning and development (BSI, 2013).

This report has been informed by the following key legislation, policy and guidance notes, and due regard for relevant case law, including but not limited to:

- CIEEM Technical Guidance Series Guidelines for Preliminary Ecological Appraisal (CIEEM, 2012);
- Fossitt (2000) A guide to habitats in Ireland. The Heritage Council (Fossitt 2000);
- CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM 2018);
- NPWS (2009) Appropriate Assessment for plans and projects in Ireland; guidance for Planning Authorities. Environment, Heritage and Local Government (NPWS 2009);
- The Wildlife Act 1976 (No. 39 of 1976) as amended by the Wildlife (Amendment) Act 2000 (No, 38 of 2000) (The Wildlife Act);
- The Flora (Protection) Order 2022 (S.I. No. 355/2022);
- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (The Habitats Directive);
- Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds (codified version of Directive 79/409/EEC as amended) (The Birds Directive);

- European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477/2011) (European Communities Regulations);
- The Flora (Protection) Order 2022 (S.I. No. 355/2022) (The Flora Protection Order);
- OPR Practice Note PN01; Appropriate Assessment Screening for Development Management (OPR 2021)
- Kelleher, C. & Marnell, F. (2006) Bat Mitigation Guidelines for Ireland. Irish Wildlife Manuals, No. 25. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland. (NPWS 2006)

Local Plans and Policies:

- Dún Laoghaire-Rathdown County Biodiversity Action Plan 2021-2025
- Dún Laoghaire-Rathdown County Development Plan 2022-2028
- National Biodiversity Action Plan (2023-2027) – Draft for Publication

1.6.1 EUROPEAN LEGISLATION:

- The Bern Convention (The Convention on the Conservation of European Wildlife and Natural Habitats) came into force in 1982 and the European Community adopted the EC Habitats Directive to implement this agreement.
- Ireland has also signed The Bonn Convention (The Convention on the Conservation of Migratory Species of Animals) and is therefore party to various agreements.

1.6.1.1 BATS

All bats in Ireland and their roosts are protected in Ireland under national and EU legislation, and it is an offence to disturb/interfere with them without a derogation licence (NPWS, 2023). All bat species are listed under Appendix III of the Bern Convention and Annex IV of the EC Habitats Directive. In addition, bats and their habitats are listed under Appendix II of the Bonn Convention. Therefore, there is an obligation to protect the habitat of bats, including ecological corridors used as foraging areas. Bats are protected in Ireland under the Wildlife Act (1976, as amended) which makes it an offence to wilfully interfere with or destroy the breeding or resting place of these species.

In relation to European protected species, it is an offence to:

- Deliberately capture, injure or kill a bat;
- Intentionally or recklessly disturb a bat in its roost in such a way as to significantly affect their ability to survive, breed, or rear/nurture their young, or in a way that affects the local distribution or abundance of that species;
- Damage or destroy the breeding or resting place of a bat (unintentionally and/or when the animal is not present);
- Intentionally or recklessly obstruct access to a bat roost.

This is only a brief summary of the main points of the law (Wildlife Acts and Habitats Directive), not a complete statement.

This legislation applies to all life stages of these species, and a European protected species licence is required to conduct any activity that would otherwise involve committing an offence.

1.6.1.2 OTTER

The otter are a highly protected species under the Wildlife Acts (as amended), and is listed in Appendix III of the Bern Convention and under Annex II and IV of the EC Habitats Directive. In addition, otter has most recently been assessed as Near Threatened under criteria A2c for The IUCN Red List of Threatened Species in 2020.

Under these laws, it is an offence to:

- Deliberately capture, injure or kill an otter
- Intentionally or recklessly disturb an otter in its resting place
- Damage or destroy the breeding (maternal holts located underground) or resting place (couches located above ground) of an otter (all year-round breeding season)
- Possess an otter (alive or dead), or any part of an otter
- Intentionally or recklessly obstruct access to the resting place of an otter

This is only a brief summary of the main points of the law, not a complete statement.

This legislation applies to all life stages of these species, and a European protected species licence is required to conduct any activity that would otherwise involve committing an offence.

1.6.2 NATIONAL LEGISLATION

The following species are protected under national legislation – the Wildlife Acts (as amended). The wilful disturbance or interference with the breeding or resting site of any protected mammal is an offence under the Wildlife Acts.

1.6.2.1 BADGERS

It is an offence under the Wildlife Acts (as amended) to:

- Intentionally hunt, injure or wilfully interfere with or destroy the breeding or resting place of a badger

Badger baiting is an offence under Section 15(1) of the Animal Health and Welfare Act, 2013, and also under Section 23(5) of the Wildlife Acts.

1.6.2.2 WINTERING/BREEDING BIRDS

All wild birds are protected under the Wildlife Act (as amended), making it an offence to:

- Hunt a wild bird (expect certain species during the open season and under licence)
- Injure a protected wild bird otherwise than while hunting it
- Wilfully take or remove the eggs or nest of a protected wild bird except under licence
- Wilfully destroy, injure or mutilate the eggs or nest of a protected wild bird
- Wilfully disturb a protected wild bird on or near a nest containing eggs or unfledged young

1.6.2.3 HERPETOFAUNA

There are three native species of amphibian in Ireland and one native species of reptile, all of which are protected under the Wildlife Acts (1976, as amended). The natterjack toad (*Epidalea calamita*) is listed under Annex IV of the Habitats Directive. The natural range of the natterjack toad is restricted to the coastal zones of the Dingle and Iveragh peninsulas in Co. Kerry (DHLGH, 2022).

The smooth newt (*Lissotriton vulgaris*) is the only species of newt found in Ireland and is afforded protection under Schedule 5 of the Wildlife Act (as amended). The species is also listed in Appendix III of the Convention on the Conservation of European Wildlife and Natural Habitats (The Bern Convention).

The Common frog (*Rana temporaria*) is the only species of frog found in Ireland. It is listed as an internationally important species and is protected by the following legal instruments; EU Habitats Directive [92/43/EEC] Annex V, Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) Appendix III. and the Wildlife Act (1976, as amended).

The Common Lizard (*Zootoca vivipara*) is Ireland's only native terrestrial reptile and is protected under the EU Habitats Directive [92/43/EEC] Annex IV, the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) Appendix III and the Wildlife Acts (1976, as amended).

Under these laws, it is an offence to:

- Deliberately capture, injure, kill, capture or sell these species (including eggs and frog spawn);
- Intentionally or recklessly damage or disturb these species (including eggs and frog spawn) in its resting place;
- Wilfully interfere with or destroy the breeding or resting place of these species (including eggs and frog spawn);
- To remove/translocate from these species (including eggs and frog spawn) from the wild.

This applies to all life-stages.

1.6.2.4 Other Protected Wild Animals

In addition to the abovementioned species, all deer species, hare, hedgehog, pine marten, red squirrel, pygmy shrew, stoat, freshwater crayfish, freshwater pearl mussel and the Kerry slug as well as marine mammals, are afforded protection under the Wildlife Acts (as amended).

1.6.2.5 Protected Plant Species

Under the Flora (Protection) Order, 2022, a range of vascular and non-vascular plant species are afforded protection, whereby under the Wildlife Acts, it is not allowed to other than with a licence granted by the Minister for Arts, Heritage and the Gaeltacht, to "*cut, pick, collect, uproot or otherwise take, injure, damage, or destroy any specimen*" of the species listed in the Flora Protection Order; to "*purchase, sell, keep for sale, transport for sale or exchange, offer for sale or exchange or be in possession of any such specimen whether alive or dead or the flowers, roots, seeds, spores or any part, product or derivative thereof*"; or to "*wilfully alter, damage, destroy or interfere with the habitat or environment*" of any of the listed species.

1.6.2.6 Invasive Plant Species

The main regulations influencing Ireland's invasive species lists are:

- the Third Schedule list of the European Communities (Birds and Natural Habitats) Regulations 2011 [S.I.477/2011] – 76 listed species
- the Invasive Alien Species of Union concern listed under the EU IAS Regulation [1143/2014] – 88 listed species
- the European Union (Invasive Alien Species) (Freshwater Crayfish) Regulations 2018 [SI 354/2018] – 5 listed species

1.7 CIEEM PEA GUIDANCE

The methodology presented in the CIEEM Guidelines for Preliminary Ecological Appraisal (2017) was followed to conduct this PEA. The purpose of a PEA is to rapidly assess ecological features present (or potentially present) within the zone of influence of a development site.

This allows us to:

- identify the likely ecological constraints associated with a project;
- identify any mitigation measures likely to be required; and
- identify any additional surveys that may be required.

The zone of influence of a proposed development site is defined by the guidelines as 'the area(s) over which ecological features may be affected by the biophysical changes caused by a proposed project and associated activities.'

The Guidelines also state that '*existing ecological information for the site and adjacent areas should be obtained, normally extending to at least 1 km from the site boundaries or 0.5 km for sites of approximately 1 ha or less*'. In this case the site is approximately 0.49 ha in area, therefore records were obtained for an area extending 1km beyond the site boundary.

The primary audience for a PEAR is the client or developer and relevant members of the project team, such as the architect, planning consultant, and landscape architect. It is normally produced to inform a developer (or other client), and their design team, about the key ecological constraints and opportunities associated with a project, possible mitigation requirements and any detailed further surveys required to inform an Ecological Impact Assessment (EcIA).

"Under normal circumstances it is not appropriate to submit a PEAR in support of a planning application as the scope of a PEAR is unlikely to fully meet planning authority requirements in respect of biodiversity policy and implications for protected species."

This PEAR aims to provide the necessary information to the competent authorities, to assist them in making an informed decision on the likely impact of the proposed works on ecological features within and surrounding the Site, as set out using best practice *Guidelines for Preliminary Ecological Appraisal* (CIEEM, 2017).

The PEA comprises a rapid assessment to identify ecological features on Site or within the vicinity of the Site to understand the potential ecological impacts that may be caused by the proposed works.

The key objectives of a PEA are to:

- identify and categorise all habitats present within the Survey Area and any areas immediately outside of the Survey Area where there may be potential for direct or indirect effects;
- identify the likely ecological constraints associated with a project;
- identify any mitigation measures likely to be required, following the 'Mitigation Hierarchy';
- identify any additional surveys that may be required to inform an Ecological Impact Assessment (EcIA); and
- provide advice on ecological constraints and opportunities where relevant, including the identification of any requirements for additional habitat and species surveys and/or requirements for ecological mitigation; and
- provide a map showing the habitats identified in the Survey Area and location of identified/potential ecological constraints.

2 METHOD

The approach applied when carrying out the desk study generally accords with the Guidelines for Preliminary Ecological Appraisal published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2017).

The preliminary ecological study is comprised of:

- Desktop study
- Habitat and species survey
- Habitat mapping

The detailed methodology for each component is described in the sections below.

2.1 DESKTOP STUDY

A desk study was carried out to identify nature conservation designations and records of protected and notable habitats/species potentially linked to the Proposed Project. A likely Zone of Influence of the Site on different ecological features was applied for the desk study.

The desk study included review of the following sources of information:

- Article 17 Reports (NPWS, 2019)
    - GIS spatial data for Article 17 Reports[1]
- National Biodiversity Data Centre (NBDC, 2023) – 1km-square species reports (accessed online on 17/03/2024);
- Irish Red Data Books 1 (plants) and 2 (animals)
- Invasive Species Ireland: Third Schedule Part 1 (plants) and Part 2 (animals) of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477/2011) (as amended) – subject to restrictions under Regulations 49 and 50, those of EU concern under the EU Invasive Alien Species Regulation, and those listed by the National Biodiversity Data Centre as invasive in Ireland.
- Environmental Protection Agency (EPA) rivers and water quality data and Water Framework Directive (WFD) status at EPA map viewer – shapefile containing spatial data on the integrated flow network of known flow connections through rivers, lakes and groundwater aquifers (EPA, 2017);
- 2019 Spatial data for breeding distributions and ranges of bird species protected under Article 12 of the Bird Directive (79/409/ECC) (NPWS, 2019a);
- 2019 Spatial data for habitats (Annex I) and species (Annexes II, IV and V) protected under Article 17 of the Habitats Directive (92/43/EEC) (NPWS, 2019b).

The following websites were accessed for information and data:

- Dún Laoghaire-Rathdown County Council– https://www.dlrcoco.ie/
- National Parks and Wildlife Service (NPWS) - https://www.npws.ie/
- National Biodiversity Data Centre (NBDC) – https://biodiversityireland.ie/

[1] https://www.npws.ie/maps-and-data/habitat-and-species-data/article-17

- The Vincent Wildlife Trust Ireland - https://www.vincentwildlife.ie/
- DATA.GOV.IE – https://data.gov.ie/
- Ordinance Survey Ireland - https://osi.ie/
- Environmental Protection Agency, Ireland – https://www.epa.ie/
- European Commission - https://commission.europa.eu/index_en

2.1.1 WILDLIFE RECORDS

NBDC database was searched for the listed species records above within the 1 km square grids O2024 and O2124 (in blue) covering the footprint of the Site, as illustrated in Figure 2.1.

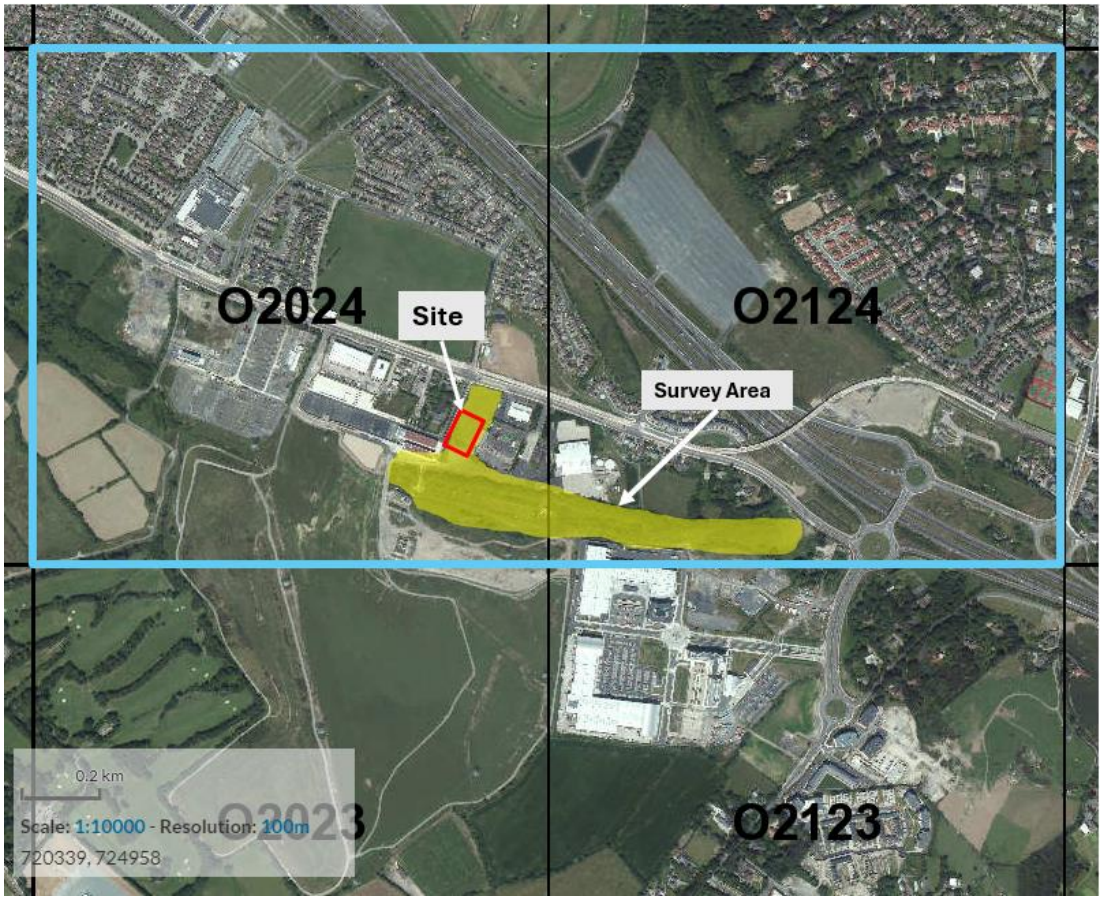


Figure 2.1 1km square grids (O2024 and 2124 in blue) sourced from NBDC records (accessed 2024) of the project footprint (Site is red square) and the Survey Area extent (in yellow).

2.1.2 DESIGNATED SITES

The EPA map viewer was used to identify designated European sites, Ramsar Sites and NHAs/pNHAs within potential zones of influence of the Proposed Project and to review the project within the context of its surrounding environment to assess the relationship of the Site to adjacent habitats. Designated sites that may be affected by the proposed works were identified using the Source-Pathway-Receptor (S-P-R) framework, as outlined in OPR (2021).

2.1.3 DEFINING THE ZOI

The Zone of Influence[2] (ZoI) of a project should be evaluated on a case-by-case basis with reference to nature, size and location of the Proposed Project, the sensitivities of the ecological receptors, if there are hydrological links beyond the site boundaries, and the potential for in-combination effects (cumulative). The ZoI will vary for different ecological features depending on their sensitivity to an environmental change (CIEEM, 2016).

The Office of the Planning Regulator (OPR, Practice Note PN01, 2021) recommends the ZoI of a project should be considered using the Source-Pathway-Receptor model, stating:

"*A European site will only be at risk from likely significant effects where the Source-Pathway-Receptor link exists between the proposed development and the European site". A proposed development can be screened out with confidence if no pathway exists between the source and receptor site. If no direct/indirect effect exists to the Special Conservation Interests (SCIs) or Qualifying Interests (QIs) of the designated SPA/SAC, respectively, from any impact resulting from the proposed development, during the screening process a likely significant effect can then also be ruled out."*

The OPR Practice Note (2021) states that "*The zone of influence of a proposed development is the geographical area over which it could affect the receiving environment in a way that could have significant effects on the qualifying interests of a European site. This should be established on a case-by-case basis using the Source-Pathway-Receptor framework and not by arbitrary distances*."

NPWS guidance (DEHLG, 2009) states for certain projects the ZoI can be less than 100m and advises that this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project the sensitivities of the ecological receptors, and the potential for in-combination effects.

For this project, given the scale and nature of the proposed activities, and the location of the Site (i.e. within an urban area), the ZoI was determined through a review of the nature of the project, the distances between the project and Natura 2000 Sites, RAMSAR sites, and national conservation designations (i.e. Natural Heritage Area (NHAs) and Proposed NHAs (pNHAs)) the types of potential impacts/effects, and the SCIs and QIs of the Natura 2000 Sites.

For this proposed project, the Source-Pathway-Receptor (S-P-R) model has been used to define the ZoI for this assessment.

As this Site does not directly overlap with any Natura 2000 site, NHAs, pNHAs or RAMSAR site, nor is this the Site hydrologically linked to European sites and nationally designated areas, given the scale of the project, **a precautionary 3km ZoI was applied.**

2.2 FIELD SURVEY

2.2.1 HABITAT SURVEY

A habitat survey is a standardised method of recording habitat types and characteristic vegetation, as set out in the 'Best Practice Guidance for Habitat Survey Mapping' (The Heritage Council, 2011). A habitat survey is a method of collecting information about the ecology of a site.

"*The fundamental piece of information collected is the habitat type to which a particular area can be assigned. Habitat types are determined by reference to a system of habitat classification, which must*

[2] The zone of influence (ZOI) of a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities. This has the potential to extend far beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries

be clearly identified. The location and extent of different habitat types that are present in a site are mapped to provide a clear spatial record. Additional information on habitats may also be collected, such as dominant species or conservation status, depending on the objectives of the particular habitat survey. The results of a habitat survey provide basic ecological information that can be used for biodiversity conservation, planning and/or management, including targeting of more detailed botanical or zoological investigations" – The Heritage Council (2011)

The site visit was carried out by Maggie Starr, GDG ecologist, on the 16/04/2024.

The survey comprised a walk-over of the habitats of interest, with notes made on key attributes, particularly the following:

- Area or extent of the habitat (estimated in field);
- Presence of typical species of the relevant habitats
- Presence of 'negative species' / non-native invasive species
- Potential of the habitat to support important species of conservation importance, especially Annex I bird species (Birds Directive), Annex II species (Habitats Directive), and Red-listed species (IUCN)
- Potential connectivity with Natura 2000 sites and potential use by Qualifying Interests or Special Conservation Interests of such sites; and
- Potential sensitive ecological receptors present on the Site.

The survey followed best practice as set out in Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2018), Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes (NRA, 2009), and Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017).

Habitats were classified in accordance with the system outlined by Julie Fossitt, (The Heritage Council, 2000), and target notes were used to record any additional features as required. Relevant photographs are provided along with a short description of the habitat.

The GDG ecologist conducted a high-level invasive plant species search within the Site during the Walkover Survey, taking photos and noting of the GPS location of the invasive plant species (if any). Species listed in Part 1 of the Third Schedule and species listed in TII's (formerly NRA, 2010) Guidelines for the Management of Noxious Weeds and Non- Native Invasive Plant Species on National Roads were consulted.

Characteristic flora species were recorded within the walkover Survey Extent, taking note of their location, and using these species to classify the various habitats on Site (as per Fossitt (2000) guidance).

Species listed in column (1) of the Schedule were consulted with species recorded on Site during the Survey.

2.2.2 PROTECTED SPECIES SURVEY

For the species survey features of interest as described below were searched for and recorded to establish presence/absence of species of interest as part of the habitat survey site walkover. Photographs were taken of features where identified, with GPS location noted.

The following guidelines were consulted:

- Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes (NRA, 2009a)

- Guidelines for Assessment of Ecological Impacts of National Roads Schemes (NRA, 2009b) Point Road Embankment, Crosshaven Ecological Report GDG | Point Road Embankment | 23110-ENV-001 Page 20 of 77
- Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes (NRA, 2008)
- Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes (NRA, 2005a)
- Guidelines for the Treatment of Bats during the Construction of National Road Schemes (NRA, 2005b)
- Guidelines on the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads (NRA, 2010)
- Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition). Bat Conservation Trust (Collins, 2016)
- Irish Red Data Books 1 (plants) and 2 (animals) (IUCN)

Features of interest identified for the species survey at the Site were:

- Evidence of mammals [particularly otters, pine martens, red squirrels, hedgehogs, badgers, pygmy shrews and bats];
    - Potential Roost Features (PRFs) and hibernation sites of bats
    - Any sensitive features for breeding, resting, foraging or commuting
    - Faeces/spraints/latrines o Direct sightings of mammals
    - Otter holts/couches, dens, burrows, setts, dreys
    - Prints, slides (along watercourses), mammal trails,
    - Prey/food remains
- Evidence of herpetofauna (reptiles and amphibians)
    - Amphibian habitat suitability assessment (to support breeding common frog and smooth newt) – potential spawning habitat
    - Live sightings/spawn
- Other Species
    - Incidental sightings of other protected and/or notable species were recorded.

2.3 HABITAT MAPPING

Mapping followed the guideline Best Practice Guidance for Habitat Survey and Mapping (Smith et al., 2011) and maps were created using QGIS 3.22.5. Habitats were classified to Level 3 of Fossitt's (2000) A Guide to Habitats in Ireland, recording dominant species, indicator 'characteristic' species and/or species of conservation interest were noted along with the sediment/substrate within the habitat, with the Fossitt category codes given in parenthesis.

According to Smith (et al., 2011), in a good habitat survey there are five main steps that were followed during the Site walkover survey. Refer to Table 2.1 to see a description of these steps that were followed.

Table 2.1 Habitat Survey Methodology - Five Main Steps (Smith *et. al.*, 2011).

Step	Activities
1	Planning the scope and execution of the habitat survey in line with survey objectives
2	Review of desktop information to assist field survey work
3	Field-based habitat survey and mapping, and compilation of additional information dependent on study objectives
4	Compilation of the final habitat survey GIS database, other data and project report
5	Interpretation of the results of the habitat survey and ecological studies beyond habitat surveying

3 RESULTS

This section of the report provides the results of the desk study and the PEA Survey conducted by the GDG ecologist on 16/04/2024.

3.1 DESIGNATED SITES

Natura 2000 Sites

There are no designated sites within the Site nor in the immediate area around the Site. SACs and SPAs are shown in Figure 3.1, all of which are located outside the 3km ZoI.

It should be noted, the Ballyogan stream that is directly south of the site is an intermittent or non-perennial stream (i.e. does not flow continuously for the whole year). During the PEA Survey, the stream was dried up, and appeared to have been for some time.

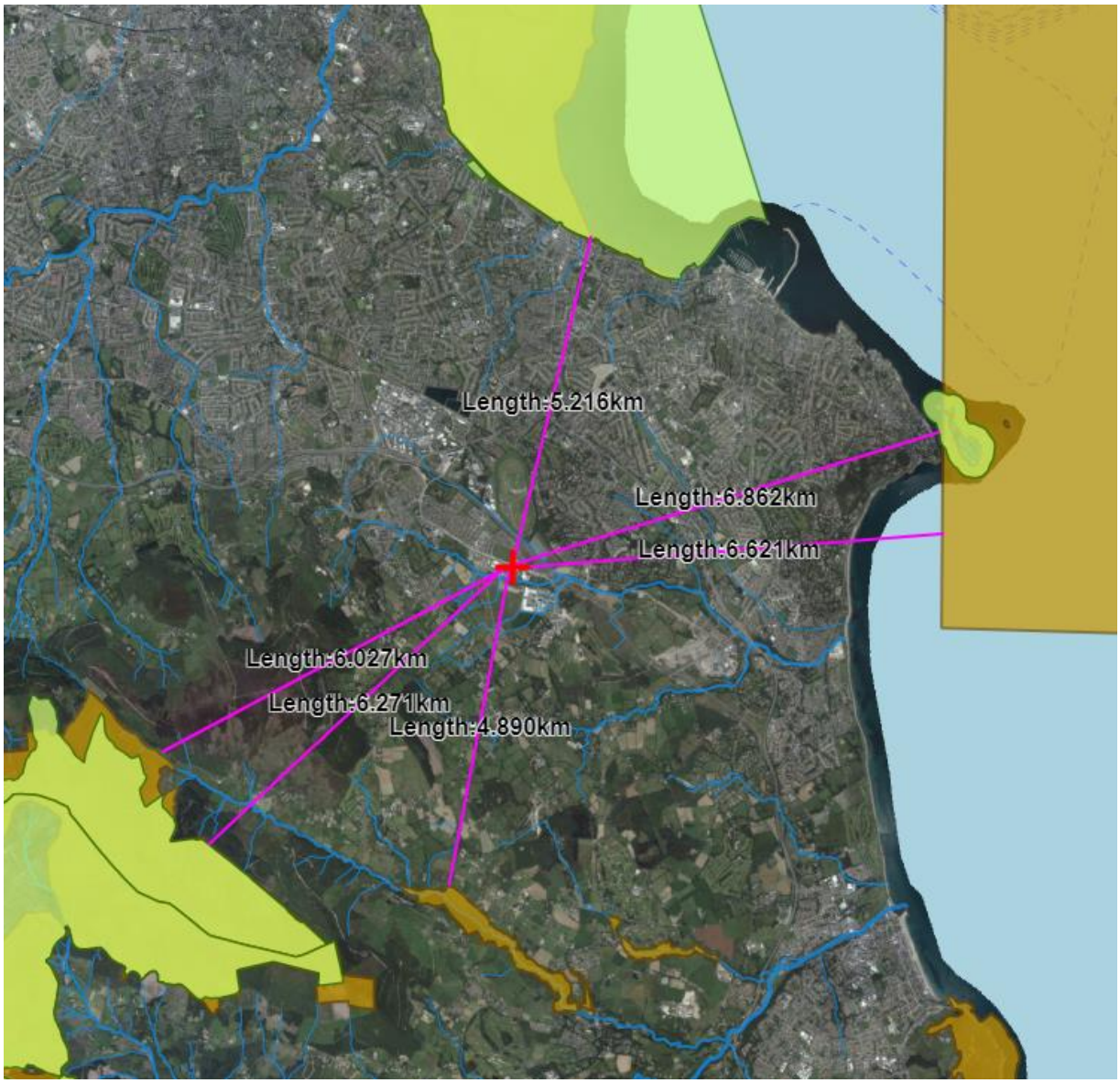


Figure 3.1 Special Areas of Conservation (in brown) and Special Protection Areas (in yellow) and distances from the Site (red arrow).

Ramsar Sites

Sandymount Strand/ Tolka Estuary Ramsar Site, designated in 1996, is located in the extensive wetland system that is Dublin Bay. It is the closest Ramsar site to the Site in Ballyogan. It is situated over 5km (outside the 3km ZoI considered for this Project) northeast of the Proposed Development. The following is taken from the Ramsar Sites Information Services (accessed online April 2024).

The Site in Dublin Bay features extensive intertidal mud and sand flats which extend for almost three kilometres at their widest, and an intertidal biogenic reef and a small section of saltmarsh. The sands support the largest stand of seagrass beds (Zostera noltii) on Ireland's east coast. South Dublin Bay is the premier site in Ireland for the Mediterranean gull (Larus melanocephalus) and is a regular autumn roosting ground for significant numbers of terns. More than 1% of the global population of light-bellied brent goose (Branta bernicla hrota), black-tailed godwit (Limosa limosa) and bar-tailed godwit (Limosa lapponica) are present in the Site. The proximity of the city of Dublin makes the Site a very popular recreational area, while bait-digging is a regular activity on the sandy flats. It is also important for educational and research purposes. The Site is subject to natural eutrophication and is threatened by the accumulation of organic material. It is also affected by disturbances from roads, land conversions and urban wastewater.

…Sandymount Strand/ Tolka Estuary Ramsar Site contains an excellent and extensive area of intertidal mud and sand which is of importance as a habitat for wintering waterbirds. The Site also includes a significant bed of Eel grass, areas of intertidal biogenic reef and a small section of saltmarsh. The Site is of particular importance in maintaining the biodiversity of the complex of small fragmented wetland habitats on the east coast of Ireland which are limited in their extent and distribution. South Dublin Bay is the premier site in Ireland for the Mediterranean Gull (Larus melanocephalus), and is a regular autumn roosting ground for significant numbers of terns.

There is no hydrological connection between the Site and the Sandymount Strand/ Tolka Estuary Ramsar Site. The Site does not contain adequate wintering grounds to support important wintering bird populations.

Natural Heritage Areas (NHAs)

No NHAs are within the 3km ZoI of the Proposed Project; however, one pNHAs, Dingle Glen (Site Code 001207), is situated ~1.5km from the Site. Dingle Glen is a secluded mature broadleaf woodland, mixed with rocky outcrops, within a glacier meltwater channel, thus providing a diversity of habitats within a small undisturbed area. There are no hydrological pathways connecting the Site to Dingle Glen pNHA, nor are there any direct effects to the Project foreseen as a result of the proposed development - see Figure 3.2 with river flow direction as produced from EPA Maps (accessed online April 2024).

Dingle Glen is a secluded mature broadleaf woodland, mixed with rocky outcrops, within a glacier meltwater channel, thus providing a diversity of habitats within a small undisturbed area. There are no hydrological pathways connecting the Site to Dingle Glen pNHA, nor are there any direct effects to the Project foreseen as a result of the proposed development.

Figure 3.2 The Site (red cross) and the NHAs/pNHAs (pink polygons) – EPA Maps (accessed online April 2024).

3.2 HABITATS

Habitats recorded in the study area are listed in Table 3.1 and described in Appendix A, where each habitat is described with an accompanying photo of the habitat taken during the PEA Survey.

Distribution and extent of habitats can be seen in Figure 3.3, and habitat within the Siteare illustrated clearly in Appendix A (Figure A.1) of this report (close up map).

Table 3.1 Habitats recorded within the Survey Area.

Habitat Name	Habitat Code (as per Fossitt, 2000)
Scrub	WS1
Treelines	WL2
Hedgerows	WL1
Recolonising Bare Ground	ED3
Stone Walls and other Stonework	BL1
Buildings and Artificial Surfaces	(BL3)

Earth Banks	BL2
Wet Grassland	GS4

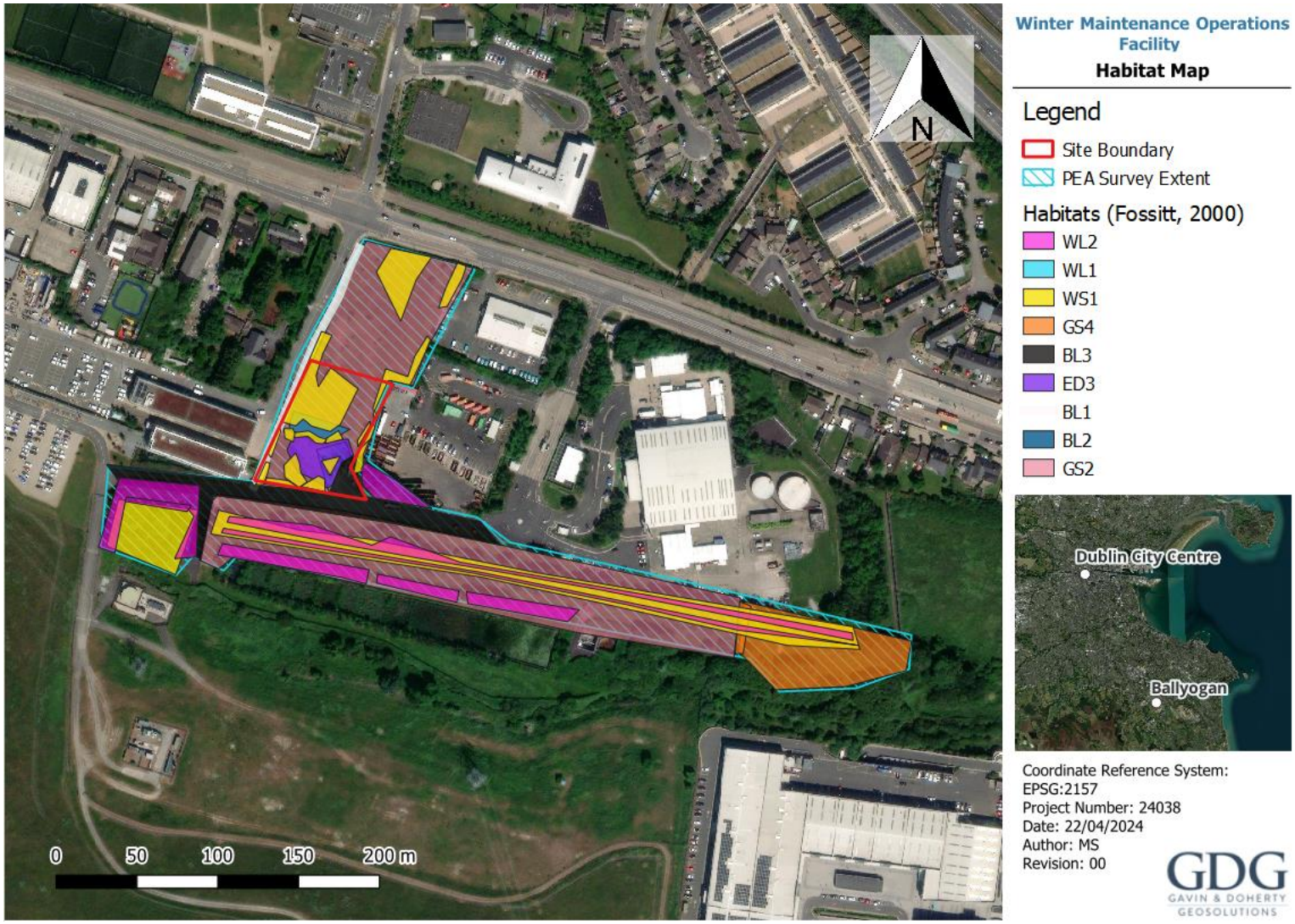


Figure 3.3 Habitat map within the PEA Survey Extent

3.3 INVASIVE NON-NATIVE PLANT SPECIES

NBDC records of the flora species within the 1km square grids O2024 and O2124 documented invasive plant species – see Appendix C Table C.1

No species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. No. 477 of 2011), were found within the Site. However, during the PEA Survey three (3) invasive plant species were identified – see Table 3.2.

Table 3.2 Invasive plant species observed during the PEA Survey.

Common Name	Scientific Name
Butterfly-bush	*Buddleja davidii*
Sycamore	*Acer pseudoplatanus*
Winter Heliotrope	*Petasites fragrans*

Butterfly Bush, Winter Heliotrope and Sycamore are not included in the Third Schedule. Therefore, its presence at the Site does not have the potential to lead to an offence under the Birds and Natural Habitats Regulations 2011 (SI 477 of 2011) or under the Wildlife Acts (as amended). However, all three of these invasive species are classified as Medium Impact Invasive Species on the National Biodiversity Data Centre (NBDC), who maintains the National Invasive Species Database and provides distribution data on high and medium impact species.

The NBDC notes that under the right ecological conditions this species may have an impact on the conservation goals of a European site or impact on a water body achieving good/high ecological status under the Water Framework Directive (Directive 2000/60/EC).

Butterfly bush tolerates very poor soils, and capable of growing on walls, rock outcrops or sub-soils. These conditions are frequent on new road schemes, where such features (rock cuttings, eskers, etc.) are left to re-colonise naturally. In addition, this species is very problematic along watercourses, where it is frequently washed away due to its shallow root system, resulting in erosion of the riverbanks and downstream blockages (NRA, 2010).

Butterfly-bush was noted in abundance within the Site - see Figure 3.4 pictures of Butterfly-bush within the Site.

Figure 3.4 Butterfly-bush within the Site, covering large areas of the Site – photo taken 16/04/2024.

Winter heliotrope is a low-growing herbaceous plant originating from North Africa, and has established itself widely across Ireland, found usually along roadsides, hedgerows, woodland edges and waste ground. When this species was introduced to Ireland, only the male plant was spread, meaning its spread is confined to vegetative means with its rhizomatous root system (NRA, 2010). The patch that was observed by the ecologist appeared to be relatively small in comparison to the area in which the butterfly bush covered.

See Figure 3.5, pictures of Winter Heliotrope within the Site. This invasive species covered large sections of the Site and was well established.

Figure 3.5 Winter Heliotrope scattered among the Site - photo taken 16/04/2024.

Sycamore is a species of maple native to Central Europe and Western Asia. It is a large deciduous, broad-leaved tree, tolerant of wind and more harsh environments such as coastal exposure. The invasive species Sycamore was recorded within the Site, namely immature stem. This species out-competes crowds-out and displaces beneficial native plants, thriving in constructed, industrial and other artificial habitats.

Figure 3.6 Invasive species including Butterfly-bush, Winter Heliotrope and Sycamore recorded within the Site and surrounds.

3.4 FAUNA RECORDS

This section of the PEAR presents the findings of species within and surrounding the Site from the desktop study and the results of the PEA Survey conducted on the 16/04/2024 by the GDG ecologist.

3.4.1 MAMMALS (NON-VOLANT)

NBDC records of non-volant mammals recorded within the grid squares O2024 and O2124 are summarised in Table 3.3. The non-volant mammal species recorded within the NBDC grid are not protected (neither national nor international protection), with one species listed as a High Impact Invasive Species.

Table 3.3 Non-volant mammal records from NBDC grid cells O2024 and O2124.

Species Name	Record Count	Date of Last Record	Designation
Red Fox *Vulpes vulpes*	2	08/05/2017	N/A
Eastern Grey Squirrel (*Sciurus carolinensis*)	1	27/01/2022	Invasive Species: High Impact Regulation S.I. 477 (Ireland) EU Regulation No. 1143/2014

Deer

Scattered across the site, mammal trails were recorded at multiple locations on site. Deer prints and pellets (droppings) were found along these mammal trails and throughout the Site and Survey Area – see Figure 3.8. No other prints were recorded on site (badger or otter). During the survey, three (3) Sika Deer (*Cervus nippon*) were spotted by the ecologist. See Figure 3.7, where the 3 sika deer were spooked by the presence of the ecologist.

Figure 3.7 Three (3) sika deer (*Cervus nippon*) spotted on the Site – photo taken 16/04/2024.

Figure 3.8 Signs of sika deer throughout the Site including pellets, footprints and trails – photo taken 16/04/2024.

Otter

No sign of otter was recorded within the Site nor the Survey Area. As noted above, the Ballyogan stream to the south of the Site is a seasonal stream and was dried up when the ecologist conducted the site visit.

Eurasian Badger

The Site and Survey Area were extensively searched for sign of badger. No sign of badger was recorded within the Site nor the Survey Area. Mammal trails recorded within the Site and surrounds did not have any signs of badger prints. No tunnels were found resembling setts, nor were any latrines.

Squirrels

To the south of the Site, across the private industrial road, a line of Hazel trees (*Corylus avellana*) ran adjacent to the artificial reed ponds, built to filter surface water run-off from Jamestown Park, a raised landfill approximately 40 hectares that was capped in November 2009. Broken hazelnuts (see Figure 3.9) were located under the trees. The trees were searched for dreys; however, none were recorded. It is unclear if the broken hazelnuts were the food remains of other rodents such as rats or grey squirrels, or that of the red squirrel. NBDC records have documented Grey Squirrel within the 1km square grid O2024, where the Site is situated in and the hazel trees.

The Site itself did not have trees that would support a red squirrel population (namely shrubs such as Halberd-leaved Willow).

Figure 3.9 Broken hazelnuts found along the artificial reed beds situated on the old landfill site across the private industrial road to the south of the Site - photo taken 16/04/2024.

Other Terrestrial Mammals

The Survey Area was examined for signs of other protected mammal species such as the Irish stoat and Pine Marten – no signs were recorded.

3.4.2 BATS (VOLANT MAMMALS)

The 'Bat Landscape' layer in the NBDC maps for the area within and surrounding the Site is colour coded orange, giving a very high habitat suitability for all bat species in Ireland. Data is acquired from the National Bat Database and The National Lesser Horseshoe Bat database. These data are then used to inform the habitat suitability of an area for each species of bat. This is accomplished through gathering factors such as climate, pH of soil, riparian habitats, human bias, landcover (CORINE) and topography all of which are details on habitat preference of each species of bat. These factors are then

incorporated into a model known as a Maximum Entropy Modelling (MaxEnt) to produce habitat suitability models for each species (Lundy *et al*., 2011). Information on the 'habitat suitability index' is provided below and ranges between 0 and 100, where 0 is least favourable and 100 most favourable habitats for bats.

The 'Bat Landscape' of the area within and surrounding the Site (within the grid cells, NBDC), and the colour-coded 'habitat suitability index' are outlined in Figure 3.10. The area is colour-coded yellow indicating a medium suitability score for bats. The score from the index for each species of bat is shown in Table 3.4. Within the Site and surrounding landscape, the habitat suitability is medium to medium-high for Soprano pipistrelle (*Pipistrellus pygmaeus*), Common pipistrelle (*Pipistrellus pipistrellus*), Leisler's bat (*Nyctalus leisleri*) and Natterer's bat (*Myotis nattereri*).

Figure 3.10 Bat Habitat Suitability Index of the Ballyogan area (NBDC).

Table 3.4 Habitat Suitability Index for all species of bats within and surrounding the Site.

Scientific Name	Common Name	Suitability Index
All bats (Overall)		26.56
Pipistrellus pygmaeus	Soprano pipistrelle	40
Plecotus auritus	Brown long-eared bat	31
Pipistrellus pipistrellus	Common pipistrelle	45
Rhinolophus hipposideros	Lesser horseshoe bat	0
Nyctalus leisleri	Leisler's bat	40
Myotis mystacinus	Whiskered bat	19
Myotis daubentonii	Daubenton's bat	19
Pipistrellus nathusii	Nathusius' pipistrelle	3
Myotis nattereri	Natterer's bat	42

No records of bats are documented within the 1km grid cell O2024, the square grid where the Site is situated in.
In Table 3.5, the bats recorded within the 1km square grid O2124 (as shown in Figure 5.1) are summarised (NBDC online records).

Table 3.5 Summary of NBDC records of protected bats recorded within the 1km square grid O2124.

Species Name	Record Count	Date of Last Record	Designation
Brown Long-eared Bat (*Plecotus auritus*)	2	05/09/2012	Habitats Directive (92/43/EEC), Annex IV Wildlife Acts Bern Convention; Appendix II
Common Pipistrelle (*Pipistrellus pipistrellus sensu stricto*)	5	10/08/2017	Habitats Directive (92/43/EEC), Annex IV Wildlife Acts Bern Convention; Appendix II
Lesser Noctule (*Nyctalus leisleri*)	4	10/08/2017	Habitats Directive (92/43/EEC), Annex IV Wildlife Acts Bern Convention; Appendix II

During the PEA walkover survey, the GDG ecologist did not observe live sighting of bats or evidence of bats within the Site; however, trees covered in dense ivy (>5cm thick) were observed within the treeline south of the Site along the Ballyogan stream (dried up during the PEA Survey) – see Figure 3.11, Figure 3.12 and Figure 3.13. The GDG ecologist identified these trees as potential bat roosts (PBRs).

No old/derelict buildings were observed within the Site or within the Survey Area.

Figure 3.11 Tree densely covered with ivy (>5cm thick) located south of the Site across the private industrial road – photo taken 16/04/2024.

Figure 3.12 Close-up pictures of the dense ivy of the tree in Figure 3.11 – photo taken 16/04/2024.

Figure 3.13 Another tree identified as potential roosting sites southwest of the Site as one of the entrances to the closed landfill – photo taken 16/04/2024.

3.4.3 AVIFAUNA

No records of birds were documented in the NBDC 1km square grids O2024 and O2124.

A dedicated breeding bird survey was not carried out, but all species encountered during the PEA habitat survey were noted and are listed in Table 3.6 below. The primary habitat on Site that is suitable for breeding birds was the patch of willow shrubs in the centre of the Proposed Site.

Table 3.6 Birds observed during PEA habitat survey.

Species Name	Count	Notes
Common Gull (*Larus canus*)	2	Recorded on the west wall of the Site. Perched on the wall for short while and flew in a westerly direction away from the Site.
Lesser Black-backed Gull (*Larus fuscus*)	1	Flew over the site from the north of the Site, flying to the west wall of the site. Perched for a short while and flew in a westerly direction away from the Site.
Magpie (*Pica pica*)	3	2 recorded in the Site along immature trees on the easterly barrier of the Site between the Site and the Ballyogan Recycling Centre. 1 recorded within the treeline to the south of the Site (not within the Site) along the Ballyogan stream (dried up).
Jackdaw (*Corvus monedula*)	4	3 jackdaws recorded flying over the Site coming from the south flying towards the north of the Site. 1 was recorded flying over the treelines along the Ballyogan stream (dried up) to the east.
Rook (*Corvus frugilegus*)	4	4 rooks were recorded flying above the Site.
Hooded Crow (*Corvus cornix*)	1	Recorded flying over the Site in a northerly direction.
Woodpigeon (*Columba palumbus*)	3	2 recorded flying in a south easterly direction over the treeline along Ballyogan stream (dried up). 1 recorded flying over the site towards the Ballyogan Recycling Centre.
Pied Wagtail (*Motacilla alba yarrellii*)	2	Recorded perched on a tree among the willow shrubs within the Site.
Blackbird (*Turdus merula*)	3	2 recorded flying among the patch of willow shrubs within the Site. 1 recorded in the treeline along the Ballyogan stream (dried up).
Blue Tit (*Cyanistes caeruleus*)	2	2 recorded within the patch of willow shrubs within the Site.
Chaffinch (*Fringilla coelebs*)	1	Recorded within the patch of willow shrubs within the Site.
House Sparrow (*Passer domesticus*)	1	Recorded perched on a tree in the treeline to the south of the Site along the Ballyogan stream (dried up).

3.4.4 HERPETOFAUNA

No records were found for Smooth newt (*Lissotriton vulgaris*) or Common frog (*Rana temporaria*) within the NBDC 1km square grids. The Ballyogan stream is a non-perennial stream that was dried up when the PEA Survey took place. The artificial pond with reed beds were also searched (from the path) for signs of newt and frog spawn, however, no evidence of spawning was noted (see Figure 3.14). Further east of the reed beds, a wet grassland was recorded. This area of wetland was searched for signs of spawn – none was recorded. The area wetland area was completely covered by dense algae – suitable habitat as spawning grounds for herpetofauna. This patch of wetland was ~250m southeast of the Site (not within the Site).

Figure 3.14 Small patch of wetland c. 250m southeast of the Site - photo taken 16/04/2024.

3.4.5 INSECTS

Insects were not actively surveyed for, however, bumble bees (*Bombus* spp) were occasional on the Site. Two butterflies were recorded on site – a small tortoiseshells (*Aglais urticae*) and speckled wood (*Pararge aegeria*). There are several records of beetles, moths and other species of butterfly recorded on Site – see Appendix D.

4 EVALUATION AND RECOMMENDATIONS

4.1 DESIGNATED SITES

The Site is not situated within Natura 2000 sites or NHAs, nor are there any Natura 2000 site within the 3km ZoI considered for this Proposed Development.

Overall ecological importance of the Site was evaluated as of low international importance. The Site is not near to nor hydrologically connected to any Natura 2000 site. In addition, the Site itself is not suitable to support qualifying interests such as overwintering birds or otters. The Ballyogan stream is a non-perennial stream and was dried up during the PEA Survey was carried out. Notwithstanding this, during the winter months when/if the stream floods again, it does not appear to be suitable habitat to support otters.

Therefore, there is no pathway of impact on any other designated site in the area and the proposed development will not affect any of their qualifying features.

4.2 HABITATS

4.2.1 EVALUATION

There are no habitats on Site that are listed in Annex 1 of the Habitats Directive, nor were there any plant species listed in the Flora (Protection) Order 2022 (S.I. No. 355/2022) observed during the PEA Survey.

The Site does contain dense scrub, which is an important habitat for many plant, animal and insect species. Hedgerows onsite were not well established and no treelines were recorded on Site.

Lands surrounding the Site are characterised by urban/residential development and is located within an industrial area. The Ballyogan Road is adjacent to Site at the northern boundary and above this road the busy M50 is situated. To the south of the Site, the raised Ballyogan Landfill Site is located, now closed and recolonised with plant species. There is a biological connection with the improved agricultural grasslands (GA1, as per Fossitt, 2000), with sika deer accessing the Site from the surrounding lands to the South.

4.2.2 RECOMMENDATIONS

No further terrestrial habitat surveys are recommended at this stage. Based on a review of the desktop study and observations recorded during the Walkover Survey, the likely significant on the habitats are considered to be negligible.

All vegetation clearance should be done outside the bird breeding season (1st March -31st August). As some birds still nest outside this time it is recommended that any clearance close to the breeding season is done under the supervision of a qualified ecologist (ECoW). Potential nesting habitat, where retained, should be fenced off to prevent damage by plant or operatives.

4.3 INVASIVE NON-NATIVE SPECIES

4.3.1 EVALUATIONS

While no invasive species listed on the Third Schedule of the 2011 European Communities (Birds and Natural Habitats) Regulations were found on the Site, three non-native invasive plant species were noted – Butterfly-bush, Winter Heliotrope and Sycamore.

4.3.2 RECOMMENDATIONS

The spread of these species should not be facilitated and cognisance of current guidelines for the appropriate management and removal of these invasive plants should be taken into account. Care should be taken that no more is imported onto the site or spread within the site during construction work.

As these species are considered 'medium impact' invasive species, an Invasive Species Management Plan (ISMP) is recommended. Within the ISMP, the strategy to be adopted to manage the invasive species during the clearance of vegetation, construction and operation of the Proposed Development should be outlined clearly. Medium impact invasives such as winter heliotrope and butterfly-bush quickly establish themselves within sites where ground has been disturbed or where other vegetation has been sprayed, carpeting large areas and crowds out native species of Ireland. These species should be removed appropriately following the guidelines outlined in the proposed ISMP, ensuring they do not spread within the Site or surrounds.

4.4 FLORA

In Appendix C the list of NBDC flora records for the 1km grid squares O2024 in which the Site is situated and the adjacent O2124. No species listed on the Flora (Protection) Order 2022 or in the Irish Red List were observed during the Survey.

4.4.1 EVALUATION

During the PEA Survey, three species of Medium Impact Invasive Species were observed by the ecologist within the Site; Winter Heliotrope, Butterfly-bush and Sycamore. These species are not listed in the Third Schedule; Part 1 Plants, and are therefore not subject to restrictions under Regulations 49 and 50.

4.4.2 RECOMMENDATIONS

No vegetation removal (including trees, ditches, hedgerows, scrub) that could support nesting birds should take place during the breeding season (1st March through to 31st August). It is an offence to remove or disturb a nest during this season. Consultation and approval with NPWS/local county ecologist and a survey conducted by a suitably qualified ecologist confirming the absences of nesting birds immediately prior to works may permit the removal of such vegetation within the breeding season.

It is recommended that native trees and vegetation be planted in order to replace any habitat being removed and to enhance the habitat while incorporating biodiversity net gain for the Site and complying with Dún Laoghaire-Rathdown County Biodiversity Action Plan 2021-2025 and Dún Laoghaire-Rathdown County Development Plan 2022-2028.

4.5 FAUNA

During the PEA Survey, the GDG ecologist reported evidence of deer (live sighting, droppings and footprints) and potential evidence of squirrel (food remains - broken hazelnuts, south of the Site). Without doing a specialised squirrel survey, there is no way to distinguish whether the food remains were of a red or grey squirrel, however, NBDC have records of Grey Squirrel within the 1km square grid O2024. The habitat within the Site was deemed unsuitable for red squirrel, where there were no mature trees with fruits to support this species on Site.

Notwithstanding this, a pre-construction walkover survey of the Site and the surrounds should be conducted to record, if any, species of identified key ecological and ornithological receptors, in

particular otters, badgers, hedgehogs and bats have since established holts, setts, roosting sites, etc. since the writing of this report.

Many species such as otter and bats are highly mobile species that may occupy new breeding grounds and resting places from one season to the next, and even within a shorter space of time. No more than 10-12 months in advance of construction should the pre-construction surveys be conducted. This will allow for sufficient time to comply with all licensing requirements and undertaking of necessary actions can be implemented prior to the commencement of construction to protect otter populations (NRA, 2008). This preconstruction walkover survey will reinforce the findings of this report.

4.5.1 OTTER

No evidence of otters were observed during the Survey, and no records from NBDC of otter were documented within the footprint of the proposed works and surrounding areas.

4.5.1.1 EVALUATION

Otter is unlikely to be present within the Site or the immediate surrounding area. The non-perennial Ballyogan stream, which was dry when the PEA Survey took place, is too small and does not appear suitable to support an otter. The risk of water pollution from the Proposed Development impacting on this species is considered unlikely.

4.5.1.2 RECOMMENDATIONS

Notwithstanding this, pre-construction surveys should be undertaken prior to the commencement of any works during this Project in order to identify any changes in otter activity, holt locations, etc., since this report. No more than 10-12 months in advance of construction should the pre-construction surveys be conducted. This will allow for sufficient time to comply with all licensing requirements and undertaking of necessary actions can be implemented prior to the commencement of construction to protect otter populations (NRA, 2008).

If holts are observed during the pre-construction survey(s), these data should be considered as sensitive information and access to such data should be limited or restricted (should be kept confidential and not publicly available). Appropriate mitigation measures must be implemented.

4.5.1.3 GOOD PRACTICE GUIDELINES DURING THE CONSTRUCTION PHASE

Otters are known to be inquisitive animals (and more nocturnally inclined) and are likely to investigate a construction site. Therefore, the following good practice guidelines for otter during the construction phase of this project should be applied:

- Any excavations left open overnight should have a means of escape for otters (and all other mammals), a ramp at least 30cm in width and angled no greater than 45° should be placed inside the hole/trench overnight to allow the mammal to escape;
- Temporary fencing is essential and should be placed around the machinery at the end of the working day (cordoned off) and any machinery that could potentially harm otters should be made safe overnight;
- All proposed works for this Project during the construction phase should be restricted to daylight hours, so as to cause as little disturbance to these largely nocturnal creatures;
- To avoid risking mammals becoming trapped in excavations created during site works, holes and trenches may also be covered with timber mats or fenced off;
- Timber mats should be places on wet concrete as this can present a hazard to wildlife where small mammals may become stuck.

4.5.2 BADGER

No evidence of badger was observed during the Survey, and no records from NBDC of badger were documented within the footprint of the proposed works and surrounding areas.

4.5.2.1 EVALUATION

Highly urbanised areas do not provide much suitable habitat for badgers, with the setts then also prone to anthropogenic interferences. In addition, the Site is triangulated by the busy M50 and Ballyogan Road running adjacent to the north of the Site, and the DLRCC to the west of the Site and the Ballyogan Recycling Centre, therefore the Site is identified as not appropriate for badgers. Badgers require large swathes of countryside (generally associated with woodland and grassland habitats) that provide hedgerows, scrub and semi-natural woodland to hunt and forage, and where suitable vegetational cover is afforded. Grazed grasslands such as those found further south of the Site provide good foraging habitats for badger. The site is also bounded by high walls and fences. Landscape connectivity is thus limited for badger and other mammals such as stoat and hedgehog. No setts were recorded within the Site or the Survey Area nor was there any other evidence of their presence.

4.5.2.2 RECOMMENDATIONS

Further surveys are not considered a requirement at the AA stage of the Project However, **a pre-commencement survey will be necessary to ensure no badger have moved into the area in the interim.** The survey should include new searches for latrines, badger paths/runs and setts. If any evidence of badger activity/habitat are observed during the pre-construction walkover survey, additional surveys may be required and should be appropriately scoped. If a sett is recorded, it will be necessary to establish the location and status of the sett that would be affected by the Proposed development. Appropriate mitigation measures should be adhered to ensure potential disturbances are avoided during vegetation clearance and construction.

The appropriate techniques for undertaking pre-construction badger surveys are described in the NRA publication 'Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes' (NRA, 2009a).

If setts are observed during the pre-construction survey(s), these data should be considered as sensitive and access to such data should be limited or restricted (should be kept confidential and not publicly available).

The good practice guidelines outlined in section 4.5.1.3 should also be implemented for badger to ensure potential disturbance/hazard do not occur. Working at night should be avoided where possible.

4.5.3 DEER

Three (3) sika deer were recorded on Site by the ecologist during the PEA Survey carried out on 16/04/2024. Evidence of deer activity was recorded throughout the Site and to the south of the Site towards the Ballyogan landfill, now closed. During the Survey of the land to the south of the Site, the ecologist observed the three sika deer again within the artificial reed beds alongside the boundary of the landfill.

4.5.3.1 EVALUATION

The Site, which is circa 0.49 hectares, is surrounded by an urban/industrial setting and is connected to the Ballyogan landfill (now closed) where the landfill has returned to agricultural lands. It is the connection with the landfill that the Site is used by sika deer. The Site itself is small and cannot support mammals solely such as sika deer without the connection to the vast agricultural lands that are

available to the herd. This Proposed Development will not amount to widespread habitat modification/loss for this species. In addition, deer forage over a large area.

Therefore, the Site is not considered a priority habitat for the fitness and survival of the sika deer.

4.5.3.2 RECOMMENDATIONS

Due to the connection between the Site and the agricultural lands to the south of the Site, given the scale and nature of the proposed activities, the small size and location of the Site (i.e. mainly within an urban area), a deer management plan is not necessary for this Proposed Development.

Further surveys are not considered a requirement at the AA stage of the Project.

However, clearance of the bushy scrub vegetation may disturb the deer population if the deer were on Site. Prior to the clearance of scrub vegetation on Site, it is recommended that any clearance of scrub is done under the supervision of a qualified ecologist (ECoW).

