ENVIRONMENTAL IMPACT ASSESSMENT REPORT

VOLUME 1 - Main Report (v1.2)

In Response to Further Information Request

GRANGE CASTLE MEDIA PARK

TOM PHILLIPS + ASSOCIATES
PLANNING FOR THE FUTURE

October 2024

1.0 INTRODUCTION

1.1 Nature and Extent of Project

This Environmental Impact Assessment Report (EIAR) has been compiled by Gavin Lawlor and Bernard Dwyer of Tom Phillips and Associates on behalf of the Applicant, Lens Media Limited.

Gavin Lawlor is a Director of Tom Phillips + Associates. He holds a BA (Social Science) from University College Dublin, where he graduated in 1995 with a Masters in Regional and Urban Planning (MRUP) Degree and is a Full Member of the Irish Planning Institute (IPI) with 25 years' experience.

Bernard Dwyer is a Member of the Irish Planning Institute and has been practicing as a town planner for over 9 years. Bernard holds a postgraduate Master's degree in Planning and Sustainable Development (Hons), (2014) UCC. Further competent experts have been engaged to address specific issues and/or portions of the EIAR. Details of all the experts engaged in the preparation of this EIAR is provided in Appendix 1.2.

[amended text]

The Planning Authority will note that the following version 1.2 of Volume 1 of the EIAR is an updated and amended version of the EIAR originally included as part of planning application reg. ref. SD24A/0087W, submitted to South Dublin County Council on the 19th April 2024. The need for this amended EIAR has arisen in response to a Request for Further Information received by the Applicant on the 13th June 2024. Modifications to the original text have been made in this chapter, and the following chapters:

- **Chapter 3: Description of the Proposed Development;**
- **Chapter 4: Key Alternatives Considered**
- **Chapter 6: Biodiversity**
- **Chapter 7: Land, Soils, Geology and Hydrogeology;**
- **Chapter 8: Hydrology;**
- **Chapter 9: Air Quality;**
- **Chapter 10: Climate;**
- **Chapter 12: Material Assets- Waste,**
- **Chapter 15: LVIA**

Where updates have been made to the EIAR relevant sections are enclosed by the following tags before and after the changes – [amended text]. Certain deleted sections are also indicated as strikethrough text.

Volume II (Appendices) and Volume III (NTS) of the initial EIAR have not required updates with the exception of Appendix 12.1 (Resource and Waste Mgt Plan) which has undergone minor wording changes and has been included as a standalone document.

[amended text]

As outlined within Figure 1.1, the site of the Project is a greenfield site of c. 22.6 hectares located c.2km east of Grange Castle Business Park and c.700m north of Peamount Hospital. Gollierstown Bridge is located to the northeast of the site and the Grand Canal proposed Natural Heritage Area ("pNHA", site code: 002104) runs along the north of the site (the Site).

In addition to the above, the Site is located within c.3km of Greenogue Industrial Estate, a lower tier Seveso site.

Specific objective EDE5 applies to the Site and seeks to provide for a campus style setting to encourage the investment of high tech, hi-tech manufacturing, and research and development enterprise. The proposed development site is situated within land zoned under Objective EE, where the objective is to provide for enterprise and employment related uses in the South Dublin County Council Development Plan 2022-2028.

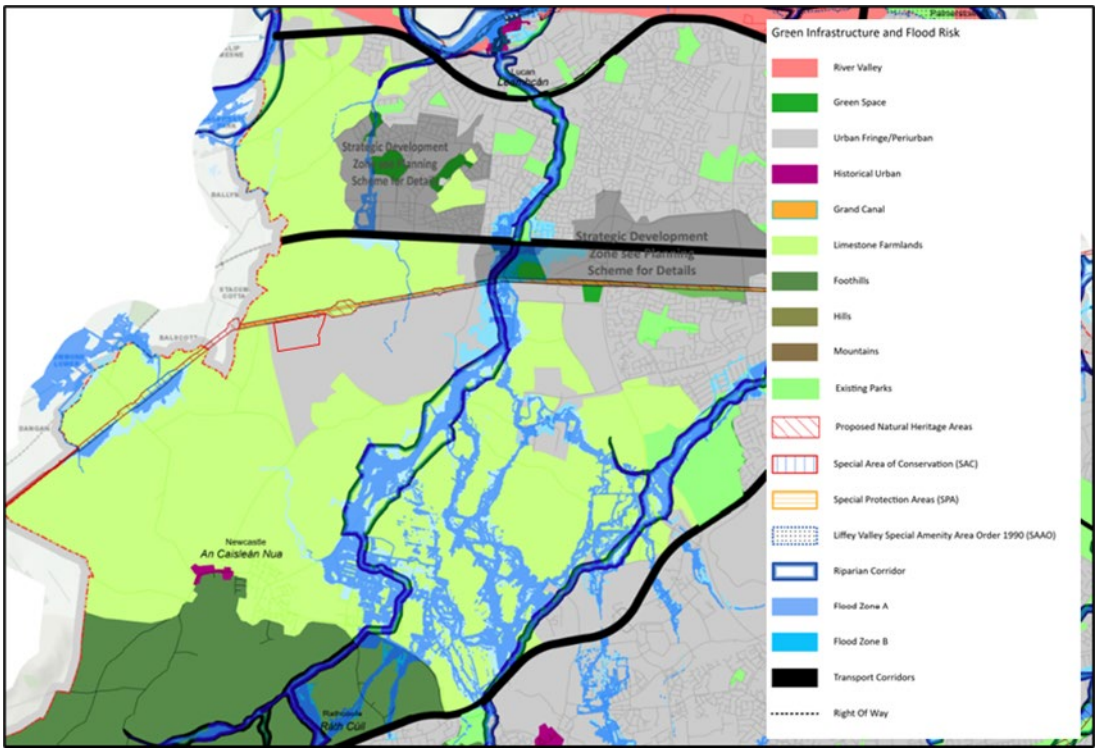


Figure 1.1: Indicative site outlined in red (Source: Map 13 South Dublin County Council Development Plan 2022-2028, cropped and edited by TPA 2024).

The statutory planning application notices for the subject site describe the project as follows:

Lens Media Limited are seeking a 10 year planning permission for the development of a Media Park at a 22.6 ha site located in the townlands of Coolscudden, Brownstown and Milltown, west of Grange Castle Business Park, Newcastle, County Dublin. The site is bounded by the Grand Canal to the north. The propose development includes the construction of:

[amended text]

- 6 no. Stage buildings (buildings 1,2,3,11,13 &14) ranging in height between c. 20m and c. 23 m and comprising 11 no. Internal sound stages with overhead catwalks and 2-storey ancillary production offices including office space, plant and switch rooms,

toilets, ICT rooms, staff toilets and showers and rooftop plant (totalling c. 35,187 sq. m);

- 4 no. workshops (buildings 15,16,17 &18) ranging in height between c. 9m and c. 10.5 m and comprising internal workshop areas, staff toilets and showers, ICT, plant and switch rooms(totalling c. 18,244 sq. m);
- TV studio and reception (building 4) comprising 3 no. TV studios (c. 17.8m height) and various supporting spaces across 3 floors including backstage shooting area, green rooms, hair and makeup rooms, production suites with ancillary offices, wardrobe, laundry room, Technical support offices, vision dept, lighting dept, pro service, run and crew kit room, chief engineer office, studio manager office, scenic store, props store, cameras and grip room, lighting and electrical room, plant room, sound control rooms, vision rooms, recording rooms and toilets at ground floor level; standard dressing rooms, tv post production spaces, kitchen and crew area, toilets, mechanical/electrical room, technical offices, media store at first floor level; star dressing rooms, tv post production, lounge and kitchen and toilets at second floor level; Single storey reception building to include guest holding areas, VIP and Guest service, security offices, staff toilets, showers and locker rooms (c. 10,875sq. m);
- 2-storey Dining Hall with ancillary 100 seat theatre (building 6) comprising indoor and outdoor dining areas, kitchen, storage and mechanical rooms, toilets and 3 no. meeting rooms at ground floor level; office space and covered outdoor balconies at First floor level (c. 4,351sq. m)
- Standalone café (building 5) (c. 96 sq. m)
- 3 no. single storey production suites (buildings 7,8 & 9) comprising offices, conference room, kitchenette, communal areas and toilets (totalling c. 795 sq. m);
- 3-storey car parking deck (building 19) (c. 14,782.sq.m) to include 438 no car parking spaces (including 100 no. EV and 27 no. disabled) with ancillary offices (building 20) (c. 4,307sq.m) refuse recycling area and rooftop plant; and
- Outdoor stage area associated with the TV Studio and Reception Building;
- Allocation of a Biodiversity buffer area along the northern boundary of the site and abutting the Grand Canal pNHA;
- Site landscaping to include: public realm and planting areas in the vicinity of TV Studio and Reception Building and production suite offices; green roofs; and boundary treatments;
- Hard standing to include 'backlot' area (c. 14,160 sq.m) and 'shooting lanes' (c.18,900 sq.m) to facilitate outdoor filming;
- Electrical Substation (c 236 sq. m);
- Primary and Secondary gate houses (buildings 10 & 12)(c. 19 sq. m each).

The proposed development will include the provision of 354 no. surface car parking spaces (including 50 no. EV, 13 no. disabled, and 9 no. EV / disabled); 'Basecamp' area to provide 36 no. Large Vehicle parking spaces & 3 no. bus parking spaces to front of reception building as well as provision of Bicycle parking to include 404 no. covered spaces distributed throughout the scheme.

Additional works to include removal of existing wall and vegetation at south western boundary; provision of bin store adjacent to the proposed 'backlot' area and additional waste storage area adjacent to proposed dining hall; proposed pump station; rooftop PV panels (Buildings 17 & 18);rooftop plant; Building signage; ; public lighting; drainage and services provision; boundary treatments (including security fencing); piped site wide services; pedestrian and cycle links and all ancillary works and services necessary to facilitate construction and operation.

The primary proposed vehicular, cyclist and pedestrian entrance from the newly constructed Grange Castle West Access Road will be located at the eastern boundary of the site with a secondary vehicular access at the southeastern corner of the site.

[amended text]

The proposed development constitutes "the Project" for the purposes of EIA and is set out in more detail in Chapter 3 of this EIAR

1.2 EIA Process

The requirement for an Environmental Impact Assessment derives from, and is governed by, Directive 2011/92/EU of the European Parliament and Council of the 13th December 2011 on the assessment of the effects of certain public and private projects on the environment as amended by Directive 2014/52/EU of the European Parliament and Council of the 16th April 2014 (EIA Directive). The primary objective of the EIA Directive is to ensure that certain public and private projects that are likely to have significant effects on the environment by virtue of their nature, size or location are subjected to an assessment of their likely impacts prior to development consent being given.

Where a proposed project is of a type identified in the EIA Directive an EIA forms part of the planning consent process and is carried out by the planning authority. An EIAR is prepared by/on behalf of a Developer in respect of a project seeking planning consent. The EIAR thus becomes an integral informing element in the planning authority's EIA. Directive 2014/52/EU has introduced strict new requirements in respect of the competency of experts responsible for the preparation of the EIAR (see Appendix 1.2 for details on the experts involved in the preparation of this document).

The EIA Directive was transposed into national legislation through the European Union (Planning and Development) (Environmental Impact Assessment) Regulations, 2018. These Regulations amended the Planning and Development Act, 2000 with the insertion of a new part, Part X, into the Act, and the Planning and Development Regulations 2001 with the insertion of a new part, Part 10.

Section 171A of the Planning and Development Act, 2000, as amended, defines an EIA as follows:

> *'environmental impact assessment' means a process—*
>
> *(a) consisting of—*

(i) the preparation of an environmental impact assessment report by the applicant in accordance with this Act and regulations made thereunder,

(ii) the carrying out of consultations in accordance with this Act and regulations made thereunder,

(iii) the examination by the planning authority or the Board, as the case may be, of—

(I) the information contained in the environmental impact assessment report,

(II) any supplementary information provided, where necessary, by the applicant in accordance with section 172(1D) and (1E), and

(III) any relevant information received through the consultations carried out pursuant to subparagraph (ii),

(iv) the reasoned conclusion by the planning authority or the Board, as the case may be, on the significant effects on the environment of the proposed development, taking into account the results of the examination carried out pursuant to subparagraph (iii) and, where appropriate, its own supplementary examination, and

(v) the integration of the reasoned conclusion of the planning authority or the Board, as the case may be, into the decision on the proposed development, and

(b) which includes—

(i) an examination, analysis and evaluation, carried out by the planning authority or the Board, as the case may be, in accordance with this Part and regulations made thereunder, that identifies, describes and assesses, in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of the proposed development on the following:

(I) population and human health;

(II) biodiversity, with particular attention to species and habitats protected under the Habitats Directive and the Birds Directive;

(III) land, soil, water, air and climate;

(IV) material assets, cultural heritage and the landscape;

(V) the interaction between the factors mentioned in clauses (I) to (IV),

and

(ii) as regards the factors mentioned in subparagraph (i)(I) to (V), such examination, analysis and evaluation of the expected direct and indirect significant effects on the environment derived from the vulnerability of the proposed development to risks of major accidents or disasters, or both major accidents and disasters, that are relevant to that development;

The EIA process involves a number of steps which may be summarised as follows:

1. Screening – Is an EIA required?

2. Scoping – If an EIA is required, what aspects of the environment are likely to be significantly affected and should therefore be considered?
3. Preparation of an EIAR
4. EIAR informs the EIA (as part of the consent process)

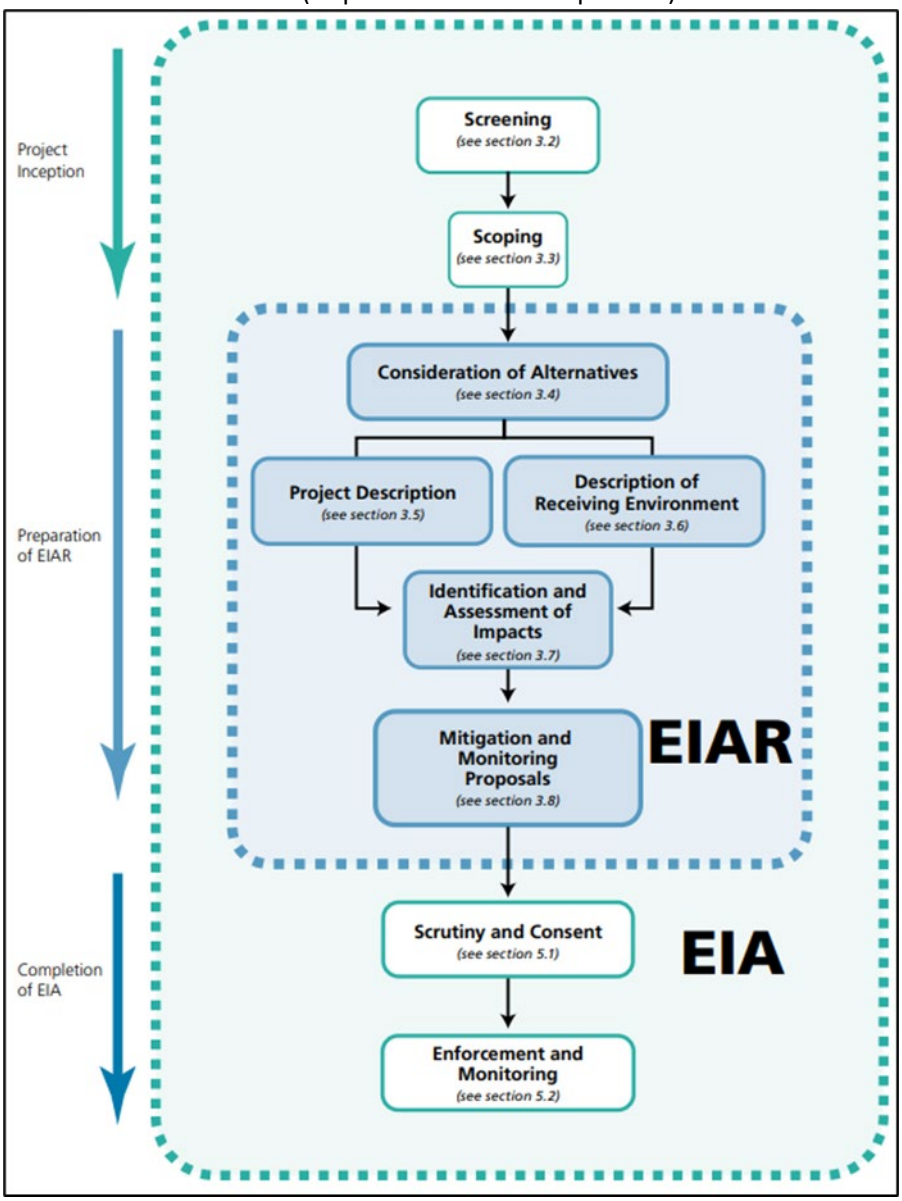


Figure 1.2: Flow chart illustrating the EIA Process (Source: EPA, 2017).

1.3 Need for EIAR – Screening

The EIA Directives list those projects for which an EIA is mandatory (Annex I) and those projects for which member states must provide a process to determine if it is likely to have significant effects on the environment and therefore an EIA should be undertaken (Annex II). This process may involve a case-by-case examination, the establishment of objective thresholds or other criteria, or a combination of these.

Annex I projects are listed in Part 1 of Schedule 5 of the *Planning and Development Regulations 2001 (as amended) (*"the Regulations").

The proposed development is not of a type listed within Part 1 of Schedule 5 of the Regulations and therefore a mandatory EIA is not required in this instance.

Annex II projects are set out in Part 2 of Schedule 5, together with specified thresholds above which a project must be subject to an EIA. The following classes of project listed in Part 2 of Schedule 5 are relevant in light of the nature of the proposed development:

Class 10 (a)

> *"Industrial estate development projects, where the area would exceed 15 hectares".*

[Class 10 (dd)

> *"All private roads which would exceed 2,000 metres in length."]*

The proposed development is by its nature an estate type development with several buildings which, while engaged in the same industry (namely film, music and other media production), may be utilised at different times by different undertakings, all sharing common infrastructure on a c.22 hectare site. The proposed development is therefore industrial estate development required to undergo an EIA under the EIA Directive.

[Furthermore, the proposed development includes the development of 3,423m of internal private roads. As this exceeds 2km the proposed development, the proposed development is also required to undergo an EIA as it includes development within class 10(dd) of Part 2 of Schedule 5.]

On this basis we have determined that the proposed development is a project of a type which is required to undergo an EIA in accordance with the EIA Directive.

1.4 Purpose and content of the Environmental Impact Assessment Report

An EIAR's purpose is to predict and assess likely significant effects (direct and indirect), if any, that the proposed development, if carried out, would have on the environment, on its own and in combination with other existing and / or approved projects. It is used during the consent process to inform the EIA.

Article 5(1) and Annex IV of the EIA Directive, specifies the information to be provided in an EIAR. These requirements have been transposed into Irish law through Article 94 and Schedule 6 of the Planning and Development Regulations, 2001 (as amended).

Article 94 states:

> *"An EIAR shall take into account the available results of other relevant assessments under European Union or national legislation with a view to avoiding duplication of assessments and shall contain —*
>
> *(a) the information specified in paragraph 1 of Schedule 6,*

(b) any additional information specified in paragraph 2 of Schedule 6 relevant to the specific characteristics of the development or type of development concerned and to the environmental features likely to be affected, and methods of assessment,

(c) a summary in non-technical language of the information required under paragraphs (a) and (b),

(d) a reference list detailing the sources used for the descriptions and assessments included in the report, and

(e) a list of the experts who contributed to the preparation of the report, identifying for each such expert— (i) the part or parts of the report which he or she is responsible for or to which he or she contributed, (ii) his or her competence and experience, including relevant qualifications, if any, in relation to such parts, and (iii) such additional information in relation to his or her expertise that the person or persons preparing the EIAR consider demonstrates the expert's competence in the preparation of the report and ensures its completeness and quality."

Schedule 6, Information to be contained in EIAR, provides as follows*:*

1. (a) A description of the proposed development comprising information on the site, design, size and other relevant features of the proposed development.

(b) A description of the likely significant effects on the environment of the proposed development.

(c) A description of the features, if any, of the proposed development and the measures, if any, envisaged to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment of the development.

(d) A description of the reasonable alternatives studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the proposed development on the environment.

2. Additional information, relevant to the specific characteristics of the development or type of development concerned and to the environmental features likely to be affected, on the following matters, by way of explanation or amplification of the information referred to in paragraph 1:

(a) a description of the proposed development, including, in particular—

(i) a description of the location of the proposed development,

(ii) a description of the physical characteristics of the whole proposed development, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases,

(iii) a description of the main characteristics of the operational phase of the proposed development (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used, and

(iv) an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation) and quantities and types of waste produced during the construction and operation phases;

(b) a description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects;

(c) a description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge;

(d) a description of the factors specified in paragraph (b)(i)(I) to (V) of the definition of 'environmental impact assessment' in section 171A of the Act likely to be significantly affected by the proposed development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape;

(e) (i) a description of the likely significant effects on the environment of the proposed development resulting from, among other things—

(I) the construction and existence of the proposed development, including, where relevant, demolition works,

(II) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources,

(III) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste,

(IV) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters),

(V) the cumulation of effects with other existing or approved developments, or both, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources,

(VI) the impact of the proposed development on climate (for example

the nature and magnitude of greenhouse gas emissions) and the vulnerability of the proposed development to climate change, and

(VII) the technologies and the substances used, and

(ii) the description of the likely significant effects on the factors specified in paragraph (b)(i)(I) to (V) of the definition of 'environmental impact assessment' in section 171A of the Act should cover the direct effects and any indirect, secondary, cumulative, transboundary, short term, medium-term and long-term, permanent and temporary,

positive and negative effects of the proposed development, taking into account the environmental protection objectives established at European Union level or by a Member State of the European Union which are relevant to the proposed development;

(f) a description of the forecasting methods or evidence used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information, and the main uncertainties involved;

(g) a description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of an analysis after completion of the development), explaining the extent to which significant adverse effects on the environment are avoided, prevented, reduced or offset during both the construction and operational phases of the development;

(h) a description of the expected significant adverse effects on the environment of the proposed development deriving from its vulnerability to risks of major accidents and/or disasters which are relevant to it. Relevant information available and obtained through risk assessments pursuant to European Union legislation such as the Seveso III Directive or the Nuclear Safety Directive or relevant assessments carried out pursuant to national legislation may be used for this purpose, provided that the requirements of the Environmental Impact Assessment Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for, and proposed response to, emergencies arising from such events.

This EIAR has been prepared in accordance with the requirements of Article 5(1) and Annex IV of the EIA Directive as implemented in Ireland through Article 94 and Schedule 6 of the Planning and Development Regulations, 2001 (as amended).

The preparation of this EIAR has been co-ordinated by Tom Phillips + Associates, Town Planning Consultants, in association with other members of the Project Team as identified in Table 1.2 below.

A list of the experts comprising the Project Team who contributed to the preparation of this EIAR, identifying the part or parts of the report which he or she is responsible for or to which he or she contributed, and setting out his or her competence and experience is set out in Appendix 1.2 .

1.5 Scoping of the Environmental Impact Assessment

All environmental factors outlined in the EIA Directive and the EPA *Guidelines on the information to be contained in Environmental Impact Assessment Reports*, May 2022 have been scoped into this Environmental Impact Assessment Report.

The scope of the EIAR has been prepared in consultation with the respective specialists within the EIA team. The Scoping Report set out a detailed justification relating to the environmental aspects to be considered in detail in the EIAR for the proposed development on the basis of

the potential for significant effects. The Scoping Report also related to the construction and operational phases of the proposed development.

Table 1.1 below outlines the environmental aspects covered in this EIAR and the justification for why they have been included.

Environmental Aspect	Detailed Assessment	Justification
Population and Human Health	Yes	The proposed development may impact on population and human health, employment, local community, and amenity uses, during the construction and operational phases.
Biodiversity	Yes	The subject site is greenfield in nature, and there are no existing buildings or structures on site at present. As the proposed development includes significant amounts of construction and development and is located close to a proposed Natural Heritage Areas (pNHA), an assessment of effects on Biodiversity is required.
Land, Soils and Groundwater	Yes	Impacts on geology and hydrogeology will be assessed in terms of the construction, operational and decommissioning phase of the proposed development. This will include geo-technical and environmental site investigation. Potential cumulative impacts with other projects will also be assessed.
Hydrology	Yes	The proposed development has the potential to impact on water (including flood risk, hydrology, and drainage) as there will be ground disturbance associated with the proposed development.
Air Quality and Climatic Factors	Yes	Construction and operational phases will have the potential to give rise to air quality impacts, principally relating to traffic associated with the proposed development. A baseline air quality assessment will be undertaken, with reference to EPA monitoring data which is representative of the current location which lies in Zone A (Dublin) of the 4 No. Air Quality Monitoring Zones (A-D) in Ireland.
Noise and Vibration	Yes	Construction and operational phases will have the potential to give rise to impacts relating to noise and vibration. A baseline noise survey will be undertaken to determine the prevailing noise level representative of the site and nearest noise sensitive locations. Noise monitoring will be installed on site at secure locations. In addition, an attended day survey will be conducted on a cyclical basis at locations representative of the nearest noise

		sensitive locations and development facades.
Material Assets – Waste (Construction and Demolition)	Yes	It is likely that the proposed development will generate waste arisings that will require management during construction and operation.
Material Assets – Traffic and Transportation	Yes	The transportation chapter of the EIAR will present an assessment of the potential traffic and transport impacts of the proposed development.
Material Assets – Site Services	Yes	The Material Assets section of the EIAR will examine the likely significant effects of the construction and operation of the proposed development on intrinsic and valuable assets of material value.
Cultural Heritage incl. Archaeological, Architectural	Yes	The site is not identified as being in an area with any relevant Archaeological Conservation Area – however, given the extent of works proposed and the location of the site, an assessment is considered appropriate. The archaeological, architectural, and cultural assessment will provide an assessment of the archaeological, architectural and cultural heritage potential within, and in the vicinity of the extent of the proposed development.
Landscape and Visual Impact Assessment (LVIA)	Yes	Given the scale of the buildings proposed, the LVIA will consider effects on the landscape character of the existing setting (i.e., as a result of the construction and existence of the proposed development) and visual impacts (i.e. the extent to which the proposed development can be seen).
Interactions	Yes	This is the potential for multiple direct or indirect effects (from various environmental aspects) to result in an accumulation or magnified effects from the proposed development.
Cumulative Impacts	Yes	The proposed development will be in proximity to other permitted and proposed developments and thus has the potential to exacerbate or create larger, more significant effects. The EIAR will assess the impact inter alia of the proposal in line with relevant proposals within 1km of the subject site. The relevant proposals are set out in Appendix 1.1 of the EIAR.

Table 1.1: Environmental aspects covered in this EIAR and the justification for why they have been included. (Source: TPA, 2023).

Consultation in relation to the Environmental Impact Assessment

An informal EIA consultation exercise was undertaken in order to inform statutory consultees of the project, having regard to the extent of information to be contained within the EIAR for the Project.

Summary Details of the project have been issued to the following list of Statutory Consultees by letter dated 25th January 2024:

- An Taisce
- Arts Council
- Dept. of Defence
- Dept. Of Enterprise, Trade and Employment
- Dept. of Housing, Local Government and Heritage
- Dept. of Transport
- EPA
- Failte Ireland
- Heritage Council
- HSE
- Irish Aviation Authority
- Inland Fisheries Ireland
- TII
- Uisce Eireann
- Waterways Ireland

In line with the requirements of the EIA Directive, as stated in Article 1(2)(ii) "*the carrying out of consultations as referred to in Article 6 and, where relevant, Article 7*" following "*the preparation of an environmental impact assessment report by the developer*".

As such, as required by the Planning and Development Act 2000 (as amended), the information contained within the planning application and the EIAR will be available to the public and the public will be given an opportunity to express their opinion on said information for a period of five weeks, which is in excess of the 30 days stipulated in Article 6(7) of the 2014 Directive.

In addition, the EIAR has been registered with the Department of Housing, Local Government and Heritage's EIA Portal.

1.6 EIAR Methodology and Format

1.6.1 Methodology

In addition to the 2014 Directive, the subject EIAR has been informed by:

- *Guidelines on the Information to be contained in Environmental Impact Statements (EPA, 2022);*
- *Advice Notes on Current Practice in the Preparation of Environmental Impact Statements (EPA, 2003);*
- *Draft Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA, August 2017);*
- *Draft Advice Notes for Preparing Environmental Impact Statements,* Draft, (EPA draft September 2015a);

- *Draft Revised Guidelines on the Information to be Contained in Environmental Impact Statements* (EPA draft September 2015b);
- *Environmental Impact Assessment of Projects: Guidance on Screening* (European Commission, 2017);
- *Environmental Impact Assessment of Projects: Guidance on Scoping* (European Commission, 2017);
- *Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report* (European Commission, 2017);
- *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment,* (August 2018);
- *Guidance of Integrating Climate Change and Biodiversity into Environmental Impact Assessment* (European Commission, 2013);
- *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment* (Department of Environment, Community and Local Government 2013);
- *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment* (Government of Ireland, 2018);
- *Key Issues Consultation Paper on the Transposition of 2014 EIA Directive (2014/52/EU) in the Land Use Planning and EPA Licencing Systems* (Department of Housing, Planning, Community and Local Government 2017);
- *Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions* (European Commission, 1999);
- *Implementation of Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment* (European Commission, 2003);
- *Circular PL 05/2018 – Transposition into Planning Law of Directive 2014/52/EU amending Directive 2011/92/EU on the effects of certain public and private projects on the environment (the EIA Directive) And Revised Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment* (Department of Housing, Planning and Local Government, 2018)

The aboveis not a fully exhaustive list. The EIAR contributors have referred to heading-specific legislation, policy and/or guidelines within each individual EIAR Chapter.

1.6.2 Format

EIARs require the assimilation, co-ordination, and presentation of a wide range of relevant information in order to allow for the overall assessment of a proposed development. To allow for ease of presentation, and consistency when considering the various environmental factors considered, a systematic structure is used for the main body of the Report. The structure of the EIAR is outlined below.

Introduction

This section of each chapter provides an overview of the aims and objectives of the chapter in assessing the proposed development and outlines the scope of the assessment.

Methodology

This section of each chapter outlines the methods used to describe the baseline environmental conditions and to predict the likely impacts on the environment of the proposed development during both the construction phase and the operational phase. The data and survey requirements for each chapter vary depending on the environmental topic and have been chosen by the particular specialist based on relevant legislation, best practice guidance, policy requirements, and professional judgement. Similarly, the study area is also defined for each environmental topic based on best practice guidelines, professional judgement, and experience.

All environmental topics require desk-based reviews of all relevant data at a minimum. These desk-based studies were then supplemented by field studies and consultations with relevant stakeholders, for example interested parties, statutory bodies, and local authorities, as required for each environmental topic. Figure 1.3 below illustrates the key stages in the preparation of an EIAR.

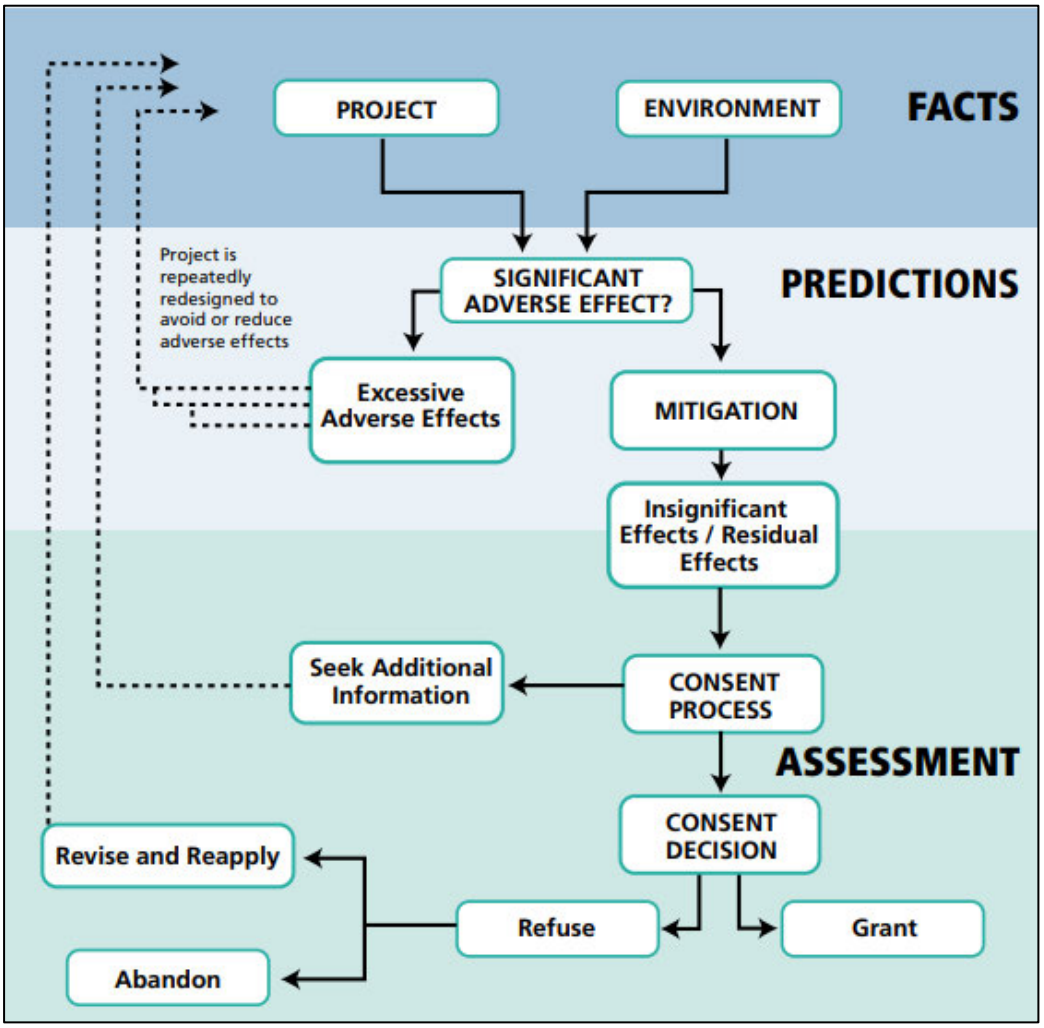


Figure 1.3: Flow chart illustrating the key stages in the preparation of an EIAR. (Source: *Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports,* 2017, EPA; Figure 2.1.)

Receiving Environment (Baseline and Predicted Situation)

Each chapter of this EIAR provides a description of the existing environmental conditions within each defined study area. Schedule 6 Paragraph 2(c) of the Planning and Development Regulations 2001 (as amended) requires this description to include the following:

> *'a description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge'.*

This section in each chapter describes the findings of the desktop studies, field surveys and information gained through any consultations carried out and uses the information to provide a description of the current state of the environment based on all the information gathered. It also aims to outline the likely evolution of the environment in the absence of the development i.e. the 'do-nothing' scenario.

Characteristics of the Proposed Development

A description of the location, nature and extent of the proposed development along with its construction and operational characteristics. The description includes estimates of any residues, emissions, or waste produced during the construction and operational stages. This will be addressed comprehensively in chapter 3 of the EIAR with all other chapters referring to this.

Potential Impact of the Proposed Development

This section of each chapter describes the direct and indirect impacts the Project is likely to have on the environmental factor the subject of the chapter. The assessment criteria used to assess and describe the likely significant effects was that set out in the *Guidelines on the Information to be contained in Environmental Impact Statements* (EPA, 2022) ("the EPA Guidelines"), unless otherwise stated and described within the relevant EIAR chapter.

For each technical EIAR chapter, the classification and significance of effects will be evaluated with reference to definitive standards, accepted criteria and legislation where available. Where it has not been possible to quantify effects, qualitative assessments will be carried out, based on professional opinion and professional judgement. Where uncertainty exists, this will be noted in the relevant EIAR chapter.

Mitigation Measures

Schedule 6 Paragraph 2(g) of the Planning and Development Regulations 2001 (as amended) requires an EIAR to include:

> *'(g) a description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of an analysis after completion of the development), explaining the extent to which significant adverse effects on the environment are avoided, prevented, reduced or offset during both the construction and operational phases of development'.*

This section of each chapter describes the mitigation measures which are proposed to be adopted in order to prevent, reduce and offset, as far as practicable and reasonable, any significant adverse impacts which the Project is likely to have on the relevant environmental factor (for both construction and operational stages).

Section 3.8.1 of the EPA Guidelines identifies four types of mitigation measure, namely:

- **Mitigation by avoidance –** generally part of the consideration of alternatives, where adverse effects are avoided entirely through changes in design;
- **Mitigation by prevention –** generally technical measures taken to prevent a potential unacceptable significant effect. Measures are put in place to limit the source of the effect, e.g., through specification process standards or building design. Prevention measures also include safeguards against the effects of accidental events;
- **Mitigation by remedy/offsetting –** a strategy for dealing with negative effects which can neither be avoided nor reduced. Remedy involves compensation for or counteraction of an adverse effect (e.g., planting new vegetation to compensate for removal elsewhere as a result of the project). Offsetting involves carrying out further works to improve adverse conditions (e.g., installing tunnels to allow wildlife to retain access to comparable habitats).

Each required mitigation measure has been fully described in the mitigation section within each chapter.

All impacts resulting in a 'Moderate' significance under the EPA Guideline or above have mitigation measures proposed. Professional judgement around this general position depending on the subjective nature of the assessment has also been applied, where relevant.

Predicted Impact of the Proposed Development

The main purpose of the EIAR is to assess and describe the likely environmental impacts of the proposed development. This section of each chapter will describe the likely impacts and evaluate the extent, magnitude, duration, reversibility and significance of any likely impacts of the proposed Project versus the current baseline and the mitigating effect of any proposed mitigation measures.

The proposed development has the potential to impact on the environment during both the construction and operational phases. Each specialist reviewed the details of the proposed and, based on the baseline information collected, predicted the impacts that the proposed development has on their specific environmental topic.

Under Schedule 6 Paragraph 2(e) of the Planning and Development Regulations 2001 (as amended), descriptions of the likely significant effects on the environment resulting from the following shall be described:

- *The construction and existence of the proposed development, including, where relevant, demolition works;*
- *The use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;*

- *The emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;*
- *The risks to human health, cultural heritage, or the environment (for example due to accidents or disasters);*
- *The cumulation of effects with other existing or approved developments, or both, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;*
- *The impact of the proposed development on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the proposed development to climate change; and*
- *The technologies and the substances used.*

Each predicted impact has been fully described and assigned a significance and duration based on the assessment criteria as outlined within each chapter. A conservative approach has been taken to assessing likely impacts, with the 'worst case scenario' used in order to ensure all foreseeable impacts have been identified.

Assessment criteria have been developed on a subject-by-subject basis informed by professional judgement to ensure that the criteria used are flexible and relevant to each subject. The EPA methodology for assessing and describing the magnitude and duration of environmental effects has been adopted generally unless stated otherwise in a particular chapter.

The development of the criteria has had regard to the EPA assessment criteria as per the EPA Guidelines. Figure 1.4 shows how a comparison of the character of the predicted impact to the sensitivity of the receiving environment determine the significance of the impact.

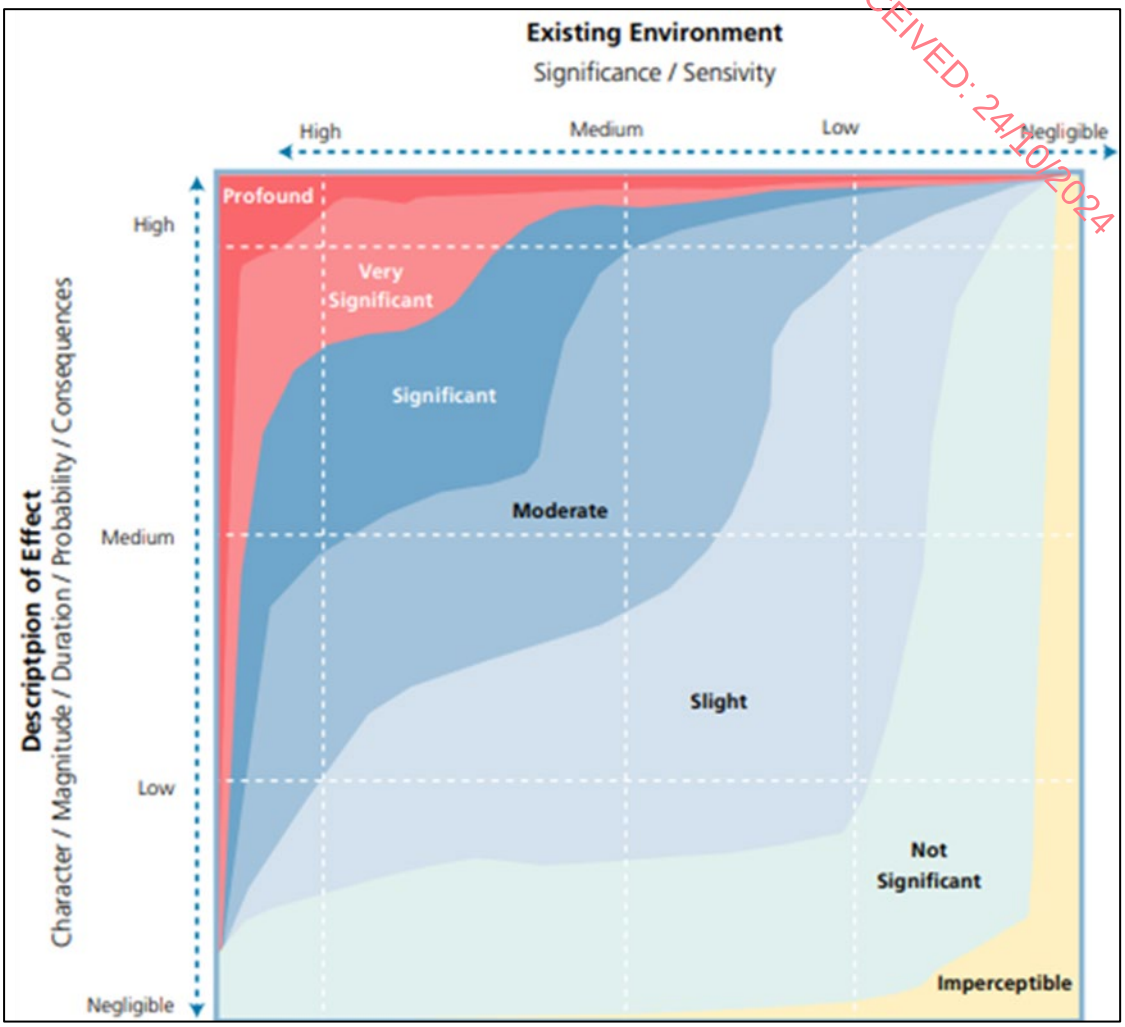


Figure 1.4: Chart showing typical classifications of the significance of impacts. (Source: EPA, 2022).