Additionally, the good practice guidelines outlined in section 4.5.1.3 should be implemented to ensure disturbance/hazard towards mammals are avoided. Working at night should be avoided where possible.

4.5.4 OTHER MAMMALS

No other evidence of protected mammals species were observed during the Survey, and no records from NBDC were documented within the footprint of the proposed works and surrounding areas.

4.5.4.1 EVALUATION

Hedgerows and scrub are extremely valuable habitats which many species depend on for their survival. Removal of hedgerows/scrub may lead to loss of habitat connectivity and fragmentation for any hedgehogs present locally. **Clearance of vegetation during the winter may disturb hibernating hedgehogs.**

4.5.4.2 RECOMMENDATIONS

Pre-construction surveys are recommended to support the findings of this report and are to include all protected mammals. The good practice guidelines outlined in section 4.5.1.3 should be implemented to ensure disturbance/hazard towards mammals are avoided. Working at night should be avoided where possible.

4.5.5 HERPETOFAUNA

No evidence of herpetofauna were observed during the Survey, and no records from NBDC were documented within the footprint of the proposed works and surrounding areas.

4.5.5.1 EVALUATION

Wet grassland habitat (GS4) was recorded during the PEA Survey to the southeast of the Site, a distance circa 250m from the Site. Certain areas of the Site itself, such as scrub, hedgerows and tall ruderal vegetation, as terrestrial habitat for smooth newts.

4.5.5.2 RECOMMENDATIONS

Pre-construction surveys are recommended to support the findings of this report and are to include all protected fauna species.

4.5.6 BATS

Available online data and the observed potential bat roosting sites (mature trees covered in dense ivy to the south of the Site) observed during field surveys suggest that bats could potentially utilize the ecological corridors, i.e., linear features such as the treelines located along the Ballyogan Stream (dried up during the PEA Survey), tall ruderal vegetation and scrub for commuting and foraging bats.

4.5.6.1 EVALUATION

The ecologist did not observe any evidence of bats in the area, nor were there any derelict buildings or trees with potential roosting features within the Site. However, directly to the south of the Site, trees within the Treeline habitat along the Ballyogan Strem (dried up when the PEA Survey was conducted), and the expansive improved grasslands further south, make for a diverse landscape for bats, hence the ecologist identified the Site as moderately suitable as foraging/hunting grounds.

Within the Site, no evidence of potential roosting sites was observed/noted.

4.5.6.2 RECOMMENDATIONS

Further surveys are not considered a requirement at the AA stage of the Project.

However, an assessment of bat activity on Site should be carried out both pre- and post- development, as the planned additional lighting is potentially disruptive to foraging bats.

The following good practice guidelines during the construction phase of the Project should be implemented.

- Hours of illumination of the Site during the construction and operation of this Project should be limited. Only lighting on Site should occur during the construction activities (if required), while upholding the rules outlined in the Health and Safety documents associated with this Project.
- Nighttime works should be avoided, however, where this is not possible due to unforeseen reasons, lights should remain off between dusk and midnight, when insect activity peaks.
- Design feature, such as the bulbs used on Site should comply with the specifications outlined in Bat Conservation Ireland's Bats & Lighting; Guidance Notes for Planner, engineers, architects and developer (BCI, 2010) to reduce effects to roosting/hibernating bats within the area.

5 REFERENCES

CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

DHLGH (2022). Ireland's first captivebred Natterjack toadlets released into the wild – Press release. Available online: https://www.gov.ie/en/press-release/3168a-irelands-first-captive-bred-natterjack-toadletsreleased-into-the-wild/#

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

Lundy, M.G., Aughney, T., Montgomery, W.I., & Roche, N., (2011) Landscape conservation for Irish bats & species specific roosting characteristics. Bat Conservation Ireland.

OPR (2021) Practice Note PN01; Appropriate Assessment Screening for Development Management

NRA (2010) Guidelines on the Management of Noxious Weeds and Non-Native Invasive.

Plant Species on National RoadsWyse Jackson, M., FitzPatrick, Ú., Cole, E., Jebb, M., McFerran, D., Sheehy Skeffington, M. & Wright, M. (2016) Ireland Red List No. 10: Vascular Plants. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, Dublin, Ireland.

Smith, G.F., O'Donoghue, P., O'Hora, K and Delaney, E. (2011). Best Practice Guidance for Habitat Survey and Mapping. Heritage Council. Available at: https://www.heritagecouncil.ie/content/files/best_practice_guidance_habitat_survey_mapping_onscreen_version_2011_8mb.pdf

APPENDIX A – HABITAT MAPS

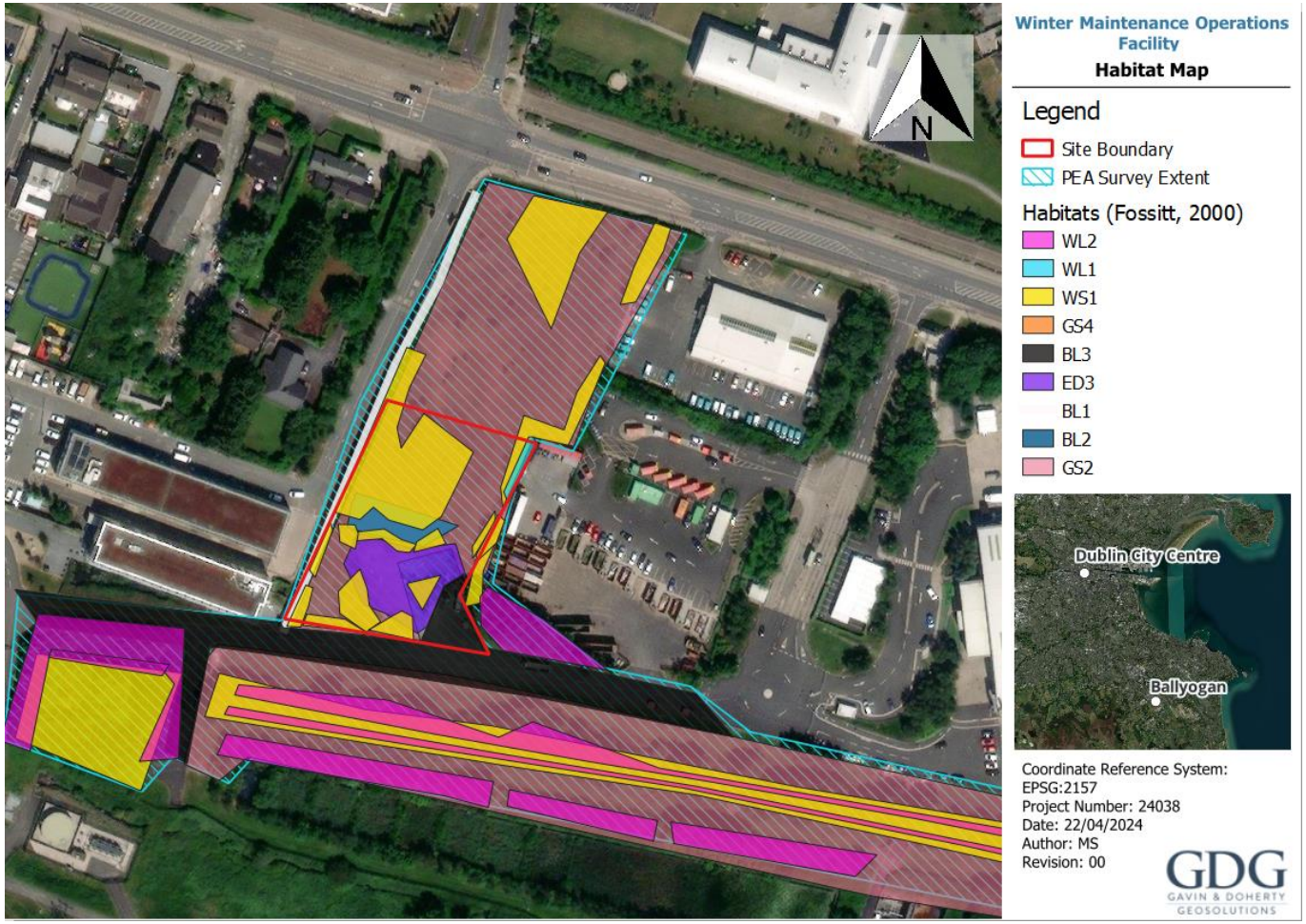


Figure A.1 Habitat map of the Site (close up).

APPENDIX B – HABITAT DESCRIPTIONS

For each habitat, the description as per Fossitt (2000) is defined first and is shown in italics for visual reference. Thereafter, a description of the habitat in the context of the study area is provided with evidence (pictures) of the habitat observed while on site

WOODLAND AND SCRUB

This section groups habitats in which the predominant structural element of the vegetation is provided by trees, shrubs or brambles. It includes almost all types of woodland and scrub - natural, semi-natural or planted - in urban and rural situations with linear boundary features that are dominated by trees and shrubs are also included in this section.

SCRUB (WS1)

This broad category includes areas that are dominated by at least 50% cover of shrubs, stunted trees or brambles. The canopy height is generally less than 5 m, or 4 m in the case of wetland areas. Scrub frequently develops as a precursor to woodland and is often found in inaccessible locations, or on abandoned or marginal farmland. In the absence of grazing and mowing, scrub can expand to replace grassland or heath vegetation. Trees are included as components of scrub if their growth is stunted as a result of exposure, poor soils or waterlogging. If tall trees are present, these should have a scattered distribution and should not form a distinct canopy. This category does not include areas that are dominated by young or sapling trees (<5 or 4 m in height) or young conifer plantations (see immature woodland – WS2 or conifer plantation - WD4). Linear boundary features of scrub that are less than 4 m wide should be considered under hedgerows - WL1.

Scrub can be either open, or dense and impenetrable, and it can occur on areas of dry, damp or waterlogged ground. Common components include spinose plants such as Hawthorn (Crataegus monogyna), Blackthorn (Prunus spinosa), Gorse (Ulex europaeus), Juniper (Juniperus communis), Bramble (Rubus fruticosus agg.) and erect or scrambling roses (Rosa spp.), in addition to a number of willows (Salix spp.), small birches (Betula spp.) and stunted Hazel (Corylus avellana). Scrub may also contain Bog-myrtle (Myrica gale) and Broom (Cytisus scoparius). The field layer is often impoverished and poorly-developed but, in some situations, may be similar to that of woodland. Lowgrowing Western Gorse (Ulex gallii) and prostrate Juniper (Juniperus communis) can also be components of heath. Note that any areas that are dominated by non-native shrubs should be excluded (see ornamental/non-native shrub - WS3).

Scrub was recorded along walls to the east and west of the Site boundary. Scrub with halberd willow shrub and immature hazel and beech trees were found in a large patch within the centre of the Site. Patches of scrub were also recorded within the entrance of the Site where the habitat Recolonising Bare Ground (ED3, see description below) was recorded – see Figure B.1 below. The invasive species (categorised as medium impact invasive species) were recorded within this habitat; butterfly bush, winter heliotrope and immature sycamore. Scrub also occurred along the hedgerow in mosaics within Stone Walls and Other Stonework (BL1) and Hedgerows (WL1), and along the edges and patches within the Recolonising Bare Ground (ED3) habitat (see below for more detailed description).

Figure B.1 Scrub (WS1, as per Fossitt, 2000) – photo taken 16/04/2024

TREELINES (WL2)

A treeline is a narrow row or single line of trees that is greater than 5 m in height and typically occurs along field or property boundaries. This category includes tree-lined roads or avenues, narrow shelter belts with no more than a single line of trees, and overgrown hedgerows that are dominated by trees. Most treelines are planted, and trees are often regularly spaced. They commonly comprise a high proportion of non-native species such as Beech (Fagus sylvatica), Horse Chestnut (Aesculus hippocastanum), Sycamore (Acer pseudoplatanus), limes (Tilia spp.), some poplars (Populus spp.) and conifers. Trees may occur on level ground or on banks of earth. The presence or absence of hedgerow or scrub at the base should be noted. If treelines are greater than 4 m wide at the base they should be considered as narrow stretches of woodland.

This habitat was not found within the area of the Site. Mature Silver Birch (Betula pendula) found outside the Site to the east of the entrance. This habitat was recorded directly to the south of the Site, along the Ballyogan non-perennial stream (dried up during the PEA Survey) and along the artificial reed beds on the old landfill site – see Figure B.2 below.

Figure B.2 Treelines (WL2, as per Fossitt, 2000) - photos taken 16/04/2024.

HEDGEROWS (WL1)

Linear strips of shrubs, often with occasional trees, that typically form field or property boundaries. Most hedgerows originate from planting, and many occur on raised banks of earth that are derived from the excavation of associated drainage ditches. Dimensions of hedgerows vary considerably, depending largely on management and composition, and are taken here as being mainly less than 5 m high and 4 m wide. When wider or taller than this, or dominated by trees, the habitat should be considered as a narrow strip of scrub or woodland, or as a treeline – WL2. Some hedgerows may be overgrown or fragmented if management has been neglected, but they should still be considered in this category unless they have changed beyond recognition. Linear strips of low scrub are included in this category if they occur as field boundaries.

Species composition varies with factors such as age, management, geology, soils and exposure. Hedgerows commonly support a high proportion of spinose plants such as Hawthorn (Crataegus monogyna), Blackthorn (Prunus spinosa), Gorse (Ulex europaeus), Holly (Ilex aquifolium), Dog-rose (Rosa canina) or Bramble (Rubus fruticosus agg.), in addition to many other native and non-native trees and shrubs including, for example, Ash (Fraxinus excelsior), Hazel (Corylus avellana), Beech (Fagus sylvatica), Elder (Sambucus nigra), elms (Ulmus spp.) and willows (Salix spp.). Some of these may occur as scattered tall trees. Fuchsia (Fuchsia magellanica), an introduced shrub, is a common component of hedgerows in parts of the south and west of Ireland. Hedgerows frequently support climbing plants such as Ivy (Hedera helix), Honeysuckle (Lonicera periclymenum), Hedge Bindweed

(Calystegia sepium), Cleavers (Galium aparine) and Bush Vetch (Vicia sepium). Tall grasses, including False Brome (Brachypodium sylvaticum) and Hairy-brome (Bromopsis 36ibern), ferns, and woodland herbs are characteristic.

Drainage ditches are often closely associated with hedgerows and should be recorded separately if they contain standing water or support aquatic plants (see drainage ditches – FW4). Dry ditches are not distinguished as separate habitats. Linear boundaries of low scrub, Gorse (Ulex europaeus) and Bramble (Rubus fruticosus agg.) in particular, should be included here, but note that earth banks – BL2 and stone walls and other stonework – BL1 are treated as separate categories.

This habitat was located alongside eastern Site boundary, where a dense linear strip of shrubs along with scrub lined the Site boundary alongside the Ballyogan Recycling Plant, and along the entrance of the Site. In addition, this habitat had immature Sycamore and Silver Birch trees and dense bushes of bramble and ivy growing. Winter heliotrope and Butterfly-bush, the medium impact invasive species, were also recorded within this habitat. This hedgerow is wide and bushy with patches of scrub and is not maintained (see Figure B.3 below).

Figure B.3 Hedgerows (WL1, as per Fossitt, 2000) – photos taken 16/04/2024.

CULTIVATED AND BUILT LAND

STONE WALLS AND OTHER STONEWORK (BL1)

This category incorporates stone walls and most other built stone structures in rural and urban situations, apart from intact buildings (see buildings and artificial surfaces - BL3) and coastal constructions made of stone (see sea walls, piers and jetties - CC1). It includes dry stone and old mortar walls that occur as field or property boundaries; retaining walls against banks of soil; stone walls that rise from rivers, canals or moats; stone bridges, viaducts and aqueducts; stone jetties or piers in lakes or rivers; derelict or ruinous buildings made of stone; and old stone monuments, fortifications or ruins. Note that modern or intact buildings made of stone are excluded, as are any structures made of bricks, cement blocks or mass concrete (see buildings and artificial surfaces - BL3).

Stone walls and other types of stonework differ in terms of physical structure and composition (type of stone, presence of mortar), age and the degree of maintenance. Older and more neglected structures are generally the most important for wildlife. Stone walls may support a diverse flora with abundant

lichens, mosses and ferns (particularly 67 Retaining wall (L.Lysaght) Asplenium trichomanes, A. ruta-muraria and A. ceterach). Other common components include Ivy (Hedera helix) and other creepers, grasses (Aira and Catapodium spp.), stonecrops (Sedum spp.), Herb-robert (Geranium robertianum) and Navelwort (Umbilicus rupestris). Non-native species such as Red Valerian (Centranthus ruber), Wallflower (Erysimum cheiri) and Ivy-leaved Toadflax (Cymbalaria muralis) are often prominent. Stone walls that are overgrown by trees, shrubs or brambles should be considered in the woodland section under hedgerows - WL1 or treelines - WL2. Bridges and derelict buildings can be important habitats for birds or bats in particular.

This habitat bounded the Site on the western border with a high, newly built, stone wall with a wire covering on the inside of the wall. Patches of scrub were recorded alongside the wall – see Figure B.4.

Figure B.4 Stone Walls and Stonework (BL1, as per Fossitt, 2000) - photo taken 16/04/2024

BUILDINGS AND ARTIFICIAL SURFACES (BL3)

This broad category incorporates areas of built land that do not fit elsewhere in the classification. It includes all buildings (domestic, agricultural, industrial and community) other than derelict stone buildings and ruins (see stone walls and other stonework - BL1). It also includes areas of land that are covered with artificial surfaces of tarmac, cement, paving stones, bricks, blocks or astroturf (e.g. roads, car parks, pavements, runways, yards, and some tracks, paths, driveways and sports grounds). Unpaved areas are excluded (see spoil and bare ground - ED2). Any other built structures that are not made of natural stone, including walls made of bricks, cement blocks and mass concrete, should be considered here. Note that greenhouses and polythene tunnels are excluded (see horticultural land - BC2), as are refuse dumps (see refuse and other waste - ED5). Plant cover should not exceed 50%.

This habitat was found along the southern boundary of the Site and along the private industrial road and pavement – see Figure B.5.

Figure B.5 Buildings and Artificial Surfaces (BL£, as per Fossitt, 2000) – photo taken 16/04/2024.

EARTH BANKS (BL2)

Earth banks are a common type of field boundary in many parts of Ireland. Constructed from local materials such as peat, earth, gravel or stone, these narrow linear ridges are often bordered by drainage ditches. Most are completely vegetated when intact and feature elements of a range of habitats, including grassland, heath, hedgerow and scrub. Earth banks usually support abundant grasses and a wide range of broadleaved herbs such as Foxglove (Digitalis purpurea), violets (Viola spp.), Yarrow (Achillea millefolium), Common Knapweed (Centaurea nigra), Wild Strawberry (Fragaria vesca) and Primrose (Primula vulgaris). Dwarf shrubs (Calluna vulgaris, Vaccinium myrtillus, Erica spp.), shrubs, ferns and Ivy (Hedera helix) may also be common. Earth banks differ from hedgerows - WL1 in that the bank is the dominant physical feature in the former and, while trees and shrubs may be present, they do not dominate. They differ from stone walls and other stonework - BL1 in that earth banks are usually wider, stones may be visible but not dominant, and vegetation cover is extensive.

Earth Banks was recorded within the Site, and was completely vegetated, with scrub as a dominant habitat – see Figure B.6. The invasive species (categorised as medium impact invasive species) were recorded within this habitat; butterfly bush and winter heliotrope.

Figure B.6 Earth Banks (BL2, as per Fossitt, 2000) - photo taken 16/04/2024

Exposed Rock and Disturbed Ground

Recolonising Bare Ground (ED3)

This category is used for any areas where bare or disturbed ground, derelict sites or artificial surfaces of tarmac, concrete or hard core have been invaded by herbaceous plants. Vegetation cover should be greater than 50% for inclusion in this category. Most of the typical colonisers are ruderals, or weed plants. Common examples include Colt's Foot (Tussilago farfara), Nettle (Urtica dioica), Dandelion (Taraxacum spp.), willow-herbs (Epilobium spp.) and ragworts (Senecio spp.). Grasses are usually also present but should not dominate. Ground that is regularly trampled or driven over is usually characterised by Greater Plantain (Plantago major), Knotgrass (Polygonum aviculare), Pineappleweed (Matricaria discoidea) and Shepherd's-purse (Capsella bursa-pastoris). In urban areas, recolonising bare ground can be important for wildlife and may support a diverse flora, typically with a high proportion of nonnative species, including Butterfly-bush (Buddleja davidii), Japanese Knotweed (Reynoutria japonica) and many other garden escapes. Note that if shrubs or grasses dominate, the habitat should be considered under the appropriate scrub/transitional woodland or grassland category.

Recolonising Bare Ground was recorded at the southerly section of the site – see Figure B.7. The invasive species (categorised as medium impact invasive species) were recorded within this habitat; butterfly bush, winter heliotrope and immature sycamore. Scrub also occurred along the hedgerow in mosaics within this habitat along with Hedgerows (WL1).

Figure B.7 Recolonising Bare Ground (ED3, as per Fossitt, 2000) – photo taken 16/04/2024

GRASSLAND AND MARSH

DRY MEADOWS AND GRASSY VERGES (GS2)

Dry meadows that are rarely fertilised or grazed, and are mown only once or twice a year for hay are now rare in Ireland. Most have been improved for agriculture and this type of grassland is now best represented on grassy roadside verges, on the margins of tilled fields, on railway embankments, in churchyards and cemeteries, and in some neglected fields or gardens. These areas are occasionally mown (or treated with herbicides in the case of some railway embankments), and there is little or no grazing or fertiliser application. This pattern of management produces grasslands with a high proportion of tall, coarse and tussocky grasses such as False Oat-grass (Arrhenatherum elatius) and Cock's-foot (Dactylis glomerata). Other grasses may include Yorkshire-fog (Holcus lanatus), Smooth Meadow-grass (Poa pratensis), Barren Brome (Anisantha sterilis) and Meadow Foxtail (Alopecurus pratensis). The broadleaved herb component is characterised by a range of species that either grow tall, such as Cow Parsley (Anthriscus sylvestris), Hogweed (Heracleum sphondylium), Goat's-beard (Tragopogon pratensis), Nettle (Urtica dioica) and Common Knapweed (Centaurea nigra), or climb the stems of others, as in the case of Bush Vetch (Vicia sepium) and Meadow Vetchling (Lathyrus pratensis). Grassy verges may support other smaller broadleaved herbs such as Pignut (Conopodium majus), Creeping Cinquefoil (Potentilla reptans) and clovers (Trifolium spp.).

Dry Meadows and Grassy Verges was recorded to the south of the Site directly across the private industrial road. The grassy verge was recorded between the private industrial road and the treeline habitat alongside the non-perennial Ballyogan stream (dried up during the PEA Survey). This habitat supported abundant grasses, weeds and shrubs including ferns and herbs – see Figure B.8 and Figure B.9.

Figure B.8 Grassy Verges (GS2, as per Fossitt, 2000) - photo taken 16/04/2024

Figure B.9 Dry Meadows (GS2, as per Fossitt, 2000) - photo taken 16/04/2024

WET GRASSLAND (GS4)

This type of grassland can be found on flat or sloping ground in upland and lowland areas. It occurs on wet or waterlogged mineral or organic soils that are poorly-drained or, in some cases, subjected to

seasonal or periodic flooding. On sloping ground, wet grassland is mainly confined to clay-rich gleys and loams, or organic soils that are wet but not waterlogged. This category includes areas of poorly-drained farmland that have not recently been improved, seasonally-flooded alluvial grasslands such as the River Shannon callows, and wet grasslands of turlough basins (see also turloughs - FL6).

Species composition varies considerably. Wet grassland often contains abundant rushes (Juncus effusus, J. acutiflorus, J. articulatus, J. inflexus) and/or small sedges (Carex flacca, C. hirta, C. ovalis), in addition to grasses such as Yorkshire-fog (Holcus lanatus), Creeping Bent (Agrostis stolonifera), Marsh Foxtail (Alopecurus geniculatus), Rough Meadow-grass (Poa trivialis) and Tufted Hair-grass (Deschampsia caespitosa). Purple Moor-grass (Molinia caerulea) may also be present but should not dominate. The proportion of broadleaved herbs is often high; those that commonly occur in wet grassland include Creeping Buttercup (Ranunculus repens), Marsh Thistle (Cirsium palustre), Silverweed (Potentilla anserina), Meadowsweet (Filipendula ulmaria), Water Mint (Mentha aquatica), Common Marsh-bedstraw (Galium palustre), Devil's-bit Scabious (Succisa pratensis), Lesser Spearwort (Ranunculus flammula) and Cuckooflower (Cardamine pratensis). Other common broadleaved herbs that occur on drier grasslands may also be present, depending on the degree of wetness. Wet grassland may be important for orchids such as Spotted-orchid (Dactylorhiza maculata). Horsetails (Equisetum spp.), Yellow Iris (Iris pseudacorus), Floating Sweet-grass (Glyceria fluitans) and clumps of tall reeds may be locally abundant.

Wet grassland frequently grades into marsh - GM1 and there are many similarities in the range of species present in both habitats. To be included in the wet grassland category, the cover of grasses should exceed 50%, except in areas where rushes or small sedges predominate, and the total cover of reeds, large sedges and broadleaved herbs should be less than 50%. Among the suite of broadleaved herbs that are present, there should be a significant proportion of drier grassland species in addition to those that are more commonly associated with wetlands.

This habitat was recorded southeast of the Site, on the closed landfill site beside the treeline habitat and Ballyogan stream (dried up during the PEA Survey). Typical wet grassland species such as small sedges and club-rushes were recorded , Yorkshire fog (*Holcus lanatus*) and marsh foxtail (*Alopecurus geniculatus*) were recorded within this habitat - see Figure B.10 and Figure B.11.

Figure B.10 Wet Grassland (GS4, as per Fossitt, 2000) - photo taken 16/04/2024

Figure B.11 Wet Grassland (GS4, as per Fossitt, 2000) - photo taken 16/04/2024

APPENDIX C – FLORA RECORDS

Table C.1 NBDC flora records from the 1km square grid O2024 (Site located within this 1km square grid). Invasive non-native species are highlighted in red.

Male-fern (Dryopteris filix-mas)	1	14/05/2016
Soft Shield-fern (Polystichum setiferum)	1	14/05/2016
Annual Meadow-grass (Poa annua)	1	14/05/2016
Ash (Fraxinus excelsior)	1	14/05/2016
Beaked Hawk's-beard (Crepis vesicaria)	1	14/05/2016
Beech (Fagus sylvatica)	1	14/05/2016
Black Medick (Medicago lupulina)	1	14/05/2016
Blackthorn (Prunus spinosa)	1	14/05/2016
Bog Stitchwort (Stellaria alsine)	1	14/05/2016
Bramble (Rubus fruticosus agg.)	1	14/05/2016
Broad-leaved Dock (Rumex obtusifolius)	1	14/05/2016
Broad-leaved Willowherb (Epilobium montanum)	1	14/05/2016
Brooklime (Veronica beccabunga)	1	14/05/2016
Bulbous Buttercup (Ranunculus bulbosus)	1	14/05/2016
Bulrush (Typha latifolia)	1	14/05/2016
Bush Vetch (Vicia sepium)	1	14/05/2016
Butterfly-bush (Buddleja davidii)	**1**	**14/05/2016**
Carex divulsa	1	14/05/2016
Charlock (Sinapis arvensis)	1	14/05/2016
Cleavers (Galium aparine)	1	14/05/2016
Cock's-foot (Dactylis glomerata)	1	14/05/2016
Coltsfoot (Tussilago farfara)	1	14/05/2016
Common Bird's-foot-trefoil (Lotus corniculatus)	1	14/05/2016

Common Dog-violet (Viola riviniana)	1	14/05/2016
Common Field-speedwell (Veronica persica)	1	14/05/2016
Common Knapweed (Centaurea nigra)	1	14/05/2016
Common Mouse-ear (Cerastium fontanum)	1	14/05/2016
Common Nettle (Urtica dioica)	1	14/05/2016
Common Ragwort (Senecio jacobaea)	1	14/05/2016
Common Sorrel (Rumex acetosa)	1	14/05/2016
Common Vetch (Vicia sativa subsp. segetalis)	1	27/03/2022
Cow Parsley (Anthriscus sylvestris)	1	14/05/2016
Cowslip (Primula veris)	2	16/05/2020
Creeping Bent (Agrostis stolonifera)	1	14/05/2016
Creeping Buttercup (Ranunculus repens)	1	14/05/2016
Creeping Cinquefoil (Potentilla reptans)	1	14/05/2016
Creeping Thistle (Cirsium arvense)	1	14/05/2016
Cuckooflower (Cardamine pratensis)	1	14/05/2016
Curled Dock (Rumex crispus)	1	14/05/2016
Cut-leaved Crane's-bill (Geranium dissectum)	1	14/05/2016
Daisy (Bellis perennis)	1	14/05/2016
Downy Birch (Betula pubescens)	1	14/05/2016
False-brome (Brachypodium sylvaticum)	1	14/05/2016
Festuca rubra agg.	1	14/05/2016
Field Wood-rush (Luzula campestris)	1	14/05/2016
Garlic Mustard (Alliaria petiolata)	1	14/05/2016
Glaucous Sedge (Carex flacca)	1	14/05/2016
Gorse (Ulex europaeus)	2	14/12/2023
Greater Plantain (Plantago major)	1	14/05/2016

Ground-ivy (Glechoma hederacea)	1	14/05/2016
Hairy Sedge (Carex hirta)	1	14/05/2016
Hard Rush (Juncus inflexus)	1	14/05/2016
Hawthorn (Crataegus monogyna)	1	14/05/2016
Hedge Bindweed (Calystegia sepium)	1	14/05/2016
Herb-Robert (Geranium robertianum)	1	14/05/2016
Hogweed (Heracleum sphondylium)	2	14/12/2023
Horse-chestnut (Aesculus hippocastanum)	1	14/05/2016
Ivy (Hedera helix)	1	14/05/2016
Jointed Rush (Juncus articulatus)	1	14/05/2016
Kidney Vetch (Anthyllis vulneraria)	1	14/05/2016
Lesser Burdock (Arctium minus)	1	14/05/2016
Lesser Celandine (Ranunculus ficaria)	1	14/05/2016
Marsh Thistle (Cirsium palustre)	1	14/05/2016
Meadow Buttercup (Ranunculus acris)	2	14/12/2023
Meadow Foxtail (Alopecurus pratensis)	1	14/05/2016
Meadow Vetchling (Lathyrus pratensis)	1	14/05/2016
Meadowsweet (Filipendula ulmaria)	1	14/05/2016
Nipplewort (Lapsana communis)	1	14/05/2016
Oxeye Daisy (Leucanthemum vulgare)	2	14/12/2023
Pedunculate Oak (Quercus robur)	1	14/05/2016
Perennial Rye-grass (Lolium perenne)	1	14/05/2016
Purple Toadflax (Linaria purpurea)	1	14/05/2016
Red Campion (Silene dioica)	1	14/12/2023
Red Clover (Trifolium pratense)	1	14/05/2016
Ribwort Plantain (Plantago lanceolata)	1	14/05/2016

Rosebay Willowherb (Chamerion angustifolium)	1	14/05/2016
Rough Hawk's-beard (Crepis biennis)	1	14/05/2016
Rusty Willow (Salix cinerea subsp. oleifolia)	1	14/05/2016
Scarlet Pimpernel (Anagallis arvensis)	1	27/03/2022
Silverweed (Potentilla anserina)	1	14/05/2016
Smooth Sow-thistle (Sonchus oleraceus)	2	14/12/2023
Soft-rush (Juncus effusus)	1	14/05/2016
Spear Thistle (Cirsium vulgare)	1	14/05/2016
Square-stalked St John's-wort (Hypericum tetrapterum)	1	14/05/2016
Sticky Mouse-ear (Cerastium glomeratum)	1	14/05/2016
Sweet Vernal-grass (Anthoxanthum odoratum)	1	14/05/2016
Sycamore (Acer pseudoplatanus)	**1**	**14/05/2016**
Tall Fescue (Festuca arundinacea)	1	14/05/2016
Taraxacum aggregate	1	14/05/2016
Three-cornered Garlic (Allium triquetrum)	**1**	**14/05/2016**
Thyme-leaved Speedwell (Veronica serpyllifolia)	1	14/05/2016
Turnip (Brassica rapa)	1	14/05/2016
Vicia sativa	1	14/05/2016
Wavy Bitter-cress (Cardamine flexuosa)	1	14/05/2016
Welsh Poppy (Meconopsis cambrica)	1	16/05/2020
White Clover (Trifolium repens)	1	14/05/2016
Wild Angelica (Angelica sylvestris)	1	14/05/2016
Wild Cherry (Prunus avium)	1	14/05/2016
Wild Plum (Prunus domestica)	1	14/05/2016
Winter Heliotrope (Petasites fragrans)	**1**	**14/05/2016**
Yarrow (Achillea millefolium)	1	14/12/2023

Yorkshire-fog (Holcus lanatus)	1	14/05/2016
Field Horsetail (Equisetum arvense)	1	14/05/2016
Marsh Horsetail (Equisetum palustre)	1	14/05/2016

Table C.2 NBDC flora records from the 1km square grid O2124 (Site not located within this 1km square grid).

Bristly Oxtongue (Picris echioides)	1	24/09/2012
Broad-leaved Helleborine (Epipactis helleborine)	1	17/08/2012
Common Dog-violet (Viola riviniana)	1	23/04/2020
Giant Hogweed (Heracleum mantegazzianum)	**1**	**29/06/2023**
Himalayan Honeysuckle (Leycesteria formosa)	**1**	**29/06/2023**
Horse-chestnut (Aesculus hippocastanum)	1	20/04/2020
Japanese Knotweed (Fallopia japonica)	**1**	**14/10/2016**
Petty Spurge (Euphorbia peplus)	1	29/06/2023
Sun Spurge (Euphorbia helioscopia)	1	29/06/2023
Winter Heliotrope (Petasites fragrans)	**1**	**02/12/2016**

APPENDIX D – INSECT RECORDS

Name	Record Count	Most Recent Date Recorded
22-spot Ladybird (Psyllobora vigintiduopunctata)	1	26/04/2018
2-spot Ladybird (Adalia bipunctata)	1	19/05/2022
7-spot Ladybird (Coccinella septempunctata)	2	23/08/2018
Andrena (Micrandrena) minutula	1	29/06/1926
Ancylis badiana	1	02/08/2017
Barred Red (Hylaea fasciaria)	1	02/08/2017
Bombus lucorum agg.	1	23/07/2015
Broad-bordered Yellow Underwing (Noctua fimbriata)	1	27/07/2017
Brown House-moth (Hofmannophila pseudospretella)	1	14/06/2017
Common Blue (Polyommatus icarus)	1	11/05/2020
Common Carder Bee (Bombus (Thoracombus) pascuorum)	1	29/06/2023
Common Marbled Carpet (Chloroclysta truncata)	1	07/06/2017
Double-striped Pug (Gymnoscelis rufifasciata)	1	21/06/2017
Epinotia bilunana	1	21/06/2017
Eudonia mercurella	1	02/08/2017
Fan-foot (Zanclognatha tarsipennalis)	1	21/06/2017
Flame Carpet (Xanthorhoe designata)	1	07/06/2017
Furness Dowd (Blastobasis adustella)	1	02/08/2017
Great Yellow Bumble Bee (Bombus (Subterraneobombus) distinguendus)	2	31/05/1924
Grey Pug (Eupithecia subfuscata)	1	14/06/2017
Heath Bumble Bee (Bombus (Pyrobombus) jonellus)	1	31/12/1896
Heart & Dart (Agrotis exclamationis)	1	21/06/2017
Holly Blue (Celastrina argiolus)	1	12/05/2016

Humming-bird Hawk-moth (Macroglossum stellatarum)	1	26/05/2017
Large Yellow Underwing (Noctua pronuba)	1	02/08/2017
Lasioglossum (Evylaeus) punctatissimum	2	02/09/1923
Lasioglossum (Lasioglossum) lativentre	3	02/09/1923
Light Brown Apple Moth (Epiphyas postvittana)	1	21/06/2017
Meadow Brown (Maniola jurtina)	1	25/07/1984
Mesapamea secalis agg.	1	02/08/2017
Nomada flavoguttata	2	28/05/1923
Orange-tip (Anthocharis cardamines)	1	12/05/2016
Parsnip Moth (Depressaria pastinacella)	1	25/07/1984
Peacock (Inachis io)	1	11/04/2020
Philodromus dispar	2	25/05/2020
Purple Clay (Diarsia brunnea)	1	17/07/2017
Red Admiral (Vanessa atalanta)	1	12/05/2016
Red-barred Tortrix (Ditula angustiorana)	1	21/06/2017
Red-tailed Carder Bee (Bombus (Thoracombus) ruderarius)	1	02/09/1923
Ringlet (Aphantopus hyperantus)	1	25/07/1984
Shaded Broad-bar (Scotopteryx chenopodiata)	1	25/07/1984
Small Garden Bumble Bee (Bombus (Megabombus) hortorum)	1	02/09/1923
Small Tortoiseshell (Aglais urticae)	1	12/05/2016
Small White (Pieris rapae)	1	12/05/2016
Speckled Wood (Pararge aegeria)	2	11/05/2020
Sphecodes geoffrellus	2	02/09/1923
Stigmella plagicolella	1	25/07/1984
Udea lutealis	1	02/08/2017
Uncertain (Hoplodrina alsines)	1	27/07/2017
White Ermine (Spilosoma lubricipeda)	1	14/06/2017
Willow Beauty (Peribatodes rhomboidaria)	3	02/08/2017

GLOBAL PROJECT REACH

Offices

Dublin (Head Office)
Gavin & Doherty Geosolutions
Unit A2, Nutgrove Office Park
Rathfarnham
Dublin 14, D14 X627
Phone: +353 1 207 1000

Belfast
Gavin & Doherty Geosolutions (UK) Limited
Scottish Provident Building
7 Donegall Square West
Belfast, BT1 6JH

Edinburgh
Gavin & Doherty Geosolutions (UK) Limited
21 Young Street
Edinburgh
Scotland, EH2 4HU

Rhode Island
Gavin & Doherty Geosolutions Inc.
225 Dyer St, 2nd Floor
Providence, RI 02903
USA

Bath
Gavin & Doherty Geosolutions (UK) Limited
The Guild High Street, Bath
Somerset
BA1 5EB

Cork
Gavin & Doherty Geosolutions
Unit 4E, Northpoint House,
North Point Business Park
Cork, T23 AT2P

London
Gavin & Doherty Geosolutions (UK) Limited
85 Great Portland Street, First Floor
London
W1W 7LT

Utrecht
Gavin & Doherty Geosolutions
WTC Utrecht, Stadsplateau 7
3521 AZ Utrecht
The Netherlands

Website: www.gdgeo.com
Email: info@gdgeo.com

Appendix F – OUTLINE CEMP REPORT

GDG
GAVIN & DOHERTY
GEOSOLUTIONS

Road Maintenance Operations Facility
Outline Construction Environment Management Plan

Dún Laoghaire-Rathdown
County Council Comhairle Contae
Dhún Laoghaire-Ráth an Dúin

Client	**Dún Laoghaire Rathdown County Council**
Document Ref.	**24038-REP-006-01**
Project Title	**Road Maintenance Operations Facility**
Date	**06/09/2024**

Project Title:	Road Maintenance Operations Facility
Report Title:	Outline Construction Environment Management Plan
Document Reference:	24038-REP-006-01

Client:	Dún Laoghaire Rathdown County Council
Confidentiality	Non Confidential

REVISION HISTORY

Rev	Date	Reason for Issue	Originator	Checker	Reviewer	Approver
00	16/07/2024	First Issue	EC	RD	AS / JD	AS
01	06/09/2024	Second Issue – Additional Otter Good Practice Guidance	EC	CM	RD	RD

DISCLAIMER

TABLE OF CONTENTS

LIST OF FIGURES

1 INTRODUCTION

This Outline Construction Environmental Management Plan (CEMP) is for the works associated with the construction of a new road maintenance operations facility for Dún Laoghaire Rathdown County Council (DLRCC), located at Ballyogan, Dublin 18. The proposed development site is situated between the existing DLRCC Operations Centre and the DLRCC Recycling Centre on a vacant greenfield area.

The new road operations area will contain an operational hardstanding area, dedicated road maintenance fleet parking, salt storage barn, a brine manufacturing facility, a rainwater harvesting tank (from salt barn roof), an automated wheelwash, and dedicated washdown facilities for the road maintenance vehicles. The new facility includes a new access road allowing direct access to both the existing operations facility and the Red Entrance service road leading to Ballyogan Road.

This CEMP has been prepared to communicate key planning and environmental obligations relating to the management of the construction phase of the Proposed Development. It comprises general measures and a series of discipline-specific measures that align with the proposed mitigation and monitoring measures described in the Environmental Impact Assessment (EIA) Screening Report, Appropriate Assessment (AA) Screening Report, Preliminary Ecological Appraisal (PEA) and the Ecological Impact Assessment (EIA) for the Proposed Development.

This Outline CEMP is a 'live' document, which shall be updated by the appointed construction Contractor(s) as the project is progressed. In particular, the CEMP will require to be updated to ensure the requirements of any relevant Planning Conditions are incorporated.

1.1 OBJECTIVES AND PURPOSE

The purpose of a CEMP is to outline how the appointed construction Contractor(s) will implement a Site Construction Management System to meet the specified requirements which include Contractual, Regulatory and Statutory Requirements, Environmental Mitigation Measures and Planning Conditions.

The principal objective of this outline CEMP is to avoid, minimise and control adverse environmental impacts associated with all aspects of the construction of the Proposed Development. In essence, this Outline CEMP is intended to provide DLRCC and the appointed construction Contractor (Main Contractor) with a practical guide to ensure compliance by all parties with any Planning and Environmental requirements.

The Outline CEMP achieves this by providing the environmental management framework to be adhered to during the construction phase of the proposal. It outlines the work practices, construction management procedures, management responsibilities, mitigation measures and monitoring proposals that are required to be adhered to, in order to complete the proposed development, in an appropriate environmental manner.

This Outline CEMP identifies the legislative, planning and policy framework within which the Proposed Development is being constructed, and how those requirements will be met. It also details the key roles and responsibilities for individuals involved in the construction of the Proposed Development, as well as the training requirements for all staff in relation to managing environmental considerations.

DLRCC and the Contractor are committed to undertaking the management and mitigation measures detailed in this CEMP.

1.2 CEMP REVIEW AND UPDATING

This outline CEMP shall be reviewed and modified by the Main Contractor, as the project is progressed.

The initial version of the CEMP has been submitted with the Part 8 Planning Report Application for the consent of the Proposed Development. Following consent and during the construction phase this CEMP will be reviewed and updated by the Main Contractor.

A report should be generated by the Main Contractor periodically that will highlight compliance with their CEMP and any subsequent plans created to minimise the risk to the environment. In addition, the report should detail any incidents or accidents that have occurred on the Site and have the potential to cause harm to the local receptors, any actions taken, and mitigation put in place, as well as actions to prevent such an incident from occurring again. The report shall be for the project team and any other contractors or sub-contractors.

1.3 ENVIRONMENTAL MANAGER

The Main Contractor will appoint an Environmental Manager with responsibility for updating and monitoring compliance with the CEMP throughout the construction period.

1.4 ENVIRONMENTALLY SIGNIFICANT CHANGES

If any environmentally significant changes are encountered when the project build is started, then the CEMP should be changed to reflect the new information.

The change should be initiated by following an Environment Management Plan Change Procedure as depicted in Figure 1-1.

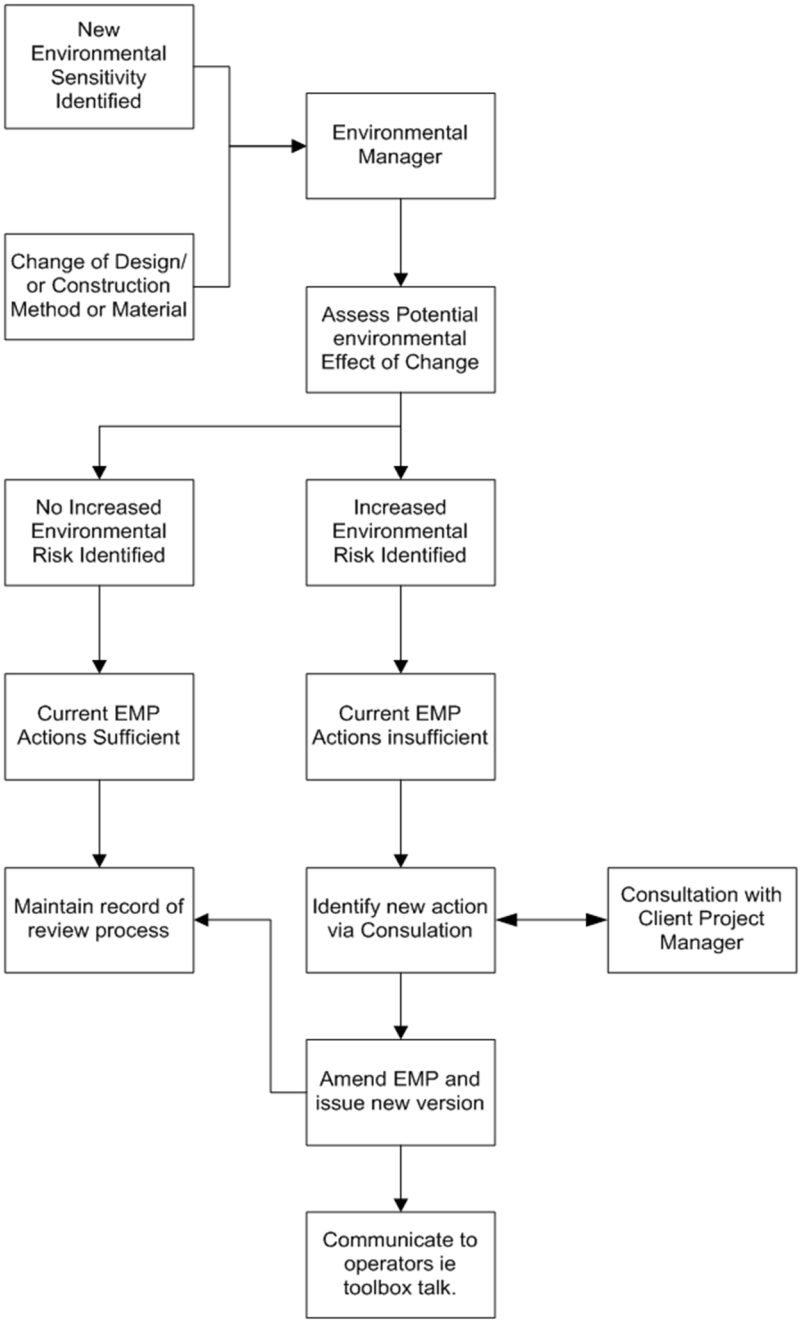


Figure 1-1: Environment Management Plan Change Procedure

2 PROJECT OVERVIEW

2.1 SITE LOCATION

The Site is situated adjacent to the east of the existing Dún Laoghaire-Rathdown County Council (DLRCC) Operations Centre in Ballyogan, Dublin 18. To the south of the site is the now closed and restored DLRCC Ballyogan landfill. A raised line of trees on a slight embankment separates the site from the closed landfill, with the Ballyogan Stream flowing eastward within the treeline. To the east of the site are the DLRCC Ballyogan Recycling Centre and a Post Delivery Office. Figure 2-1 shows the Site Location Plan and project boundary, the area of development is anticipated to cover an area of 4944m^2 (0.49ha).

Figure 2-1: Site Location Plan

2.2 PROJECT DESCRIPTION

The new road maintenance operations facility will contain dedicated road maintenance vehicle parking, an automated wheel wash, dedicated washdown facilities, a salt storage barn, brine manufacturing plant, and a rainwater harvesting tank (from the salt barn roof). The new facility includes a new access road allowing direct access to both the existing operations facility and the Red Entrance service road leading to Ballyogan Road.

The Proposed Development will serve as a dedicated road maintenance facility within which the majority of the road maintenance fleet to be stored, freeing up space for other DLRCC departments within the existing operations centre. The facility will also enable DLRCC to transition the road maintenance fleet to a pre-wet (brine) salting operation as opposed to the current dry rock salt

operation, ensuring the roads operation can continue to meet operational and policy demands. The completion of this project will make the DLRCC road maintenance operations more efficient, effective and environmentally friendly.

The overall development included the following project design elements:

- Dedicated Road Maintenance Operational Fleet Parking
- Operational Hardstand, Site Access, and Drainage
- Operational Vehicle Wash Facilities
- Salt Storage Barn
- Brine Manufacturing Facility
- Associated M&E including utilities, public lighting, telemetry, fencing, lighting etc.

Vehicle wash facilities and automated wheel wash form part of the new development. The Brine Manufacturing Plant will utilise a combination of harvested rainwater and mains supplied water. The road maintenance operation will be more efficient and sustainable than the existing dry salt system.

The collection and discharge of stormwater from the development will be via an oil interceptor and hydrobrake to the downstream storm sewer outfall.

Wastewater from the development, generated from operations including the salt storage barn, brine manufacturing plant, vehicle washing facilities and automated wheel wash, will be isolated and discharged to the on-site foul sewer network.

3 LEGAL COMPLIANCE

In the construction of the Proposed Development both DLRCC and the Main Contractor will adhere to all relevant Irish and EU environmental legislation, guidelines and best practice measures during the construction phase, including legislation relating to ecology and biodiversity; air, water and groundwater; and noise and vibration.

The Contractor shall have regard for the guidance and advice of the ISO14001 environmental management standard (ISO 14001:2015 Environmental management systems), and relevant Construction Industry Research and Information Association's (CIRIA) guidance including C811 Environmental good practice on site guide (fifth edition).

The Main Contractor, and any subcontractors, will comply with the CEMP and associated management plans to adhere to the relevant legislation and to meet relevant best practice measures during the construction phase.

This CEMP will be regularly reviewed (every 6 months) and updated to ensure continued legal compliance.

4 GENERAL ENVRIONMENTAL MITIGATION MEASURES

A range of general environmental mitigation measures have been committed to that will help to avoid, reduce or minimise potential impacts. Adherence to this CEMP is the primary general mitigation measure, but adherence to the following plans (to be prepared ahead of construction) is also required:

- Construction Management Plan;
- Construction Traffic Management Plan;
- Waste Management Plan; and
- Construction Stage Health and Safety Plan.

Consideration will be given to the inclusion of drought and water tolerant species in the perimeter planting mixes to provide climate resilience and any dead or defective plants will be replaced.

In order to protect material assets, pre-construction consultation will be undertaken, and authorisation achieved for all relevant infrastructure connections with the relevant infrastructure or utility provider, (e.g. Irish Water, and Gas Networks Ireland). The Project Designer and the Main Contractor will identify and incorporate defined water efficiency measures throughout the engineering design and construction phase. These measures will be identified in the updated CEMP and managed by the Main Contractor.

Any works required to material assets on or around the Site will be carried out in conjunction with the relevant provider to ensure minimal disruption to existing users. Any such works will be carried out strictly in accordance with the relevant provider's Code of Practices.

4.1 CORRECTIVE ACTION

Where monitoring identifies an impact on the receiving environment, the Environmental Manager shall be notified immediately. The Environmental Manager will conduct an inspection of the location and the surrounds to identify the source of the impact and will review recent Site activities in that area.

If the source of the impact is identified as an emission from the Site, the Environmental Manager is responsible for undertaking corrective action to isolate and minimise the effects of the emission. If required, environmental monitoring will be undertaken to determine the extent of the impact. The number and location of any monitoring points will be established in consultation with the monitoring personnel and noted on a Site plan so that inspection of such monitoring points can be completed if required by external agencies.

The Environmental Manager is required to monitor implementation of any corrective actions to ensure that they are carried out and are effective.

Where the cause of emissions is identified to be the result of the design of the Proposed Development, the Main Contractor and DLRCC shall ensure that the design deficiencies are rectified to avoid recurrence.

5 COMMUNICATION

5.1 MEETINGS

In accordance with best practice, DLRCC shall hold regular Progress Meetings with the Project Designer and Main Contractor throughout the construction period.

Issues relating to environmental design, mitigation and implementation in general, and implementation of the CEMP in particular, will be an agenda item at these Progress Meetings.

5.2 SUB-CONTACTORS AND THE SUPPLY CHAIN

The Main Contractor should demonstrate how they aim to ensure that all sub-contractors are aware of and buy into project environmental management.

They should show how the selection, control and review of performance of sub-contractors are to be managed. The Main Contractor should also ensure that all sub-contractors understand the external communications strategy and the process for maintaining effective methods of communication.

5.3 TRAINING

Environmental training will be delivered and assessed throughout the construction period, to ensure the relevant aspects of the CEMP and associated construction plans are communicated to the project team and front-line staff (including relevant sub-contractors).

The Main Contractor shall identify (and record attendance at) any training they propose to carry out related to environmental issues including making staff aware of issues relating to matters for example, flooding, ecology, amenity and pollution control. The Main Contractor will ensure that the training is appropriate for the level of works being undertaken by the staff and sub-contractors. The training will be provided as appropriate in the below format:

- Site Environmental Inductions;
- Daily Pre-Start Meetings;
- Environmental Toolbox Talks;
- Incident and Near Miss bulletins; and
- Sub-contractor kick-off meetings.

Only suitably qualified and trained personnel will conduct certain tasks, including refuelling of plant, management of any chemical stores, conducting specialised environmental monitoring and the management of waste stores.

The Main Contractor will ensure that:

- All staff and sub-contractors receive instruction, information and training appropriate to the role and works they are conducting

- All staff are aware of the reporting procedures surrounding environmental incidents, and that all such incidents are required to be reported immediately; and
- All staff are aware of the environmental sensitivities of the area surrounding the Proposed Development and how certain works can cause impact and effects

5.4 ENVIRONMENTAL RECORDS

The Main Contractor should demonstrate what records are to be kept as part of this environmental management process.

This information should also identify where the documents are to be kept, and who will be responsible for maintaining them. This documentation should include training, monitoring, project reviews; minutes of meetings; method statements, procedures; consents/licences etc.

5.5 COMPLAINTS MANAGEMENT

The Main Contractor's Environmental Manager is responsible for responding to complaints or queries from other stakeholders and must ensure that:

- All complaints are investigated and dealt with appropriately;
- Any corrective actions required are implemented;
- A record is made of all complaints, along with any response and/or actions taken; and
- The complaints record is periodically reviewed to identify any trends and appropriate corrective actions are taken.

The following information is recorded for all complaints received:

- Stakeholder name;
- Stakeholder address;
- Stakeholders contact details (if required for follow up, as appropriate);
- Complaint category type (e.g., noise, vibration, dust, waste, traffic);
- Details of the complaint;
- Timing and duration of nuisance or pollution; and
- Additional information.

When investigating a complaint, the Environmental Manager is expected to confirm if the relevant mitigation measures detailed in this CEMP were implemented and, if not, ensure corrective action is taken

5.6 AUDITING

Audits of the CEMP will be undertaken by the Environmental Manager, with feedback provided to the Project Manager. The audit will check that all necessary current documentation is held in both

electronic and hard copy as needed. Visual monitoring and complaints records will be audited to ensure that full records are kept, and all necessary information is recorded. An audit schedule will be arranged but will include an annual audit, as a minimum requirement.

To ensure the CEMP remains 'fit for purpose' for the duration of the project it will be regularly reviewed and updated to facilitate efficient and effective delivery of the project legal and environmental commitments. A log will be kept including a summary of the update and a record of the review.

Reviews of the CEMP will be undertaken and recorded by the Environmental Manager with the findings of the reviews reported to the Project Manager and other staff members as required

5.7 DISTRIBUTION

Copies of the CEMP and associated construction plans identified in Section 4 will be retained by DLRCC and the appointed Main Contractor.

6 SITE REQUIREMENTS AND MANAGEMENT

6.1 OBJECTIVE

The Works should be carried out in such a way as to limit, as far as reasonably practicable, the adverse environmental impact of the construction activities.

The Main Contractor will refer to the good practice provision in the Construction Industry Research and Information Association's (CIRIA) C811 Environmental good practice on site guide (fifth edition).

Mitigations required as identified in the Environmental Impact Assessment (EIA) Screening Report have been identified where impacts have an impact.

Following the consent for the Proposed Development the Main Contractor will be responsible for reviewing and updating these measures in accordance with consultation responses and final planning conditions.

6.2 HOURS OF OPERATION

In accordance with the DLR County Development Plan 2022-2028, the proposed typical working hours would be:

- 07:00hrs to 19:00 hours Monday – Friday; and
- 08:00hrs to 14:00 hours Saturday.

No work will be carried out on Sundays or bank holidays and the Site will remain secure when construction is not taking place. No work, or other activity that could reasonably be expected to cause annoyance to residents in the vicinity (including deliveries), will take place on Site between 19:00 hours and 08:00 hours.

6.3 TRAFFIC, SITE ACCESS AND PARKING

The Works traffic routes, any restrictions and the location of any site access and parking areas shall be detailed in the Contractor's Traffic Management Plan and shall be agreed with the planning authority prior to works starting on site.

The Main Contractor must ensure sufficient allowance within the site area for parking and loading.

No parking of all contractor's vehicles or loading and unloading of plant and materials outwith the site boundary, on public roads or other areas will be permitted.

6.4 CONSTRUCTION SITE LAYOUT AND GOOD HOUSEKEEPING

The Main Contractor will emphasise the importance of good housekeeping during the construction phase. Housekeeping is an important part of good environmental practice, and it helps everyone to maintain a more efficient and safer site. The site should be tidy, secure, and have clear access routes that are well signposted. The appearance of a tidy, well managed site can reduce the likelihood of theft, vandalism or complaints.

- Existing hedges, tree screens and the topography will be utilised to screen construction sites; temporary earth mounding or other temporary screening will also be included, where appropriate, within the confines of land take for construction sites;
- Perimeter hoardings will be regularly inspected repaired and repainted as necessary, other hoardings will be regularly inspected and repaired;
- All working areas will be kept in clean and tidy condition;
- Wheel washing facilities will be brushed or sprayed clean frequently;
- Adequate toilet facilities will be provided for all site staff;
- Rubbish will be removed at frequent intervals and the site kept clean and tidy;
- Food waste will be removed frequently;
- Any waste susceptible to spreading by wind or liable to spreading by wind or liable to cause litter will be stored in enclosed containers;
- Any waste inadvertently spread off site shall be immediately collected by the contractor and disposed of securely;
- Fires/burning will be prohibited at all times;
- All necessary measures will be taken to minimise the risk of fire and the contractor will comply with requirements of the local fire authority;
- Storage sites, fixed plant and machinery, equipment and temporary buildings will be located to limit adverse environmental effects;
- All external lighting and illumination, associated with the construction process, will be in accordance with the guidance issued by the institution of lighting engineers: “guidance noted for the reduction of light pollution”, and the CIE (international commission on illumination) report: “guide on the limitation of the effects of obtrusive light from outdoor lighting installations”;
- To ensure that construction lighting does not affect the amenity of residents or create a statutory nuisance under the Environmental Protection act 1990, as amended, external lighting will be designed and positioned to:
    - Provide the minimum light levels necessary for safe working;
    - Avoid disturbance to adjoining residents and occupiers;
    - Avoid creating dazzle or distraction for drivers using adjacent highways or the railway;
    - Seek to minimise light spillage or pollution; and
    - Ensure that excess light does not fall on sensitive ecological habitats
- Energy efficient options for site facilities will seek to be incorporated wherever possible; these may include energy efficient light bulbs and automatic controls, which will supplement good housekeeping such as switching off equipment when not in use;

- Adequate security will be exercised by the contractor to protect the public and prevent unauthorised entry to or exit from the site. Site gates will be closed and locked when there is no site activity and site security measures will be implemented;
- Any security cameras will be located and directed so that they do not intrude into occupied residential property; and
- Radios (other than two-way radios used for the purposes of communication related to the works) and other forms of equipment with loudspeakers will not be used on the site.

The visual intrusion of construction sites on nearby residents and users of local facilities and amenities will be contained and limited, as far as reasonably practicable.

The Main Contractor will ensure that all working areas are sufficiently and adequately fenced off from members of the public and to prevent animals from straying on to the working area. The standard of enclosure and screening will be selected in order to maintain effective site security and achieve appropriate noise attenuation and visual effect.

The Main Contractor is expressly prohibited from displaying or allowing the display of any advertisement, notice, etc including illicit bill or fly posting on the hoardings. The Main Contractor will ensure that all graffiti, fly posting or defacement to the hoardings is removed and made good or obscured within 48 hours of discovery.

An information board will be provided at the work site. It will detail information on the site programme and estimated duration of the works, together with the web address and a 24-hour telephone number for use by members of the public who wish to lodge complaints or comments.

Where temporary or permanent possession of a site is taken, and an enclosure has been removed an enclosure will be erected on the new temporary or permanent boundary to maintain the security of the property.

All fencing and hoarding will be removed as soon as reasonably practicable after completion of works.

6.5 SITE COMPOUND AND SOIL STORAGE AREAS/BUNDS

The location and dimensions of any site compounds and storage areas shall be agreed in writing with the planning authority prior to works starting on site.

6.6 OTHER ARRANGEMENTS

The following preventative pest control measures will be adopted:

- Prompt treatment of any pest infestation and arrangements for effective preventative pest control; and
- Appropriate storage and regular collection of putrescible waste.

Pest infestation of construction sites will be notified to the relevant local authority as soon as is practicable.

Steps will be taken, as far as reasonably practicable, to see that the behaviour of personnel on site does not cause offence to the public.

6.7 CLEARANCE OF SITE ON COMPLETION

The Main Contractor will clear and clean all working areas and accesses as work proceeds and when no longer required for the works.

At the completion of the development all plant, temporary buildings or vehicles not required during subsequent construction works shall be removed from the site. All land, including highways, footpaths, loading facilities or other land occupied temporarily shall be made good to the satisfaction of the Client.

6.8 POPULATION AND HUMAN HEALTH

To mitigate potential temporary community disturbance during construction, the final Construction Management Plan (CMP) and this document, the Construction Environmental Management Plan (CEMP) will be implemented in full.

- Access to the construction site will be restricted to authorised personnel only. Hoarding and fencing will be erected along boundaries as appropriate.
- The health and safety considerations and hazards present during the construction phase will be managed by the appointed Main Contractor and the 'Project Supervisor Construction Stage' (PSCS)

  The PSCS role will remain in place at the site from the beginning of works until the project has been completed.
- The Main Contractor will develop a site health and safety management plan to protect personnel working on the site and other members of the public who may be affected by the construction works.
- The Main Contractor will implement a Construction Traffic Management Plan to manage instances where construction traffic may affect local road users.

6.9 BIODIVERSITY AND NATURAL ENVIRONMENT

Potential impacts to biodiversity and the natural environment will be managed through a combination management and mitigation measures. An AA Screening report and the Ecological Impact Assessment report were prepared which found that individually or in combination with another plan or project, the Proposed Development will not have a significant effect on biodiversity or the natural environment; but have proposed mitigations and management measures. This conclusion was reached without considering or considering mitigation measures or measures intended to avoid or reduce any impact on European sites.

Mitigation measures which related to the protection of water and are detailed in Section 6.10.

Management measures to protect ecology and biodiversity shall include:

- To prevent any pollution incidents that might potentially cause deterioration of the aquatic environment it is proposed that a series of best practice measures are introduced throughout the construction works, in accordance with CIRIA's guideline documents C532 (CIRIA, 2001) and C811 (CIRIA, 2023), and Enterprise Ireland's best practice guidance for oil and hydrocarbon storage (BPGCS005).
- Dangerous substances such as oils and fuels will be stored at all times in a bunded area.
- Only clean water will be allowed to enter public surface water sewers.
- Silt trap fencing shall be in place before works commence, or other measures to remove sediment and solid matter prior to discharge of surface water sewers.
- Trees that are to be retained in the landscape design will be protected in accordance with best practice guidance (BS5837, trees in relation to construction) as detailed in DLRCC Tree Strategy (2011-2015).
- No vegetation or tree removal shall be permitted outside of the bird nesting season. The nesting season is considered to be between 1st March and 31st August inclusive.
- A suitably qualified ecologist shall undertake pre-works survey checks for protected species within 72hrs of any vegetation or tree removal. Survey checks shall include identification of trees to be removed and checks for bats.
- Any vegetation or tree removal on DLRCC lands will require prior approval from the DLRCC Project Manager.
- The Main Contractor will ensure that seed mixes to be used on DLRCC lands are agreed in advance with Project Manager, where required.
- Any native trees and vegetation planted to replace any habitat removed shall enhance the habitat while incorporating biodiversity net gain, complying with DLRCC Development Plan 2022-2028.
- Maintain safe distances from retained trees and hedgerows during works.
- An Invasive Species Management Plan (ISMP) is recommended, which will detail measures which will be implemented throughout Site works to safeguard against the spread of any invasive non-native species (such as Japanese knotweed or Cotoneaster). The Main Contractor for the construction of the Works will ensure that all materials imported or exported from the Site are not contaminated and monitoring will take place post-construction to ensure that invasive species do not colonise the Site.
- Hours of illumination of the Site during the construction programme should be limited to daylight hours. Any lighting needed during construction will be designed with input from the ecologist.

Otters are known to be inquisitive animals (and more nocturnally inclined) and are likely to investigate a construction site. Therefore, the following good practice guidelines for otter during the construction phase of this project should be applied:

- Any excavations left open overnight should have a means of escape for otters (and all other mammals), a ramp at least 30cm in width and angled no greater than 45° should be placed inside the hole/trench overnight to allow the mammal to escape.
- Temporary fencing is essential and should be placed around the machinery at the end of the working day (cordoned off) and any machinery that could potentially harm otters should be made safe overnight.
- All proposed works for this Project during the construction phase should be restricted to daylight hours, so as to cause as little disturbance to these largely nocturnal creatures.
- To avoid risking mammals becoming trapped in excavations created during site works, holes and trenches may also be covered with timber mats or fenced off.
- Timber mats should be places on wet concrete as this can present a hazard to wildlife where small mammals may become stuck.

6.10 WATER, LAND, SOILS AND GEOLOGY

Potential impacts to the water environment (surface water and groundwater), soils, land and geology during the construction period will be managed through a combination of mitigation measures and design features embedded into the design of the Proposed Development of the Proposed Development.

Features of the design include:

- All water required during construction will be taken from the mains and the completed development will be connected to mains with additional rainwater harvesting water (i.e., there will be no new groundwater or surface water abstractions).
- Stormwater collection and discharge from the Proposed Development will be collected and discharged via an oil interceptor and hydrobrake to the downstream storm sewer outfall.
- Wastewater will be isolated and discharged to the on-site foul sewer network.
- It is proposed that where materials are to be exported off-site, a local, appropriately permitted/licenced disposal facility will be chosen where feasible to minimise the carbon footprint associated with the off-site transport and handling of the material.

Standard and commonly undertaken good practice measures will be taken on-site, including:

- A site investigation will be completed before development starts. This will include an investigation of the potential for contamination of the ground and water environment at the site. The findings of the site investigation will inform whether further investigation and/or remediation is required, the site clearance/demolition activities, and further iterations of the design. Any contaminated soils that are removed from the site will be handled in accordance with the site's Waste Management Plan (WMP) and good practice guidance.

The Main Contractor will prepare a Construction Management Plan (CMP) and maintain this live Construction Environmental Management Plan (CEMP). Widely used good practice will include, but not be limited to, the following:

- All construction works will be conducted in accordance with the appropriate site rules.
- All construction works will be conducted in accordance with the site's EPA Waste Licence.
- Appropriate Personal Protection Equipment (PPE) will be used by all construction workers. Selection of PPE will depend on the quality of the land being worked and the method by which any contamination present could impact workers (e.g. ingestion, dermal contact, inhalation).
- Hazardous materials will be labelled clearly, transported with care by competent and trained persons, and stored in dedicated areas in appropriately bunded containers. Any liquid accumulating within the bunds, or secondary containment systems, will be disposed of at a suitably authorised facility.
- Maintenance checks and procedures will be completed to reduce the potential for leaks and spills from plant.
- Method statements will be prepared and followed for the management, storage, testing and disposal of waste (including excavated materials).
- Water (from run-off, rainfall and groundwater seepage) will be managed during construction to enable the construction of the Proposed Development, maintain stability, and to protect construction workers from unstable excavations.
- Pollution management measures will be implemented to prevent contamination by machinery pollutants, such as fuels, oils and lubricants during construction and operation activities. These measures will be informed by guidance provided in relevant documents, such as the CIRIA guides to environmental good practice on site.
- Other information on good practice to reduce the potential for environmental pollution shall include the following document developed by the Environment Protection Agency (Ireland):
    - Best practice guidelines for the preparation of resource & waste management plans for construction & demolition projects. https://www.epa.ie/publications/circular-economy/resources/CDWasteGuidelines.pdf.

A number of additional mitigation measures will be implemented for potential impact avoidance on the water environment, soil, land or geology and associated human users. These comprise:

- If evidence of previously unidentified potential contamination (either visual or olfactory) is identified during construction works, construction good practice and management procedures will be followed that may include investigation and assessment works. If contamination is suspected, the following protocol will be implemented:
    1) Stop work immediately;
    2) Report suspected contamination to the Environmental Manager. Environmental Manager to seek expert advice

3) and contact the EPA, if appropriate;

4) Isolate the area and contain any spread of contaminants;

5) Clear the affected area, ensuring no sources of ignition are present;

6) Characterise the contamination and develop a suitable remediation strategy.

- All construction vehicles leaving the site shall do so in a manner that does not cause the deposition of mud or other deleterious material on surrounding roads. Such steps shall include the cleaning of the wheels and undercarriage of each vehicle where necessary.

  Any sludge collected from wheel wash used during construction will be tested and disposed of to an appropriate waste disposal facility. No used water or settled solids will be disposed of to land or water without prior consent of the relevant authority. Should any discharges to ground or surface water be proposed during construction, the Main Contractor shall ensure the discharges are in line with the sites Environmental Permit.

- The provision of road sweeping equipment will be required during any operations where there is the potential for the spread of mud out with the wider DLRCC site boundary.

- Any piling activities will be undertaken using good practice methods that reduce the potential for creating new pathways between the surface and sub-surface, particularly to groundwater within the bedrock aquifer.

6.11 AIR QUALITY

Dust and emissions arising from construction activities can cause health risks to receptors and nuisance and annoyance to local residents and businesses. Construction dust can originate from numerous sources during the construction phase. The level of dust emitted will be dependent on the activity undertaken, the location of the activity on Site, and the nature of the dust.

The location of the site and the planned activities do not give rise to a serious risk to air quality. However, Main Contractor will be required to take measures to minimise the presence of airborne dust during construction.

Such measures may include, but not be limited to, the following:

- Completed earthworks to be seeded/vegetated as soon as practicable.

- Appropriate construction vehicles to be used for materials handling, and any vehicles used on site to undergo regular maintenance.

- Haulage roads, and stockpiles of earth to be damped down during dry weather in the event that dust is generated during vehicle and earth movements.

- Site speed restrictions are to be implemented and enforced during the works to minimise the raising of dust through vehicle movements.

- Cognisance to be taken of the weather conditions, and wind direction, such that in the event that wind could carry dust to sensitive receptors, including local residents, site operations shall be managed to minimise the raising of dust, and if necessary suspended until wind conditions allow.
- Visual inspections for airborne dust shall be undertaken daily at the perimeter of the site downwind of any operations that may give rise to airborne dust, and at the site of any activities that may give rise to airborne dust. Such inspections shall be recorded in a logbook, and appropriate action taken if airborne dust is seen.

The site management shall refer to Met Éireann (The Irish Meteorological Service) for the weather forecast to predict weather conditions such as prolonged hot, dry spells which may give rise to high levels of dust, and ensure the necessary precautionary measures are in place.

- If necessary, temporary barriers shall be erected downwind of activities, to minimise and mitigate dust from leaving the site.
- If necessary, loads with potential for dust generation shall be managed by damping down the materials, and wagons shall be sheeted for transfer of such materials.
- The main access road shall be swept as and when conditions dictate and considered necessary by Site Management to minimise emissions of dust.
- There shall be no burning of materials on site.

In the case of odour, suitable temporary containment including daily cover to exposed wastes (if applicable) will be used so as to avoid the perception of odour at the site boundary.

Following the completion of a detailed construction programme the appointed Main Contractor will incorporate a Dust Management Plan (DMP) into their updated CEMP. Once the construction methods are identified the DMP identify measures appropriate to the level of anticipated dust risk from the construction activities.

6.12 NOISE

The operation of plant and machinery, and general construction site activities are potential sources of noise that will require management across the Site.

Effective planning of on-site activities will significantly reduce the likelihood of impacts to off-site receptors. Understanding, adopting, communicating and integrating Best Practice Measures to minimise noise and vibration at all times and all locations, is the best way to indicate to the local authorities, local residents and construction workers that noise and vibration is being managed satisfactorily on site.

In order to minimise the impact of any noise or vibration generated on site, the contractor will take measures to mitigate prevent noise and vibration as far as possible. Subject to planning requirements, these measures may include, but not be limited to, the following.

- Any work that is required to implement the planning permission that is audible within any adjacent noise sensitive receptor, or its curtilage shall be carried out only between the hours of

07:00 and 19:00 Monday to Friday and 08:00 and 14:00 on Saturday, and at no time on a Sunday, unless otherwise agreed in writing;

- A Plan showing the location of noise sensitive receptors shall be maintained and displayed within the site offices, and any works that may give rise to noise or vibration on the site, shall be considered against these sites. In the event that there will be any works that will give rise to prolonged noise or vibration, such as piling, contractors shall notify local residents and businesses in advance, identifying the works that will be undertaken, the reason for the works, and the duration of the works;
- Noise generating activities shall, where possible, be undertaken away from noise sensitive receptors, and where possible have due regard to wind direction;
- If necessary temporary bunds and noise barriers shall be erected to minimise the impact of noise or sensitive receptors;
- All vehicles used on site will be maintained to minimise noise generation;
- Site speed restrictions will be implemented and enforced;
- All drivers on site will undergo site inductions and toolbox talks during which the impacts of noise generation through driving and vehicle operation shall be addressed, including such aspects: as over-revving of engines; speed; gear selection; and idling.

The method, locations and duration of monitoring will be detailed within a revised CEMP and agreed with the DLR Environment and Climate Change Officer prior to commencement of works on site.

6.13 CULTURAL HERITAGE AND ARCHAEOLOGY

Section 2.6 of the EIA Screening Report considers the impacts to cultural heritage and archaeology. No known archaeological assets are recorded within the Site

Archaeological excavations near to the site have shown the wider area to have archaeological potential. The southern area of the site has been disturbed with the removal of topsoil and potentially impacting any archaeology present within this area.

The potential for archaeology within the site is considered low, however the Pale Ditch is located to the south but not in the site. The Pale Ditch is important to the archaeology and heritage setting of the area.

To mitigate for the potential presence of undiscovered archaeological remains within the Site, it is recommended that an agreed archaeological strategy be implemented where the Main Contractor will appoint a suitably qualified and licensed specialist archaeological contractor to undertake the works if finds are identified during the construction programme.

7 CONCLUSION AND APPROVAL

This CEMP shall be further developed by the appointed Main Contractor upon the grant of consent and appointment. Environmental provisions will be refined further and elaborated once as more information on the construction methods and program become available. These details will all be incorporated in the CEMP by the Main Contractor prior to the commencement of construction at the Proposed Development.

APPENDIX A – INVASIVE SPECIES MANAGEMENT PLAN

TECHNICAL NOTE

Project title:	Winter Maintenance Operation Facility		
Subject:	Outline Invasive Species Management Plan (ISMP)		
To:	DLRCC		
Project number:	24038	Document ref.:	24038-TN-02-ISMP
Prepared by:	Maggie Starr	Revision:	00
Checked by:	Joey O'Connor	Date of issue:	06/09/2024
Approved by:	Joey O'Connor		

Table of Contents

Table of Figures

1 OUTLINE INVASIVE SPECIES MANAGEMENT PLAN

1.1 BACKGROUND TO THE PLAN

Dún Laoghaire-Rathdown County Council (DLRCC) have appointed GDG to provide consultancy services, including production of an Outline Invasive Species Management Plan (Outline ISMP), for a project which involves constructing a new dedicated road maintenance operation area on a site adjacent to the existing Operations Centre, located at Ballyogan, Dublin 18.

The overall project is to deliver a fully functioning and integrated new road maintenance operations area with vehicle parking, operational working areas, a road and salt storage barn, a brine manufacturing facility, a rainwater harvesting tank, and dedicated washdown facilities for road maintenance vehicles.

The location of the Proposed Development is herein referred to as the 'Site'.

1.1.1 AIMS OF THIS OUTLINE ISMP

The aim of this report is to identify and prescribe management options based on the overall management objectives of the Site in relation to Invasive Species. The report prescribes how invasive plant species within the Site should be controlled and/or removed and prevented from reinfesting.

This Outline ISMP sets out the measures that should be used by the Principal Contractor (PC) to control and prevent the spread of invasive non-native species (INNS) and describes how non-native plant species should be managed or removed where required to prevent their spread in the environment during construction.

This Outline ISMP is intended to be a working document. Once planning consent has been granted, this document should be updated by the appointed Contractor to become the Invasive Species Management Plan (ISMP) for the project, once details of the construction are known and prior to the commencement of works. This should be based on the options outlined in this document and relevant guidance at the time.

The approach to managing INNS should include:

1. Conduct a detailed survey to confirm the locations and extent of invasive species infestations before construction begins. This will guide targeted removal efforts and help prevent the spread of invasive species during site preparation and construction activities.
2. Carefully remove invasive species using appropriate methods, such as manual uprooting or mechanical excavation. All removed material will be securely contained and disposed of following legal requirements and guidelines to prevent the spread of plant fragments or seeds to other areas.

3. Establish washing and cleaning stations for machinery and equipment on-site to prevent the spread of invasive species from contaminated areas to uncontaminated areas until the clearance of invasive species has been confirmed. All vehicles and machinery working in infested areas will be cleaned before moving to other parts of the Site and/or outside the Site.

A Preliminary Ecological Appraisal (PEA) Survey was conducted on 16/04/2024 to determine ecological receptors on Site and to confirm the presence of INNS within the Site.

Three medium impact INNS were recorded within the construction footprint of the Proposed Development;

- Butterfly Bush (*Buddleja davidii*),
- Winter Heliotrope (*Petasites fragrans*), and
- Immature Sycamore (*Acer pseudoplatanus*)*****.

***** Immature sycamore saplings/shoots were recorded in the southern part of the Site, along the southern road margin. This tree species is widespread and common in Ireland and occurs on roadsides and woodland throughout the country. In spite of being non-native and possessing some potentially invasive characteristics, is not considered to be a problematic species in this context and the proposal does not have potential to cause spread of this species, as it is not propagated by soil-borne structures. **Therefore, sycamore will not be considered further in this Outline ISMP.**

1.2 STATEMENT OF AUTHORITY

This Outline ISMP has been prepared by Maggie Starr (BSc. (Hons) Marine Sciences). Maggie is an Ecologist and Ornithologist with experience in terrestrial, aquatic and marine/coastal ecology and is a trained Marine Mammal Observer (MMO). Her current work includes ecological and environmental desktop studies for terrestrial, aquatic and marine environments, specialised mammal surveys, ornithological surveys, and map preparation.

This Outline ISMP has been reviewed and approved by Joey O' Connor (BSc. Hons Marine Science, MSc. Engineering in the Coastal Environment). Joey is a Principal Environmental Scientist with coastal engineering expertise and extensive experience of survey and Marine Protected Area monitoring who has undertaken multiple environmental assessments under the Habitats and EIA Directives for GDG and as a statutory adviser to the UK government and its devolved administrations with the Joint Nature Conservation Committee.

1.3 LEGISLATION

The European Communities (Birds and Natural Habitats) Regulations 2011, SI 477 of 2011 (as amended) (referred to as "the Regulations"), include specific provisions to regulate the control of INNS listed within the Third Schedule. Under these Regulations, it is illegal to release, allow to disperse or escape, breed, propagate, import, transport, sell, or advertise species listed on the Third Schedule without obtaining a proper licence. The two key regulations within the legislation that specifically address the control of Third Schedule species are:

- **Regulation 49**: Prohibits the introduction and dispersal of certain species.
- **Regulation 50**: Prohibits dealing in and keeping certain species.

Therefore, it is essential to note that the following actions are prohibited:

- Dumping cuttings or any material from invasive species in the countryside.
- Planting or causing the growth of invasive species in the wild, which requires landowners to ensure they do not inadvertently spread these species further.
- Disposing of invasive species material at landfill sites without first notifying the site that the waste contains invasive species, as this disposal requires an appropriate licence.
- Moving soil within the Republic of Ireland that contains specific invasive species unless a licence is obtained from the National Parks and Wildlife Service (NPWS).

In line with Ireland's 4th National Biodiversity Action Plan 2023-2030, Objective 2 focuses on the invasive species management of harmful alien species and the reduction of the risk of new species being introduced or spread (DHLGH, 2023[1]).

In the context of Ireland, under the Regulations, the Third Schedule lists invasive species that are considered to be of such high impact that their introduction or dispersal into the wild is strictly prohibited. These regulations are designed to control and prevent the spread of species that pose a serious threat to native biodiversity and ecosystems.

Being listed on the Third Schedule means that strict legal measures must be taken to prevent the introduction, release, or spread of these species. These measures can include restrictions on the sale, transport, and cultivation of the species, as well as requirements for eradication or control where the species are found.

The control of invasive species in Ireland comes under the Wildlife (Amendment) Act 2000, where it states that

'*Any person who— [...] plants or otherwise causes to grow in a wild state in any place in the State any species of flora, or the flowers, roots, seeds or spores of flora, ['refers only to exotic ISMP Mallow Park Improvement Works 4 DixonBrosnan 2021 species thereof'][...] otherwise than under and in accordance with a licence granted in that behalf by the Minister shall be guilty of an offence*.'

[1] Department of Housing, Local Government and Heritage. (2023). *Ireland's 4th National Biodiversity Action Plan 2023-2030*. Government of Ireland.

The National Biodiversity Centre (NBDC) notes that under the right ecological conditions Medium Impact invasive species as part of the NBDC Prioritisation Risk Assessment[2] may have an impact on the conservation goals of a European site or impact on a water body achieving good/high ecological status under the Water Framework Directive (Directive 2000/60/EC).

Butterfly Bush, and Winter Heliotrope are not included in the Third Schedule. Therefore, their presence at the Site does not have the potential to lead to an offence under the Birds and Natural Habitats Regulations 2011 (SI 477 of 2011) or under the Wildlife Acts (as amended). However, butterfly bush is classified as Medium Impact Invasive Species on the National Biodiversity Data Centre (NBDC), who maintains the National Invasive Species Database and provide s distribution data on high and medium impact species.

Since butterfly bush is not listed as a Third Schedule species, these INNS are not subject to these strict legal controls, but their classification on the NBDC Prioritisation Risk Assessment indicates these INNS are still a concern for local biodiversity and warrants management efforts.

Winter heliotrope is classified on the Amber List by Invasive Species Ireland, indicating that while it poses a moderate risk to local ecosystems, its spread is not considered as highly aggressive as some other invasive species. Given this classification and its relatively localised growth patterns, it is unlikely that winter heliotrope will have a significant impact on habitats outside the designated works area. However, this species in recent years has been known to spread aggressively and disrupt natural habitats proper management and removal within the site are still essential to prevent further spread and protect surrounding biodiversity. Therefore, this INNS should be treated with the same caution as a Medium Impact INNS, necessitating proactive management measures to prevent its further encroachment into sensitive areas and to protect native ecosystems. Proper identification, control, and, where necessary, eradication of winter heliotrope are essential steps to mitigate its impact on Ireland's biodiversity.

Butterfly bush and Winter heliotrope are both included in the NRA Guidelines on the Management of Noxious Weeds and Non-native Species on National Roads (NRA 2010)[3] as this species has been shown to have an adverse impact on landscape quality, native biodiversity or infrastructure; and is likely to be encountered during road schemes.

Therefore, butterfly bush and winter heliotrope are considered as part of this Outline ISMP report.

[2] https://invasivespeciesireland.com/wp-content/uploads/2013/03/Risk-analysis-and-prioritization-29032012-FINAL.pdf
[3] https://www.tii.ie/media/rtmi2ebi/management-of-noxious-weeds-and-non-native-invasive-plant-species-on-national-road-schemes.pdf

2 BACKGROUND INFORMATION

2.1 DESCRIPTION OF THE SITE AND PROJECT BACKGROUND

The Site, which is circa 4,900 m^2 (0.49 ha) in area, is located approximately 12km southeast of Dublin city centre, along the Ballyogan Road. The M50 motorway is situated approximately 400m to the north-northeast of the Site. The Site is located within a predominantly urban/industrial landscape and is dominated by hardstanding (roads) and buildings.

The Site lies west of Junction 15 on the M50, directly east of the DLRCC Ballyogan Operations Centre. To the south of the site is the Ballyogan landfill, now closed and restored (now known as Jamestown Park). Between the site and the closed landfill there is a raised line of trees along a slight embankment / rise. The Barnacullia Stream is located within the line of trees and flows to the east. East of the site is the Ballyogan Recycling Centre, and the An Post D18 Delivery Office. The nearest residential properties are adjacent to the private access road to the west. The Samuel Beckett Community Facility lies northwest of the proposed scheme.

The dominant existing habitats within the Site comprises scrub, hedgerows, recolonising bare ground, earth banks and dry meadows and grassy verges with areas of trees (silver birch to the southeastern border of the Site). The southern area has an area of hardstanding and rough vegetation with storage of bins and evidence of waste materials. Current access to the site is along the southern boundary off Ballyogan Road, via a private access road.

The new operations facility will be used for road maintenance operations; the DLRCC road maintenance programme deals with severe weather conditions on public roads. The new road operations area will contain a new access road, salt barn, a brine batching facility, a rainwater harvesting tank (from salt barn roof), dedicated parking for road maintenance vehicles / equipment, an automated wheel wash, and dedicated washdown facilities for the road maintenance vehicles. A new access ramp to the new site will be from the private road off Ballyogan Road and concrete / asphalt hardstands will be required throughout the site. The site will be fully serviced with lighting, water, electricity grid connection and communications. The completion of this project will make DLRCC winter maintenance operations more efficient, effective and environmentally friendly.

The project will deliver:

- Dedicated Road Maintenance Operational Fleet Parking
- Operational Hardstand, Site Access, and Drainage,
- Operational Vehicle Wash Facilities,
- Salt Storage Barn,
- Brine Manufacturing Facility, and
- Associated M&E including utilities, public lighting, telemetry, fencing, lighting etc.

Vehicle wash facilities and an automated wheel wash form part of the new development. The Brine Manufacturing Plant will utilise a combination of harvested rainwater and mains supplied water.

Surface water / storm water and wastewater management is designed into the project. Surface water and storm water from the outside tarmac areas will be collected and discharged via an oil interceptor, attenuation tank and hydrobrake to the surface water sewer system.

Wastewater from the development, generated from the salt storage barn, brine plant, vehicle washing facilities and automated wheel wash, will be isolated and discharged to the on-site foul sewer network.

The layout of the Proposed Development is shown within 24038-REP-003-00-Part-8 Planning-Report.

2.2 PEA SURVEY RESULTS

Below are pictures taken of butterfly bush (Figure 2.1) and winter heliotrope (Figure 2.2) within the Site. The location of the INNS present within the Site are mapped as shown in Figure 2.3.

Figure 2.1 Butterfly-bush within the Site, covering large areas of the Site – photo taken 16/04/2024.

Figure 2.2 Winter Heliotrope scattered among the Site - photo taken 16/04/2024.

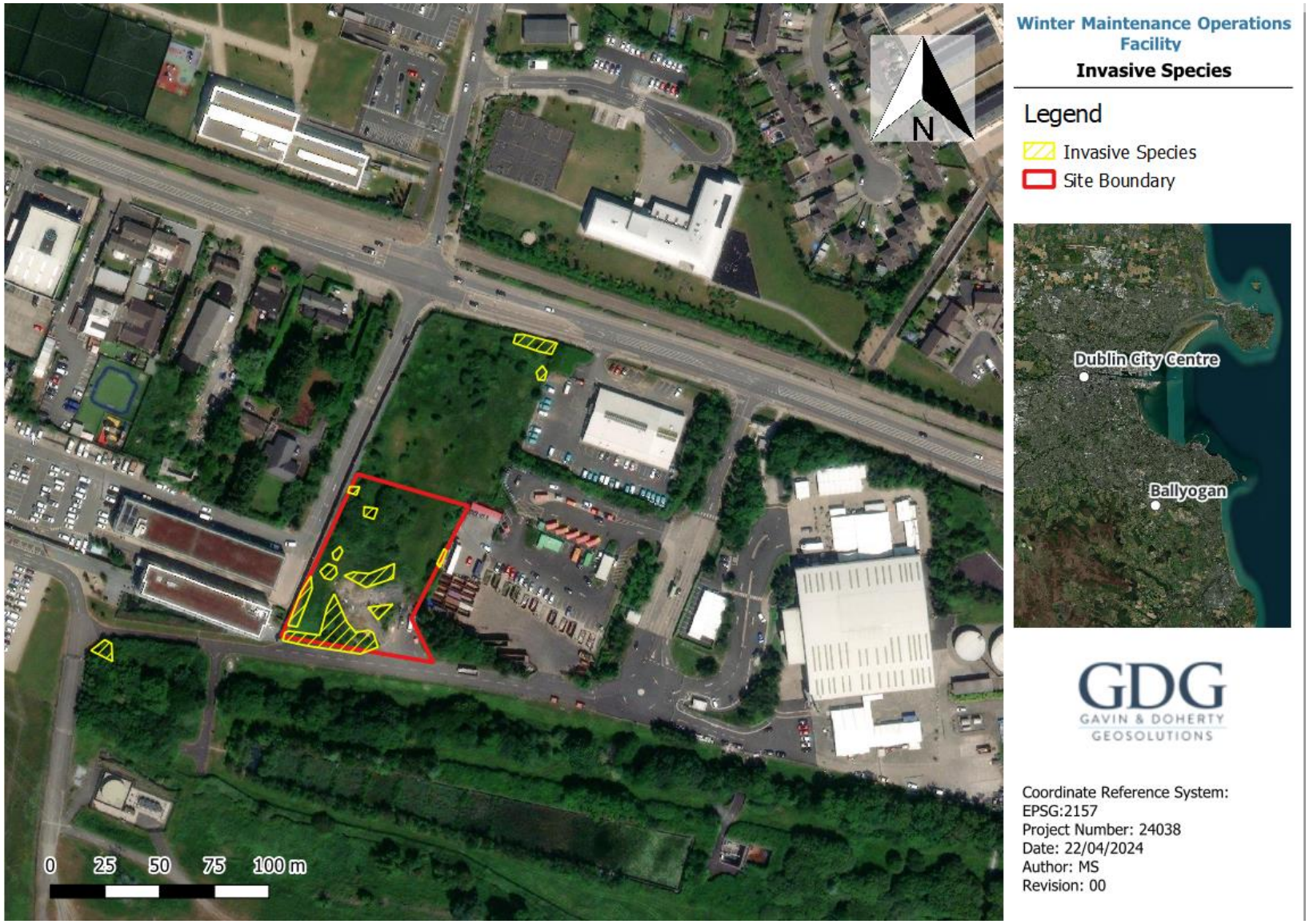


Figure 2.3 Invasive species including Butterfly-bush and Winter Heliotrope within the Site and surrounds.

2.3 BUTTERFLY BUSH

Butterfly-bush, also known as buddleia, is a fast-growing, deciduous shrub native to China that has become widely naturalised in many parts of the world, including Ireland. This plant is well-known for its dense clusters of fragrant, tubular flowers, typically in shades of lilac, purple, pink, or white.

The plant is highly adaptable, thriving in a wide range of conditions, including poor soils, walls, rocks, and subsoils. It is particularly well-suited to disturbed or bare ground, where it can rapidly establish itself and form dense, monotypic stands. One of the key concerns with butterfly bush as an invasive species is its prolific seed production. A single plant can produce up to 3 million seeds annually, which can remain viable in the soil for many years. This ability to produce vast quantities of seeds, combined with its tolerance for poor soil conditions, enables it to outcompete native vegetation and spread rapidly in natural areas. In particular, it poses a threat in places where natural regeneration is needed where it can outcompete native plant species and alter the ecological balance (NRA, 2010[4]).

Butterfly bush is not listed on the Third Schedule of the EC (Birds and Natural Habitats) Regulations 2011 and 2015 (S.I. No. 477/2011) (herein referred to as the 'Habitats Regulations'), however, the butterfly bush is listed as a Medium Impact invasive species on the NBDC Prioritisation Risk Assessment due to its potential to disrupt local ecosystems. Its management is essential to prevent further spread and mitigate its impact on native biodiversity.

2.4 WINTER HELIOTROPE

Winter heliotrope is a perennial plant with a rhizomatous growth habit. Originally native to the Mediterranean region, it was introduced to Ireland in the 19th century for its ornamental qualities and has since become widespread across the country. The plant is easily recognisable by its large, glossy, kidney-shaped leaves that can grow up to 30 cm in diameter. These leaves are often dense and form a thick, ground-covering mat that can outcompete other vegetation.

Winter heliotrope is considered an invasive species in many regions, including Ireland. Its ability to spread rapidly through underground rhizomes enables it to colonise large areas quickly. The dense foliage of winter heliotrope can shade out native flora, reducing biodiversity and altering the composition of local plant communities. The plant is often found in disturbed areas, such as waste grounds, roadsides, riverbanks, and along watercourses, where it thrives in shaded and semi-shaded environments.

While winter heliotrope is not currently subject to specific legislation or protective designation, its potential to spread aggressively and disrupt local ecosystems has raised concerns in Ireland. Efforts to manage and control its spread are essential to preserve native biodiversity and prevent further encroachment into natural habitats.

[4] NRA, (2010). Guidelines on The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads. National Roads Authority. Written Statement.

3 OUTLINE CONTROL MEASURES

This part of the document provides general best practice guidelines for controlling and managing invasive non-native species during the construction phase of the Proposed Development.

3.1 METHODOLOGY

The following guidance documents and published reports were consulted during the preparation of this options report:

- The Management of Invasive Alien Plant Species on National Roads – Technical Guidance, (TII, 2020);
- Prevention, Control and Eradication of Invasive Alien Species. EPA Research. Report No. 368. Institute of Technology Sligo, Queen's University Belfast and INVAS Biosecurity Ltd. (Lucy, F. E., *et al.,* 2015)
- The Management of Invasive Alien Plant Species on National Roads – Standard (TII, 2020);
- Guidelines on The Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads (NRA, 2010); and
- National Biodviersity Action Plan 2023-2030 (DHLGH, 2023).

3.2 CONTROL MEASURES

3.2.1 PRE-CONSTRUCTION SURVEYS

Pre-construction surveys are necessary to update the findings of the Preliminary Ecological Appraisal (PEA) report. These surveys will also map any new areas where the two invasive non-native species (INNS) have spread and recorded in detail (e.g. including the number of colonies, the approximate size of plant, pattern of growth, and information on other vegetation present), ensuring accurate and up-to-date information for effective management during the construction phase.

3.2.2 BIOSECURITY MEASURES

To prevent the spread of invasive non-native species (INNS) and protect local biodiversity, robust biosecurity measures should be implemented on-site. These measures should include:

- **Code of Practice**: A site-specific code of practice will be followed, ensuring that all staff and contractors are trained in identifying and managing invasive species. This will include protocols for equipment cleaning, waste handling, and movement of materials.
- **Careful Planning and Preparation**: Thorough planning will take place before any site works commence, ensuring that areas containing INNS are identified and managed. This includes setting up exclusion zones around affected areas and designating specific routes for machinery to avoid contamination.

- **Site Access and Hygiene**: Cleaning stations will be established at key access points to ensure that vehicles, machinery, and personnel entering and leaving the site are free of invasive plant material or soil that could contain INNS. Regular inspections and cleaning will help minimise the risk of spreading invasive species beyond the construction site.

These biosecurity measures are critical in controlling invasive species and ensuring the ecological integrity of the surrounding environment.

3.2.2.1 PREVENTION OF CONTAMINATION AND SPREAD

Preventing the spread of invasive non-native species through effective biosecurity practices is a crucial part of their management, and maintaining proper site hygiene is essential. The following measures should be implemented:

- **Preventing Spread from Infested Areas**: Anyone entering the infested zones, such as contractors, will be required to take precautions, including wearing shoe covers within the area and removing them when leaving, to avoid spreading plant material.
- **Isolation of Infected Areas**: The infested areas will be securely fenced off and clearly marked with warning signs to restrict access to unauthorised personnel.
- **Toolbox Talk**: Before any work begins, a toolbox talk will be provided to all relevant site staff, ensuring they can identify the invasive species, are aware of its location, understand the risks associated with its spread, and know the necessary precautions.
- **Cleaning of Clothing and Equipment**: All clothing and equipment will be thoroughly cleaned before leaving the site or moving between different areas to prevent the unintentional spread of invasive species.
- **Verification of Imported Materials**: For any materials brought onto the site, the contractor will be required to obtain certification from suppliers confirming that the materials are free from invasive non-native species.
- **Storage of Materials**: New materials will not be stored near the areas containing invasive species to prevent contamination.

3.2.3 OFFSITE DISPOSAL OF INVASIVE PLANT MATERIAL

Control of invasive non-native species can be achieved through mechanical methods, such as hand-pulling or machine-cutting plant material. It is crucial that the movement of this material does not lead to the further spread of invasive species. As previously mentioned, butterfly bush and winter heliotrope are non-scheduled INNS and therefore, a license from NPWS is not required.

When invasive species are removed from the site, they must be transported by a licensed waste carrier and disposed of at an approved facility, following prior agreement. This process can be managed by the appointed contractor. While this method is efficient in terms of time (though identifying an appropriate disposal facility may take time), it is effective for short-term control but can be costly. All

disposal activities must comply with relevant Waste Management legislation (as per NRA guidance, 2014).

Additionally, it is important to recognise that plant material or soil containing invasive species, especially if treated with residual herbicides, may be classified as either "hazardous waste" or "non-hazardous waste" under the Waste Management Acts. These classifications may require different disposal protocols and permissions. It is advisable to consult a qualified waste expert to determine the appropriate classification and disposal options.

3.3 SPECIES-SPECIFIC CONTROL PLANS

3.3.1 BUTTERFLY BUSH

It is recommended that management efforts include the removal of winter heliotrope from the site. If the area where the plant has been removed is not designated for hard-standing structures as part of the development, it is advisable to incorporate native species into the landscape design. Planting native species in these areas will not only help restore biodiversity but also prevent the re-establishment of invasive species, contributing to the overall ecological health of the site.

Option 1: Mechanical Removal

Mechanical removal of butterfly bush involves physically uprooting the plants, including their root systems, to prevent regrowth. This method can be implemented as follows:

- Timing: Removal should take place when the soil is moist, making it easier to extract the root system. Mechanical removal of plants should occur before the plant sets seed to minimise seed dispersal.
- Manual Uprooting: For smaller or younger plants, hand-pulling can be effective. For larger, established bushes, mechanical equipment such as diggers may be required to remove the root system entirely. If removal of mature plants is not immediately feasible, then the flower heads should be removed in June before they go to seed.
- Disposal: All removed plant material, including roots and branches, must be securely contained and disposed of at a licensed waste facility to prevent further spread. The transportation of plant material must be carried out by a licensed waste carrier. Additionally, excavated material can be incinerated.
- Follow-Up Monitoring: Regular monitoring of the site post-removal is essential to detect any regrowth or seedlings. Any new growth should be promptly removed to prevent re-establishment.

This method is labour-intensive but avoids the use of chemicals, making it suitable for environmentally sensitive areas.

Option 2: Chemical Treatment

Chemical treatment of butterfly bush involves applying herbicides to kill the plants and prevent regrowth. The following approach can be taken:

- Herbicide Foliar Application: A suitable systemic herbicide, such as glyphosate or triclopyr, should be applied directly to the leaves or cut stems of the plant. This allows the herbicide to be absorbed and transported to the root system, ensuring complete plant death. This may be adequate for limited infestations of younger plants. However, this should be followed up at 6-monthly intervals. **Note**: Do not leave cut stems and branches on the ground as they will re-root and produce new plants.
- Cut-Stump Treatment: For larger bushes, a cut-stump method can be used. The plant is cut near the base, and herbicide is applied immediately to the exposed stump, during active growth (in late-spring or early summer) which is then immediately treated (i.e. brushed on the stump) by systematic herbicide, allowing the chemical to penetrate the roots.
- Timing: Chemical treatments should be applied during the growing season when the plant is actively transporting nutrients. Late summer or early autumn is often the most effective period for treatment.
- Safety Precautions: The application must be carried out by a licensed professional in accordance with all relevant environmental and health and safety regulations to minimise risk to non-target species and surrounding habitats and nearby water courses.
- Follow-Up Monitoring: As with mechanical removal, the site should be monitored regularly to check for any regrowth or new seedlings, and additional herbicide applications may be required to ensure complete eradication.

This method is generally quicker and less labour-intensive than mechanical removal, but it requires careful management to prevent environmental contamination.

3.3.2 WINTER HELIOTROPE

Winter heliotrope is particularly vulnerable to cultivation methods. Thorough and repeated digging, rotovating, or deep hoeing can effectively eliminate the plant by disrupting its extensive rhizome system as this species reproduces vegetatively as only male plants found in Ireland. Additionally, improving site drainage can reduce the plant's vigour, as winter heliotrope thrives in moist, poorly-drained soils. These techniques, when applied consistently, can significantly weaken the plant and prevent its regrowth over time. Repeat visits through the growing season are required to remove seedlings.

Option 1: Mechanical Removal

Mechanical removal of winter heliotrope focuses on physically uprooting the plants and their extensive rhizome system to prevent regrowth. The process should include:

- Timing: This method is most effective during the dormant season or early spring before the plant produces flowers. This helps minimise the spread of seeds and makes removal easier. Repeat visits through the growing season are required to remove seedlings.
- Manual or Mechanical Digging: For small patches, hand-digging can be used to remove both the plant and its rhizomes. For larger infestations, mechanical excavation using equipment

such as diggers may be necessary to ensure that the extensive root system is completely removed.

- Disposal: All removed plant material, including rhizomes, must be securely contained and disposed of at a licensed waste facility. Where the infestation is small, the entire stand can be excavated and buried at a depth of 2 m, incinerated or disposed of to a licensed landfill. Transport should be done by a licensed waste carrier to prevent the spread of plant fragments. **Composting is not recommended.**
- Follow-Up Monitoring: Regular monitoring is essential, as even small fragments of rhizomes left in the soil can regrow. Any new growth should be promptly removed to prevent the plant from re-establishing.

While effective, this method is labour-intensive and may disturb the soil, potentially encouraging regrowth if not carefully monitored.

Option 2: Chemical Treatment

Chemical treatment for winter heliotrope involves the application of herbicides to target and kill the plant, particularly its rhizome system. This method can be implemented as follows:

- Herbicide Application: Systemic herbicides, such as glyphosate or triclopyr, should be applied as spot treatment or sprayed on larger monotypic stands of the plant. The chemicals will be absorbed and transported to the roots, killing the plant from within.
- Cut and Paint Method: For larger patches, the plants can be cut back, and herbicide applied directly to the exposed cut stems. This allows the herbicide to penetrate the rhizomes more effectively.
- Timing: Herbicide application is most effective when the plant is actively growing, typically in late summer or early autumn (October-November). Treating the plant during this period ensures that the chemicals are effectively transported to the root system. Repeat visits through the growing season are required to treat regrowth.
- Safety and Environmental Considerations: Herbicide use should be performed by a licensed professional, following all relevant environmental and safety guidelines to avoid damage to non-target species or contamination of nearby watercourses.
- Follow-Up Monitoring: As winter heliotrope can regrow from small rhizome fragments, regular monitoring is necessary. Repeated herbicide applications may be required to fully eradicate the plant.

This method is less labour-intensive than mechanical removal, but careful management is needed to avoid environmental risks and ensure long-term success.

4 CONCLUSION

This Outline ISMP provides a framework for the effective control and management of INNS within the Proposed Development Site. Before a detailed ISMP is developed with the contractor, a resurvey of the Site must be conducted to confirm the current extent and distribution of invasive species. The control methods outlined in this report should be carried out by a qualified specialist in the removal of INNS. Any regrowth of invasive species should be managed in accordance with the specific guidelines provided in the detailed ISMP. This ISMP will be further refined and adapted in consultation with contractors and ecological specialists as the project progresses.

GLOBAL PROJECT REACH

Offices

Dublin (Head Office)
Gavin & Doherty Geosolutions
Unit A2, Nutgrove Office Park
Rathfarnham
Dublin 14, D14 X627
Phone: +353 1 207 1000

Cork
Gavin & Doherty Geosolutions
First Floor, 12 South Mall
Cork
T12 RD43

London
Gavin & Doherty Geosolutions (UK) Limited
85 Great Portland Street, First Floor
London
W1W 7LT

Utrecht
Gavin & Doherty Geosolutions
WTC Utrecht, Stadsplateau 7
3521 AZ Utrecht
The Netherlands

Belfast
Gavin & Doherty Geosolutions (UK) Limited
Scottish Provident Building
7 Donegall Square West
Belfast
BT1 6JH

Edinburgh
Gavin & Doherty Geosolutions (UK) Limited
22 Northumberland Street SW Lane
Edinburgh
EH3 6JD

Rhode Island
Gavin & Doherty Geosolutions Inc.
225 Dyer St, 2nd Floor
Providence, RI 02903
USA

Website: www.gdgeo.com
Email: info@gdgeo.com

A Venterra Group Plc Member Company

Appendix G – PLANNING STAGE DRAWINGS

NOTES:

1. APPROXIMATE CENTRE OF SITE 720750E, 724260N (IRISH TRANSVERSE MERCATOR).

LEGEND:-

PROPOSED DEVELOPMENT BOUNDARY

REV:	S4-P02	DATE:	03/05/24	DRAWN BY:	ASB	CHECKED BY:	RD
DESCRIPTION:	AMENDED FOLLOWING CLIENT REVIEW						

GDG
GAVIN & DOHERTY GEOSOLUTIONS

Unit A2,
Nutgrove Office Park,
Rathfarnham,
Dublin 14, D14 X627
Ireland.
T +353 (0)1-2071000
E info@gdgeo.com
www.gdgeo.com

ISSUED AS: PLANNING

CLIENT: dlr Comhairle Contae County Council

PROJECT TITLE:
ROAD MAINTENANCE OPERATIONS FACILITY PROJECT
PLANNING APPLICATION

DRAWING No: 24038-GDG-ZZ-P1-DR-C-0001

Revision: -S4-P02

DRAWING TITLE:
FIGURE 1
LOCATION PLAN

SCALE:	1:2500	SHEET SIZE:	A1	DATE:	22/04/24
DRAWN BY:	ASB	CHECKED BY:	EO	APPROVED BY:	RD

NOTES:

1. EXISTING TOPOGRAPHICAL INFORMATION BASED UPON MESSRS" TECHSOL TECHNICAL SOLUTIONS LTD" DRAWING DLR8898 DATED OCTOBER 2023.

LEGEND:-

PROPOSED DEVELOPMENT BOUNDARY

REV:	S4-P02	DATE:	03/05/24	DRAWN BY:	ASB	CHECKED BY:	RD
DESCRIPTION:	AMENDED FOLLOWING CLIENT REVIEW						

GDG
GAVIN & DOHERTY GEOSOLUTIONS

Unit A2,
Nutgrove Office Park,
Rathfarnham,
Dublin 14, D14 X627
Ireland.
T +353 (0)1-2071000
E info@gdgeo.com
www.gdgeo.com

ISSUED AS: PLANNING

CLIENT: dlr Comhairle Contae County Council

PROJECT TITLE:
ROAD MAINTENANCE OPERATIONS FACILITY PROJECT
PLANNING APPLICATION

DRAWING No: 24038-GDG-ZZ-P1-DR-C-0002

Revision: -S4-P02

DRAWING TITLE:
FIGURE 2
EXISTING TOPOGRAPHIC SURVEY OCTOBER 2023

SCALE:	1:500	SHEET SIZE:	A1	DATE:	22/04/24
DRAWN BY:	ASB	CHECKED BY:	EO	APPROVED BY:	RD

NOTES:

1. EXISTING TOPOGRAPHICAL INFORMATION BASED UPON MESSRS" TECHSOL TECHNICAL SOLUTIONS LTD" DRAWING DLR8898 DATED OCTOBER 2023.
2. REFER TO DRAWING 24038-GDG-ZZ-P1-DR-C-0004 FOR LONG SECTIONS

LEGEND:-

- PROPOSED DEVELOPMENT BOUNDARY
- CONCRETE HARDSTANDING AREAS
- TARMAC HARDSTANDING AREAS
- LANDSCAPED AREAS
- 2.4m HIGH ACOUSTIC REFLECTIVE TIMBER FENCE
- SAFETY BARRIER
- PEDESTRIAN HANDRAIL
- 12m HIGH TWIN ARM LIGHTING COLUMN WITH LED FLOODLIGHT
- 12m HIGH SINGLE ARM LIGHTING COLUMN WITH LED FLOODLIGHT
- 8m HIGH SINGLE ARM LIGHTING COLUMN WITH LED FLOODLIGHT
- WALL MOUNTED LED FLOODLIGHT
- 8m HIGH TILT OVER CCTV COLUMN
- SAFETY BOLLARD

REV:	S4-P02	DATE:	03/05/24	DRAWN BY:	ASB	CHECKED BY:	RD
DESCRIPTION:	AMENDED FOLLOWING CLIENT REVIEW						

GDG
GAVIN & DOHERTY GEOSOLUTIONS

Unit A2,
Nutgrove Office Park,
Rathfarnham,
Dublin 14, D14 X627
Ireland.
T +353 (0)1-2071000
E info@gdgeo.com
www.gdgeo.com

ISSUED AS: PLANNING

CLIENT: dlr Comhairle Contae County Council

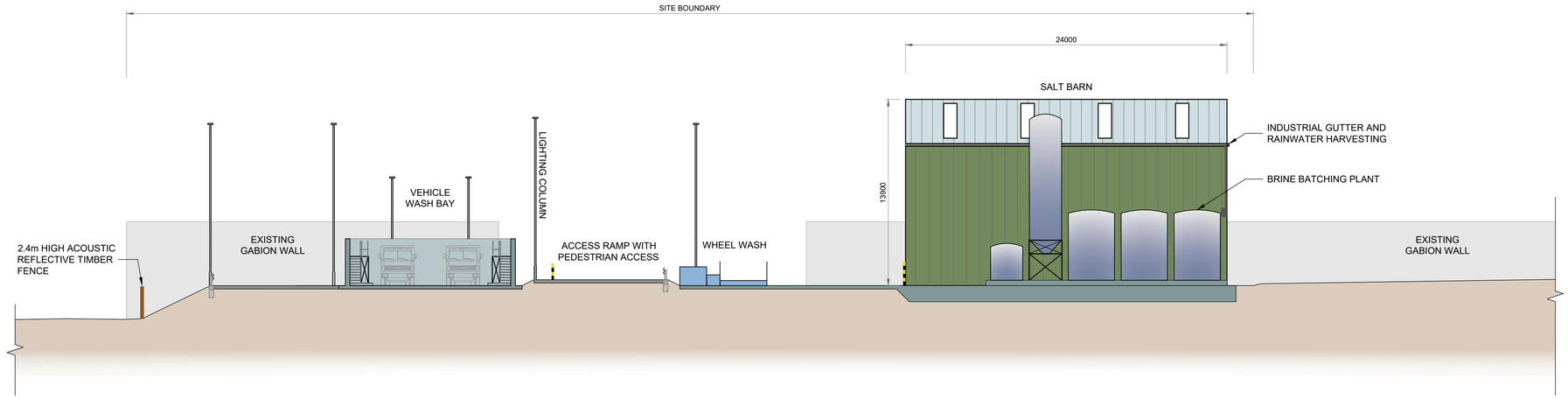
PROJECT TITLE:
ROAD MAINTENANCE OPERATIONS
FACILITY PROJECT
PLANNING APPLICATION

DRAWING No: 24038-GDG-ZZ-P1-DR-C-0003

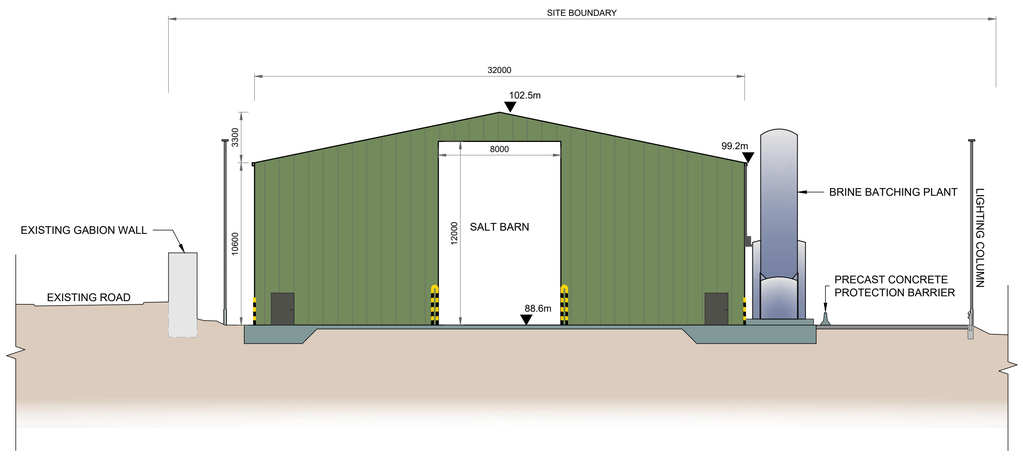
Revision: -S4-P02

DRAWING TITLE:
FIGURE 3
PROPOSED SITE LAYOUT

SCALE:	1:200	SHEET SIZE:	A1	DATE:	22/04/24
DRAWN BY:	ASB	CHECKED BY:	EO	APPROVED BY:	RD



SECTION A-A



SECTION B-B

NOTES:

1. REFER TO DRAWING 24038-GDG-ZZ-P1-DR-C-0003 FOR LOCATION OF LONG SECTIONS

LEGEND:-

OLIVE GREEN EXTERNAL WALL CLADDING

GOOSEWING GREY EXTERNAL ROOF CLADDING WITH 10% TRANSPARENT ROOF PANELS

REV: S4-P02	DATE: 03/05/24	DRAWN BY: ASB	CHECKED BY: RD
DESCRIPTION:	AMENDED FOLLOWING CLIENT REVIEW		

GDG GAVIN & DOHERTY GEOSOLUTIONS

Unit A2,
Nutgrove Office Park,
Rathfarnham,
Dublin 14, D14 X627
Ireland.
T +353 (0)1-2071000
E info@gdgeo.com
www.gdgeo.com

ISSUED AS: PLANNING

CLIENT: dlr Comhairle Contae County Council

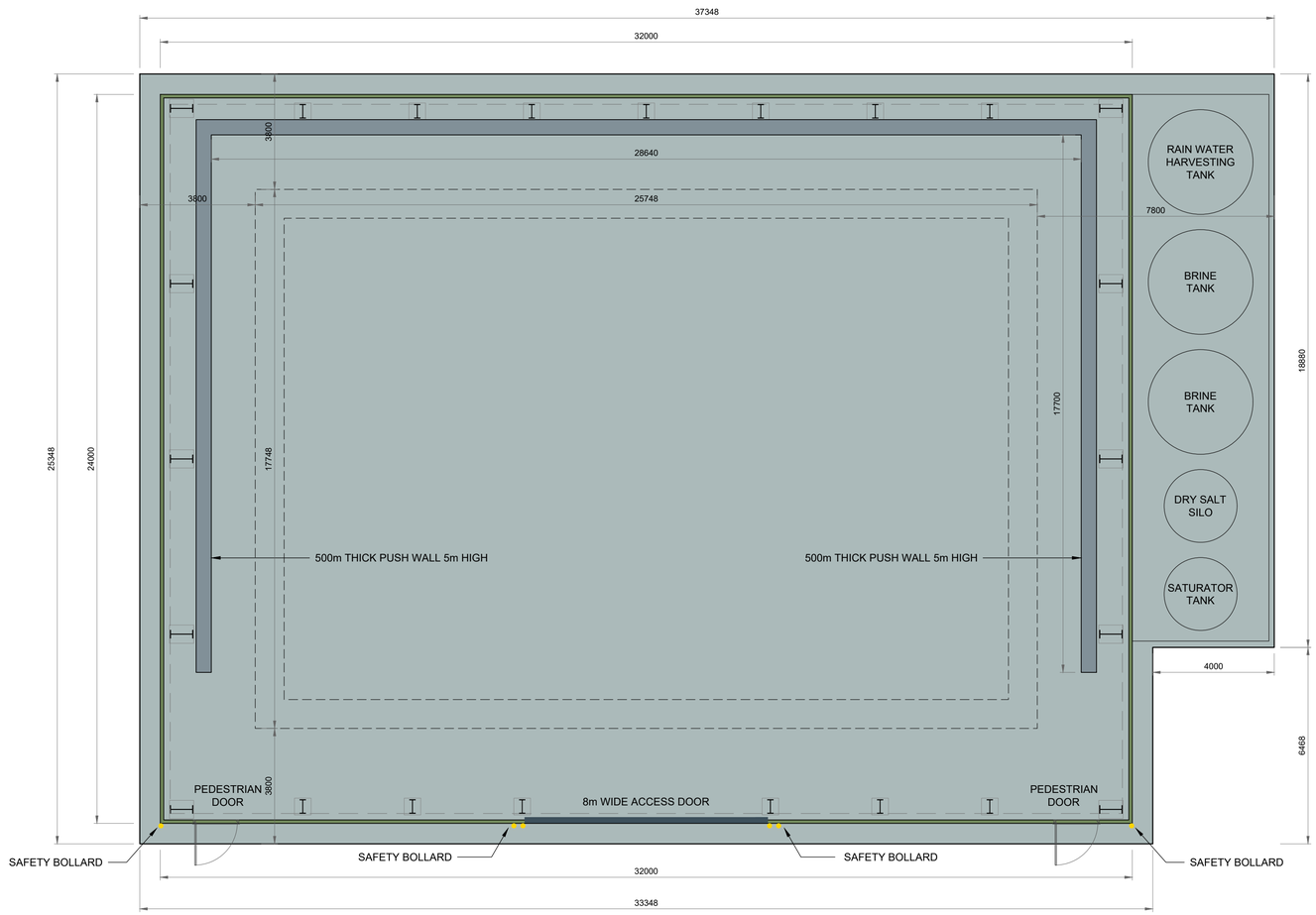
PROJECT TITLE: ROAD MAINTENANCE OPERATIONS FACILITY PROJECT PLANNING APPLICATION

DRAWING No: 24038-GDG-ZZ-P1-DR-C-0004

Revision: -S4-P02

DRAWING TITLE: FIGURE 4 SITE LONG SECTIONS

SCALE: 1:200	SHEET SIZE: A1	DATE: 22/04/24
DRAWN BY: ASB	CHECKED BY: EO	APPROVED BY: RD



FLOOR PLAN

NOTES:

.