Monitoring

Where appropriate and relevant, monitoring has been proposed to assess the actual impacts on the receiving environment and the effectiveness of the proposed mitigation measures. Monitoring allows for the comparison of pre- and post-project conditions and will enable any unforeseen impacts to be identified and mitigated where required.

In addition to the requirement for monitoring under Schedule 6 Paragraph 2(g) of the Planning and Development Regulations, 2001, Recital 35 of the EIA Directive provides further background:

> *"Member states should ensure that … appropriate procedures are determined regarding the monitoring of significant adverse effects on the environment resulting from the construction and operation of a project, inter alia, to identify unforeseen significant adverse effects, in order to be able to undertake appropriate remedial action. Such monitoring should not duplicate or add to monitoring required pursuant to Union legislation other than this Directive and to national legislation".*

Where monitoring is a requirement, each relevant chapter clearly states what monitoring is to be carried out.

Reinstatement (if required)

While not applicable to every aspect of the environment considered within this EIAR, certain measures may need to be proposed to ensure that in the event of the proposed development being discontinued, that there will be minimal impact to the environment.

Where reinstatement measures are proposed, these are discussed in the relevant chapter.

Interactions and Potential Cumulative Impacts

Schedule 6 of the Planning and Development Regulations 2001 (as amended) (*Information to be Contained in EIAR)* includes the following in Part 2 (e):

> *(i) a description of the likely significant effects on the environment of the proposed development resulting from, among other things –*
> *(V)the cumulation of effects with other existing or approved developments, or both, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources.*

The potential for significant cumulative impacts and impact interactions is described for each environmental topic.
This section allows for a description of the cumulative and interaction impacts that the project is likely to have on aspects of the environment affected. This is done with reference to both the *Project Description* and *Receiving Environment* sections, while also referring to the magnitude, duration, consequences (including use of natural resources) and significance of any impact.

For cumulative impacts of future developments in the surrounding area, Tom Phillips + Associates (TPA) have provided each Chapter consultant with a list of future developments in the surrounding area. The list was created by TPA's GIS specialist who filtered the Local Authorities' planning permission data sets to those within 5 km of the subject site.

That list was then filtered further – using professional town planning judgment – to eliminate applications such as extensions to dwellings or other minor developments unlikely to combine with the project to significantly impact the environment. The final list provided to each consultant is included as Appendix 1.1.

1.6.3 EIAR Study Team and Competency

This EIAR was completed by a project team led by Tom Phillips + Associates, who also prepared a number of the chapters.

In accordance with EIA Directive we confirm that the experts involved in the preparation of this EIAR are fully qualified and competent in their respective fields.

Each contributor has extensive proven expertise in the relevant field concerned, thus ensuring that the information provided herein is complete and of high quality. The members of the team, their respective inputs and competency is detailed in Appendix 1.2. A summary is provided in the table below.

Chapter	Aspects of the Environment Considered	Contributor	Person Responsible
Chapter 1	Introduction and Methodology	Tom Phillips + Associates (TPA)	Gavin Lawlor/ Bernard Dwyer
Chapter 2	Site Location and Context	TPA	Gavin Lawlor/ Bernard Dwyer
Chapter 3	Description of the Proposed Development	TPA	Gavin Lawlor/ Bernard Dwyer
Chapter 4	Key Alternatives Considered	TPA	Gavin Lawlor/ Bernard Dwyer
Chapter 5	Population and Human Health	TPA	Gavin Lawlor/ Bernard Dwyer
Chapter 6	Biodiversity	AWN	Mairead Rawal
Chapter 7	Land, Soils, and Ground Water	AWN	Mairead Rawal
Chapter 8	Hydrology (Surface Water and Waste Water)	AWN	Mairead Rawal
Chapter 9	Air	AWN	Mairead Rawal
Chapter 10	Climate	AWN	Mairead Rawal
Chapter 11	Noise and Vibration	AWN	Mairead Rawal
Chapter 12	Material Assets – Waste (Construction and Demolition)	AWN	Mairead Rawal
Chapter 13	Material Assets – Traffic and Transportation	BMCE	Ciaran Kennedy/Christina Fox
Chapter 14	Material Assets – Site Services	BMCE	Ciaran Kennedy/Christina Fox
Chapter 15	Cultural Heritage incl. Archaeology	IAC	Faith Bailey
Chapter 16	Landscape Visual Impact Assessment	Murray & Associates	John Ward
Chapter 17	Interactions and Cumulative Impacts	TPA	Gavin Lawlor/ Bernard Dwyer
Chapter 18	Mitigation	TPA	Gavin Lawlor/ Bernard Dwyer
Chapter 19	Difficulties Encountered	TPA	Gavin Lawlor/ Bernard Dwyer
	Non-Technical Summary	All Contributors	

Table 1.2: List of EIAR Chapters and Contributors. (Source: TPA, 2022).

1.7 The Developer

The development subject of this EIAR is proposed by Lens Media Limited.

2.0 SITE LOCATION AND CONTEXT

2.1 Introduction

This chapter of the Environmental Impact Assessment Report has been prepared by Gavin Lawlor and Bernard Dwyer of Tom Phillips + Associates.

Gavin Lawlor is a Director of Tom Phillips + Associates. He holds a BA (Social Science) from University College Dublin, where he graduated in 1995 with a Masters in Regional and Urban Planning (MRUP) Degree and is a Full Member of the Irish Planning Institute (IPI) with 25 years' experience.

Bernard Dwyer is a Member of the Irish Planning Institute and has been practicing as a town planner for over 9 years. Bernard holds a postgraduate Master's degree in Planning and Sustainable Development (Hons), (2014) UCC.

In accordance with Directive 2014/52/EU, this chapter provides a description of the site and its context. The chapter also provides an overview of the planning and policy context as it pertains to the lands.

2.2 Location of the Subject Site

The application site comprises 22.6 hectares of undeveloped land, located west of Grange Castle Business Park, c. **20 KM** south-west from Dublin Airport and c. **16M** south-west from Dublin city centre. The site is bounded by the banks of the Grand Canal, a proposed Natural Heritage Area (pNHA) to the north, agricultural land to the south, east and west.

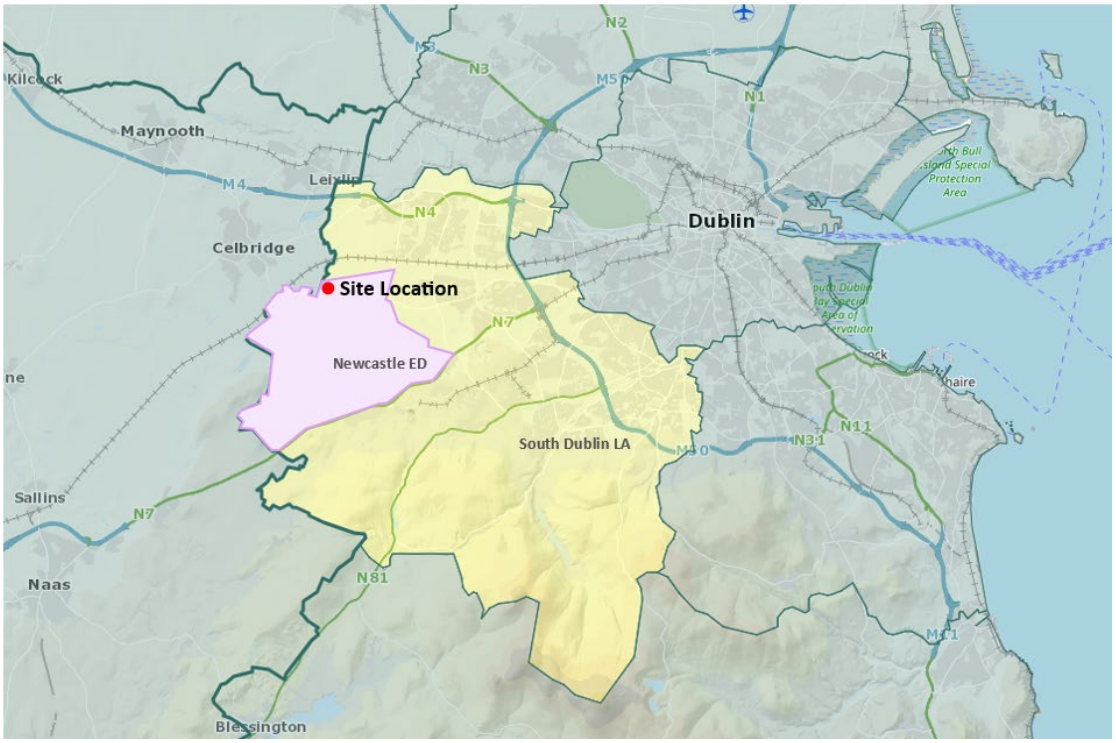


Figure 2.1: Media Park Site Location within Greater Dublin Area (Source: Myplan.ie; annotated by TPA 2023).

2.3 Site Description and Context

The site is currently a greenfield site used for agriculture and its immediate surrounds are also in agricultural use. The site is at a key transition point between agriculture land and enterprise and employment zoned land. It is also proximate to the Kildare border with Celbridge town approx. 3km northwest of the site. The site is c.700m north of Peamount Hospital. Gollierstown Bridge is located to the northeast of the site and Grand Canal pNHA (site code: 002104) runs along the north of the site. There are minimal sensitive receptors in the vicinity of the site with the nearest residential properties being located along Relickeen lane. There are 2 existing farm holdings located approximately 70 m and 100 metres from the south western boundary of the site with a cluster of residential properties approximately 600 metres to the south west. We also note ribbon development of residential and farm properties along Tubber lane, approximately 700 metres to the west and on the northern side of the Grand Canal. There is a stud farm located approximately 2.8 km to the north west and a boarding kennels located approximately 800 metres to the south.

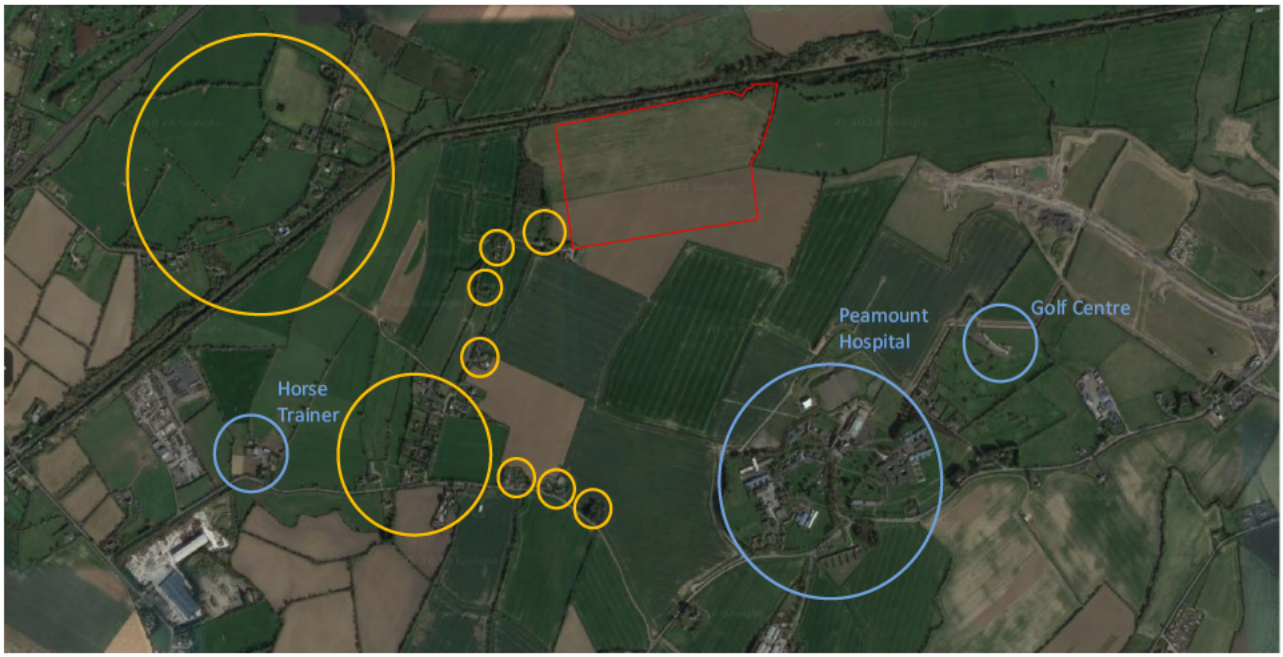


Figure 2.2: Nearby Receptors (Residential circled in yellow) and other land uses in blue (Source Google Earth annotated by TPA).

The proposed development site is situated on land zoned as Objective EE: Enterprise and Employment, *"to provide for enterprise and employment related uses"*, under the South Dublin County Development Plan 2022-2028. The wider Grange Castle area is characterised by a mixture of land uses including extensive areas of greenfield/agricultural land, residential uses, and industrial uses.

Figure 2.3: Zoning of the Subject lands (SDCC Development Plan 2022 - 2028).

The zoning to the North and west of the site is zoned as RU with objective to protect and improve rural amenity and to provide for the development of agriculture.

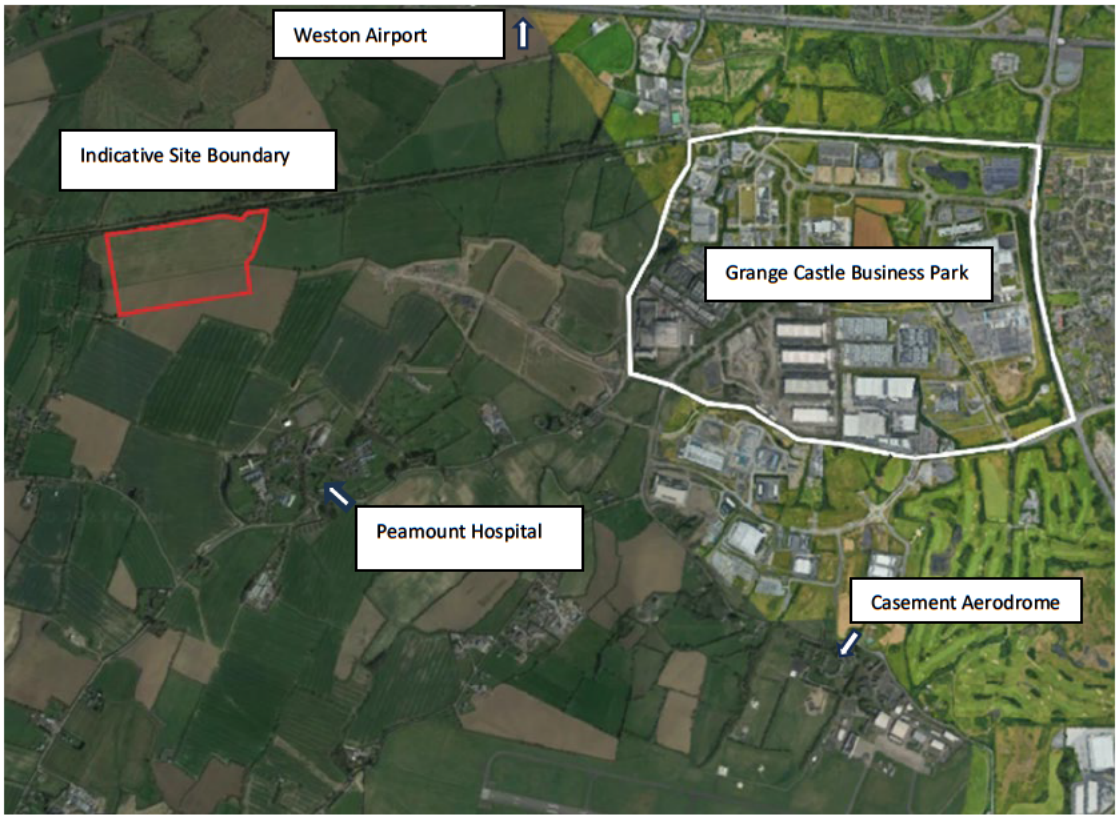


Figure 2.4: Indicative site boundary shown in relation to neighbouring land uses (Source: Google Earth, TPA 2023).

The existing Grange Castle Business Park, situated to the East of the subject site, includes a number of major employers including Microsoft, Pfizer, and Takeda among others in a mix of manufacturing and data centre developments. Peamount Hospital is located to the south of the application site, and Weston airport is located to the northwest of the site. The lands are therefore within close proximity to flight approach routes of these two airports as outlined

within the South Dublin Development Plan 2022-2028. In order to address any potential concerns with regard to aviation, the applicants have appointed O'Dwyer and Jones Design Partnership, Aviation Specialists to the project to carry out an Aviation Assessment. This Assessment has been included as Appendix 2.1 of this EIAR.

Grange Castle has acted as a magnet for large-scale employment developments that would be unsuitable to more central locations due to their particular locational or operational requirements. The subject site was selected as most suitable given the unique security and privacy requirements of proposed development. The subject site also presents reduced constraints in terms of nearby sensitive receptors. The relatively flat and low lying site results in minimal visual impact from surrounding vantage points. Chapter 4 of the EIAR provides additional detail on the locational requirements and alternative locations that were explored earlier on in the evolution of the project including the environmental advantages of the subject site compared to other sites.

In relation to both built and cultural heritage designations, there are no Protected Structures or proposed Protected Structures within the boundaries of the site. The nearest protected structure, Gollierstown Bridge (Ref. No. 131), is located north east of the application site. The site is not located in or within the vicinity of an Architectural Conservation Area (ACA).

There are no monuments on the Record of Monuments and Places (RMPs) located within the boundary of the subject site.

The subject site is not located within the consultation distance for any of the existing SEVESO sites located within the wider Grange Castle area and surrounding areas. The closest Upper Tier site is the Brenntag Chemicals facility approximately 3.2 km to the south.

The site as mentioned previously, is bounded by the Grand Canal, which is subject to a proposed Natural Heritage Designation (pNHA). The Grand Canal is an artificial linear waterway that hosts a variety of habitats and plant and animal species, including protected species. The canal acts as a direct national link and an ecological corridor between the River Shannon and Dublin Bay and while the site is not a Natura 2000 site, it is now recognised as a pNHA.

The nearest Natura 2000 site is Rye Water Valley/Carton SAC (site code: 001398) which is located approx. 7km northwest of the subject site.

In terms of access and existing public transport connections, the subject site benefits from being located in relative proximity to Dublin Airport, which is a key requirement in terms of providing accessibility for talent and ensuring efficient production turnaround times.

Additionally, the main Dublin to Cork rail line including Commuter services runs approximately 1km north of the site, with nearby stations at Hazelhatch and Celbridge, and Adamstown. At present, the nearest bus stops to the subject site are located at the Grange Castle Business Park. These stops are serviced by the following routes outlined below.

- **13**: Harristown – Grange Castle Business Park
- **151:** Balgaddy Road – East Road
- **869**: Greenogue – Park West Station
- **W4**: The Square Tallaght – Blanchardstown SC

Access to the proposed development is to be provided via the recently completed Grange Castle West Access Road (planning ref. no. SD188/0009), to the east of the site(Note access road is under construction in figure 2.5) . The new access road provides a raised 2m wide cycle path and a separate 2m wide pedestrian walkway.

Figure 2.5: Aerial view of the subject site in Grange Castle with indicative planning application boundary in red (Source: Google Earth; annotated by TPA 2024).

Figure 2.6: Aerial view of the subject site in Grange Castle with indicative site indicated by red star (Source: Google Earth; annotated by TPA 2024).

2.4 Planning Context

This section provides an overview of the planning context including the various National, Regional and Local planning policies that are applicable to the subject site. The full planning policy context is set out in detail in the Planning Report prepared by Tom Phillips + Associates that accompanies the planning application.

2.4.1 National Planning Policy

National Planning Framework 2040 (NPF)

Published in 2018, the National Planning Framework (NPF) sets out a strategic development framework and approach to long-term planning and investment in Ireland to 2040. The NPF estimates that the population of the eastern and midland region of Ireland will grow by an additional 490,000 – 540,000 people by 2040, i.e. a population of c. 2.85 million people within the region. At the time of the 2022 Census, the population of South Dublin stood at 299,793 people, and this number is expected to increase in line with National and Regional population targets, to c.323,769 people by 2028.

The NPF outlines that while Dublin has "generally performed well as a capital city in recent years", there are a number of key challenges particularly in relation to housing affordability, transportation, and urban amenities/liveability. In addition, a greater proportion of the growth generated within Dublin must be accommodated within its metropolitan boundaries. Therefore, a holistic approach to ensuring that both residential and employment development is served by transport, infrastructure, and amenities is required.

The NPF sets out a number of key growth enablers that are relevant to the development of the subject site, including the following:

> *"Identifying a number of ambitious large scale regeneration areas for the provision of new housing and employment throughout the city and metropolitan area and these measures required to facilitate them as integrated, sustainable development projects".*

The overarching goals of the NPF are expressed as 10 no. National Strategic Outcomes (NSO's), the following of which, NSO. 5, is relevant to the proposed Media Park at Grange Castle.

In accordance with **NSO 5 – A Strong Economy supported by Enterprise, Innovation and Skills,** the NPF outlines the importance of creating places that can foster enterprise and attract investment and talent. This can be achieved by building regional economic drivers in order to leverage the potential of places. It is recognised that the coordination of growth and place making with significant investment in infrastructure and in the skills and talent will be required to support economic competitiveness and growth. The NPF states:

> *"A competitive, innovative, and resilient regional enterprise base is essential to provide the jobs and employment opportunities for people to live and prosper in the regions. Achieving the ambitious projected target of an additional 660,000 people at work in the context of increased global uncertainty, Brexit and technological disruption underlines the importance of building competitive regional clusters and generating an uplift in enterprise export competitiveness to secure sustainable jobs and growth.*

As set out in the accompanying Planning Report, the development of the subject site will make a positive contribution towards the achievement of a number of the overarching National Policy Objectives (NPO's), including the following:

NPO 2a – a target of half (50%) of future population and employment growth will be focused in the existing five cities and their suburbs.

NPO 5 – Develop cities and towns of sufficient scale and quality to compete internationally and to be drivers of national and regional growth, investment, and prosperity.

NPO 6 – Regenerate and rejuvenate cities, towns and villages of all types and scale as environmental assets, that can accommodate changing roles and functions, increased

residential population and employment activity and enhanced levels of amenity and design quality, in order to sustainably influence and support their surrounding area.

NPO 11 – In meeting urban development requirements, there will be a presumption in favour of development that can encourage more people and generate more jobs and activity within existing cities, towns, and villages, subject to development meeting appropriate planning standards and achieving targeted growth.

Audio Visual Action Plan – Department of Culture, Heritage, and the Gaeltacht (2018)

Launched in June 2018, the Audiovisual Action Plan aims to deliver improvements to Ireland's audiovisual sector across eight policy areas. The Plan additionally aims to position Ireland as a "centre of excellence in media production", delivering on the commitment of Pillar 4 of the Government of Ireland's '*Creative Ireland Programme.*'

The overarching and long-term objective of Pillar 4 is to elevate Ireland's creative industries including media, with an initial key focus on Ireland's potential to become a global leader in film production, TV drama, documentary, children's storytelling, and animation for the screen. With many new and highly resourced buyers and distributors looking for high quality content and a globally connected audience, the opportunity is significant. Since its launch in 2018, there has been widespread cooperation across Government on the plan.

The project at Grange Castle would serve to support the Government's aim of securing Ireland's position as a centre of excellence and global leader in media production, as well as continuing to develop indigenous production.

2.4.2 Regional Planning Policy

Eastern and Midland Regional Assembly – Regional Spatial and Economic Strategy 2019-2031.

The RSES supports the implementation of the NPF through a long-term strategic planning and economic framework to shape the development of the region. The overarching vision for the region is:

> *"to create a sustainable and competitive region that supports the health and wellbeing of our people and places, from urban to rural, with access to quality housing, travel and employment opportunities for all"*

The RSES sets out 16 no. Regional Strategic Outcomes (RSOs) which are closely aligned with the NPF NSO's and the United Nations Sustainable Development Goals. The RSES supports continued population and economic growth in Dublin City and suburbs.

In addition, the NPF sets out a requirement for the preparation of a Dublin Metropolitan Area Strategic Plan (MASP). The subject site is situated within the MASP boundary. The MASP is "*an integrated land use and transportation strategy for the Dublin Metropolitan Area that sets out:*

- *A vision for the future growth of the metropolitan area and key growth enablers, identifying strategic corridors based on their capacity to achieve compact sustainable and sequential growth along key public transport corridors, existing and planned.*

- Large scale strategic residential, employment and regeneration development opportunities and any infrastructure deficits or constraints that need to be addressed.
- A sequence of infrastructure priorities to promote greater co-ordination between local authorities, public transport, and infrastructure providers for the phased delivery of sites".
    - With regard to the MASP principle of effectively integrating transport planning with spatial planning policies, RPO 5.3 states that:

"Future development in the Dublin Metropolitan Area shall be planned and designed in a manner that facilitates sustainable travel patterns, with a particular focus on increasing the share of active modes and public transport use and creating a safe attractive street environment for pedestrians and cyclists".

The MASP identifies a number of large-scale employment and mixed-use development areas within the metropolitan area, which should be developed in co-ordination with the sequential delivery of infrastructure and services. The Economic Strategy sets out guiding principles for the location of strategic employment areas that include access to:

- suitable locations (depending on the extent to which an enterprise is people or space intensive or subject to environment constraints);
- serviced sites (based on whether an industry is dependent on a particular infrastructure such as energy, water, transport, or communications networks);
- connectivity (including access to international markets that requires proximity to an airport/port);
- skilled labour force (proximity to third level education and lifelong learning).

With regard to enterprise and employment growth, the RSES acknowledges that the population size, varied enterprise base, access and connectivity to national and international markets, available skills, and talent pool of the Dublin SPA, makes it an attractive location for enterprise to locate and operate. RPO 6.2 seeks to encourage more enterprise and economic growth in the county and states its aim to,

"Support local authorities to ensure their LECPs and city and county development plans are sufficiently agile to account for unexpected opportunities, to accommodate valid propositions for enterprise development that may emerge and for which there are strong locational drivers that do not apply to the same extent elsewhere.

In relation to arts and culture within the eastern and midland region, RPO 9.26 seeks to "build on the success and support the clustering of the film and audio-visual sector in the Dublin and Wicklow areas and to support training of film works and crew around the Region, as well as exploiting opportunities for the industry outside of these hubs".

2.4.3 Local Planning Policy

South Dublin County Development Plan 2022-2028

Land-Use Zoning

The South Dublin Development Plan 2022-2028 notes that the subject site is on lands zoned '*EE: Enterprise and Employment'*. Lands under this zoning objective are to provide for enterprise and employment related uses only.

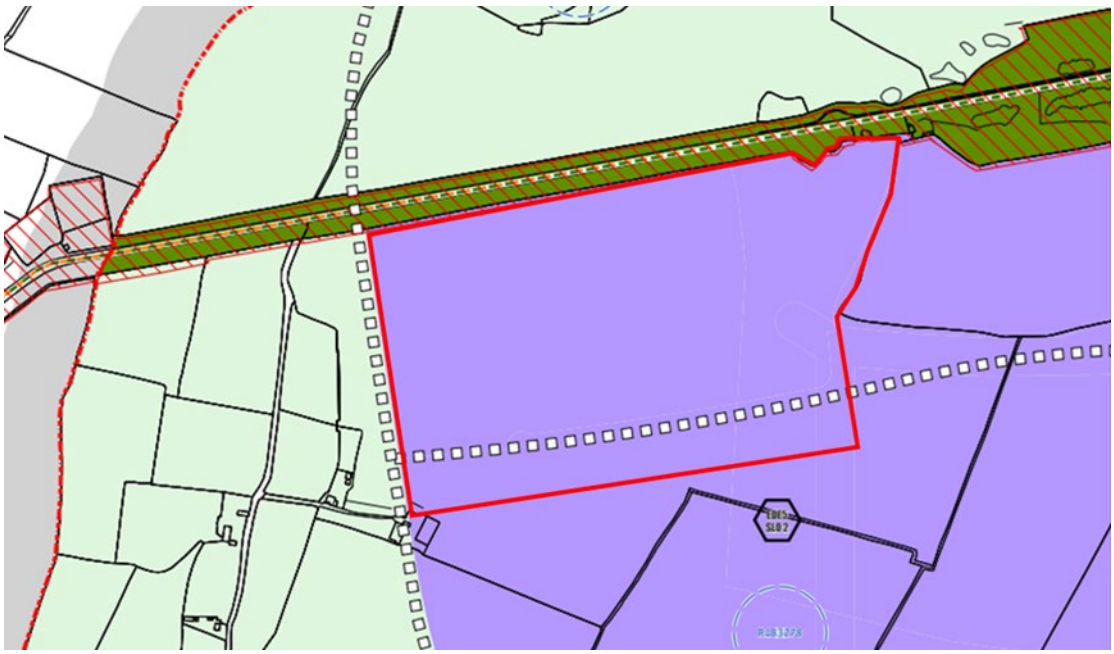


Figure 2.7: Indicative site boundary within zoning objective EE on South Dublin County Council Zoning Map (Source: South Dublin County Council; annotated by TPA 2023).

The use classes for zoning objective EE are set out in the Plan. Although the land use of a "media park" or "media campus" is not expressly stated, the Plan states that uses that have not been listed under the land use zoning tables "*will be considered on a case-by-case basis in relation to conformity with the relevant policies, objectives and standards contained within the Plan, particularly in relation to the zoning objective of the subject site and its impact on the development of the County at a strategic and local level*".

Enterprise and Economic Growth

In relation to the economic growth and development of South Dublin, the Council sets out an overarching objective to "*support sustainable enterprise and employment growth (in South Dublin County) recognising the County's role in the Dublin region as a driver of economic growth".* The following objectives provide further context as to how the Council's aims to support further economic growth in the County.

EDE1 Objective 1: To enable a strong, inclusive, and resilient economy, supported by enterprise, innovation, and skills through the creation of places that can foster enterprise and innovation and attract investment and talent, consistent with National Strategic Outcomes 4,5 and 6 of the NPF.

EDE1 Objective 2: To develop and support the Dublin Metropolitan Area Strategic Plan (MASP) through the growth in the identified strategic development and employment areas of South Dublin County, as part of the growth of the Dublin Region to a sufficient scale and quality to compete internationally and to be drivers of national and regional growth, investment, and prosperity consistent with NSO 5 of the NPF.

EDE4 Objective 8: To support the provision of a broad diversity of employment opportunities in the County that can attract a wide range of skills, training, and educational qualifications for a resilient and inclusive economy.

The Plan acknowledges that to maintain a good quality of life and vibrant and attractive places, the creation of a strong and resilient economic base that provides opportunities for employment, must be facilitated. In line with National and Regional policy, the Eastern and Midlands Region will accommodate approximately 320,000 additional people at work by 2040 (1m in 2016 to 1.34 million in 2040). To provide for the additional population in the workforce, there is a need to attract both new foreign direct investment (FDI) and indigenous investment to the County. For this to be achieved, a supply of high-quality, marketable, serviced lands and premises is needed.

Arts and Culture

In relation to arts and culture development within South Dublin County, the Plan sets out to develop and introduce new initiatives to strengthen the existing programmes and to bolster the pivotal role of the arts and culture infrastructure within South Dublin county.

Airports and Aerodromes

As mentioned earlier in this chapter, the application site is located in proximity to two airport surfaces; Casement Aerodrome and Weston Airport. Casement Aerodrome according to the Plan, is in continuous aviation use and is Ireland's only fully equipped military airbase, serving as the main centre of Air Corps operations. IE9 Objective 2 of the Plan *seeks to maintain the airspace around Casement Aerodrome free from obstacles to facilitate aircraft operations to be conducted safely*, as identified in the Development Plan Index map. IE9 Objective 3 *to implement the principles of shielding in assessing proposed development in the vicinity of Aerodromes*, having regard to Section 3.23 of the Irish Aviation Authority *Guidance Material on Aerodrome Annex 14 Surfaces* (2015). The Plan states that in the case for development close to an aerodrome, the applicant must submit a longitudinal section through the relevant 'Obstacle Limitation Surface'.

Weston Airport is used for general aviation purposes, and consists of one runway, designated as a Code 2B runway, as per ICAO and EASA definitions. As Weston Airports obstacle limitation surface overlaps with those of Casement Aerodrome, the more stringent requirements of the two shall apply. In relation to the proposed development, the following objective is relevant;

IE Objective 2: *To maintain the airspace around the airport free from obstacles so as to facilitate aircraft operations to be conducted safely, including restricting development in the environs of the aerodrome, as identified by the Obstacle Limitations surfaces shown on the Development Plan Index Map*.

Green Infrastructure

Mapping of the green and blue assets of the county allowed for the key Green Infrastructure assets to be identified, and a vision and spatial framework to be developed based on a network of core areas, stepping stones and local and strategic corridors. Strategic Corridor 3 of the South Dublin GI network is the Grand Canal Corridor. The Canal as a pNHA, supports a range of key ecosystem services along its entire route and offers a major route for protected species from Dublin's rural hinterland through the urban environment of South Dublin County. As such, an overarching objective is put forward to *ensure that development along and adjacent to the Grand Canal, including the sensitive provision of amenity and recreational facilities, recognises the Canal's ecological status, avoiding areas and features of biodiversity and heritage sensitivity, and that appropriate set-back distances or buffer areas are identified and included*.

As per the requirements of the Plan, the development proposal is accompanied by detailed GI plans, submitted as part of the suite of Landscape Plans which are generally required for development. The plans have regard to the various considerations of the site, including the needs of the business and biodiversity enhancement, while simultaneously being cognisant of aviation safety given the proximity of the development site to both Casement Aerodrome and Weston Airport.

Space Extensive Enterprises

As far as possible, South Dublin County Council stipulate that space extensive enterprise should be located on lands which are outside the M50, and which do not compromise labour intensive opportunity on zoned lands adjacent to public transport, as per EDE7 Objective 1. The proposed media park development will be located on Enterprise and Employment zoned land beyond the M50, and as per the requirements of the Plan for space extensive enterprises, will include various sustainability measures including the energy efficient design of buildings and rooftop pv.

Built Form and Corporate Identity

As the surrounding context of the site comprises largely of undeveloped, agricultural land, the Building Heights and Density Guide principles have limited applicability to the current proposal. However, the main architectural concept has been to develop an architectural form and articulation that sites a grouping of functionally specific boxes within a rural Dublin hinterland setting whilst providing a clear separation between large private working zones and welcoming/open public areas. Sensitivity to the surrounding rural landscape is the main inspiration for the appropriate material and colour palette developed by Foley Design and MCA. A succinct range of colours and materials drawing on Irish rural architectural typographies and native fauna and flora will be employed throughout the project.

The design of the proposed development has regard to the requirements of aviation safety in the area and will not exceed any of the maximum allowable heights in this regard. At its tallest point (sound stage buildings), the proposed development stands at an estimated ridge height 24.5m.

	Key Principle	GCMP Scheme
Access and Movement	• Major links to and through a site are provided as identified within the County Development Plan or relevant Local Area Plan, Masterplan and / or as determined by a site analysis process and / consultation with the planning authority; • The street network is easy to navigate with a clear hierarchy of streets identifying the function of each street; • Individual streets are designed in accordance with the requirements of the (DMURS) Design Manual for Urban Roads and Streets; • Large areas of parking (in particular staff parking) is located to the rear of buildings and screened from the street. Smaller areas of parking may be located to the front of buildings provided they are well designed (including areas of planting) and do not result in excessive setbacks from the street; • The design and layout of new business parks shall promote walking, cycling and the use of public transport, including adequate provision of cycle and pedestrian linkages.	The site is located at the western edge of the Grange Castle Business Park and will be facilitated by existing infrastructure in the area. The layout of the campus has been designed to ensure easy navigation and a clear delineation between restricted and publicly accessible areas. The campus has been designed in accordance with the principles of DMURS to ensure priority is given to pedestrians and cyclists and

Open Space and Landscape	• Provision of a detailed landscape plan showing site appropriate open space which may include a hierarchy of spaces suited to a variety of functions and activities. The landscape plan will also incorporate GI elements (see GI below); • Important natural features of the site such as trees, hedgerows and watercourses are retained, integrated within the landscape plan and reinforced with the planting of native species; • Natural buffer zones and defensive planting are used to define private space and the use of fencing to the front of buildings is minimised. Where fences interface with the public domain they should be of a high quality and incorporate elements of landscaping (for screening); • Development within business parks shall maintain and promote a parkland-like setting with high quality landscaping	The proposal is accompanied by detailed landscaping plans prepared by Murray and Associates which outline the hierarchy of spaces within the campus and the various proposed GI features. A key element of the landscape strategy is the inclusion of a linear amenity space between the main camps and the Grand canal to the north which will provide a dual amenity and biodiversity function. The landscape for the new studios at Grangecastle has been developed as 'Fields' to emphasise the greenspace approach to the studio campus development. The concept for the design of the campus is to show the development emerging from the agricultural character of the original landscape. Insofar as is possible the design retains features of the existing agricultural landscape, and introduces new elements based around an agricultural theme
Green Infrastructure	• All development proposals shall be accompanied by a GI Infrastructure Plan, which will normally be submitted as part of the suite of Landscape Plans that are required for a development. Plans shall include the following: • Site location plan showing the development site in the context of the wider GI as shown on the GI Strategy for the County;	The application is accompanied by Detailed GI plans and landscaping proposals prepared by Murray and Associates. The plans will be developed in consultation with SDCC and having regard to the various considerations of the site including the needs of the business and biodiversity enhancement while also being cognisant of aviation safety given the location of the site within 3km of both Casement Aerodrome and Weston Airports. All GI proposals will need to be developed to in a manner that reduces risk of Bird Strike

	• Site survey and analysis, identifying existing GI and key assets within the site; • Indicate how the development proposals link to and enhance the wider GI network of the County; • Proposed GI protection, enhancement and restoration proposals as part of the landscape plan, where appropriate, for the site; • Proposals for identification and control of invasive species. Regardless of development size or type, applicants must submit an overall site summary quantifying and detailing the following: o tree and hedgerow removal; o tree and hedgerow retention; o new tree and hedgerow planting. This information will be submitted in a digital format agreed with the Council to allow amalgamation and reporting on tree and hedgerow cover within the County over time.	hazards. O'Dwyer and Jones Aviation planning have been appointed to the project to advise in this regard. A key element of the proposal will be the provision of a linear amenity park along the boundary of the site with the Grand canal. Further details on the GI context of the site are outlined in chapter 16 of the EIAR (Landscape and Visual Impact Assessment).
Built Form and Corporate Identity	• Building heights respond to the surrounding context with transitions provided where necessary which reinforce the urban structure with taller buildings located along key movement corridors, gateways and nodes; • Individual buildings should be of contemporary architectural design and finish (including use of colour); • Various treatments, finishes and colours should be employed to reduce the bulk,	• Building heights: The building heights for the taller elements in the project, the stage buildings (c. 24.5 metres), respond to specific functional/operational requirements of the television and movie industry. Each stage building has an adjoining , lower, 2 storey or three storey office area which provides both a public face and a step down transition in height for the larger stage boxes. These office fronted buildings address both north and south site boundaries providing appropriately scaled frontage to the public realm. The main gateway to the project opens onto a large external courtyard space which is flanked by 2/3 storey buildings to

	massing and scale of larger buildings; • The layout and design of buildings should maximise frontages onto the public realm and enclose private external spaces (such as service yards and car parks) and storage areas behind them; à Signage should be simple in design and designed to integrate with architectural features and / or the landscape setting (see also Section 12.5.7 Advertising, Corporate Identification and Public Information Signs).	the north , south and west. These building clearly define the entrance space and circulation. • Contemporary Architectural Design: As the functional requirements for this specific type of project are rigid in terms of scale, layout and proximities, the main architectural concept has been to develop an architectural form and articulation that sites a grouping of functionally specific boxes within a rural Dublin hinterland setting whilst providing a clear separation between large private working zones and welcoming/open public areas. Sensitivity to the surrounding rural landscape is the main inspiration for the appropriate material and colour palette developed by Foley Design and MCA. A succinct range of colours and materials drawing on Irish rural architectural typographies and native fauna and flora will be employed throughout the project. • Reducing bulk, mass and scale: In response to functional requirements of the movie making industry the stage buildings become the larger elements within the scheme. The massing and bulk of these elements has been reduced by employing a 3m high cladding strip around the base of each box to provide a datum which links up with the 2 storey adjoining office and also relates to the pedestrian scale circulation between buildings . The main stage box is clad with a lighter coloured panelled cladding which breaks down the scale and minimises the visual weight. Architectural detailing will emphasize horizontal bands around the buildings and covered connection between the buildings to visually break the scale of each building. • Maximise frontage: Whilst the project is situated in a rural context, the site layout employs a configuration which addresses both public realm and a large external landscaped space at main public entry. Buildings have been designed to provide frontage to the 50m public greenway along the canal to the north whilst also anticipating future

		public interface along the southern boundary. The main public entry to the east is structured around an external landscaped space with buildings providing frontage on all sides. • Signage: Clear but sensitive signage is crucial within a large working campus dealing. The design for signage has been developed in tandem with the architectural language of the buildings within the project based on a sensitivity to the surrounding rural landscape and Irish rural architectural typographies.
Space Extensive Enterprises		
	Insofar as possible, space extensive enterprise should be located on lands which are outside the M50 and which do not compromise labour intensive opportunity on zoned lands adjacent to public transport, as per EDE7 Objective 1.	The proposed GCMP will be located on Enterprise and Employment Zoned land beyond the M50.
To require that space extensive enterprises demonstrate the following:	Strong energy efficiency measures to reduce their carbon footprint in support of national targets towards a net zero carbon economy, including renewable energy generation;	The proposed development will include various sustainability measures including energy efficient design of buildings and rooftop PV. PV proposals will be accompanied by glint and glare assessments and will have regard to the needs of aviation in the area. O'Dwyer and Jones Aviation planning have been appointed to the project to advise in this regard.
	Maximise onsite renewable energy generation to ensure as far as possible 100% powered by renewable energy, where on site demand cannot be met in this way provide evidence of engagement with power purchase agreements (PPA) in Ireland	The application is accompanied by an Energy statement prepared by Homan O'Brien that will outline the energy demands of the proposal and the various measures that will be taken to maximise energy efficiency and boost renewable energy production. The report has also looked at alternative energy proposals which were explored and ruled out.
	Sufficient capacity within the relevant water and wastewater and electricity network to accommodate the use proposed;	Pre-application Consultation has been carried out with the relevant bodies including SDCC, Uisce Eireann and ESB Networks to ensure that the needs of the Media Park can be met by the available local infrastructure.