LEGEND:-

- REINFORCED CONCRETE FLOOR SLAB
- REINFORCED CONCRETE PUSH WALLS
- EXTERNAL WALL CLADDING

REV:	S4-P02	DATE:	03/05/24	DRAWN BY:	ASB	CHECKED BY:	RD
DESCRIPTION:	AMENDED FOLLOWING CLIENT REVIEW						

GDG GAVIN & DOHERTY GEOSOLUTIONS

Unit A2,
Nutgrove Office Park,
Rathfarnham,
Dublin 14, D14 X627
Ireland.
T +353 (0)1-2071000
E info@gdgeo.com
www.gdgeo.com

ISSUED AS: PLANNING

CLIENT: dlr Comhairle Contae County Council

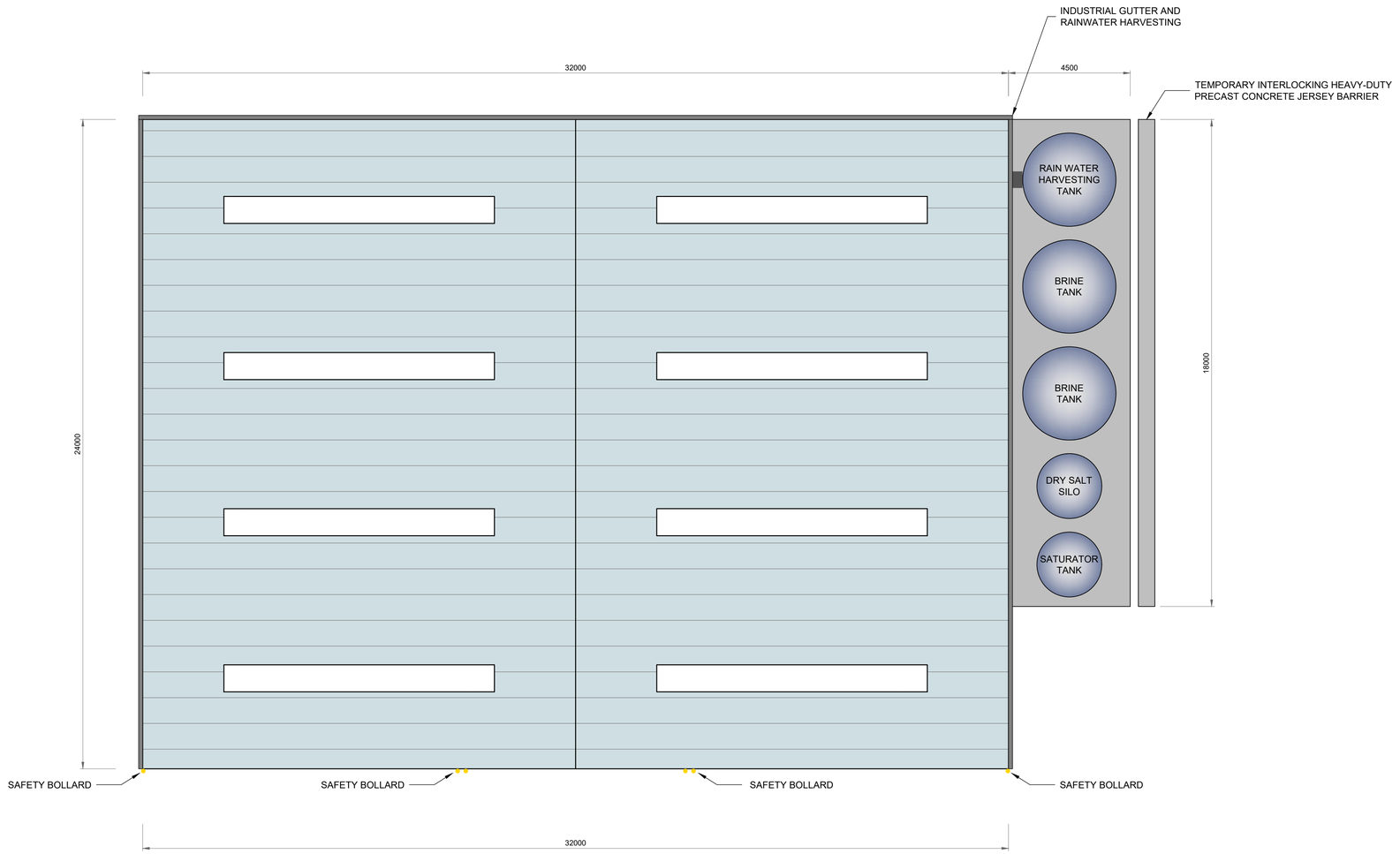
PROJECT TITLE:
ROAD MAINTENANCE OPERATIONS FACILITY PROJECT
PLANNING APPLICATION

DRAWING No: 24038-GDG-ZZ-P1-DR-C-0005

Revision: -S4-P02

DRAWING TITLE:
FIGURE 5
SALT BARN FLOOR PLAN

SCALE:	1:100	SHEET SIZE:	A1	DATE:	22/04/24
DRAWN BY:	ASB	CHECKED BY:	EO	APPROVED BY:	RD



ROOF PLAN

NOTES:

.

LEGEND:-

GOOSEWING GREY EXTERNAL ROOF CLADDING WITH 10% TRANSPARENT ROOF PANELS

REV:	S4-P02	DATE:	03/05/24	DRAWN BY:	ASB	CHECKED BY:	RD
DESCRIPTION:	AMENDED FOLLOWING CLIENT REVIEW						

GDG
GAVIN & DOHERTY
GEOSOLUTIONS

Unit A2,
Nutgrove Office Park,
Rathfarnham,
Dublin 14, D14 X627
Ireland.
T +353 (0)1-2071000
E info@gdgeo.com
www.gdgeo.com

ISSUED AS: PLANNING

CLIENT: dlr Comhairle Contae County Council

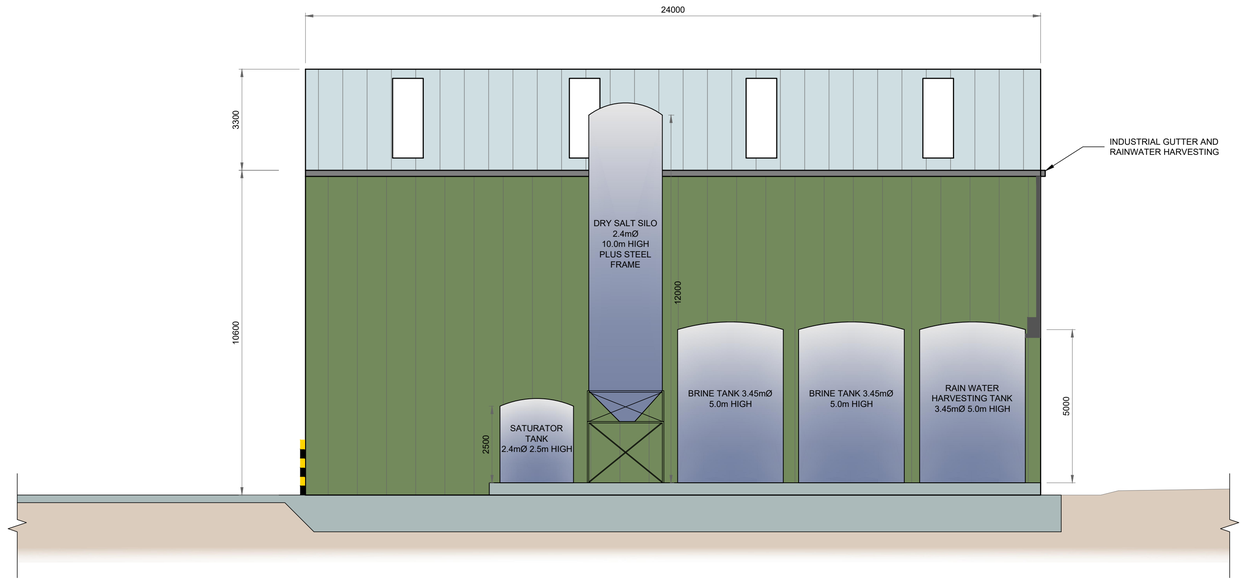
PROJECT TITLE:
ROAD MAINTENANCE OPERATIONS
FACILITY PROJECT
PLANNING APPLICATION

DRAWING No: 24038-GDG-ZZ-P1-DR-C-0006

Revision: -S4-P02

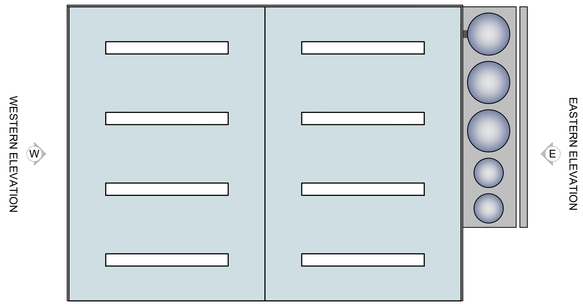
DRAWING TITLE:
FIGURE 6
SALT BARN ROOF PLAN

SCALE:	1:100	SHEET SIZE:	A1	DATE:	22/04/24
DRAWN BY:	ASB	CHECKED BY:	EO	APPROVED BY:	RD

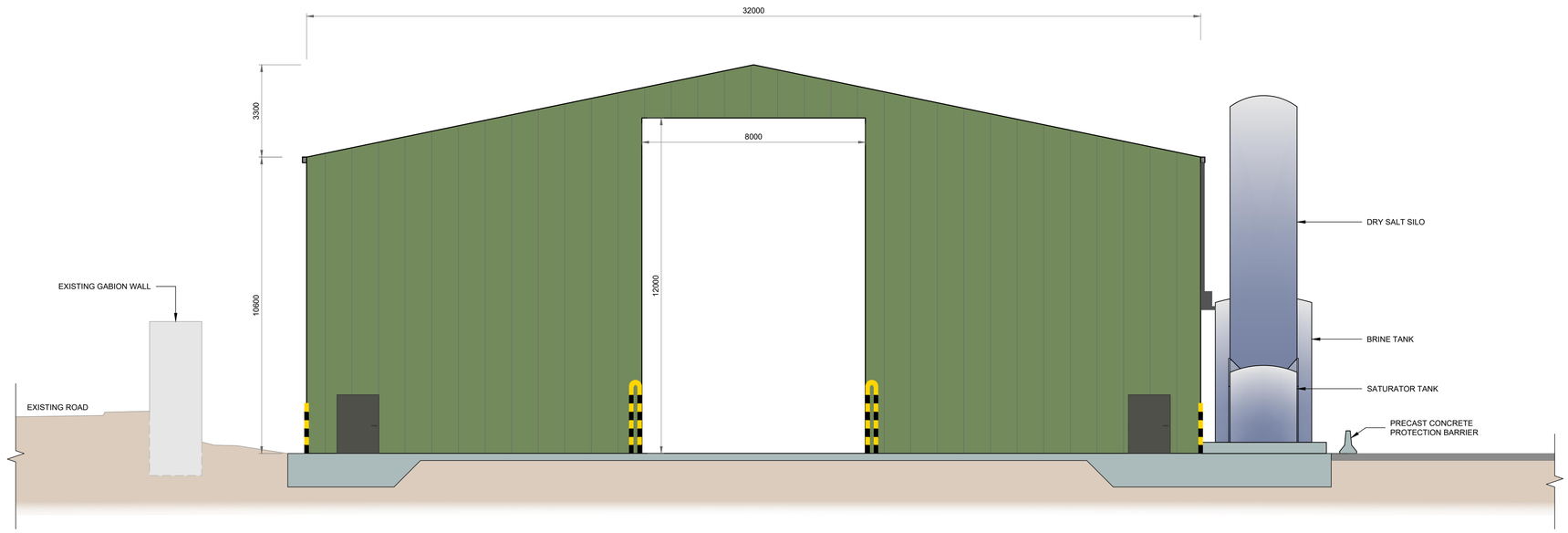


EASTERN ELEVATION

NORTHERN ELEVATION



SOUTHERN ELEVATION



SOUTHERN ELEVATION

NOTES:

.

LEGEND:-

OLIVE GREEN EXTERNAL WALL CLADDING

GOOSEWING GREY EXTERNAL ROOF CLADDING
WITH 10% TRANSPARENT ROOF PANELS

REV: S4-P02	DATE: 03/05/24	DRAWN BY: ASB	CHECKED BY: RD
DESCRIPTION:	AMENDED FOLLOWING CLIENT REVIEW		

GDG
GAVIN & DOHERTY
GEOSOLUTIONS

Unit A2,
Nutgrove Office Park,
Rathfarnham,
Dublin 14, D14 X627
Ireland.
T +353 (0)1-2071000
E info@gdgeo.com
www.gdgeo.com

ISSUED AS: PLANNING

CLIENT: dlr Comhairle Contae County Council

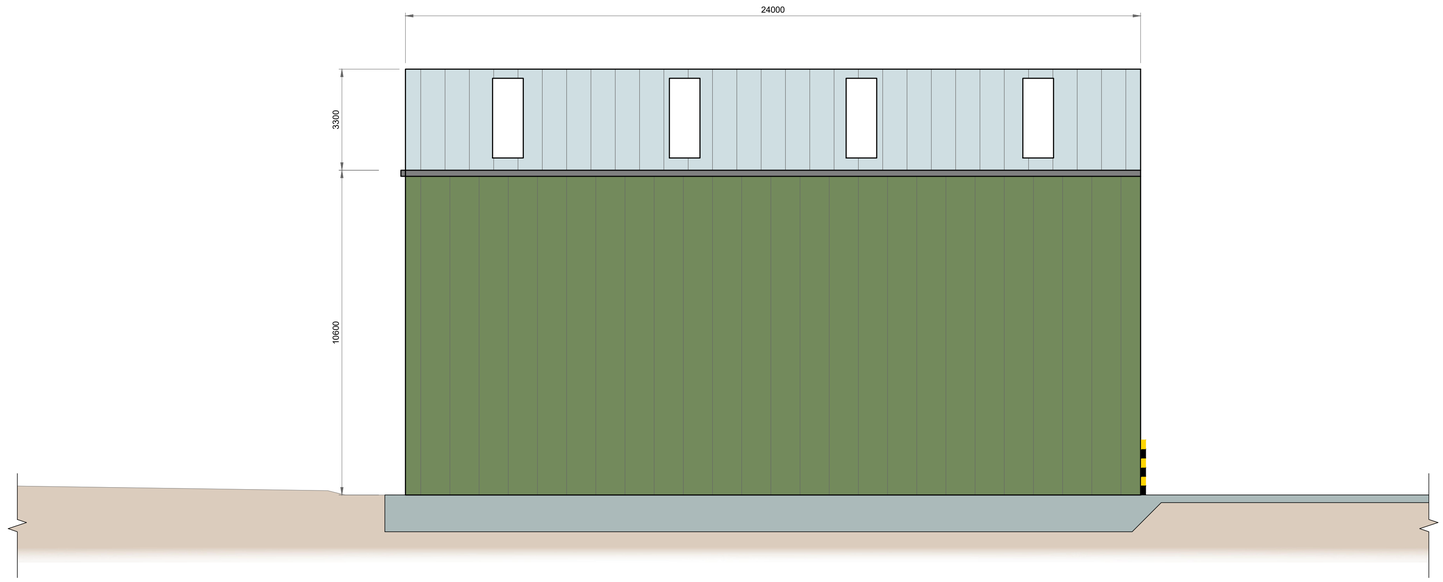
PROJECT TITLE:
ROAD MAINTENANCE OPERATIONS
FACILITY PROJECT
PLANNING APPLICATION

DRAWING No: 24038-GDG-ZZ-P1-DR-C-0007

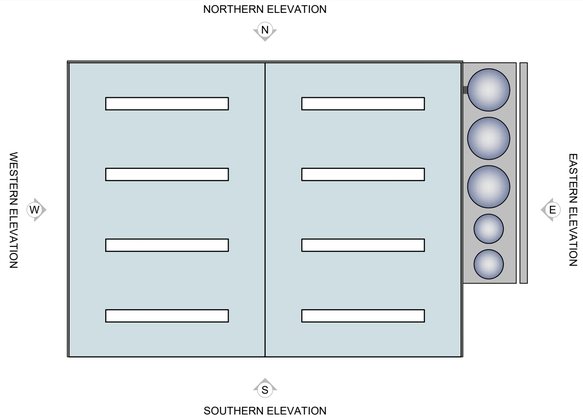
Revision: -S4-P02

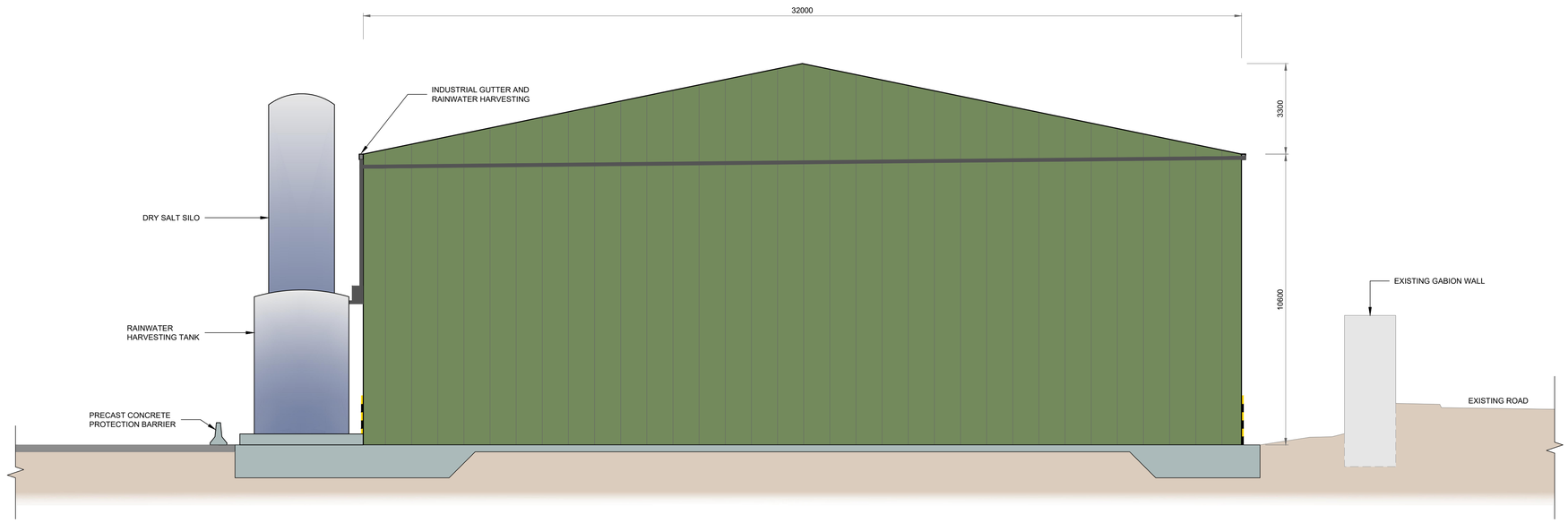
DRAWING TITLE:
FIGURE 7
SALT BARN
ELEVATIONS SHEET 1

SCALE: 1:100	SHEET SIZE: A1	DATE: 22/04/24
DRAWN BY: ASB	CHECKED BY: EO	APPROVED BY: RD



WESTERN ELEVATION





NORTHERN ELEVATION

NOTES:

.

LEGEND:-

OLIVE GREEN EXTERNAL WALL CLADDING

GOOSEWING GREY EXTERNAL ROOF CLADDING WITH 10% TRANSPARENT ROOF PANELS

REV: S4-P02	DATE: 03/05/24	DRAWN BY: ASB	CHECKED BY: RD
DESCRIPTION:	AMENDED FOLLOWING CLIENT REVIEW		

GDG
GAVIN & DOHERTY
GEOSOLUTIONS

Unit A2,
Nutgrove Office Park,
Rathfarnham,
Dublin 14, D14 X627
Ireland.
T +353 (0)1-2071000
E info@gdgeo.com
www.gdgeo.com

ISSUED AS: PLANNING

CLIENT: dlr Comhairle Contae County Council

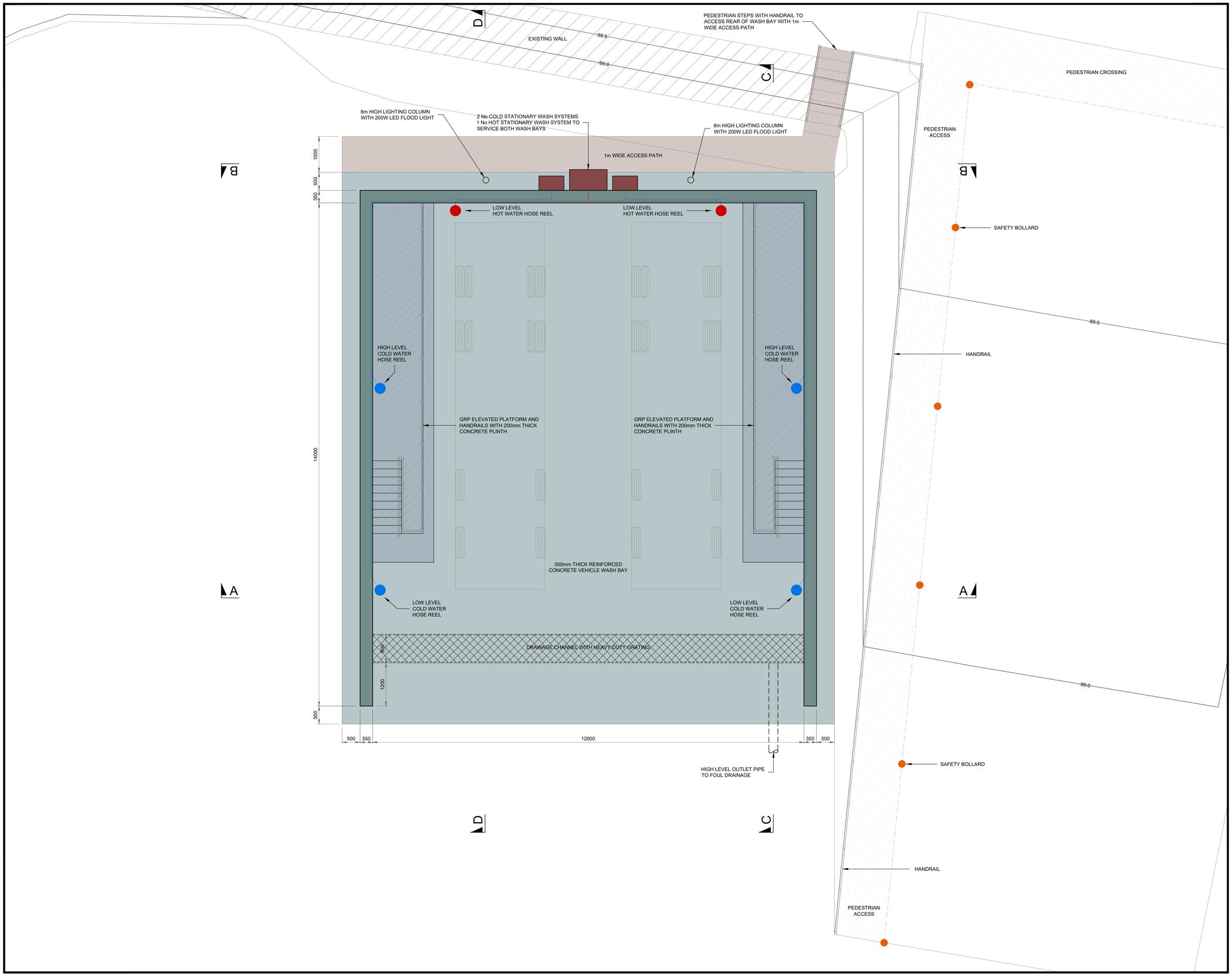
PROJECT TITLE:
ROAD MAINTENANCE OPERATIONS
FACILITY PROJECT
PLANNING APPLICATION

DRAWING No: 24038-GDG-ZZ-P1-DR-C-0008

Revision: -S4-P02

DRAWING TITLE:
FIGURE 8
SALT BARN
ELEVATIONS SHEET 2

SCALE: 1:100	SHEET SIZE: A1	DATE: 22/04/24
DRAWN BY: ASB	CHECKED BY: EO	APPROVED BY: RD



NOTES:

.

REV:	S4-P02	DATE:	03/05/24	DRAWN BY:	ASB	CHECKED BY:	RD
DESCRIPTION:	AMENDED FOLLOWING CLIENT REVIEW						

GDG
GAVIN & DOHERTY GEOSOLUTIONS

Unit A2,
Nutgrove Office Park,
Rathfarnham,
Dublin 14, D14 X627
Ireland.
T +353 (0)1-2071000
E info@gdgeo.com
www.gdgeo.com

ISSUED AS: PLANNING

CLIENT: dlr Comhairle Contae County Council

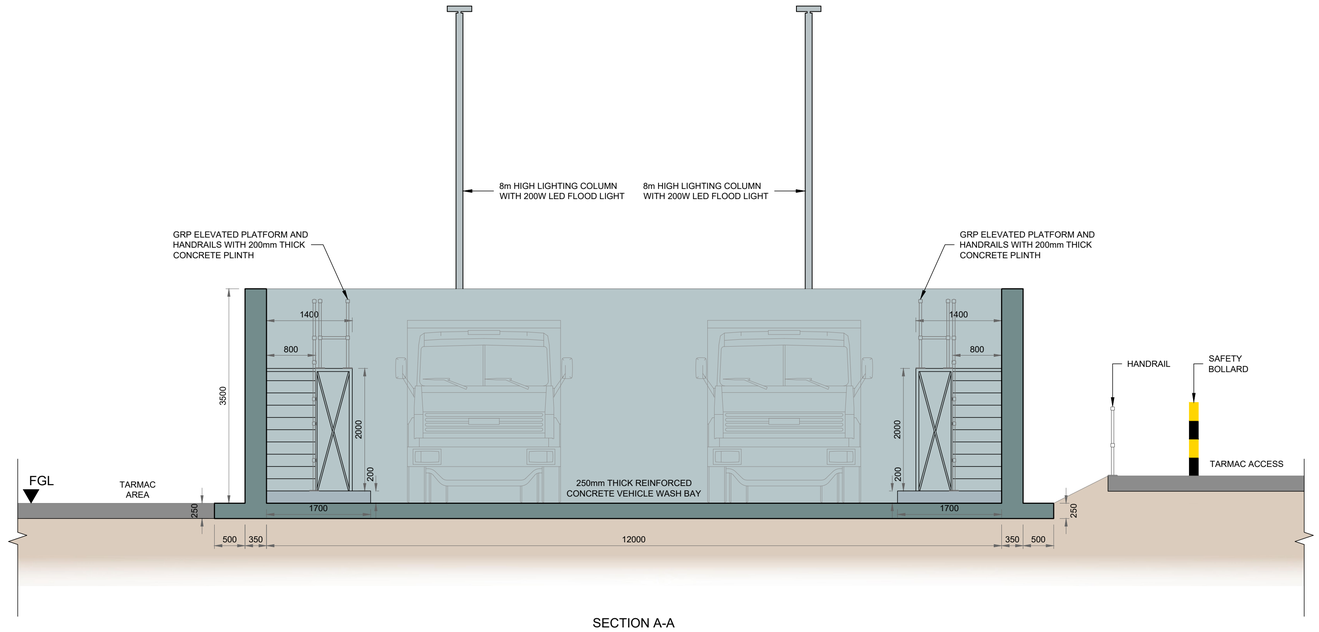
PROJECT TITLE:
ROAD MAINTENANCE OPERATIONS
FACILITY PROJECT
PLANNING APPLICATION

DRAWING No: 24038-GDG-ZZ-P1-DR-C-0009

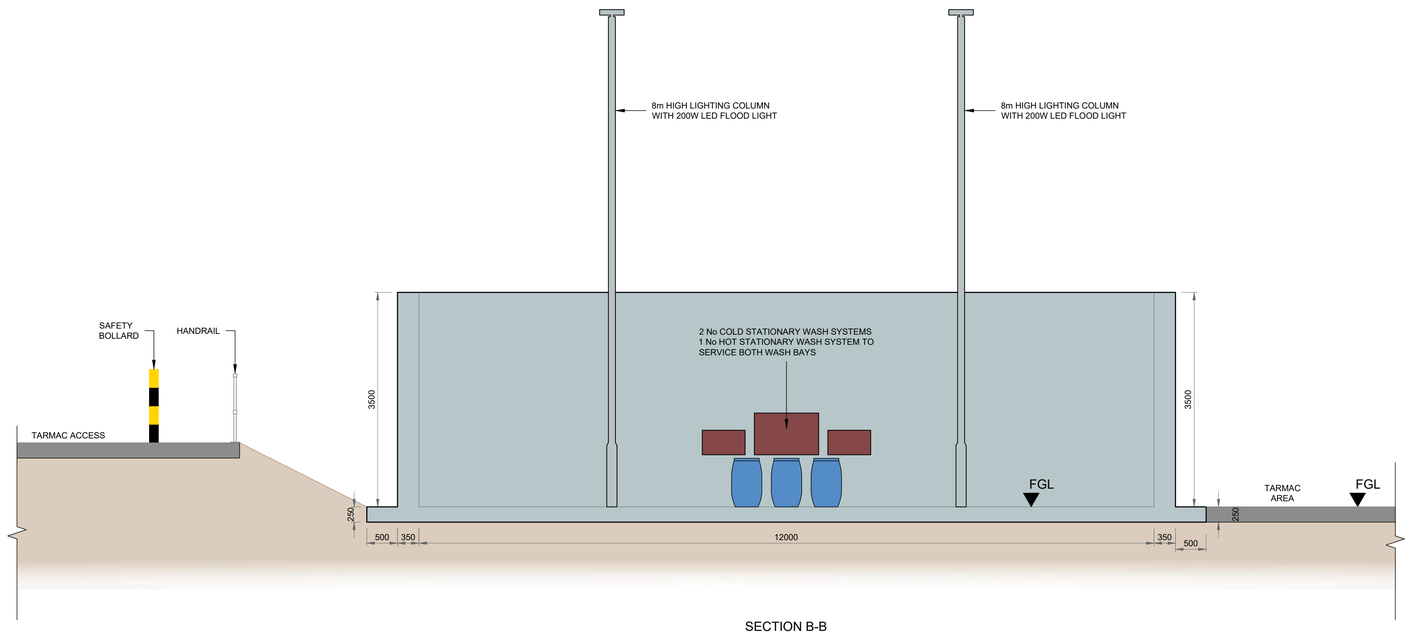
Revision: -S4-P02

DRAWING TITLE:
FIGURE 9
VEHICLE WASH BAY
GENERAL ARRANGEMENT

SCALE:	1:50	SHEET SIZE:	A1	DATE:	22/04/24
DRAWN BY:	ASB	CHECKED BY:	EO	APPROVED BY:	RD



SECTION A-A



SECTION B-B

NOTES:

1. REFER TO DRAWING 24038-GDG-ZZ-P1-DR-C-0009 FOR LOCATION OF SECTIONS.

REV: S4-P02	DATE: 03/05/24	DRAWN BY: ASB	CHECKED BY: RD
DESCRIPTION:	AMENDED FOLLOWING CLIENT REVIEW		

GDG
GAVIN & DOHERTY
GEOSOLUTIONS

Unit A2,
Nutgrove Office Park,
Rathfarnham,
Dublin 14, D14 X627
Ireland.
T +353 (0)1-2071000
E info@gdgeo.com
www.gdgeo.com

ISSUED AS: PLANNING

CLIENT: dlr Comhairle Contae County Council

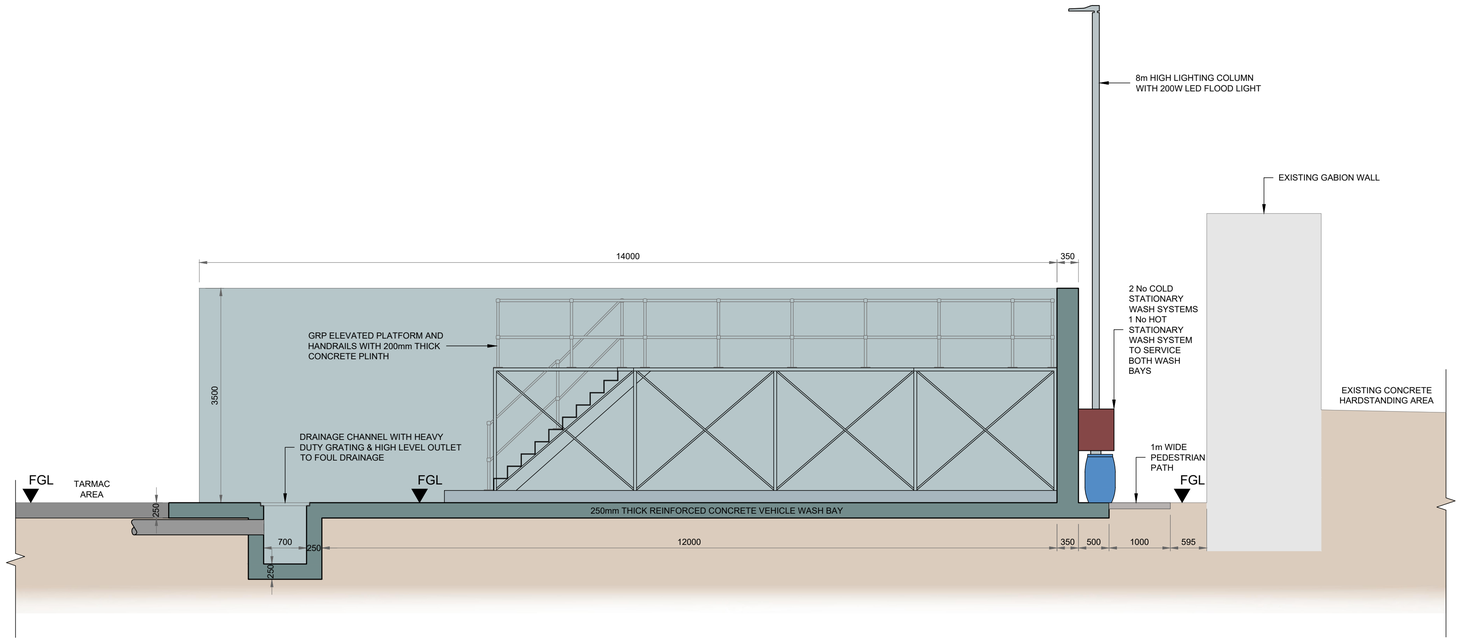
PROJECT TITLE: ROAD MAINTENANCE OPERATIONS FACILITY PROJECT PLANNING APPLICATION

DRAWING No: 24038-GDG-ZZ-P1-DR-C-0010

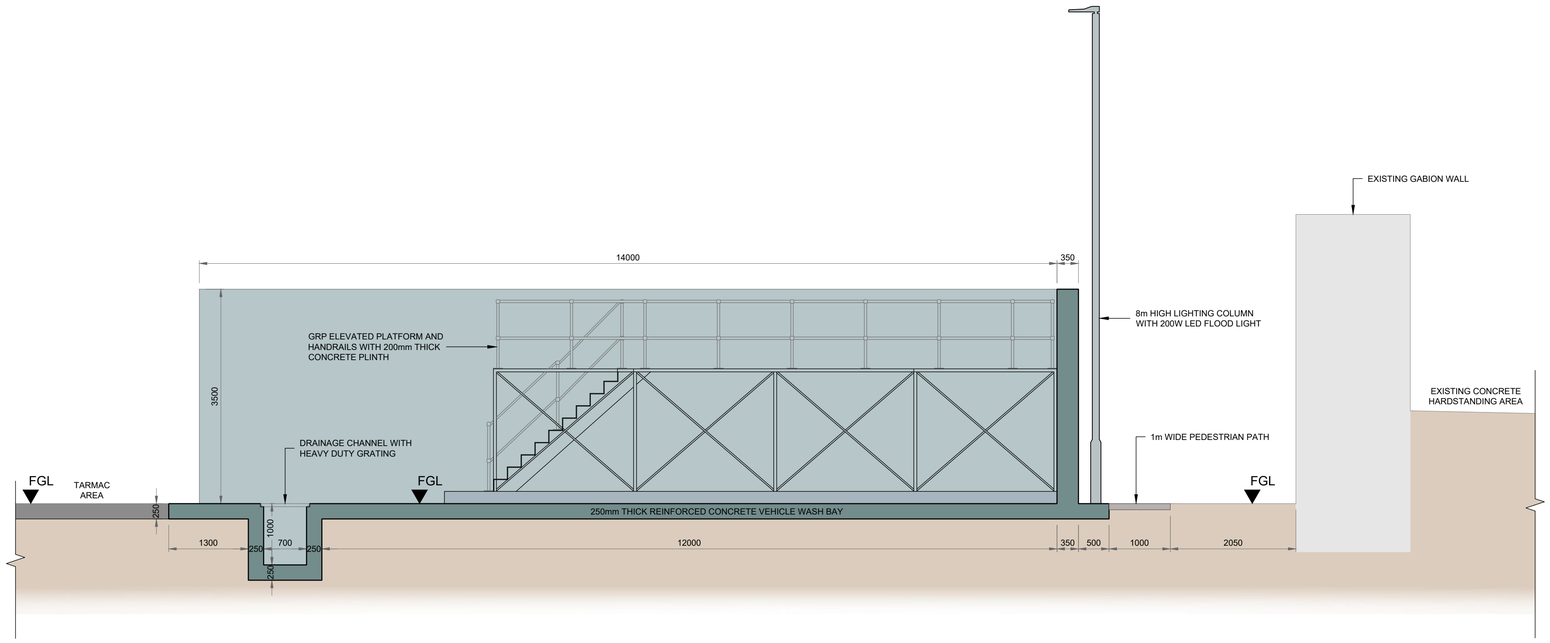
Revision: -S4-P02

DRAWING TITLE: FIGURE 10 VEHICLE WASH BAY SECTIONS A-A TO B-B

SCALE: 1:50	SHEET SIZE: A1	DATE: 22/04/24
DRAWN BY: ASB	CHECKED BY: EO	APPROVED BY: RD



SECTION C-C



SECTION D-D

NOTES:

1. REFER TO DRAWING 24038-GDG-ZZ-P1-DR-C-0009 FOR LOCATION OF SECTIONS.

REV:	S4-P02	DATE:	03/05/24	DRAWN BY:	ASB	CHECKED BY:	RD
DESCRIPTION:	AMENDED FOLLOWING CLIENT REVIEW						

GDG
GAVIN & DOHERTY
GEOSOLUTIONS

Unit A2,
Nutgrove Office Park,
Rathfarnham,
Dublin 14, D14 X627
Ireland.
T +353 (0)1-2071000
E info@gdgeo.com
www.gdgeo.com

ISSUED AS: PLANNING

CLIENT: dlr Comhairle Contae County Council

PROJECT TITLE: ROAD MAINTENANCE OPERATIONS FACILITY PROJECT
PLANNING APPLICATION

DRAWING No: 24038-GDG-ZZ-P1-DR-C-0011

Revision: -S4-P02

DRAWING TITLE: FIGURE 11
VEHICLE WASH BAY
SECTIONS C-C TO D-D

SCALE:	1:50	SHEET SIZE:	A1	DATE:	22/04/24
DRAWN BY:	ASB	CHECKED BY:	EO	APPROVED BY:	RD

DESIGN CRITERIA (DLR 11TH APRIL 2024)

1. SURFACE WATER DISCHARGE FROM A DEVELOPMENT MUST BE RESTRICTED TO 2 L/S/HA OR THE CALCULATED QBAR, WHICHEVER IS GREATER; THIS LIMIT SHALL BE MARKED ON THE DRAINAGE DRAWING ON THE MANHOLE TO WHICH IT SHALL BE APPLIED, WITH DETAILS OF THE PROPOSED FLOW RESTRICTING DEVICE. THE APPLICANT SHOULD NOTE THAT QBAR IS CALCULATED FOR THE NET AREA DRAINED NOT THE GROSS AREA OF THE SITE (I.E. RED LINE BOUNDARY). NOTE THAT IN THE INTEREST OF CLARITY WHERE THE CALCULATED QBAR RATE FOR THE SITE IS LESS THAN 2 L/S/HA THEN A MINIMUM VALUE OF 2 L/S/HA SHOULD BE APPLIED, NOT A FLAT RATE OF 2 L/S, SUBJECT TO THE ORIFICE SIZE OF THE FLOW CONTROL DEVICE NOT BEING LESS THAN 50MM IN DIAMETER.

2. IF AN ATTENUATION SYSTEM IS PROPOSED IT SHOULD BE INLINE. THE PREFERENCE IS FOR ATTENUATION SYSTEMS THAT ALLOW FOR INFILTRATION AND /OR TREATMENT WITHIN THE SITE. THE APPLICANT SHOULD NOTE THAT CERTAIN LANDSCAPING ITEMS, SUCH AS TREES, MAY NOT BE COMPATIBLE WITH ATTENUATION SYSTEMS.

3. THE PROPOSAL MUST DEMONSTRATE THE REQUIREMENTS OF THE GREATER DUBLIN STRATEGIC DRAINAGE STUDY (GDSDS) POLICIES IN RELATION TO SUSTAINABLE DRAINAGE SYSTEMS (SUDS). THE DESIGN MUST INCORPORATE SUDS MEASURES APPROPRIATE TO THE SCALE OF THE PROPOSED DEVELOPMENT SUCH AS BIORETENTION AREAS, PERMEABLE PAVING, RAINWATER HARVESTING, RAINGARDENS, SWALES, ETC. SURFACE WATER SHOULD BE INFILTRATED AND OR REUSED LOCALLY AS MUCH AS POSSIBLE AND THE APPLICANT SHOULD DEMONSTRATE THAT REQUIRED INTERCEPTION AND/OR TREATMENT OF SURFACE WATER RUN-OFF IS ACHIEVED IN ACCORDANCE WITH GDSDS POLICY.

4. IF YOU PLAN ON COMING INTO THE EXISTING STORM WATER NETWORK ON THE DEPOT SITE, YOU WOULD NEED TO DEMONSTRATE THAT THE ATTENUATED FLOW FROM THE ROAD OP FACILITY SITE CAN BE ACCOMMODATED WITHIN THE EXISTING NETWORK/ATTENUATION SYSTEM. IF YOU COME IN TO THE SOUTH OF THE DEPOT BUILDING (SOMEWHERE NEAR SWMH 101) THERE WOULD BE NO ISSUE, AS YOU ARE NOT GOING THROUGH THE DEPOT NETWORK.

5. AS THE FOUL WATER AND WATER SUPPLY NETWORKS ARE UISCE EIREANN OWNED ASSETS, THE PROPOSER SHOULD CONTACT UISCE EIREANN TO DISCUSS ANY ISSUES REGARDING THE IMPACT OF THE PROPOSED DEVELOPMENT ON THEIR ASSETS. A PRE-CONNECTION ENQUIRY (PCE) SHOULD BE SUBMITTED TO UISCE EIREANN TO DETERMINE THE FEASIBILITY OF CONNECTING TO THE PUBLIC NETWORK.

PROVISIONAL DESIGN NOTES

1. STORM WATER DISCHARGE RATE / FLOW:
   - 1.1. GROSS DEVELOPMENT AREA = 0.49ha
   - 1.2. NET DEVELOPMENT AREA, BASIS OF DESIGN = 0.344ha (AREA INCLUDES ALLOWANCE ON 10% OF ADJACENT SITE TO THE NORTH TO REPLICATE POTENTIAL CAPTURE OF OVERLAND FLOW FROM NORTH)
   - 1.3. STORM WATER OUTFALL FLOW RATE RESTRICTED TO 2 l/s/ha OR THE CALCULATED QBAR, WHICHEVER IS GREATER; BASED ON NET DEVELOPMENT AREA. MINIMUM ORIFICE DIA. 50mm.
   - 1.4. DESIGN FLOWS:
     - 1.4.1. 0.344ha X 2 l/s/ha = 0.688 l/s (OVERRIDING CRITERIA WILL BE MINIMUM 50mm DIAMETER FLOW CONTROL)
     - 1.4.2. QBAR FROM = 0.96 l/s FROM HR WALLINGFORD GREENFIELD RUNOFF RATE ESTIMATION TOOL (OVERRIDING CRITERIA WILL BE MINIMUM 50mm DIAMETER FLOW CONTROL)
     - 1.4.3. PROPOSED FLOW CONTROL DEVICE - HYDROBRAKE BY HYDRO INTERNATIONAL UNIT DESIGNATION CHE-0050-1600-1800-1600
     - 1.4.4. DISCHARGE FLOW RATE 1.5 l/s (EQUIVALENT TO 1.56x QBAR, RESULTANT OF MINIMUM 50mm DIAMETER FLOW CONTROL).
     - 1.4.5. RESULTANT STORAGE REQUIRED ON SITE 255m^3. LOCATION SHOW INDICATIVE, DISTRIBUTION OF STORAGE ACROSS SITE TO BE DETERMINED DURING DETAILED DESIGN.

2. IN LINE CELLULAR CRATE STORM WATER ATTENUATION SYSTEM PROPOSED. ATTENUATION WILL SIT DOWNSTREAM OF INTERCEPTOR TO MINIMISES SILTS AND DETRITUS ENTERING ATTENUATION TANK. ATTENUATION SYSTEM PROVISIONALLY SIZED TO ACCOMMODATE 30 YEAR & 100 YEAR RETURN PERIOD WITH 30% CLIMATE CHANGE. NO INFILTRATION ALLOWED FOR IN PROVISIONAL DESIGN, GROUND INVESTIGATION REPORT AWAITED. INFILTRATION WILL BE INCLUDED IN DETAILED DESIGN IF GROUND CONDITIONS ALLOW. FOOTPRINT OF ATTENUATION SUBJECT TO CHANGE. DRAINAGE NETWORK WILL BE OPTIMIZED DURING DETAILED DESIGN STAGE.

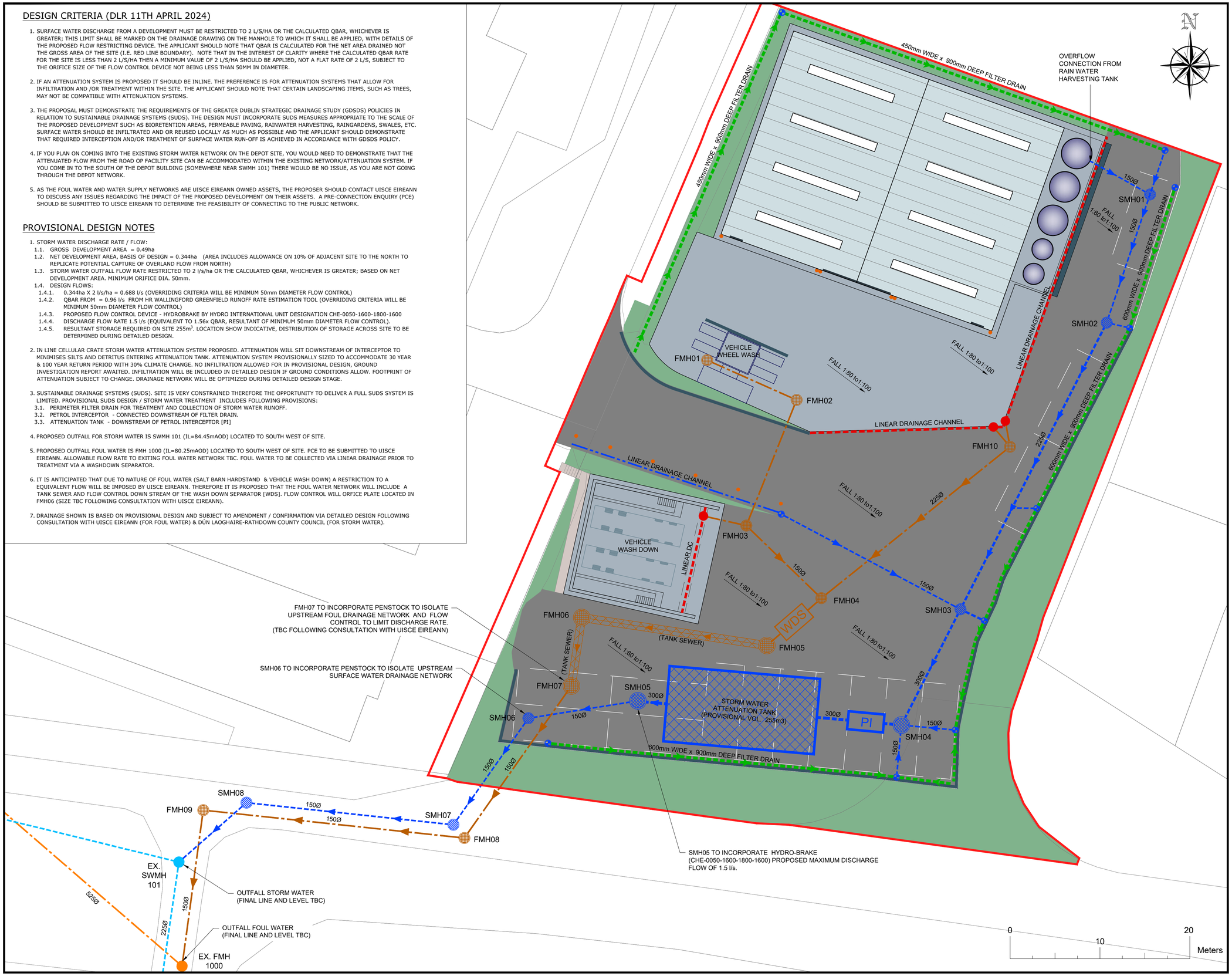
3. SUSTAINABLE DRAINAGE SYSTEMS (SUDS). SITE IS VERY CONSTRAINED THEREFORE THE OPPORTUNITY TO DELIVER A FULL SUDS SYSTEM IS LIMITED. PROVISIONAL SUDS DESIGN / STORM WATER TREATMENT INCLUDES FOLLOWING PROVISIONS:
   - 3.1. PERIMETER FILTER DRAIN FOR TREATMENT AND COLLECTION OF STORM WATER RUNOFF.
   - 3.2. PETROL INTERCEPTOR - CONNECTED DOWNSTREAM OF FILTER DRAIN.
   - 3.3. ATTENUATION TANK - DOWNSTREAM OF PETROL INTERCEPTOR [PI]

4. PROPOSED OUTFALL FOR STORM WATER IS SWMH 101 (IL=84.45mAOD) LOCATED TO SOUTH WEST OF SITE.

5. PROPOSED OUTFALL FOUL WATER IS FMH 1000 (IL=80.25mAOD) LOCATED TO SOUTH WEST OF SITE. PCE TO BE SUBMITTED TO UISCE EIREANN. ALLOWABLE FLOW RATE TO EXITING FOUL WATER NETWORK TBC. FOUL WATER TO BE COLLECTED VIA LINEAR DRAINAGE PRIOR TO TREATMENT VIA A WASHDOWN SEPARATOR.

6. IT IS ANTICIPATED THAT DUE TO NATURE OF FOUL WATER (SALT BARN HARDSTAND & VEHICLE WASH DOWN) A RESTRICTION TO A EQUIVALENT FLOW WILL BE IMPOSED BY UISCE EIREANN. THEREFORE IT IS PROPOSED THAT THE FOUL WATER NETWORK WILL INCLUDE A TANK SEWER AND FLOW CONTROL DOWN STREAM OF THE WASH DOWN SEPARATOR [WDS]. FLOW CONTROL WILL ORFICE PLATE LOCATED IN FMH06 (SIZE TBC FOLLOWING CONSULTATION WITH UISCE EIREANN).

7. DRAINAGE SHOWN IS BASED ON PROVISIONAL DESIGN AND SUBJECT TO AMENDMENT / CONFIRMATION VIA DETAILED DESIGN FOLLOWING CONSULTATION WITH UISCE EIREANN (FOR FOUL WATER) & DÚN LAOGHAIRE-RATHDOWN COUNTY COUNCIL (FOR STORM WATER).



NOTES:

1. DO NOT SCALE FROM THIS DRAWING.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT DRAWINGS AND DOCUMENTS ASSOCIATED WITH THIS PROJECT.
3. EXISTING TOPOGRAPHICAL INFORMATION BASED UPON MESSRS" TECHSOL TECHNICAL SOLUTIONS LTD" DRAWING DLR8898 DATED OCTOBER 2023.
4. DRAINAGE WORKS TO BE IN ACCORDANCE WITH REVISION 2 OF UISCE EIREANN (IRISH WATER) WASTEWATER CODE OF PRACTICE AND APPROVED BY UISCE EIREANN (FOR FOUL WATER) & DÚN LAOGHAIRE-RATHDOWN COUNTY COUNCIL (FOR STORM WATER).
5. DRAINAGE SHOWN IS BASED ON PROVISIONAL DESIGN AND SUBJECT TO AMENDMENT / CONFIRMATION VIA DETAILED DESIGN POST PLANNING APPROVAL.
6. SURFACE WATER ATTENUATION SIZING WILL BE REVISITED UPON RECEIPT AND REVIEW OF UP COMING GROUND INVESTIGATIONS - NO INFILTRATION ALLOWED FOR IN PROVISIONAL DESIGN.
7. ALL FOUL SEWER MANHOLES TO BE SEALED AND LOCKABLE.

DRAWING KEY

- EXISTING SURFACE WATER SEWER
- EXISTING FOUL WATER SEWER
- SURFACE WATER SEWER
- FILTER DRAIN
- LINEAR DRAINAGE (STORM)
- FOUL WATER SEWER
- LINEAR DRAINAGE (FOUL)
- PI — PETROL INTERCEPTOR
- WDS — WASHDOWN SEPARATOR
- PROPOSED DEVELOPMENT BOUNDARY

REV:	S4-P03	DATE:	17/07/2024	DRAWN BY:	DPC	CHECKED BY:	BP
DESCRIPTION:	DRAINAGE NETWORK REVISED BASED ON COMMENTS RECIEVED						
REV:	S4-P02	DATE:	16/05/24	DRAWN BY:	ASB	CHECKED BY:	RD
DESCRIPTION:	AMENDED FOLLOWING CLIENT REVIEW & SSFRA						

GDG GAVIN & DOHERTY GEOSOLUTIONS

Unit A2,
Nutgrove Office Park,
Rathfarnham,
Dublin 14, D14 X627
Ireland.
T +353 (0)1-2071000
E info@gdgeo.com
www.gdgeo.com

ISSUED AS: PLANNING

CLIENT: dlr Comhairle Contae County Council

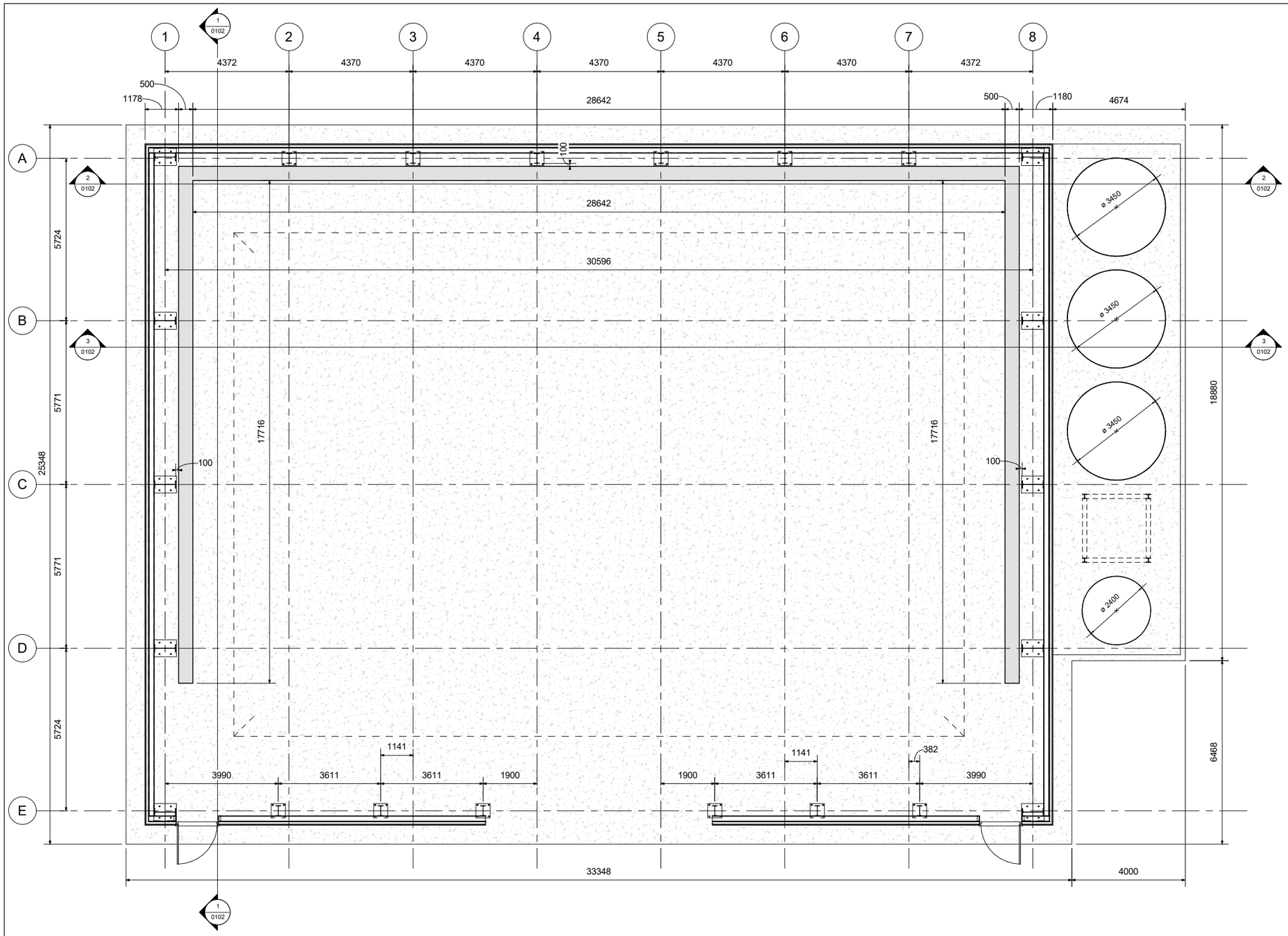
PROJECT TITLE: ROAD MAINTENANCE OPERATIONS FACILITY PROJECT
PLANNING APPLICATION

DRAWING No: 24038-GDG-ZZ-P1-DR-C-0012

Revision: -S4-P03

DRAWING TITLE: FIGURE 12
PROPOSED DRAINAGE PLAN

SCALE:	1:200	SHEET SIZE:	A1	DATE:	22/04/24
DRAWN BY:	BP	CHECKED BY:	AGL	APPROVED BY:	RD



GROUND LEVEL

SCALE 1 : 75

NOTES:

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED
2. USE DIMENSIONS ON DRAWINGS (DO NOT SCALE FROM DRAWINGS).
3. ALL FILL TO ADEQUATELY COMPACTED IN LAYERS OF MAXIMUM 150MM THICKNESS.
4. SUBFORMATION SOILS TO BE CONFIRMED WITH PLACE LOAD TESTS AT THE FORMATION LEVEL. A MINIMUM OF 4NO. TESTS TO BE CARRIED OUT.
5. FORMATION LEVEL TO BE INSPECTED BY A SUITABLY QUALIFIED CHARTERED GEOTECHNICAL ENGINEER.

REV	DESCRIPTION	DRWN	CHKD	DATE
P02	ISSUED FOR PLANNING	CMD	A.S.B	16/07/2024
P01	ISSUED FOR PLANNING	CMD	A.S.B	19/04/2024

GDG GAVIN & DOHERTY GEOSOLUTIONS
Unit A2,
Nutgrove Office Park,
Rathfarnham,
Dublin 14, D14 X627
Ireland.
T +353 (0)1-2071000
E info@gdgeo.com
www.gdgeo.com

ISSUED AS: PLANNING

CLIENT: dlr Comhairle Contae County Council

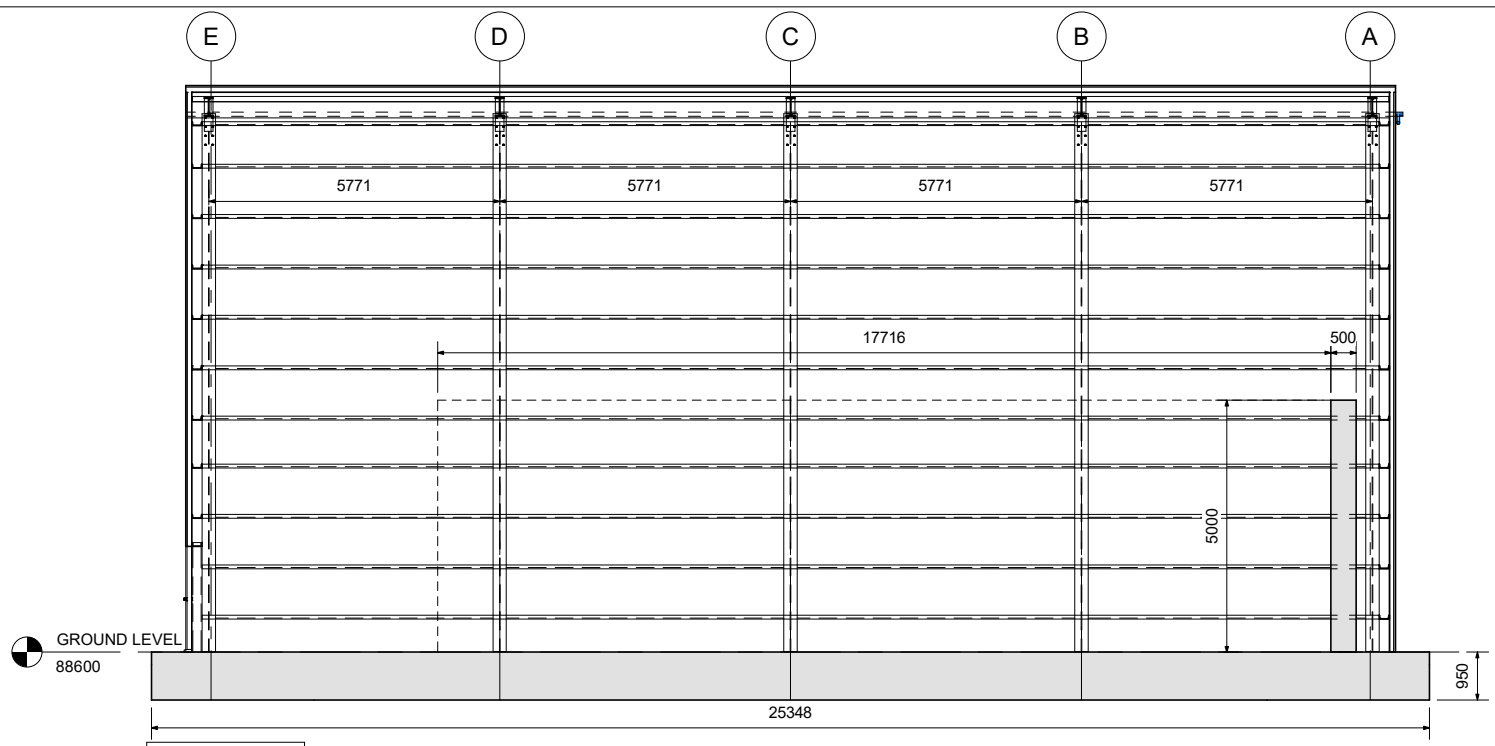
PROJECT TITLE:
ROAD MAINTENANCE OPERATIONS
FACILITY PROJECT
PLANNING APPLICATION

DRAWING No: 24038-GDG-ZZ-P1-DR-C-0101

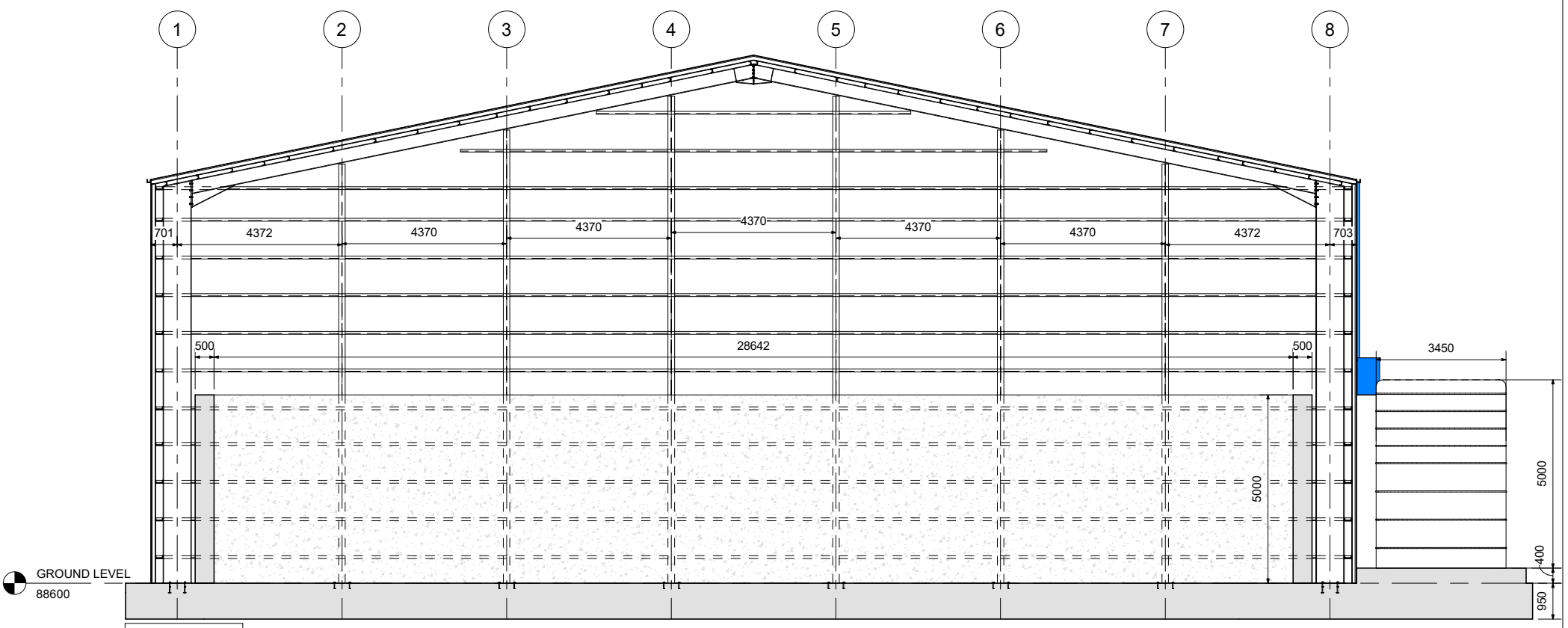
STATUS - REVISION: S4 - P02

DRAWING TITLE:
SALT BARN VISUALISATION
SHEET 01

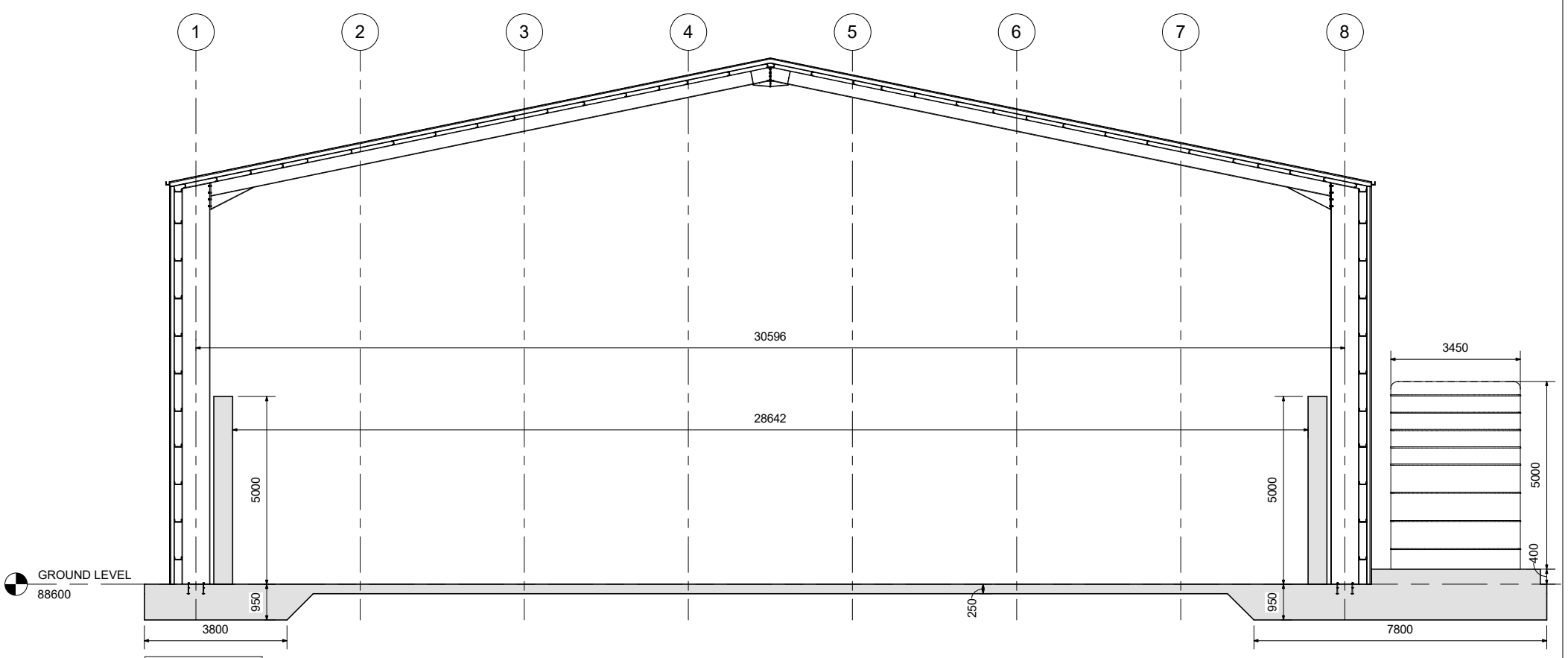
SCALE:	SHEET SIZE:	DATE:
1:100	A1	19/04/2024
DRAWN BY: C.M.D	CHECKED BY: A.S.B	APPROVED BY: R.D



Section 1
SCALE 1 : 75



Section 2
SCALE 1 : 75



Section 3
SCALE 1 : 75

NOTES

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED
2. USE DIMENSIONS ON DRAWINGS (DO NOT SCALE FROM DRAWINGS).
3. ALL FILL TO ADEQUATELY COMPACTED IN LAYERS OF MAXIMUM 150MM THICKNESS.
4. SUBFORMATION SOILS TO BE CONFIRMED WITH PLACE LOAD TESTS AT THE FORMATION LEVEL. A MINIMUM OF 4NO. TESTS TO BE CARRIED OUT.
5. FORMATION LEVEL TO BE INSPECTED BY A SUITABLY QUALIFIED CHARTERED GEOTECHNICAL ENGINEER.

REV	DESCRIPTION	DRWN	CHKD	DATE
P02	ISSUED FOR PLANNING	CMD	A.S.B	16/07/2024
P01	ISSUED FOR PLANNING	CMD	A.S.B	19/04/2024

CLIENT: Comhairle Contae County Council

PROJECT TITLE: ROAD MAINTENANCE OPERATIONS FACILITY PROJECT PLANNING APPLICATION

DRAWING No: 24038-GDG-ZZ-P1-DR-C-0102

STATUS - REVISION: S4- P02

DRAWING TITLE: SALT BARN VISUALISATION SHEET 02

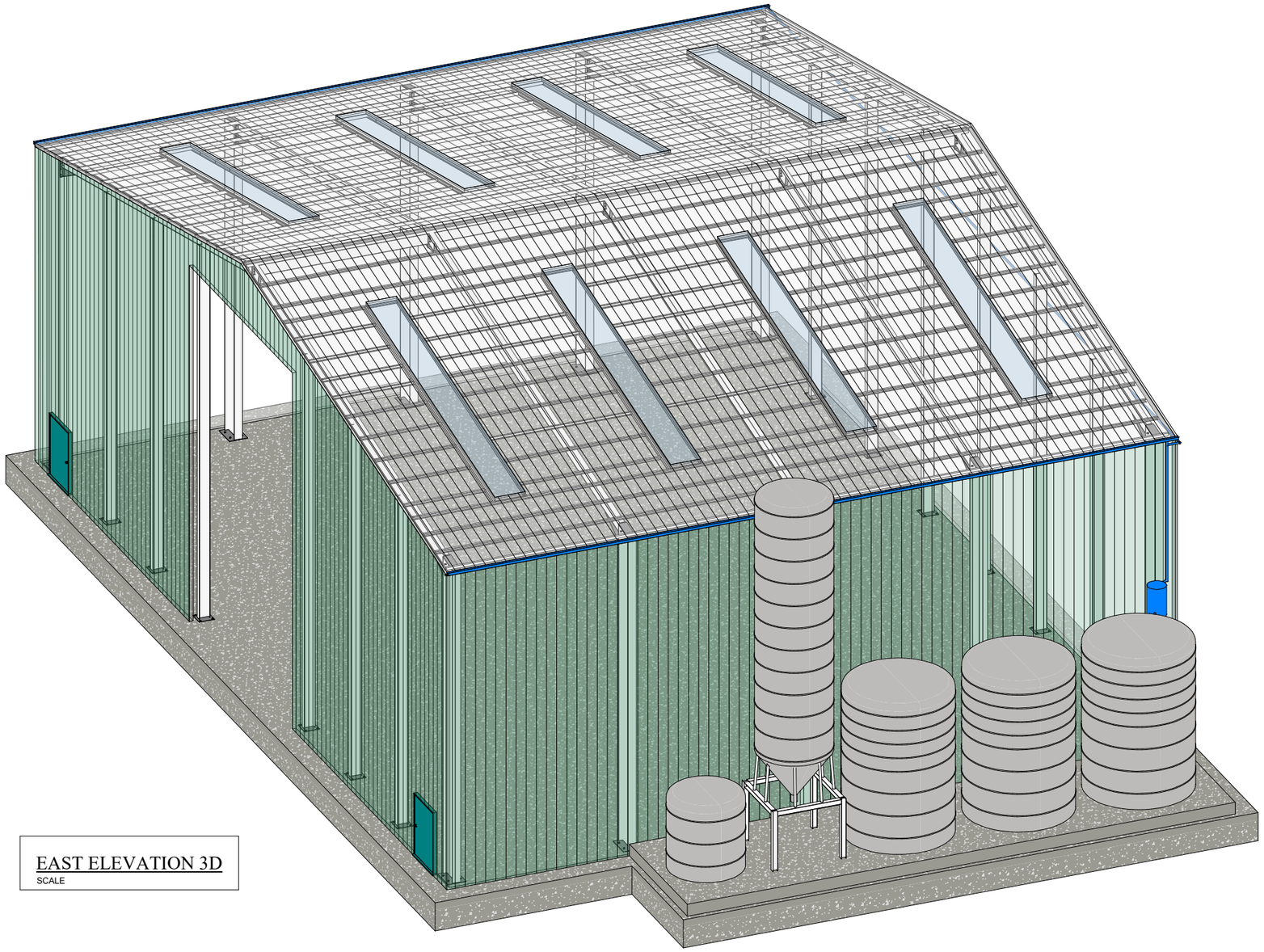
ISSUED AS: PLANNING

SCALE:	SHEET SIZE:	DATE:
1:75	A1	19/04/2024
DRAWN BY: C.M.D	CHECKED BY: A.S.B	APPROVED BY: R.D

GDG GAVIN & DOHERTY GEOSOLUTIONS
Unit A2,
Nutgrove Office Park,
Rathfarnham,
Dublin 14, D14 X627
Ireland.
T +353 (0)1-2071000
E info@gdgeo.com
www.gdgeo.com

NOTES:

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED
2. USE DIMENSIONS ON DRAWINGS (DO NOT SCALE FROM DRAWINGS).
3. ALL FILL TO ADEQUATELY COMPACTED IN LAYERS OF MAXIMUM 150MM THICKNESS.
4. SUBFORMATION SOILS TO BE CONFIRMED WITH PLACE LOAD TESTS AT THE FORMATION LEVEL. A MINIMUM OF 4NO. TESTS TO BE CARRIED OUT.
5. FORMATION LEVEL TO BE INSPECTED BY A SUITABLY QUALIFIED CHARTERED GEOTECHNICAL ENGINEER.



EAST ELEVATION 3D
SCALE

REV	DESCRIPTION	DRWN	CHKD	DATE
P02	ISSUED FOR PLANNING	CMD	A.S.B	16/07/2024
P01	ISSUED FOR PLANNING	CMD	A.S.B	19/04/2024

GDG GAVIN & DOHERTY GEOSOLUTIONS
Unit A2,
Nutgrove Office Park,
Rathfarnham,
Dublin 14, D14 X627
Ireland.
T +353 (0)1-2071000
E info@gdgeo.com
www.gdgeo.com

ISSUED AS: PLANNING

CLIENT: dlr Comhairle Contae County Council

PROJECT TITLE:
ROAD MAINTENANCE OPERATIONS
FACILITY PROJECT
PLANNING APPLICATION

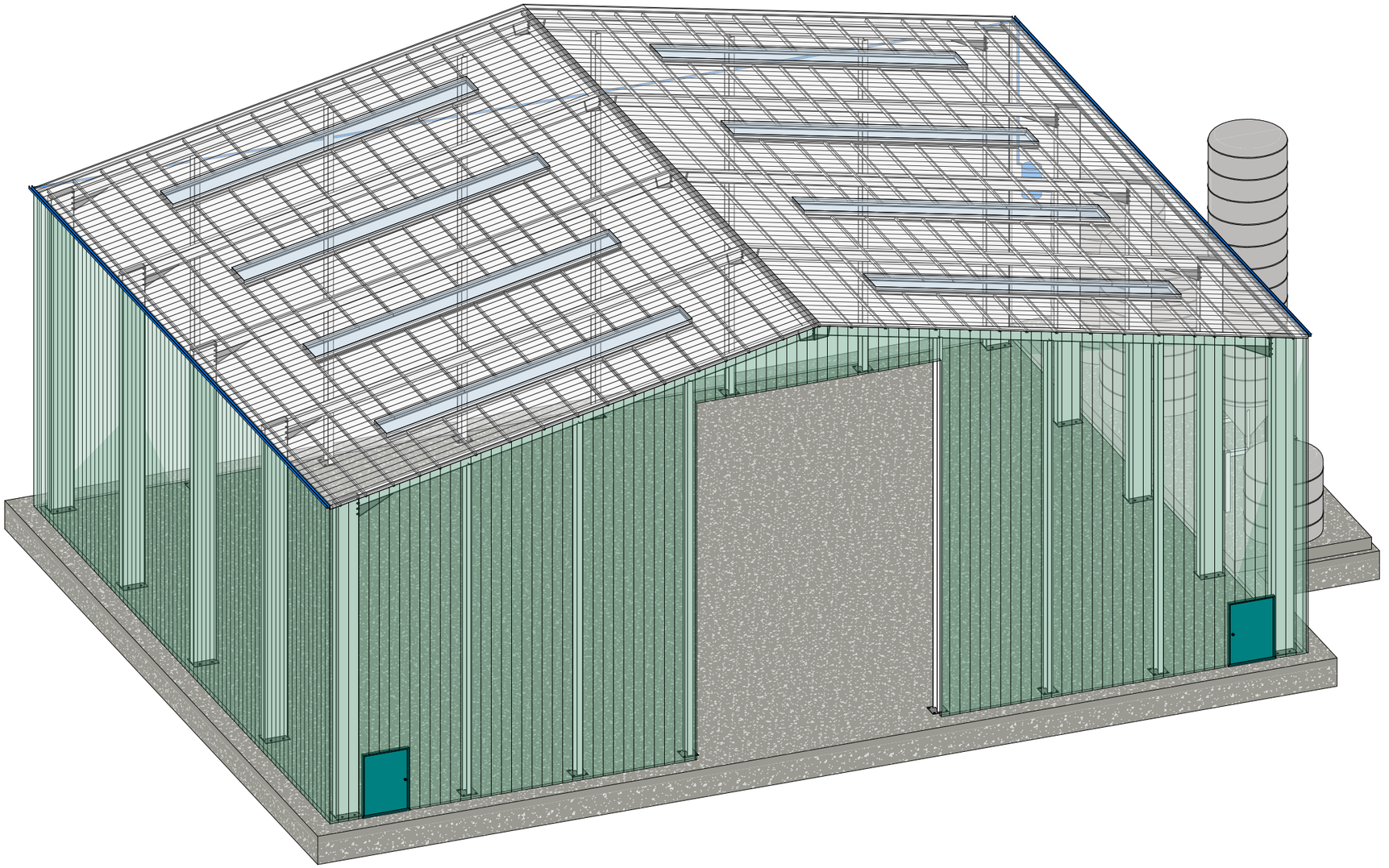
DRAWING No: 24038-GDG-ZZ-P1-DR-C-0103
STATUS - REVISION: S4 - P02

DRAWING TITLE:
SALT BARN VISUALISATION
SHEET 03

SCALE:	SHEET SIZE:	DATE:
N/A	A1	19/04/2024
DRAWN BY: C.M.D	CHECKED BY: A.S.B	APPROVED BY: R.D

NOTES:

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED
2. USE DIMENSIONS ON DRAWINGS (DO NOT SCALE FROM DRAWINGS).
3. ALL FILL TO ADEQUATELY COMPACTED IN LAYERS OF MAXIMUM 150MM THICKNESS.
4. SUBFORMATION SOILS TO BE CONFIRMED WITH PLACE LOAD TESTS AT THE FORMATION LEVEL. A MINIMUM OF 4NO. TESTS TO BE CARRIED OUT.
5. FORMATION LEVEL TO BE INSPECTED BY A SUITABLY QUALIFIED CHARTERED GEOTECHNICAL ENGINEER.



SOUTH ELEVATION 3D

SCALE

REV	DESCRIPTION	DRWN	CHKD	DATE
P02	ISSUED FOR PLANNING	CMD	A.S.B	15/07/2024
P01	ISSUED FOR PLANNING	CMD	A.S.B	19/04/2024

GDG
GAVIN & DOHERTY GEOSOLUTIONS

Unit A2,
Nutgrove Office Park,
Rathfarnham,
Dublin 14, D14 X627
Ireland.
T +353 (0)1-2071000
E info@gdgeo.com
www.gdgeo.com

ISSUED AS:

CLIENT:

dlr
Comhairle Contae County Council

PROJECT TITLE:
ROAD MAINTENANCE OPERATIONS
FACILITY PROJECT
PLANNING APPLICATION

DRAWING No:	STATUS - REVISION:
24038-GDG-ZZ-P1-DR-C-0104	S4 - P02

DRAWING TITLE:
SALT BARN VISUALISATION
SHEET 04

SCALE:	SHEET SIZE:	DATE:
N/A	A1	19/04/2024
DRAWN BY: C.M.D	CHECKED BY: A.S.B	APPROVED BY: R.D

NOTES:

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED
2. USE DIMENSIONS ON DRAWINGS (DO NOT SCALE FROM DRAWINGS).
3. ALL FILL TO ADEQUATELY COMPACTED IN LAYERS OF MAXIMUM 150MM THICKNESS.
4. SUBFORMATION SOILS TO BE CONFIRMED WITH PLACE LOAD TESTS AT THE FORMATION LEVEL. A MINIMUM OF 4NO. TESTS TO BE CARRIED OUT.
5. FORMATION LEVEL TO BE INSPECTED BY A SUITABLY QUALIFIED CHARTERED GEOTECHNICAL ENGINEER.

3D VIEW 01
SCALE

REV	DESCRIPTION	DRWN	CHKD	DATE
P02	ISSUED FOR PLANNING	CMD	A.S.B	16/07/2024
P01	ISSUED FOR PLANNING	CMD	A.S.B	19/04/2024

GDG GAVIN & DOHERTY GEOSOLUTIONS
Unit A2,
Nutgrove Office Park,
Rathfarnham,
Dublin 14, D14 X627
Ireland.
T +353 (0)1-2071000
E info@gdgeo.com
www.gdgeo.com

ISSUED AS: PLANNING

CLIENT: dlr Comhairle Contae County Council

PROJECT TITLE:
ROAD MAINTENANCE OPERATIONS
FACILITY PROJECT
PLANNING APPLICATION

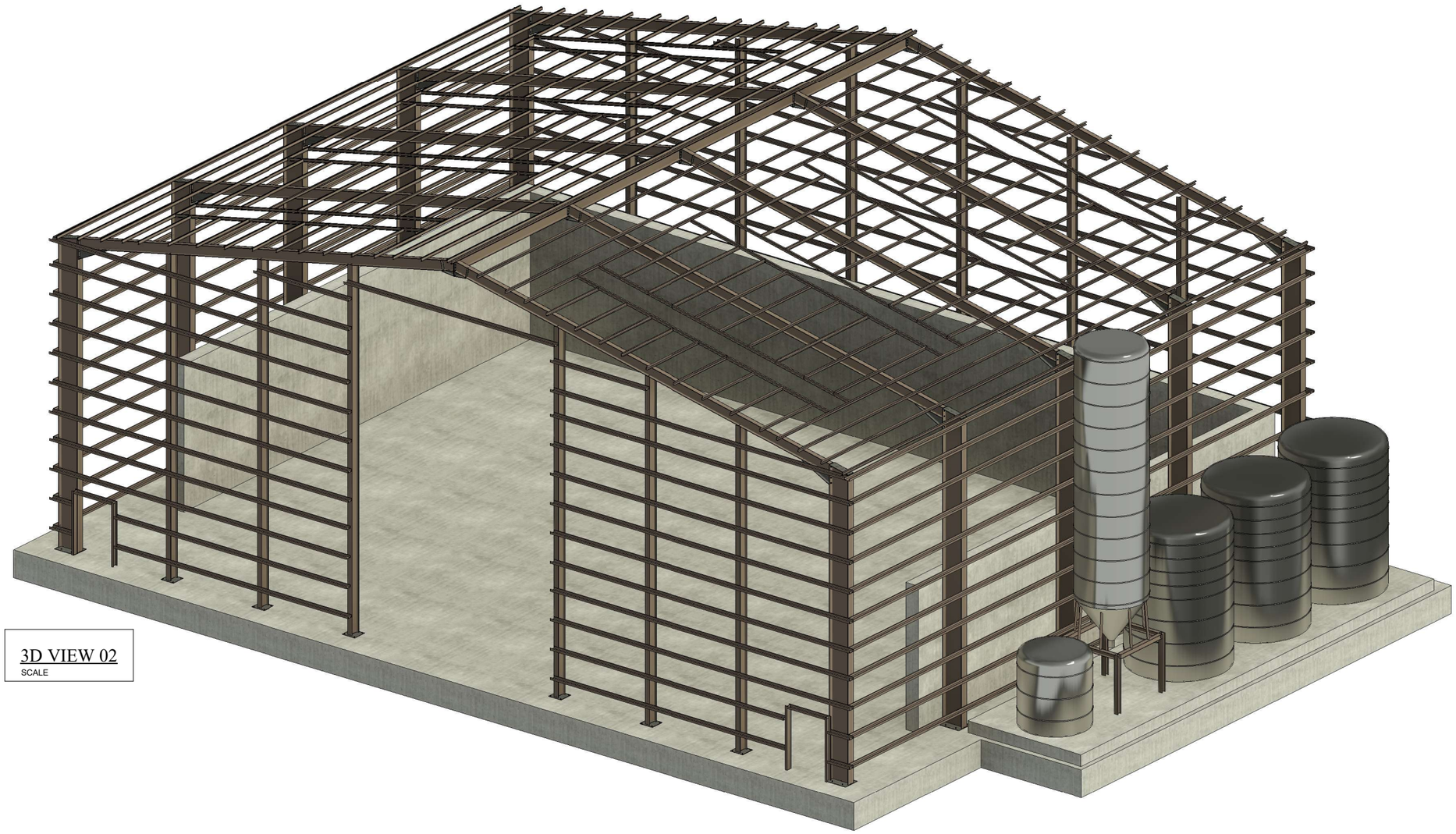
DRAWING No: 24038-GDG-ZZ-P1-DR-C-0105
STATUS - REVISION: S4- P02

DRAWING TITLE:
SALT BARN VISUALISATION
SHEET 05

SCALE:	SHEET SIZE:	DATE:
N/A	A1	19/04/2024
DRAWN BY: C.M.D	CHECKED BY: A.S.B	APPROVED BY: R.D

NOTES:

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED
2. USE DIMENSIONS ON DRAWINGS (DO NOT SCALE FROM DRAWINGS).
3. ALL FILL TO ADEQUATELY COMPACTED IN LAYERS OF MAXIMUM 150MM THICKNESS.
4. SUBFORMATION SOILS TO BE CONFIRMED WITH PLACE LOAD TESTS AT THE FORMATION LEVEL. A MINIMUM OF 4NO. TESTS TO BE CARRIED OUT.
5. FORMATION LEVEL TO BE INSPECTED BY A SUITABLY QUALIFIED CHARTERED GEOTECHNICAL ENGINEER.



3D VIEW 02
SCALE

REV	DESCRIPTION	DRWN	CHKD	DATE
P02	ISSUED FOR PLANNING	CMD	A.S.B	16/07/2024
P01	ISSUED FOR PLANNING	CMD	A.S.B	19/04/2024

GDG GAVIN & DOHERTY GEOSOLUTIONS

Unit A2,
Nutgrove Office Park,
Rathfarnham,
Dublin 14, D14 X627
Ireland.
T +353 (0)1-2071000
E info@gdgeo.com
www.gdgeo.com

ISSUED AS: PLANNING

CLIENT: dlr Comhairle Contae County Council

PROJECT TITLE:
ROAD MAINTENANCE OPERATIONS
FACILITY PROJECT
PLANNING APPLICATION

DRAWING No: 24038-GDG-ZZ-P1-DR-C-0106

STATUS - REVISION: S4 - P02

DRAWING TITLE:
SALT BARN VISUALISATION
SHEET 06

SCALE:	SHEET SIZE:	DATE:
N/A	A1	19/04/2024

DRAWN BY:	CHECKED BY:	APPROVED BY:
C.M.D	A.S.B	R.D

Appendix H – Site Specific Flood Risk Assessment

Site Specific Flood Risk Assessment

Road Maintenance Operations Facility at
Ballyogan, Dún Laoghaire–Rathdown

dlr
Comhairle Contae County Council

SWECO

Change list

Ver	Date	Description of the change	Reviewed	Approved by
P01	09.05.24	Draft for Client Review	TOL	
P02	17.05.24	Final Issue with minor amendments	TOL	TOL
P03	15.08.24	Appendix E updated for current planning drawings	TOL	TOL

Sweco Ireland Ltd	Reg. No. E554682
Project Name	SSFRA for Road Maintenance Operations Facility at Ballyogan
Project Number	66500466
Client	Gavin & Doherty Geosolutions
Author	Mary Creedon
Controlled by	Mary Creedon
Date	15/08/2024
Ver	P03
Document number	0001
Approved by	Tara O'Leary
Document reference	66500466-SWE-XX-XX-T-W-0001

Executive Summary

Sweco have been commissioned by Gavin & Doherty Geosolutions to prepare a site-specific flood risk assessment for the proposed Road Maintenance Operations Facility at Ballyogan in Dún Laoghaire–Rathdown. The proposed development is within a Flood Zone B area (area at risk of flooding in a 1 in 1000 year return period flood). It is classified in the planning guidelines and under the zoning policy objective of DLRCDP as a less vulnerable development. A justification test is therefore not required, and the development is considered appropriate within a Flood Zone B. Never-the-less a commensurate flood risk assessment is required for the site to examine all sources of flooding and the risk of mobilisation of potential pollutants due to the road maintenance operations, where salt in solid or solution form holds the greatest risk to the receiving environment and to Carrickmines Stream in particular.

It was established in this SSFRA and from examination of CFRAMS predictions for flooding, that this site has the functionality of conveyance for flooding. There are no flood storage areas on the site. The site falls by approximately 2.5 m diagonally from north-west to the south-east with an historic spoil heap situated to the west of centre at the site. Ground reprofiling is required to facilitate proposed operations at the site, while allowing for falls for surface water drainage and maintaining the flood flow paths in the existing directions at the site. Flood risk to and from the proposed development was examined. The site is within a fluvial flood risk area for the 1 in 1000 year return period flood and all aspects of flood resilience for the design of the scheme were considered appropriate. An adjacent development to the west, which is the main Operations Centre for DLRCC has a significant surface water collection drainage system with attenuation facilities directly along the flood flow pathway from the west and it is anticipated that with the diversion of flows to the south where the adjacent property discharges to the main sewer, the cumulative effect of flooding may result in a reduced level of flooding in the subject site. Flood resilience measures are however still recommended to be required up to the maximum flood depth of 0.25 m, as predicted in the CFRAMS flood depth mapping.

All areas on site with the potential for the presence of salt or brine will have the surface water run-off collection connected to the foul sewer via linear channels. The main access, lay down areas for equipment and parking areas will drain to lined perimeter filter drains which will provide some treatment for surface water run-off, and it is recommended that the filter drains are maintained periodically. The filter drains connect to a storm water collection system that drains via a petrol interceptor and an attenuation tank before connecting into the existing main sewer to the south-west of the site. A penstock is provided at the outlet from the attenuation tank in case of emergency spillage or flood event. In this way the water in the tank may be tested and pumped out and sent for treatment if it does not meet acceptable standards. An existing storm water sewer connection from the existing temporary storage area on site which is being actively used by DLRCC on this otherwise greenfield site will be made redundant. Consultation will be undertaken with Uisce Eireann and DLRCC to agree discharge rates and connections to the existing foul and storm sewers to the south of the site.

Flood warnings will be provided by Met Eireann to DLRCC and this will set the DLRCC Emergency Plan into action. Road maintenance operations at the new facility may be suspended and sand bags used to close off the open side of the concrete push wall in the Salt Barn. Vehicles may be repurposed for assistance with flood maintenance operations, and they can be moved over to the adjacent Operations Centre if required. The detailed emergency response will be set out in the Emergency Plan for the Road Maintenance Operations Facility.

Table of contents

Table of figures

Table of tables

Appendices

1 Introduction

Sweco have been commissioned by Gavin & Doherty Geosolutions (GDG) to undertake a Site Specific Flood Risk Assessment (SSFRA) to support the Part 8 Planning Submission for a Brine Manufacturing Plant at Ballyogan in Dún Laoghaire–Rathdown which is being prepared for Dún Laoghaire–Rathdown County Council (DLRCC).

This report describes:

- Existing mapping and topographical surveys;
- Existing hydrological environment;
- Existing hydrogeology and geology;
- Existing protected areas;
- Review of Part 8 planning design for the Road Maintenance Operations Facility (Brine Manufacturing Plant) and associated infrastructure;
- Review of the proposed development in accordance with zoning and policy from Dún Laoghaire-Rathdown County Development Plan 2022-2028 and Ballyogan and Environs Local Area Plan;
- Review of current project information available from the Carrickmines Shanganagh River Flood Relief Scheme for guidance on climate change management;
- Provision of Source Pathway Receptor (S-P-R) model;
- Identification of at site flood risk;
- Recommendations for mitigation of flood risk
- Proposed Sustainable Drainage Systems (SuDS); and
- Conclusion on Flood Risk.

The SSFRA has been carried out by a Chartered Engineer specialising in water engineering and hydrology and experienced in the preparation of flood risk assessments, in accordance with the requirements of Appendix A of the Planning Guidelines.

1.1 Site Location

The site for the proposed development includes an area of approximately 0.49 ha and is located at Ballyogan Business Park in Dún Laoghaire–Rathdown. The Carrickmines Stream (also known as ‘Ballyogan Stream’), tributary of the Shanganagh River runs in an easterly direction to the south of the site. This area is within the catchment which is included for protection under the Carrickmines Shanganagh Flood Relief Scheme. See site location in Figure 1-1 and Figure 1-2 below.

Figure 1-1: Site Location Plan

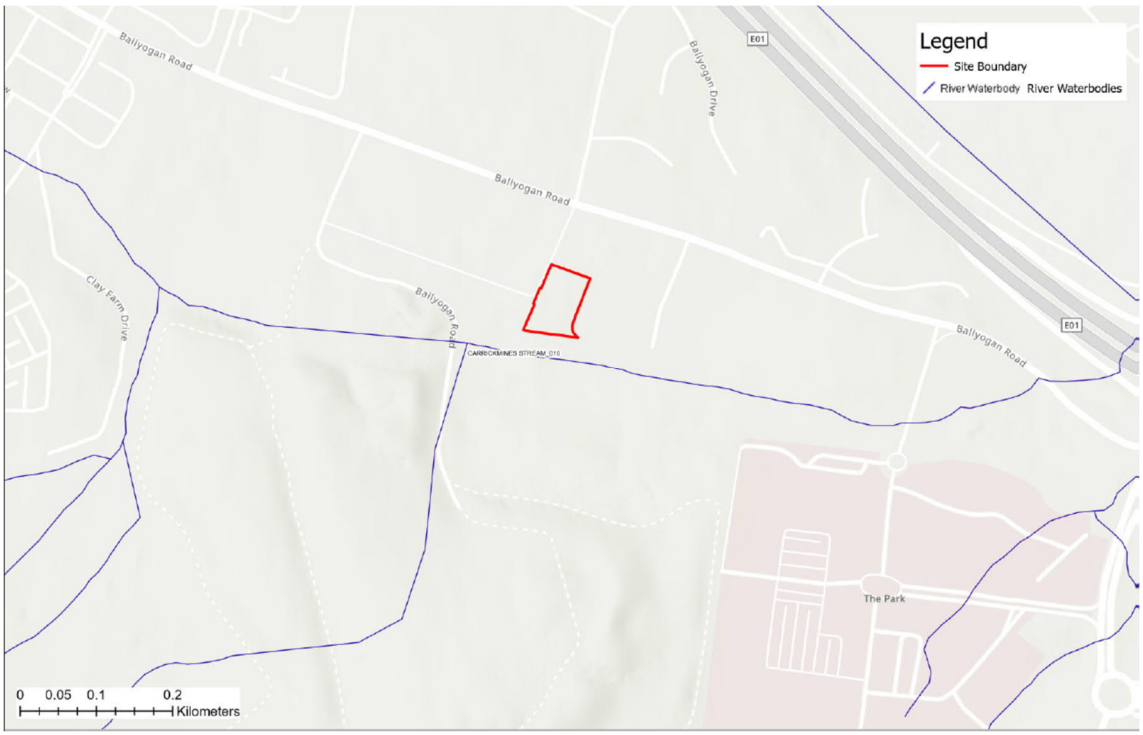


Figure 1-2 Outline of site relative to the Carrickmines Stream

1.2 Proposed Development

The layout of the proposed development was provided for information by GDG and consists of a Salt Barn Building and the following associated infrastructure:

- Brine Batching Plant;
- Access ramp at entrance;
- Concrete hard standing area;
- Plant storage bays;
- Vehicle parking;
- 2 Vehicle Wash Bay;
- Wheel Wash and water tanks and
- Landscaped areas.

The development extent measures approximately 0.49 ha. The proposed development is planned on a greenfield site in the ownership of DLRCC. The lands are currently bounded to the west by a high gabion wall. The gabion wall serves to protect the site from trespassing, while allowing the

ingress of flood waters in an extreme flood event. This is expanded upon later in Sections 5 and 6.

Figure 1-3 illustrates the proposed development layout, refer to **Appendix A** for further details.

Figure 1-3: Proposed Layout of Road Maintenance Operations Facility (Brine Manufacturing Plant)

1.3 Data Sources

The following online resources were used to inform the preliminary assessment for flood risk:

- Environmental Protection Agency (EPA) Online Mapping Service: https://gis.epa.ie/EPAMaps/Water
- Geological Survey Ireland (GSI) Public Data Viewer: https://www.gsi.ie/en-ie/data-and-maps/Pages/default.aspx
- National Parks and Wildlife Services (NPWS) GIS dataset: http://www.npws.ie
- Office of Public Works (OPW) Flood Risk Mapping Service: http://www.floodinfo.ie
- GSI Open Topographic Data Viewer:

  https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=b7c4b0e763964070ad69bf8c1572c9f5

2 Planning Guidance

As part of this Site-Specific Flood Risk Assessment, Sweco examined current policy on flood risk for planning applications in Dún Laoghaire–Rathdown. The following documents were examined:

- Dún Laoghaire-Rathdown County Development Plan 2022-2028 and Strategic Flood Risk Assessment (SFRA)
- Ballyogan and Environs Local Area Plan 2019 – 2025 and Appendices including the SFRA with reference to the Eastern Catchment Flood Risk Assessment and Management Study (CFRAMS).
- Carrickmines Shanganagh River Flood Relief Scheme (FRS) for guidance on climate change management
- The Planning System and Flood Risk Management Guidelines for Planning Authorities (DEHLG and OPW, 2009) as amended by Circular PL2/2014 (August 2014) and Technical Appendices

2.1 Dún Laoghaire-Rathdown County Development Plan (DLRCDP) 2022-2028

The site for the proposed development is on lands zoned under Objective E in the DLRCDP 'to provide economic development and employment', as shown in purple in Figure 2-1.

Figure 2-1 Land use zoning for the site is Objective E - To provide for economic development and employment.

Flood Zone Mapping (Map 9) provided in the DLRCDP 2022-2028, which was adopted in July 2022, shows the site to be within a Flood Zone B[1] area, as shown in the extract from the mapping in Figure 2-2 below with the full map included in Appendix B. The pattern of flow would indicate that such flooding is likely affected by the 'backing-up' of the Ballyogan Stream culvert that passes through the former Ballyogan Landfill site.

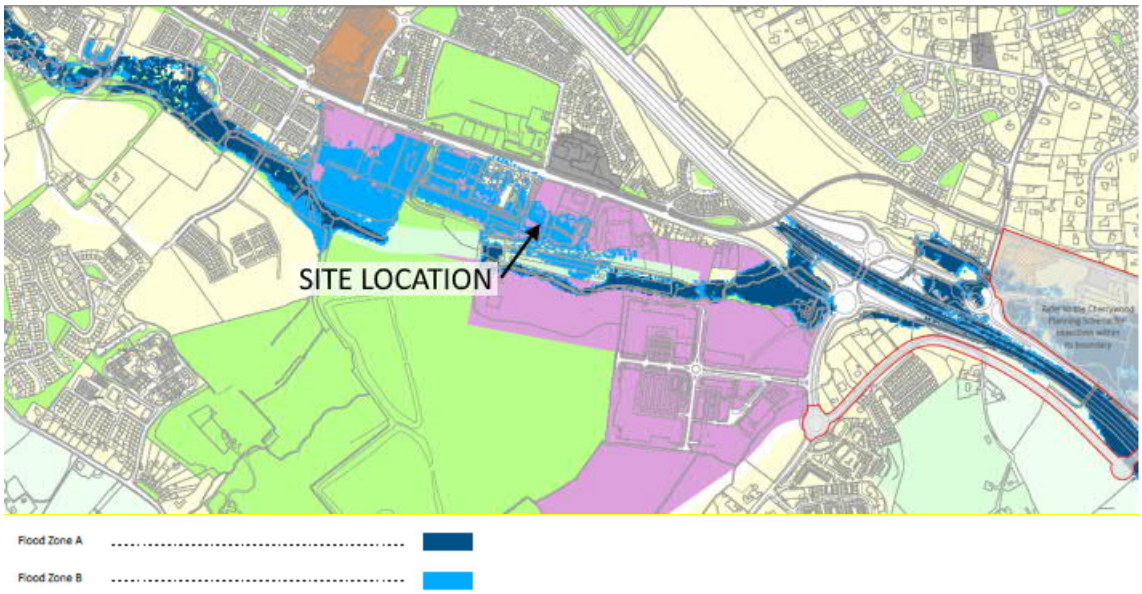


Figure 2-2 Extract from Flood Zone Map 9 from DLRCC CDP 2022 – 2028

It is an Objective of the Council (Ref.: SLO 61):

To implement and develop the lands at Ballyogan and Environs in accordance with the adopted Ballyogan and Environs Local Area Plan, and the Specific Local Objectives, therein.

In Section 10.7.1 of the DLRCDP, under Policy Objective EI21: Catchment Flood Risk Assessment and Management (CFRAM), it states:

It is a Policy Objective to assist the Office of Public Works (OPW) in the design and construction of flood relief schemes approved in the ten-year Programme of Investment in Flood Relief Measures following from the recommendations and outputs of the CFRAM for the Eastern District that are relevant for DLR.

The DLRCDP sets out the requirements for implementation of the Guidelines to include the following:

Through the policies and objectives set out in Appendix 15 (Strategic Flood Risk Assessment) in accordance with the over-arching sequential approach of Avoid, Substitute, Justify, and Mitigate. As set out in Section 5.1 of Appendix 15 all applications for development must be accompanied by an appropriately detailed SSFRA. Regard shall be had to any future flood hazard maps, flood risk maps and flood risk management plans prepared as part of the Eastern District Catchment

[1] Flood Zone B is defined in the Planning Guidelines as lands subject to flooding in a 1 in 1000 year return period flood

Flood Risk Assessment and Management Study and future iterations of other similar studies of impacts of climate change.

The SFRA is included in Appendix 15 of the DLRCDP 2022 – 2028. Extracts were taken from *Table 3-1: Flood Risk Datasets* and *Table 4-1: Zoning objective vulnerability,* as can be seen below in Figure 2-3 to describe the extent of the stream catchments covered under the Eastern CFRAMS and to confirm that areas with an Objective E zoning which are considered Less Vulnerable development would only require a Justification Test if the area is within a Flood Zone A[2] area.

Data	Description / Coverage	Quality	Data used in developing Flood Zones
Eastern CFRAM extents and defence layers, finalised in 2016	Flood extents covering the Crinken Stream, Shanganagh River, Loughlinstown River, Deansgrange Stream, Carrickmines River and Carysfort Maritimo, as well as the coastline of the County.	High in most locations, having been subject to several iterations of review through the CFRAM development process.	Flood extents, defence lines and defended area polygons have been used to develop Flood Zones.

Zoning Objective		Indicative Primary Vulnerability	Flood Risk Commentary in relation to the Justification Test for Plan Making
E	To provide for economic development and employment.	Less vulnerable	Justification Test to be passed for less vulnerable development in Flood Zone A.

Figure 2-3 Extracts from the SFRA Appendix 15 of the DLRCDP 2022 – 2028 from Table 3-1: Flood Risk Datasets and Table 4-1: Zoning objective vulnerability

The SFRA for the DLRCDP 2022 – 2028 provides advice in Section 5.2.3 for areas with *Less vulnerable development in Flood Zone A or B other than Minor Development,* as follows:

This section applies to less vulnerable development in Flood Zone A which has passed the Justification test for development plans, and less vulnerable development in Flood Zone B, where this form of development is appropriate, and the Justification Test is not required. Development which is less vulnerable to flooding, as defined in The Planning Guidelines, includes (but is not limited to) retail, leisure and warehousing and buildings used for agriculture and forestry (see Table 2-2 for further information). This category includes less vulnerable development in all forms, including refurbishment or infill development, and new development both in defended and undefended situations. The design and assessment of less vulnerable development should begin with 1% AEP fluvial or 0.5% AEP tidal events as standard, with climate change and a suitable freeboard included in the setting of finished floor levels. The presence or absence of flood defences informs the level of flood mitigation recommended for less vulnerable developments in areas at risk of flooding. In contrast with highly vulnerable development, there is greater scope

[2] Flood Zone A is defined in the Planning Guidelines as lands subject to flooding in a 1 in 100 year return period flood

for the developer of less vulnerable uses to accept flood risks while still building to a standard of protection which is high enough to manage risks for the development in question. However, any deviation from the design standard of 1%/0.5% AEP, plus climate change (see Table 5-1: Climate change allowances by vulnerability and flood source for further information), plus freeboard, needs to be fully justified within the FRA. An appropriately detailed flood risk assessment will be required in support of all planning applications. The level of detail will vary depending on the risks identified and the proposed land use. As a minimum, all proposed development, including that in Flood Zone C, must consider the impact of surface water flood risks on drainage design. In addition, flood risk from sources other than fluvial and tidal should be reviewed, as should the impacts of climate change.

For sites within Flood Zone A or B, and which have either passed the Plan Making Justification Test or are classified as 'Minor Development' in accordance with Section 5.2.1, a site specific "Stage 2 - Initial FRA" will be required and subject to the outcome may need to be developed into a "Stage 3 - Detailed FRA". The extents of Flood Zone A and B are delineated through this SFRA. However, future studies may refine the extents (either to reduce or enlarge them) so a comprehensive review of available data should be undertaken once a FRA has been triggered. An assessment of the risks of flooding should accompany applications to demonstrate that they would not have adverse impacts or impede access to a watercourse, floodplain or flood protection and management facilities. Where possible, the design of built elements in these applications should demonstrate principles of flood resilient design (See Section 4 - Designing for Residual Flood Risk of the Technical Appendices to the DoECLG Flooding Guidelines). Emergency access must be considered as in many cases flood resistance (such as raised finished floor levels and flood barriers) and retrofitting flood resilience features may be challenging in an existing building. Within the FRA the impacts of climate change and residual risk (including culvert/structure blockage) should be considered and remodelled where necessary, using an appropriate level of detail, in the design of FFL. Further information on the required content of the FRA is provided in the Planning Guidelines.

Any proposal that is considered acceptable in principle shall demonstrate the use of the sequential approach in terms of the site layout and design and, in satisfying the Justification Test for Development Management (where required), the proposal will demonstrate that appropriate mitigation and management measures are put in place.

The following checklist is required for all development proposals:

- *The SSFRA be carried out by an appropriately qualified Engineer with relevant FRA experience (as deemed acceptable by the Planning Authority), in accordance the Dún Laoghaire-Rathdown SFRA and the Planning Guidelines.*
- *Demonstration that the specific objectives or requirements for managing flood risk set out in Section 6 of this SFRA have been complied with.*
- *Preparation of access, egress and emergency plans which are appropriate to the vulnerability of the development and its occupiers, the intensity of use and the level of flood risk.*
- *Submission of a flood resilience statement.*
- *An assessment of the potential impacts of climate change and the adaptive capacity of the development.*
- *Compliance with C753 CIRIA SUDS guide, GDSDS and inclusion of SuDS*

The SFRA for the DLRCDP 2022 – 2028 states that a Drainage Impact Assessment is also required as follows:

All proposed development, including that in Flood Zone C, must consider the impact of surface water flood risks on drainage design. In this regard, all the other development scenarios must pass through this stage before completing the planning and development process and should be accompanied by an appropriately detailed flood risk assessment, and drainage impact assessment. Where possible, and particularly in areas of new development, floor levels should at a minimum be 300mm above adjacent roads and hard standing areas to reduce the consequences of any localised flooding. Where this is not possible, an alternative design appropriate to the location may be prepared.

The SFRA for the DLRCDP 2022 – 2028 provided advice on climate change adaption as follows:

The OPW guidance recommended two climate change scenarios are considered. These are the Mid-Range Future Scenario (MRFS) and the High-End Future Scenario (HEFS). A revised suite of recommendations has been adopted for accounting for climate change within development proposals. In all cases, the allowances should be applied to the 1% AEP fluvial or 0.5% AEP tidal levels. Where a development is critical or extremely vulnerable (see Table 5-1 reproduced in Figure 2-4 below*) the impact of climate change on 0.1% AEP flows should also be tested. These climate change allowances are particularly important at the development management stage of planning and will ensure that proposed development is designed and constructed according to current local and national Government advice.*

Development vulnerability	Fluvial climate change allowance (increase in flows)	Tidal climate change allowance (increase in sea level)	Storm water / surface water
Less vulnerable	20%	0.5m (MRFS)	Refer to the Stormwater Management Policy in Appendix 7.1 for details of climate change allowances
Highly vulnerable	20%	1.0m (HEFS)	
Critical or extremely vulnerable (e.g. hospitals, major sub-stations, blue light services)	30%	1.2m (and test up to 2m)[9]	
Note: there will be no discounting of climate change allowances for shorter lifespan developments.			

Figure 2-4 Extract from the SFRA Appendix 15 of the DLRCDP 2022 – 2028 – Table 5-1: Climate change allowances by vulnerability and flood source.

The SFRA acknowledged that further work on the impacts of climate change on flood levels was undertaken as part of the Eastern CFRAM Study. The study provided flood extents for both fluvial and coastal risk, which are available on www.floodinfo.ie. The advice provided was as follows:

Assessment of climate change impacts can be carried out in a number of ways. For watercourses that fall within the Eastern CFRAM Study area, flood extents and water levels for the MRFS and HEFS have been developed.

The SFRA for the DLRCDP 2022 – 2028 provided advice on the raising of site levels and compensatory storage as follows:

Modifying ground levels to raise land above the design flood level is a very effective way of reducing flood risk to the particular site in question. However, in most areas of fluvial flood risk,

conveyance or flood storage would be reduced locally and could have an adverse effect on flood risk off site. In addition, loss or variation to the floodplain can impact on the wider hydromorphological functioning of the floodplain and connectivity along the watercourse. There are a number of criteria which must all be met before this is considered a valid approach:

- *Development at the site must have passed the Justification test for Development Plans based on the existing (unmodified) ground levels.*
- *A SSFRA should establish the function provided by the floodplain, of either conveyance or storage of flood waters; this should be agreed with the Municipal Services Section of DLR prior to further assessment being undertaken.*
- *Where conveyance is the dominant function of the floodplain then a hydraulic model will be required to show the impact of its alteration and to provide design parameters for the provision of direct or indirect compensation.*
- *Where the floodplain predominantly provides a storage function, compensatory storage should be provided on a level for level basis to balance the total area that will be lost through infilling where the floodplain provides static storage.*
- *The provision of the compensatory storage should be in close proximity to the area that storage is being lost from (i.e. within the same flood cell).*
- *The land proposed to provide the compensatory storage area must be within the ownership / control of the developer.*
- *The land being given over to storage must be land which does not flood in the 1% AEP event (i.e. Flood Zone B or C).*
- *The compensatory storage area should be constructed before land is raised to facilitate development.*
- *Within currently developed areas the impact of loss of storage should also be investigated for the 0.1% AEP event, and further compensatory storage provided if the development is shown to have a negative impact on flood risk elsewhere.*
- *Where the floodplain functions primarily as a conveyance route, hydraulic modelling may be sufficient to demonstrate a lack of impact as a result of either the loss or reprofiling of the floodplain, whilst still retaining the conveyance function.*
- *In a defended site, compensatory storage is not required, but the impact of removing the net reduction in floodplain storage should be assessed for the 0.1% AEP event or a breach of these defences.*
- *The provision of compensatory storage or remodelling of floodplain areas for conveyance purposes must not alter the geomorphological or ecological regime of the watercourse and will take into account the Ecological network as set out in Appendix 9 of the County Development Plan.*
- *In some sites it is possible that ground levels can be re-landscaped to provide a sufficiently large development footprint. However, it is likely that in other potential development locations there is insufficient land available to fully compensate for the loss of floodplain. In such cases it will be necessary to reconsider the layout or reduce the scale of development or propose an alternative and less vulnerable type of use. In other cases, it is possible that the lack of availability of suitable areas of compensatory storage mean the target site cannot be developed and should remain a water compatible use.*

Advice on Finished Floor Levels includes the following:

Raising finished floor levels within a development is an effective way of avoiding damage to the interior of buildings (i.e. furniture and fittings) in times of flood and provides mitigation against residual risks such as climate change, culvert or bridge blockage and defence failure. As a minimum, for highly and less vulnerable development, finished floor levels are to be set above the 1% AEP fluvial (0.5% AEP tide) level, with an appropriate allowance for climate change (see Table 5-14) plus a freeboard of at least 300mm. The freeboard allowance should be assessed, and the choice justified. In situations concerning less vulnerable development, where the risks of climate change are included in the development through adaptable designs or resilience measures, it is possible that a finished floor level as low as the 1% AEP fluvial or 0.5% AEP tidal levels could be adopted, This approach should reflect emergency planning and business continuity to be provided within the development. It may reflect the design life of the development, the proposed use, the vulnerability of items to be kept in the premises, the occupants and users, emergency plan and inclusion of flood resilience and recovery measures.

In Section 6.2.12 of the SFRA for the DLRCDP 2022 – 2028 the Carrickmines River is discussed in the context of the CFRAM Study as follows:

*The Carrickmines River is shown in Figure 6-5 (*Reproduced in Figure 2-5 below*). The CFRAM Study extends along the Carrickmines River and included flood relief options within the POR. The Carrickmines Shanganagh FRS has commenced in August 2020 and construction of any cost beneficial flood alleviation works is not envisaged prior to 2024. As part of the FRS, a climate change adaptation plan will be produced which will outline the process for managing flood risk into the future. This should inform future Development Plans and be an integral part of associated SFRAs.*

The particular requirements regarding development and flood risk for the subject area are laid down as follows:

The proposed site is located in Flood Zone B. A detailed Site-Specific Flood Risk Assessment should be submitted with proposals for the area. Reference should be made to both the County Development Plan as well as the Ballyogan and Environs Local Area Plan.

The current CDP states that "In Ballyogan Business Park (identified as area 19 in Figure 2.5), new development within Flood Zone A cannot be justified and less vulnerable development in Flood Zone B needs a detailed SSFRA. Minor development, as defined in Section 5.2.1, is permissible, subject to appropriate SSFRA. Examination of climate change impacts, produced through the CFRAM Study, show a significant increase in the extent of Flood Zone A in the future, having a similar coverage to the current Flood Zone B. However, as this area forms part of the Carrickmines Shanganagh FRS the adaptation plan for the scheme should provide guidance on climate change management here. It is important that climate change is fully considered in any site-specific flood risk assessments carried out."

Due to the nature of the proposed site and the location close to the stream, greater consideration of how and where salt etc will be stored is vital. Notwithstanding the details in the CFRAM mapping, the planning authority acknowledge that an SSFRA may result in more locally accurate information which could show a greater or lesser level of risk than is included in the existing flood extends. This information may determine the positioning of storage units within the site. Further discussion on this point will be required.