	Measures to support the just transition to a circular economy;	An Operational Waste Management Plan will be developed for the Media Park which will aim to ensure that waste generation is minimised where possible, while opportunities for re-use or recycling of materials will be maximised.
	Measures to facilitate district heating or heat networks where excess heat is produced;	N/A
	A high-quality design approach to buildings which reduces the massing and visual impact;	The proposed scheme will be designed with high quality, durable materials that will provide attractive building finishes and will help to minimise visual impact.
	A comprehensive understanding of employment once operational;	GCMP, once fully operational and operating at capacity, is expected to provide employment in the region of 2,000 people both on and off site. This employment will be provided across a range of skill sets and disciplines.
	A comprehensive understanding of levels of traffic to and from the site at construction and operation stage;	The application will be accompanied by a detailed Traffic and Transport Assessment that will assess the potential impact of the development on the local road network at both construction and operational phases. A complimentary mobility management plan will also be developed to ensure that opportunities for sustainable travel are maximised where possible.

Kildare County Development Plan 2023-2029

The lands north and northwest of the site that are within Kildare are not zoned in the *Kildare County Development Plan 2023-2029* and the use of such land shall be deemed to be primarily agriculture. One of the overarching principles outlined in section 1.8.1 of the plan is to recognise the role of the rural countryside in supporting the rural economy and its role as a key resource for agriculture, equine, bloodstock, forestry, energy production, tourism, recreation, mineral extraction, and rural based enterprises.

Celbridge is the nearest town to the subject site, located within Kildare and is noted in Section 2.14.4 of the *Kildare County Development Plan 2023-2029* as being a self-sustaining town which has a high level of population growth but a weak employment base. The plan highlights the potential to improve the town's employment offering through biotechnology, knowledge based digital enterprises, logistics, tourism and food and beverage products.

Policy RE O17 states that it is an objective of Kildare County Council to:

> *"Undertake, within the first 2 years from the adoption of the Plan, a Strategic Land Use, Employment and Transportation Study of north-east Kildare including the Dublin Metropolitan area towns of Leixlip, (and Collinstown), Maynooth, Celbridge and Kilcock."*

The project has the potential to meet the objectives of Kildare County Development plan by providing employment opportunities for residents of nearby areas such as Celbridge, Maynooth, Kilcock and Leixlip. The proposals are also designed so as to minimise any visual impacts on unzoned lands to the north and northwest of the site. See Chapter 16 on Landscape and Visual Impact Assessment for further details.

3.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT

3.1 Introduction

This chapter of the Environmental Impact Assessment Report has been prepared by Gavin Lawlor and Bernard Dwyer of Tom Philips + Associates with input from the project design team.

Gavin Lawlor is a Director of Tom Phillips + Associates. He holds a BA (Social Science) from University College Dublin, where he graduated in 1995 with a Masters in Regional and Urban Planning (MRUP) Degree and is a Full Member of the Irish Planning Institute (IPI) with 25 years' experience.

Bernard Dwyer is a Member of the Irish Planning Institute and has been practicing as a town planner for over 9 years. Bernard holds a postgraduate Master's degree in Planning and Sustainable Development (Hons), (2014) UCC.

This chapter has been prepared in accordance with Article 5(1)(a) and Paragraph 1 of Annex IV of the EIA Directive and Article 94 and Paragraph 1(a) 2(a) of Schedule 6 of the Planning and Development Regulations 2001 (as amended), which states that the description of a project should comprise:

> *(a) a description of the proposed development, including, in particular—*
>
> *(i) a description of the location of the proposed development,*
>
> *(ii) a description of the physical characteristics of the whole proposed development, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases,*
>
> *(iii) a description of the main characteristics of the operational phase of the proposed development (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used, and*
>
> *(iv) an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation) and quantities and types of waste produced during the construction and operation phases;*

The project description should be read in conjunction with the plans and particulars submitted with the planning application including the Planning Application Report, design statements and other technical studies.

3.2 Overview of the Project

The proposed Media Park is intended to provide a world-class production facility, capable of delivering large scale film and television productions. Globally, consumer habits of film and

television content consumption is evolving. The emergence and growth of mobile devices and new platforms such as subscription based TV (Netflix, Amazon Prime) has led to a surge in the demand for high quality content. This growing global demand for premium content requires additional suitable studio facilities and that Ireland is uniquely positioned to cater for and benefit from.

It is envisaged that GCMP will address the significant shortage of studio / production space in Ireland as well as shortage of 'premium' studio facilities internationally. The full-service film studio will provide sufficient scale, capacity and capability to compete globally which can satisfy the broadest of production needs and the growing global demand.

Whilst historically a large number of the box office Hollywood film productions and the High-End Television ("HETV") series productions were produced in the United States, there has been a growing trend for worldwide films to be produced in other countries where there are top-quality facilities. This is driven by demand for additional producer capacity, alternative shooting locations, lower cost of business and attractive tax incentives.

Advances in technology have led to the increased replacement of on-location filming by studio-based production shoots. The process of shooting and filming in remote locations involves significant logistical and travel requirements, whereas such requirements can be avoided in a production park setting such as the Grange Castle Media Park proposal. The use of a media park over travelling to these remote locations for shoots results in significant cost efficiencies and reduces environmental impacts and carbon emissions associated with production.

Figure 3.1: Precedent image of sound stage with video screen.

Additionally, the subject site at Grange Castle has been identified as the preferred site for such a development based on a number of considerations.

- Location – A Major Studio needs a large site, preferably 30 to 50 acres in size, to be in close proximity to a City Center, Airport, and Hotels, and nearby skilled workforce. The Grange Castle site provides over 55 acres with the ability to expand, and is 30 minutes to Dublin's City Center, Airport, and close to the rail system that will connect the site to nearby housing and connections to hotels, the existing work force, and industry support. Of all the proposed or existing studio sites in Dublin or Ireland Grange Castle will be in a better proximity to support Production Company needs. This site also avails the Productions the ability to use surrounding Irish sites for locational shoots.

- Incentives – A driving force for production is the Film and TV Production Incentives. Ireland's program has already drawn TV and Movie Productions from the US and Europe, and the new increases in the number of qualifying credits have pushed the incentives to the size that will draw Major Television and Movie Productions. The fact that the credits have no sunset is a very large draw in the long term where the US Incentives must be renewed annually. The Irish incentives can be shared with other countries which attracts international productions. Brexit has also had a negative impact on Great Britan's popularity, and it is our belief that Dublin will become one of the Major European hubs for production.

- Size of the Studio and Design – Major productions will book multiple Stages for productions, and require 4-5 stages or more, with workshops, support space, base camps, and backlots on site, usually for an 8 month plus duration. Being able to produce with properly designed facilities will save up to 30% of the time and cost for a production and attract the major producers for the bottom line.

- The zoning objective for the site seeks enterprise and employment uses, which is discussed further in Section 7.0 of this report.

The Television Studios are State of the Art facilities offering various studios each with the capability of hosting live shows with audiences up to 600 people. The studios will offer the latest Ultra High-Definition cameras and recording infrastructure, large Production, Sound and Lighting control galleries, LED lighting with hoist suspension systems, TV studio floors, and quiet air mechanical cooling.

In terms of the operation of the proposed development, Dublin has been identified as a location with significant human resources across the various areas of expertise necessary to produce film and media. Additionally, for the successful operation of the proposed media park, privacy and security are key considerations.

Productions working in the studios will benefit from multiple production suites, meeting rooms, viewing rooms, and networking lounges. Whilst Artists will enjoy chill-out lounge spaces; numerous dressing rooms plus 'Star' and 'Super Star' dressing room suites with showers and make-up areas.

[amended]

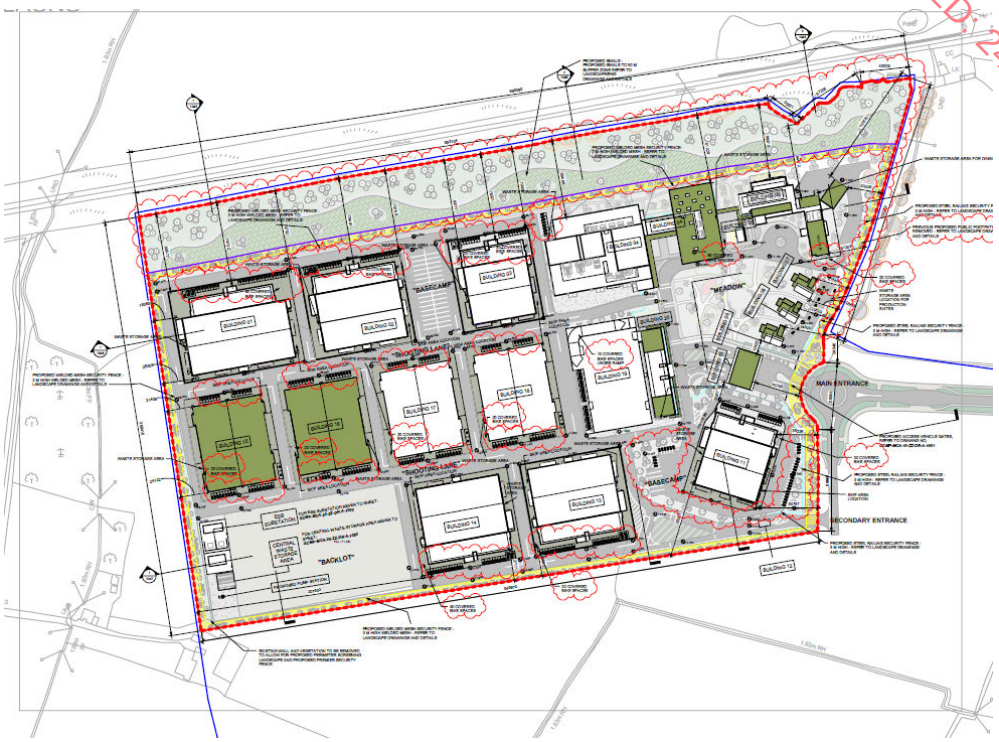


Figure 3.2: Site Layout Plan. (Source: MCA Architects, 2024).

[amended]

3.3 Characteristics of the Proposed Development

3.3.1 Site Location

The application site comprises 22.6 hectares of undeveloped land, located c. 1km north of Peamount Hospital, c.2km west of Grange Castle Business Park, c. 20km south-west from Dublin Airport, c. 14km south-west from Dublin city centre and c. 3km north-west of the Casement Aerodrome (Baldonnell). The site is bounded by the banks of the Grand Canal, a proposed Natural Heritage Area (pNHA) to the north, agricultural land to the south, east and west.

The site is currently a greenfield site used for agriculture and its immediate surrounds are also in agricultural use. The site is at a transition point between agricultural land and enterprise and employment zoned land. It is also proximate to the Kildare border with Celbridge town approx. 3km northwest of the site. The site is c.700m north of Peamount Hospital. Gollierstown Bridge is located to the northeast of the site and Grand Canal pNHA (site code: 002104) runs along the north of the site. There are minimal sensitive receptors in the vicinity of the site with the nearest residential properties being located along Relickeen lane. There are 2 existing farm holdings located approximately 70 m and 100 metres from the southwestern boundary of the site with a cluster of residential properties approximately 600 metres to the southwest. We also note ribbon development of residential and farm properties

along Tubber lane, approximately 700 metres to the west and on the northern side of the Grand Canal. There is a stud farm located approximately 2.8 km to the north west and a boarding kennels located approximately 800 metres to the south.

Additional details on Site Location and Context are included in Chapter 2 of the EIAR.

3.3.2 Land Use

The proposed development site is situated on land zoned as Objective EE: Enterprise and Employment, *"to provide for enterprise and employment related uses"*, under the South Dublin County Development Plan 2022-2028. The wider Grange Castle area is characterised by a mixture of land uses including extensive areas of greenfield/agricultural land, residential uses, and industrial uses.

The proposed development will include removal of existing wall and vegetation at south western boundary and the construction of:

[amended text]

- 6 no. Stage buildings (buildings 1,2,3,11,13 &14) ranging in height between c. 20m and c. 23 m and comprising 11 no. Internal sound stages with overhead catwalks and 2-storey ancillary production offices including office space, plant and switch rooms, toilets, ICT rooms, staff toilets and showers and rooftop plant (totalling c. 35,187 sq. m);
- 4 no. workshops (buildings 15,16,17 &18) ranging in height between c. 9m and c. 10.5 m and comprising internal workshop areas, staff toilets and showers, ICT, plant and switch rooms(totalling c. 18,244 sq. m);
- TV studio and reception (building 4) comprising 3 no. TV studios (c. 17.8m height) and various supporting spaces across 3 floors including backstage shooting area, green rooms, hair and makeup rooms, production suites with ancillary offices, wardrobe, laundry room, Technical support offices, vision dept, lighting dept, pro service, run and crew kit room, chief engineer office, studio manager office, scenic store, props store, cameras and grip room, lighting and electrical room, plant room, sound control rooms, vision rooms, recording rooms and toilets at ground floor level; standard dressing rooms, tv post production spaces, kitchen and crew area, toilets, mechanical/electrical room, technical offices, media store at first floor level; star dressing rooms, tv post production, lounge and kitchen and toilets at second floor level; Single storey reception building to include guest holding areas, VIP and Guest service, security offices, staff toilets, showers and locker rooms (c. 10,875sq. m);
- 2-storey Dining Hall with ancillary 100 seat theatre (building 6) comprising indoor and outdoor dining areas, kitchen, storage and mechanical rooms, toilets and 3 no. meeting rooms at ground floor level; office space and covered outdoor balconies at First floor level (c. 4,351sq. m);
- Standalone café (building 5) (c. 96 sq. m);

- 3 no. single storey production suites (buildings 7,8 & 9) comprising offices, conference room, kitchenette, communal areas and toilets (totalling c. 795 sq. m);
- 3-storey car parking deck (building 19) (c. 14,782.sq.m) to include 438 no car parking spaces (including 100 no. EV and 27 no. disabled) with ancillary offices (building 20) (c. 4,307sq.m) refuse recycling area and rooftop plant; and
- Outdoor stage area associated with the TV Studio and Reception Building;

- Allocation of a Biodiversity buffer area along the northern boundary of the site and abutting the Grand Canal pNHA;
- Site landscaping to include: public realm and planting areas in the vicinity of TV Studio and Reception Building and production suite offices; green roofs; and boundary treatments;
- Hard standing to include 'backlot' area (c. 14,160 sq.m) and 'shooting lanes' (c.18,900 sq.m) to facilitate outdoor filming;
- Electrical Substation (c 236 sq. m);
- Primary and Secondary gate houses (buildings 10 & 12)(c. 19 sq. m each).

The proposed development will include the provision of 354 no. surface car parking spaces (including 50 no.. EV, 13 no. disabled and 9 no. EV / disabled); 'Basecamp' area to provide 36 no. Large Vehicle parking spaces & 3 no. bus parking spaces to front of reception building as well as provision of Bicycle parking to include 404 no. covered spaces distributed throughout the scheme.

Additional works to include removal of existing wall and vegetation at south western boundary; provision of bin store adjacent to the proposed 'backlot' area and additional waste storage area adjacent to proposed dining hall; proposed pump station; rooftop PV panels (Buildings 17 & 18);rooftop plant; Building signage; ; public lighting; drainage and services provision; boundary treatments (including security fencing); piped site wide services; pedestrian and cycle links and all ancillary works and services necessary to facilitate construction and operation.

The primary proposed vehicular, cyclist and pedestrian entrance from the newly constructed Grange Castle West Access Road will be located at the eastern boundary of the site with a secondary vehicular access at the southeastern corner of the site.

[amended text]

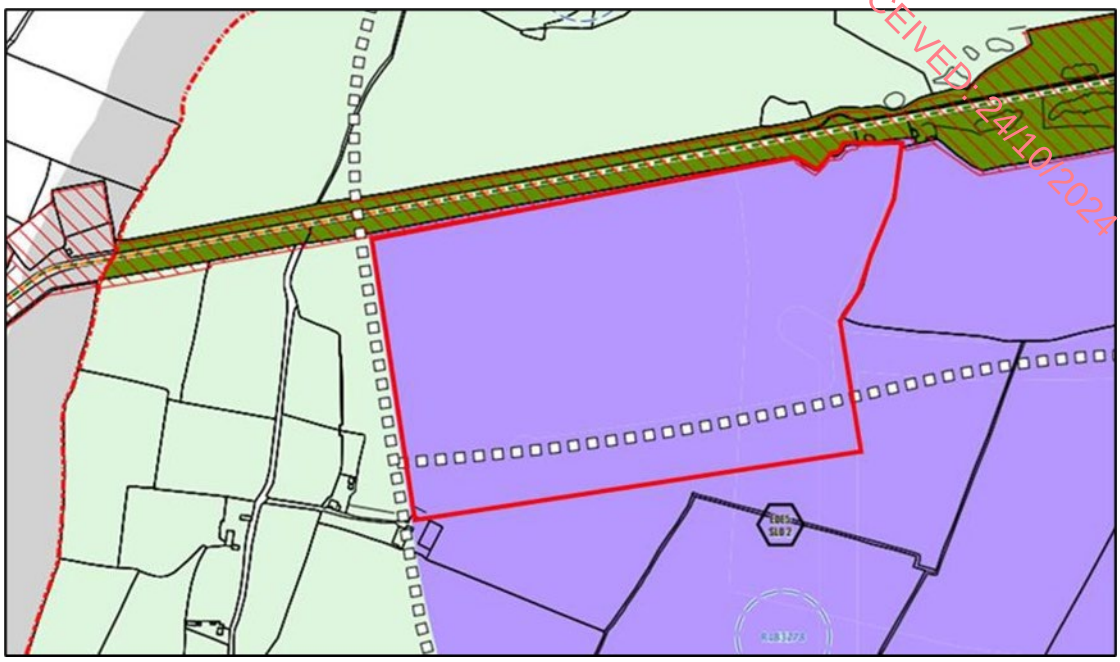


Figure 3.3: Indicative site boundary within zoning objective EE on South Dublin County Council Zoning Map. (Source: South Dublin County Council, annotated by TPA 2023).

3.3.3 Site Layout and Design

A full description of the site layout and design is contained within the Architectural Design Statement prepared by MCA that accompanies this planning application.

The proposed Grange Castle Media Park (GCMP) once complete will consist of a combination of studios and workshops with additional office space and support buildings. The park will also feature a backlot area and shooting lanes.

GCMP is designed for Medium to Large Television and Movie Productions, which require multiple stages, support and office areas, workshops, parking, staging areas, base camps, security, shooting lanes and backlots. The entire site is intended to be utilized during productions and will often include multiple stages and areas for each filming session.

The proposed overall site strategy is split into 3 distinct zones which combine to form the overall site strategy. These comprise of a public landscaped amenity to the north, a "Front of House" area accessible to the public to the east and a secure "Back of House" area to the west.

The following sections include a description of each of these zones and the various buildings including descriptions of some of the key terminology used in the industry.

[amended text]

Zone 1 – Landscaped buffer zone

The proposed Media Park northern boundary will be located at a 50m offset from the northern boundary of the site formed by the Grand Canal. This 50m "Buffer Zone" located between the Media Park boundary and the Grand Canal will consist of a Biodiversity Area and surface water swales, with limited access provided. ~~an amenity walkway, cycleway, and biodiversity area. A~~

~~public access path will also be provided from the entrance roundabout to the northern public amenity area.~~

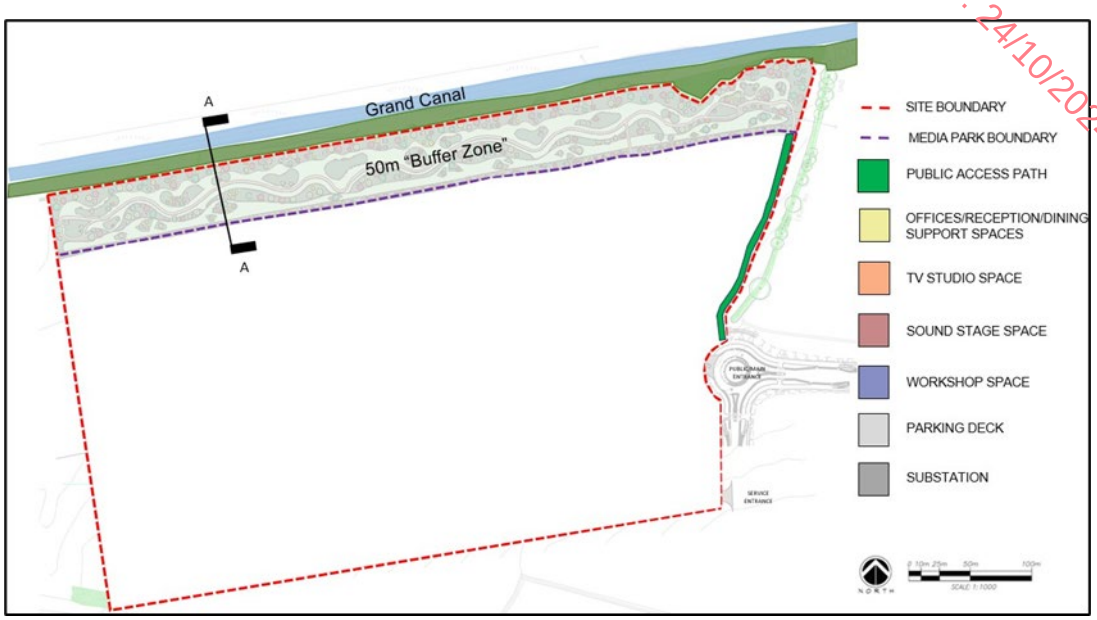


Figure 3.4: Landscaped buffer Zone. (Source: MCA Architects).

[amended text]

Zone 2: The "Front of House" Area

The primary proposed vehicular, cyclist and pedestrian entrance will be located at the eastern boundary from the Grange Castle West Access Road. This generous landscaped arrival space is flanked by several architecturally distinct buildings including:

- TV Studio and Reception Building (10,875 sq. m)
- Dining Building with ancillary Screening Theatre (4,351 sq. m)
- Production Office building and Car Parking Deck (4,231 and 14,810 sq. m)
- 3 no. Production Office Suites (795 sq. m total)
- 1 no. Café building (96 sq. m)
- Entry Gatehouses.

Figure 3.5: Front of House Zone (Source: MCA Architects).

This area serves as the arrival space for both employees and members of the public with parking provided within the proposed 3 storey parking deck and Bus drop-down spaces provided in front of the Reception building. Members of the public will arrive at the Reception building and make their way, at the appropriate time, to the TV Studios for recordings or live broadcasts. The Dining building provides catering facilities for all employees and both the Production Suites and Offices provide workspaces for Production Companies.

Entry Gatehouses

The Entry Gatehouses provide the first level security for the site. With two entries, first time visitors and guests will be greeted and directed to the Welcome Centre where they will be signed in for passes for specific areas of the Studio. The secondary entry is sized for the day-to-day staff and vendors, already with passes and the large trucks and trailers serving the workshops and stages. Security is paramount to any production, and the site is separated by a secure Studio Area, and an entry and public area, with support offices, meeting spaces, dining, a Café, and Production Suites.

Main Entrance (Building 10)

The main entrance gateway is an aluminium clad steel framed canopy structure which houses the main security kiosk and has a green roof. The style used is similar to that of the Reception building and these two structures form a dialogue across the “Front of House” concourse which guides visitors towards the Reception Building.

Figure 3.6: View from the East of Main Entrance Portal with Reception Building visible across the concourse to the right.

Secondary Entrance (Building 12):

An additional service vehicular entrance is proposed off the future road due south of Proposed Roundabout 3 on the Grange Castle West Access Road. This a steel framed kiosk with insulated aluminium cladding which provides a small security room and WC.

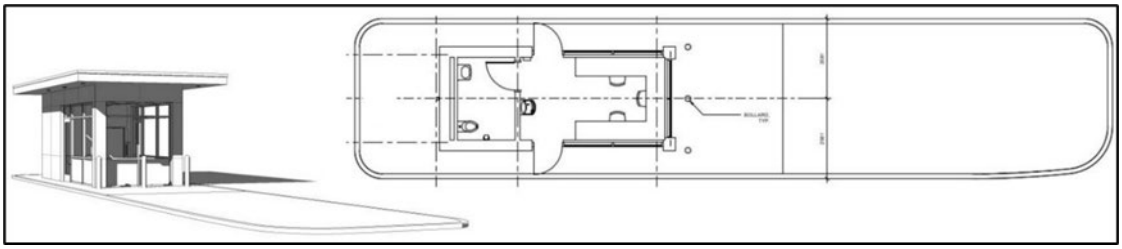


Figure 3.7: View of Secondary Service Vehicular Entrance from East and GF Plan of Entrance.

The Welcome Centre

The centre serves as the greeting centre and security centre for the Studio, and also provides Audience Holding Areas for up to 600 people for Live Audience TV or Movie productions.

TV Studio and Reception Building (Building 4):

The TV Studio and Receptions buildings present themselves as 2 distinctly separate Architectural buildings joined together by a single storey glazed "Link" building. From an operational point of view this is so as to provide 2 no. distinct entrances, one for employees of the various production companies and one for members of the public who are visiting the Media Park and attending a TV programme recording.

The TV Studio building provides 3 no. TV Studios along with all the ancillary spaces required to both service and support these areas. This is split between a 3 Storey support room block to the north of the studios and a single storey double-height space "Back Stage" Dock area to the south. The studio and dock areas are clad in insulated panel systems with the Stage building using a 3m high band of insulated concrete panelling around its perimeter to provide protection in the high transit/impact environment. The 3 storey Support Room block to the north employs a more contemporary office type expression similar in pattern to that used by the other office building types within the campus. This allows the building to sit neatly in the

line of campus buildings facing north to the Grand Canal and addressing the green public amenity area. The TV Studio building utilises a steel frame structure and composite floor decks.

Production Office and Parking Deck (Buildings 19 and 20):

The film studio production space is designed as an office style building form to provide a more urban expression while meeting the film studio management and production needs. This contains office space related to film production and is physically linked to the 3 storey Parking Deck directly located to its west. This is a 3-storey steel frame building with composite deck floor plates. The main entrance to the building is via a centrally located entrance portal structure.

The Parking Deck building, located directly to the west of the Production Office, provides parking for 438 no. vehicles on 3 separate levels, Lower ground, Ground and First Floor. Entrance to Ground and First Floor is via the main "Front of House" concourse with the entrance to the ramp located to the north of the Production Office. Access to the Lower Ground Floor level is from within the secure "Back of House" zone and is located at the southern end of the Lower Ground Floor of the Parking Deck. The Parking Deck structure will comprise mainly of a precast concrete system.

Figure 3.9: View of Production Office from the northeast.

Production Suites

Smaller office suites for Movie and TV productions, staff support, scripting, postproduction, location services, and a variety of support spaces are needed, as average production will need some 250 staff members (not including the extras during filming). The ratio of production offices area to stage area is 1/1 for movies, 1.5/1 for television productions.

The 3 no. Production suite buildings are 3 identical single storey buildings that provide Production Office accommodation provided for the film companies using the media park facilities. The architectural design strategy for these suites is to break the office area down into 3 no. small identifiable volumes that relate to the scale of agricultural farm buildings in the Irish Landscape. This helps to break down the scale of the buildings within the Media Park as they approach the more public side of the site plan adjacent to the main entrance.

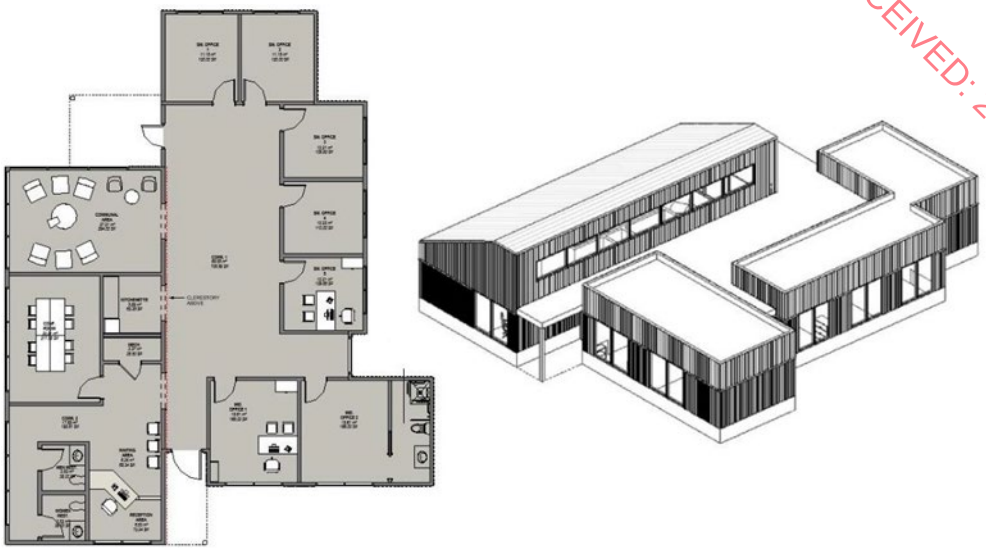


Figure 3.10: GF Plan view of a Production Suite and 3d Isometric View.

Figure 3.11: View of Production Suites from East.

Café Building (Building 05):

This is a separate single storey structure with a GFA of 96m2 which will serve hot drinks and snacks. It will be located between the Reception and Dining buildings on the main "Front of House" concourse. It will be available to both visitors and staff and provide a social meeting point/hub for the main concourse.

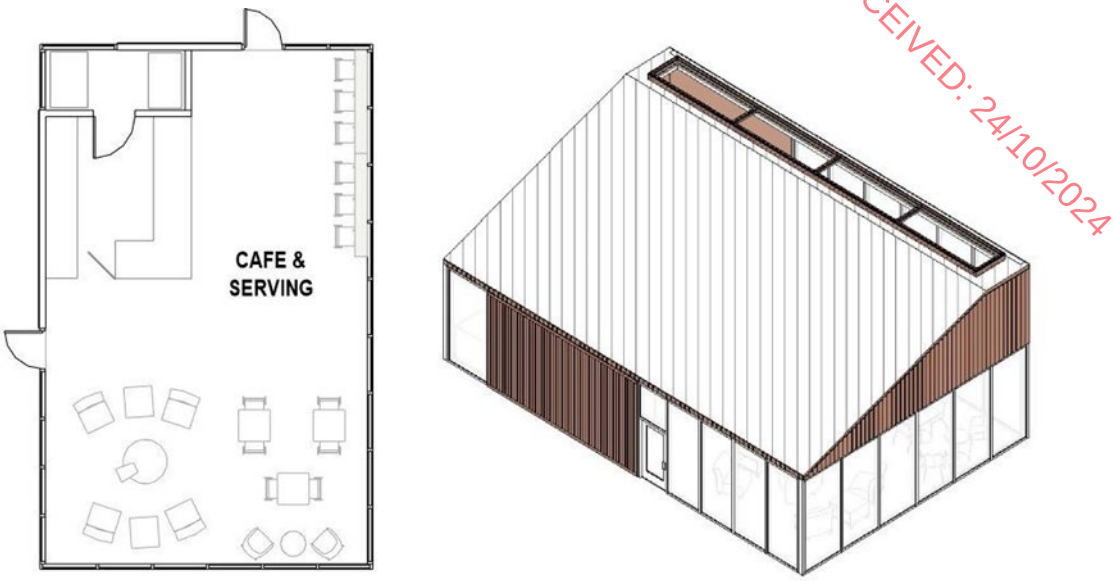


Figure 3.12: GF Plan view of a Cafe and 3d Isometric View.

Dining Building with ancillary Theatre

The proposed Dining Building is a 2 storey L shaped building, located to the North-East of the campus, which forms the north-east corner for the "Front of House" concourse area. From an operational perspective the Dining Building provides a variety of functions. First and foremost, it provides catering and dining facilities for all employees within the campus. These functions are housed in the GF section of the north-facing leg of the "L" building and provides a generously proportioned dining room that looks directly out on to the green public amenity and Grand Canal. In addition to this the building provides 3 large meeting rooms on the GF along with a large double height screening room theatre. The first-floor level consists of Production Office accommodation provided for the film companies using the media park facilities. The Dining building utilises a steel frame structure and composite floor decks and incorporates a similar aluminium panellised style façade treatment with an expressed aluminium frame.

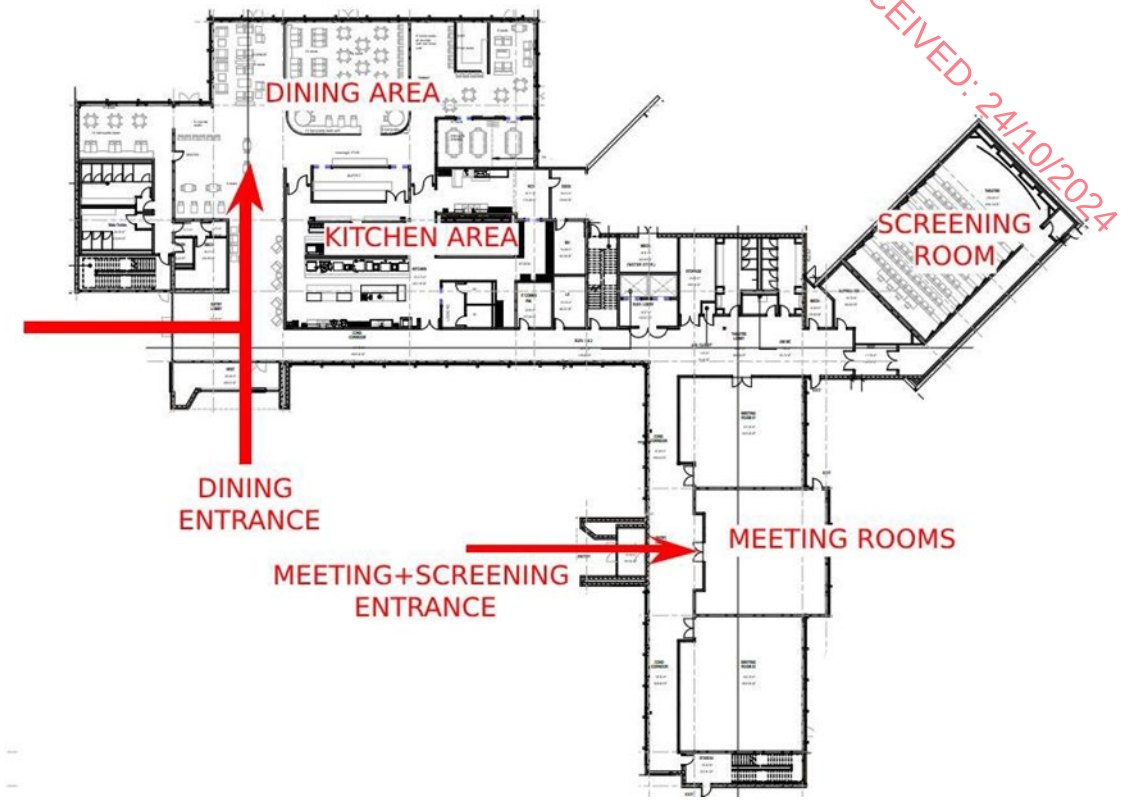


Figure 3.13: Ground Floor plan of Dining Building.

Figure 3.14: View of Dining Building from south.

Parking Deck

The Parking Deck building, located directly to the west of the Production Office, provides parking for approximately 440 no. vehicles on 3 separate levels, Lower ground, Ground and First Floor. Entrance to Ground and First Floor is via the main "Front of House" concourse with the entrance to the ramp located to the north of the Production Office. Access to the Lower Ground Floor level is from within the secure "Back of House" zone and is located at the southern end of the Lower Ground Floor of the Parking Deck. The Parking Deck structure will comprise mainly of a precast concrete system.

Zone 3: The "Back of House" Area

The larger western portion of the site is a secure area that contains all the working Sound Stages and Workshops. This area is serviced by an additional proposed service vehicular entrance located off the future road due south of Proposed Roundabout 3 off the Grange Castle West Access Road.

The proposed buildings within the proposed Media Park "Back of House" Area include the following:

- 6 no. Sound Stage buildings including Production Offices (ranging between 2,950 sq. m and 3,832 sq. m gfa and totaling c. 22,200 sq. m gfa)
- 4 no. Workshop buildings (18,244 sq. m total)
- 1 no. Secondary Entrance Incorporating Security Kiosk (19 sq.m)
- 1 no. Electrical Substation
- 1 no. Pump Station Kiosk

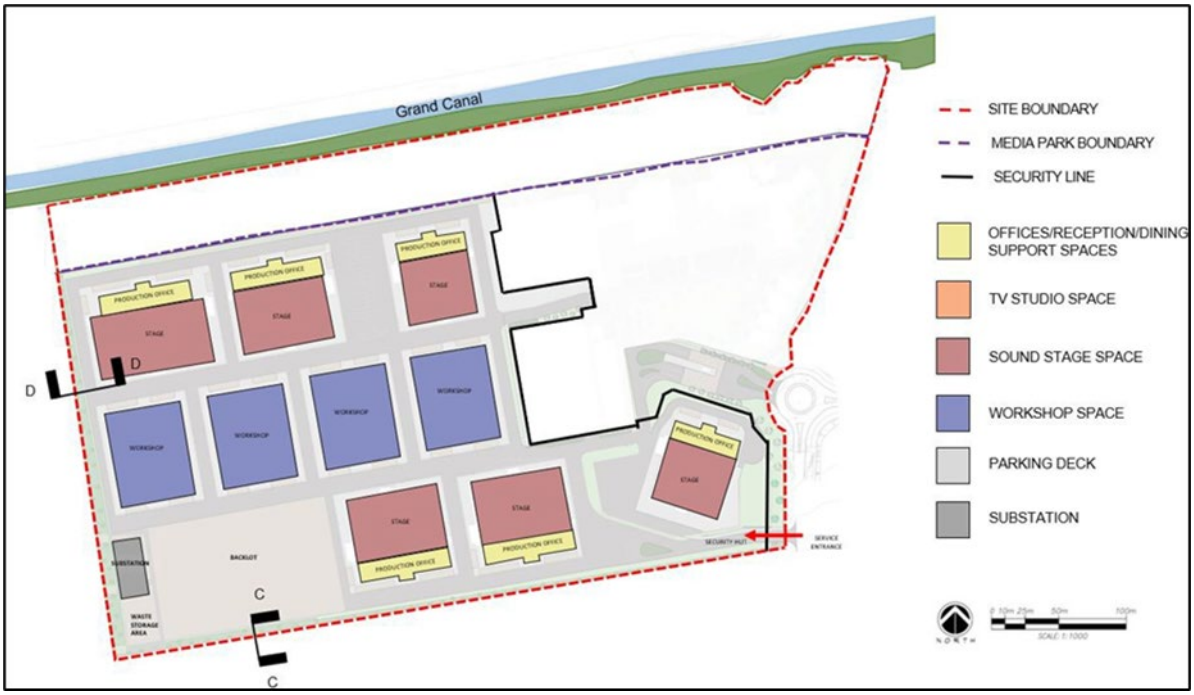


Figure 3.15: Back of House Area (Source: MCA Architects).