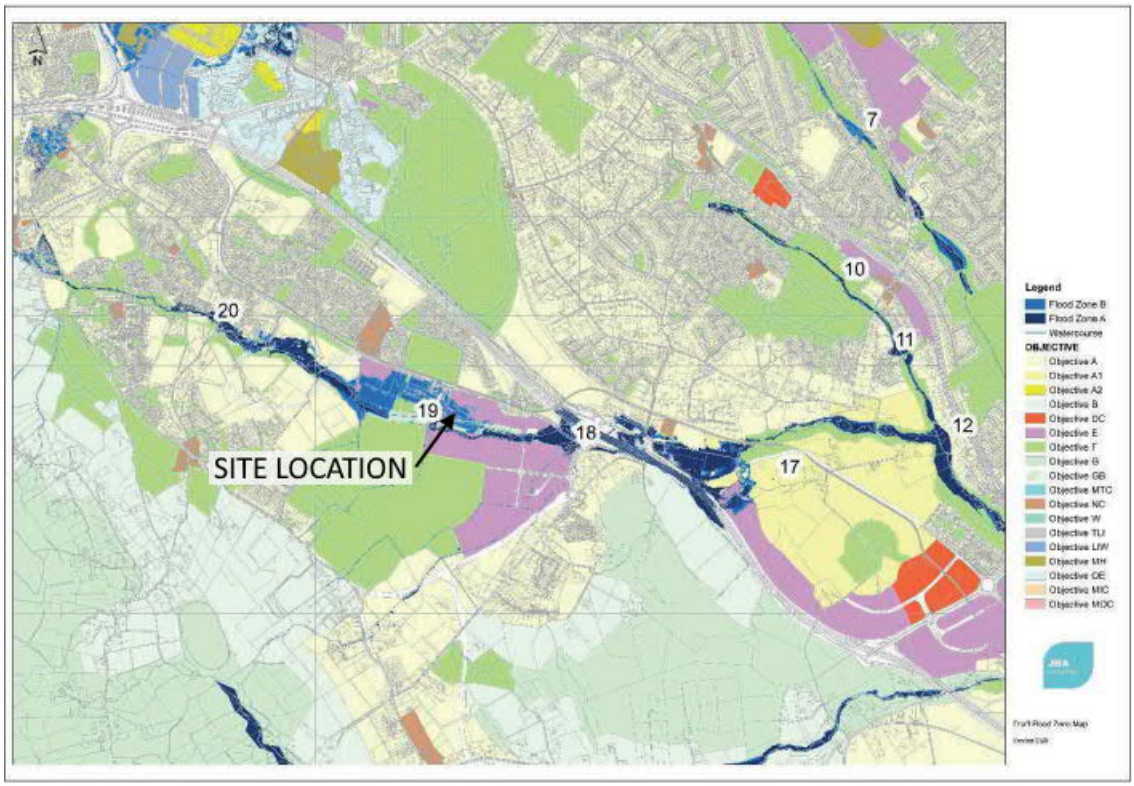


Figure 2-5 Carrickmines River (County Development Plan 2022-2028 Flood Zone Maps 7,9 & 10)

The specific requirements of the Ballyogan and Environs Local Area Plan are discussed in Section 2.2 and predicted impacts relating to Climate Change Adaption are discussed along with the Carrickmines Shanganagh River Flood Relief Scheme in Section 2.3.

2.2 Ballyogan and Environs Local Area Plan 2019 - 2025 (July 2019) and Appendices including the Strategic Flood Risk Assessment

The Ballyogan and Environs LAP was prepared as a result of, and in accordance with, the policies and objectives contained within the Dún Laoghaire-Rathdown CDP 2016-2022 (current CDP now covers the period 2022-2028) with the SFRA being undertaken in tandem to inform the LAP. However, the DLRCDP 2022-2028 advises that reference is made to the Ballyogan and Environs LAP 2019 – 2025.

The modelling for the CFRAM study for the Eastern Region, which includes Dún Laoghaire-Rathdown, was not yet finalised at the time of making the CDP (2016 – 2022). It goes on to say that where flood zone maps formed the basis of the SFRA for the CDP, the SFRA cautions that the input data was developed at a point in time and that, as a result, there may be changes in the

catchment that means a future study, or more localised assessment of risk, may result in a change in either flood extent or depth. In this regard the SFRA notes that an SSFRA may result in more locally accurate information which could show a greater or lesser level of risk than is included in the flood zone maps of the CDP.

Topographically, the Plan area is notable in that it sits at the base of the foothills of the Dublin Mountains, with the land falling from the high ground at Stepaside, down to the valley of the Ballyogan Stream. The area includes light industrial units and public utilities along Ballyogan Road. The Ballyogan and Environs LAP boundary is shown in Figure 2-6.

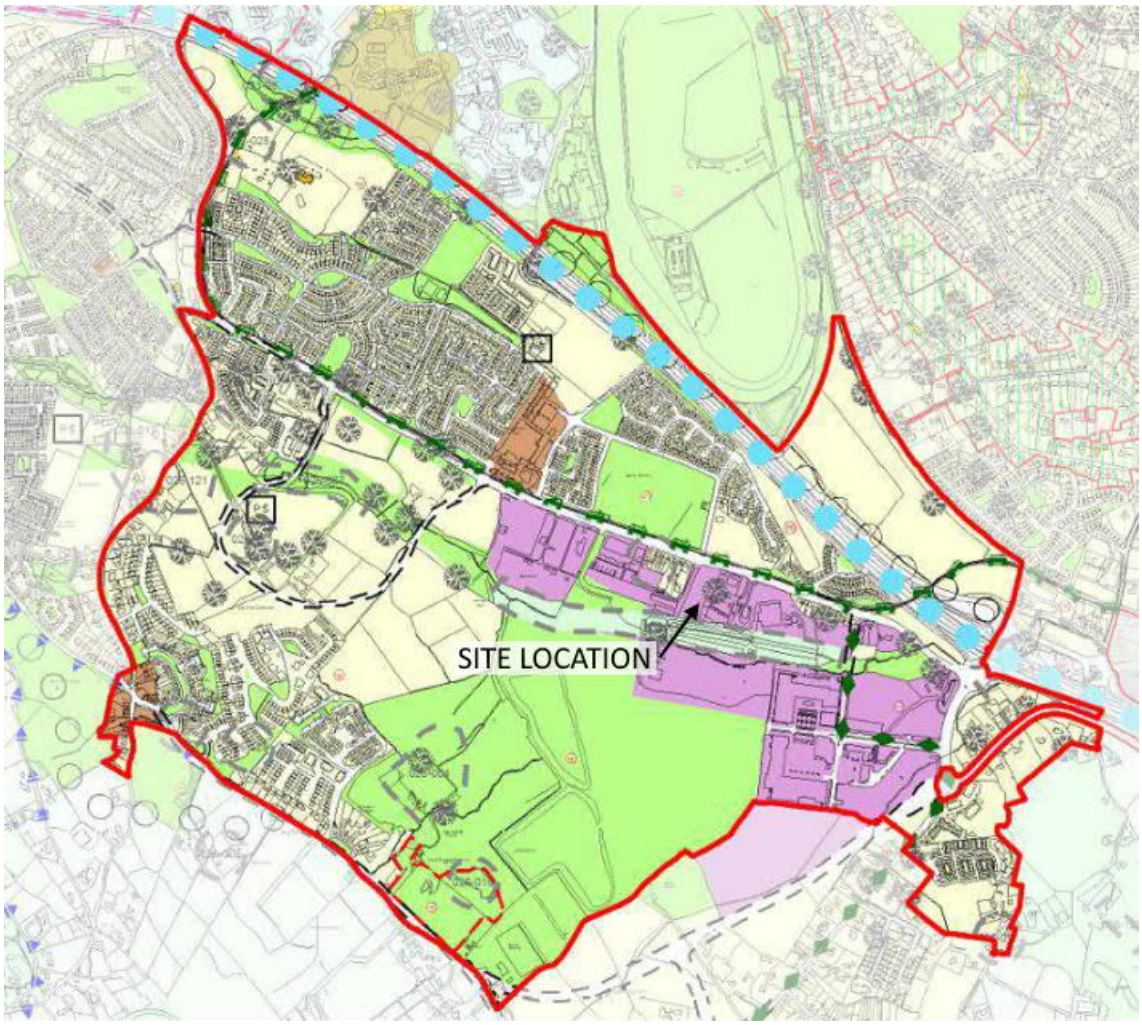


Figure 2-6 Ballyogan and Environs LAP – Plan Boundary Area

The following paragraphs include relevant guidance for development at the proposed site under the Ballyogan and Environs Local Area Plan (BELAP area) 2019 – 2025 and the associated reference documents used to inform the plan.

2.2.1 Dún-Laoghaire Rathdown CDP 2016-2022 - SFRA

Flood Zone Maps were developed as part of the SFRA for the CDP (2016 – 2022). Maps 6 and 9 of the SFRA relate to the Ballyogan and Environs LAP area and extract from same are provided in Figure 2.7 below. The Maps show that the Ballyogan and Environs LAP lands are primarily located within Flood Zone C (low probability); with a significant swathe of Flood Zone A and B lands (high probability and moderate probability) running from the Kilgobbin Road in the west of the LAP area to Junction 15 of the M50 in the east. These Flood Zones are associated with the Ballyogan Stream and primarily incorporate some large single dwellings located off the Kilgobbin Road and undeveloped lands near Clay Farm and lands to the north and north-east of The Park, Carrickmines. In addition to identifying areas at risk of flooding, the SFRA Flood Zone Maps also identify historical and predicted flooding hotspots in the County. Historical surface water hotspots are those where Dún Laoghaire-Rathdown County Council has a record of a flood occurring, although in some cases work may have been carried out to remediate the issue. The predicted hotspots are based on modelling and indicate where surface water has the potential to pond to depths of greater than 0.3m. The Flood Zone Maps (see Figure 2-7 below) identify a predicted flooding hotspot adjacent to the Glenamuck Road at lands to the east of The Park, Carrickmines.

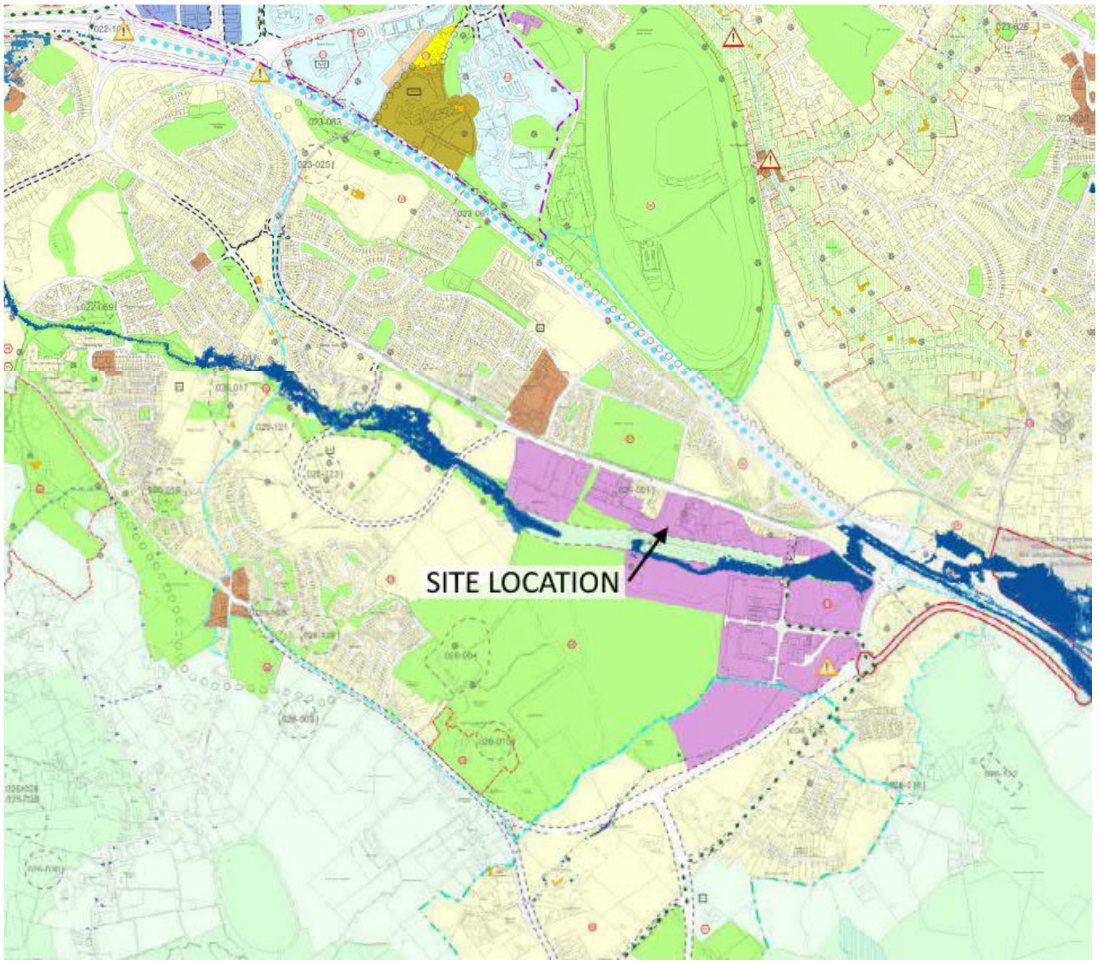


Figure 2-7 DLR CDP 2016-2022: Extract from Flood Zone Maps 6 and 9

2.2.2 Eastern Catchment Flood Risk Assessment and Management Study (CFRAMS)

2.2.2.1 Eastern CFRAM River Flood Extents

Fluvial flooding occurs when rivers and streams break their banks and water flows out onto the adjacent low-lying areas (the natural floodplains). This can arise where the runoff from heavy rain exceeds the natural capacity of the river channel and can be exacerbated where a channel is blocked or constrained. As discussed in Section 2.2 above, the CFRAM Study for the Eastern Region had not been finalised at the time of developing the Flood Zone Maps for the CDP (2016 – 2022) SFRA. The most up-to-date maps now available for the Fluvial Flood Extents of the Shanganagh-Carrickmines River are from 2017, subsequent to the adoption of the CDP, and an extract of same is set out in

Figure 2-8 below, with the full maps provided in Appendix F. These updated Fluvial Flood Extent Maps have been considered as part of the SFRA for the LAP. Particular areas at risk of flooding are identified in the next paragraph.

Shanganagh Carrickmines Loughlinstown

Kilgobbin Road - constriction to flow caused by critical structures 1060M00823 and 1060M00818 causes flooding in the Kilgobbin Road area during the 10% AEP event with 5 properties affected along with the Kilgobbin Road. 6 properties are affected during the 1% AEP event with depths of up to 700mm predicted at some location. Flooding on the agricultural land downstream of the Kilgobbin Road is also predicted in the 10% AEP event. Extensive flooding affecting the Ballyogan Road, Carrickmines Electricity Transmission Station and Ballyogan Retail Centre is predicted during the 0.1% AEP event.

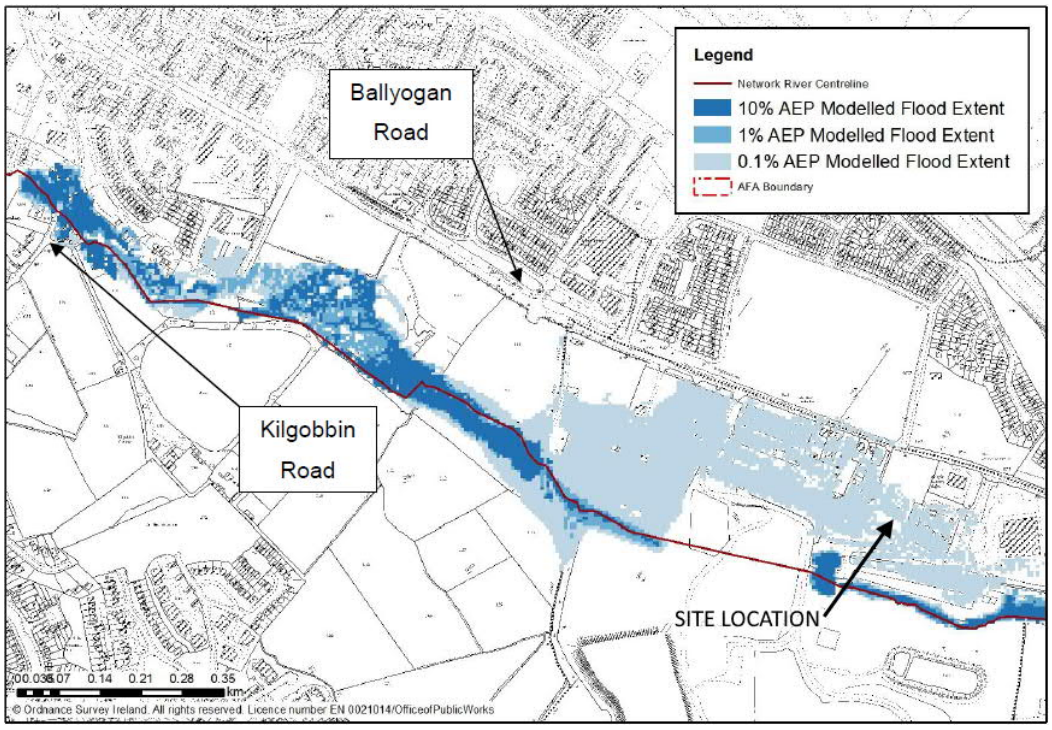


Figure 2-8 CFRAM – Shanganagh-Carrickmines River Fluvial Flood Extents Map

The finalised CFRAM mapping for the BELAP area identifies a quantum of already developed Objective 'E' and Objective 'A' zoned lands, to the south of the Ballyogan Road, that are located within Flood Zone B. The potential for flooding at this location is likely affected by the 'backing-up' of the Ballyogan Stream culvert that passes through the former Ballyogan Landfill site. These lands are primarily comprised of 'less vulnerable development' save for the Carrickmines ESB Substation, a crèche and montessori facility, and some residential units, that are classified as 'highly vulnerable development'. While the Sequential Approach and Justification Test will not apply to these zoned lands as they relate to existing buildings and developed lands, an assessment of the risks of flooding should, however, accompany all applications for minor development to demonstrate that the development would not have adverse impacts or impede access to a watercourse, floodplain or flood protection and management facilities. Where possible, the design of built elements in these applications should demonstrate principles of flood resilient design (see Section 4 – Designing for Flood Risk of the Technical Appendices to the DoECLG Flooding Guidelines).

2.2.3 Less Vulnerable Development in Developed Areas (Flood Zones A & B)

Less vulnerable development includes inter alia retail, leisure, warehousing and secondary strategic transport and utilities infrastructure. This category includes less vulnerable development in all forms, including refurbishment or infill development, and new development both in defended and undefended situations. The design and assessment of less vulnerable development should begin with 1% AEP fluvial or 0.5% tidal events as standard, with climate change and a suitable freeboard included in the setting of finished floor levels. The presence or absence of flood defences informs the level of flood mitigation recommended for less vulnerable developments in areas at risk of flooding. In contrast with highly vulnerable development, there is greater scope for the developer of less vulnerable uses to accept flood risks and build to a lower standard of protection, which is still high enough to manage risks for the development in question. However, any deviation from the design standard of 1%/0.5% AEP, plus climate change, plus freeboard, needs to be fully justified within the FRA. Major developments may be located in areas with a higher likelihood of flooding, provided the risks are understood, and accepted, and operability and emergency response is clearly defined; this may allow construction to a finished floor level which is lower than the 'ideal' starting point. The following sets out a checklist of what is required for planning applications for larger developments in developed areas at risk of flooding in the Ballyogan and Environs LAP area:

Planning Application Checklist

- Development Management 'Justification Test' has been passed.
- FRA in accordance the Dún Laoghaire-Rathdown SFRA and the Planning System and Flood Risk Management Guidelines, to be carried out by an appropriately qualified Engineer with relevant FRA experience (as deemed acceptable by the Planning Authority).
- Flood resilience statement to be submitted.
- Compliance with the Greater Dublin Strategic Drainage Study and inclusion of SuDS.
- Assessment of the potential impacts of Climate Change and the adaptive capacity of the development.

- Access, egress and emergency plans must be in place which are appropriate to the vulnerability of the development and its occupiers, the intensity of use and the level of flood risk.

In all instances above, it is highlighted that the any forthcoming Flood Risk Management Plan resulting from the CFRAM Study of the Carrickmines River may include flood management measures which, when implemented, may allow development to occur outside of the above guidance. The Flood Risk Management Plan for the Avoca - Vartry River Basin was one of 29 Plans published by the OPW and this Management Plan incorporates the Carrickmines/Shanganagh River. The Plan, which is for the period of 2018-2021, sets out to progress the development of a Flood Relief Scheme for Loughlinstown (which incorporates the Ballyogan Stream) through the identification of recommended flood risk management measures.

The current status of the Carrickmines-Shanganagh Flood Relief Scheme is outlined in Section 2.3. Information on climate change adaption is examined from the details available to date on this scheme.

2.3 Carrickmines Shanganagh River Flood Relief Scheme (FRS) for guidance on climate change management

The recently completed Eastern Catchment Flood Risk Assessment and Management (CFRAM) Study Area concluded that a flood relief scheme would be viable and effective for the community (can be viewed online at www.floodinfo.ie).

Dún Laoghaire Rathdown County Council, along with project partners the OPW, have commissioned the assessment, development and design of a viable, cost-effective and sustainable flood relief scheme for Carrickmines Shanganagh River which aims to minimise risk to the community, social amenity, environment and landscape character.

As of August 2022, a hydraulic model was built for the river, with the section of the Ballyogan River being included. The model showed that there was no inundation from the stream onto the site for the 1 in 100 year plus climate change scenario, see Figure 2-9. It can be concluded therefore that the site is not within a Flood Zone A area. This is consistent with our examination of the 1% and 0.1% AEP flood risk mapping from CFRAMS.

The status of the scheme as of December 2023 is that work has been done to identify & design a scheme to alleviate the risk of flooding for a 1 in 100 year return period event which is the required standard of protection within the catchment of the Carrickmines Shanganagh River. The preferred option consists of a series of measures at different locations throughout the catchment. An array of technical, environmental, social and cost information has been considered in developing the preferred option. There are no flood defences proposed to be included as part of the preferred options identified in the immediate vicinity of the site for the proposed development for a Road Maintenance Operations Facility, at this stage of the Carrickmines Shanganagh River FRS.

At the 2nd Public Consultation event, the presentation showed that the river channel to the south of the proposed development was not identified as an Area at Flood Risk.

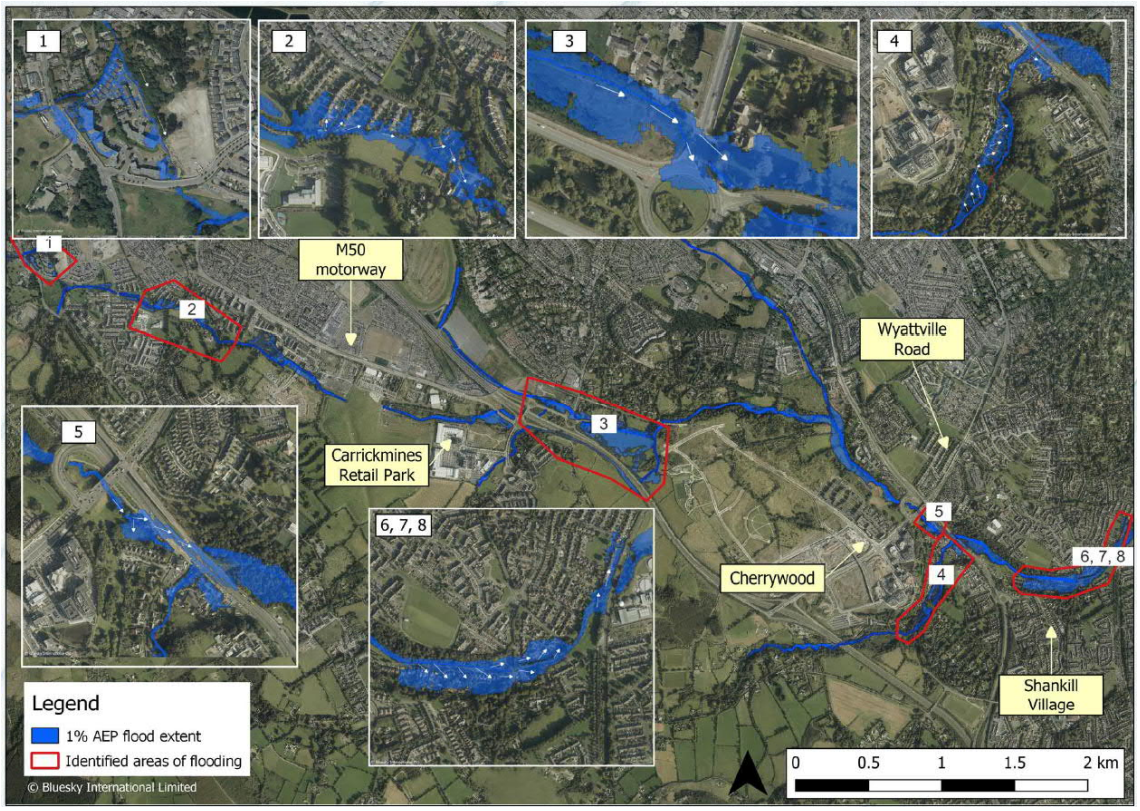


Figure 2-9 Extract from Carrickmines-Shanganagh FRS 1% AEP Flood Extent Map

Further, the Ballyogan Stream immediately to the south of the site has not been identified in the Carrickmines Shanganagh River FRS as a potential area for adaption for climate change and modifications or enhancements for the scheme are not forecasted to be included at that location. Where it has been considered to build in climate adaption to the present day scheme, there have been no adaption measures included for the stream immediately to the south of the site. It is noted that all proposed culverts have been designed for the High End Forecast Scenario.

It is expected that the improvements provided in the Carrickmines Shanganagh River FRS will improve the containment in channel of the 1% and 0.1% AEP flood flows, however the site for the proposed development is being assessed in this SSFRA for the undefended state.

2.4 The Planning System and Flood Risk Management Guidelines for Planning Authorities (DEHLG and OPW, 2009) as amended by Circular PL2/2014 (August 2014) and Technical Appendices

The proposed development at the Ballyogan site has been examined in the context of the planning guidelines in the following paragraphs.

Table 3.1 of the planning guidelines sets out the classification of vulnerability of different types of development. The site for the proposed development is classified as a 'Less Vulnerable development'. The requirements for a justification test are set out in Table 3.2 of the planning guidelines and in the case of a Less Vulnerable development in a Flood Zone B or C, development is considered to be 'appropriate' and no justification test is required.

In the Frequently Asked Questions section of the planning guidelines, the following response applies to the subject site in relation to the advice provided in the regional SFRA for the CDP:

What does the SFRA not provide?

The SFRA is an area-wide study, and the level of detail is commensurate with its strategic nature. It does not provide suitably detailed site-specific information, such as design flood levels. A site-specific flood risk assessment is still required to cover in more detail all sources of flood risk for individual developments. The level of detail required for a site-specific flood risk assessment depends on the scale and nature of the development and the risks involved.

When ground levels are being altered as part of a proposed development within a flood risk area, this is dealt with in Section B of the Technical Appendices of the Planning Guidelines as follows:

In general, level for level compensation should only be applied in areas where flood water is stored. Floodwater is stored in most natural and defended floodplains which are inundated in the 1% AEP event. It is important to ensure flood flow routes should be protected, whatever the cause of flooding. In some circumstances, this is more critical than providing level for level compensation. There may sometimes be benefits in altering routes or increasing flood flow capacity. However, it should only be carried out after careful assessment of the downstream impacts. This assessment must be included in the detailed site-specific FRA.

The proposed detail on the proposed reprofiling of ground for the proposed development and avoidance of impeding flood flows is discussed further in Section 6.4 Flood Risk from the Proposed Development.

3 Existing Mapping and Surveys

3.1 Topographical Survey

A topographic survey of the site undertaken in October 2023 was available for review, see Figure 3-1. A more detailed topographic survey map is shown in Appendix C. It has indicated that the greenfield site falls diagonally from a high in the north west corner (89.1 m OD – approximately 1m lower than the adjacent roadway separated by a gabion wall (Top Elevation 93.37 m OD – approximately 3.5 m high at the road side) and falling to the south east corner (86.06 m OD) at an existing entrance to a storage yard with containers, off the Recycling Park Road. There is a historic mound (predominantly west of centre in the site where this may have been formed from historic clearance at the site to create the southern entrance and temporary storage area. A large area taking up approximately 993 m^2 of the site in the upper north-west side of the site was densely overgrown and this formed a constraint to obtaining detailed survey information here. Further information was however available from publicly available LIDAR, see Section 3.2 and this confirmed that this area of vegetation drains from an elevation of 89 m OD to 88 m OD matching the adjacent contours.

Figure 3-2 and Figure 3-3 show an aerial view of the site and a view of the gabion wall from the west at the proposed location of the new entrance to assist with understanding the context of the elements identified in the topographical survey.

Figure 3-1: Topographical Survey at the site, October 2023

Figure 3-2: Aerial view of existing site (Source: Google Earth)

Figure 3-3: Gabion wall on western site boundary at location of proposed new entrance

3.2 LiDAR

The GSI Open Topographic Data Viewer provides access to processed LiDAR data in raster format, the data available for the Ballyogan area is the LiDAR Office of Public Works (OPW) NASC Index: OPW_3285 data. The data was captured in 2011 and has been downloaded and mapped as illustrated in Figure 3-4.

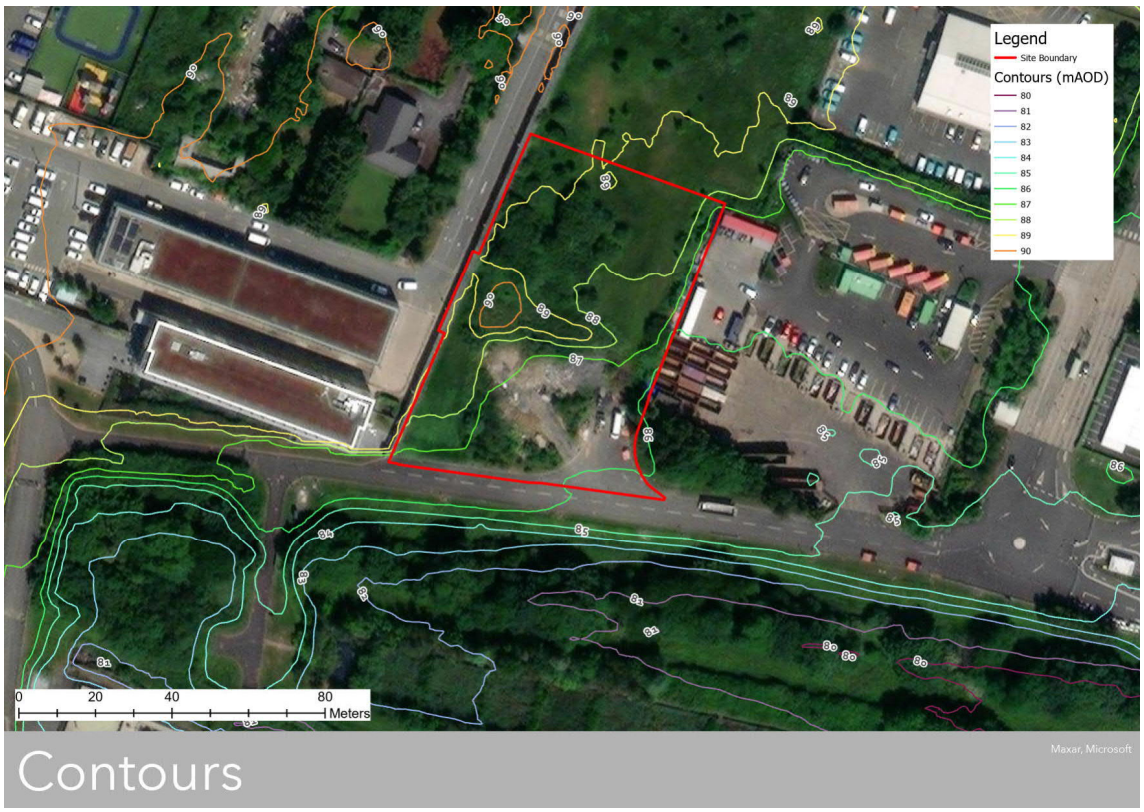


Figure 3-4: Site contours from GSI Open Topographic Data - LiDAR Office of Public Works (OPW) NASC Index: OPW_3285 data, captured 2011

We could see from a close examination of this data that the topography within the densely vegetated area omitted in Figure 3-1 indicates a gradual fall in this area from north-west to south-east, following similar patterns across the site.

4 Baseline Scenario

4.1 Existing Hydrological Environment

The site for the proposed development is within Hydrometric Area 10 in the catchment of Avoca – Vartry, which includes the area drained by the Carrickmines/Shanganagh River, indicated in Figure 4-1. This river flows out into Killiney Bay at Shanganagh. This site is also within the Water Framework Directive (WFD) Sub-catchment known as Dargle_SC_010. Figure 4-2 illustrates the catchment divisions relative to the site in question. The location of the site of the proposed development is indicated in red.

The primary watercourse that runs to the south of the site for the proposed development is the Carrickmines or 'Ballyogan' Stream that flows from west to east. The Ballyogan Stream is a tributary of the wider Carrickmines/Shanganagh River system. The Stream originates in Three Rock Mountain and joins the Loughlinstown River to become the Shanganagh River before discharging to Killiney Bay at Shanganagh. The Stream is culverted in parts including through the Ballyogan landfill site for a length of approx. 250m. The watercourse known as 'Golf Stream' was previously culverted through the Ballyogan landfill site but was diverted in 2005 to flow around the landfill along its western boundary. The diversion works re-directed the stream to flow northwards and join the Ballyogan Stream. The Ballyogan Stream is joined most notably by the Racecourse stream running south parallel to the M50 and St. Brides Stream running south parallel to the Bray Road and the Glenamuck Stream running eastwards from Kiltiernan, south of the site, collectively forming the Carrickmines/Shanganagh River system.

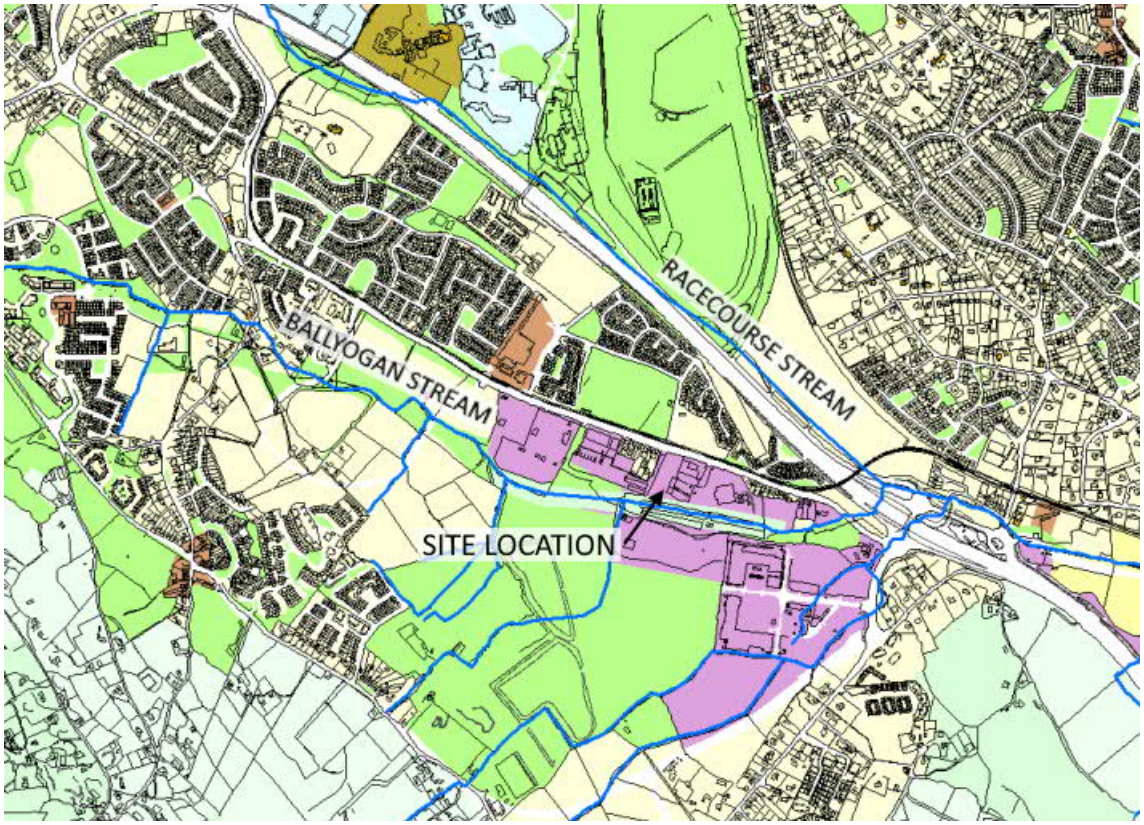


Figure 4-1 Primary Watercourses in the Ballyogan LAP Area

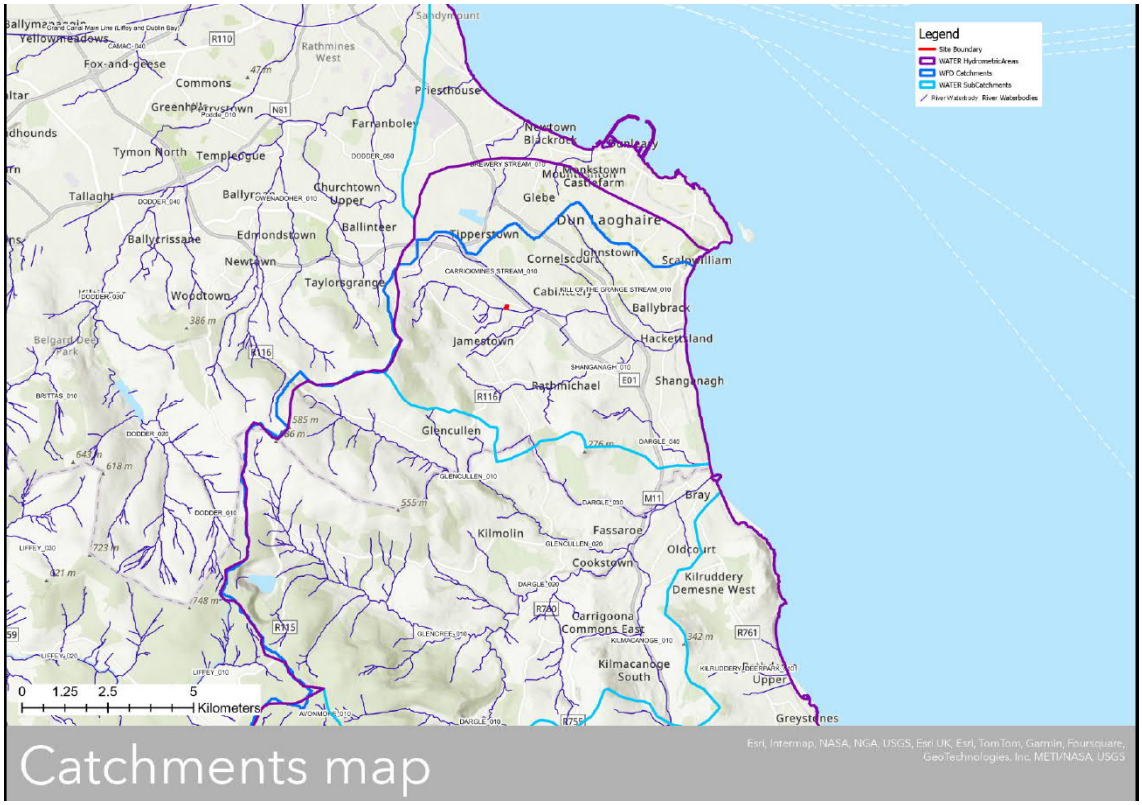


Figure 4-2: Overview of the Hydrometric and WFD Catchment divisions around the Carrickmines Stream

4.1.1 Existing Site Drainage

Based on the topographic survey as detailed in Section 3, the existing greenfield site drains from the north west corner (89.1 m OD – approximately 1m lower than the adjacent roadway falling towards the south east corner (86.06 m OD). DLRCC have an existing entrance into the site from the south east off the Recycling Park Road and they are utilising part of the lower portion of the site for temporary storage for road maintenance activities. Existing site drainage includes an existing stormwater manhole in the storage yard here that has a piped connection to the main sewer to the south west of the site. This manhole and piped connection will be made redundant to make way for the new connection from the proposed development.

4.2 Existing Site Hydrogeology and Geology

The GSI website provides information on aquifer vulnerability and subsoils. These aspects are discussed in the following sections.

4.2.1 Aquifer Vulnerability

Groundwater Vulnerability is a term used to represent the natural ground characteristics that determine the ease with which groundwater may be contaminated by human activities. GSI classifies the vulnerability of the aquifer as 'High' at the location of the site as illustrated in Figure 4-3.

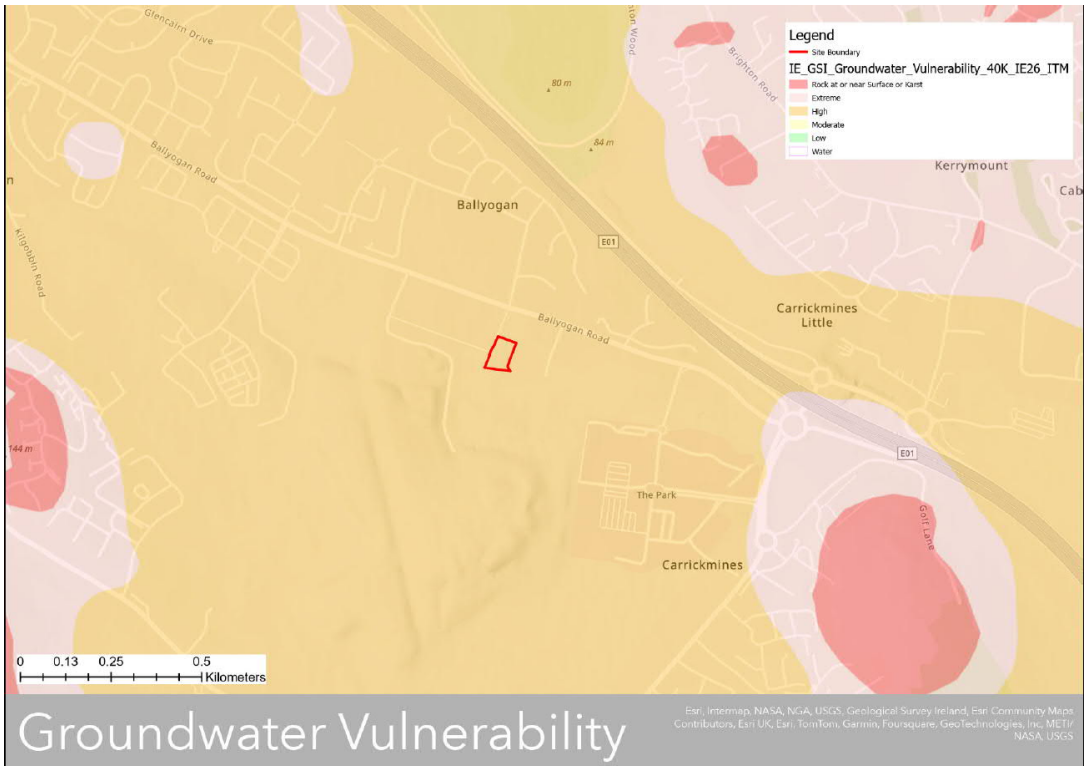


Figure 4-3: Groundwater Vulnerability at the site (Source: www.GSI.ie)

It should be noted that there are no plans to drain the site by infiltration at the site, except for landscaped areas which will drain naturally and will be separated by a lined filter drain from the impermeable areas on site to avoid any risk of pollution to groundwater. Similarly, no increase in pollution risk (that could be mobilised by flooding) would be anticipated to the aquifer from the proposed development. The proposed drainage is discussed in more detail in Section 6.

4.2.2 Subsoils

GSI classifies the subsoil of the site as "Till derived from limestones" as illustrated in Figure 4-4. There is evidence of alluvium all along the channel of the Carrickmines River to the south of the site which might indicate past flooding but no sign of encroachment of alluvium within the site boundary for the proposed development. Further detail on flood history and flood predictions can be seen in Section 5 *Flood Risk Identification*.

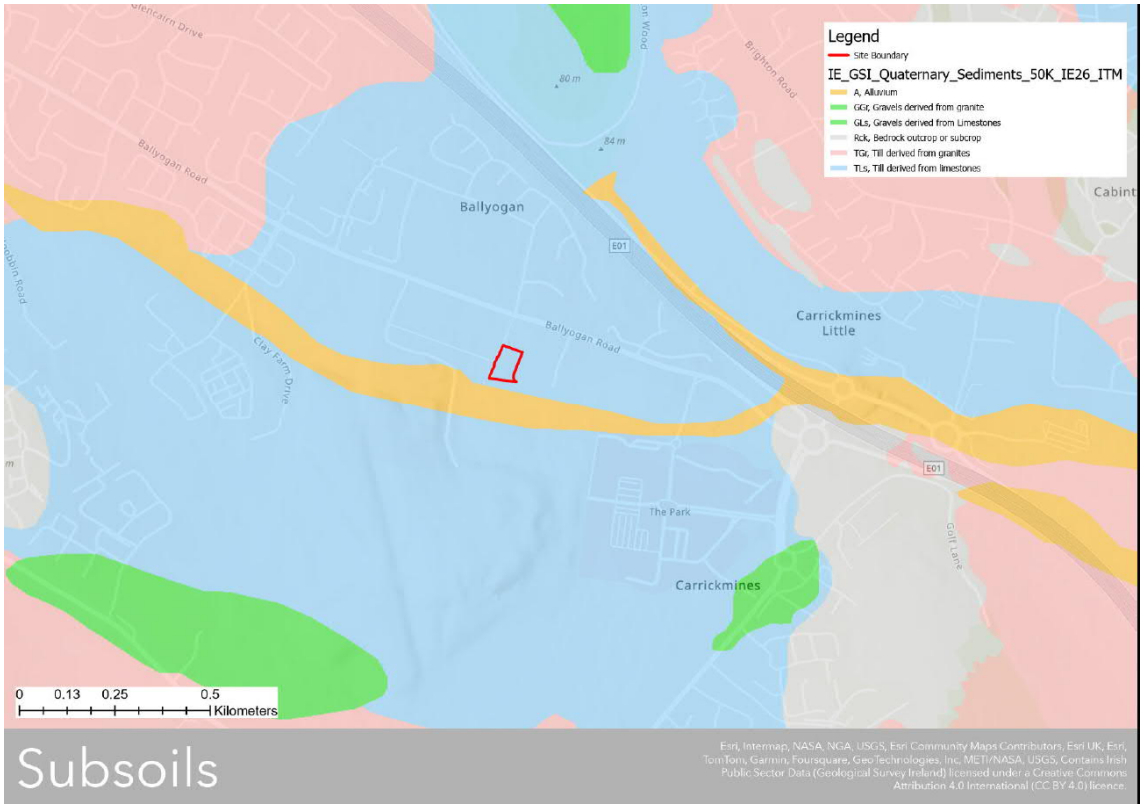


Figure 4-4: Subsoils in the vicinity of the site (Source: www.GSI.ie)

4.3 Existing Protected Areas

Information on existing ecologically designated sites is available on the National Parks & Wildlife Service (NPWS) website, a map has been produced and is illustrated in Figure 4-5. It is noted that there are no protected areas in the immediate vicinity of the proposed site. The nearest protected area by hydrological links from the proposed site is as follows:

- Proposed Natural Heritage Area (pNHA) Site Code 001211: Loughlinstown Woods (approximately 4.3 km to the south east along the Shanganagh River)

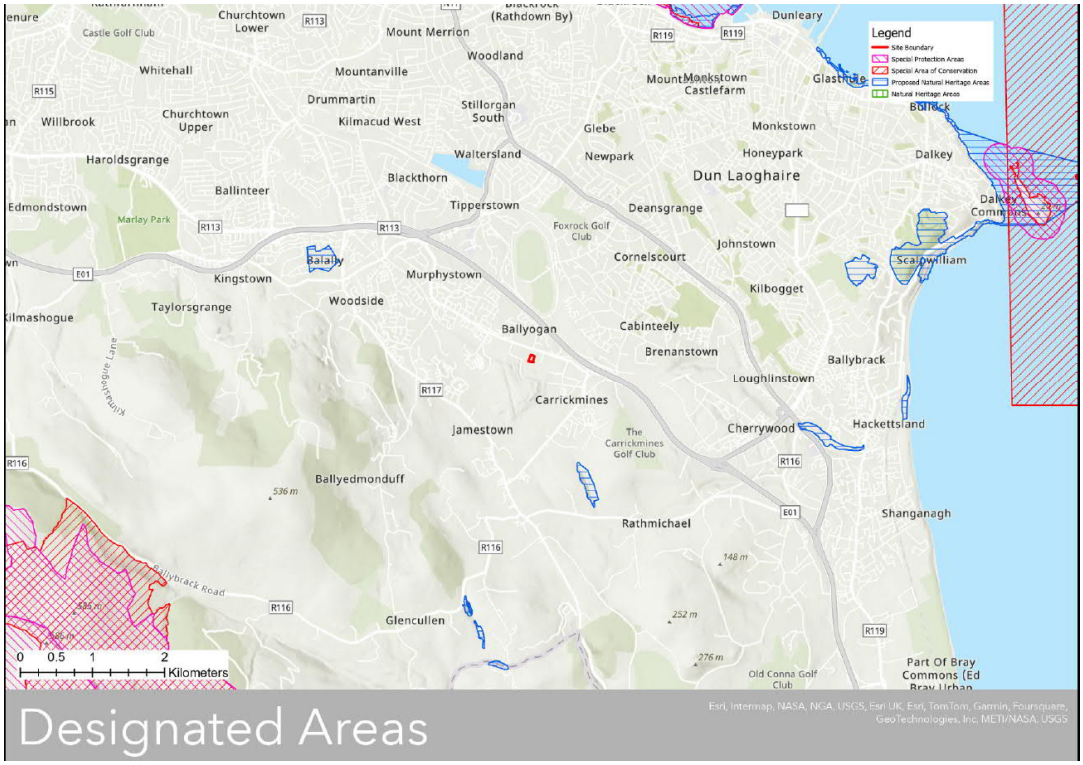


Figure 4-5: Existing Environmentally Protected Areas in the vicinity of the site

5 Flood Risk Identification

The Planning System and Flood Risk Management: *Guidelines for Planning Authorities*, published in November 2009, has been used as a guideline for the identification of flood risk at the site.

Flood zones are a key tool in flood risk management, these zones are geographical areas within which the likelihood of flooding is in a particular range. There are three types or levels of flood zones defined for the purposes of these Guidelines:

- *"Flood Zone A – where the probability of flooding from rivers and the sea is highest (greater than 1% or 1 in 100 for river flooding or 0.5% or 1 in 200 for coastal flooding);*
- *Flood Zone B – where the probability of flooding from rivers and the sea is moderate (between 0.1% or 1 in 1000 and 1% or 1 in 100 for river flooding and between 0.1% or 1 in 1000 year and 0.5% or 1 in 200 for coastal flooding); and*
- *Flood Zone C – where the probability of flooding from rivers and the sea is low (less than 0.1% or 1 in 1000 for both river and coastal flooding). Flood Zone C covers all areas of the plan which are not in zones A or B."*

For the production of flood extent maps the Office of Public Works (OPW) uses the evidence from the Intergovernmental Panel on Climate Change (IPCC) and other authoritative sources, so that they can project two possible future scenarios:

- Mid-Range Future Scenario (MRFS) - increase in rainfall of 20% and sea level rise of 500 mm (20 inches), and
- High-End Future Scenario (HEFS) - increase in rainfall of 30% and sea level rise of 1,000 mm (40 inches).

The proposed development is a Road Maintenance Facility and as such the flood management guidelines classify this type of development as 'Less Vulnerable'. This type of development is considered appropriate to be developed within Flood Zone B. Refer to Section 2.4 for further details.

The OPW have produced indicative flood mapping to assist in flood risk identification, this information is available on their website. The mapping included on this website was produced from a number of sources and was used, in conjunction with the Guidelines, to examine the risks in the sections below.

It should be noted that the site for the proposed development is not tidally influenced.

5.1 Existing Flood History

A summary report of the existing flood history for the location of the site was generated from the OPW website www.floodinfo.ie and this can be seen in Figure 5-1. It can be seen from the full summary report in Appendix D that there are records of 17 No. past flood events within 2.5 km of the proposed site.

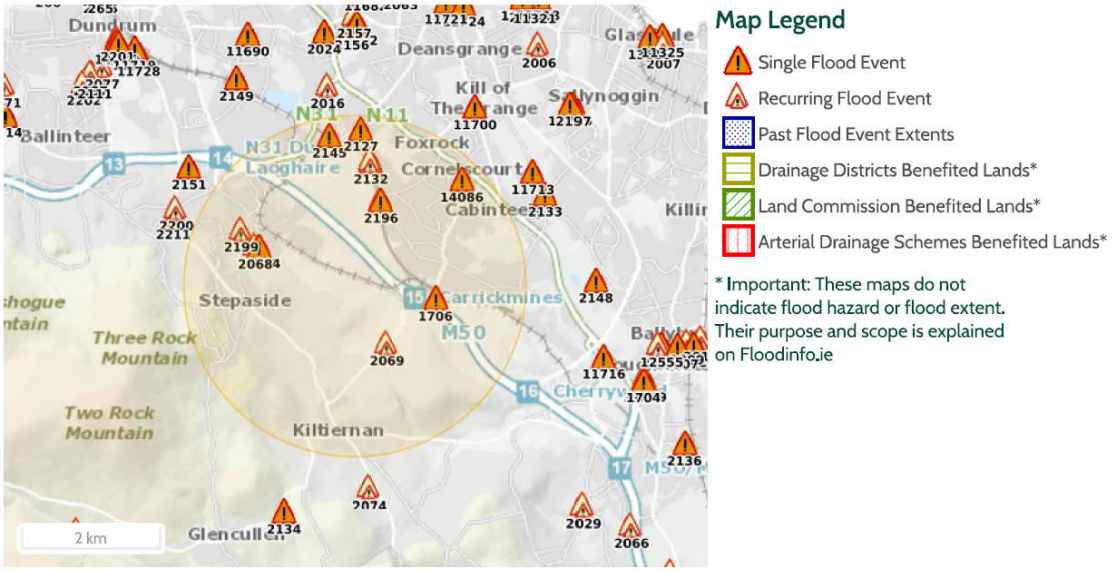


Figure 5-1: OPW Flood Map Report for flood incidents within 2.5 km of the development (Source: www.floodinfo.ie)

The nearest past flood event downstream occurred in November 1982 Shanganagh Carrickmines ID-1706 and the nearest past flood events upstream were: Carrickmines River Sandyford Hall, a recurring event ID-2199, Kilgobbin Road Recurring (2005) ID-2068 citing problems with drainage (old culvert) and flooding at Kilgobbin Road, Stepaside, Co. Dublin on 24th Oct 2011 (ID-11712).

The following sets out an overview of the main historical flooding events, and causes where known, that are relevant to the Ballyogan and Environs LAP area. Each of these historical flood events are recorded as having occurred at either the perimeter or outside of the Ballyogan and Environs LAP boundary:

- Kilgobbin Road (2011) - Flood ID-11712: Flooding at Kilgobbin Road, Stepaside, Co. Dublin on 24th October 2011. The source of the flood waters was the overtopping of the Carrickmines River upstream of the Kilgobbin Road Bridge. Flows may have exceeded the capacity of the Kilgobbin Bridge. There were also out-of-channel flows from a tributary, which connected to the Carrickmines River downstream of the Kilgobbin Road Bridge. It was estimated that three properties flooded and the Kilgobbin Road was affected for 300m.
- Kilgobbin Road Recurring (2005) - Flood ID No. 2068: Problems with drainage (old culvert).
- Glenamuck Road Recurring (2005) - Flood ID No. 2069: Some road flooding after heavy rain due to ditch blocking.
- Shanganagh Carrickmines (1982, 1993, 1997 and 2002): Flooding of the Cabinteely River at Carrickmines.

5.2 OPW Arterial Drainage

The OPW carried out a number of arterial drainage schemes on catchments under the Arterial Drainage Act, 1945 to improve land for agriculture and to mitigate flooding. Flood protection in the benefiting lands was increased as a result of the Arterial Drainage Schemes.

Drainage Districts were carried out by the Commissioners of Public Works under a number of drainage and navigation acts from 1842 to the 1930s to improve land for agriculture and to mitigate flooding.

The Land Commission took over a number of embankments as part of its work. These embankments were created by landowners to reclaim land from rivers or the sea, typically in the 19th century. The purpose of the schemes was to create land for agriculture. In some cases, embankments were created and the area behind was allowed to flood and flush out a number of times to reduce the salt content of the soil.

As illustrated in the OPW Flood Map Report (Figure 5-1), there are no Arterial Drainage Schemes, Drainage Districts or Land Commission Benefited Lands in the vicinity of the location of the site.

5.3 OPW Predictive Mapping

5.3.1 Tidal Flooding

The proposed development site is located to the north of the Carrickmines Stream and upstream of any tidal influence, therefore, the proposed site would not be impacted by tidal flooding.

5.3.2 Fluvial Flooding

Fluvial flooding occurs when the capacity of a watercourse is exceeded or the channel is blocked or restricted, and excess water spills out from the channel onto adjacent low-lying areas. This can occur rapidly in short steep rivers or after some time and some distance from where the rain fell in rivers with a gentler gradient.

The OPW predictive fluvial flood mapping for the location of the site is shown in Figure 5-2 for the 1% Annual Exceedance Probability (AEP) (Flood Zone A) and the 0.1% AEP (Flood Zone B) scenarios. These maps are available in the OPW Online Flood Maps Service at www.floodinfo.ie and were produced for the National Catchment-based Flood Risk Assessment and Management (CFRAM) study and illustrates predicted fluvial flooding in the Mid-Range Future Scenario (MRFS) which includes an increase in rainfall of 20%.

The extent of fluvial flooding is shown in Figure 5-2 in the vicinity of the site for the proposed development. As can be seen in Figure 5-2, the proposed site is located within the Flood Zone B area of the Carrickmines Stream and is therefore subject to fluvial flooding in a 1 in 1000 year return period flood event.