This secure area is where the industry of film making happens. Sets are produced within the workshops and transported to the Sound Stages. Filming can take place internally within the Sound Stages or externally on the Backlot Area. The Sound Stages are serviced by the integrated Stage Offices. This area also provides the location for both the sub-station and the central Waste Storage Area to the South-West of the site.

Sound Stage and Studio Buildings

The studio buildings are the principal areas where film production will happen in the GCMP. These buildings are typically c. 20 – 22m m in height and comprise double height stages with overhead catwalks. Attached to the stage buildings are ancillary production offices.

Proper Stages require Sound Attenuation (Noise Reduction 25) for all the building components including walls, doors, roof, and all penetrations, and Mechanical and Exhaust Systems with similar attenuation by providing high volume low velocity air flow. The sound attenuation is critical, shutting off local noise from all the surrounding area, such as traffic, planes, sirens, or nearby construction. The effect of siting these stages also acts as a sound wall around the studio, where Shooting Lanes and Backlots use the interior of the studio site for many of the filming. Also critical of the stages is the large volume to build sets and film the shows.

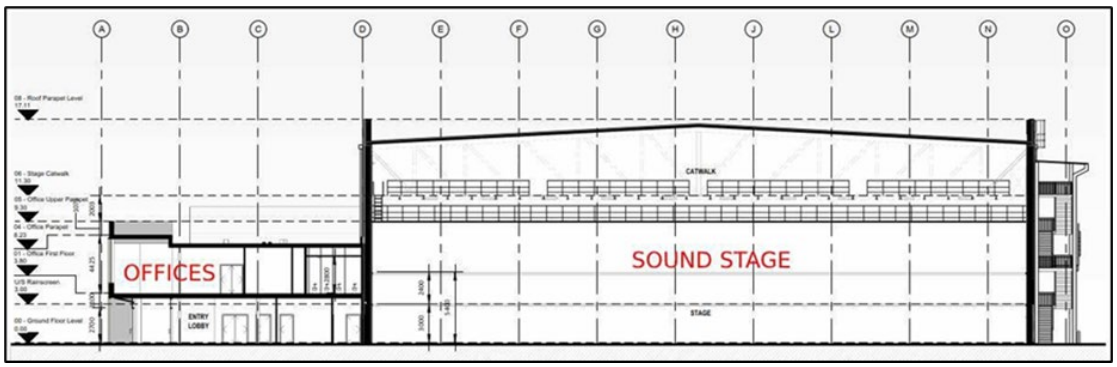


Figure 3.16: Section through Typical Stage Building.

The Stage buildings vary in size and proportion to cater for the varying requirements of both Irish and International film production companies. Each Sound Stage (1 to 11) is linked to an adjacent 2-storey Office space (1 to 6) which can be used for support functions including technical and production services, sanitary and changing facilities, waiting rooms etc. The film support uses are also designed as offices to break down the massing of the sound stage.

Figure 3.17: View of Stage Building.

Steel framework using trusses is used as structure to achieve the clear heights required for the production sets, with steel columns and composite metal floor deck for the associated offices. The Sound Stage utilises a catwalk system to provide overhead access to all areas of the stage floor. Both Stage and Offices are clad in insulated panel systems with the Stage building using a 3m high band of insulated concrete panelling around its perimeter to provide protection in the high transit/impact environment. The Stage buildings are generally split via full height dividing walls so as to provide separation between Studios. Each separating wall contains a large sliding door if a production needs to expand into a neighbouring studio space.

A total of 6 no. Sound Stage buildings are proposed containing 11 no. Studio spaces and 6 no. associated Office spaces. Each office space has the potential for subdivision if required.

Building 01: Stage 5+6 (25K) = 7,122m²
Building 02: Stage 3+4 (20k) = 6,197m²
Building 03: Stage 1+2 (15k) = 4,635m²
Building 11: Stage 10+11 (15k) = 4,635m²
Building 13: Stage 8+9 (20k) = 6,197m²
Building 14: Stage 7 (40k) = 5,651m².

Workshop Buildings

These buildings provide large indoor areas for set construction (and deconstruction) in close proximity to the stages and with exterior roll up doors that match the size of the stage Elephant Doors allowing forklifts and trucks to move sets and material in and out. The shops range from props, special effects, wood, and steel shops, set design, and everything to physically support the production.

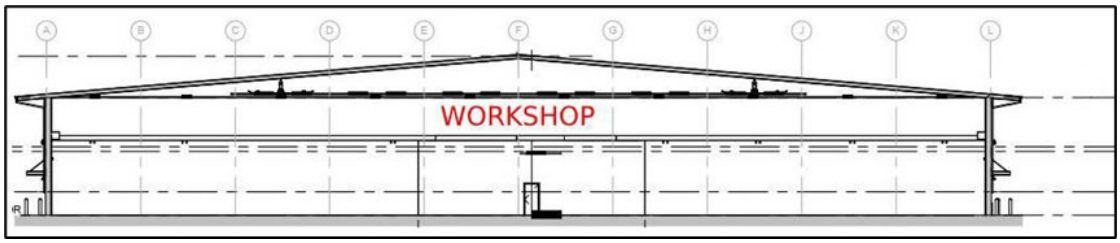


Figure 3.18 Section through Typical Workshop Building.

The Workshop buildings are single storey workshop spaces for the production of stages, sets and props for filming. The workshop is divided internally to separate production companies, and the floor slab steps by 1500mm at around midpoint to align with the contours of the site. This is a steel frame structure clad with an insulated panel system.

Figure 3.19: View of 4x Workshop Buildings.

A total of 4 no. Workshop buildings are proposed containing 12 no. production spaces. The roof surface of each 2 no. Workshop buildings is utilised for Green Roof whilst the remaining 2 Workshop buildings provide a surface for the installation of PV panels.

Base Camps

These are open parking areas next to Stages for trailers for talent or back up specialty trucks or support units to park near the Stage during the production shoot. They may also be used for Food Trucks and eating areas, broadcast trucks, equipment trailers or other vendors assigned to a certain production supporting the Stage.

Parking

Short term parking is provided near each stage and workshop, utilizing the aprons around the stages and workshops for the many trucks and trailers associated with each production, and providing a central parking deck central to all areas.

Support Spaces

These are distributed throughout the campus and provide a support function to the studios in the form of art department, costume, makeup, location teams, Producers, Writers, Directors, support staff, postproduction, craft services, and meeting rooms.

Offices and production support attached to each stage provide the immediate support spaces for makeup, costume, scripting, art department, transportation, Craft Services (drinks and snacks during production), and other immediate needs to support the stage. Also this space will be used for catering, as during production the staff have a very limited time to take breaks. Key in this is also restrooms and shower areas for both the construction and shooting during the production.

Outdoor Stage Areas, Shooting Lanes and Backlot

The Media Park will be able to accommodate outdoor shooting at the proposed backlot area to the south-west of the site and through shooting lanes between stages and workshops on the interior of the site to create street-scenes and exterior film shoots.

Backlot

An area of hard standing within the media park to be used for the purposes of outdoor film shoots. There is a general requirement for 3-4 acres (c. 1.5 hectares) to allow special exterior effects in conjunction with a particular movie or TV show. This area is essential to most large-scale productions, and an area is set aside to create a special exterior space and effect, with power, water, and a permeable base that will support an exterior shoot or special effects to support the movies or TV shows. Large productions need this space to avoid going remotely to locations where the costs are 90% more to provide the production teams, catering, location, and housing off site. Mama Mia for example was produced 90% in Pinewood Studios London, and only 10% on location in Italy.

Shooting Lanes

Areas between stages and workshops on the interior of the site to build street scenes and exterior film shoots. Using the spaces between workshops and stages an area is allowed to attach sets to stages or workshops with enough area to build a specialty set attached to the adjoining buildings and allow camera angles and proper sun orientation to create a “set”, such

as an Irish street. These areas are large enough to add exterior backdrops or scenes to support some productions.

Substation:

A 35Kv Substation is proposed to be located to the South-West of the site along the western boundary. It will be surrounded by a 5m high screening wall on all sides. The dimensions of the screening wall will be 23m x 46m by 5m tall. Access to the substation will be via the secondary service entrance to the south-east of the site as indicated below.

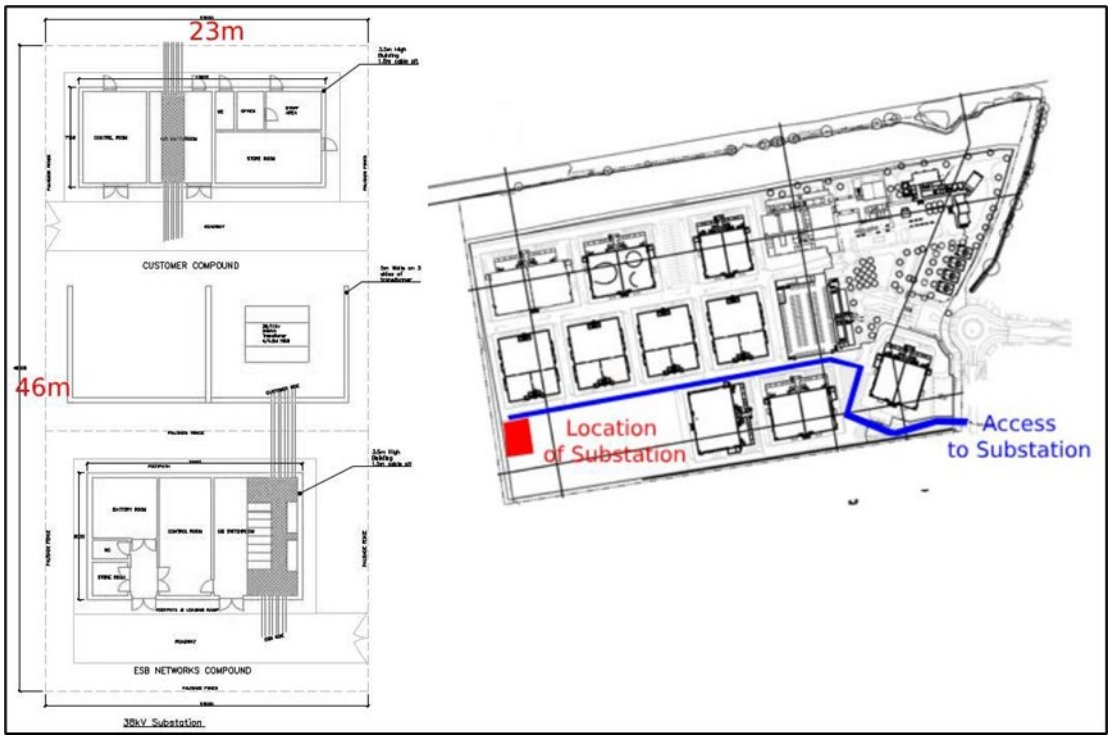


Figure 3.20: Plan view of the proposed sub-station and location plan indicating entrance and access.

The relationship between each area of the studio has a proven reduction in the time and cost of each production, and as a result less impact on resources and the environment. As an example, each of the workshops is at grade and close to the stages allowing the sets to be constructed in large pieces and moved into the stages with similar size “elephant doors” on the stages and workshops. Conversely deconstructing the sets is quicker and all the recyclable materials can be easily separated.

The entire Studio Site is organized for the efficiency and security of the many people working on the various parts of each production. Normal productions can last for 8 months, and some all year long, and the site allows for service and breakout from the long days by providing views of north of the site to the Grand Canal and the public area with the Café and Dining surrounding the “field”.

3.3.4 Building Height/ Form/ Massing

The proposed Media Park consists of a range of buildings ranging from single to 3 storeys with the most notable building in terms of height being the Stage Building. The building heights for

the Stage buildings respond to specific functional/operational requirements of the movie industry and range from 17.1m to 23m AGFL. On site. Each stage building has an adjoining, lower, 9.3m high 2 storey office area which provides a public face, ancillary office support space and a step-down transition, in terms of massing and height, from the larger stage boxes. These office fronted buildings address both north and south site boundaries providing appropriately scaled frontage to the public realm.

Figure 3.21: North-South cross section through site showing transition of height from Stage building to boundaries.

The main entrance to the Park opens onto a large external concourse space which is flanked by 2/3 storey buildings to the north, south and west. The building heights are appropriate to clearly define the arrival concourse area, which is the main public facing area of the Park.

Figure 3.22: View from South-East of buildings defining the main concourse area.

3.3.5 Building Materials

Whilst the structure of the overall proposed site layout is heavily indebted to the operational logic of a Media Park, the architectural expression emanates from a search for a suitable visual language for large agricultural scale buildings clustered with smaller scale buildings grouped in a rural landscape.

Stages and Associated Stage Offices (Buildings 01, 02, 03, 11, 13 and 14):

The aim of the design for the Stage buildings is to achieve a number of objectives; To reduce the visual impact that the buildings will have on the neighbourhood and the surrounding area, provide a look, and feel that is welcoming and intuitive to the building users, and to provide a refined architectural expression that will enhance the local area.

The primary form and mass of the Stage Buildings will be clad in high-quality light coloured vertically profiled metal cladding panels, set in stacked horizontal rows against the Dublin sky this finish will allow the buildings to blend in naturally with its surroundings. The pitched metal roof of the Stage is concealed behind a continuous parapet to ensure crisp smart lines. The base horizontal row of the stage box is a 3m high concrete band, consisting of precast concrete panels, which allows the building to relate specifically to the pedestrian scale experience.

Figure 3.23: View of Stage building showing 3m datum and 2 storey office building breaking down scale of large Stage box.

Figure 3.24: View of "Front of House" Stage Office elevation and the Central Entrance block .

Two Office façade styles are employed in the Media Park: "Front of House" and "Back of House". Both types are similar and based on a common patterning of insulated metal panels. The "Back of House" style uses a two-tone patterning utilising both vertical and horizontal bands of colour. This approach is used for all Stage Buildings within the secure "Back of House" area of the Media Park. This patterning provides a further breaking down of the scale of the large Stage boxes. This patterned façade is contained between a central entrance block and 2 bookend stairwells which provide punctuation, entrance/exit points and signage. In order to bring some variation into the rows of Stage buildings along the boundaries it is proposed to alternate between 2 different colour schemes.

The "Front of House" façade style is used by all buildings addressing the main public facing concourse and utilises a similar patterning of coloured panels along with an additional expressed metal framing which gives the facade additional depth and texture.

The entrance portals and book-end stairwells are to be clad in a metal cladding panel with a signature red colour that will be used on all buildings within the Media park. This use of a signature red colour, along with a common signage style, will be used as a device to thread together buildings within the Park.

Figure 3.25: View of "Back of House" Stage Office elevation and the Central Entrance block.

Figure 3.26: View of "Back of House" Stage Office elevation.

Figure 3.27: View of "Back of House" Stage Office elevation with alternate colour scheme.

Roof mounted plant, for both Stage and Stage Office buildings, will be located over the Stage Offices only. A continuous aluminium louvred plant screening will be set back from the parapet line of the main building roof by 1.2m. Access to the roof for plant maintenance will be via an internal lift and stair core within the office area The roof will have a perimeter parapet set at a minimum 1.1M height to provide safe access to the entire roof. This parapet will also serve to provide a degree of additional visual screening of the roof plant installations.

Figure 3.28: View of "Back of House" Stage Office elevations along the southern boundary.

TV Studio/Reception Building and Main Entrance (Buildings 4 and 10):

The TV Studio and Reception building is expressed as 2 separate buildings which are physically connected with a single storey glazed link. The TV Studio follows on from the expression of the Stage buildings with the "box" of the 3 no. TV Studios clad in a similar profiled metal cladding and utilising the strategy of the 3m high concrete band to provide pedestrian scale relief at ground level.

The 3 storey north facing façade of the TV Studios, overlooking the 50m deep Public Amenity area and Canal, reprises a similar façade patterning of insulated panels and windows as used by the Stage Offices. This façade houses 3 stories of support rooms for the 3 no. TV Studios.

The Reception building, whilst physically linked to the TV Studios, has its own unique architectural expression which is directly related to the Main Entrance structure. Both are expressed as single storey timber clad structures with a dominant timber clad "floating" roof feature both finished with a green roof. This sets up a dialogue between Main Entrance and Reception which helps orientate a visitor on arrival by providing a destination on entering through the Main Entrance. The expressed external timber soffit of the Reception building runs from the external arrival space through the building to the 2no. holding rooms on the north side overlooking the public amenity area and the canal.

Figure 3.31: View of Main Entrance from east.

Figure 3.32: View of Reception building from the main concourse area (to south).

The expression of the Reception building facing north to the public amenity area and canal is identical to that facing the concourse with the feature timber clad roof and soffit on display. A Curtain walling external glazing system is employed along with a similar insulated cladding panel as used by all other buildings throughout the Media Park. The Reception building is public welcoming face of the Media Park and sets itself apart architecturally from the other buildings which are more focused on the operational requirements of the TV and Movie industry.

Figure 3.33:

Production Office and Parking Deck (Buildings 19 and 20):

The 3-storey Production office utilises a similar façade expression as that of the "Front of House" Stage Office utilising the same patterning of flat insulated metal panels in a 2-tone colour arrangement with an expressed metal framing.

The use of a similar proportioned and detailed entrance block to the Stage Offices ties this building visually with the other office buildings within the park.

Figure 3.34: View of Production Office from main concourse area.

As with the Stage Office arrangement, roof mounted plant is surrounded by a continuous aluminium louvred plant screening which will be set back from the parapet line of the main building roof by 1.2m. Access to the roof for plant maintenance will be via an internal lift and stair core from within the office area The roof will have a perimeter parapet set at a minimum

1.1m height to provide safe access to the entire roof. This parapet will also serve to provide a degree of additional visual screening of the roof plant installations. A timber clad walkway structure runs in front of the buildings eastern concourse facing elevation which provides a visual buffer between pedestrians and traffic approaching from the Main Entrance and the occupants of the Ground Floor. It also provides an external sheltered seating area for both Staff and the Public to enjoy the main concourse area.

Figure 3.35: View of Production Office and Parking Deck from south-east.

The 3 Storey Car Parking Deck is a precast concrete structure which is accessed via a ramp located on its northern end. The lower ground level of the deck is accessed via an entrance to the south which is located within the secure "Back of House" zone.

Dining Building (Building 6):

The proposed Dining Building is a 2 storey L shaped building, located to the North-East of the campus, which forms the north-east corner for the "Front of House" concourse area. It also uses a similar façade strategy as both the other office buildings and the canal facing elevation of the TV Studio buildings, that being a patterning of insulated metal facades with an expressed aluminium framing. The entrance portals use an identical red colour coding also used by all other campus buildings. The south facing elevation steps back at first floor level to provide a covered terrace with a linear planter overlooking the main concourse area.

Figure 3.36: View of Dining Building from main concourse to south.

The main dining area located on the ground floor is expressed as an extruded clad box overlooking the Public Amenity area and Canal. The roof of the box provides for a covered terrace for the occupants of the offices at first floor level. A similar cladding pattern is used for this elevation also. The screening room theatre located to the east is expressed as a clad box sitting independent of the main Dining building so that it has its own unique visual identity.

Figure 3.37: View of Dining Building from Public Amenity Area and Canal to the north.

Production Suites (Buildings 7, 8 and 9) and Café Building (Building 05):

There are 4 no. buildings within the park which are of a smaller scale and are located around the main concourse area. These are the Café building and the 3 no. Production Suite buildings. These are all designed as single storey buildings taking their inspirations from small domestic scaled agricultural buildings in the Irish landscape. The buildings are all clad in a similar coloured insulted metal cladding as that used for the entrance portals for all buildings within the campus.

Figure 3.38: View of Production Suites from East.

Workshop Buildings (Buildings 15, 16, 17 and 18):

The central spine of the Park can be read as the industrious centre of the Park in terms of function as it contains the 4 no. Workshops and the Car Parking deck. The Workshops are primarily an industrial building type and are clad in insulated metal wall panels with a trapezoidal profile. The colour scheme for the Workshops is a grey palette consisting of light grey wall cladding along with darker shade of grey for all external doors.

Figure 3.39: View of Workshops from "Shooting Lane" and from above.

3.3.6 Landscaping Proposals

The site is bounded by the banks of the Grand Canal, a proposed Natural Heritage Area (pNHA) to the north, and agricultural land to the south, east and west.

The high-level landscape design concept is based on an understanding of the rural and agricultural nature of the present site and consciously reestablishing this type of "fields" style of landscaping within the proposed Media Park. The overall site is split into 3 distinct zones comprising of a public landscaped amenity to the north, a "Front of House" area accessible to the public to the east and a secure "Back of House" area to the west.

The proposed Media Park northern boundary will be located at a 50m offset from the northern boundary of the planning permission site formed by the Grand Canal. This 50m "Buffer Zone" located between the Media Park boundary and the Grand Canal will consist of an amenity walkway, cycleway and biodiversity area which will be form part of the public realm. A public

access path will also be provided from the entrance roundabout to the northern public amenity area.

The overall Media Park site layout is then split into 2 distinct zones. A "Back of House" zone which is a large secure area comprising of all the Stage buildings, Workshops and external backlot area. This zone is very much the industrious working engine of the Media Park. This is complimented by a "Front of House" zone which comprises all the public facing buildings and areas all located around the periphery of a main concourse area.

This original landscape concept has been developed into a comprehensive landscape strategy which can be broken down into the 3 distinct site zones.

Figure 3.40: Proposed landscape plan from M+A landscape.

Summary of Landscaping strategies for Zones:

[amended text]

Zone 1: 50m Public Amenity "Buffer Zone":

This zone consists of a ~~an amenity walkway and~~ biodiversity area along the northern boundary of the site. The main landscaping aesthetic style is that of "rewilding". ~~A proposed gravel footpath, meandering east-west, splits the 50m wide zone in half with proposed tall meadow planting to the north in between the path and the canal and a linear swale that runs parallel to the pathway to the south in between the path and the Media Park boundary line~~. The buffer area will include a linear swale which forms a part of the projects SUDS strategy and is described in more detail within the relevant Engineer's report. The swale is populated with a wetland wildflower mix and framed with wildflower lawn to the north and east and a line of

shrubs and perennial planting forming some visual screening to the south along the Media Park Boundary. The line of the Media Park boundary has a 5m wayleave area with the Media Park security fence being located at a 5m offset from the boundary line. The area between the swale and the boundary fence consists of a planted berm with only minor planting over the wayleave area so as to allow free access for required services.

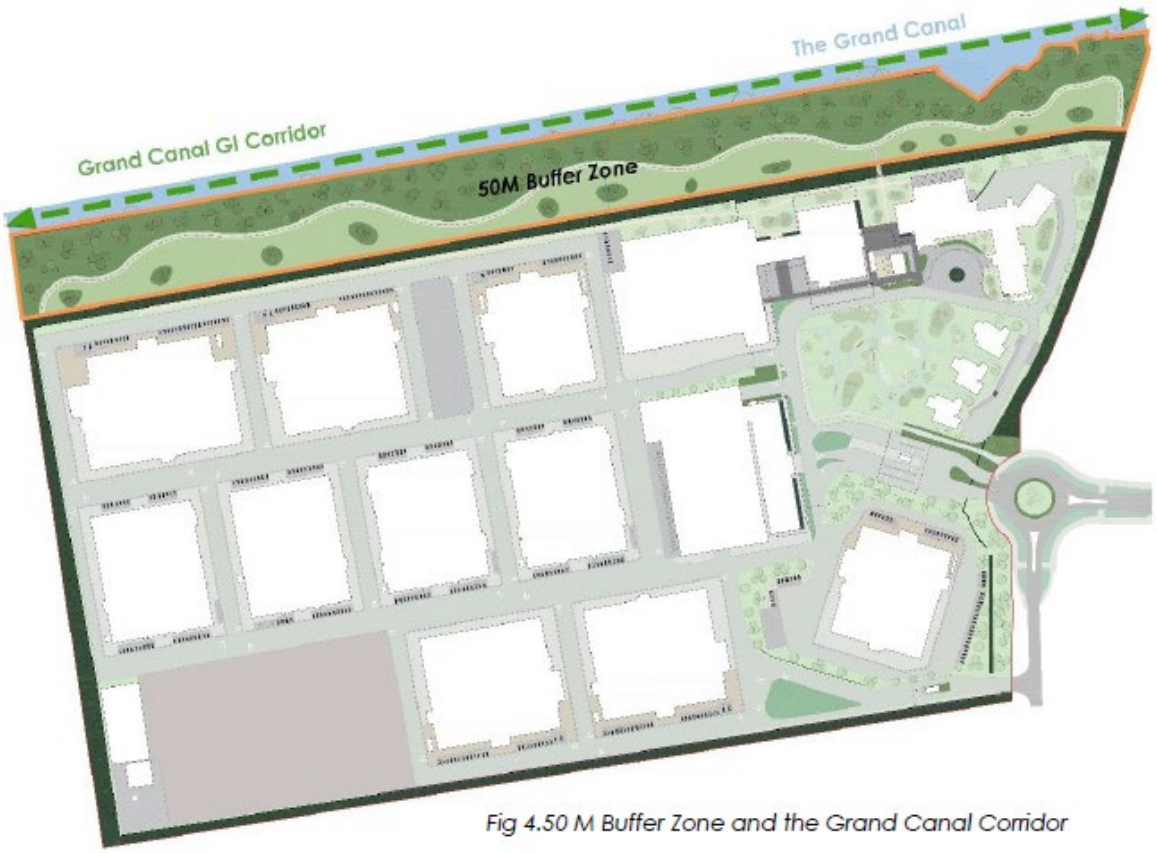


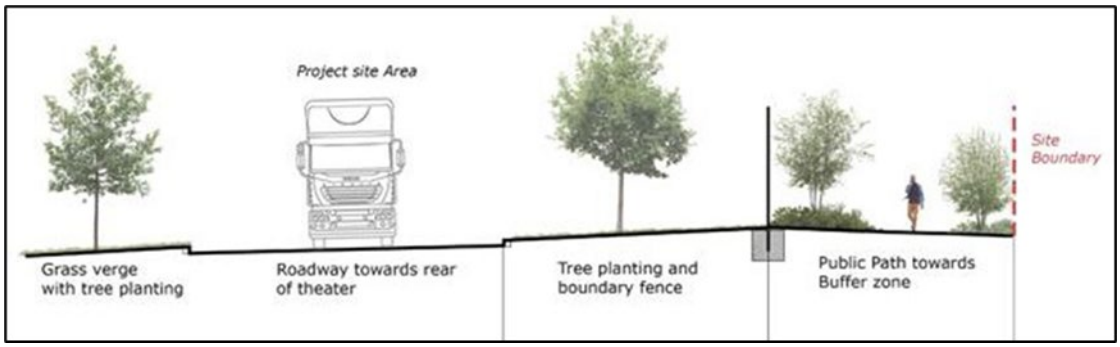
Fig 4.50 M Buffer Zone and the Grand Canal Corridor

[amended text]

Zone 2: "Front of House" Zone:

The primary proposed vehicular, cyclist and pedestrian entrance will be located at the eastern boundary via a future roundabout (Proposed Roundabout No.3) off the Grange Castle West Access Road entering through an entrance gateway structure through to the Media Park "Front of House" main concourse area. This zone can be read as an extension of the Public Amenity Landscaping from Zone 1 flowing through onto the Media Park site. As with Zone 1 the main landscaping aesthetic style is that of "rewilding". The main feature is a large central concourse area traversed by wildflower trails of hard-wearing amenity grass lawn. **This concourse area is consists main of a wildflower lawn consisting of a biodiversity wildflower meadow mix**. This area is dotted with areas of medium height wildflowers, semi-mature trees, and bulb planting. Green roofs are provided over both the Main Entrance gateway and the Reception building. Hard landscaping comes in the form of asphalt roadways and both permeable and impermeable paving around all buildings.

Zone 2: Proposed "Front of House" Area above.



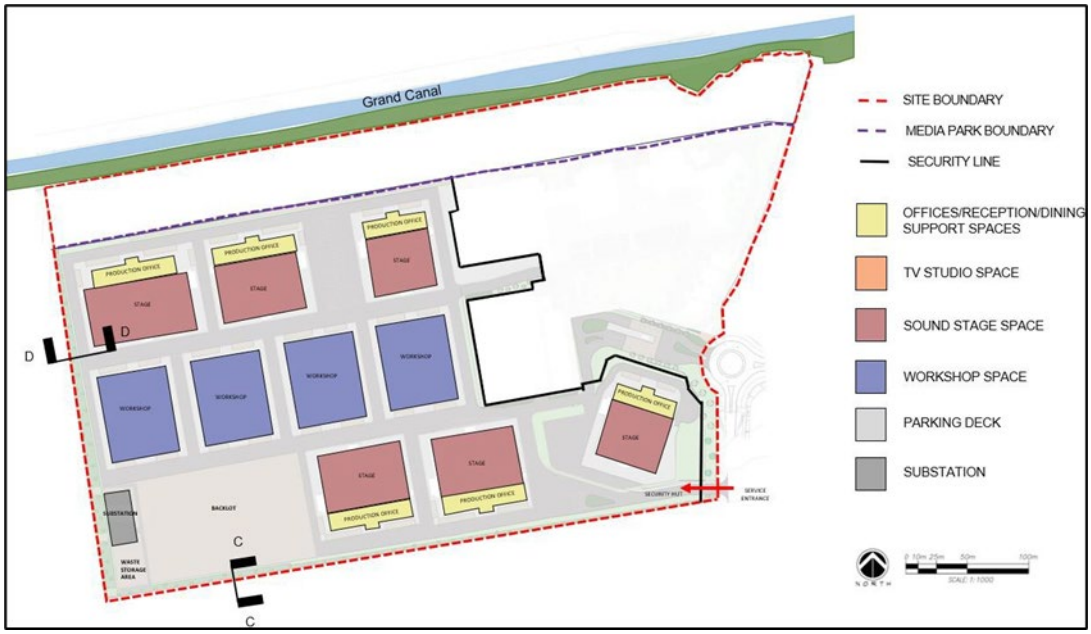
Zone 2: Section B-B through boundary.

A public concrete pathway, surrounded by shrub and perennial planting, is to be provided to the outside of the eastern boundary connecting the roundabout to the Public Amenity area to the north.

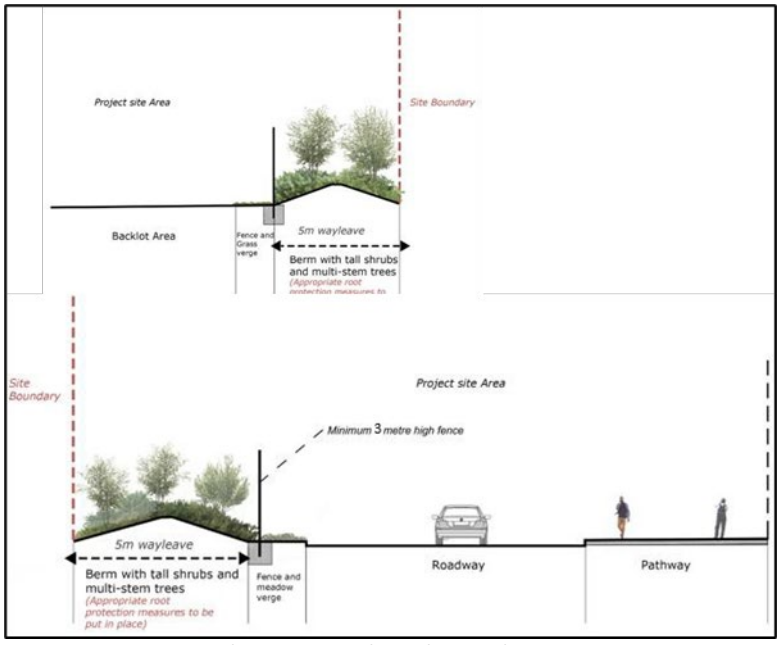
Zone 2: View of the main central concourse with wildflower lawn consisting of a biodiversity wildflower meadow mix.

Zone 3: "Back of House" Zone:

The "Back of House" zone consists of a grid of Stage buildings and Workshops linked by asphalt roadways. Each building is surrounded by an apron consisting of areas of both concrete footpath and permeable block paving. Soft landscaping is used around the easternmost stage building (Building 11, Stages 10+11) facing the public at the eastern entrance and boundary with both wildflower lawn and shrub/perennial plant screening being used to soften the view from the eastern approach road. Green roofing is also provided to 2 of the westernmost central Workshop roofs. Similar to the northern boundary both the west and south boundaries consist of a 5m lowly planted bermed wayleave zone that runs along the site boundary line inside of which the Media Park security fence is located.



Zone 3: Proposed "Back of House" Area above.



Zone 3: Section C-C and Section D-D through Boundary

A drawing pack detailing the landscape proposals prepared by Murray and Associates has been enclosed with the planning application. Landscape and visual impact is also addressed in further detail in chapter 15 of the EIAR.

3.4 Site Services Infrastructure

The existing and proposed site services are described in detail in the Material Assets Chapters of this EIAR (Chapter 14 Site Services) and in the Infrastructure Design Report prepared by Barrett Mahony Civil & Structural Consulting Engineers that accompanies this planning application. This section provides a summary of the infrastructure requirements of the proposed development.

3.4.1 Surface Water Drainage

The proposed surface water drainage system is designed to comply with the 'Greater Dublin Strategic Drainage Study (GDSDS) Regional Drainage Policies Technical Document – Volume 2, New Developments, 2005' and the 'Greater Dublin Regional Code of Practice for Drainage Works, V6.0 2005'. CIRIA Design Manuals C753, C697 and C609 have also been used to design the surface water drainage system within the site.

It is proposed to construct a new surface water drainage system for the development to collect runoff from roofs and paved areas and any additional runoff from landscaped areas which doesn't percolate to ground. It is proposed that the new surface water network within the site will convey surface water flows to two swales located within the 50m buffer zone between the proposed development and the Grand Canal to the North of the site. Surface water flows from the site will outfall to the existing watercourse approx. 100m West of the site. This watercourse is culverted beneath the Grand Canal and flows north-west towards the Lucan Stream which discharges to the River Liffey. The swales will be designed to accommodate flows for the 1 in 100-year storm event. A hydrobrake will be fitted at the

outfall of each swale which will limit the flow exiting the site to the existing greenfield runoff rate QBAR (57.5 l/s).

3.4.2 Foul Water Drainage

A new gravity network will serve the proposed development site. A permanent connection is proposed into the proposed foul pipeline permitted as part of the Grange Castle West Access Road (planning application reference no. SD188/0009) to the East of the site.

Due to the development size and the relationship between the levels on site and the invert level of the foul pipe in Grange Castle West Access Road, it will only be possible to discharge foul flows from some of the buildings located to the east of the site by gravity to the foul line on Grange Castle West Access Road. The remainder of the foul flows will be collected in a new internal foul sewer network and discharged by gravity to a pumping station at the western boundary of the site. Foul flows will then be pumped via a rising main to an outfall manhole at the eastern boundary of the site before discharging by gravity to the proposed foul sewer in Grange Castle West Access Road. See drawing C-11200 prepared by Barret Mahony Consulting Engineers for details.

Design of the foul sewer network and pumping station will be in accordance with the Uisce Éireann 'Code of Practice for Wastewater' and standard details.

3.4.3 Water Supply

The proposed watermain connection to the development will be from the permitted watermain as part of the Grange Castle West Access Road (planning application reference no. SD188/0009) to the East of the site. All proposed water mains will be HDPE 150 SDR17 in accordance with Uisce Éireann Standards.

A Pre-Connection Enquiry (PCE) was submitted to UÉ on 7th November 2023. BMCE received a Confirmation of Feasibility (COF) from UÉ on 17th January 2024.

The water demand from the proposed development is calculated as per the Uisce Éireann Code of Practice for Water Infrastructure (July 2020 (rev. 2)). The water demand is in accordance with Section 3.28. The average day/peak week demand is taken as 1.25 times the average daily domestic demand. The peak demand factor is taken as 5 times the average day/peak week demand.

The number of persons on site will include a mixture of staff permanently based on site and additional persons who will be involved in film production as required. The number of persons on site is broken down as follows:

Restaurant - Occupancy - 8
Demand = 30 l/head/day
Daily Demand = 8 x 30 x 1.25 = 300 l/day
Average Demand = 300 / (60x60x24) = 0.003l/s
Peak Demand = Avg. Demand x 5 = 0.003 x 5 = 0.017l/s
Office/Factory without Canteen - Occupancy – 18
Demand = 45 l/head/day

Daily Demand = 18 x 45 x 1.25 = 1.013 l/day
Average Demand = 1,013 / (60x60x24) = 0.012l/s
Peak Demand = Avg. Demand x 5 = 0.012 x 5 = 0.059l/s

Office/Factory with Canteen - Occupancy - 1309
Demand = 75 l/head/day
Daily Demand = 1309 x 75 x 1.25 = 122,719 l/day
Average Demand = 122,719 / (60x60x24) = 1.420l/s
Peak Demand = Avg. Demand x 5 = 1.420 x 5 = 7.102l/s

Non-residential Conference Guest - Occupancy - 300
Demand = 60 l/head/day
Daily Demand = 300 x 60 x 1.25 = 22,500 l/day
Average Demand = 22,500 / (60x60x24) = 0.260l/s
Peak Demand = Avg. Demand x 5 = 0.229 x 5 = 1.302l/s

Total Daily Demand = 300 + 1,013 + 122,719 + 22,500 = 146,531l/day
Total Peak Demand = 0.017 + 0.059 + 7.102 + 1.302 = 8.480l/s
Total Average Demand = 0.003 + 0.012 + 1.420 + 0.260 = 1.696l/s

Hydrants will be provided on the watermain at a max distance of 46m from any part of a building in accordance with the Department of the Environment's Building Regulations "Technical Guidance Document Part B Fire Safety". Hydrants shall comply with the requirements of BS 750:2012 and shall be installed in accordance with UÉ Code of Practice and Standard Details.

Sluice valves will be provided at appropriate locations to facilitate isolation and purging of the system. Air valves will be provided at high points for system venting. Design of the watermain will be in accordance with the Uisce Éireann 'Code of Practice for Water Supply' and standard details.

3.5 Construction Activities and Management

This section provides an overview of the construction activities and management. The proposed construction works are set out in full detail in the Outline Construction and Environmental Management Plan (CEMP) prepared by Barrett Mahony Civil & Structural Consulting Engineers that accompanies the planning application.

This CEMP is a live document that will be updated as the development progresses to communicate key environmental obligations and waste management procedures that will apply to all contractor organizations involved in the project, their subcontractors and employees involved in carrying out any form of construction activity at the site. The CEMP defines project specific environment measures that are to be put in place during construction works.

3.5.1 Construction Working Hours

Working hours shall be agreed with SDCC prior to commencement of construction works.

3.5.2 Site Construction Compound

A site compound(s) including offices and welfare facilities shall be set up by the main contractor in locations to be decided within the subject site. The location of the compound and facilities will comply with separation distances.

The main contractor shall be required to schedule delivery of materials daily. The main contractor shall be required to provide a site compound on the site for the secure storage of materials.

Measures shall be implemented throughout the construction stage to prevent contamination of the soil and surrounding watercourses from oil and petrol leakages and significant siltation. Suitable bunded areas shall be installed for oil and petrol storage tanks. Designated fuel filling points shall be put in place with appropriate oil and petrol interceptors to provide protection from accidental spills. Spill kits shall be provided by the Contractor to cater for any spills. Further Details are outlined in the CEMP prepared by Barrett Mahony Civil & Structural Consulting Engineers.

3.5.3 Site Security

Hoarding/temporary fencing will be erected to delineate all site works from public areas located adjacent to the development. The development will also be monitored by CCTV cameras. A site compound and car parking facility will also be set up.

The construction area will be isolated during construction as indicated on the site hoarding plan with hoardings in line with the temporary works design.

Security of the site is an important issue with respect to restricting site entry to personnel solely involved in the construction process during working hours and preventing unauthorised access out of hours. Site access for all personnel and visitors will be strictly controlled and all visitors will report to the site offices prior to entering the construction area.

Regular inspections of the hoarding and fencing around excavations will be undertaken to ensure that the safety of any vehicles or pedestrians is not compromised. The site compound including offices and welfare facilities will be provided within the construction boundary as indicated on the enclosed logistics plan.

Whereas there will be certain provision for Site Operatives and Visitor Parking, the Main Contractor will encourage use of public transport where possible, and will actively discourage parking on the surrounding roads, by construction operatives involved in the project.

3.5.4 Health and Safety

As indicated within the CEMP, the appointed Contractor will ensure all relevant health and safety, fire safety and security requirements are in place prior to the commencement of construction and in accordance with relevant legislative requirements in addition to the specifications of SDCC. The Contractor will comply with the Safety, Health, and Welfare at Work Act 2005 (SHAWW), the Safety, Health, and Welfare at Work (Construction) Regulations 2013 and any subsequent safety, health and welfare legislation or regulations.

The Contractor will also be appointed as Project Supervisor for the Construction Stage (PSCS) on the project in accordance with the Safety, Health, and Welfare at Work (Construction) Regulations. The PSCS shall develop a suitable safety and health plan for the Proposed

Development, prior to the commencement of construction work. The plan shall explain how the key safety and health issues will be managed and shall be revised and updated by the appointed Contractor as development progresses. The contents of the Health and Safety Plan will comply with the requirements of the Regulations.

3.5.5 Waste

The proposed development will generate a range of non-hazardous and hazardous waste materials during site excavation and construction (see Appendix 12.1 for further detail). General housekeeping and packaging will also generate waste materials, as well as typical municipal wastes generated by construction employees, including food waste. Waste materials will be required to be temporarily stored in the construction site compound or adjacent to it, on-site, pending collection by a waste contractor. If waste material is not managed and stored correctly, it is likely to lead to litter or pollution issues at the development site and in adjacent areas. The indirect effect of litter issues is the presence of vermin in areas affected. In the absence of mitigation, the effect on the local and regional environment is likely to be short-term, significant, and negative.

The use of non-permitted waste contractors or unauthorised waste facilities could give rise to inappropriate management of waste, resulting in indirect negative environmental impacts, including pollution. It is essential that all waste materials are dealt with in accordance with regional and national legislation, as outlined previously, and that time and resources are dedicated to ensuring efficient waste management practices. In the absence of mitigation, the effect on the local and regional environment is likely to be long-term, significant, and negative.

Wastes arising will need to be taken to suitably registered / permitted / licenced waste facilities for processing and segregation, reuse, recycling, recovery, and / or disposal, as appropriate. There are numerous licensed waste facilities in the EMR which can accept hazardous and non-hazardous waste materials, and acceptance of waste from the development site would be in line with daily activities at these facilities. At present, there is sufficient capacity for the acceptance of the likely C&D waste arisings at facilities in the region. The majority of construction materials are either recyclable or recoverable. However, in the absence of mitigation, the effect on the local and regional environment is likely to be short-term, significant, and negative.

There is a quantity of material which will need to be excavated to facilitate the proposed development. It is estimated that c. 57,700m3 of material (excluding topsoil) will be excavated to facilitate the Proposed Development. A detailed review of the existing ground conditions on a regional, local site-specific scale are presented in Chapter 7 (Land, Soils and Ground Water) It is anticipated that no excavated material will need to be removed off-site unless it is deemed unsuitable for reuse on-Site. When material has to be removed correct classification and segregation of the excavated material is required to ensure that any potentially contaminated materials are identified and handled in a way that will not impact negatively on workers as well as on water and soil environments, both on and off-site.

However, in the absence of mitigation, the effect on the local and regional environment is likely to be short-term, significant, and negative.

Further Details are outlined in Chapter 12 – Material Assets – Waste.

3.5.6 Control Measures

The CEMP sets out a number of environmental control measures as summarised below.

Noise Control

Noise is a material consideration in the planning of construction works and a key aspect of sustainable development. A Demolition and Construction Noise Management Plan will be put in place for the construction process, a third-party consultant will be engaged to prepare this report and monitor activity and noise levels generated.

The site is bounded to the south / east by residential development (see Chapter 2, section 2.3 for more details on nearby receptors and context). Steps will be taken to ensure that any noise arising will be adequately mitigated. It will be noted that as part of the scheme design due consideration has been given to the issue of noise and physical and operational measures have been proposed in order to mitigate potential noise impacts associated with the site.

A baseline noise monitoring programme will be completed prior to construction works commencing. Attended noise monitoring will be carried out at a number of locations yet to be determined. Survey details, procedures, and results of this aspect of the baseline noise monitoring programme will be in general in accordance with ISO 1996: Part 2: 2007.

Consideration will also be given to advise in relation to establishing significant construction noise effects as set out in BS5228. During construction the development shall comply with British Standard 5228 'Noise Control on Construction and open sites Part 1. Code of practice for basic information and procedures for noise control.'

BS 5228 includes guidance on the various aspects of construction site noise mitigation, including, but not limited to:

- Liaison with neighbours
- Noise monitoring
- Hours of works
- Selection of quiet plant
- Control of noise sources and screening

All site staff shall be briefed on noise mitigation measures and the application of best practicable means to be employed to control noise.

Noise control audits will be conducted at regular intervals through the demolition and construction phase of the development. In the first instance it is envisaged that such audits will take place on a monthly basis. This subject to review and the frequency of audits may be increased if deemed necessary.

Dust Control

In order to ensure that no dust nuisance occurs during the earthworks, construction and track-out activities, a range of dust mitigation measures must be implemented. Dust mitigation measures are detailed in the Section 9.5.2 of Chapter 9.

Prior to the commencement of works on site, the appointed Contractor will review all proposed construction activity including enabling works to identify all potential sources of dust emission. The Contractor will develop a Dust Management Plan for proposed on-site

activity, a primary aim of which will be to avoid dust becoming airborne at the source through best practice and if required, by adopting effective control strategies.

In developing this Plan, the Contractor will take cognisance of measures described in Chapter 9 of the EIAR (Air and Climate), the CEMP and planning conditions associated with the development. The pro-active control of fugitive dust will ensure the prevention of significant emissions, rather than an inefficient attempt to control them once they have been released. The Contractor will be responsible for the coordination, implementation, and ongoing monitoring of the Dust Management Plan. Key aspects of controlling dust during the construction phase are listed in Section 9.6.1 of the EIAR. Staff training and vigilant management of operations will be a paramount requirement of the Contract. An outline dust management plan to be developed by the Contractor is provided in the CEMP accompanying the application.

Ecological Impact Control

In order to minimise potential impacts during the construction and to ensure that mitigation measures are implemented, the Contractor will appoint a suitably qualified and experienced Project Ecologist prior to commencement of development. The PE will have technical knowledge and experience of typical construction practices and will possess a thorough understanding of relevant environmental/ecological legislation (and licensing) and how it applies to construction sites. The PE will act as the contact for the Planning Authority and agree the frequency and number of site inspections and monitoring programme for the implementation of the Biodiversity related mitigation of the updated Ecological Impact Assessment, CEMP and the objectives and actions of the Habitat and Species Management Plan. The PE will act as the primary on-site ecological contact for the PC and SM regarding implementation of the Biodiversity related mitigation of the final Ecological Impact Assessment, CEMP and the objectives and actions of the Habitat and Species Management Plan. They will also ensure compliance with all Biodiversity related mitigation of the final Ecological Impact Assessment, CEMP and also the objectives and actions of the Habitat and Species Management Plan. They will request relevant records and documentation from the SM where necessary and attend routine meetings with the SM. The PE will be responsible for keeping detailed records of any ecological incidents and the remedies required and implemented. Report these to the PC and Planning Authority. The PE shall produce the staged monitoring reports in agreement with the Planning Authority on the implementation of Biodiversity related mitigation of the updated Ecological Impact Assessment, CEMP and also the objectives and actions of the Habitat Management Plan; The PE shall submit these directly to the Planning Authority and to the PC. The PE shall also act as overall technical advisor to the PC and SM regarding the implementation of all Biodiversity related mitigation of the

updated Ecological Impact Assessment, CEMP and also the objectives and actions of the Habitat Management Plan.

No modifications to the final Ecological Impact Assessment and/or Habitat Management and Species Plan can be made post planning permission that will alter the outcomes of the ecological assessments in terms of significance of impacts. Therefore, no modifications can be made without prior agreement with the Planning Authority and no modifications will be proposed that will negatively impact biodiversity.

Drainage Management, Water Supply and Flood Risk Assessment

According to the Site-Specific Flood Risk Assessment, tidal, fluvial, and pluvial flood risk to the proposed development is low. During extreme rainfall events and where the proposed drainage system is blocked, there is a chance that localised ponding will occur. Ensuring that internal finished floor levels are set above the highest external surface levels in the vicinity will allow for any runoff or ponding to be retained on access road and landscaped areas. The swale has been designed with top water levels (TWL) of at least 500mm below the lowest finished floor level (FFL). This measure, during the unlikely event is considered appropriate for the nature of the development.

In addition to the allowance of an additional 20% flow for climate change, the surface water system has also been designed with an additional 10% increase in impermeable area to allow for urban creep.

In the event of pump failure, any overland flows will convey any flood waters towards the swale /ecological buffer zone to the north of the site. This area is at a lower level and has more than sufficient capacity to accommodate any flood waters arising from a 1 in 1000-year storm event or worse. We have liaised with the Ecologist for the project on this strategy and they have confirmed that there is no issue from an ecological perspective.

Further details are outlined in the Site Specific Flood Risk Assessment prepared by Barret Mahony Consulting Engineers (BMCE).

Nuisance and Pest Control

The CEMP sets out a number of mitigation measures to control pests during the construction phase of the proposed development. The Main Contractor will take all necessary steps to ensure that pests, rodents, insects, and plants are controlled at all times. Control measures will be undertaken prior to commencement of any works on the site. Poison where used, will comply with any relevant Health and Safety requirements and which eliminate any danger to children, household pets and other wildlife. Old and discussed service pipes and voids will be removed or filled to avoid the potential pest to infest the site.

Litter Control

An outline Construction & Demolition Waste Management Plan has been developed with regard to published guidelines from the EPA on the preparation of waste management plans. The CWMP provides information necessary to ensure that the management of construction and demolition (C&D) waste at the site is undertaken in accordance with current legal and industry standards including the Waste Management Acts 1996 and associated Regulations,

Protection of the Environment Act 2003 as amended, Litter Pollution Act 1997 as amended and the Eastern-Midlands Region Waste Management Plan 2015 –2021. In particular, this plan aims to ensure maximum recycling, reuse, and recovery of waste with diversion from landfill, wherever possible. Based on the topography of the existing site, we estimate approximately 72,646m3 of fill will be required to fill the site. While approximately 49,513m3 of site strip / cut will be required. Of the site strip/cut required approx. 8,032m3 is estimated to be rock. It is anticipated that most excavated soil will be reused on site. When any material is reused as a by-product (and not as a waste), it will be done in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011. Article 27 requires that certain conditions are met and that by-product decisions are made to the EPA via their online notification form.

The CWMP also seeks to provide guidance on the appropriate collection and transport of waste from the site to prevent issues associated with litter or more serious environmental pollution (e.g. contamination of soil and/or water).

The CWMP states that waste materials generated will be segregated on site, where it is practical. Where the onsite segregation of certain waste types is not practical, off-site segregation will be carried out. There will be skips and receptacles provided to facilitate segregation at source. All waste receptacles leaving site will be covered or enclosed. The appointed waste contractor will collect and transfer the wastes as receptacles are filled. There are numerous waste contractors in the Dublin Region that provide this service. All waste arising's will be handled by an approved waste contractor holding a current waste collection permit. All waste arising's requiring disposal off-site will be reused, recycled, recovered or disposed of at a facility holding the appropriate registration, permit or licence, as required.

The Plan also provides guidance on the collection and transport of waste from the site to prevent issues associated with litter or more serious environmental pollution (e.g. contamination of soil or water resources). The CWMP describes the applicable legal and policy framework for construction waste management in Ireland (both nationally and regionally). The appointed Contractor will develop a more a detailed CWMP.

Traffic Management and Safety

The Main Contractor will be required to develop a detailed site-specific Construction Traffic Management Plan (CTMP) prior to construction. The CTMP shall be prepared in consultation with the Design Team, with South Dublin County Council (SDCC) and An Garda Síochána. The CTMP will be a live document and shall be updated as required throughout the works.

The main objective of the CTMP is to manage the impacts of all development related construction traffic, ensuring the safety of the public & construction workers is maintained at all times, and all operations are undertaken within a risk-controlled environment. Construction traffic routes, traffic flows signage and lighting and special deliveries, road opening & closure requirements are also to be addressed.

CO2 Emissions

It has been calculated that the total construction phase embodied carbon (including maintenance and replacement of materials over the development lifetime) will be 33,493 tonnes CO2e. When this is annualised over the assumed 50 year lifespan of the development this equates to 0.017% of the Industry sector 2030 carbon budget of 4 Mt CO2e or 0.067% of

the Commercial Buildings 2030 carbon budget of 1 Mt CO2e. Annualising the full carbon emissions over the lifetime of the development allows for appropriate comparison with annual GHG targets. The impact to climate is predicted to be moderate, negative, and not significant.

The following measures will be implemented during the construction phase of the development in order to minimise CO2 emissions:

- Prevention of on-site or delivery vehicles from leaving engines idling, even over short periods.
- Ensure all plant and machinery are well maintained and inspected regularly.
- Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site.
- Waste materials will be re-used on site where possible and where re-use is not possible on-site, they will be sent off-site for recycling, re-use or recovery.
- Sourcing materials locally where possible to reduce transport related CO_2 emissions. Full details are outlined in Chapter 10 (Climate) prepared by AWN consulting.

Full details are outlined in Chapter 10 (Climate) prepared by AWN consulting.

3.6 Development Projects Proximate to Subject Site

The projects that are known to have permission / be under construction in the wider area are outlined in Appendix 1.1.

3.7 Operation of the Project

3.7.1 Direct and Indirect Effects resulting from use of natural resources

Details of significant direct and indirect effects arising from the proposed development are outlined within individual chapters of this EIAR which deal with 'Aspects of the Environment Considered'. No significant adverse impact is predicted to arise from the use of natural resources.

Once fully operational the project is expected to employ in the region of 1265 people at maximum capacity. These numbers will vary depending on the types of productions and shoots happening at any given time. Further details of expected operational employment are outlined in Section 5.5.2, chapter 5.

The proposed Media Park is intended to provide a world-class production facility, capable of delivering large scale film and television productions. Globally, consumer habits of film and television content consumption is evolving. The emergence and growth of mobile devices and new platforms such as subscription-based TV (Netflix, Amazon Prime) has led to a surge in the demand for high quality content. This growing global demand for premium content requires

additional suitable studio facilities and that Ireland is uniquely positioned to cater for and benefit from.

It is envisaged that GCMP will address the significant shortage of studio / production space in Ireland as well as shortage of 'premium' studio facilities internationally. The full-service film studio will provide sufficient scale, capacity, and capability to compete globally which can satisfy the broadest of production needs and the growing global demand.

The following is a summary of some of the key environmental characteristics relating to the operation of the project.

3.7.2 Environmental Demands

Foul Water

A new gravity network will serve the proposed development site. A permanent connection is proposed into the proposed foul pipeline permitted as part of the Grange Castle West Access Road (planning application reference no. SD188/0009) to the East of the site.

Due to the development size and the relationship between the levels on site and the invert level of the foul pipe in Grange Castle West Access Road, it will only be possible to discharge foul flows from some of the buildings located to the east of the site by gravity to the foul line on Grange Castle West Access Road. The remainder of the foul flows will be collected in a new internal foul sewer network and discharged by gravity to a pumping station at the western boundary of the site. Foul flows will then be pumped via a rising main to an outfall manhole at the eastern boundary of the site before discharging by gravity to the proposed foul sewer in Grange Castle West Access Road. See drawing C-11200 for details.

Design of the foul sewer network and pumping station will be in accordance with the Uisce Éireann 'Code of Practice for Wastewater' and standard details and the Department of the Environment's Building Regulations "Technical Guidance Document Part H Drainage and Wastewater Disposal".

The foul effluent from the proposed buildings is calculated as per the Uisce Éireann Code of Practice for Wastewater Infrastructure (July 2020 (rev. 2)) taking the dry weather flow (DWF) from Appendix C plus a 10% infiltration rate. The site area is approx. 22.67ha, therefore, in accordance with Table 2.7, a peaking factor of 3 is considered.

The number of persons on site will include a mixture of staff permanently based on site and additional persons who will be involved in film production as required. The number of persons on site is broken down as follows:

Restaurant - Occupancy - 8
DWF = 30 l/head/day
Daily Flow = 8 x 30 x 1.1 = 264 l/day
Average Flow = 264 / (60x60x24) = 0.003l/s
Peak Flow = Avg. Flow x 3 = 0.003 x 3 = 0.009l/s

Office/Factory without Canteen - Occupancy - 18
DWF = 50 l/head/day

Daily Flow = 18 x 50 x 1.1 = 990 l/day
Average Flow = 990 / (60x60x24) = 0.011l/s
Peak Flow = Avg. Flow x 3 = 0.011 x 3 = 0.034l/s

Office/Factory with Canteen - Occupancy - 1309
DWF = 100 l/head/day
Daily Flow = 1309 x 100 x 1.1 = 167,090 l/day
Average Flow = 167,090 / (60x60x24) = 1.667l/s
Peak Flow = Avg. Flow x 3 = 1.667 x 3 = 5.000l/s

Non-residential Conference Guest - Occupancy - 300
DWF = 60 l/head/day
Daily Flow = 300 x 60 x 1.1 = 19,800 l/day
Average Flow = 19,800 / (60x60x24) = 0.229l/s
Peak Flow = Avg. Flow x 3 = 0.229 x 3 = 0.688l/s
Total Daily Flow = 264 + 990 + 143,990 + 19,800 = 165,044l/day
Total Peak Flow = 0.009 + 0.034 + 5.000 + 0.688 = 5.731l/s
Total Average Flow = 0.003 + 0.011 + 1.667 + 0.299 = 1.910l/s

Due to the topography of the site, it is intended that the wastewater is collected within a holding tank and then pumped to the main foul sewer which is proposed to serve Grange Castle Business Park West. The holding tank will be adequate to provide 24-hour storage.

The foul sewer serving the Grange Castle Business Park West permitted under planning application reference SD188/0009, has been designed to facilitate this development. An allowance for a peak flow of 20.86 l/s for this site has been made in the design of the business park foul sewer. Additional details are outlined in chapter 14, Material Assets – Site Services.

Water

The proposed watermain connection to the development will be from the permitted watermain as part of the Grange Castle West Access Road (planning application reference no. SD188/0009) to the East of the site. All proposed water mains will be HDPE 150 SDR17 in accordance with Uisce Éireann Standards.

Hydrants will be provided on the watermain at a max distance of 46m from any part of a building in accordance with the Department of the Environment's Building Regulations "Technical Guidance Document Part B Fire Safety". Hydrants shall comply with the requirements of BS 750:2012 and shall be installed in accordance with UÉ Code of Practice and Standard Details. Sluice valves will be provided at appropriate locations to facilitate isolation and purging of the system. Air valves will be provided at high points for system venting.

Design of the watermain will be in accordance with the Uisce Éireann 'Code of Practice for Water Supply' and standard details.

The water demand from the proposed development is calculated as per the Uisce Éireann Code of Practice for Water Infrastructure (July 2020 (rev. 2)). The water demand is in accordance with Section 3.28. The average day/peak week demand is taken as 1.25 times the

average daily domestic demand. The peak demand factor is taken as 5 times the average day/peak week demand.

The number of persons on site will include a mixture of staff permanently based on site and additional persons who will be involved in film production as required. The number of persons on site is broken down as follows:

Restaurant - Occupancy - 8
Demand = 30 l/head/day
Daily Demand = 8 x 30 x 1.25 = 300 l/day
Average Demand = 300 / (60x60x24) = 0.003l/s
Peak Demand = Avg. Demand x 5 = 0.003 x 5 = 0.017l/s

Office/Factory without Canteen - Occupancy - 18
Demand = 45 l/head/day
Daily Demand = 18 x 45 x 1.25 = 1.013 l/day
Average Demand = 1,013 / (60x60x24) = 0.012l/s
Peak Demand = Avg. Demand x 5 = 0.012 x 5 = 0.059l/s

Office/Factory with Canteen - Occupancy - 1309
Demand = 75 l/head/day
Daily Demand = 1309 x 75 x 1.25 = 122,719 l/day
Average Demand = 122,719 / (60x60x24) = 1.420l/s
Peak Demand = Avg. Demand x 5 = 1.420 x 5 = 7.102l/s

Non-residential Conference Guest - Occupancy – 300
Demand = 60 l/head/day
Daily Demand = 300 x 60 x 1.25 = 22,500 l/day
Average Demand = 22,500 / (60x60x24) = 0.260l/s
Peak Demand = Avg. Demand x 5 = 0.229 x 5 = 1.302l/s

Total Daily Demand = 300 + 1,013 + 122,719 + 22,500 = 146,531l/day
Total Peak Demand = 0.017 + 0.059 + 7.102 + 1.302 = 8.480l/s
Total Average Demand = 0.003 + 0.012 + 1.420 + 0.260 = 1.696l/s
Further Details are outlined in Chapter 14 – Material Assets Site Services

Waste

The potential impacts on the environment of improper, or a lack of, waste management during the operational phase would be a diversion from the priorities of the waste hierarchy which would lead to small volumes of waste being sent unnecessarily to landfill. In the absence of mitigation, the effect on the local and regional environment is likely to be indirect, *long-term, significant,* and *negative.*

The nature of the development means the generation of waste materials during the operational phase is unavoidable. Networks of waste collection, treatment, recovery, and disposal infrastructure are in place in the region to manage waste efficiently from this type of development. Waste which is not suitable for recycling is typically sent for energy recovery. There are also facilities in the region for segregation of municipal recyclables which is typically exported for conversion in recycled products (e.g. paper mills and glass recycling).

If waste material is not managed and stored correctly, it is likely to lead to litter or pollution issues at the development site and in adjacent areas. The knock-on effect of litter issues is the presence of vermin in affected areas. However, in the absence of mitigation, the effect on the local and regional environment is likely to be Indirect, *long-term, significant,* and *negative.*

It is anticipated that Waste contractors will be required to service the proposed development on a scheduled basis to remove waste. The use of non-permitted waste contractors or unauthorised facilities could give rise to inappropriate management of waste and result in negative environmental impacts or pollution. It is essential that all waste materials are dealt with in accordance with regional and national legislation, as outlined previously, and that time and resources are dedicated to ensuring efficient waste management practices. However, in the absence of mitigation, the effect on the local and regional environment is likely to be *long-term, significant,* and *negative.*

Further Details in relation to waste are outline din chapter 12 of the EIAR.

Electricity Demand

The application is accompanied by a Sustainability and Energy Statement prepared by Homan O'Brien (HOB). The report provides an overview of the various energy requirements of the GCMP. It also assesses various options for provision of heating and cooling as well as the preferred technologies which are proposed to be employed at the site including heat pump technology and rooftop PV.

3.8 Forecasting Methods used for Environmental Effects

The methods employed to forecast, and the evidence used to identify the significant effects on the various aspects of the environment are standard techniques used by each of the particular individual disciplines. The general format followed was to identify the receiving environment, to add to that a projection of the "loading" placed on the various aspects of the environment by the development, to put forward mitigation measures, to lessen or remove an impact and thereby arrive at net predicted impact.

Where specific methodologies are employed for various sections, they are referred to within the relevant chapter of the EIAR.

3.9 Risks of Major Accidents and/or Disasters

Article 3 of the Environmental Impact Assessment (EIA) Directive 2014/52/EU requires the assessment of expected effects of major accidents and/or disasters within an EIA. Article 3(2) of the Directive states that "The effects referred to in paragraph 1 on the factors set out therein shall include the expected effects deriving from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project concerned". As set out within Chapter 2 of the EIAR, the subject site is not within any SEVESO consultation distance.

3.9.1 Seismic Activity

In Ireland, seismic activity is recorded by the Irish National Seismic Network. The Geophysics Section of the School of Cosmic Physics, Dublin Institute for Advanced Studies, has been recording seismic events in Ireland since 1978 (www.dias.ie). This network consists of several seismometers that are located throughout Ireland. Figure 17.1 illustrates historical and recorded seismic events since 1980.

Seismic activity and earthquake risk in Ireland are generally considered to be low. This is because Ireland is located on the western edge of the Eurasian Plate, which is a tectonic plate that is not known for its seismic activity.

However, earthquakes can still occur in Ireland, although they are typically small and have little impact.

It can be seen in Figure 3.41 that there is no significant seismic activity recorded in the vicinity of the proposed development. Therefore, the likelihood of seismic activity initiating a major accident at the proposed development is negligible; therefore, not significant.

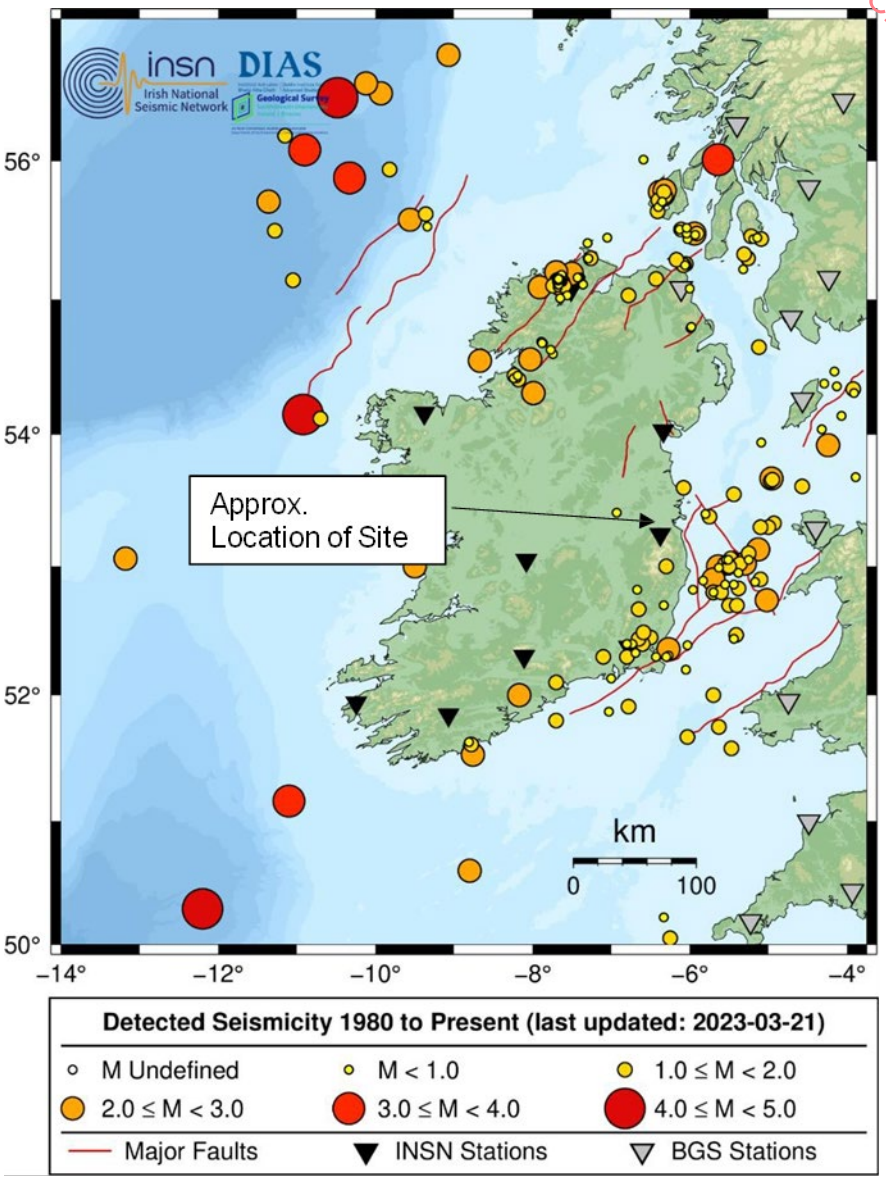


Figure 3.41: Ireland Seismic Activity Map.

3.9.2 Landslides

Much of the Earth's surface is covered by unconsolidated sediments which can be especially prone to instability. Water often plays a key role in lubricating the slope failure. Instability is often significantly increased by man's activities in building houses, roads, drainage, and agricultural changes. Landslides, mud flows, bog bursts (in Ireland) and debris flows are a are a natural hazard that can occur. These can cause damage to property, infrastructure, and the natural environment, and can also pose a risk to human life.

In general, risk of landslides in Ireland is considered to be low, as the country is not located in a region with high seismic activity or large mountain ranges. Landslides are more common in unconsolidated material than in bedrock, and where the sea constantly erodes the material at the base of a cliff landslides and falls lead to recession of the cliffs. Landslides have occurred

in Ireland in recent years in upland peat areas due to disturbance of peat associated with construction activities.

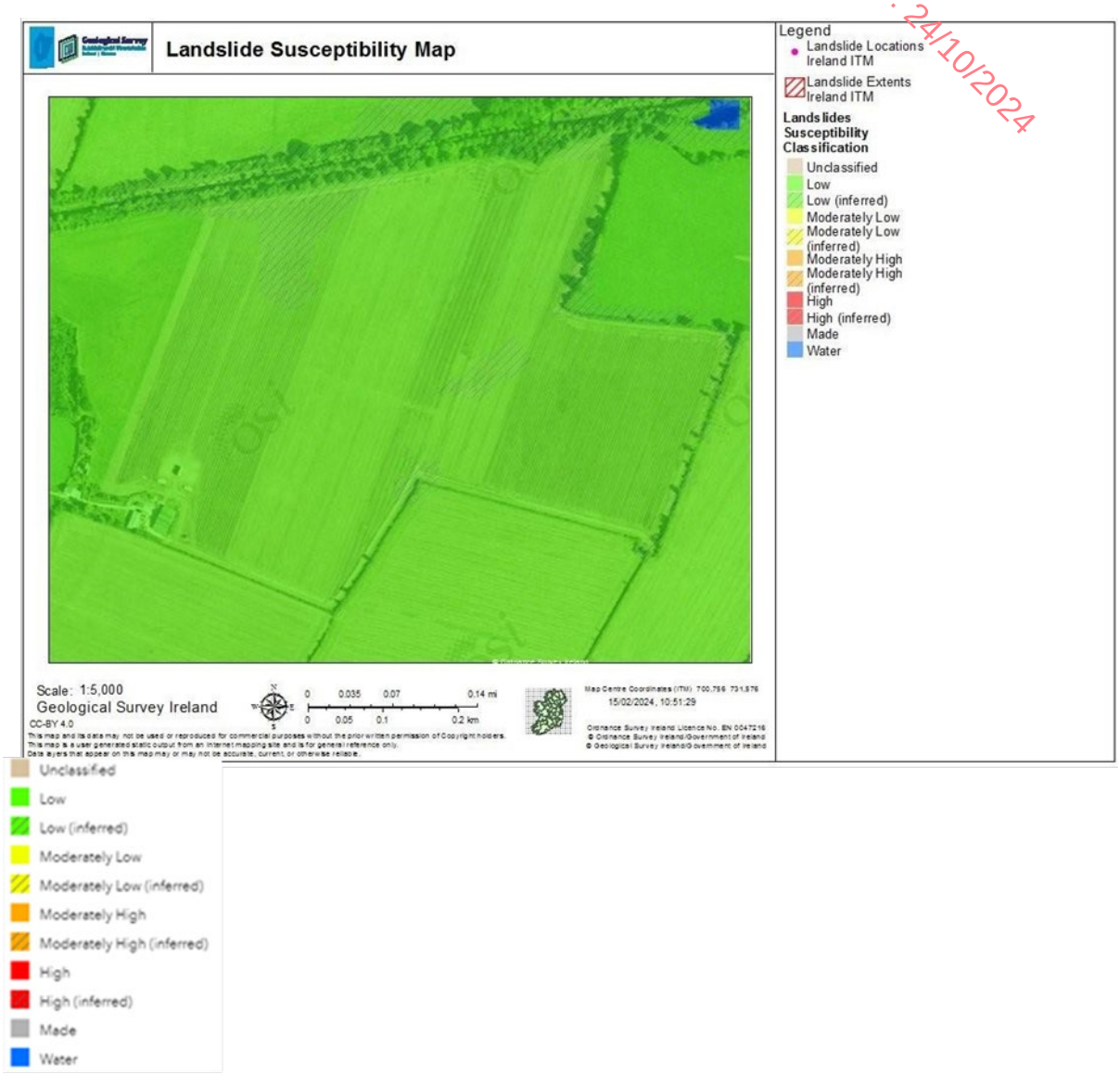


Figure 3.42: Landslide Susceptibility Map (GSI Ireland).

The landslide susceptibility map identifies areas which are subject to landslides and is measured from low to high. The landslide susceptibility map considers the location of landslides and what causes them (slope, soil type and the impact of the flow of water). It can be seen in Figure 3.42 that the area surrounding the proposed development has a low susceptibility of landslides. Therefore, the likelihood of a landslide initiating a major accident at the proposed development is negligible and the likelihood of the project initiating a landslide is considered negligible; therefore, **not significant**.

3.9.3 Flood Risk

A Flood Risk assessment (FRA) was carried out, by Barret Mahony and Associates . This FRA was completed following The Planning System and Flood Risk Management Guidelines for

Planning Authorities published by the OPW in 2009 (OPW Guidelines). It was concluded that based on available and recorded information, the site has not been subject to flooding in recent history.

The risk of tidal flooding is considered low as the subject site lies outside the 0.1% AEP. The risk of fluvial flooding in the area is considered low as the proposed site lies outside the 0.1% AEP. The risk of flooding due to ground water ingress to the proposed development is considered low. The risk of pluvial flooding is considered low, due to the site location and proposed measures for the development.

Based on the flood risk identification in Stage 1, the proposed development falls in Flood Zone C. Therefore, the proposed development is deemed 'Appropriate' in accordance with the guidelines of the OPW's publication.

Therefore, the likelihood of a flood initiating a major accident at the proposed development is negligible and the likelihood of the proposed project causing a flood is negligible; therefore, not significant.

Further detail is provided in Chapter 8 (Hydrology).

3.9.4 Meteorological

The climatic conditions were assessed using data obtained from the Met Eireann Meteorological database and the Casement Aerodrome Synoptic Station between 1991 - 2021 (Casement Aerodrome being the closest Meteorological Station).

Precipitation

- The annual mean total rainfall was 806mm and the greatest 24-hour total was 109.8mm.

Wind

- The maximum annual gust over the 30-year period was 50 knots.

Temperature

- The maximum temperature was 30.3°C and the minimum temperature was - 15.3°C.

The significant buildings or structures are not considered to be at risk during storms or during extreme heat or cold event. Therefore, the likelihood of extreme weather initiating a major accident at the proposed development is negligible; therefore, not significant.

3.10 Risk of Accidents

The risk of accidents arising as a result of the proposed development at both construction and operational phases will be minimised through detailed design considerations and health and

safety management. Details of these design considerations and management measures are contained in the Construction Environmental Management Plan accompanying this EIAR.

Due to the nature of the proposed use which does not involve the use, storage or processing of hazardous substances, the Proposed Development is not likely to cause a major accident or disaster.

4.0 ALTERNATIVES CONSIDERED

4.1 Introduction

This chapter of the Environmental Impact Assessment Report has been prepared by Gavin Lawlor and Bernard Dwyer of Tom Phillips & Associates and examines the alternative development options that were considered for the subject site during the design development process.

Gavin Lawlor is a Director of Tom Phillips + Associates. He holds a BA (Social Science) from University College Dublin, where he graduated in 1995 with a Masters in Regional and Urban Planning (MRUP) Degree and is a Full Member of the Irish Planning Institute (IPI) with 25 years' experience.

Bernard Dwyer is a Member of the Irish Planning Institute and has been practicing as a town planner for over 9 years. Bernard holds a postgraduate Master's degree in Planning and Sustainable Development (Hons), (2014) UCC.

The requirement to consider alternatives within an EIAR is set out in Annex IV (2) of the EIA Directive (2014/52/EU) and in Schedule 6(1)(d) of the *Regulations,* which require the following information to be included:

> "*A description of the* ***reasonable alternatives*** *studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics and an indication of the main reasons for the options chosen, taking into account the effects of the proposed development on the environment*".
>
> [Our emphasis.]

Reasonable alternatives may relate to project design, technology, location, size, and scale which were studied in the preparation of the EIAR relevant to the proposed development and its particular characteristics, together with an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.

The EU Commission guidance *Environmental Impact Assessment of Projects – Guidance on the Preparation of the Environmental Impact Assessment Report* (EU Commission, 2017) considers that for alternatives to be reasonable they must be "*…able to accomplish the objectives of the Project in a satisfactory manner, and should also be feasible in terms of technical, economic, political and other relevant criteria.*"[1] The guidance then goes on to set out some key reasons why an alternative may not be considered reasonable:

- *There are technological obstacles: high costs of a required technology may prevent it from being considered to be a viable option, or the lack of technological development may preclude certain options from consideration;*
- *There are budget obstacles: adequate resources are required to implement Project Alternatives;*
- *There are stakeholder obstacles: stakeholders opposed to a Project Alternative may make a particular option unattractive;*

[1] *Environmental Impact Assessment of Projects – Guidance on the Preparation of the Environmental Impact Assessment Report* (EU Commission, 2017) at page 52

- *There are legal or regulatory obstacles: regulatory instruments may be in place that limit/prohibit the development of a specific Alternative.*[2]

The *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment* of August 2018 provide further guidance on this matter as follows:

> "*The types of alternatives will depend on the nature of the project proposed and the characteristics of the receiving environment. For example, some projects may be site specific so the consideration of alternative sites may not be relevant. It is generally sufficient for the developer to provide a broad description of each main alternative studied and the key environmental issues associated with each. A 'mini-EIA' is not required for each alternative studied*".

The *EPA Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR)* of March 2020 provide further guidance on this matter as follows:

> *"The presentation and consideration of the various* ***reasonable alternatives*** *investigated by the developer is an important requirement of the EIA process".*

Thus, the consideration and presentation of the reasonable alternatives studied by the project design team is an important requirement of the EIA process.

4.2 Rationale for the Project

The proposed development at Grange Castle would serve to support the Government's aim of securing Ireland's position as a centre of excellence and global leader in media production, as well as continuing to develop indigenous production delivering on the commitment of Pillar 4 of the Government of Ireland's *'Creative Ireland Programme'* as part of the Audiovisual Action Plan. The overarching and long-term objective of Pillar 4 is to elevate Ireland's creative industries including media, with an initial key focus on Ireland's potential to become a global leader in film production, TV drama, documentary, children's storytelling, and animation for the screen.

It is envisaged that the Project will address the significant shortage of studio / production space in Ireland as well as shortage of 'premium' studio facilities internationally. The full-service film studio will provide sufficient scale, capacity, and capability to compete globally which can satisfy the broadest of production needs and the growing global demand.

4.3 Main Alternatives Considered

EIA legislation and prevailing guidelines and best practice require that Environmental Impact Assessment Reports consider the following aspects for EIA projects with regard to their environmental effects;

- Do Nothing alternative;
- Alternative project locations;
- Alternative designs/layouts;
- Alternative processes;
- Alternative mitigation measures.

[2] *Ibid.*

The reasonable alternatives studied during the development of the project comprise alternative site layouts and design solutions (as well as processes) for the redevelopment of the former HP lands to provide *inter alia* employment development on the site, in accordance with national, regional, and local planning policy.

4.3.1 "Do Nothing" Alternative

The Do Nothing alternative would mean that the lands are not developed and remain as is. Under the Do Nothing alternative, both the scenario where nothing is done with the site and the scenario where no media park is developed on the site are considered.

If the Site is not developed it will remain in agricultural use and will not fulfil the policy objectives contained in *South Dublin County Development Plan 2022-2028* to deliver Enterprise and Employment land uses.

If a Media Park is not delivered at this site, it will not contribute towards meeting the national policy objective for Ireland to become a global leader in in film production, TV drama, documentary, children's storytelling, and animation. - i.e. do nothing is not viable and therefore is not a reasonable alternative

The baseline scenario has been considered within this EIAR through the collection and collation of data through desktop and field research and surveys and through testing. If the Project were not to be delivered the site would continue in agricultural use in the short term and would likely be developed for light industrial / office / employment uses in the short to medium term given the land use objectives assigned to the lands in the *South Dublin County Development Plan 2022-2028*.

The Do-Nothing scenario is considered to be an undesirable, unsustainable and inefficient use of this zoned site within Grange Castle for which there are local, regional, and national planning policies and objectives for its development.

The Do-Nothing approach is not considered to be a reasonable alternative having regard to the *Eastern and Midland Regional Assembly – Regional Spatial and Economic Strategy 2019-2031* which acknowledges that the population size, varied enterprise base, access and connectivity to national and international markets, available skills, and talent pool of the Dublin SPA, makes it an attractive location for enterprise to locate and operate. RPO 6.2 seeks to encourage more enterprise and economic growth in the county and states its aim to:

"Support local authorities to ensure their LECPs and city and county development plans are sufficiently agile to account for unexpected opportunities, to accommodate valid propositions for enterprise development that may emerge and for which there are strong locational drivers that do not apply to the same extent elsewhere."