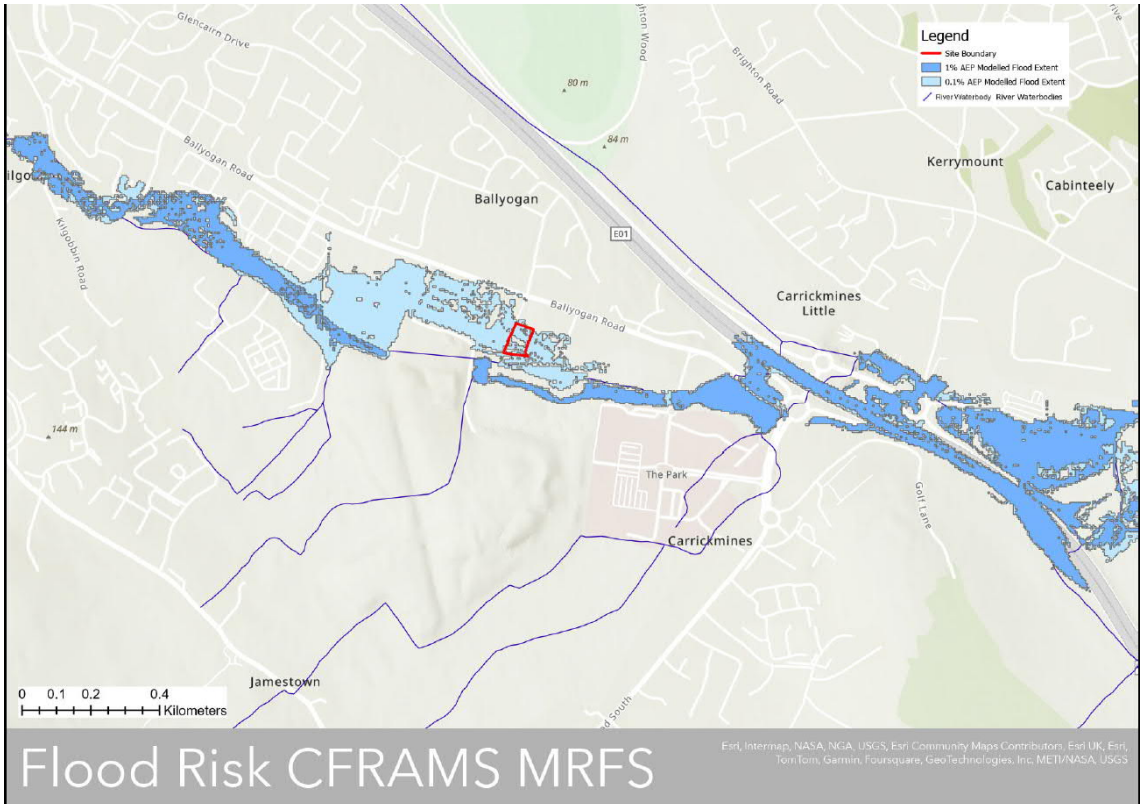


Figure 5-2: Predictive fluvial flooding identified for 1 in 100 year (1% AEP) and 1 in 1000 year (0.1%AEP) return period MRFS (Source: www.floodinfo.ie)

5.3.3 Pluvial Flooding

Pluvial or surface water flooding is the result of rainfall generated flows that arise before runoff can enter a watercourse or sewer. In undeveloped land overland flow occurs when the amount of rainfall exceeds the infiltration capacity of the ground to absorb it. This excess water flows overland forming ponds in natural hollows.

The OPW Online Flood Maps Service does not present pluvial maps in the region of the proposed site. However, GSI presents the Synthetic Aperture Radar (SAR) Seasonal Flood Maps which shows observed peak surface water flood extents that took place between Autumn 2015 and Summer 2021. The maps were made using SAR images from the Copernicus Programme Sentinel-1 satellites. The flood maps show surface water flood extents which have been observed to occur. A lack of flooding in any part of the map only implies that a flood was not observed. It does not imply that a flood cannot occur in that location at present or in the future.

It should be noted that there is no SAR flooding recorded in the vicinity of the proposed site.

5.3.4 Existing Flood Risk Studies

The Eastern Catchment Flood Risk Assessment and Management Study (CFRAMS) has been discussed in detail in Section 2 along with the Carrickmines/Shanganagh Flood Relief Scheme which have carried out detailed flood risk studies in the vicinity of the proposed site.

5.4 GSI Flood Mapping

Groundwater flooding occurs when the level of water stored in the ground rises, as a result of prolonged rainfall, to meet the ground surface and flows out over it. Groundwater flooding tends to be local and result from site specific factors such as tidal variations or poor ground conditions.

The GSI website provides information on groundwater flooding and includes surface water flooding recorded from the winter 2015/2016 period. The information where relevant to the site is discussed in the following paragraphs.

5.4.1 GSI Predictive Groundwater Flooding

There is no predicted groundwater flooding identified for the site in the mapping available from GSI.

5.4.2 GSI Historic Groundwater Flooding

There are no records of historic groundwater flooding at the site in the mapping available from GSI.

5.4.3 GSI Surface Water Flooding (Winter 2015/2016)

There are no records of surface water flooding reported from the winter 2015/2016 at the site in the mapping available from GSI.

5.5 Flooding from Artificial Drainage Systems

All sources of flooding are required to be examined including the potential for impacts on artificial drainage systems that could result in a breach of pipelines or disturbance to joints. This could cause flooding of the contents of a pipeline with the potential to cause pollution of the environment or escape of gases in addition to disruption of the service.

There is an existing stormwater manhole connection at the existing southern entrance to the site, but there have been no reports of flooding related to the stormwater collection system on site or downstream of this manhole.

Appropriate mitigation is required to be considered during the construction of the proposed development to render the existing stormwater connection redundant and provide for the new connection in line with the proposed drainage system for the development. Consultation will be undertaken with DLRCC and Uisce Eireann to determine the preferred protection for the pipeline during excavations for connections to the existing drainage network. Discharge rates from the new foul and stormwater connections will also be agreed with these authorities. Trial pits will be

dug carefully in advance and detection equipment used to establish the exact position of the existing drainage assets. This is to ensure that there will be no impact to the integrity of the pipeline to avoid flood risk from this potentially polluting source and to avoid disruption to the service. Similarly, consultation is required with DLRCC and Uisce Eireann for their preferred protection to their existing foul and stormwater sewers to avoid any damage to assets that might lead to flooding. The detail of the proposed foul and storm drainage for the site is discussed further in Section 6.

6 Review of the Proposed Development

6.1 Foul and Surface Water Management Plan for the Proposed Development

The proposed layout of the drainage for the development can be seen in Appendix E. Connections will be made for foul and storm sewers to existing drainage networks.

In accordance with the DLRCDP Objective E19 in Section 10.2.2.9 of the CDP and Section 5.6 of the SFRA for the CDP, all proposed development must consider the impact of surface water flood risks on drainage design through a Drainage Impact Assessment. The drainage design should ensure no increase in flood risk to the site, or the downstream catchment. The following paragraphs discuss the proposed surface water drainage for the scheme and the required drainage impact assessment.

6.1.1 Surface Water Drainage

The drainage of the proposed development will collect roof runoff from the salt barn in a rainwater harvesting tank. Any water in the rainwater harvesting tank which will not be used by the plant operations or rainfall from back-to-back storms will overflow into the proposed on-site drainage system. The brine batching tank farm will be mounted on a plinth at a height above the predicted flood depth of 0.25 m. The tanks will be fitted with leak detection systems and are protected from impact by a concrete barrier. Any leakage in this area would drain to a linear channel connected to the foul sewer and be dealt with utilising on site spill kits. Surface water run-off from the yard areas immediately to the front of the Salt Barn, vehicle wheel wash and along the side of the brine manufacturing bunded area will be collected in a linear drainage channel and connected into the foul sewer collection system. The surface water draining from the remaining yard, plant storage area (for laying out spreading equipment) and parking areas will be collected in a perimeter filter drain, where falls of 1:80 to 1:100 will be formed across the hard surface area will drain to the filter drain along the eastern and southern perimeter. The filter drain will provide a SuDS element to the drainage of the proposed development where this will serve to treat as well as collect surface water. The filter drain collects overland flow from the west (where this might occur in an extreme flood event) and northern lands outside the site as well as surface water from the hard surface areas within the site. The filter drain will connect into the storm sewer system at regular intervals. The filter drain will be lined with an impermeable liner. A layer of geotextile will separate the first 150 mm of drainage stone to allow for the replacement of the stone during maintenance of the filter drain at 5 yearly intervals or as agreed with DLRCC. It will also serve to treat any incoming flood flows running across the site from the west in an extreme event before this will continue to overflow to the property to the east as is the observed pattern of flood flows from the CFRAMS MFRS predicted flood maps. The vehicle wash area will drain to a large linear channel, 0.7 m wide and 1 m deep, with a connection to the foul sewer drainage system. The stormwater collection system will discharge via a petrol interceptor and a lined geocellular attenuation tank (130 m3) which will be designed to retain the 30 year and 100 year return period storm with limiting outflow at rates to be agreed with DLRCC, using an orifice control before final connection to the existing stormwater drainage system on the road to the south-west of the site. The existing stormwater drainage system discharges to the Carrickmines Stream to the south of the site. A penstock will be provided at the outlet from the attenuation tank to allow for testing of the retained

water in the event of an extreme flood traversing the site or in the case of an accidental spillage of materials (salt or saline solution/brine in particular). Any fuels and oils on site will be bunded. The existing site drainage which consists of a stormwater manhole and piped connection to the main sewer to the south west of the site will be made redundant to make way for the new connection from the proposed development.

6.1.2 Drainage Impact Assessment

In accordance with the SFRA for the DLRCDP 2022 – 2028, a drainage impact assessment is required to be undertaken. This is to ensure that there will be no risk of flooding from surface water run-off from adjacent ground. To the west the neighbouring property is the DLRCC Operations Centre and the roadway is drained by kerb and gulley drainage. Should any blockage occur in the gullies, the surface water may rise up over the kerb and seep through the gabion wall bounding the site. This surface water would be picked up in the proposed filter drain inside the site and diverted around the Salt Barn building where it connects into the storm sewer collection system. This is similar for overland flows from the north which will drain into a filter drain running along the north of the site and then into the storm sewer collection system. The advice from the SFRA for the DLRCDP is for the finished floor level of buildings to be raised by at least 0.3 m above the ground level of the adjacent ground to avoid damage to property within the building. This advice is qualified as ‘where possible’ and alternative arrangements may be put in place depending on the use of the building. As the potential surface water flows from surrounding areas are diverted around the building and the nature of the operations requires the pick-up of material from ground level by vehicles entering the building, this building will be equipped with sand bags to close off the open side of the concrete internal push walls, so that this area can be closed off, should surface water flows from a blockage or extreme flood event overwhelm the filter drains and present a risk to mobilising any stored material on the floor of the building. It should be noted that any mobilisation of stored material would be picked up in a channel which is connected to the foul sewer system and also picked up by spill kits provided on site.

6.1.3 Foul Water Drainage

The proposed development will not include welfare facilities as these facilities will be provided in the adjacent Operations Centre. The foul water collection system on site will collect surface water run-off in areas where vehicle operations will be concentrated and the storage and batching of salt and brine will be located. The surface water will be collected in linear drainage channels which will connect to pipework leading to the existing main foul sewer to the south west of the site.

The vehicle wash area will drain into the foul water drainage system via a washdown separator and tank sewer storage to allow for limiting discharges to the main sewer to be agreed with Uisce Eireann.

During construction, portaloos and portacabins will be provided for welfare facilities for construction personnel while the works are being undertaken and these will be serviced by licenced contractors. These facilities will be sited at a suitable location above the maximum flood level.

6.2 Flood Risk to the Proposed Development

A Source – Pathway – Receptor (S-P-R) model cross-section through the site for the proposed development has been prepared following the parameters set out in Figure 6-1, to illustrate the proposed development with respect to the potential sources of flood risk.

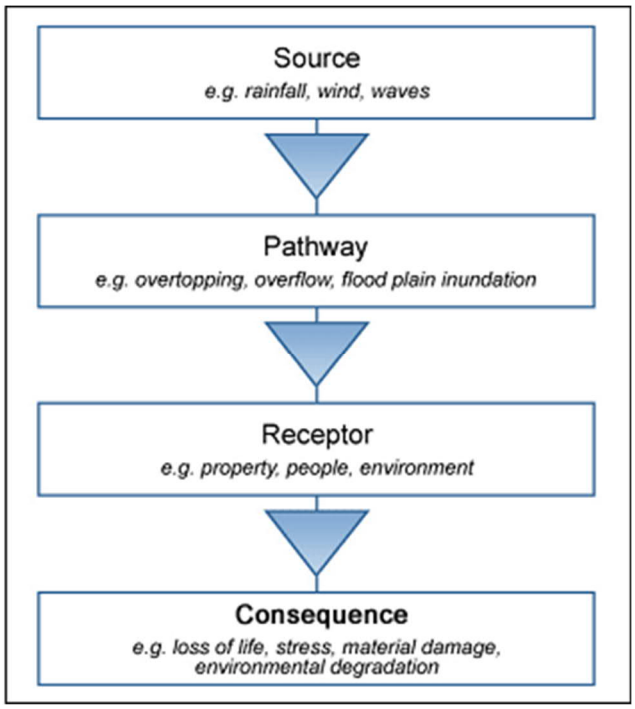


Figure 6-1: Source – Pathway – Receptor – Consequence Model Parameters

The site for the proposed development is within a flood flow pathway, conveying floodwaters that have broken the bank at an upstream culvert constriction, upstream of Ballyogan Landfill. These floodwaters are predicted by the EASTERN CFRAMS to flow northwards and then follow a pathway to the east across the Ballyogan Business Park and dropping down along the steep fall within the subject site for the proposed development. We have seen from the mapping and surveys in Section 3 that there are no storage depressions on site and we can see from the flood depth mapping produced for CFRAMS that the depth of flow across the site is predicted to be a maximum of 0.25 m (see map included in Appendix G). The proposed levels at the site will involve the levelling of an existing mound on site and the raising of the lower right quadrant of the site to achieve an approximate level platform of 88.6 m OD across the site. This level is lower than the road level from the west where the floodwaters are predicted to enter onto the site, therefore flows are not impeded. There will be a new proposed entrance ramped down into the site and the existing gabion wall along the remaining boundary to the west will be maintained, also allowing the seepage of floodwaters to continue across the site, should this occur in an extreme flood. Some diversion of waters that might ingress into the site will be required around the proposed salt barn, but these flows will be directed back onto the existing pathway across the site via a filter drain. The majority of floodwaters would enter via the new proposed entrance and the conveyance

pathway from here is unobstructed, with falls of 1:80 to 1:100 being provided across the site. It can be seen in the Source – Pathway – Receptor Model in Figure 6-2 that the 1% AEP (1 in 100 year return period - Flood Zone A) flood level does not encroach on the site for the existing scenario or when the proposed new levels are set for the site. As discussed in Section 2.1, the SFRA for the DLRCDP 2022 – 2028 advises that the FFL for any buildings should be above the 1% AEP flood level (here 81.97 m OD) and the FFL for the Salt Barn is set at 88.6 m OD, which is significantly higher than the 1% AEP level. The approximate line of the 0.1% AEP (1 in 1000 year return period - Flood Zone B) scenario is shown along Section A-A which is viewed looking westwards. This line is shown raised by 0.25m above the line of the existing ground levels along this section. The gentle falls that will be included across the platform will allow drainage to collect at the perimeter filter drains and into the storm water drainage system, which discharges to the south. Any floodwaters overflowing at the filter drains will continue along the same pathways as before to the east and south of the site. The flood flow pathways are also shown in Section B-B looking north in Figure 6-2 to illustrate that the flood flow pathways will not be impeded. The S-P-R models are also included in Appendix H. The Carrickmines Shanganagh FRS has examined the flood relief scheme for the consideration of Climate Change Adaption, and it has been concluded that there will be little change in the 1% AEP pattern at the location of the site**.** Although extreme events in the future may lead to an increase in the flood depths running along the flood flow pathways, the proposed levels on site will not impede the conveyance of these flows.

The proposed development is a road maintenance operation facility and is only accessed by staff of the facility. The staff will heed weather warnings and warnings for an extreme flood event may lead to suspending operations at the facility until the flood has passed or relocation of the parking of road maintenance vehicles at the adjacent Operations Centre, should the vehicles need to be repurposed for flood maintenance or assistance. Additional mitigation for pollution prevention and flood resilience of buildings will be discussed in Section 6.5 and Section 6.6.

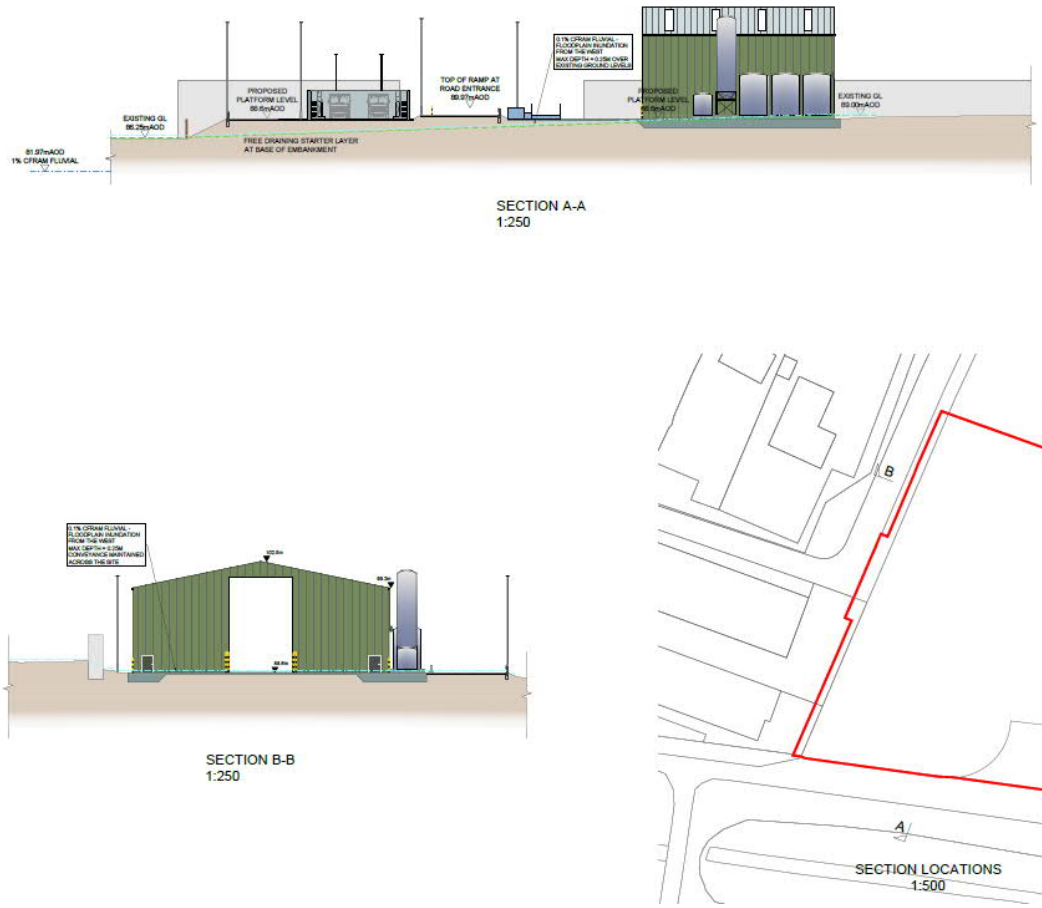


Figure 6-2: Source – Pathway – Receptor Model cross-section (Top – Looking West, Bottom Left – Looking North) through the site for the proposed development

6.3 Cumulative Flood Risk

The adjacent property to the west of the site for the proposed development is the Dun Laoghaire Rathdown Operations Centre which is located on the site of the former landfill at Ballyogan. The Operations Centre is enclosed by gabion walls and maintains an open pond area to the south of the building. The drainage system for the Operations Centre includes attenuation of flows with limiting controls for discharge to the main sewer to the south. It is expected that there will be a reduced flood risk to the site for the proposed development due to cumulative effects with the adjacent Operations Centre, as that development has an extensive drainage system in place through and along the flood flow pathway from the west, which diverts any surface water to the south for connection via the attenuation facilities to the existing storm sewer and ultimately to the Carrickmines Stream. In this way it will reduce the potential for flooding from the west into the subject site of this SSFRA.

The proposed site design platform level will be lower than the adjacent roadway that leads into the Operations Centre and the proposed new entrance will be accessed from this roadway via a ramped down entrance. The proposed new site levels will therefore not impede any ingress of extreme flood flow from the west, which was previously facilitated by the gabion wall here.

There are no current adjacent planned developments (DLRCC planning website viewed on 2nd May 2024) that would be deemed to form a cumulative increased flood risk with the proposed development. It is assumed that any applications to Dun Laoghaire Rathdown County Council for sites where the hard surface area will be increasing, will include attenuation for the surface water run-off and that the discharges will be limited to greenfield rates. It is not therefore anticipated that the proposed development will result in any cumulative increase in flood risk with adjacent infrastructure.

6.4 Flood Risk from the Proposed Development

It is not anticipated that the proposed development will present an increased flood risk to adjacent property such as the access roads, lands to the south or adjacent sites. The proposed development will increase the overall footprint of hard surface area within the site boundary however the surface water will be collected in an attenuation tank with limited discharge to the existing sewer to be agreed with Uisce Eireann and DLRCC. By introducing the rainwater harvesting tank to collect roof run-off, this will provide some Sustainable Drainage Systems (SuDS) to the project, in accordance with Greater Dublin Strategic Drainage Study (GDSDS) policies. This roof water is planned to be used in the batching process and this will to the most part separate the roof area from inclusion with the surface water discharging to the existing sewer, with the exception of the overflow connection to provide for back-to-back storms or any long intervals where the tank may be full and/or underutilised. A perimeter filter drain, lined with an impermeable liner will drain the newly paved area and this will be connected into the storm sewer system which leads to the attenuation tank. In addition, the landscape strip along the western boundary, west of the proposed Salt Barn will receive any ingress of flood waters in a filter drain which will be routed around the north of the Salt Barn to connect with the perimeter filter drain along the eastern boundary. The surface water and wash water collected at the vehicle and wheel wash areas will flow to linear drainage channels with outlet connections to the foul sewer. The ground to the south and east of the site is proposed to be raised to facilitate a balanced platform

level for the operations. This will be achieved by introducing an embankment along the southern and eastern perimeter, set back from the site boundary, raising the ground locally here by approximately 2 m. A starter layer of free draining material is proposed for this embankment, to allow for the ingress and drain out of any flood waters encroaching from the roadway along the south of the boundary in an extreme event. This will avoid impeding flood flows from the south-west.

Any floodwaters overtopping the filter drain along the eastern and southern boundaries during an extreme flood event will continue as before.

It is expected that good practice in accordance with the Construction Environmental Management Plan (CEMP) will be adhered to during the construction of the proposed development to avoid potentially polluted water running off the site from building materials, fuels and oils, should a flood event occur during construction. All fuels and oils on site will be bunded. Water filled traffic barriers sealed with sandbags or similar containment will be used around the site during construction to avoid any mobilisation of building materials. Supplies will be kept in storage in an area above the maximum flood depth of 0.25 m until needed for use in the construction of the scheme. Plant and materials will not be left on site overnight.

6.4.1 Ground Reprofiling

Ground reprofiling is required for this site to facilitate operations at the site for the circulation of vehicles in the different areas. The existing site has a constant slope, falling by approximately 2.5 m diagonally from north-west (at a level of 89.0 m OD) to south-east (at a level of 86.5 m OD) across the site. The cut and fill volumes required to set a level platform at the site to a proposed level of 88.6 m OD were assessed for this site, see Figure 6-3 and Table 6.1 below to understand how the ground profile is planned be changed. As can be seen in Table 6.1, this will result in a significant volume of fill across the site. A free draining layer will be laid at the base of the new embankment to allow for ingress and drain out of any flood flows, should this occur from the south in an extreme flood event.

The Planning System and Flood Risk Management – Guidelines for Planning Authorities, requires a level for level balance to be met for proposed development in a flood risk area, where the site previously served to provide flood storage, in order to avoid flood risk elsewhere. However, the flood function of this site is conveyance across a constant fall traversing the site. There are no enclosed depressions on this site and it therefore does not provide floodplain storage. The finished level of the site will be below the ground level from the west (direction of flood flow pathway). It is understood that it is necessary to maintain any conveyance pathways across the site and therefore falls of 1:80 to 1:100 are to be set across the new platform to match the existing flow directions. It should be noted that surface water flows will not be impeded across the site and existing flow pathways will therefore be maintained.

Minimum Elevation	Maximum Elevation	Color Scheme
-1.400m	-0.900m	
-0.900m	-0.400m	
-0.400m	0.000m	
0.000m	0.600m	
0.600m	1.100m	
1.100m	1.600m	
1.600m	2.100m	
2.100m	2.599m	

Figure 6-3: Areas on site to be raised and lowered

Area to be:	Volume (m^3)
Lowered	**-498.86**
Raised	**+3841.37**
Balance	**+3342.51**

Table 6.1: Cut and Fill volumes

6.5 Vulnerability of Personnel

The proposed development is considered to be less vulnerable development in accordance with Table 3.1 of *The Planning System and Flood Risk Management – Guidelines for Planning Authorities* and as per the zoning objective as previously discussed in Section 2.1. As with such facilities in a flood risk area, these will be avoided and appropriately secured in flood conditions. The proposed development will be owned and occupied by staff of the DLRCC and plans will be activated in flood conditions in accordance with their 'Major Emergency Plan' as follows:

Arrangements have also been put in place by Met Éireann to issue public service severe weather warnings to the Local Authorities. The target time for the issuing of a warning is 24 hours before the start of the event, but a warning may be issued up to 48 hours in advance when confidence is high.

In the case of this particular development, the road maintenance operations vehicles may be repurposed to assist in flood related operations when not in use for spreading salt and these vehicles can be moved and parked in the adjacent Operations Centre for ease of access during an extreme flood event. There will be no public access to the proposed development. It will be noted in the Construction Environmental Management Plan (CEMP) that Construction Personnel are to heed flood warnings and reschedule activities where necessary.

Safe access and egress is available for Construction Personnel and those occupying the Road Maintenance Operations Facility when constructed via the pedestrian access and access road. Only very shallow flood depths are predicted to occur 0 – 0.25 m depths in an extreme flood event (0.1% AEP) and as discussed above, following an extreme flood warning, the facility will be closed and secured and the operations vehicles moved to the adjacent site if deemed to be required to assist in flood clean-up operations. A Site Emergency Plan will be prepared, setting out the procedure for access and egress and the expected use or wind down of the facility in an extreme flood event, given that the plant and equipment in the proposed facility may be repurposed to assist in flood maintenance operations.

6.6 Proposed Layout and Flood Resilience of the Development

The proposed layout of the development can be seen in Appendix A. The proposed development consists of the following:

- Salt Barn building construction: concrete floor, concrete internal push walls, steel frame with insulated cladding exterior and open door;
- Brine Batching Plant on a concrete plinth with an adjacent precast concrete protection barrier;
- Wheel wash with water tanks;
- 2 Vehicle Wash Bay;
- Ramped down access at the entrance;
- Pedestrian access;
- 10 No. Vehicle Parking Bays;
- Plant storage area;
- Yard areas and
- Perimeter landscaping.

To provide a suitable working area for the above infrastructure, the land will be raised on embankments to provide an even platform. Falls of 1:80 to 1:100 will be provided across the platform, maintaining the current directional pattern of surface water flow across the site. The proposed facility replaces a predominantly greenfield site, but parts of the site have been used for some time for DLRCC activities including the storage of road maintenance materials.

The development will include flood resilient construction and flood mitigation as follows:

1. **Flood Resilient Design and Construction:** Salt barn will be concrete floor, 3-sided concrete internal push walls, steel frame with insulated cladding exterior and open door. Sand bags will be stored on site and will be accessible in a flood emergency to block the open side of the 3-sided concrete internal push wall area up to a height of 0.3 m. This will contain any salt material stockpiled on the floor in this area. Access and instructions for sand bagging will be included in the Site Emergency Plan and this procedure will be activated under the instruction of the appointed person on call, following a warning received by Met Eireann to DLRCC. In this way the impact of flooding is reduced, and potentially polluting material (salt) is prevented from release into the foul and storm water sewer systems. In addition, drying and cleaning are facilitated.
2. **Drainage Services:** To prevent back-flow of diluted sewage (in this case concentrated salt in solution), to reduce the risk of the foul sewer surcharging, the design will include non-return valves in the drainage system on site. Foul sewer manholes will be sealed and lockable to avoid ingress of floodwaters via the manhole covers.
3. **Electrical Services:** electrical details will be internal lighting which will be sealed and raised above floor level (min 1m).

7 Conclusion

Sweco have been commissioned by Gavin & Doherty Geosolutions to prepare a site-specific flood risk assessment for the proposed Road Maintenance Operations Facility at Ballyogan in Dún Laoghaire–Rathdown. The proposed development is within a Flood Zone B area (area at risk of flooding in a 1 in 1000 year return period flood). It is classified in the planning guidelines and under the zoning policy objective of DLRCDP as a less vulnerable development. A justification test is therefore not required, and the development is considered appropriate within a Flood Zone B. Never-the-less a commensurate flood risk assessment is required for the site to examine all sources of flooding and the risk of mobilisation of potential pollutants due to the road maintenance operations, where salt in solid or solution form holds the greatest risk to the receiving environment and to Carrickmines Stream in particular.

It was established in this SSFRA and from examination of CFRAMS predictions for flooding, that this site has the functionality of conveyance for flooding. There are no flood storage areas on the site. The site falls by approximately 2.5 m diagonally from north-west to the south-east with an historic spoil heap situated to the west of centre at the site. Ground reprofiling is required to facilitate proposed operations at the site, while allowing for falls for surface water drainage and maintaining the flood flow paths in the existing directions at the site. Flood risk to and from the proposed development was examined. The site is within a fluvial flood risk area for the 1 in 1000 year return period flood and all aspects of flood resilience for the design of the scheme were considered appropriate. An adjacent development to the west, which is the main Operations Centre for DLRCC has a significant surface water collection drainage system with attenuation facilities directly along the flood flow pathway from the west and it is anticipated that with the diversion of flows to the south where the adjacent property discharges to the main sewer, the cumulative effect of flooding may result in a reduced level of flooding in the subject site. Flood resilience measures are however still recommended to be required up to the maximum flood depth of 0.25 m, as predicted in the CFRAMS flood depth mapping.

All areas on site with the potential for the presence of salt or brine will have the surface water run-off collection connected to the foul sewer via linear channels. The main access, lay down areas for equipment and parking areas will drain to lined perimeter filter drains which will provide some treatment for surface water run-off, and it is recommended that the filter drains are maintained periodically. The filter drains connect up to a storm water collection system that drains via a petrol interceptor and an attenuation tank before connecting into the existing main sewer to the south-west of the site. A penstock is provided at the outlet from the attenuation tank in case of emergency spillage or flood event. In this way the water in the tank may be tested and pumped out and sent for treatment if it does not meet acceptable standards. An existing storm water sewer connection from the existing temporary storage area on site which is being actively used by DLRCC on this otherwise greenfield site will be made redundant. Consultation will be undertaken with Uisce Eireann and DLRCC to agree discharge rates and connections to the existing foul and storm sewers to the south of the site.

Flood warnings will be provided by Met Eireann to DLRCC and this will set the DLRCC Emergency Plan into action. Road maintenance operations at the new facility may be suspended and sand bags used to close off the open side of the concrete push wall in the Salt Barn. Vehicles may be repurposed for assistance with flood maintenance operations, and they can be moved over to the adjacent Operations Centre if required. The detailed emergency response will be set out in the Emergency Plan for the Road Maintenance Operations Facility.

It is expected that good practice in accordance with the Construction Environmental Management Plan (CEMP) will be adhered to during the construction of the proposed development to avoid potentially polluted water running off the site from building materials, fuels and oils, should a flood event occur during construction. It will be noted in the Construction Environmental Management Plan (CEMP) that Construction Personnel are to heed flood warnings and reschedule activities where necessary. All other sources of flooding were examined including a drainage impact assessment and it was considered that the objectives of the DLRCDP were met or improved.

Appendix A - Proposed Development Layout

NOTES:

1. EXISTING TOPOGRAPHICAL INFORMATION BASED UPON MESSRS" TECHSOL TECHNICAL SOLUTIONS LTD" DRAWING DLR8898 DATED OCTOBER 2023.
2. REFER TO DRAWING 24038-GDG-ZZ-P1-DR-C-0004 FOR LONG SECTIONS

LEGEND:-

- PROPOSED DEVELOPMENT BOUNDARY
- CONCRETE HARDSTANDING AREAS
- TARMAC HARDSTANDING AREAS
- LANDSCAPED AREAS
- 2.4m HIGH ACOUSTIC REFLECTIVE TIMBER FENCE
- SAFETY BARRIER
- PEDESTRIAN HANDRAIL
- 12m HIGH TWIN ARM LIGHTING COLUMN WITH LED FLOODLIGHT
- 12m HIGH SINGLE ARM LIGHTING COLUMN WITH LED FLOODLIGHT
- 8m HIGH SINGLE ARM LIGHTING COLUMN WITH LED FLOODLIGHT
- WALL MOUNTED LED FLOODLIGHT
- 8m HIGH TILT OVER CCTV COLUMN
- SAFETY BOLLARD

REV:	S4-P02	DATE:	03/05/24	DRAWN BY:	ASB	CHECKED BY:	RD
DESCRIPTION:	AMENDED FOLLOWING CLIENT REVIEW						

GDG
GAVIN & DOHERTY GEOSOLUTIONS
Unit A2,
Nutgrove Office Park,
Rathfarnham,
Dublin 14, D14 X627
Ireland.
T +353 (0)1-2071000
E info@gdgeo.com
www.gdgeo.com

ISSUED AS: PLANNING

CLIENT: dlr Comhairle Contae County Council

PROJECT TITLE:
ROAD MAINTENANCE OPERATIONS
FACILITY PROJECT
PLANNING APPLICATION

DRAWING No: 24038-GDG-ZZ-P1-DR-C-0003

Revision: -S4-P02

DRAWING TITLE:
FIGURE 3
PROPOSED SITE LAYOUT

SCALE:	1:200	SHEET SIZE:	A1	DATE:	22/04/24
DRAWN BY:	ASB	CHECKED BY:	EO	APPROVED BY:	RD

Appendix B - Dún Laoghaire-Rathdown County Council - County Development Plan 2022-2028 – Flood Zone Map 9

Mapping Notes

1. The lines of the Road Proposals shown are diagrammatic only and may be subject to change.
2. Wave Overtopping layer is relevant to the following maps only: Map No's. 2, 3, 4, 7, 10 & 14 unless noted otherwise.
3. These flood maps contain Land Use Zonings & Flooding information only. Please refer to the Land Use Zoning maps for more detailed land use objectives.

Flood Zone Map

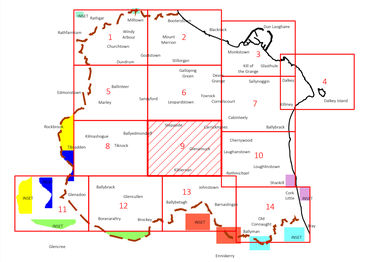
COMHAIRLE CHONTAE DHÚN LAOGHAIRE-RÁTH AN DÚIN

DÚN LAOGHAIRE-RATHDOWN COUNTY COUNCIL

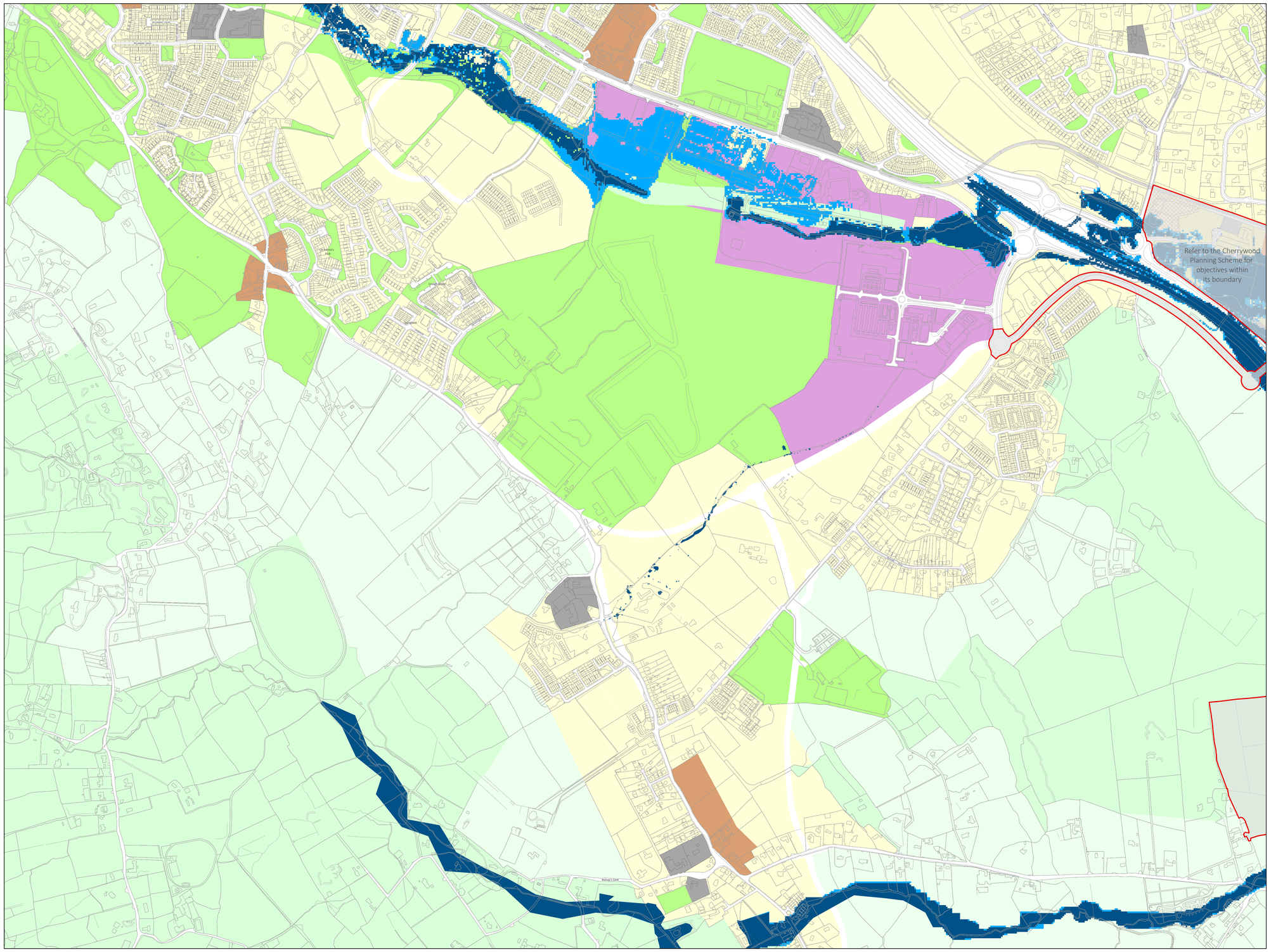
COUNTY DEVELOPMENT PLAN 2022-2028

Adopted March 2022

dlr Comhairle Contae County Council



INDEX



Land Use Zonings

Objective A	To provide residential development and improve residential amenity while protecting the existing residential amenities.
Objective A1	To provide for new residential communities and Sustainable Neighbourhood Infrastructure in accordance with approved local area plans.
Objective A2	To provide for the creation of sustainable residential neighbourhoods and preserve and protect residential amenity.
Objective B	To protect and improve rural amenity and to provide for the development of agriculture.
Objective DC	To protect, provide for and-or improve mixed-use district centre facilities.
Objective E	To provide for economic development and employment.
Objective F	To preserve and provide for open space with ancillary active recreational amenities.
Objective G	To protect and improve high amenity areas.
Objective GB	To protect and enhance the open nature of lands between urban areas.
Objective LIW	To improve and provide for low density warehousing/light industrial warehousing uses
Objective MIC	To consolidate and complete the development of the mixed use inner core to enhance and reinforce sustainable development.
Objective MOC	To provide for a mix of uses which complements the inner core, but with less retail and residential and more emphasis on employment and services.
Objective MTC	To protect, provide for and-or improve major town centre facilities.
Objective NC	To protect, provide for and-or improve mixed-use neighbourhood centre facilities.
Objective OE	To provide for office and enterprise development.
Objective TLI	To facilitate, support and enhance the development of third level education institutions.
Objective W	To provide for waterfront development and harbour related uses.
Objective SNI	To protect, improve and encourage the provision of sustainable neighbourhood infrastructure

Areas of Flood Risk Concern

- Fluvial - Surface Water
- Pluvial - Surface Water
- Pluvial - Foul
- Flood Zone A
- Flood Zone B
- Wave Overtopping
- County Boundary
- Boundary of Adopted Cherrywood Planning Scheme

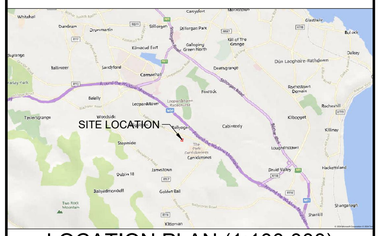
Metres: 0 50 100 200 300 400 500

Director of Planning: M Henchy
Senior Planner: L McGauran

Appendix C - Topographical Survey

NOTES

1. DO NOT SCALE FROM THIS DRAWING MANUALLY OR ELECTRONICALLY.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT PROJECT INFORMATION.
3. UNITS ARE IN METRES
4. SURVEY DATA IS REFERENCED TO THE ITM GRID
5. LEVELS ARE REFERENCED TO OSGM15 (ORDNANCE DATUM MALIN HEAD)



LOCATION PLAN (1:100,000)

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	07.05.2024	FIRST ISSUE	MM	MC	TO'L

4th Floor
1 Horgan's Quay
Waterfront Square
Cork
T23 PPT8
Tel: +353 (0)21 206 3920
Web: www.sweco.ie

SWECO

Client

GAVIN & DOHERTY GEOSOLUTIONS

Project Title

SSFRA FOR ROAD MAINTENANCE OPERATIONS FACILITY AT BALLYOGAN

Drawing Title

TOPOGRAPHY OF THE SITE

Purpose Of Issue

PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MM	GDG	MC	TO'L
Sheet Size	**Scale**	**Sweco Ref**	**Revision**
A1	1:250	66500466	P01

Drawing Number

66500466-SWE-00-00-D-Y-0001

P:\6535\66500466_SSFRA_for_Ballyogan_Brine_Manufacturing_Plant\000\D-Z-0000_Drawings\ 66500466-SWE-00-00-D-Y-0001.dwg

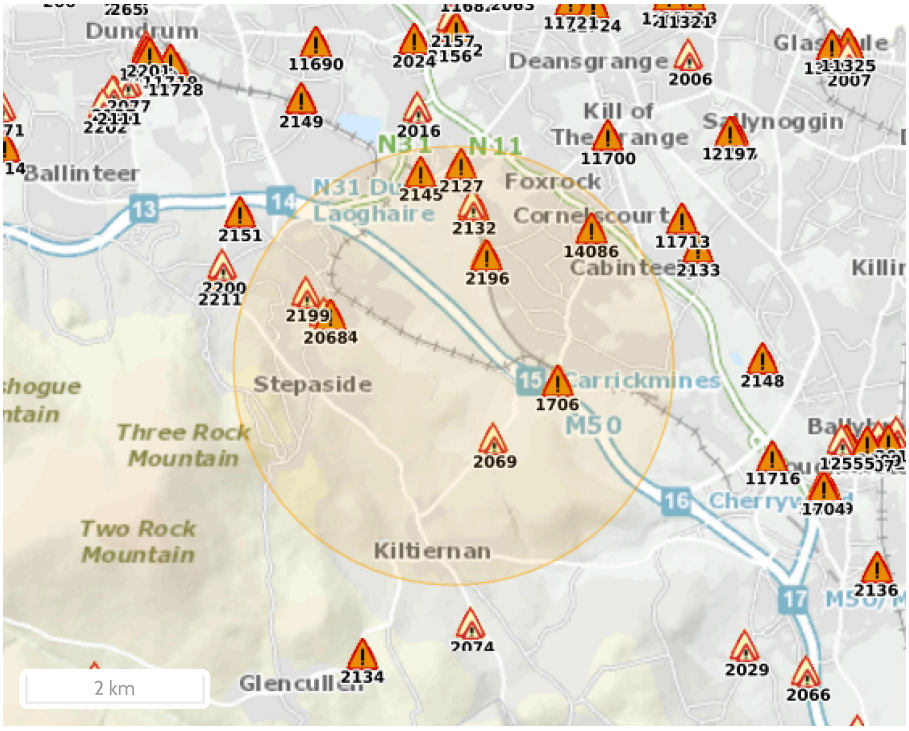
Appendix D - OPW Flood Map Report

Past Flood Event Local Area Summary Report

Report Produced: **30/4/2024 12:21**

This Past Flood Event Summary Report summarises all past flood events within 2.5 kilometres of the map centre.

This report has been downloaded from www.floodinfo.ie (the "**Website**"). The users should take account of the restrictions and limitations relating to the content and use of the Website that are explained in the Terms and Conditions. It is a condition of use of the Website that you agree to be bound by the disclaimer and other terms and conditions set out on the Website and to the privacy policy on the Website.



Map Legend

- Single Flood Event
- Recurring Flood Event
- Past Flood Event Extents
- Drainage Districts Benefited Lands*
- Land Commission Benefited Lands*
- Arterial Drainage Schemes Benefited Lands*

* Important: These maps do not indicate flood hazard or flood extent. Their purpose and scope is explained on Floodinfo.ie

17 Results

	Name (Flood_ID)	Start Date	Event Location
1.	Brighton Cottages Foxrock Recurring (ID-2196)	n/a	Exact Point
	Additional Information: Reports (7) Press Archive (0)		
2.	Shanganagh Carrickmines Nov 1982 (ID-1706)	06/11/1982	Approximate Point
	Additional Information: Reports (3) Press Archive (0)		
3.	Shanganagh Carrickmines May 1993 (ID-1707)	25/05/1993	Approximate Point
	Additional Information: Reports (7) Press Archive (0)		
4.	Shanganagh Carrickmines Dec 1997 (ID-1708)	18/12/1997	Approximate Point
	Additional Information: Reports (1) Press Archive (0)		
5.	Ramore Leopardstown Road May and June 1993 (ID-2127)	30/04/1993	Approximate Point
	Additional Information: Reports (2) Press Archive (0)		
6.	Torquay Road Foxrock Nov 1982 (ID-2132)	05/11/1982	Approximate Point
	Additional Information: Reports (1) Press Archive (0)		

	Name (Flood_ID)	Start Date	Event Location
7.	 Leopardstown Road Dec 1979 (ID-2145) **Additional Information:** Reports (1) Press Archive (0)	14/12/1979	Exact Point
8.	 Brighton Terrace Jan 1980 (ID-2152) **Additional Information:** Reports (1) Press Archive (0)	01/01/1980	Approximate Point
9.	 Brighton Cottages Dec 1978 (ID-2154) **Additional Information:** Reports (2) Press Archive (0)	26/12/1978	Exact Point
10.	 Kilgobbin Road Recurring (ID-2068) **Additional Information:** Reports (2) Press Archive (0)	n/a	Exact Point
11.	 Glenamuck Stream Glenamuck Road Recurring (ID-2069) **Additional Information:** Reports (2) Press Archive (0)	n/a	Exact Point
12.	 Torquay Road Recurring (ID-2195) **Additional Information:** Reports (4) Press Archive (0)	n/a	Exact Point
13.	 Carrickmines River Sandyford Hall Recurring (ID-2199) **Additional Information:** Reports (1) Press Archive (0)	n/a	Exact Point
14.	 Flooding at Cornelscourt Shopping Centre on 21/08/2021 (ID-14086) **Additional Information:** Reports (0) Press Archive (0)	21/08/2021	Approximate Point
15.	 Shanganagh Carrickmines Nov 2002 (ID-1703) **Additional Information:** Reports (1) Press Archive (0)	26/11/2002	Approximate Point
16.	 Flooding at Clonskeagh Road, Dublin 6 on 24th Oct 2011 (ID-11704) **Additional Information:** Reports (1) Press Archive (0)	23/10/2011	Exact Point
17.	 Flooding at Kilgobbin Road, Stepaside, Co. Dublin on 24th Oct 2011 (ID-11712) **Additional Information:** Reports (1) Press Archive (0)	23/10/2011	Exact Point

Appendix E - Proposed Drainage Layout

DESIGN CRITERIA (DLR 11TH APRIL 2024)

1. SURFACE WATER DISCHARGE FROM A DEVELOPMENT MUST BE RESTRICTED TO 2 L/S/HA OR THE CALCULATED QBAR, WHICHEVER IS GREATER; THIS LIMIT SHALL BE MARKED ON THE DRAINAGE DRAWING ON THE MANHOLE TO WHICH IT SHALL BE APPLIED, WITH DETAILS OF THE PROPOSED FLOW RESTRICTING DEVICE. THE APPLICANT SHOULD NOTE THAT QBAR IS CALCULATED FOR THE NET AREA DRAINED NOT THE GROSS AREA OF THE SITE (I.E. RED LINE BOUNDARY). NOTE THAT IN THE INTEREST OF CLARITY WHERE THE CALCULATED QBAR RATE FOR THE SITE IS LESS THAN 2 L/S/HA THEN A MINIMUM VALUE OF 2 L/S/HA SHOULD BE APPLIED, NOT A FLAT RATE OF 2 L/S, SUBJECT TO THE ORIFICE SIZE OF THE FLOW CONTROL DEVICE NOT BEING LESS THAN 50MM IN DIAMETER.

2. IF AN ATTENUATION SYSTEM IS PROPOSED IT SHOULD BE INLINE. THE PREFERENCE IS FOR ATTENUATION SYSTEMS THAT ALLOW FOR INFILTRATION AND /OR TREATMENT WITHIN THE SITE. THE APPLICANT SHOULD NOTE THAT CERTAIN LANDSCAPING ITEMS, SUCH AS TREES, MAY NOT BE COMPATIBLE WITH ATTENUATION SYSTEMS.

3. THE PROPOSAL MUST DEMONSTRATE THE REQUIREMENTS OF THE GREATER DUBLIN STRATEGIC DRAINAGE STUDY (GDSDS) POLICIES IN RELATION TO SUSTAINABLE DRAINAGE SYSTEMS (SUDS). THE DESIGN MUST INCORPORATE SUDS MEASURES APPROPRIATE TO THE SCALE OF THE PROPOSED DEVELOPMENT SUCH AS BIORETENTION AREAS, PERMEABLE PAVING, RAINWATER HARVESTING, RAINGARDENS, SWALES, ETC. SURFACE WATER SHOULD BE INFILTRATED AND OR REUSED LOCALLY AS MUCH AS POSSIBLE AND THE APPLICANT SHOULD DEMONSTRATE THAT REQUIRED INTERCEPTION AND/OR TREATMENT OF SURFACE WATER RUN-OFF IS ACHIEVED IN ACCORDANCE WITH GDSDS POLICY.

4. IF YOU PLAN ON COMING INTO THE EXISTING STORM WATER NETWORK ON THE DEPOT SITE, YOU WOULD NEED TO DEMONSTRATE THAT THE ATTENUATED FLOW FROM THE ROAD OP FACILITY SITE CAN BE ACCOMMODATED WITHIN THE EXISTING NETWORK/ATTENUATION SYSTEM. IF YOU COME IN TO THE SOUTH OF THE DEPOT BUILDING (SOMEWHERE NEAR SWMH 101) THERE WOULD BE NO ISSUE, AS YOU ARE NOT GOING THROUGH THE DEPOT NETWORK.

5. AS THE FOUL WATER AND WATER SUPPLY NETWORKS ARE UISCE EIREANN OWNED ASSETS, THE PROPOSER SHOULD CONTACT UISCE EIREANN TO DISCUSS ANY ISSUES REGARDING THE IMPACT OF THE PROPOSED DEVELOPMENT ON THEIR ASSETS. A PRE-CONNECTION ENQUIRY (PCE) SHOULD BE SUBMITTED TO UISCE EIREANN TO DETERMINE THE FEASIBILITY OF CONNECTING TO THE PUBLIC NETWORK.

PROVISIONAL DESIGN NOTES

1. STORM WATER DISCHARGE RATE / FLOW:
   - 1.1. GROSS DEVELOPMENT AREA = 0.49ha
   - 1.2. NET DEVELOPMENT AREA, BASIS OF DESIGN = 0.344ha (AREA INCLUDES ALLOWANCE ON 10% OF ADJACENT SITE TO THE NORTH TO REPLICATE POTENTIAL CAPTURE OF OVERLAND FLOW FROM NORTH)
   - 1.3. STORM WATER OUTFALL FLOW RATE RESTRICTED TO 2 l/s/ha OR THE CALCULATED QBAR, WHICHEVER IS GREATER; BASED ON NET DEVELOPMENT AREA. MINIMUM ORIFICE DIA. 50mm.
   - 1.4. DESIGN FLOWS:
     - 1.4.1. 0.344ha X 2 l/s/ha = 0.688 l/s (OVERRIDING CRITERIA WILL BE MINIMUM 50mm DIAMETER FLOW CONTROL)
     - 1.4.2. QBAR FROM = 0.96 l/s FROM HR WALLINGFORD GREENFIELD RUNOFF RATE ESTIMATION TOOL (OVERRIDING CRITERIA WILL BE MINIMUM 50mm DIAMETER FLOW CONTROL)
     - 1.4.3. PROPOSED FLOW CONTROL DEVICE - HYDROBRAKE BY HYDRO INTERNATIONAL UNIT DESIGNATION CHE-0050-1600-1800-1600
     - 1.4.4. DISCHARGE FLOW RATE 1.5 l/s (EQUIVALENT TO 1.56x QBAR, RESULTANT OF MINIMUM 50mm DIAMETER FLOW CONTROL).
     - 1.4.5. RESULTANT STORAGE REQUIRED ON SITE 255m³. LOCATION SHOW INDICATIVE, DISTRIBUTION OF STORAGE ACROSS SITE TO BE DETERMINED DURING DETAILED DESIGN.

2. IN LINE CELLULAR CRATE STORM WATER ATTENUATION SYSTEM PROPOSED. ATTENUATION WILL SIT DOWNSTREAM OF INTERCEPTOR TO MINIMISES SILTS AND DETRITUS ENTERING ATTENUATION TANK. ATTENUATION SYSTEM PROVISIONALLY SIZED TO ACCOMMODATE 30 YEAR & 100 YEAR RETURN PERIOD WITH 30% CLIMATE CHANGE. NO INFILTRATION ALLOWED FOR IN PROVISIONAL DESIGN, GROUND INVESTIGATION REPORT AWAITED. INFILTRATION WILL BE INCLUDED IN DETAILED DESIGN IF GROUND CONDITIONS ALLOW. FOOTPRINT OF ATTENUATION SUBJECT TO CHANGE. DRAINAGE NETWORK WILL BE OPTIMIZED DURING DETAILED DESIGN STAGE.

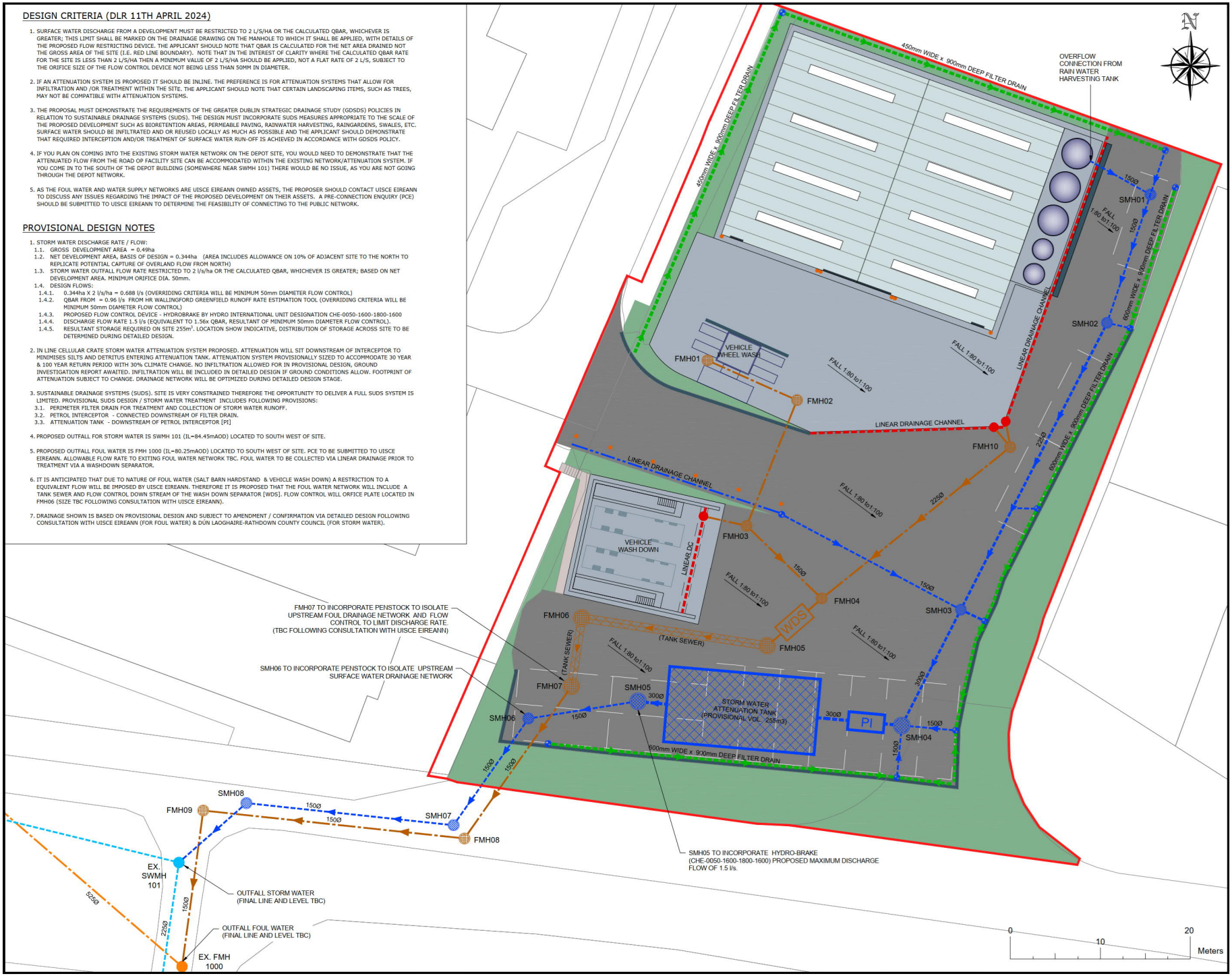
3. SUSTAINABLE DRAINAGE SYSTEMS (SUDS). SITE IS VERY CONSTRAINED THEREFORE THE OPPORTUNITY TO DELIVER A FULL SUDS SYSTEM IS LIMITED. PROVISIONAL SUDS DESIGN / STORM WATER TREATMENT INCLUDES FOLLOWING PROVISIONS:
   - 3.1. PERIMETER FILTER DRAIN FOR TREATMENT AND COLLECTION OF STORM WATER RUNOFF.
   - 3.2. PETROL INTERCEPTOR - CONNECTED DOWNSTREAM OF FILTER DRAIN.
   - 3.3. ATTENUATION TANK - DOWNSTREAM OF PETROL INTERCEPTOR [PI]

4. PROPOSED OUTFALL FOR STORM WATER IS SWMH 101 (IL=84.45mAOD) LOCATED TO SOUTH WEST OF SITE.

5. PROPOSED OUTFALL FOUL WATER IS FMH 1000 (IL=80.25mAOD) LOCATED TO SOUTH WEST OF SITE. PCE TO BE SUBMITTED TO UISCE EIREANN. ALLOWABLE FLOW RATE TO EXITING FOUL WATER NETWORK TBC. FOUL WATER TO BE COLLECTED VIA LINEAR DRAINAGE PRIOR TO TREATMENT VIA A WASHDOWN SEPARATOR.