In accordance with NSO 5 – A Strong Economy supported by Enterprise, Innovation and Skills – the NPF outlines the importance of creating places that can foster enterprise and attract investment and talent. This can be achieved by building regional economic drivers in order to leverage the potential of places. It is recognised that the coordination of growth and place making with significant investment in infrastructure and in the skills and talent will be required to support economic competitiveness and growth.

The proposed development will make a significant contribution to economic growth opportunities through the provision of a Media Park.

The Do Nothing Alternative would be contrary to planning policy objectives for the site as the site is zoned for development of this nature and this is included in the county development plan which underwent a strategic environmental assessment which concluded that such a land use was appropriate at the site.

As such the Do-Nothing scenario is not considered to be a reasonable alternative as the positive benefits in terms of meeting national, regional, and local planning policies would not be realised if the site remains undeveloped.

4.4.2 Alternative Locations

Alternative locations have previously been explored for the proposed media park, including the Poolbeg Strategic Development Zone (SDZ) lands in the Dublin City Docklands. This would have involved developing an eight hectare site within the overall 34 hectare Poolbeg West SDZ as indicated in figure 4.1 below.

It was envisaged that the "Dublin Bay Studios" would comprise an eight stage studio with total capacity of 18,500 square metres (18,580 m^2) comprising:

Sound Stages 1, 2, 3 & 4: 2311 m^2

- Sound Stage 5, 6 & 8: 1858 m^2
- Sound Stage 7: 929 m^2
- Sound Stage (with water tank): 1300 m^{2600}
- Viewing Studio: 929 m^2
- Workshop Area: 5574 m^2
- Ancillary Support Buildings: 3251 m^2
- Car Spaces: 500 spaces

The Studios would provide a full service-offering to users which is not available in Ireland at present and was modelled off Pinewood studios successful growth in the UK.

Figure 4.1: Aerial view of the Poolbeg West lands subject of the SDZ.

The realisation of the above proposals was dependent on the adoption of the Planning Scheme for the Poolbeg West lands and the inclusion of appropriate policy support to ensure that the proposed film studio could be developed in the area. The Applicants prepared a submission to the preparation of the Poolbeg West Planning Scheme in 2016 seeking policy support for the development of a film studio proposal in the area. Due to various concerns arising from the publication of the Interim SDZ Planning Scheme, the promoters of the studio project lodged an appeal in accordance with Section 169 of the Planning and Development Act, 2000 (as amended). Among the principal grounds of appeal were the following matters:

- It was considered that the Interim Planning Scheme did not reflect the clear direction given by the comprehensive cross-council support to facilitate the provision of the film studio initiative on the B2 lands.
- The B2 lands where the film studio would be located were also proposed in the Scheme for 'unitised cargo storage' in the long term – there was no certainty to the promoter of film studies.
- There was a perceived lack of clarity as to the exact status of the Eastern Bypass and South Port Access Route which would potentially have a significant impact on the operation and / or expansion of film studio activities in the area.
- It was considered essential that the adopted Planning Scheme would make specific reference to the designation of B2 lands for 'creative industries, which would facilitate film and television production activities.' This explicit reference was absent from the interim scheme.

Following an Oral Hearing process and adoption of the Planning scheme it was considered that there was insufficient policy support to ensure the required certainty to facilitate delivery of

the proposal. It was also considered that a lack of certainty surrounding competing land uses and proposed transportation infrastructure in the area could be detrimental to the delivery of the film studio at this location.

There was also consideration given to the proximity of the Poolbeg site to European (Natura 2000) sites that include: South Dublin Bay and River Tolka Estuary SPA (site code: 004024) South Dublin Bay SAC (site code: 000210) and pNHA - South Dublin Bay (site code: 000210).

Following the adoption of the Poolbeg West Planning Scheme and in the context of the policy considerations listed above, it was considered that alternative locations that were less likely to be impacted by conflicting land uses or environmental considerations should be explored.

The search was restricted to the Greater Dublin area for several reasons.

- The proximity to Dublin Airport is a key consideration as it facilitates efficient production turnaround times in terms of bringing talent to and from the studios.
- The diverse range of trades and specialisms needed to facilitate productions requires close proximity to a large talent pool.
- Proximity to Dublin City Centre ensures access to hotels and other services for visiting talent.

Grange Castle West Locations

A number of sites within Grange Castle West were explored in early discussions with South Dublin County Council in 2012. The lands which were under the ownership of the Planning Authority provided an attractive prospect for the development of the project as they removed the need for complicated site acquisition and assembly and were afforded the required planning policy support to facilitate their development.

From an Environmental perspective the various Grange Castle West lands provided a number of advantages:

- Because of their zoning designation the lands were subject to Strategic Environmental Assessment (SEA) as part of the Development Plan preparation. This is true of the current adopted County Development plan which designates the lands for Employment and Enterprise uses (See Chapter 2 – Site Location and Context).
- The lands were not subject to Flood Risk.
- There were no European Habitats Designations on the lands (SPA, SAC, NHA etc.).
- There were no Built Heritage considerations associated with the lands or significant National Monument sites.
- The area consists of relatively flat topography lending itself to reduced visual impact from future developments.

The sites that were explored are illustrated in Figures 4.2 and 4.3 below. The various sites examined within Gange Castle West did not present any discernible differences in terms of potential for environmental effects. Ultimately the decision on the current site was based on operational factors. Both alternative sites are of a similar scale to the subject site, but neither were considered optimal in terms of providing for the required site layout of the Media Park. The project requires that an adequate separation can be provided between non production

areas (including the proposed welcome centre and TV studios) and restricted production areas (including workshops, studios, and backlot area). The provision of shooting lanes of adequate length is also critical to the project. In addition, the chosen site is at the western edge of the Enterprise and Employment zoned lands with the Grand Canal running to the north. In effect this ensured that the project would have natural buffers to the north and west which would further minimise the potential for impacts in terms of noise for example. The chosen site in the North Western corner of Grange Castle West was therefore considered optimal in this regard.

Figure 4.2: Alternate Grange Castle Site No. 1.

Figure 4.3: Alternate Grange Castle Site No. 2.

The application site comprises 22.6 hectares of undeveloped land. For development of this nature, large scale sites are needed to accommodate the large spaces needed for film sets and the numerous buildings such as studio sound stage buildings workshop buildings, TV studios, production suite buildings along with outdoor stage areas.

The proposed development site is situated on land zoned as Objective EE: Enterprise and Employment, "*to provide for enterprise and employment related uses*", under the *South Dublin County Development Plan 2022-2028*. The wider Grange Castle area is characterised by a mixture of land uses including extensive areas of greenfield/agricultural land, residential uses, and industrial uses.

The Media Park's employment and enterprise use means that it requires good access to skilled workers. With regard to enterprise and employment growth, the RSES acknowledges that the population size, varied enterprise base, access and connectivity to national and international markets, available skills, and talent pool of the Dublin SPA, makes it an attractive location for enterprise to locate and operate.

Grange Castle is strategically located c.20km south-west from Dublin Airport which provides transnational connection for employees of the Media Park. The development of Grange Castle offers an opportunity for existing talent in Ireland while also attracting talented artists from abroad.

The Economic Strategy set out in the MASP provides guiding principles for the location of strategic employment areas that include access to:

- suitable locations (depending on the extent to which an enterprise is people or space intensive or subject to environment constraints);
- serviced sites (based on whether an industry is dependent on a particular infrastructure such as energy, water, transport, or communications networks);
- connectivity (including access to international markets that requires proximity to an airport/port);
- skilled labour force (proximity to third level education and lifelong learning).

In relation to arts and culture within the eastern and midland region, RPO 9.26 seeks to "*build on the success and support the clustering of the film and audio-visual sector in the Dublin and Wicklow areas and to support training of film works and crew around the Region, as well as exploiting opportunities for the industry outside of these hubs*".

The large subject site is a sufficient size to accommodate the space intensive uses of the Media Park. In addition to this, use as a Media Park will achieve the site's Enterprise and Employment zoning objective.

The lands do not present any significant environmental sensitivities in terms of statutory protections, visual sensitivity or need for biodiversity protection. The site can therefore be developed without resulting in significant effects to the environment, as outlined in the various chapters within the EIAR.

It is also noteworthy that the land was zoned for enterprise and employment uses in the *South Dublin County Development Plan 2022-2028 which* underwent a Strategic Environmental Assessment (SEA).

Having regard to the above, the proposed development is entirely suitable at this location and therefore alternative locations are not considered to be reasonable options.

4.3.3 Alternative Land Uses

The proposed development has been designed to adhere to the *South Dublin Development Plan 2022-2028* which notes that the subject site is on lands zoned 'EE: Enterprise and Employment'. Lands under this zoning objective are to '*provide for enterprise and employment*' related uses only.

The use classes for zoning objective EE are set out in the Plan and include:

Abattoir, Advertisements and Advertising Structures, Boarding Kennels, Enterprise Centre, Fuel Depot, Heavy Vehicle Park, Home Based Economic Activities, Industry-General, Industry-Light, Industry-Special, Office-Based Industry, Office less than 100 sq.m m, Open Space, Petrol Station, Public Services, Recycling Facility, Refuse Transfer Station, Science and Technology Based Enterprises, Scrap Yard, Service Garage, Shop-Local, Transport Depot, Traveller Accommodation, Warehousing, Wholesale Outlet.

In addition to the above, uses that are open for consideration in this zoning objective include:

Agriculture, Allotments, Car Park, Childcare Facilities, Concrete / Asphalt Plant in or adjacent to a Quarry, Data Centre, Garden Centre, Hotel / Hostel, Industry-Extractive, Motor Sales Outlet, Nightclub, Offices 100 sq.m m-1,000 sq. m, Offices over 1,000 sq.m, Public House, Refuse Landfill / Tip, Restaurant / Café, Retail Warehouse, Social Club, Sports Club / Facility, Stadium, Veterinary Surgery.

The policy objective for the site supports a wide range of employment uses, some of which would pose more significant risks for effects on the environment. The proposed development by comparison, will have limited environmental impact and will include various measures to enhance sustainability including provision of green roofs, rooftop PV, mobility management and energy efficiency measures.

Although the land use of a "media park" or "media campus" is not expressly stated, the Plan states that uses that have not been listed under the land use zoning tables,

> *"will be considered on a case-by-case basis in relation to conformity with the relevant policies, objectives and standards contained within the Plan, particularly in relation to the zoning objective of the subject site and its impact on the development of the County at a strategic and local level".*

The project will provide significant employment opportunities at both construction and operational phases .

Having regard to the above, the proposed development is considered to be plan led and therefore alternative land uses are not considered to be reasonable options.

4.3.4 Alternative Layouts and Designs

The design of the project has been developed in line with the South Dublin Development Plan 2022-2028, while the layout and selection of materials has been approached in such a way as to minimise the environmental impacts in a manner that is most sensitive to the receiving environment The layout runs parallel to Grand Canal pNHA (site code: 002104) which runs along the north of the site. Alternative layouts, aimed at using more of the site area, were considered at early stages (See figures 4.6, 4.7) but were ruled out following consultations with the Planning Authority and in order to protect and enhance the important biodiversity resource offered by the Grand Canal and heritage feature of Gollierstown Bridge by

incorporating a setback area (See figure 4.2). Later iterations incorporated a pedestrian route in the this set back area in line with policy NCBH9 to:

> *'Protect and promote the Grand Canal as a key component of the County's Green Infrastructure and ecosystem services network, and protect and enhance the visual, recreational, environmental, ecological, industrial heritage and amenity value of the Grand Canal, recognising its sensitivities as a proposed Natural Heritage Area with adjacent wetlands and associated habitats.'*

[amended text]

Further discussions with the Planning Authority at FI stage of the planning application determined that the primary objective along the southern bank of the Grand canal is to protect the ecology and biodiversity along the canal. An existing toepath along the northern bank and outside the project boundary, fulfils the objective of providing recreational and amenity value.

The current proposed layout is now set back c. 50 m from the canal (See figure 4.3). This design decision was introduced to adhere to NCB9 Objective 4:

> *'To ensure that development along and adjacent to the Grand Canal protects and incorporates natural heritage features including watercourses, wetlands, grasslands, woodlands, mature trees, hedgerows and ditches and includes an appropriate set-back distance or buffer area from the pNHA boundary to facilitate protected species and biodiversity and a fully functioning Green Infrastructure network.'*

A wetland area and landscaping features were also designed to be incorporated ~~with the walkway in the setback~~ within the buffer area in accordance with NCB9 Objective 4.

[amended text]

The design approach seeks to create an ecologically driven and naturalistic scheme which is considerate of the site context and looks to harmonise the relationship between landscape and the proposed built form.

Furthermore, a primary consideration of the scheme is looking outward from the immediate site boundary, taking from the character of the surrounding landscape, and looking to integrate it into the design.

In doing so factors such a green infrastructure, ecology and biodiversity are closely considered alongside the creation of a scheme that has a strong sense of place and context appropriate aesthetic.

Alternative arrangements of the various buildings were also explored with differing locations for the backlot and proposed parking. The current layout was arrived at as it provides the necessary separation between publicly accessible and back of house areas and ensures an efficient distribution of stage and workshop buildings across the site.

The current layout is also considered optimal in terms of minimising potential for environmental effects. Earlier iterations of the project included for outdoor shooting areas (backlots) in the north eastern corner of the site. This would have potentially had greater impact on the amenity and biodiversity value of the Grand Canal and associated pNHA. The outdoor shooting activities would have had greater visibility from the canal and would have necessitated additional boundary screening measures.

The current proposed layout focuses the taller stage buildings to the perimeter of the scheme with the lower workshop buildings to the centre. The stage buildings have the effect of shielding the internal areas from the surrounding areas.

Figure 4.4: Early iteration of Site Layout Plan (Source: MCA architects 2023)

Figure 4.5: Early iteration of Site Layout Plan (Source: MCA architects 2023).

Figure 4.6: Current proposed site layout (Source: MCA architects 2024).

Massing Principles and Building Heights

As indicated in Figures 4.7 to 4.10 below (extracted from the MCA Architectural Design Statement), alternative approaches to the massing of the development have been considered, taking account of the operational needs of the park, environmental considerations and the policies contained in the *South Dublin Development Plan 2022-2028.*

Building Heights:

The proposed Media Park consists of a range of buildings ranging from single to 3 storey with the most notable buildings in terms of height being the Stage Buildings. The building heights for the Stage buildings respond to specific functional/operational requirements of the movie industry and range from 20.1m to 23.04m AGFL. On site. Each stage building has an adjoining, lower, 9.3m high 2 storey office area which provides a public face, ancillary office support space and a step-down transition, in terms of massing and height, from the larger stage boxes. These office fronted buildings address both north and south site boundaries providing appropriately scaled frontage to the public realm.

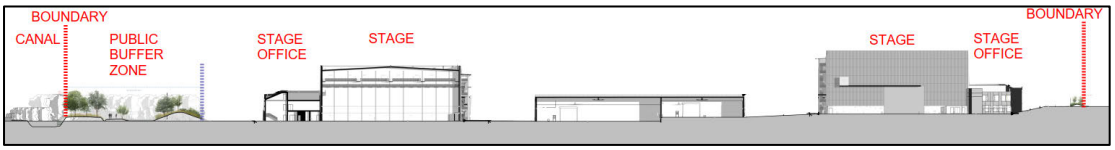


Figure 4.7: North-South cross section through site showing transition of height from Stage building to boundaries (Source MCA Architects).

Figure 4.8 - View from North-East showing the step-down in building heights to address the public amenity buffer zone along the canal (Source MCA Architects).

Figure 4.9: View from South-West showing the step-down in building heights to address the southern boundary. (Source MCA Architects)

The main entrance to the Park opens onto a large external concourse space which is flanked by 2/3 storey buildings to the north, south and west. The building heights are appropriate to clearly define the arrival concourse area, which is the main public facing area of the Park.

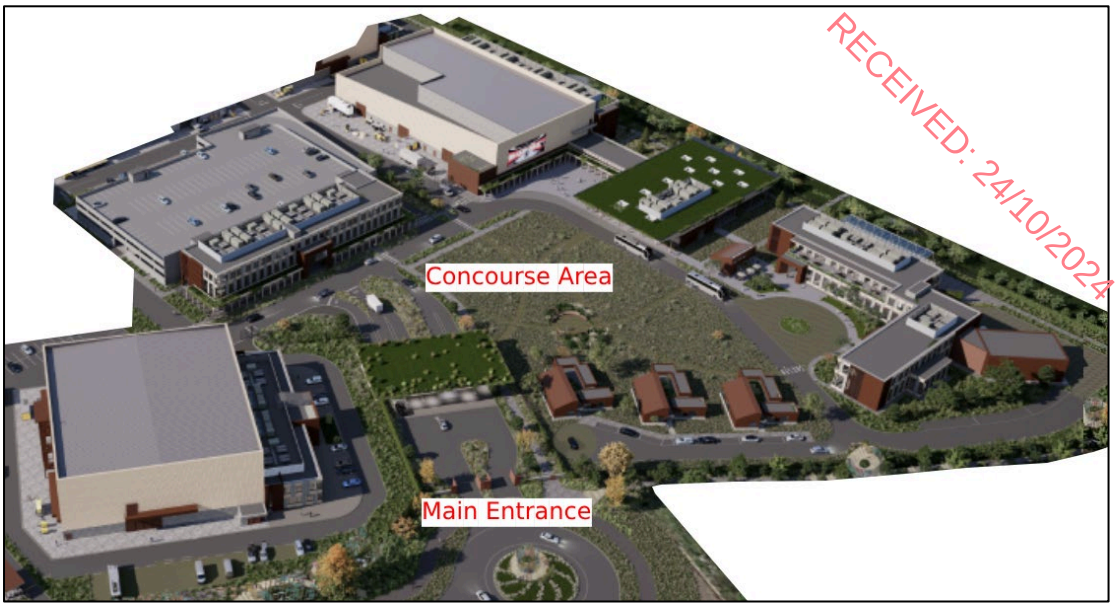


Figure 4.10: View from South-East of buildings defining the main concourse area.

On the approach towards the main eastern entrance the eastern gable of Building 11 (Stages 10+11) is visible. Various alternative finishes and options were explored in order to minimise the visual impact of this elevation from the public road. It is proposed to locate an art piece between this gable elevation and the boundary such that the blank gable is shielded from public view.

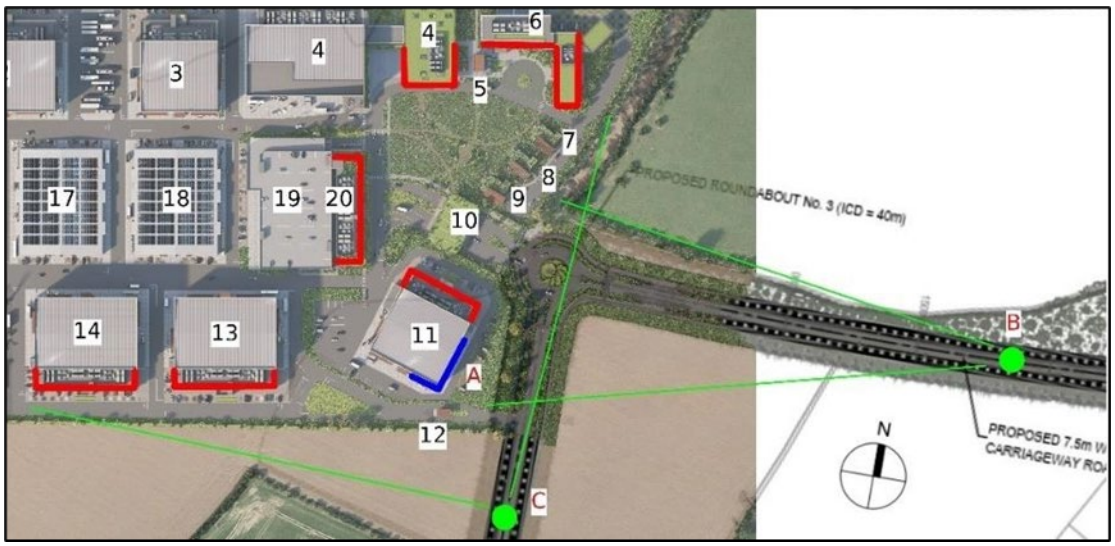


Figure 4.11: Proposed location for Decorative Screen (Blue) to mitigate the scale of eastern gable of Stage 10+11 (Building 11) (Source MCA Architects).

Figure 4.12: View of eastern gable of Stage 10+11 (Building 11) without Decorative Screen. (Source: MCA Architects, 2024).

Figure 4.13: Proposed location for Decorative Screen to mitigate the scale of the eastern gable of Stage 10+11 (Building 11). (Source: MCA Architects, 2024)

Reducing Bulk, Mass, and Scale:

In response to functional requirements of the movie making industry the stage buildings become the larger elements within the scheme. The massing and bulk of these elements has been reduced by employing a 3m high concrete strip around the base of each box to provide a datum which links up with the 2-storey adjoining office and also relates to the pedestrian scale circulation between buildings. The main stage box is clad with a light coloured panelled cladding which breaks down the scale and minimises the visual weight.

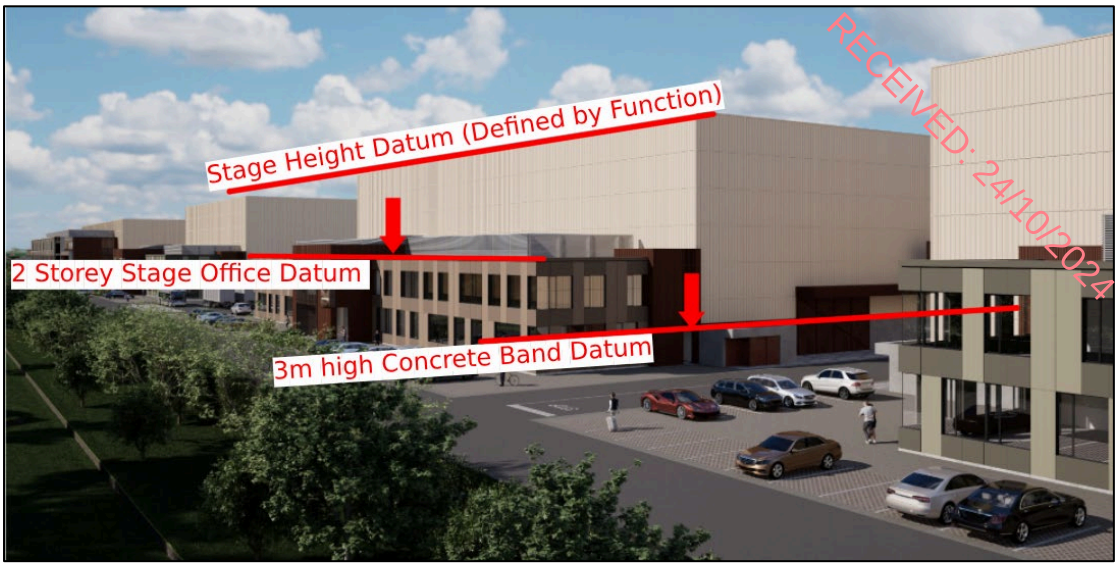


Figure 4.14: View of Stage building showing 3m datum and 2 storey office building breaking down scale of large Stage box. (Source MCA Architects)

Architectural Expression and Finishes

Foley Design and MCA Architects have a vast combined pool of experience in delivering both Film and TV Studio projects. Foley Design Architects have designed similar type high profile media parks in the US such as Pinewood Studios and Brownstone Studios in Georgia along with TV Studios for CNN whilst MCA Architects have designed and delivered TV Studios for TV3 in Dublin. MCA and Foley Design Architects have developed a varied palette of materials which is tailored for each building type, conscious of location, and reflects the quality of such a high-profile development.

Whilst the structure of the overall proposed site layout is heavily indebted to the operational logic of a Media Park, the architectural expression emanates from a search for a suitable visual language for large agricultural scale buildings clustered with smaller scale buildings grouped in a rural landscape. This involved the exploration of a number of alternative layouts before arriving at the current project design.

Stages and Associated Stage Offices (Buildings 01, 02, 03, 11, 13 and 14):

The aim of the design for the Stage buildings is to achieve a number of objectives; To reduce the visual impact that the buildings will have on the neighbourhood and the surrounding area, provide a look, and feel that is welcoming and intuitive to the building users, and to provide a refined architectural expression that will enhance the local area.

The primary form and mass of the Stage Buildings will be clad in high-quality light coloured vertically profiled metal cladding panels, set in stacked horizontal rows against the Dublin sky this finish will allow the buildings to blend in naturally with its surroundings. The pitched metal roof of the Stage is concealed behind a continuous parapet to ensure crisp smart lines. The base horizontal row of the stage box is a 3m high concrete band, consisting of precast concrete panels, which allows the building to relate specifically to the pedestrian scale experience.

Figure 4.15: View of Stage building showing 3m datum and 2 storey office building breaking down scale of large Stage box. (Source MCA Architects).

Figure 4.16: View of "Front of House" Stage Office elevation and the Central Entrance block. (Source MCA Architects).

Two Office façade styles are employed in the Media Park: "Front of House" and "Back of House"[3]. Both types are similar and based on a common patterning of insulated metal panels. The "Back of House" style uses a two-tone patterning utilising both vertical and horizontal bands of colour. This approach is used for all Stage Buildings within the secure "Back of House" area of the Media Park. This patterning provides a further breaking down of the scale of the large Stage boxes. This patterned façade is contained between a central entrance block and 2 bookend stairwells which provide punctuation, entrance/exit points and signage. In order to bring some variation into the rows of Stage buildings along the boundaries it is proposed to alternate between 2 different colour schemes.

The "Front of House" façade style is used by all buildings addressing the main public facing concourse and utilises a similar patterning of coloured panels along with an additional expressed metal framing which gives the facade additional depth and texture.

The entrance portals and book-end stairwells are to be clad in a metal cladding panel with a signature red colour that will be used on all buildings within the Media Park. This use of a signature red colour, along with a common signage style, will be used as a device to thread together buildings within the Park.

[3] See Chapter 3 for additional details on front and back of house areas.

Figure 4.17: View of "Back of House" Stage Office elevation and the Central Entrance block. (Source MCA Architects)

Roof mounted plant, for both Stage and Stage Office buildings, will be located over the Stage Offices only. A continuous aluminium louvred plant screening will be set back from the parapet line of the main building roof by 1.2m. Access to the roof for plant maintenance will be via an internal lift and stair core within the office area The roof will have a perimeter parapet set at a minimum 1.1M height to provide safe access to the entire roof. This parapet will also serve to provide a degree of additional visual screening of the roof plant installations.

Figure 4.18: View of "Back of House" Stage Office elevations along the southern boundary. (Source MCA Architects).

Sensitivity to the surrounding rural landscape is the main inspiration for the appropriate material and colour palette developed by Foley Design and MCA. A succinct range of colours and materials drawing on Irish rural architectural typographies and native fauna and flora will be employed throughout the project. The large Stage buildings along with the Workshop buildings have all employed a "Design for Disassembly" (DfD) philosophy. These are steel framed clad box buildings that lend themselves well to this approach. Design for disassembly (DfD) is an architectural strategy that emphasizes the ease of dismantling and reusing building components at the end of their lifespan, which contributes to reduced waste generation, enhanced material recyclability, and lower energy consumption.

The high-level landscape design concept is based on an understanding of the rural and agricultural nature of the present site and consciously reestablishing this type of "fields" style of landscaping within the proposed Media Park.

The overall concept for the "aesthetic" of the soft landscape is that of a "rewilding" of the Public Amenity area and "Front of House" zone with a "meadow" comprising of tall meadow planting, wildflower meadow, wildflower lawn and woodland trees. Hard landscaping is located mainly in the "Back of House" zone with specific areas of permeable block paving, permeable surfaces, asphalt, and concrete footpaths.

The site is within the aviation safeguarding areas of Casement and Weston Aerodromes. The site is c. 3km north-west of the Casement (Baldonnell) and c. 4km south of Weston Airport.

The Project has been subject to a comprehensive Aeronautical Assessment Report prepared by O'Dwyer & Jones Aviation Planning Consultants which has also influenced various design considerations. To mitigate Bird Strike Hazard, Green Roofs which are proposed on several buildings in the Media Park will all be sedum-planted roofs. In addition, it is intended that mobile cranes (only) will be used during construction, and care will be taken to ensure that all cranes used will operate below Weston's "Conical Surface".

4.3.5 Construction Methods

The buildings are designed for most of the production to occur in large sound attenuated studios organized with "shooting lane" for the occasional exterior filming, and exterior "back lot". The stages, with sound attenuation of NIC 14 – 20 metres for walls and roof assemblies provide stage areas at a height of 14 to 20 metres. While this provides ideal conditions for indoor filming, the stages also effectively provide a 14-20m-tall buffer wall of sound attenuated buildings around the perimeter of the site separating the exterior shooting areas to the interior shooting corridors protected by the height and mass of the stages and other buildings.

The large Stage buildings along with the Workshop buildings have all employed a "Design for Disassembly" (DfD) philosophy. These are steel framed clad box buildings that lend themselves well to this approach. Design for disassembly (DfD) is an architectural strategy that emphasizes the ease of dismantling and reusing building components at the end of their lifespan, which contributes to reduced waste generation, enhanced material recyclability, and lower energy consumption.

4.3.6 Transportation of People and Goods

Government guidelines indicate a hierarchy of travel modes with walking being the highest and most sustainable form of travel.

The aim of the internal road layout and access strategy is the creation of a workplace that is connected and provides a walkable and cyclable network, which facilitates and encourages both sustainable travel to the site and permeability within site.

A Mobility Management plan (MMP) has been prepared in relation to the project by Barret Mahony Consulting Engineers. The MMP aims to:

- Demonstrate the sustainability in transportation terms of visitors and staff utilising non-car based forms of travel by demonstrating the transport infrastructure in place at the site with regards to, walking, cycling and public bus services;
- Identify both physical elements and strategies to be incorporated within the proposed new development which will facilitate and create incentives for both staff of and visitors to the development, to use the available modes of public transport, along with walking and cycling in preference over private car use; and
- Provide a mobility plan framework to help ensure projected modal splits for the development are maintained if not improved, with the appointment of a travel plan coordinator to oversee the process.

Existing and proposed public transport and cycling infrastructure serving the subject site is summarised as follows:

- There are presently 2 No. main bus routes servicing Grange Castle Business Park, the 13 and 68.
- Both routes are accessible from the R120, located approximately 1.25km east of the site of the proposed development.
- The bus connects plan resulted in the introduction in 2023 of the W4 Orbital Route, running from The Square in Tallaght to Blanchardstown Shopping Centre every 15 minutes during the morning weekday peak hour.
- The Adamstown stop on the Kildare Rail Commuter line is a 2.5 km walk from the site of the proposed development.
- A secondary cycling route along the R120 is planned, running north-south before connected up to the Nangor Road and onto the existing route along the R136.
- The Camac River Greenway branch from the Grand Canal through Clondalkin Village to Corkagh Park and City West is also proposed.

The MMP proposed a number of actions in the short and medium terms to promote the use of alternative and more sustainable modes of travel at the GCMP. These are summarised in Figures 4.19 – 4.22 below.

ACTIONS RELATING TO MAXIMISING WALKING	TIMESCALE	
	SHORT-TERM (WITHIN 1-YR)	MEDIUM TERMS (2-5 YRS)
Generate a walking accessibility sheet for the development site	X	-
Organise a 'walk to the movie set' day on a particular day of the week	-	X
Incentivise the use of travel diaries by staff at the development site	-	X
Display local walking maps in communal areas and on the website of routes from hotels and residential areas	X	-
Highlight the direct savings and health and wellbeing benefits of walking	X	-
Generate a walking accessibility sheet for the development site	X	-

Figure 4.19: Actions relating to maximising walking (Source: Mobility Management PLan prpared by Barret Mahony Consulting Enginers.

ACTIONS RELATING TO MAXIMISING CYCLING	TIMESCALE	
	SHORT-TERM (WITHIN 1-YR)	MEDIUM TERMS (2-5 YRS)
Organise on-site cycle hire provision for use by staff at development site	X	-
Organise on-site cycle maintenance and repair facilities at development site	X	-
Provide and publicise cycle parking for staff and visitors at the development site	X	-
Organise a Bike Week for staff at the development site, inviting local bike suppliers to boost sales	X	
Display local cycling maps in communal areas and on the website	X	-
Highlight the direct savings and health and wellbeing benefits of cycling	X	-
Explore the possibility of establishing a Bike Users Group for staff	-	X
Undertake a route audit and implement a review program of external routes to essential off-site destinations	-	X
Display audited routes on local cycling maps in communal areas and online	-	X

Figure 4.20: Actions relating to maximising cycling (Source: Mobility Management Plan prepared by Barret Mahony Consulting Engineers.

ACTIONS RELATING TO MAXIMISING PUBLIC TRANSPORT USAGE	TIMESCALE	
	SHORT-TERM (WITHIN 1-YR)	MEDIUM TERMS (2-5 YRS)
Provide timetables and maps of local bus and rail routes and the nearest bus stops	X	-
Promotion of the National Public Transport Journey Planner for travel by bus and rail.	X	-
Promotion of the availability of Real Time Information	X	-
Publicise the potential for staff through their employers to purchase both annual and monthly TaxSaver tickets	X	
Develop a 'Public Transport' Accessibility Sheet for the site on website	X	
Investigate the potential benefits of establishing a Public Transport Users Group for staff	-	X

Figure 4.21: Actions relating to maximising Public Transport Usage (Source: Mobility Management Plan prepared by Barret Mahony Consulting Engineers.

ACTIONS RELATING TO MAXIMISING CAR SHARING	TIMESCALE	
	SHORT-TERM (WITHIN 1-YR)	MEDIUM TERMS (2-5 YRS)
Promote and encourage informal arrangements between staff for 'shared' travel to work practices.	X	-
Allocate a limited number of car-sharing parking spaces. Monitor usage and increase number as appropriate	-	X
Offer a Guaranteed Ride Home in emergencies – where a lift is unavailable for unforeseen reasons. In practice this is very rarely used by employees, but is a good tool to address fears about getting home in an emergency and promotes use of car share and public transport.	-	X

Figure 4.22: Actions relating to maximising Car Sharing (Source: Mobility Management Plan prepared by Barret Mahony Consulting Engineers.

4.4.7 Energy Efficiency and Sustainability

The project is accompanied by an Energy Statement prepared by Homan O'Brien. Having investigated the 'opportunities' offered by the site, by harnessing building fabric enhancement, and by using all possible waste heat sources from the building and from the locality beyond the immediate site, a shortlist of possible heat systems should be tested against the constraints identified in the below Heat Decision Tree. For net zero carbon, systems fully dependant on natural gas and other fossil fuels are expected to be unsuitable.

The Heat Decision Tree below was utilized in the selection of appropriate heat generation technologies and highlights the broad range of issues that the heating system selection must address, including such non-carbon issues as avoiding higher energy bills for those least able to pay. Similarly, air quality issues, particularly in urban areas, are likely to preclude using predominantly combustion processes.

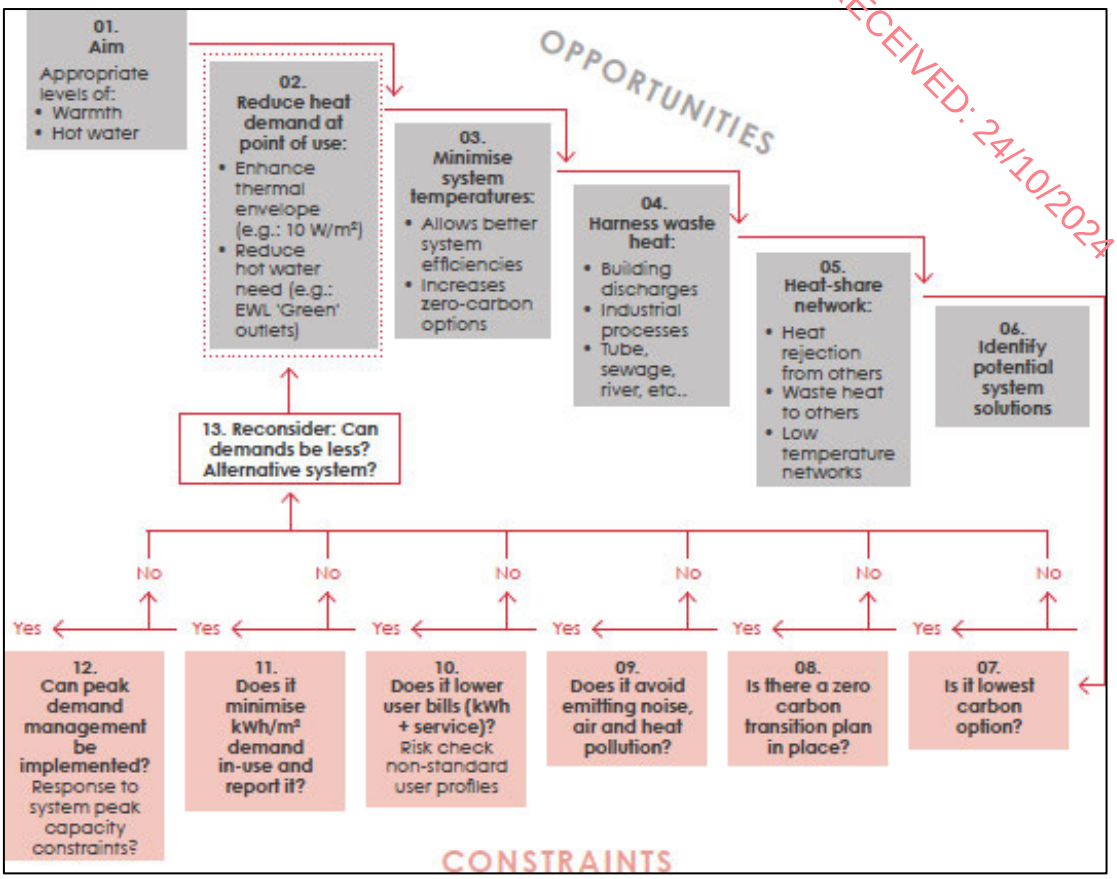


Figure 4.23: Heat Decision Tree (Source: extracted from Energy Statement prepared by Homan O'Brien, 2024)

Several renewable and low carbon technologies were considered during the preliminary design process. Technical feasibility studies were conducted in relation to the following:

Combined Heat and Power

The inclusion of combined heat and power plant in any building scheme must be given very careful consideration due to the large capital costs involved and the potential risk of higher running costs than would be incurred if separate heating plant and grid electricity were used.

As the grid carbon intensity decreases below approximately 300 gCO2/kWh, gas CHP leads to a net increase in carbon emissions as compared with heating using grid electricity / heat pumps. Given that the plant will operate for at least 20 years, it is important to account for the likely development of the grid carbon intensity over the lifetime of the plant. As noted above, Ireland's electricity grid is on a significant trend of decarbonisation over the period to 2030 and beyond, due to increased use of renewable sources (such as wind and bioenergy), meaning that a gas CHP plant installed in 2020 may lead to a net increase in carbon emissions for its lifetime, as such CHP will not be included in this development.

Heat Pump Technology

The general principal of heat pump technology is the use of electrical energy to drive a refrigerant cycle capable of extracting heat energy from one medium at one temperature and

delivering this heat energy to a second medium at the desired temperature. The basic thermodynamic cycle involved is reversible which allows the heat pump to be used for heating or cooling. The efficiency of any heat pump system is measured by its coefficient of performance (CoP). This is a comparison between the electrical energy required to run the heat pump and the useful heat output of the heat pump, e.g., a heat pump requiring 1kW of electrical power in order to deliver 3kW of heat energy has a CoP of 3.0.

This operating principle can be applied to different situations, making use of the most readily available heat source on any given site. The most common types are:

- Ground Source
- Water Source
- Air Source

Water source heat pumps generally offer the highest CoP however they can be expensive to install and maintain and must have a source of water from a well, lake or river.

An initial technical and financial analysis of the technology has shown that they will not be suitable for use within the building. There are also concerns regarding the potential practical difficulties and programming implications of incorporating vertical boreholes on this specific site.

On a financial level, the significant increase in capital costs associated with the heat pumps and the associated boreholes is not considered to be justified by the potential savings that would be achieved.

Air source heat pump technology is a viable solution for this project. Locations for external condensers / central air to water heat pump have been located at ground level. Heat pump technology being electrically driven is considered to be a compatible technology with a future net zero carbon considering the projected carbon intensity of the national electricity grid.

Heat Pump technology will be included in the development.

Bio-Mass Boilers

The major drawback of a biomass heating system is the inconvenience associated with supply and storage of fuel, the increased maintenance of the boiler plant when compared to gas or oil-fired systems and the increased capital costs. The advantage of the system, however, is the practically zero net carbon emissions associated with the combustion of wood products and the marginal cost savings which can be achieved.

When natural gas is available as a potential fuel source it is always very difficult to make a sound financial argument for the inclusion of biomass heating systems. The unit cost of wood pellet or indeed wood chip (although slightly cheaper than pellet) is generally only marginally less than the unit of cost of natural gas (less than 10%).

This marginal saving is typically offset by the increase in maintenance costs and is never sufficient to offset the increase in capital costs associated with this installation of the biomass systems. Biomass technology will not be included in the development

Solar Water Heating

Solar thermal collection uses of the sun's energy and transfers the heat generated to the building's domestic hot water supply. Two distinct types of collection panel are available. The evacuated tube array and the flat panel collector. The evacuated tube array is the more effective of the two as it is capable of generating approximately twice as much hot water from the same surface area of flat panel.

Solar thermal collection can deliver up to 50% of the total annual hot water load of a Building. Solar Water Heating technology will not be included in the development.

Photovoltaic (PV) Panels

PV Panels are capable of generating direct current electricity from the sun's energy, which can then be converted to alternating current and used within the building. They are generally a "maintenance free" technology as there are no moving parts. They also typically have a 20-year manufacturer's guarantee on electrical output and can be expected to operate effectively for 30 years or more.

Capital costs have also reduced significantly in recent years due to worldwide increase in production levels, particular from China. They are adaptable and scalable in that the amount installed can be selected to suit the budget available. A PV solar array will be included to produce 1300kW peak power.

Wind Turbines

Due to the urban nature of the site wind energy has not been considered.

Rainwater Harvesting & Grey Water Collection

There are two distinct methods which can be used to reduce the consumption of potable water supplies within buildings; rainwater harvesting and grey water collection.

Rainwater harvesting is the practice of collecting precipitation which falls on the roof of the building and storing this water for use within the building. Grey water collection involves the collection of wastewater from wash hand basins or laundry uses within the building.

The water collected by either of the methods described above can be stored and used within the building, most commonly in WC's or externally for irrigation of green spaces.

It is proposed that rainwater collection will be the favoured over grey water recycling. Grey water systems can prove technically difficult and also presents more risks in terms of water borne contaminants in storage tanks.

Rainwater collection and harvesting will be used for toilet and urinal flush in the building only.

District Heating and Waste Heat Opportunity

There is no District Heating or Waste Heat Generation opportunities at this site. This was agreed with South Dublin County Council in advance of the Planning Application.

TECHNOLOGY EXAMINED	PROPOSED USE IN GCMP PROJECT
COMBINED HEAT AND POWER	No
HEAT PUMP TECHNOLOGY	Yes
BIOMASS	No
SOLAR WATER HEATING	No
PV PANELS	Yes
WIN TURBINES	No
RAINWATER HARVESTING	Yes
GREY WATER COLLECTION	No
DISTRICT HEATING AND WASTE HEAT	No

Table 4.1: Summary of Energy and Sustainability Alternatives Explored.

4.4.8 Alternative Processes

The EIA Guidelines states that within each design solution there can be a number of different options as to how the processes or activities of the development can be carried out.

The main alternative to studio based film productions is "on location" filming. Shooting productions on location involves significant additional logistical overheads in terms of transportation of cast, crew, and equipment. Owing to advances in video screen and computer generated technologies, it is possible to carry out an increasing number of productions within a dedicated studio environment such as that proposed at GCMP. This is a much more cost effective manner in which to produce film and television and has a significantly reduced impact on the environment in terms of carbon emissions. This is borne out in the increased demand for such facilities both in Ireland and internationally.

4.4.9 Alternative Mitigation Measures

The mitigation measures which have been proposed in the various chapters of the EIAR by the specialist competent Consultants are considered appropriate to the location, nature and extent of the project and its potential impacts. Alternative mitigation measures for specific impacts have been proposed in a number of areas.

4.5 Conclusion

Having examined reasonable alternative options and having regard to the relative environmental impact of these options, it is considered that the proposed development is the preferred option in terms of land use, layout, and design for the sustainable development of the subject site.

5.0 POPULATION AND HUMAN HEALTH

5.1 Introduction

This chapter of the Environmental Impact Assessment Report has been prepared by Gavin Lawlor of Tom Phillips + Associates and examines the likely impacts of the proposed development at Grange Castle, on population and human health.

Gavin Lawlor is a Director of Tom Phillips + Associates. He holds a BA (Social Science) from University College Dublin, where he graduated in 1995 with a Masters in Regional and Urban Planning (MRUP) Degree and is a Full Member of the Irish Planning Institute (IPI) with 25 years' experience.

The scope of the work includes an evaluation of the likely direct and indirect effects on population and human health (the impacts on human health have been assessed, by proxy, through the other chapters of this EIAR that are likely to impact on human health).

5.2 Project Description

Lens Media Limited is seeking permission for the development of a Media Park at Grange Castle, Dublin 22. The proposed development site is located c.2km east of Grange Castle Business Park and c.700m north of Peamount Hospital. The proposed development comprises the development of a Media Park at a site located in the townlands of Coolscudden, Brownstown and Milltown, west of Grange Castle Business Park, Newcastle, County Dublin. The site is bounded by the Grand Canal to the north. The proposed development is described in detail in Chapter 3 of the EIAR.

Figure 5.1: Indicative Site Location, Aerial view of the subject site in Grange Castle with indicative planning application boundary in red (Google Earth, 2023).

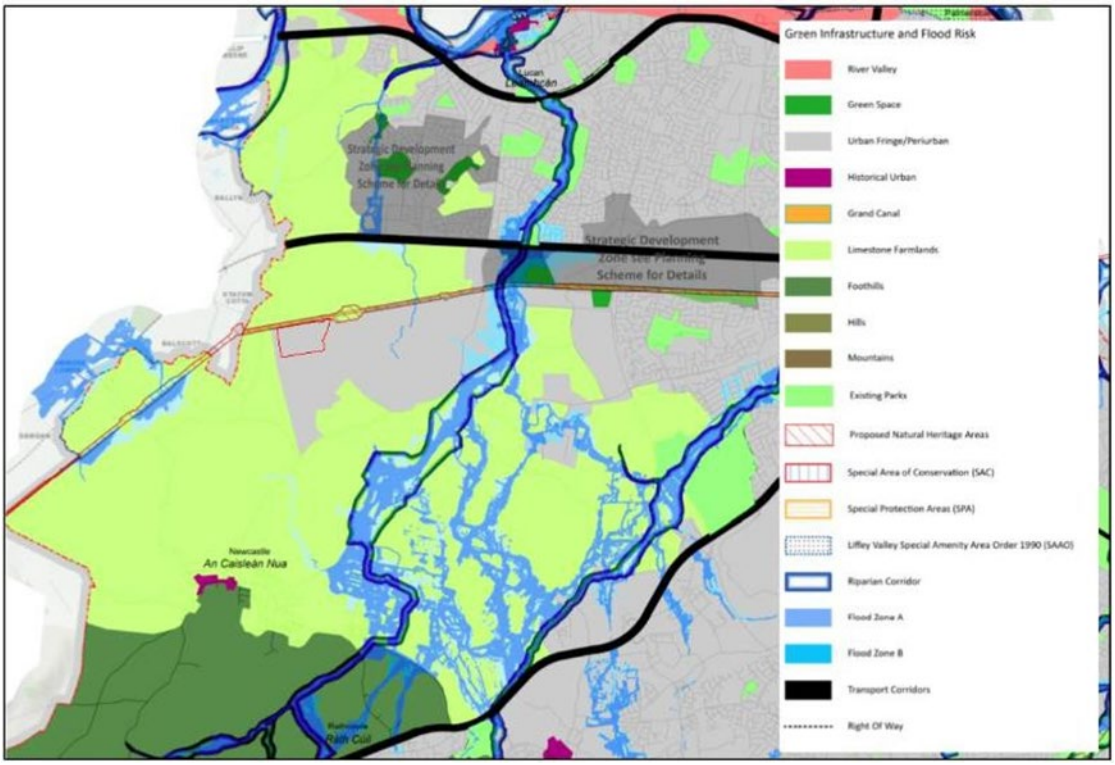


Figure 5.2: Indicative site outlined in red (Map 13 South Dublin County Council Development Plan 2022-2028, cropped and annotated by TPA 2023).

5.3 Methodology

The Environmental Impact Assessment Reports of Projects – Guidance on the Preparation of the Environmental Impact Assessment Report (2017 European Commission) states the following in relation to Population and Human Health:

> *"Human health is a very broad factor that would be highly Project dependent. The notion of human health should be considered in the context of other factors in Article 3(1) of the EIA Directive and thus environmentally related health issues (such as health effects caused by the release of toxic substances to the environment, health risks arising from major hazards associated with the Project, effects caused by changes in disease vectors caused by the Project, changes in living conditions, effects on vulnerable groups, exposure to traffic noise or air pollutants) are obvious aspects to study. In addition, these would concern the commissioning, operation, and decommissioning of a Project in relation to workers on the Project and surrounding population".*

In addition, the EU Commissions SEA Implementation Guidance from 2003 does give an indication of how 'human health' should be considered in terms of environmental assessment. It states that "the notion of human health should be considered in the context of the other issues mentioned" (in the list of factors to be identified, described, and assessed) and thus environmentally related health issues such as exposure to traffic noise or air pollutants in other sections of this EIAR.

The Department of Environment, Community and Local Government set out an appropriate approach to reflect the requirements of the 2014 EIA Directive in relation to Population and Human Health in their Key Issues Consultation Paper. Firstly, the paper states that '*it is considered that the change from "human beings" to "population and human health" in relation to EIA is primarily clarificatory and to ensure consistency with, in particular, the Strategic Environmental Assessment (SEA) Directive'.*

The Guidelines on the information to be contained in environmental impact assessment reports, published by the EPA states that '*in an EIAR, the assessment of impacts on population & human health should refer to the assessments of those factors under which human health effects might occur, as addressed elsewhere in the EIAR e.g., under the environmental factors of air, water, soil etc'.*

The potential impacts on human health primarily arise from many factors including traffic, noise and air quality impacts and visual impacts among others. These issues are addressed in specific chapters within the EIAR. This chapter addresses other potential impacts on population and human health which have not been covered in other chapters. Any assessment of population and human health will necessarily be context and project specific, although there are certain overarching human health considerations that should be considered for any EIA project.

The following guidelines have informed the preparation of this chapter:

- Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment (European Union, 2017);
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessments (Department of Housing, Planning and Local Government – August 2018);
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out

Environmental Impact Assessment (DHPLG, 2018).
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, May 2022);
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2002);

The preparation of this chapter was also informed by desktop studies of relevant policy documents and data sources including:

- Central Statistics Office (2023) – *Census 2022, 2016*
- Central Statistics Office (2023) – *CSO PxStat*
- Department of Health (2022) – Health in Ireland, 2022

A description of the receiving environment provides a baseline from which environmental impact can be measured. In the context of Population and Human Health the baseline consists of current population demographics, land use and the available facilities within the zone of influence of development.

The Zone of Influence (ZOI) of a development depends upon the development scale, the sensitivity of the receiving environment and the type of impact. The potential zone of influence for population and human health varies from factor to factor. Due to this, the population and demographics of this chapter will be considered at different scales as set out below. The baseline consists of current population demographics, land use and zoning and the available facilities within the zone of influence (ZOI) of the development.

In order to assess the likely significant impacts of the proposed development on population and human health, an analysis of recent Census data was undertaken relating to the economic, demographic, and social characteristics of the study area. For the purpose of this demographic analysis, the study area comprises 2 no. district enumeration areas as identified by the Central Statistics Office (CSO) of relevance to the proposed development, as follows:

1. The Electoral Divisions (ED) of Newcastle (1), Donaghcumper(2), Lucan-St Helens (3) and Clondalkin-Dunawley (4). Where 50% or more of the ED was encompassed by a 5km radius from the subject site, they were included in the combined ED.
2. The larger South Dublin Local Authority administrative boundary.

These areas are identified in Figures 5.3 and 5.4 and provide demographic information for the local and regional populations which are likely to be impacted by the proposed development. Where relevant, information on national averages in each demographic area is also included.

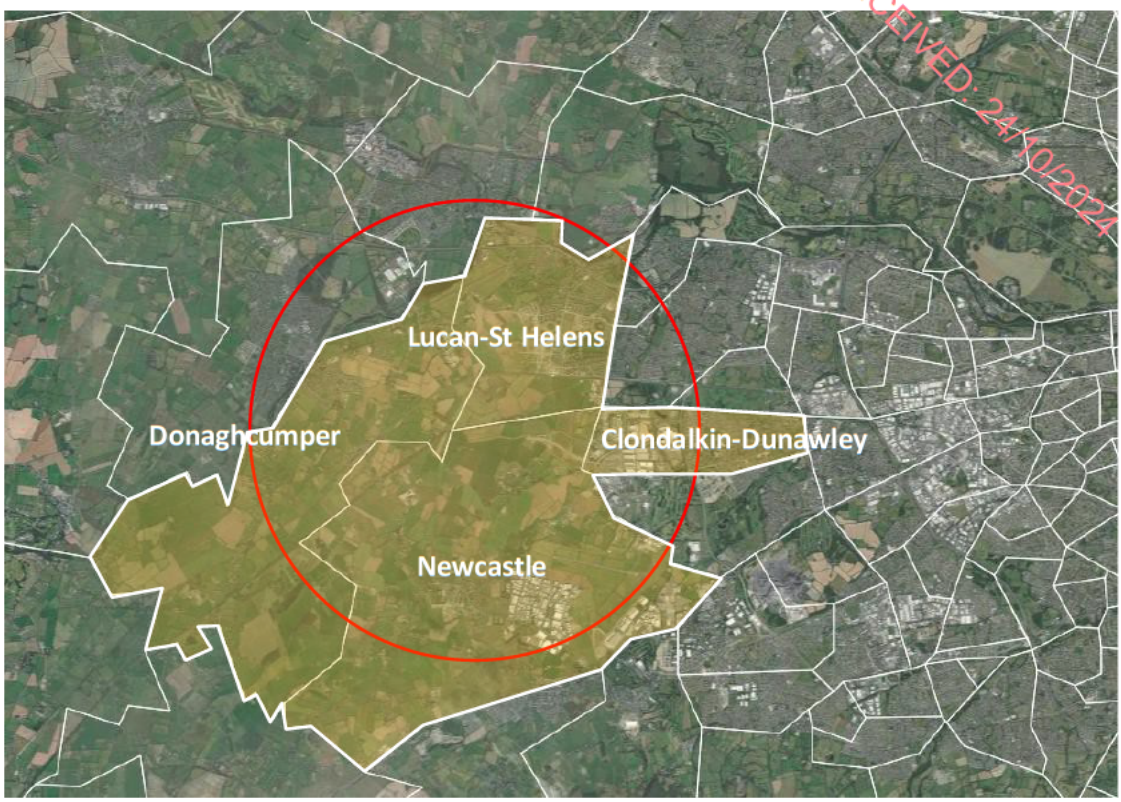


Figure 5.3: Extent of Electoral Divisions within 5km radius of the site (Central Statistics Office – Small Area Population Statistics (SAPS) Map2022)

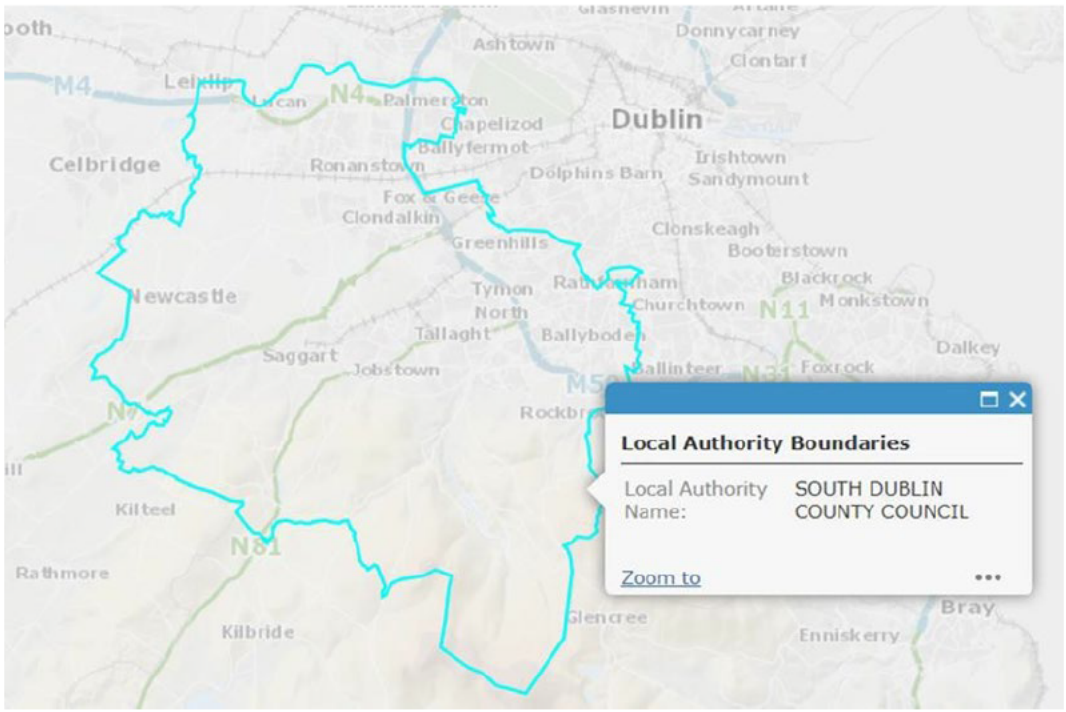


Figure 5.4: Extent of South Dublin Administrative Area (MyPlan.ie).

5.4 Key Factors

5.4.1 Social Patterns and Population Trends

Population demographics for each of the study areas were obtained from the Central Statistics Office Small Area Population Statistics for this assessment. Table 5.1 indicates that the population of Newcastle grew by 30.4% in the period between 2016 and 2022. This rate of growth is higher than the growth experienced in both South Dublin LA and the State, which grew by 7.4% and 8.1% respectively.

Study Area	2016	2022	% Change
ED - Newcastle	4,257	5,552	30.4%
Combined ED's	32,495	40,307	19.4%
LA – South Dublin	278,767	301,075	7.4%
State - Ireland	4,761,865	5,149,139	8.1%

Table 5.1: Population Trends (CSO 2016, 2022).

A comparison of the age profile of Newcastle and the larger administrative area of South Dublin is set out in Table 5.2 below. The age profile is similar. It is noted that the primary population within Newcastle (15.6%) is slightly higher than that of South Dublin (12%). The young adult population in Newcastle (5.3%) is slightly lower than South Dublin (7.5%).

Age Cohorts	Newcastle		Combined ED		South Dublin	
Population 2022	Population	%Total	Population	%Total	Population	% Total
Preschool (0-4)	409	7.4%	2,923	7.3%	18,677	6.2%
Primary (5-12)	866	15.6%	5,354	13.3%	36,054	12%
Secondary (13-18)	441	7.9%	3,426	8.5%	25,696	8.5%
Young Adults (19-24)	292	5.3%	2,744	6.8%	22,492	7.5%
Adults (25-64)	2,860	51.5%	21,453	53.2%	158,322	52.6%
Older Adults (65+)	684	12.3%	4,407	10.9%	39,834	13.2%
Total	5,552	100%	40,307	100%	301,075	100%

Table 5.2: Comparison of Age Profiles (CSO 2022).

5.4.2 Land Use and Settlement Patterns

The subject site is currently vacant, but a variety of land uses are present in the immediate vicinity. Chapter 2 of the EIAR describes in greater detail the land uses within the site context area. Grange Castle is characterised by a number large-scale manufacturing and data centre developments, including Pfizer Ireland Pharmaceuticals, Microsoft, and Takeda among others. There are a number of established residential neighbourhoods lying to the east of the neighbouring Grange Castle Business Park.

According to the 2022 Census, the total permanent private housing stock for Newcastle was 1,919 no. units. The vacancy rate for this area at 5% was higher than the vacancy rate of South Dublin (3.7%), but lower than the State (7.8%).

Year	2016			2022		
Study Area	Total Stock[1]	Vacant Stock[2]	Vacancy Rate	Total Stock[1]	Vacant Stock[2]	Vacancy Rate
ED Newcastle	1,527	84	5.5%	1,919	88	5%
Combined ED	11,440	521	4.6%	13,944	736	5.3%
LA - South Dublin	99,026	3,947	4.0%	106,074	3,897	3.67%
State - Ireland	2,003,645	183,312	9.1%	2,124,590	166,752	7.8%

Table 5.3: Change in Total Permanent Housing Stock (Census 2016, 2022).

The Development Plan states that the subject site's zoning objective is EE: Enterprise and Employment, which is defined as follows:

"To provide for enterprise and employment related uses".

The overarching aim of South Dublin County Council in relation to economic development and employment is 'to support sustainable enterprise and employment in South Dublin County recognising the County's role in the Dublin region as a driver of economic growth'. The proposed Media Park intends to provide a world-class production facility, capable of delivering large scale film and tv productions.

In terms of the local and wider economy, the development of the Media Park would result in extensive job creation (up to c. 2,000 between construction and operation) and associated economic benefits, the potential to create educational and apprenticeship programmes, and a boost in future tourism to the area associated with productions. In addition, Foreign and Direct Investment (FDI) would become a significant contributor to the local and wider economy.

It is envisaged that c. 1265 No. staff will be employed on site when the Park is fully constructed and operating at full capacity, with a much smaller number (c. 70 No.) on site during the night shift. Estimated numbers of onsite staff are outlined in Table 5.12 below.

5.4.3 Economic and Employment Activity

Employment Rates

Nationally, The Economic and Social Research Institute (ESRI) Quarterly Economic Commentary Autumn 20233 noted that unemployment, which had averaged at 4.3 per cent in the first quarter of last year, is set to finish the year at 4.8 per cent in the final quarter.

At the local level, unemployed persons comprised c. 4.5.% of the population aged 15+ years within the Combined ED Study area in 2022 (see Table below).

Economic Status	Newcastle	% Total	Combined ED	% Total	Ireland	% Total
At work	2,549	62.3%	18,695	60.7%	2,320,297	56.1%
Looking for first regular job	36	0.9%	278	0.9%	34,526	0.8%
Unemployed (short and long term)	149	3.6%	1,391	4.5%	176,276	4.3%
Student	376	9.2%	3,267	10.6%	459,275	11.1%
Looking after home/family	255	6.2%	2,062	6.8%	272,318	6.6%
Retired	525	12.9%	3,669	11.9%	657,790	15.9%
Unable to work	175	4.3%	1,232	4.0%	189,308	4.6%
Other	28	0.7%	184	0.6%	27,062	0.7%
Total	4,093	100%	30,778	100%	4,136,852	100%

Table 5.4: Socio-Economic Status of Population Aged 15+ (CSO, 2022).

The CSO Live Register is a monthly measurement of the numbers of people (with some exceptions) registering for Jobseekers Benefit (JB) or Jobseekers Allowance (JA) or for various other statutory entitlements at local offices of the Department of Employment Affairs and Social Protection (DEASP). This data source, whilst not an unemployment register, can provide a general indication of recent employment trends and economic activity in the local area. Live Register figures are available at a national, county, or local level, with respect to the jurisdiction of DEASP welfare offices.

The national live register figures and the figures for Ninth Lock Road, Dublin 22, which is the office responsible for administering welfare services for Dublin 22 from July 2023 to October 2023 are set out below per thousand units.

Study Area	10/2023	09/2023	08/2023	07/2023
DEASP D22 - Clondalkin	2,923	2,994	3,184	3,261
Dublin	42,160	43,115	45,105	46,686
State	169,933	174,150	186,396	195,095

Table 5.5: Persons on the Live Register by Month and Area (CSO 2023).

Deprivation Index

Regarding the socio-economic status of local residents, the Pobal Deprivation Index (2022) utilises CSO statistics to analyse areas with high levels of affluence or disadvantage throughout the country by combining three dimensions of relative affluence and deprivation including the demographic profile, social class composition and labour market situation of each area.

The Newcastle Electoral Division (including the subject site at Grange Castle) was identified as a 'marginally above average area' in 2016 at 4.19 and remained as a 'marginally above average area' in 2022 at 2.39 by Pobal.

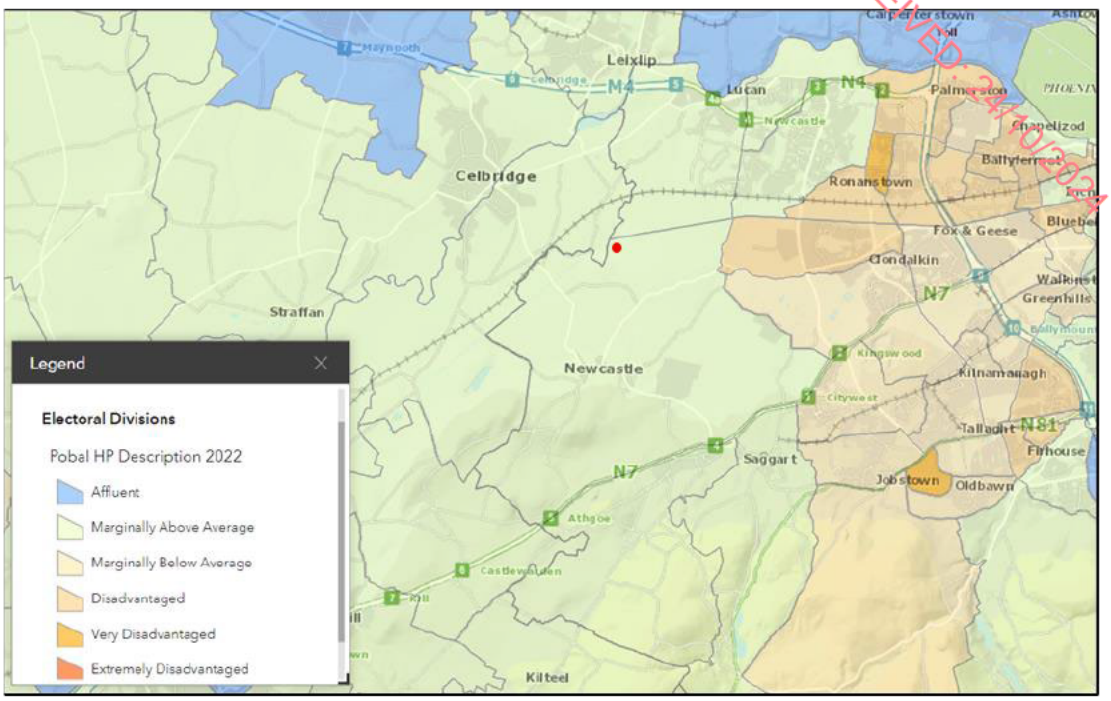


Figure 5.5: Map showing 2022 deprivation index rates by Electoral District. Location of proposed development indicated by red point. (Source: Pobal 2022).

Area Definition	2016	2022
Newcastle ED	4.19 – Margin Above Avg.	2.39 – Margin Above Avg
Donaghcumper ED	10.00 – Affluent	7.07 – Margin Above Avg.
Lucan-St Helens ED	7.41 – Margin Above Avg.	8.53 – Margin Above Avg.
Clondalkin-Dunawley ED	-9.45– Margin Below Avg.	-12.15 – Disadvantaged
Co. Dublin	4.12 – Margin Above Avg.	2.69 – Margin Above Avg.

Table 5.6: Deprivation Indices (Pobal 2022, based on CSO 2016, 2022).

Commuter Patterns

A total of 2,279 no. commuters were recorded as resident within the Newcastle ED Area in 2022.

Figures in relation to commuting as collected in Census 2022 were released by CSO on 5th December 2023. A total of 747,961 people nationally reported working from home at least 1 day per week in 2022. This represents 32% of the workforce. The breakdown of commuting patterns nationally is outlined in table 5.9a below.

Mode Of Transport	No. of workers	% workers
Car	1,280,000	63
On Foot / Bicycle	240,000	12
Public Transport	180,000	9

Table 5.7: Commuting Patterns of workers nationally, 2022 (CSO, 2023).

Within the Combined ED Area, the majority of residents travel to work, school, college, or childcare using private car (50.4%) as a driver or passenger, followed by those travelling by bus (13.6%) and by those who walk (13%). Figures for the rest of South Dublin also indicated a

lower number of car users (48.4%), followed by pedestrians (15.1%) and bus/coach users (12.4%).

Transport Mode	ED - Newcastle		Combined ED		LA – South Dublin	
	No. Persons	% Mode Share	No. Persons	% Mode Share	No. Persons	% Mode Share
On foot	497	11.9%	3,877	13%	32,675	15.1%
Bicycle	63	1.5%	769	2.6%	8,503	3.9%
Bus, minibus, or coach	421	10.1%	4,061	13.6%	26,778	12.4%
Train, DART, LUAS	77	1.8%	836	2.8%	5,311	2.5%
Motorcycle or scooter	12	0.3%	128	0.4%	1,086	0.5%
Car driver	1,544	37%	10,027	33.6%	71,037	33%
Car passenger	771	18.5%	5,005	16.8%	33,297	15.4%
Van	168	4.0%	865	2.9%	6,489	3.0%
Other (incl. lorry)	16	0.4%	57	0.2%	415	0.2%
Work mainly at or from home	267	6.4%	2,044	6.8%	14,492	6.7%
Not stated	341	8.2%	2,204	7.4%	15,762	7.3%
Total	**4,177**	**100%**	**29,873**	**100%**	**215,845**	**100%**

Table 5.8: Means of Travel for Population Usually Resident in ED and LA (CSO, 2022).

5.4.4 Human Health

The Department of Health's latest policy report Health in Ireland: Key Trends 2022 provides statistical analysis on health and healthcare in Ireland over the last ten years, and deals specifically with issues including life expectancy, mortality, and other health indicators within the country.

These key factors which contribute to population health are discussed in relation to the EU27 average below. Ireland was performing at pace or better than the rest of the EU27 in the majority of these factors (incl. stroke, suicide, and treatable death rates), but held a significantly higher 'Self-Perceived Health Status' than anywhere else in the European cohort.

Life Expectancy

Life expectancy at present, stands at 84 years for women and 81 years for men. These figures are higher than the average expectancy estimates of their EU counterparts, as shown in Figure 5.4 and 5.5 below.

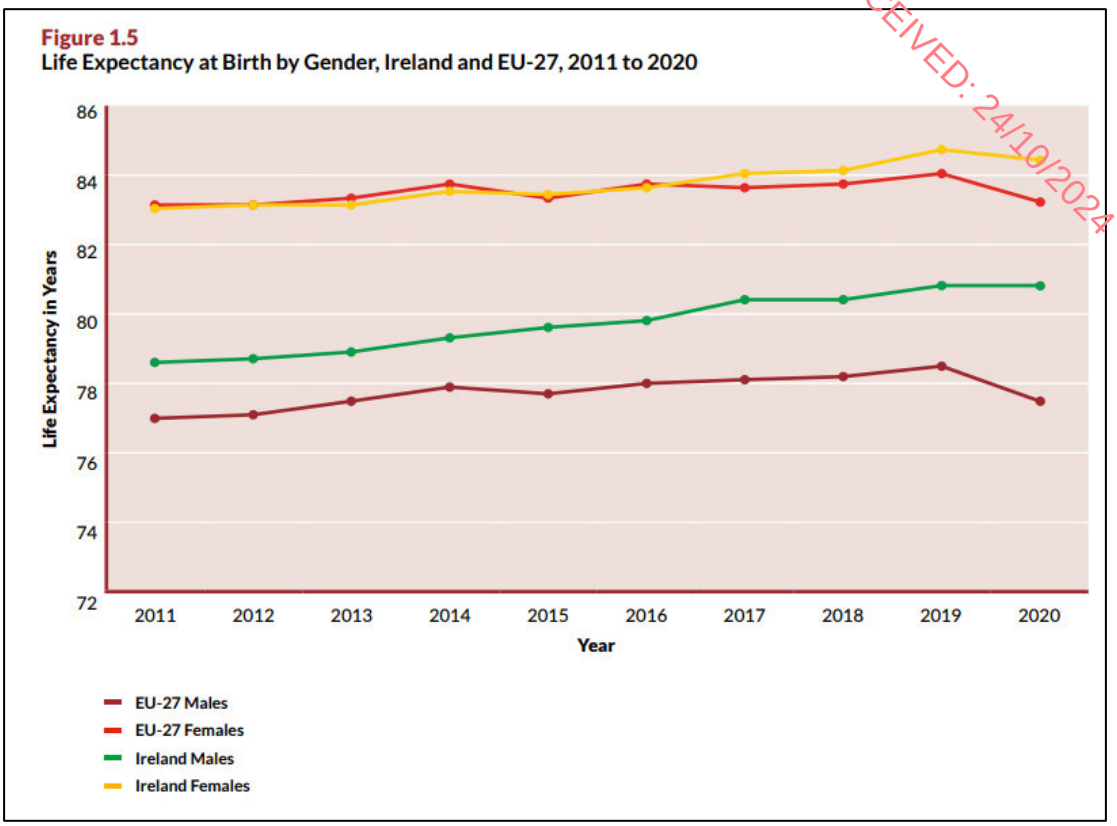


Figure 5.6: Extract from Health in Ireland: Key Trends 2022: (Department of Health, 2022).

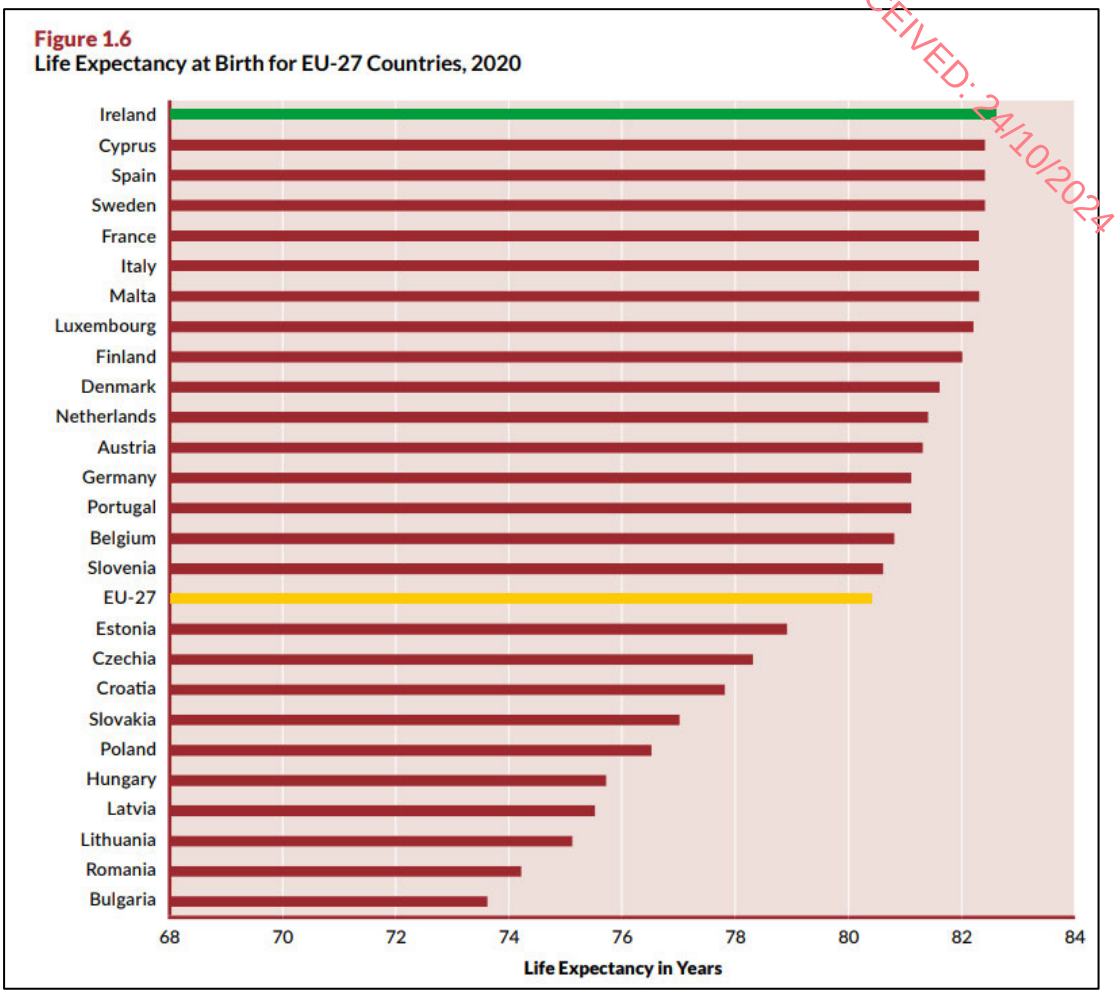


Figure 5.7: Extract from Health in Ireland: Key Trends 2022 (Department of Health, 2022).

Mortality

National health figures show that there has been an improvement in overall age-standardised mortality rates and a rise in life expectancy in Ireland over the past ten years; however, these figures may have been impacted by the COVID-19 pandemic and its effects on the healthcare system. The *Health in Ireland* report states also:

"Mortality rates have declined for all causes over the past decade by 15.8%. This decrease is particularly strong for mortality rates from suicide (-32.6%), transport accidents (- 54.7%), pneumonia (-59.1%) and stroke (-47.8%). Infant mortality, measured as deaths per 1,000 live births, has also decreased by 14.3% since 2011 and remains below the EU average". [Department of Health, Health in Ireland: Key Trends 2022].

With respect to the particular causes of death within the population, the report identifies strong decreases in the mortality rates for suicide (-32.6%), pneumonia (-59.1%) and stroke (-47.8%), as shown below.

Table 2.4
Principal Causes of Death: Numbers and Age-Standardised Death Rates per 100,000 Population, 2012-2021

		2012	2016	2020	2021(p)	% change 2012-2021	% change 2020-2021
All Causes	Number	29,186	30,667	32,856	33,055	13.3	0.6
	Rate	1048.5	994.3	905.5	882.5	-15.8	-2.5
Diseases of the circulatory system							
All Circulatory System Diseases:	Number	9,480	9,237	8,835	8,753	-7.7	-0.9
	Rate	360.5	313.6	250.1	238.4	-33.9	-4.7
Ischaemic Heart Disease:	Number	4,758	4,449	4,207	4,121	-13.4	-2.0
	Rate	178.2	148.0	117.7	111.2	-37.7	-5.6
Stroke:	Number	1,935	1,830	1,548	1,423	-26.5	-8.1
	Rate	75.2	63.2	44.2	39.2	-47.9	-11.3
Cancer							
All Malignant Neoplasms:	Number	8,571	9,171	9,648	9,436	10.1	-2.2
	Rate	290.1	279.7	258.7	245.8	-15.3	-5.0
Cancer of the Trachea, Bronchus and Lung:	Number	1,801	1,976	2,041	1,985	10.2	-2.7
	Rate	60.6	59.5	54.3	51.2	-15.5	-5.7
Cancer of the Female Breast:	Number	689	755	771	686	-0.4	-11.0
	Rate	40.2	40.7	37	32.1	-20.1	-13.2
Diseases of the Respiratory system*							
All Respiratory System Diseases:	Number	3,497	3,935	3721	3,011	-13.9	-7.9
	Rate	137.6	135.8	93.4	83.0	-39.7	-11.1
Chronic Lower Respiratory Disease:	Number	1,587	1,712	1,541	1,443	-9.1	-6.4
	Rate	59.8	57.3	43.7	39.8	-33.4	-8.9
Pneumonia:	Number	1,086	1,086	759	677	-37.7	-10.8
	Rate	45.8	39.9	22	18.7	-59.2	-15.0
External causes of injury and poisoning							
All Deaths from External Causes:	Number	1,577	1,323	1,692	1,428	-9.4	-15.6
	Rate	40.9	33.0	38.7	32.4	-20.8	-16.3
Transport Accidents:	Number	162	145	114	82	-49.4	-28.2
	Rate	3.9	3.5	2.5	1.8	-53.8	-28.0
Suicide:	Number	541	437	465	399	-26.2	-14.2
	Rate	12.1	9.5	9.6	8.2	-32.2	-14.6

Figure 5.8: Extract from Health in Ireland: Key Trends 2022, Table 2.4 illustrating Principal Causes of Death and Infant Mortality Rate: Numbers and Age Standardised Death Rates Per 100,000 Population 2012 to 2021 (Department of Health, 2022).

Perceived Health Status

At the national level, the Health in Ireland report identified that 45.6% of the male population and 45.2% of the female population of Ireland held a self-perceived health status of 'Very Good' in 2022, compared to only 24.3% of the male population and 21.1% of the female population within the greater EU27 population.

Ireland also topped the list of EU27 countries in this area in 2022 as shown in Figure 5.7, with

c. 82.1% of the population rating their health as good or very good. However, health status varies in respect of income inequality, with fewer low-income earners reporting good health both in Ireland and across the EU.