6. IT IS ANTICIPATED THAT DUE TO NATURE OF FOUL WATER (SALT BARN HARDSTAND & VEHICLE WASH DOWN) A RESTRICTION TO A EQUIVALENT FLOW WILL BE IMPOSED BY UISCE EIREANN. THEREFORE IT IS PROPOSED THAT THE FOUL WATER NETWORK WILL INCLUDE A TANK SEWER AND FLOW CONTROL DOWN STREAM OF THE WASH DOWN SEPARATOR [WDS]. FLOW CONTROL WILL ORFICE PLATE LOCATED IN FMH06 (SIZE TBC FOLLOWING CONSULTATION WITH UISCE EIREANN).

7. DRAINAGE SHOWN IS BASED ON PROVISIONAL DESIGN AND SUBJECT TO AMENDMENT / CONFIRMATION VIA DETAILED DESIGN FOLLOWING CONSULTATION WITH UISCE EIREANN (FOR FOUL WATER) & DÚN LAOGHAIRE-RATHDOWN COUNTY COUNCIL (FOR STORM WATER).



NOTES:

1. DO NOT SCALE FROM THIS DRAWING.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT DRAWINGS AND DOCUMENTS ASSOCIATED WITH THIS PROJECT.
3. EXISTING TOPOGRAPHICAL INFORMATION BASED UPON MESSRS" TECHSOL TECHNICAL SOLUTIONS LTD" DRAWING DLR8898 DATED OCTOBER 2023.
4. DRAINAGE WORKS TO BE IN ACCORDANCE WITH REVISION 2 OF UISCE EIREANN (IRISH WATER) WASTEWATER CODE OF PRACTICE AND APPROVED BY UISCE EIREANN (FOR FOUL WATER) & DÚN LAOGHAIRE-RATHDOWN COUNTY COUNCIL (FOR STORM WATER).
5. DRAINAGE SHOWN IS BASED ON PROVISIONAL DESIGN AND SUBJECT TO AMENDMENT / CONFIRMATION VIA DETAILED DESIGN POST PLANNING APPROVAL.
6. SURFACE WATER ATTENUATION SIZING WILL BE REVISITED UPON RECEIPT AND REVIEW OF UP COMING GROUND INVESTIGATIONS - NO INFILTRATION ALLOWED FOR IN PROVISIONAL DESIGN.
7. ALL FOUL SEWER MANHOLES TO BE SEALED AND LOCKABLE.

DRAWING KEY

- EXISTING SURFACE WATER SEWER
- EXISTING FOUL WATER SEWER
- SURFACE WATER SEWER
- FILTER DRAIN
- LINEAR DRAINAGE (STORM)
- FOUL WATER SEWER
- LINEAR DRAINAGE (FOUL)
- PI — PETROL INTERCEPTOR
- WDS — WASHDOWN SEPARATOR
- PROPOSED DEVELOPMENT BOUNDARY

REV:	S4-P03	DATE:	17/07/2024	DRAWN BY:	DPC	CHECKED BY:	BP
DESCRIPTION:	DRAINAGE NETWORK REVISED BASED ON COMMENTS RECEIVED						
REV:	S4-P02	DATE:	16/05/24	DRAWN BY:	ASB	CHECKED BY:	RD
DESCRIPTION:	AMENDED FOLLOWING CLIENT REVIEW & SSFRA						

GDG GAVIN & DOHERTY GEOSOLUTIONS
Unit A2,
Nutgrove Office Park,
Rathfarnham,
Dublin 14, D14 X627
Ireland.
T +353 (0)1-2071000
E info@gdgeo.com
www.gdgeo.com

ISSUED AS: PLANNING

CLIENT: dlr Comhairle Contae County Council

PROJECT TITLE: ROAD MAINTENANCE OPERATIONS FACILITY PROJECT PLANNING APPLICATION

DRAWING No: 24038-GDG-ZZ-P1-DR-C-0012

Revision: -S4-P03

DRAWING TITLE: FIGURE 12 PROPOSED DRAINAGE PLAN

SCALE:	1:200	SHEET SIZE:	A1	DATE:	22/04/24
DRAWN BY:	BP	CHECKED BY:	AGL	APPROVED BY:	RD

Appendix F - EASTERN CFRAM – Fluvial Flood Mapping

Node Label	Water Level (OD) 10% AEP	Flow (m³/s) 10% AEP	Water Level (OD) 1% AEP	Flow (m³/s) 1% AEP	Water Level (OD) 0.1% AEP	Flow (m³/s) 0.1% AEP
1060M00831J	102.43	3.66	102.75	6.86	103.79	12.43
1060M00823	101.66	N/A	101.88	N/A	102.13	N/A
1060M00818I	100.69	N/A	100.85	N/A	100.98	N/A
1060M00764	94.43	N/A	94.50	N/A	94.54	N/A
1060M00712I	89.55	N/A	90.03	N/A	90.06	N/A
1060M00664	81.69	N/A	81.97	N/A	82.15	N/A

Carysfort Maretimo flooding shown upstream of this point.

1060M00831J

1060M00823

1060M00818I

1060M00764

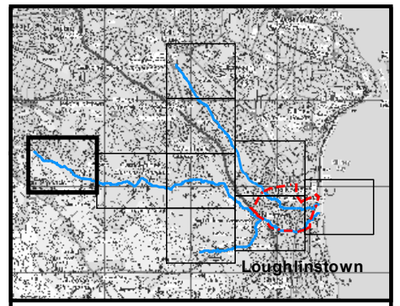
1060M00712I

1060M00664

319200 319400 319600 319800 320000 320200 320400 320600 320800

225000 224800 224600 224400 224200 224000

0 50 100 200 300 400 500 Metres



IMPORTANT USER NOTE:
THE VIEWER OF THIS MAP SHOULD REFER TO THE DISCLAIMER, GUIDANCE NOTES AND CONDITIONS OF USE THAT ACCOMPANY THIS MAP.

Legend

- 10% Fluvial AEP Event
- 1% Fluvial AEP Event
- 0.1% Fluvial AEP Event
- Modelled River Centreline
- AFA Extents
- Embankment
- Wall
- Defended Area
- 1% AEP Standard of Protection of Flood Defence
- 1% AEP (Walls / Embankments)
- Node Point
- Node ID Node Label

FINAL

REV:	NOTE:	DATE:
01	Removal of Embankments (Pg 5)	03/11/17

EASTERN CFRAM STUDY
CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT

OPW
Oifig na nOibreacha Poiblí
The Office of Public Works

RPS

The Office of Public Works
Jonathan Swift Street
Trim
Co Meath

Elmwood House
74 Boucher Road
Belfast
BT12 6RZ

T +44(0) 28 90 667914
F +44(0) 28 90 668286
W www.rpsgroup.com
E ireland@rpsgroup.com

Map: Shanganagh-Carrickmines River Fluvial Flood Extents

Map Type:	EXTENT	
Source:	FLUVIAL	
Map Area:	HPW	
Scenario:	CURRENT	
Drawn By :	C.C.	Date : 3 November 2017
Checked By :	A.S.	Date : 3 November 2017
Approved By :	G.G.	Date : 3 November 2017

Drawing No. : E10LOU_EXFCD_F1_01

Map Series : Page 1 of 9

Drawing Scale : 1:5,000 @A3

Node Label	Water Level (OD) 10% AEP	Flow (m³/s) 10% AEP	Water Level (OD) 1% AEP	Flow (m³/s) 1% AEP	Water Level (OD) 0.1% AEP	Flow (m³/s) 0.1% AEP
1060M00614	76.65	9.13	76.93	16.49	77.16	25.6
1060M00560J	71.83	N/A	73.07	N/A	73.15	N/A
1060M00538J	67.08	10.39	67.15	19.06	67.16	28.95
1060M00534	66.45	10.48	66.60	19.23	66.76	28.82
1060M00532	66.30	12.53	66.51	23.45	66.70	35.96
1060M00515	65.57	12.98	66.08	23.91	66.32	36.73
1060M00513D	65.67	N/A	66.13	N/A	66.34	N/A
1060M00467	62.43	N/A	62.52	N/A	62.62	N/A

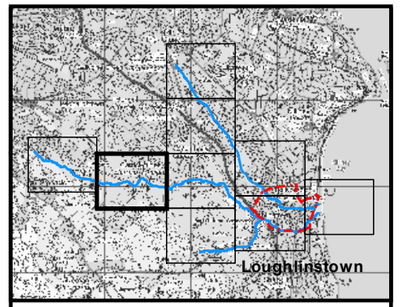
320800 321000 321200 321400 321600 321800 322000 322200 322400

224600 224400 224200 224000 223800 223600

1060M00614 1060M00560J 1060M00538J 1060M00534 1060M00532 1060M00515 1060M00513D 1060M00467

CARRICKMINES GREAT

0 50 100 200 300 400 500 Metres



IMPORTANT USER NOTE:
THE VIEWER OF THIS MAP SHOULD REFER TO THE DISCLAIMER, GUIDANCE NOTES AND CONDITIONS OF USE THAT ACCOMPANY THIS MAP.

Legend

- 10% Fluvial AEP Event
- 1% Fluvial AEP Event
- 0.1% Fluvial AEP Event
- Modelled River Centreline
- AFA Extents
- Embankment
- Wall
- Defended Area
- 1% AEP Standard of Protection of Flood Defence
- 1% AEP (Walls / Embankments)
- Node Point
- Node ID Node Label

FINAL

REV:	NOTE:	DATE:
01	Removal of Embankments (Pg 5)	03/11/17

EASTERN CFRAM STUDY
CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT

OPW Oifig na nOibreacha Poiblí The Office of Public Works

RPS

The Office of Public Works
Jonathan Swift Street
Trim
Co Meath

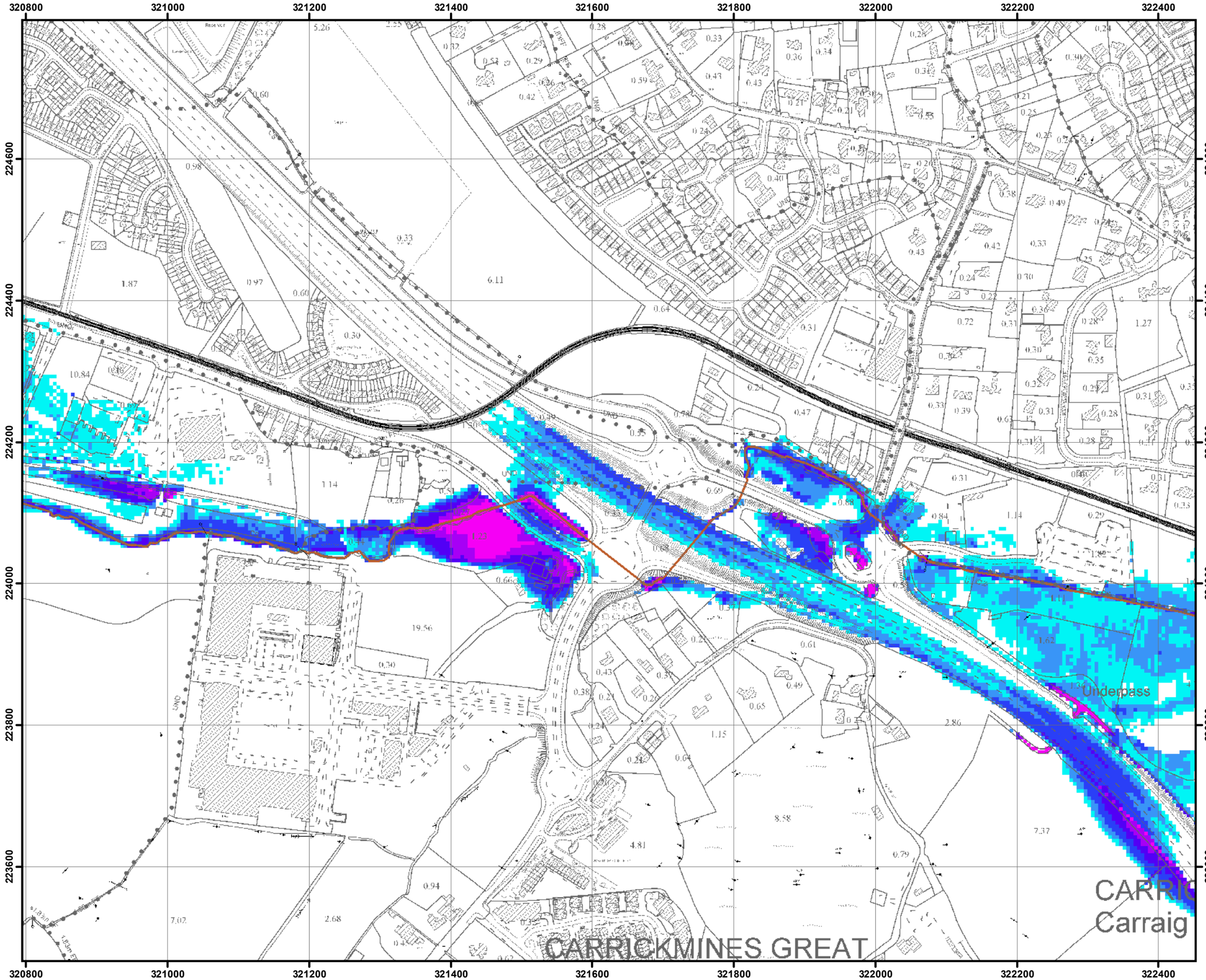
Elmwood House
74 Boucher Road
Belfast
BT12 6RZ

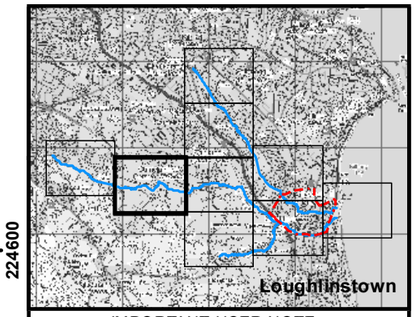
T +44(0) 28 90 667914
F +44(0) 28 90 668286
W www.rpsgroup.com
E ireland@rpsgroup.com

Map: Shanganagh-Carrickmines River Fluvial Flood Extents

Map Type:	EXTENT
Source:	FLUVIAL
Map Area:	HPW
Scenario:	CURRENT
Drawn By : C.C.	Date : 3 November 2017
Checked By : A.S.	Date : 3 November 2017
Approved By : G.G.	Date : 3 November 2017
Drawing No. :	E10LOU_EXFCD_F1_02
Map Series :	Page 2 of 9
Drawing Scale :	1:5,000 @A3

Appendix G - EASTERN CFRAM – Shanganagh-Carrickmines River 0.1% Fluvial AEP Flood Depth





IMPORTANT USER NOTE:
THE VIEWER OF THIS MAP SHOULD REFER TO THE DISCLAIMER, GUIDANCE NOTES AND CONDITIONS OF USE THAT ACCOMPANY THIS MAP.

Legend

0.1% Fluvial AEP Flood Depth

- 0 - 0.25m
- 0.25 - 0.5m
- 0.5 - 1m
- 1.0 - 1.5m
- 1.5 - 2m
- >2m
- Modelled River Centreline
- AFA Extents

FINAL

REV:	NOTE:	DATE:

EASTERN CFRAM STUDY
CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT

OPW
Oifig na nOibreacha Poiblí
The Office of Public Works

RPS

The Office of Public Works
Jonathan Swift Street
Trim
Co Meath

Elmwood House
74 Boucher Road
Belfast
BT12 6RZ

T +44(0) 28 90 667914
F +44(0) 28 90 668286
W www.rpsgroup.com
E ireland@rpsgroup.com

Map: Shanganagh-Carrickmines River Tidal Flood Depths

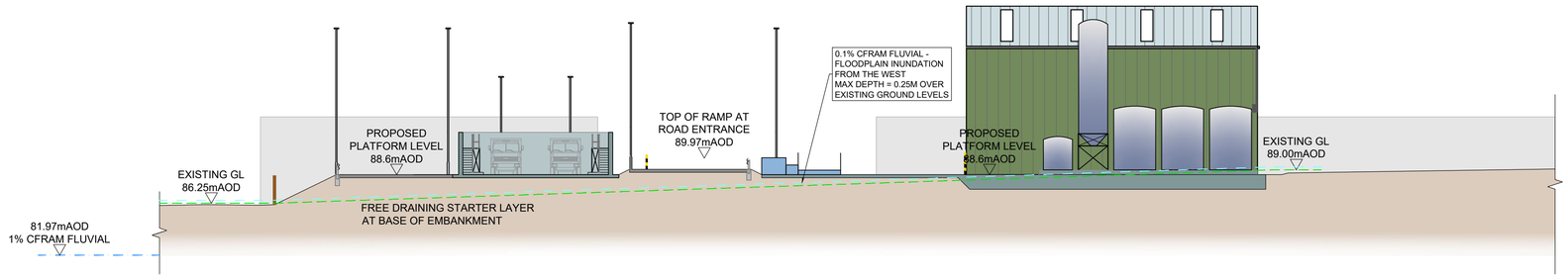
Map Type:	DEPTH	
Source:	FLUVIAL	
Map Area:	HPW	
Scenario:	CURRENT	
Drawn By :	C.C.	**Date :** 3 November 2017
Checked By :	A.S.	**Date :** 3 November 2017
Approved By :	G.G	**Date :** 3 November 2017

Drawing No. :
E10LOU_DPFCD001_F1_02

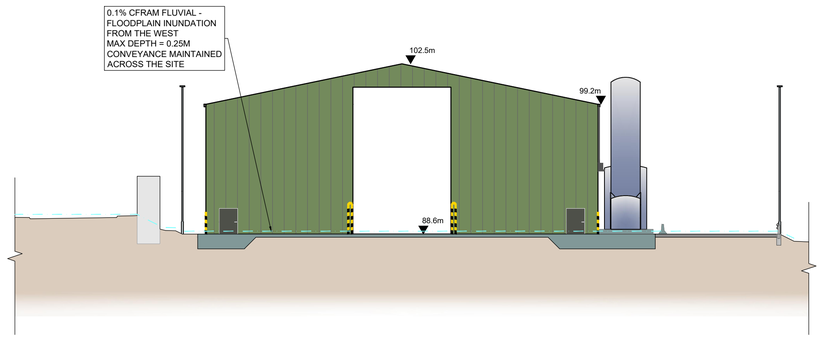
Map Series : Page 2 of 9

Drawing Scale : 1:5,000 @A3

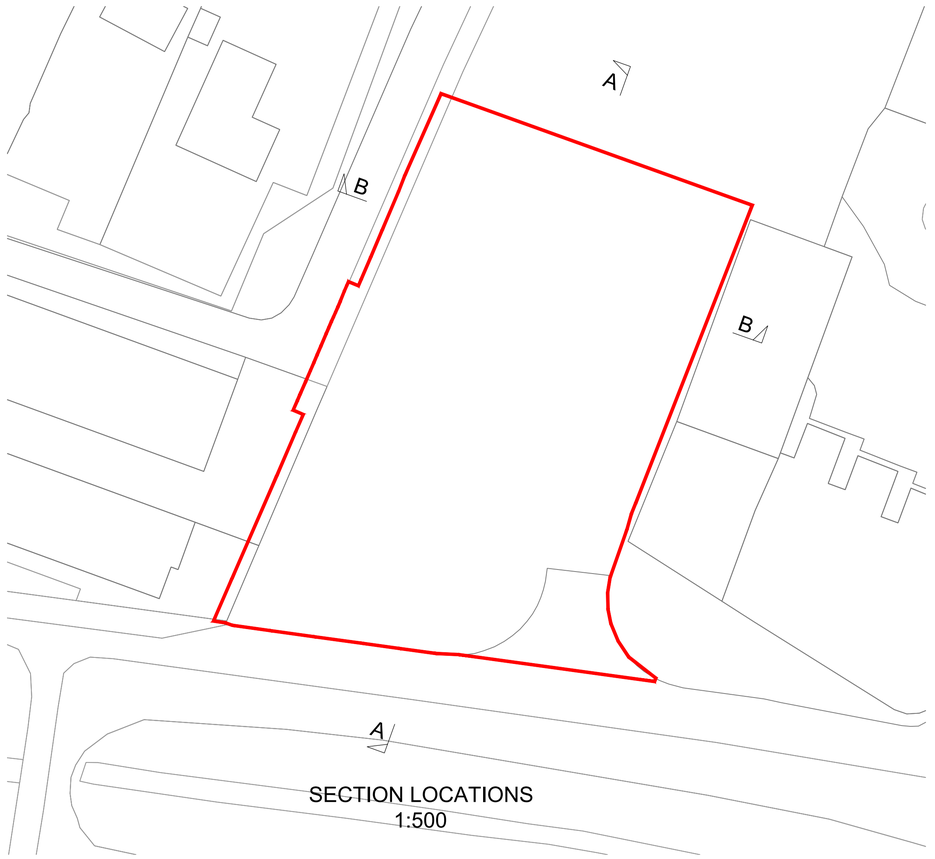
Appendix H - Source – Pathway – Receptor Model



SECTION A-A
1:250



SECTION B-B
1:250



SECTION LOCATIONS
1:500

NOTES

1. DO NOT SCALE FROM THIS DRAWING MANUALLY OR ELECTRONICALLY.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT PROJECT INFORMATION.
3. UNITS ARE IN METRES
4. SURVEY DATA IS REFERENCED TO THE ITM GRID
5. LEVELS ARE REFERENCED TO OSGM15 (ORDNANCE DATUM MALIN HEAD)

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	07.05.2024	FIRST ISSUE	MM	MC	TO'L

4th Floor
1 Horgan's Quay
Waterfront Square
Cork
T23 PPT8
Tel: +353 (0)21 206 3920
Web: www.sweco.ie

SWECO

Client
GAVIN & DOHERTY GEOSOLUTIONS

Project Title
SSFRA FOR ROAD MAINTENANCE OPERATIONS FACILITY AT BALLYOGAN

Drawing Title
SOURCE PATHWAY RECEPTOR MODEL

Purpose Of Issue
PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MM	GDG	MC	TO'L

Sheet Size	Scale	Sweco Ref	Revision
A1	1:250	66500466	P01

Drawing Number
66500466-SWE-00-00-D-J-0001

P:\6535\66500466_SSFRA_for_Ballyogan_Brine_Manufacturing_Plant\000\D-Z-0000_Drawings\ 66500466-SWE-00-00-D-J-0001.dwg

Appendix I - DLRCC Business Case

Dun Laoghaire Rathdown County Council Business Case

Installation of a Brine Manufacturing Facility and Conversion of Winter Gritting Fleet to use Pre-Wet Salt

Contents

1.0 Current Policy and Weather Trends

Winter maintenance of public roads involves dealing with severe weather conditions such as icy roads and snow clearance operations. Dun Laoghaire Rathdown County Council's key objective in this regard is to keep major routes safe and as free as possible from hazardous road conditions. The County has a schedule of designated priority routes which are treated with salt, each time it is deemed necessary to do so. The Winter Maintenance season starts on 1st October and ends on 30th April every year (29 weeks). It is broadly accepted by meteorological experts worldwide that the frequency and severity of extreme weather events will continue to grow due to the ongoing effects of global warming. Extreme weather events can include droughts, increased rainfall, freezing weather and snow. In February 2018, Met Eireann issued its first 'Status Red' warning for snow on record, which resulted in the closure of all schools in the County for a prolonged period, and leaving many businesses affected with water and power outages. If weather events like this are going to become more common, it's imperative that Dun Laoghaire Rathdown County Council has an optimised and effective Winter Maintenance regime in place that is capable of meeting these increased demands.

2.0 Current Practice – Road Network

Dun Laoghaire Rathdown County Council is responsible for 26km of National Primary and Secondary Roads, 113km of Regional Roads, and 647km of Local Primary, Secondary, and Tertiary Roads. Motorway (M11 and M50) winter gritting is carried out by contractors on behalf of Transport Infrastructure Ireland (TII). Dun Laoghaire Rathdown County Council's Winter Maintenance regime is confined to National Primary (NP) and National Secondary (NS) routes, and a percentage of regional routes and local routes as outlined below.

	Gritted (km)	Total Roads in County (km)	% Gritted
NP & NS	30	30	100%
Regional	97	113	85%
Local	96	647	15%

Table A – Extent of Road Gritting Operations in Dun Laoghaire Rathdown

Dun Laoghaire Rathdown County Council directly treats 219km of the network using dry salt by deploying a fleet of 10 trucks complete with gritters to undertake this salting operation. A treatment run for each gritting truck would typically take approximately 2 hours to complete. Gritting normally take place at 7pm and/or 5am, depending on the weather conditions. Despite ever increasing demands to extend our Winter Maintenance Operation, we are currently at capacity in this regard.

3.0 Current Practice - Methodology

Dun Laoghaire Rathdown County Council uses dry rock salt in its operation with approximately 27 tonnes of salt being spread per treatment run on a night where road temperatures would typically fall to between 0 and -2 degs Celsius. It is generally accepted that salt is a cost effective anti-icer and de-icer. However, the conventional practice of preventative treatments using dry rock salt is increasingly becoming seen as being inefficient and wasteful as there is considerable evidence that a significant percentage of dry salt does not stay in the carriageway lanes due to “blow off” from passing vehicles. There is another significant issue with rock salt in that it contains approximately 8-10% impurities such as soil which eventually end up in road drainage systems having the potential to cause blockages over time.

4.0 Future Proposal – Pre-wet Technology

In a proactive response to the performance constraints associated with dry salt applications, there has been a considerable move away from the treatment methodology of using dry rock salt to the use of pre-wet salting technologies in Winter Maintenance operations.

Several Local Authorities in Ireland have already transitioned to pre-wet salting technologies such as Westmeath, Offaly, Louth, Cavan, Clare, and Donegal to name but a few. Transport Infrastructure Ireland who are responsible for the maintenance of the motorways, national primary and secondary routes around the country and for whom Dun Laoghaire Rathdown County Council carry out winter maintenance on the national primary and secondary routes, have indicated at recent seminars that the majority of local authorities will have transitioned to pre-wet technologies for use on the national primary and secondary routes by 2025. All profit driven private Motorway Maintenance Contractors in Ireland already employ pre-wet technologies for winter maintenance treatments further proving the financial and efficacy benefits of doing so.

Photographs of a typical Pre-Wet Salting facility can be seen in Appendix 1.

For Dun Laoghaire Rathdown County Council, there are several recognised benefits of using a pre-wet Salting operation as opposed to the dry rock salt operation that we currently use. These benefits are as follows:

- Significant environmental benefits arising from the fact that less salt being spread resulting in less environmental impact and less salt in the water table, helping us to achieve our Corporate Goal No.1 - "*show leadership in protecting our environment*."
- Significant financial benefits arising out of the reduction in the amounts of salt being applied in given winter situations, helping us to achieve our Corporate Goal No.8 – "*optimising human, financial and physical resources*."
- Reduction in salt haulage costs as frequency of salt delivery reduced, also contributing to reduction in our carbon footprint (Corporate Goal No.1).
- More efficient salting operation arising from the reduction in the spread of salt outside the target zone (carriageway lanes) and the pre-wet salt is proven to have more longevity on the road surface (Corporate Goal No.8).
- Greater operational efficiency as pre wet technologies will result in an increase in residual salt levels therefore leading to a reduction in treatment runs. More effective in severe weather and lower temperatures. Pre-wet can also be applied two days before snow arrives (Corporate Goal No.8) and will still be effective.

- Transitioning to use pre-wet technology will also enable Dun Laoghaire Rathdown County Council to achieve an important action in our upcoming Climate Action Plan 2024-2029 arising from our Climate Adaption Strategy i.e. "*to investigate the use of alternative systems, such as brine, for treating road surfaces during cold weather events*".
- The introduction of pre-wet technologies into our winter maintenance programme in Dun Laoghaire Rathdown County Council would also serve to achieve a key action in our Directorate Team Plan – "*Investigate alternatives to optimise the Winter Maintenance Operations".*

5.0 Future Proposal – Dry Salt v Pre-Wet

A detailed analysis outlining the potential savings which could be achieved through a reduction in salt usage should Dun Laoghaire Rathdown County Council transition over to pre-wet Technology has been prepared. Table B below shows the financial and carbon savings that could be achieved over the course of a full winter maintenance season (29 weeks approx.) for the entire winter gritting route in Dun Laoghaire Rathdown. Based on an average spread rate of 15g/m2 which is the typical treatment density of salt per area currently being used, the savings would equate to 662 tonnes or in monetary terms €33,612.00 over the course of a single winter maintenance season, based on a total of 54 gritting treatments (2 per week approx.) The reduction in salt usage also results in reduction of carbon footprint for the entire gritting process due to reduced haulage requirements. Table B below shows that over an entire winter maintenance season, again based on a typical spread rate density of 15mg/2, a total of 33 tonnes of Carbon could be saved.

Route length (KM)	Total Driving length (KM)	Spread Width (m)	Area to Treat (m^2)	Model	Spread (g/m^2)	Total Salt Cost (per Run)	Salt Savings (per Run)	No or Runs per season (No)	Total Salt Cost	Salt Cost Savings (per Season)	Salt Savings (Tonnes per Season)	Carbon Savings (Tonnes per Season)
219.12	363.11	Varied	1847832.22	100:0 (Dry)	15	€1,802	€0	60	€96,348	€0	0.0	0.0
219.12	363.11	Varied	1847832.22	70:30 (PreWet)	13	€1,349	€453	54	€66,389	€33,612	662.2	33.7
219.12	363.11	Varied	1847832.22	0:100 (FullWet)	20	€1,285	€517	54	€69,375	€30,263	1205.2	60.0

Table B –Financial and Carbon Savings on Salt per Season

This is not to mention all the other advantages that the use of brine has to offer such as the environmental (reduced salt in surface water systems) and longevity benefits as mentioned in Section 4.0 above.

6.0 Future Proposal – Pre-Wet Winter Maintenance Facility, Operations Depot at Ballyogan

Over the last couple of months, several meetings and site visits have already been held by technical staff in the Road Maintenance section with industry experts and other Local Authorities who are currently using pre-wet technologies. These meetings were held to gain an understanding of the full benefits of transitioning to pre-wet and learn from various experiences, and to identify the most suitable equipment and technology which would be best suited to meet the existing and future needs of Dun Laoghaire Rathdown County Council for a pre-wet winter maintenance facility. We are proposing that the infrastructure for such an operation would be based in our existing operations centre at Ballyogan.

A review was also conducted of the existing operations centre site to determine where the new Brine Manufacturing Facility infrastructure could be best placed to optimise the winter maintenance operation, but also to maximise the use of the existing operations centre footprint. In June 2023 a meeting was held on site with a representative of the private company Wintertech who are the market leader for the supply of Brine Manufacturing Facility systems in Ireland and the UK. Having reviewed the existing operations centre site at Ballyogan it was felt that there is no location suitable on the existing site footprint that will not interfere with existing infrastructure (foul sewer network, high voltage overhead power lines), or interfere with existing operations functions such as waste disposal from roads and cleansing operations. The Brine Manufacturing Facility systems require an overall footprint of approximately 20 metres x 5 metres but also requires a clear height of 11 metres for the brine salt silo which can hold an entire season's salt. The ESB insist on an exclusion zone of at least 6 metres each side of

the power lines and this distance is likely to be much greater given the height of the proposed salt silo.

In addition to this, there are other reasons why we think that the existing operations centre site unsuitable for the Brine Manufacturing Facility:

- It is projected that an additional 40/50 staff from the Housing Department are expected to be working out of the Ballyogan operations centre soon which could include up to 20/25 additional Council vehicles will be based there. If this occurs, there will be a significant increase in traffic levels on site, making it more difficult logistically for winter maintenance vehicles to get loaded with brine at one end of the operations centre site and then to get loaded with rock salt at the opposite end. It would seem to make more sense to keep the rock salt barn and the Brine Manufacturing Facility as close to each other as possible which will make the operation more efficient.
- Additional parking spaces will be required within the existing operations centre footprint for the additional 20/25 additional Council vehicles will be based there.

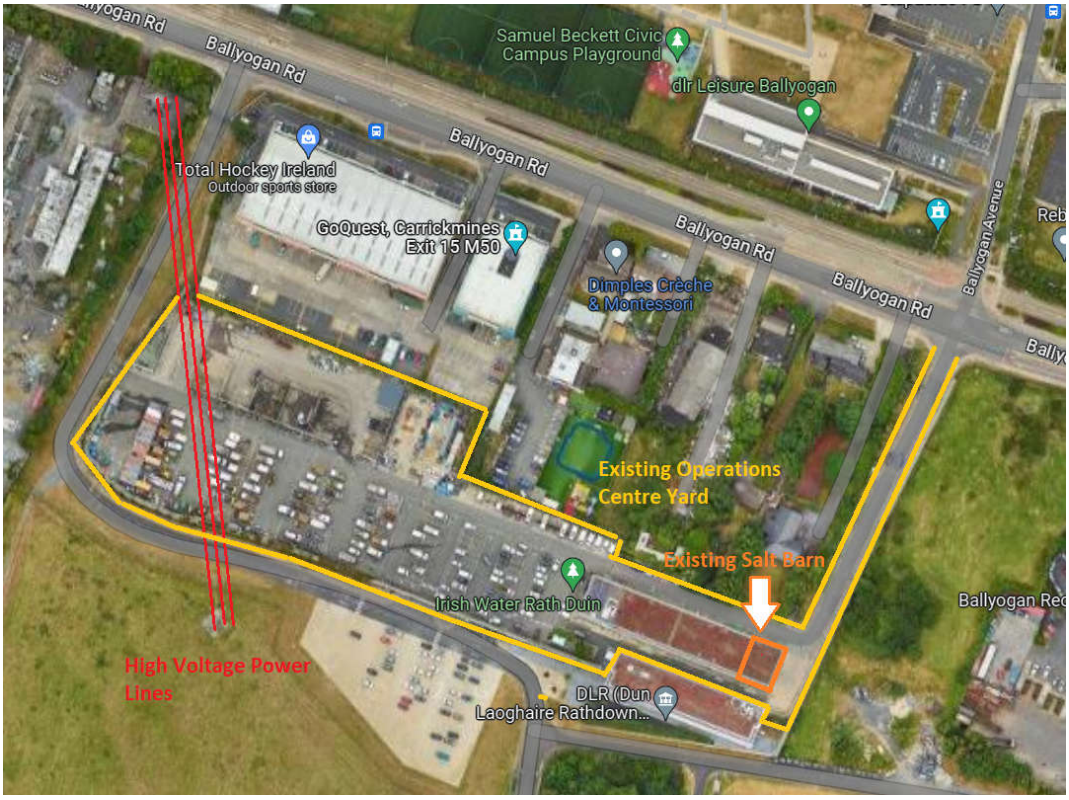


Figure 1 – Existing Operations Centre at Ballyogan

- Driving salt laden winter maintenance vehicles through to a brine facility at western end of site, could result in salt spillage on the road adjacent to the car parking area and as salt is highly corrosive, this could ultimately result in the deterioration of Council owned vehicles.

6.1 Option 1 – Move Batching Plant to Greenfield Site and Retain Existing Salt Barn

Given that there is little or no possibility of impacting on the existing operations functions or the future capacity requirements by constructing the Brine Manufacturing Facility on the existing operations centre footprint, the first option is to install the proposed Brine Manufacturing Facility to the adjacent, unused green field site that currently exists between the Ballyogan Operations Centre and the Ballyogan Recycling Facility.

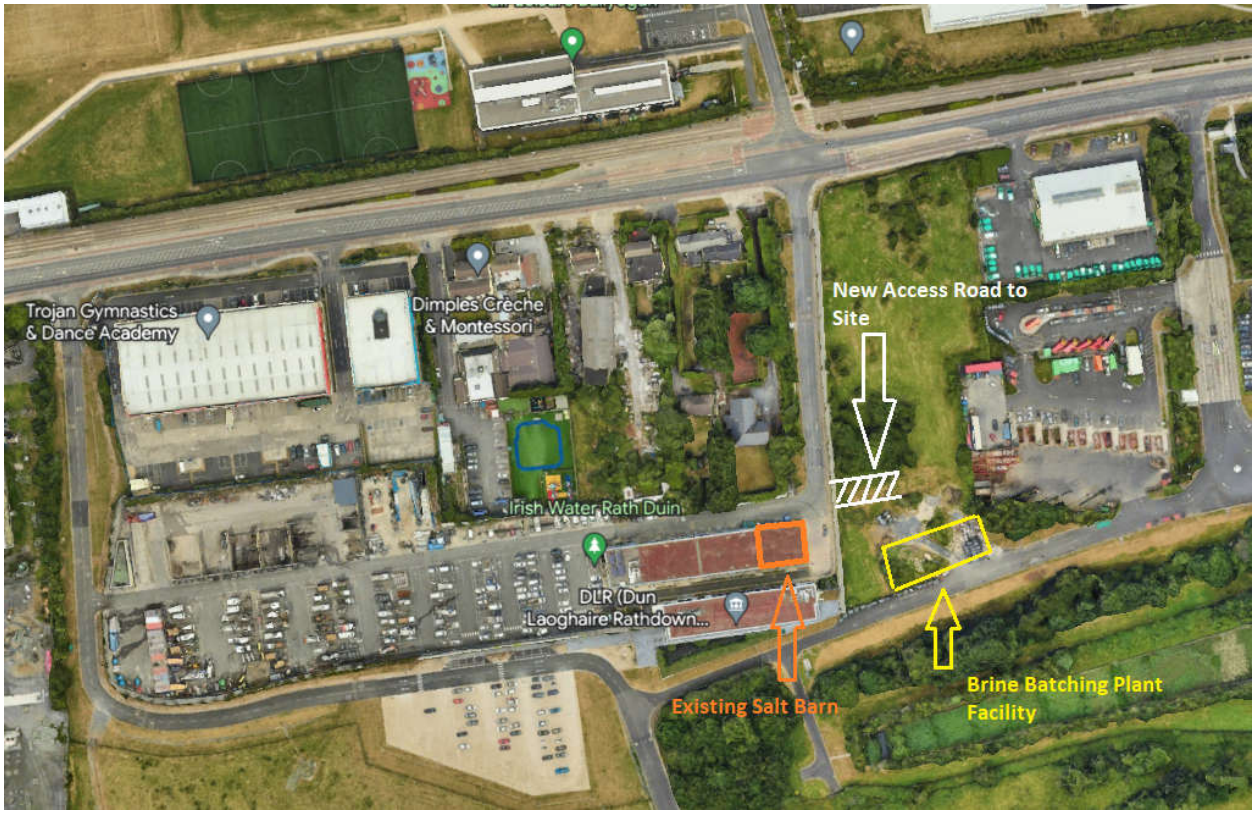


Figure 2 – Location for New Brine Manufacturing Facility Facility

This site is in the ownership of Dun Laoghaire Rathdown County Council and is currently zone for Economic Development and Employment which aligns with this proposed use. There are several reasons to support this proposal:

- There are no issues with existing services on the greenfield site.
- It would mean that the salt barn and the brine batching facility are both located at the eastern end of the operations centre, optimising the efficiency of the winter maintenance function whilst not interfering with the other Council operations at the eastern end of the centre.
- It would eliminate the requirement for salt laden trucks to traverse the western end of the site, close to the existing parking area reducing the risk of deterioration of other vehicles due to salt contamination.

- It would be significantly easier to service the Brine Manufacturing Facility with water and electricity than it would at the western end of the operations centre.
- The capacity of the existing operations centre won't be reduced and will allow for any additional future requirements such as the transition of the Housing Department as mentioned above.

6.2 Option 2 – Construct New Salt Barn and Brine Batching Facility on the Greenfield Site

In our view this is the optimum solution and there are several reasons for this. Firstly, the existing salt barn is undersized by a factor of 2. In the context of a severe weather event, the capacity of the existing barn is in the region of 1,700 tonnes but a more appropriate capacity given the scale of our winter maintenance operation would be in the region of 3,000 – 4,000 tonnes. A larger capacity would allow us to hold a contingency salt stock and better enable us to deal with prolonged cold spells and snow events which demand significant increases in salt usage. For example, during the snow event in November 2022 there was a significant increase in salt usage and in the space of a few days the salt barn went from being 75% full to almost being completely empty, which placed the Winter Maintenance staff under significant time pressure to replenish the stocks as quickly as possible.

Although the stock levels were replenished successfully, this cannot always be guaranteed for several reasons such as availability of salt, or availability of haulage companies to deliver, etc.

The second issue with the existing salt barn relates to its design. The head height of the front door on the barn is much too low and as a result, trucks are unable to reverse into the barn to tip a load of salt. At present, trucks are forced to tip the rock salt on the pavement outside, resulting in double handling and increased costs.

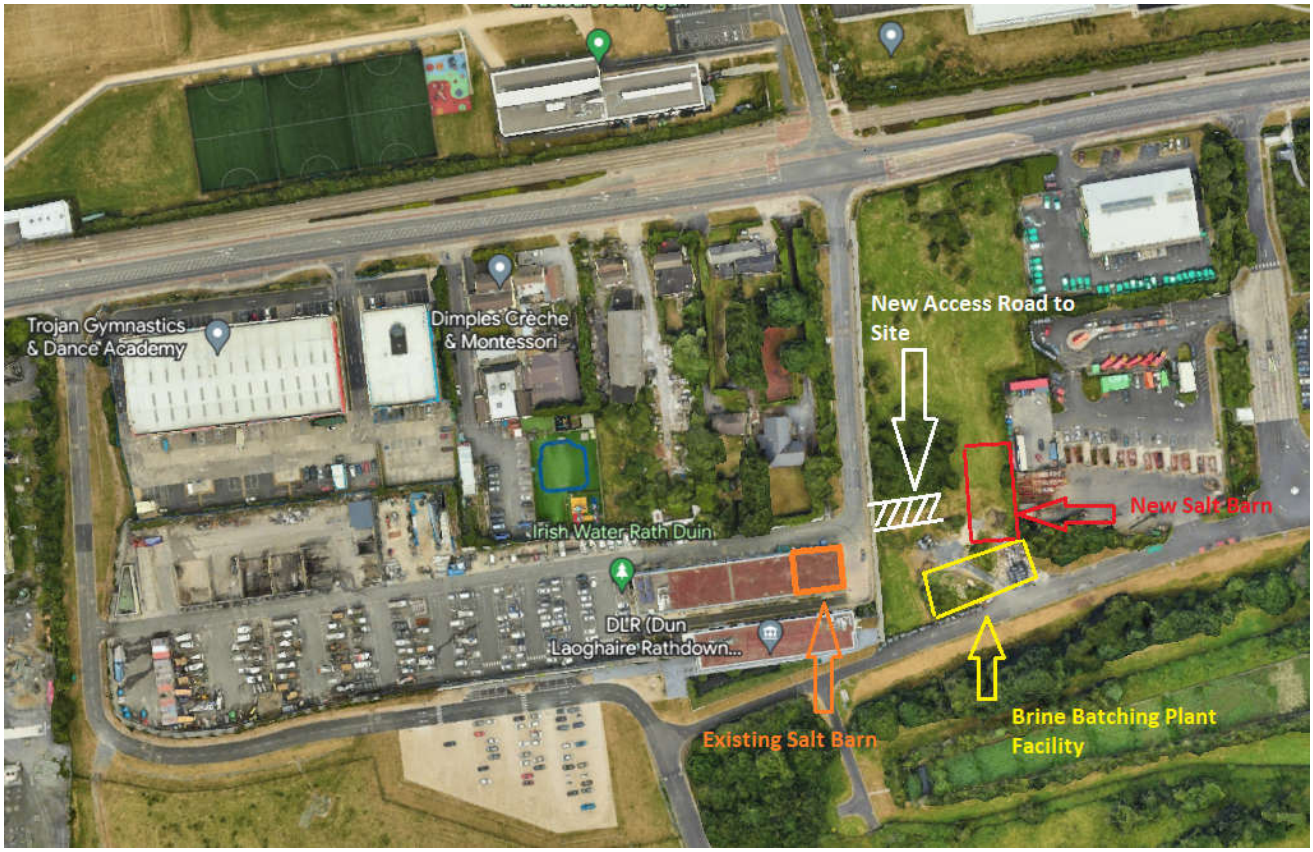


Figure 3 – Potential Location for New Salt Barn and Brine Manufacturing Facility

A staff member must then manually load the barn with a teleporter loading shovel and ensure that the yard is totally free of salt upon completion. There are several reasons why this is a very inefficient way of working:

- We are required to hire a teleporter for the entire winter maintenance season for this sole purpose at a cost of €165/week (€4,290 ex. VAT).
- A Dun Laoghaire Rathdown County Council employee is required to do this work which can take up to 2 hours each time a delivery is made.
- The rock salt can become contaminated or wet during this process and this can cause issues during the gritting operations where the gritters become clogged and require clearing at the roadside or back at the operations centre which costs time.
- The salt is corrosive and causes damage to the concrete area outside the existing salt barn. Even though an excellent job is done on cleaning the area, a small amount of salt

remains on the area outside and when it rains this salt is washed into the drainage network.

Figure 4 - Existing Unfit for Purpose Salt Barn

In addition to the issues relating to the capacity/design of the existing salt barn there are several other reasons to support the option of moving the salt barn and brine batching facility to the greenfield site adjacent to the operations centre:

- The entire winter maintenance operation could be kept separate of other functions at the Ballyogan Operations Centre, eliminating the risk of causing deterioration of other Council vehicles due to salt contamination, but also achieving maximum efficiency for the operation.
- There are issues with the location of the existing salt barn. It is located on a bend in the existing operations centre access road, and the articulated trucks that deliver the salt must be reversed on the bend to manoeuvrer into position for tipping. This presents obvious potential health and safety issues but also interferes with the other vehicles accessing and exiting the operations centre.

Figure 5 – Example of a Purpose Made Salt Barn

- The rainwater from the roof of a new barn could be harvested to supply the new Brine Manufacturing Facility, reducing our need to use water from the public supply and helping us to achieve our Corporate Goal No.1 - "*show leadership in protecting our environment*."
- Creating a new salt barn would mean that the existing barn could be used for other strategic purposes.
- Moving the entire winter maintenance operation to the greenfield site and away from the domestic dwellings that are located adjacent to the depot would mean less night-time disruption to local residents.

7.0 Pre-Wet Winter Maintenance Facility - Cost Estimates

7.1 Brine Manufacturing Facility

Following consultation meetings with industry experts on this matter and more specifically Wintertech Limited who are the leading supplier of brine batching facilities in Ireland and the UK, we have been issued with a specification that is tailored to meet the existing and future needs of Dun Laoghaire Rathdown County Council, along with an order of magnitude estimate for the provision of such a system. Some of the key items covered in this specification are:

- 1 No. 10,000 litre capacity Brine mixing station/saturator capable of mixing brine to a solution of 22% and producing 12,000 litres of brine per hour without operator input
- All production processes to be fully automated from loading of salt to inlet hopper, dilution of brine solution and pumping to storage tank. Manual Interventions eliminated where possible
- A storage capacity of 50,000 litres of brine in a Glass Reinforced Polyester (GRP) Tank guaranteed for 30 years
- A salt silo made from GRP and capable of storing a minimum of 40m^3 of White Salt
- A GRP rainwater harvesting tank capable of storing 30,000 litres of water (rainwater to be sourced from existing salt barn and Machinery Yard roof sheds with a method of topping up, by mains water, in the event of an extended dry or severe weather period)
- Remote monitoring of brine production status and storage levels using Wi-Fi connection to intranet.
- System capability to alert operators via SMS if the salt or brine levels falls below a pre-set user definable level and if the system develops any errors
- The supplier shall provide a decommissioning service of the brine plant at the end of the season annually in May. The supplier shall also provide a recommissioning service and calibration of the brine station to be completed during September prior to the start of the new season (both decommissioning and recommissioning services shall be provided for a minimum 2-year period after installation)
- Provide a 24-month technical backup service through remote monitoring, support and control and technical onsite maintenance
- All parts and operating systems must be covered by a minimum of a 2-year warranty

The estimated cost returned for such an installation is €263,736.52 inclusive of VAT at 23%.

Transport Infrastructure Ireland (TII) have indicated to us in our meeting with them that they would be willing to fund 50% of the costs associated with the purchase and installation of the Brine Manufacturing Facility.

In recent email discussions with the Department of Transport (DoT) regarding the project, they have also indicated that they may be willing to contribute up to 50% of the costs associated with the purchase and installation of the Brine Manufacturing Facility. The level of funding to be provided is currently being assessed by the DoT.

7.2 Conversion of the Winter Gritters for Use of Brine

Dun Laoghaire Rathdown County Councils' demountable gritter units vary in capacity between either $6m^3$ or $9m^3$ gritters require to be retrofitted with stainless steel pipework and brine tanks to facilitate this transition. All these gritters have been previously manufactured by and purchased from Romaquip in Birr, Co Offaly. Each gritter needs to be fitted with 3 large brine tanks which in total will carry 2250 litres of brine (750lts per tank) and requires stainless steel pipework and spraybar equipment retrofitted to same to facilitate this pre-wet operation.

Romaquip have advised that the cost to retrofit a pre-wet system to one of our $9m^3$ demountable salt spreaders is approximately €22,562.75 per unit which is inclusive of VAT @ 23%. The cost to retrofit a pre-wet system to one of our $6m^3$ demountable salt spreaders is €21,092.53 per unit which is inclusive of VAT @ 23%. We currently operate 7 demountable salt spreaders ($5m^3$/$6m^3$capacity) and 3 permanent gritting trucks ($9m^3$ capacity) per treatment run with 3 spare $6m^3$ demountable gritting unit in reserve in the event of breakdown.

Therefore, the cost of converting the 10 gritters that are used in a normal gritting run with one additional gritter as a spare unit would be:

Gritter Type	Quantity	Conversion Cost Per Gritter	Total
6m3 Demountable Gritting Units	7	€21,092.53	€147,647.71
9m3 Permanent Gritting Truck	1	€22,562.75	€22,562.75
Spare Demountable Gritting Unit	1	€21,092.53	€21,092.53
		Total	**€191,302.99**

Table C - Summary of Costs for Gritter Conversion

A typical brine tank retrofit schematic for a demountable gritter is shown in Appendix 2. We anticipate that we should have sufficient funding available in our annual Road Maintenance budget to cover the costs of retrofitting the gritters in a piecemeal fashion over the next 2 years, and so we are not requesting capital funding for this element of the transition. Based on discussions with Transport Infrastructure Ireland, they have also indicated to us that they will pay the full costs of providing a new truck for gritting the National Primary routes that comes with the associated pre-wet infrastructure, for use on the national routes in Dun Laoghaire Rathdown County. The approximate cost of a new 9m3 gritting truck to be paid for in full by TII will be in the region of €180,000, and it will reduce the amount of funding we require to convert the entire fleet.

The Department of Transport have recently indicated in recent email discussions with us that they may be willing to contribute up to 50% of the costs associated with converting the gritting units that are converted in the calendar year that the Brine Manufacturing facility is installed. We anticipate that there will be 3 no. gritting units remaining for conversion in the calendar year that the Brine Manufacturing Facility is being installed (2025). The anticipated costs for the gritting conversion in 2025 will be €64,747.81. The level of funding to be provided is currently being assessed by the DoT.

7.3 New Salt Barn Costs

Following consultation meetings with our engineering consultant on this matter we have estimated the costs of constructing salt barn that can meet the existing and future needs of Dun Laoghaire Rathdown County Council. The estimated cost of constructing this unit is believed to be in the region of €275,000 incl. VAT.

Based on discussions with Transport Infrastructure Ireland, they have indicated to us that they will pay a percentage of the costs for constructing a new salt barn. The percentage is based on the total quantity of national primary routes as a percentage of the overall gritting route length in Dun Laoghaire Rathdown County (12%).

Based on recent email discussions with the Department of Transport, they have indicated to us that they will not contribute to this element of the project.

7.4 Additional Civil Works

Additional Civil engineering design and construction work will be required to create an access road from the existing Operations Centre footprint into the new greenfield site, whilst civil and electrical engineering works will be required for the new Brine Manufacturing Facility and the new salt barn. We estimate that these costs will be approximately €175,000 incl. VAT.

Based on discussions with Transport Infrastructure Ireland, they have indicated to us that they will pay 50% of the accommodation works required to install the pre-wet infrastructure.

In recent email discussions with the Department of Transport (DoT) regarding the project, they have indicated that they may be willing to contribute up to 50% of the costs associated with the civil works required to facilitate the Brine Manufacturing Facility installation. The level of funding to be provided is currently being assessed by the DoT.

8.0 Pre-Wet Winter Maintenance Facility - Cost Summary

A summary of costs is shown below in Table D, has been prepared to assist with providing a roadmap of capital funding requirements needed to support this transition to Pre-wet Technologies.

Item Description	Total Cost (€ Inc. VAT)	TII Contribution	DoT Contribution	DLR Contribution
Brine (Pre-Wet) Batching Plant	€263,736.52	€131,868.26	€131,868.26	€0.00
Retrofit of Gritters	€191,302.99	€0.00	€32,373.91	€158,929.08
Provision of new Gritter for National Routes	€180,000.00	€180,000.00	€0.00	€0.00
Construction of New Salt Barn	€275,000.00	€33,000.00	€0.00	€242,000.00
Additional Civil Works	€175,000.00	€87,500.00	€87,500.00	€0.00
Subtotals	**€1,085,039.51**	**€432,368.26**	**€251,742.17**	**€400,929.08**
Capital Funding Required				**€242,000.00**

DoT figures are based on the maximum available contribution available (50%) but are subject to change

This cost will be covered from Annual Revenue Budgets 2023 - 2025

Table D – Summary of Costs Required for Transition to Pre-wet Technologies

An application for funding was formally submitted to the Department of Transport on August 31st 2023, and we are currently awaiting confirmation from them on how much they will contribute to the costs associated with the Brine Batching Facility purchase and installation, the associated civil works, and the retrofit of the gritters.

It is our intention to cover the cost of converting the gritting units using our revenue budgets in 2023 (3 no. gritters), 2024 (3 no. gritters), and 50% of the remaining gritters (3 no. gritters) in 2025 with the remaining 50% to potentially be covered by the Department of Transport as outlined above in Section 7.2.

9.0 Planning Requirements

Based on the dimensions of the proposed infrastructure it is certain that a Part 8 will be required, even if we decide not to proceed with the development of a new salt barn. The proposed site is suitable for this development based on the zoning classification of "Economic Development and Employment" in the County Development Plan 2022-2028, as can be seen from Figure 5 below.

Figure 5 - Land Zoning Map from County Development Plan

We are proposing to locate all the infrastructure under this project to the rear of the greenfield site, leaving potential opportunities for the part of the site closest to the main road to be used for alternative opportunities, whether they be associated with the Ballyogan Operations Centre or other uses.

10.0 Stakeholder Engagement

Ongoing Stakeholder engagement is continuing to take place with Transport Infrastructure Ireland regarding funding a percentage of the overall costs of making the transition to pre-wet technology. We will also be collaborating with South Dublin County Council who are also proceeding with a transition to pre-wet technology. Our hope is to issue a joint tender with our colleagues at South Dublin County Council for the Brine Manufacturing Facility infrastructure, resulting in better value for money for both parties.

11.0 Summary Recommendation

The transition to pre-wet technology is strongly supported by environmental, financial, and operational reasons and will better enable us to meet our corporate objectives as outlined above. Therefore, it is recommended that the process of transitioning to pre-wet gritting technologies commence for Dun Laoghaire Rathdown County Council with the intention that all of infrastructure required be in place for the commencement of the 2024/2025 winter maintenance season.

_____

XXXXXXXXXXXX

Senior Engineer

11.0 Appendix 1

Brine Batching Facility – Mullingar, Co. Westmeath – Depot Layout

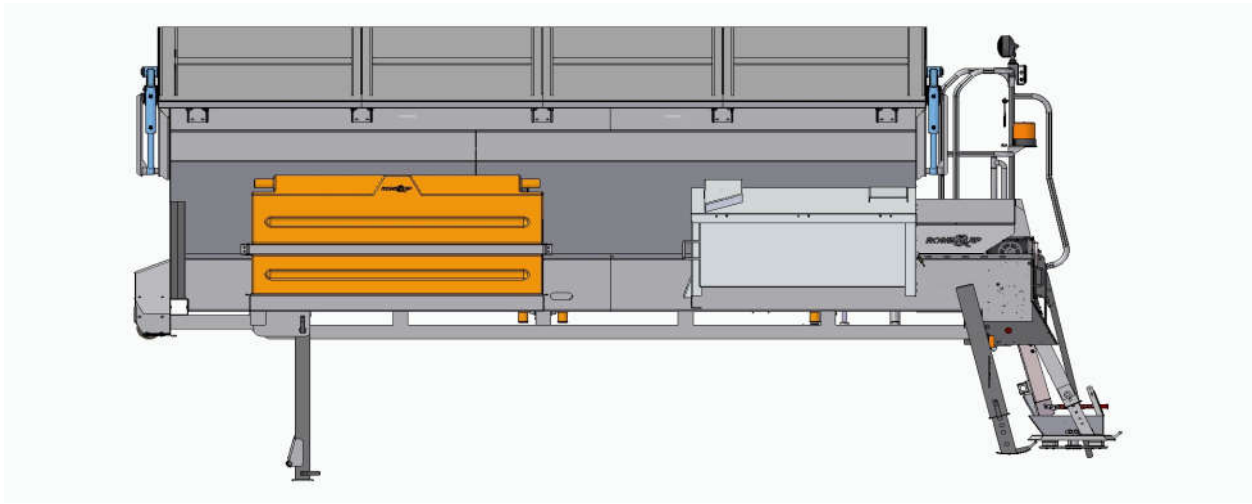
Brine Batching Facility – Mullingar, Co. Westmeath

Brine Batching Facility – Mullingar, Co. Westmeath – Truck Filling Point

Brine Batching Facility – Mullingar, Co. Westmeath – Brine Mixing Tank and White Salt Silo

12.0 Appendix 2

Typical 9m3 Brine Tank (orange) on a Demountable Gritter



Brine Tank Retrofit Schematic Side Elevation

Brine Tank Retrofit Schematic End View

GLOBAL PROJECT REACH

Offices

Dublin (Head Office)
Gavin & Doherty Geosolutions
Unit A2, Nutgrove Office Park
Rathfarnham
Dublin 14, D14 X627
Phone: +353 1 207 1000

Belfast
Gavin & Doherty Geosolutions (UK) Limited
Scottish Provident Building
7 Donegall Square West
Belfast, BT1 6JH

Edinburgh
Gavin & Doherty Geosolutions (UK) Limited
21 Young Street
Edinburgh
Scotland, EH2 4HU

Rhode Island
Gavin & Doherty Geosolutions Inc.
225 Dyer St, 2nd Floor
Providence, RI 02903
USA

Bath
Gavin & Doherty Geosolutions (UK) Limited
The Guild High Street, Bath
Somerset
BA1 5EB

Cork
Gavin & Doherty Geosolutions
Unit 4E, Northpoint House,
North Point Business Park
Cork, T23 AT2P

London
Gavin & Doherty Geosolutions (UK) Limited
85 Great Portland Street, First Floor
London
W1W 7LT

Utrecht
Gavin & Doherty Geosolutions
WTC Utrecht, Stadsplateau 7
3521 AZ Utrecht
The Netherlands

Website: www.gdgeo.com
Email: info@gdgeo.com