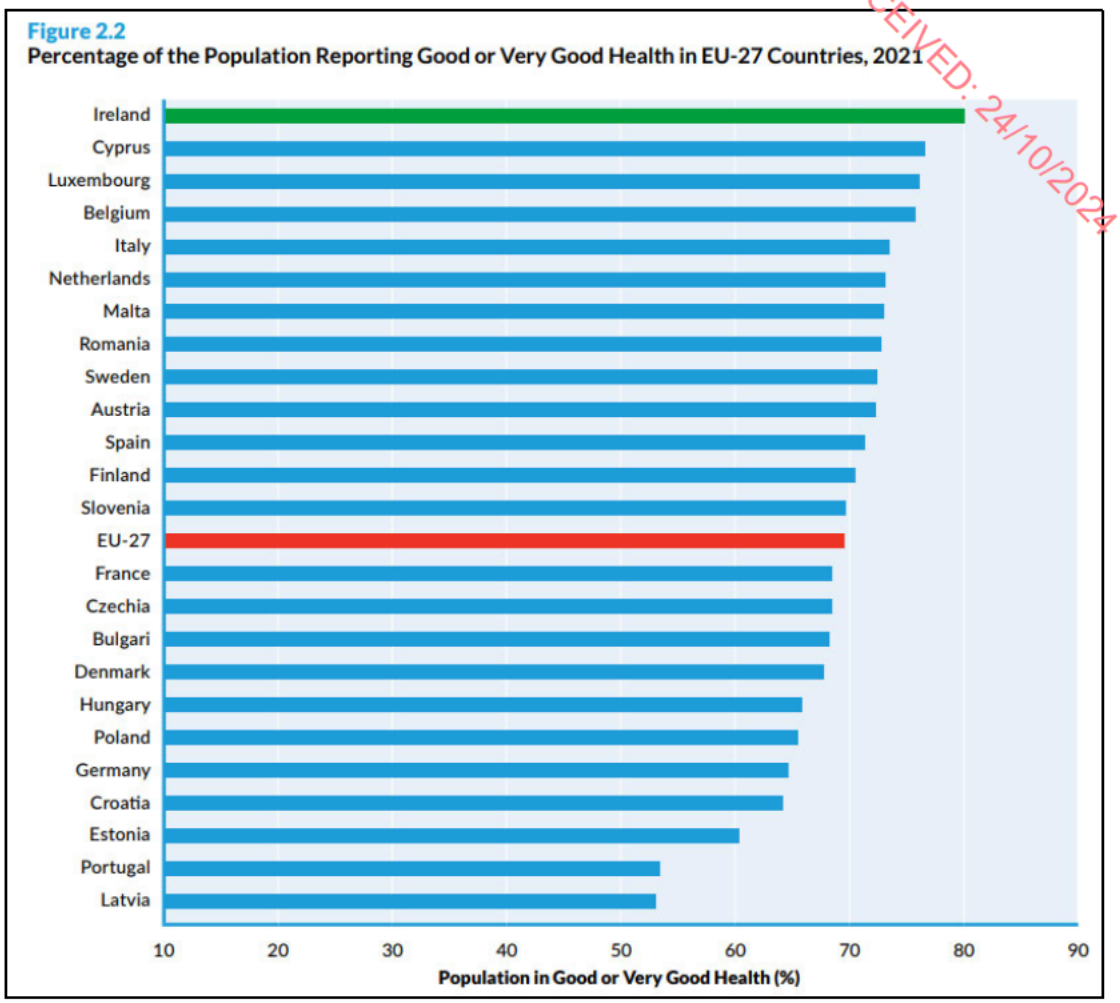


Figure 5.9: Extract from Health in Ireland: Key Trends 2022, Figure 2.2 showing Percentage of the Population Reporting Good or Very Good Health in EU27 Countries, 2022. (Department of Health, 2022).

At the local level, 84.1% of the population of South Dublin reported their health to be 'Good' or 'Very Good' accounting for 459,083 no. people within the Local Authority. These figures are mirrored within the ED Study Area, which also reported c. 82.9% of the population as having 'Good' or 'Very Good' health in 2022. Only 1.4-1.5% of the population in each area perceived themselves as having 'Bad' or 'Very Bad' health at the time of the Census.

General Health	ED - Newcastle		Combined - ED		LA – South Dublin	
	No. Persons	% Total	No. Persons	% Total	No. Persons	% Total
Very good	3,008	54.2%	21,746	54%	160,979	53.5%
Good	1,595	28.7%	12,059	30%	88,984	29.6%
Fair	433	7.8%	3,072	7.6%	24,951	8.3%
Bad	83	1.5%	558	1.4%	4,369	1.4%
Very bad	11	0.2%	106	0.2%	998	0.3%
Not stated	422	7.6%	2,766	6.8%	20,794	6.9%
Total	5,552	100%	40,307	100%	301,075	100%

Table 5.9: Population by General Health Status – Self Reported (CSO, 2022).

5.5 Likely Impacts and Proposed Mitigation Measures

5.5.1 Impacts on Population Profile and Trends

Do Nothing Scenario

There are no facilities or amenities at the subject site due to its greenfield nature. In the event of a 'do nothing Scenario', the subject site would remain undeveloped and in agricultural use, and opportunities to provide new employment and enterprise opportunities would be missed, and the development of a media park at the site would not be achieved.

While this scenario would have no negative impacts on the population profile and associated trends, it would run contrary to national and local planning policies and objectives with regard to the optimum use of greenfield land in an area zoned for employment and enterprise.

Construction Phase

The construction phase of development should not result in any appreciable increase in population in the area. The project will produce an increase in commuting patterns in the area. The construction phase employees will generate increased movements to and from Grangecastle area during the day.

Operational Phase

When operational, the proposed development will not result in an increase in population of the Grange Castle area, as there are no residential units proposed as part of the development.

Proposed Mitigation Measures

No negative impacts have been identified in relation to the provision of the proposed development and as such, no mitigation measures are required.

5.5.2 Employment and Economic Impacts

Do Nothing Scenario

The subject site is an undeveloped greenfield site, with no employment currently provided. A 'do nothing' scenario would see that absence of provision of employment at the subject site continue. The economic investment arising from a large-scale construction project at this site would not be realised and the opportunity to maximise the full development potential of the site would be lost. As such, the economic impacts of the proposed development not progressing would be ***long term, significant*** and ***negative.***

Construction Phase

It is anticipated that construction workers will likely be recruited from the local community and wider area. The multiplier effect arising from these additional construction jobs will also lead to an increase in employment in local businesses providing services to construction

workers. As a result, the project will have a positive impact on employment numbers in the Grange Castle and wider Dublin area during the construction phase.

During construction, the development will generate direct and indirect employment over the 12 - 15-month construction period. It is estimated that at peak construction periods that there would be approximately 600 - 700 people employed on site.

Operational Phase

The project is expected to deliver significant new employment opportunities within the proposed media park across a range of disciplines. Table 5.12 below provides an estimated breakdown of numbers employed at the site once fully operational.

Job Type	Estimated Numbers (once fully operational)
Carpenters	180
Painters	70
Plasterers	120
Sculptors	12
Riggers	46
Stagehands	50
Art Dept	80
Camera and Electrical	90
Stunts	60
Sound	25
SFX	40
Hair/Make-up	28
Costume	26
Transport	18
2nd Unit and AD	12
Post production (outsourced)	100
Extras (additional crowd/background artist)	120*
Security	8
Reception	4
Cleaners	16
Operations	30
Catering	30
Other	100
Total	1265
*Average depending on shoot	

Table 5.10: Estimated numbers of staff onsite once fully operational.

5.5.3 Traffic Impacts

Do Nothing Scenario

In the 'do-nothing' scenario, there would be no impacts on traffic as a result of the proposed development if the site remains undeveloped. It should be noted that the 'do nothing' scenario is equivalent to the baseline environment.

Construction Phase

Site Access and Vehicular Routes

The main construction access for the project will be from the Grange Castle West Access Road. However, access routes to and from the site, delivery times and off-loading proposals will be formally agreed with SDCC. In developing the construction and logistics plans, the Main Contractor will fully include representatives of SDCC, and other interested parties in a consultation process to ensure that our intentions are properly communicated, agreed and do not unduly affect the surrounding residential, retail properties and public open space.

All deliveries of materials, plant and machinery to the site and removals of waste or other material, will take place within the permitted hours of work. Vehicle movements will be planned to ensure arrival and departure times are maintained inside the agreed working hours. No daytime or nighttime parking of vehicles will be permitted outside agreed areas. The logistics plans indicate the site access routes at each stage of the project, initially utilizing existing access routes and subsequently the new permanent access routes.

- Vehicles delivering concrete, reinforcement and other building materials
- Vehicles delivering large material (example facade panels, steel frame, etc.)

A Construction Traffic Management Plan (CTMP) which will be submitted to SDCC for approval prior to the commencement of the works.

Construction Traffic Trip Generation

The main construction items include earthworks, substructure, superstructure construction, and fit-out. It is expected that construction traffic to and from the site shall reach a peak during preliminary earthworks.

The programming and scheduling of fill material will be managed by the main Contractor. A worst-case projection is that 5 Heavy Goods Vehicles (HGV) arrival and 5 HGV departure every 60 minutes during earthworks, which equates to a total of 10 trips per hour.

In addition to HGV traffic, periodic deliveries of materials to site shall be made by Light Goods Vehicles.

Light Goods Vehicles (LGV) trips are unlikely to occur frequently during earthworks involving HGVs. In addition, LGVs deliveries shall be scheduled to take place outside of the peak traffic hours. A worst-case projection is that 10 LGV arrival and 10 LGV departure every 60 minutes, which equates to a total of 20 trips per hour.

These volumes are significantly lower than projected peak hour operational traffic.

The Applicant will monitor the programming and scheduling of fill material as follows:

- The main contractor will be required to provide a detailed construction stage programme and construction management plan at pre-commencement stage. This will be required to include anticipated construction traffic figures for the enabling / earthworks.

- The main contractor will be required to keep a daily record of all construction vehicles entering the site (including vehicles hauling fill material). The record will include vehicle type, registration and delivery type.

- This record will be kept by the site gate personnel, in the normal manner, and passed (on weekly basis) to the senior site management staff for assessment and dissemination to the Applicant and Design Team.

- The site management for Grange Castle Media Park will be required to liaise on a regular basis with the site management of adjoining sites and including adjacent third- party construction sites, on matters of interface, including construction traffic.

- The Applicant and Design Team has considered the anticipated peak vehicle movements during preliminary earthworks. The volume of construction traffic anticipated (as outlined above) is not in any way excessive, especially given the nature of the new roads over which this traffic will be accessing the site (i.e. Grange Castle Business Park West Access Road).

Operational Phase

The TII Traffic and Transport Assessment Guidelines (PE-PDV-02045) advise that Transport Assessments should generally be applied where traffic to and from a development is predicted to exceed 10% of the existing background traffic on the adjoining road (or 5% at sensitive locations).

Table 13.4 provides a summary of the percentage impact of the Proposed Development traffic over existing baseline traffic flows at surveyed junctions (shown in **Figure 13.2**) that are predicted to result from the subject development during its operational phase.

The 2014 Traffic and Transport Assessment Guidelines published by the NRA requires that the relevant junctions be analysed for the existing situation (2023), the year of opening (2026), the design year 1 (year of opening plus 5) with the proposed development.

An annual growth rate of 1.7% has been assumed for the period late-2023 to 2030, decreasing to 0.6% for 2031 to 2041, based on the central / medium growth estimate for the Dublin Metropolitan Area, published by TII in 2019 (PE-PAG-02017-2).

The 2026 Do-Nothing ('without development') scenario is derived by factoring the survey results in Figures 1-3 and 1-4 (morning and evening peak hours) up by 5.19% ($(1.017)^3$ - 1 = 0.0519). The 2026 Do-Something ('with development') scenario is derived by adding the development flows detailed in Figures 2-1 and 2-2 to these factored network flows.

The 2031 Do-Nothing ('without development') scenario is derived by factoring the survey results in Figures 1-3 and 1-4 (morning and evening peak hours) up by 13.2% ($(1.017^7 \times (1.006)^1) - 1 = 0.132$). The 2031 Do-Something ('with development') scenario is derived by adding the development flows detailed in Figures 2-1 and 2-2 to these factored network flows.

The 2041 Do-Nothing ('without development') scenario is derived by factoring the survey results in in Figures 1-3 and 1-4 (morning and evening peak hours) up by 20.2% ($(1.017^7 \times$

$(1.006)^{11}$) – 1 = 0.202). The 2041 Do-Something ('with development') scenario is derived by adding the development flows detailed in Figures 2-1 and 2-2 to these factored network flows.

Proposed Mitigation Measures

Construction Phase

General Construction Traffic Strategy

Construction traffic will be limited to certain routes and times of day, with the aim of keeping disruption to existing local road network and residential areas to a minimum. To minimise disruption to the local areas, construction traffic volumes will be managed through the following measures:

- During peak hours, ancillary, maintenance, and other site vehicle movements will be discouraged.
- Daily construction programmes will be planned to minimise the number of disruptions to surrounding streets by staggering HGV movements to avoid site queues.
- Construction vehicle access routes will be restricted to/from the M50 via the R120 / R134, thus minimising impact to residential communities.
- All existing roads will remain open to general traffic through all stages of the construction.
- At pre-commencement stage, the Applicant shall provide a Community Liaison Plan (alongside a final Construction Management Plan).
- Construction vehicles shall not be permitted to park or wait on public roads outside the site boundary.
- All construction access roads shall be kept clean and a maintenance plan for same, shall be agreed with SDCC.
- Prior to commencement, an independent Environmental Monitoring Officer (EMO) shall be appointed to monitor any environmental impacts during construction. The EMO shall report to the Planning Authority and shall maintain communication with the Applicant, contractors, local community, and other relevant stakeholders.

Pedestrian Safety

Deliveries will be scheduled outside of peak traffic hours, to avoid disturbance to pedestrian traffic in the vicinity of the site.

Hours of Working

Working hours shall be agreed with SDCC prior to commencement of construction works.

Construction Traffic Management Plan

A detailed Construction Traffic Management Plan (CTMP) will be developed by the Contractor and presented to SDCC for approval prior to commencement of the construction works. The CTMP will contain detailed temporary traffic management drawings for each construction stage and will include the mitigation measures described in this section. Please refer to Outline Construction and Environmental management Plan prepared by Verde and submitted within this application for further details of proposed traffic management measures.

Operational Phase

The development shall incorporate several design and management elements intended to mitigate the impact of the development on the surrounding road network during its operational phase. These include:

- a high provision of secure bicycle parking, which shall serve to encourage bicycle journeys by both development occupants and visitors; and
- promotion of sustainable transport modes such as walking, cycling and public transport use.

As described in the Mobility Management Plan document prepared in support of this planning application, a Mobility Management Plan Coordinator shall be appointed for the proposed development, with the remit to implement and oversee an ongoing Mobility Management Plan. This shall assist development occupants and visitors in making the most of sustainable transport opportunities and in avoiding single-occupant car journeys to and from the development site where possible.

5.5.4 Social Infrastructure and Amenities Impact

Do Nothing Scenario

There are no existing social infrastructure and amenities at the subject site due to its greenfield nature. In the 'do nothing' scenario, the site would remain undeveloped, and opportunity for the provision of a media park would be lost.

Construction Phase

As the site is greenfield in nature, no existing infrastructure or social amenities would be lost due to construction at the subject site. During the construction phase, the appointed Contractor will ensure that all activities associated with the works are carried out in accordance with best practice guidelines for the management and control of noise and vibration from construction sites. Chapter 18 of this EIAR and the Construction Environmental Management Plan (CEMP) that accompanies this planning application set out a number of control and mitigation measures for the construction phase. During the construction phase, noise and vibration monitoring will be carried out at the nearest sensitive locations to ensure compliance with limit values.

[amended text]

Operational Phase

~~The proposed development would provide a significantly improved land use in line with the site's zoning objective, and would provide a long term, significant positive impact on the infrastructure and amenities available in this area primarily through the development of the amenity walkway along the southern boundary with the Grand Canal, which will be accessible to the public.~~ The proposed development does not include for a residential element and so will not result in an increase in population in the immediate area. Employees of the Media Park (see table 5.12) are expected to be sourced from the wider Dublin area. Commuting to and from the site will place additional demands on local transport infrastructure. However, it is anticipated that roads, public transport, and other infrastructure can meet these demands. The project includes onsite restaurants and facilities to cater for onsite staff.

[amended text]

5.5.5 Health and Safety Impacts

Do Nothing Scenario

In a 'Do Nothing' scenario where the proposed development did not proceed, health and safety issues at the site would relate to its greenfield nature, which would remain unchanged. Accordingly, there would be a neutral impact on health and safety in a 'do-nothing' scenario.

Construction Phase

As with all construction projects, there will be inherent health and safety risks at this stage of the development. In order to manage these, a Construction Environmental Management Plan (CEMP) has been prepared for the project to ensure that the relevant health and safety legislation is complied with.

Operational Phase

During the operational phase, the principal health and safety concerns will relate to onsite activities which will include:

- Stage and set construction involving various tradespeople
- Film shooting involving production and creative staff
- Administrative studio operations.

It is envisaged that tradespeople will operate in accordance with standard health and safety work practices and will carry all necessary certifications including safe pass.

Film shoots will be operated in accordance with industry standard safety procedures to ensure the wellbeing of creative and behind-the-scenes staff. Additional safety protocols will be employed where film productions involve the use of stunts, pyrotechnics or other high-risk activities.

Overall, the operations of the media park will be governed by the mitigation measures outlined in the various chapters of the EIAR in order to ensure no impacts to the surrounding environment that could affect the health and safety of nearby residential receptors. It is not envisaged that any significant effects will result from the operation of the project.

Proposed Mitigation Measures

Appropriate mitigation, where deemed necessary has been outlined in the various chapters of this EIAR as they relate to Air, Noise, Climate, Hydrology, Land and Soils. These measures have been summarised in the sections below.

The Construction and Environmental Management Plan (CEMP) prepared by Barret Mahony Consulting Engineers and accompanying the planning application outlines the various measures to ensure the avoidance of impacts during the construction phase.

5.6 Human Health – Potential Environmental Impacts on Human Beings and Amenity

5.6.1 Air

Do Nothing Scenario

In the 'Do Nothing' scenario, no construction work will take place, and the identified impacts of fugitive dust and particulate matter emissions will not occur. The ambient air quality at the site will remain as per the baseline and will change in accordance with trends within the wider area (including influences from new developments in the surrounding area, changes in road traffic etc.)

The Do-Nothing scenario associated with the operational phase of development was found to be long-term, neutral, and imperceptible.

Therefore, the 'Do Nothing' scenario is considered ***neutral*** in terms of its potential impacts on air quality.

Construction Phase

The greatest potential impact on air quality during the construction phase of the proposed development is from construction dust emissions and potential nuisance dust. While construction dust tends to be deposited within 350 m of a construction site, the majority of the deposition occurs within the first 50 m. The extent of any dust generation depends on the nature of the dust (soils, peat, sands, gravels, silts etc.) and the nature of the construction activity. In addition, the potential for dust dispersion and deposition depends on local meteorological factors such as rainfall, wind speed and wind direction. A review of Casement Aerodrome meteorological data indicates that the prevailing wind direction is westerly to south-westerly and wind speeds are generally moderate in nature (see Figure 9.2). In addition, dust generation is considered negligible on days where rainfall is greater than 0.2 mm. A review of historical 30-year average data for Casement Aerodrome meteorological station indicates that, on average, 194 days per year have rainfall over 0.2 mm (Met Eireann, 2023). Therefore, it can be determined that 53% of the time dust generation will be reduced.

The potential dust emission magnitude for each dust generating activity needs to be taken into account, in conjunction with the previously established sensitivity of the area (see Section 9.3.3), to determine the level of dust mitigation required during the proposed works. As per Section 9.2.2 the major dust generating activities are divided into four types within the IAQM guidance to reflect their different potential impacts. These are:

Demolition;

- Earthworks;
- Construction; and
- Trackout (transport of dust and dirt from the construction site onto the public road network).

There is at most a low risk of dust impacts associated with the proposed works. As a result, best practice dust mitigation measures associated with low-risk sites will be implemented to ensure there are no significant impacts at nearby sensitive receptors. In the absence of mitigation, dust impacts are predicted to be ***short-term, negative,*** and ***imperceptible***. Further details are outlined in chapter 9.

There is also the potential for traffic emissions to impact air quality in the short-term over the construction phase, particularly due to the increase in HGVs accessing the site. The construction stage traffic has been reviewed and a detailed air quality assessment has been scoped out. None of the road links impacted by the proposed development satisfy the TII scoping assessment criteria in Section 9.2.2. It can, therefore, be determined that the construction stage traffic will have an ***imperceptible, direct, neutral,*** and ***short-term*** impact on air quality.

Operational Phase

The potential impact of the proposed development during its operational phase has been assessed by modelling emissions from the traffic generated as a result of the development, which is outlined in Section 9.5.3. The traffic data has included specific cumulative developments within the area to provide for a worst-case assessment and to assess potential cumulative impacts (see Traffic and Transport Assessment and Chapter 13 for further details).

The traffic data includes the Do Nothing (DN) and Do Something (DS) scenarios. The impact of NO2, PM10 and PM2.5 emissions for the Opening and Design Years was predicted at the nearest sensitive receptors to the development. This assessment allows the significance of the development, with respect to both relative and absolute impacts, to be determined.

Overall, the impact of the proposed development on ambient air quality is predicted to be ***long-term, localised, neutral, imperceptible,*** and ***non-significant.***

5.6.2 Climate

Do Nothing Scenario

In the 'Do Nothing' scenario, no construction will take place and the climate baseline will continue to develop in line with the identified trends in Chapter 10. Thus, the 'Do Nothing' scenario is considered neutral in relation to potential climate impacts.

Construction Phase

During the construction phase of development, there is potential for a number of greenhouse gas emissions to be emitted into the atmosphere, referred to as 'construction phase embodied carbon emissions'. These arise from:

- The extraction of construction materials;
- The transportation of materials to the site;
- The construction activities or site operations, and,
- The ongoing material refurbishment and replacement throughout the lifetime of the development.

It has been calculated that the total construction phase embodied carbon (including maintenance and replacement of materials over the development lifetime) will be 33,493 tonnes CO2e. When this is annualised over the assumed 50-year lifespan of the development this equates to 0.017% of the Industry sector 2030 carbon budget of 4 Mt CO2e or 0.067% of the Commercial Buildings 2030 carbon budget of 1 Mt CO2e. Annualising the full carbon emissions over the lifetime of the development allows for appropriate comparison with annual GHG targets. The impact to climate is predicted to be ***moderate, negative,*** and ***not significant***.

The proposed development incorporates some best practice mitigation measures and is committing to reducing climate impacts where feasible. As per the assessment criteria in Table 10.3 the impact of the proposed development in relation to GHG emissions is considered **long-term, moderate, negative,** and **not significant** in EIA terms.

Section 10.6 outlines the mitigation measures to be implemented for both phases of development, to ensure that GHG emissions are minimised.

Operational Phase

The following list of works which will have a potential impact on climate during the operational phase of development are summarised below.

- Road traffic accessing the site will produce GHG emissions
- Indirect GHG emissions will be produced from electricity from the national grid used to power the proposed development

In order to determine the vulnerability of the proposed development to climate change the sensitivity and exposure of the development to various climate hazards must be determined. The following have been considered in the proposed development context: flooding (coastal,

pluvial, fluvial); extreme heat; extreme cold; drought; extreme wind; lightning; hail; and fog. The results of the vulnerability assessment are summarised and displayed in the table below.

Climate Hazard	Sensitivity	Exposure	Vulnerability
Flooding	1 (Low)	2 (Medium)	2 (Low)
Extreme Heat	1 (Low)	2 (Medium)	2 (Low)
Extreme Cold	1 (Low)	2 (Medium)	2 (Low)
Drought	1 (Low)	1 (Low)	1 (Low)
Extreme Wind	1 (Low)	1 (Low)	1 (Low)
Lightning & Hail	1 (Low)	1 (Low)	1 (Low)
Fog	1 (Low)	1 (Low)	1 (Low)
Wildfire	1 (Low)	1 (Low)	1 (Low)
Landslides	1 (Low)	1 (Low)	1 (Low)

Table 5.11: Climate Change Vulnerability Assessment (Source: EIAR Chapter 10).

Overall, the proposed development has at most low vulnerabilities to the identified climate hazards and therefore no detailed risk assessment is required. Section 10.6 outlines the mitigation measures to be implemented for both phases of development, to ensure that GHG emissions are minimised.

5.6.3 Noise & Vibration Impacts

Do Nothing Scenario

The Do-Nothing scenario includes retention of the current greenfield site. In the absence of the proposed development being constructed, the noise environment at the nearest noise sensitive locations will remain largely unchanged. The noise and vibration levels measured/noted during the baseline studies are considered representative of the Do-Nothing scenario. The Do-Nothing scenario is therefore considered to have a neutral impact.

Construction Phase

Construction noise levels have been calculated at the closest NSLs. NSL1 is located to the south- west of the development site at a distance of approximately 125m to the site boundary.

NSL2 is located at 240m distance to the south-west of the site boundary. The next closest NSLs are located at distances greater than 400m. Chapter 11 outlines further details in relation to potential for impacts from noise and vibration.

Table 11.12 in chapter 11 outlines the worst case predictions in relation to construction noise levels at the nearest NSLs and indicates that construction activities can operate within the adopted construction noise thresholds of 65 dB $L_{Aeq,T}$ at the closest NSL from the building works with higher noise emissions associated with site clearance, excavations, road works etc. The table confirms that the related impact is slight to moderate. The associated construction noise impact is determined to be ***negative, not significant to slight*** and ***short-term*** at distances of 125m and beyond.

The contractor will be required to work within construction noise threshold values as much as is practicable, and other best practice control measures such as the choice of plant, site scheduling of site works, and the provision of localised screening will be employed.

The worst-case predictions detailed in **Error! Reference source not found.** indicate that construction activities can operate within the adopted construction noise thresholds of 65 dB $L_{Aeq,T}$ at the closest NSL from the building works with higher noise emissions associated with site clearance, excavations, road works etc. Reference to **Error! Reference source not found.** confirms the related impact is slight to moderate. The associated construction noise impact is determined to be ***negative, not significant to slight*** and ***short-term*** at distances of 125m and beyond.

The potential for elevated levels of vibration at sensitive locations during construction activities associated with the proposed development is typically associated with surface breaking activities associated used for ground works. During surface breaking activities, there is potential for vibration to be generated through the ground, however the likely levels of vibration from this activity will be significantly below the vibration criteria for building damage based on monitoring data and experience from other sites. In relation to the proposed development, the vibration impacts will be below those associated with perceptible vibration as per Table 11.4 and will be considered *imperceptible* to *not significant* and *short-term.*

Sections 11.5.2 and Section 11.5.4 of Chapter 11. Noise and Vibration found that predicted construction noise and vibration levels do not exceed the thresholds whereby a significant impact would be likely. Therefore, while the contractor should employ best practice noise and vibration control measures, as detailed in the Construction and Environmental Management Plan prepared by BMCE, additional specific mitigation measures are not necessary for the proposed construction works.

Residual Impacts

During the construction phase of the project there is the potential for short-term noise impacts on the nearest noise sensitive properties due to noise emissions from site activities. The application of binding noise limits and hours of operation, along with implementation of appropriate noise and vibration control measures, will ensure that noise and vibration impact is kept to a minimum as far as practicable.

For the duration of the construction period, construction noise impacts will be ***negative, not significant,*** to ***slight*** and ***short-term*** at distances of 125m and beyond. Vibration impacts during the construction phase will be neutral, imperceptible, and short-term.

Operational Phase

As outlined in section 11.4.5 (Chapter 11) The primary potential sources of outward noise comprise; building services plant noise, noise associated with set construction, and the movement of traffic to and from the development site on the existing road network and newly constructed Grange Castle West Access Road.

With regard to building services plant noise, there will be a variety of mechanical and electrical (M&E) items required to serve the proposed development once it becomes operational. Some of the plant will operate on a 24/7 basis depending on their specific use. Plant contained within plantrooms has the least potential for impact once consideration is given to appropriate design of the space.

As outlined in section 11.4.5 of chapter 11, the background noise level at the boundaries of the site were determined through baseline noise surveys. Assessment of the unattended noise monitoring equipment on the proposed site (UN1) indicates that the background noise environment is on average 41 dB L_{A90} during the daytime, 39 dB L_{A90} during the evening and 35 dB L_{A90} at night-time.

To ensure acceptable operational noise levels at the nearest noise sensitive locations are achieved, the following mitigation measures are proposed during the detailed design stage of development.

- Noise emissions from external filming on backlots will be designed to ensure that noise levels at the façade of the noise-sensitive locations both within the development and in the surrounding area do not exceed the criteria discussed in **Error! Reference source not found.** and Section **Error! Reference source not found.**. Due to the lack of building screening from backlot at Building 14 to NSL01, the operation of this backlot area the southwestern area of the site will limit hours of set construction and production and require notification to surrounding neighbourhoods if night productions or special effects are expected to generate noise levels in excess of 80 dB(A) at 1m distance.
- Noise emissions from building services plant will be designed to ensure that that noise levels at the façade of the noise-sensitive locations both within the development and in the surrounding area do not exceed the criteria set out in sections 11.3.4 and 11.5.5 of Chapter 11
- During the detailed design of the development, the selection and location of mechanical and electrical plant will be undertaken in order to ensure the noise emission limits set out above are not exceeded. In addition to selecting plant with suitable noise levels, the following best practice measures are recommended where required, for all plant items in order to minimise potential noise disturbance for adjacent buildings:
    - where ventilation is required for plant rooms, consideration will be given to acoustic louvers or attenuated acoustic vents, where required to reduce noise breakout;
    - ventilation plant serving plant rooms will be fitted with effective acoustic attenuators to reduce noise emissions to the external environment;
    - the use of perimeter plant screens for plant areas to screen noise sources;
    - the use of attenuators or silencers on external air handling plant;
    - all mechanical plant items e.g. fans, pumps etc. shall be regularly maintained to ensure that excessive noise generated any worn or rattling components is minimised, and
    - Installed plant shall have no tonal or impulsive characteristics when in operation that would be audible at an NSL.
    - If generators are located in close proximity to NSLs (within 100m at night-time) and have potential to exceed the operational noise thresholds, these

will be surrounded by acoustic lagging or enclosed within acoustic enclosures providing air ventilation.

Residual Impacts

Noise Associated with Set Construction

The noise impacts associated with set construction works will not exceed the adopted design criterion at any nearby noise sensitive locations. The impact is predicted to be ***negative, not significant,*** and ***long-term.***

External Filming Activities in the Back Lot of Studios

The noise impacts associated with external filming works will not exceed the adopted design criterion at any nearby noise sensitive locations. The impact is predicted to be ***negative, slight*** to ***moderate*** and ***brief*** to ***temporary.***

Building Services and Plant

Proprietary noise and vibration control measures will be employed as part of detailed design in order to ensure that noise emissions from building services plant do not exceed the adopted design criterion at any nearby noise sensitive locations. In addition, noise emissions should be broadband in nature and should not contain any tonal or impulsive elements. The impact from building services and plant is predicted to be ***negative, not significant,*** and ***long term.***

Additional Traffic on Roads

The predicted change in noise levels associated with additional traffic is expected to be ***negative, not significant,*** and ***long-term*** along the existing road network.

Operational Vibration

It should be noted that the day-to-day operation of the proposed development will not give rise to any significant levels of vibration off site and therefore the associated impact is ***neutral, not significant,*** and ***long-term.***

5.6.4 Land, Soils, Geology and Hydrogeology

Construction Phase

During construction, there is potential for groundwater to become contaminated with pollutants associated with construction activities. Such contaminated groundwater which arises from construction sites can pose significant short-term risks to the quality of the underlying Dublin Groundwater Bodies (GWB), for the duration of the construction period if contaminated water is allowed percolate to the aquifer.

Potential contaminants include:

Unmitigated pollution due to discharges or spillages during the construction phase;

- Suspended solids, arising from excavation and ground disturbance;
- Cement/concrete, arising from construction materials;
- Hydrocarbons – accidental spillages from construction plant or onsite storage soils contaminated by petroleum hydrocarbons can affect soil health and soil micro-organisms;
- Wastewater, arising from accidental discharge from on-site toilets and washrooms.

In addition, humans can also be exposed to petroleum or other contaminants by inhaling the fumes/dust from contaminated soil which, depending on the contaminant type and level of exposure, can have serious health effects.

Excavation of soil and near-surface rock head will be required for levelling of the site to render it suitable for constructing the building platform. The local removal and reinstatement of the 'protective' topsoil and subsoil cover across the development area of the site will not change the sites overall vulnerability category, which is already *'extreme'*. The capping of significant areas of the site by hardstand/building following construction and installation of drainage will minimize the potential for contamination of the aquifers beneath the site.

The proposed development will most likely involve groundwater 'dewatering', which will be associated primarily with perched groundwater within the subsoils and some strikes from the upper weathered bedrock. In the event of this occurrence, the dewatering will be short-lived and will not have an impact on the groundwater regime of the Dublin GWB or on the quantitative aspects of waterbody status such as baseflow for hydrological waterbodies.

As yet unknown groundwater supplies or abstractions, and as yet unknown soil contamination may exist. In the absence of mitigation measures, it has been determined that the potential impacts during the construction phase on land, soils and geology, and hydrogeology are ***negative, not significant,*** and ***short-term***.

Operational Phase

As outlined in section 7.6.2.2 of the Land, Soils, Geology and Hydrogeology chapter, it has been established that there are no recorded groundwater boreholes for domestic use within the vicinity of the site, and the site is not located near any public groundwater supplies or group schemes, or groundwater source protection zones. On a precautionary basis, the mitigation measures set out in Section 7.6.1.1 will be implemented during the operational phase for the protection of human health and populations.

Section 7.6.1 sets out the mitigation and monitoring measures to be implemented with regard to land, soil, geology, and hydrogeology, to ensure that potential impacts are adequately mitigated. Impacts on surface water quality during the operational phase are considered to be ***neutral, imperceptible,*** and ***long-term.***

Impacts on geological and hydrogeological attributes in line with TII criteria are considered

The implementation of the mitigation and monitoring measures detailed in Section 7.6.1 and 7.6.2, will ensure that the potential impacts on human health and populations once the

proposed development is constructed and operational are adequately mitigated. The residual effect on human health and populations during the operational phase is considered to be ***neutral, imperceptible,*** and ***long-term.***

5.6.5 Landscape and Visual Impact

Construction Phase

During construction, the site will undergo a change from that of a greenfield site into a large construction site. Any impacts generated at this stage will be short-term in their duration. Construction works including site clearance, the building processes required to construct the proposed development, and the associated access to do so, will have moderately negative effects of a temporary and short-term nature.

Visual impacts including construction traffic, site hoardings, cranes etc., will be acute but short- term in their duration. Visually, the impacts will be moderately negative and will impact the adjacent properties more acutely than the operational phase. As the building progresses, the adjacent users' views will alter.

Operational Phase

Once the operational phase of development has been reached, the main landscape effects are associated with the completion of the site. The complete landscape character will have a positive effect on the site and surrounding areas through the creation of new public realm to the North of the site with access along the Eastern site boundary from the main roadway, alongside the strengthening of the existing Grand Canal green infrastructure corridor.

The urban fabric will be affected by the addition of new structures to the skyline, but this is considered to be in line with the landscape character of the surrounding area, with developments of a similar nature including Grange Castle Business Park and Greenogue Business Park in close proximity to the proposed.

The main architectural concept has been to develop an architectural form and articulation that sites a grouping of functionally specific boxes within a rural Dublin hinterland setting whilst providing a clear separation between large private working zones and welcoming/open public areas. Sensitivity to the surrounding rural landscape is the main inspiration for the appropriate material and colour palette developed by the project designers. A succinct range of colours and materials drawing on Irish rural architectural typographies and native fauna and flora will be employed throughout the project.

[amended text]

In terms of screening from potential visual receptors, a 5m wayleave is proposed which is heavily screened by tree planting and hedgerow to the Western, Eastern and Southern boundaries and a 50m buffer zone to the North of the site which serves ~~as a public amenity space and also serves~~ to enhance the ecological value of this section of the Grand Canal Green Infrastructure corridor.

[amended text]

In addition, site lighting is to consist of directionally focused lighting that seeks to minimise light spill. The application has been accompanied by a Lighting Impact Assessment Report prepared by Homan O'Brien Engineering. As outlined in the report, lighting has only been proposed where necessary for public safety and warehouse operations. These lights have been designed and selected with specific shutters and filters to minimise any potential for back spills into the sensitive locations while still providing the primary function of safety lighting to the circulation routes.

Further to this chapter 6, section 6.6.2 of the EIAR outlines the importance of limiting artificial lighting within the site to ensure no additional light pollution occurs on bat friendly habitat features.

A dark zone will be established to the north of the site. A static monitoring program and Lux survey should be completed in the grassland to the north of the site, adjacent to the Grand Canal prior and after construction.

In order to mitigate any potential chance of light spill, hedgerow planting to the boundaries of the site and high volumes of tree planting to the 50m buffer area will prevent light from spilling onto the canal and thus having any potential adverse effect on local wildlife.

The residual visual impacts are those which will persist following the implementation and establishment of the proposed landscape measures. Table 16.11 sets out the Residual Visual Impacts Assessment Summary for specific details on the visual impact on the identified receptors, the street level impacts to users of the public realm. The street level impact to users of the public realm will be positive due to the creation of a new pedestrian link to the Northern Buffer area which runs alongside the Grand Canal.

5.6.6 Traffic and Transportation

Do Nothing Scenario

It should be noted that the Do-Nothing scenario is equivalent to the baseline environment. The assessment of the existing environment/Do Nothing Scenario, without the Proposed Development, has been included for the Operational Phase assessment (see below).

Construction Phase

The main construction access for the project will be from the Grange Castle West Access Road. However, access routes to and from the site, delivery times and off-loading proposals will be formally agreed with SDCC. In developing the construction and logistics plans, the Main Contractor will fully include representatives of SDCC, and other interested parties in a consultation process to ensure that our intentions are properly communicated, agreed and do not unduly affect the surrounding residential, retail properties and public open space.

All deliveries of materials, plant, and machinery to the site and removals of waste or other material, will take place within the permitted hours of work. Vehicle movements will be planned to ensure arrival and departure times are maintained inside the agreed working hours. No daytime or nighttime parking of vehicles will be permitted outside agreed areas.

The logistics plans indicate the site access routes at each stage of the project, initially utilizing existing access routes and subsequently the new permanent access routes.

- Vehicles delivering concrete, reinforcement and other building materials
- Vehicles delivering large material (example facade panels, steel frame, etc.)

A Construction Traffic Management Plan (CTMP) which will be submitted to SDCC for approval prior to the commencement of the works.

Operational Phase

In order to assess the operational impact of the proposal, a Traffic and Transport Assessment (TTA) was carried out by Barret Mahony Consulting Engineers. Full details of the TTA results are outlined in sections 13.7 and 13.8 of the EIAR.

The TII Traffic and Transport Assessment Guidelines (PE-PDV-02045) advise that Transport Assessments should generally be applied where traffic to and from a development is predicted to exceed 10% of the existing background traffic on the adjoining road (or 5% at sensitive locations).

Table 13.4 provides a summary of the percentage impact of the Proposed Development traffic over existing baseline traffic flows at surveyed junctions (shown in Figure 13.2) that are predicted to result from the subject development during its operational phase.

The 2014 Traffic and Transport Assessment Guidelines published by the NRA requires that the relevant junctions be analyzed for the existing situation (2023), the year of opening (2026), the design year 1 (year of opening plus 5) with the proposed development.

An annual growth rate of 1.7% has been assumed for the period late-2023 to 2030, decreasing to 0.6% for 2031 to 2041, based on the central / medium growth estimate for the Dublin Metropolitan Area, published by TII in 2019 (PE-PAG-02017-2).

The 2026 Do-Nothing ('without development') scenario is derived by factoring the survey results in Figures 1-3 and 1-4 (morning and evening peak hours) up by 5.19% ($(1.017)^3$ - 1 = 0.0519). The 2026 Do-Something ('with development') scenario is derived by adding the development flows detailed in Figures 2-1 and 2-2 to these factored network flows.

The 2031 Do-Nothing ('without development') scenario is derived by factoring the survey results in Figures 1-3 and 1-4 (morning and evening peak hours) up by 13.2% ($(1.017^7 \times (1.006)^1) - 1 = 0.132$). The 2031 Do-Something ('with development') scenario is derived by adding the development flows detailed in Figures 2-1 and 2-2 to these factored network.

The 2041 Do-Nothing ('without development') scenario is derived by factoring the survey results in in Figures 1-3 and 1-4 (morning and evening peak hours) up by 20.2% ($(1.017^7 \times (1.006)^{11}) - 1 = 0.202$). The 2041 Do-Something ('with development') scenario is derived by adding the development flows detailed in Figures 2-1 and 2-2 to these factored network flows.

Table 13-4 details the network and development flows incident on the 4 No. critical junctions on the projected day of opening in 2026, within 2031, 5 years after opening and within 2041, 15 years after opening with the proposed petrol filling station plus campsite in place.

Based on the data and evaluations within this TTA, the following conclusions can be made:

The Development Entrance signalized junction (Junction No. 2) at present operates within capacity and will continue to do so with the proposed development in place. Queuing and delays are at low levels, with a minimum of 14% space capacity predicted to exist in 2026 with all predicted development in place. By 2041 with all predicted development in place this junction will be at capacity.

The Peamount Road priority junction (Junction No. 4) at present operates within capacity and will continue to do so with the proposed development in place. Queuing and delays are at low levels, with a minimum of 12% space capacity predicted to exist in 2026 with all predicted development in place. By 2031 with all predicted development in place this junction will be at capacity. By 2041, the junction would be over capacity, assuming the network flow increases utilized have actually materialized.

The above analysis includes scenarios 4, 7 and 10, analyzing cumulative impact for different time frames.

5.6.7 Material Assets – Waste

Do Nothing Scenario

In the 'Do Nothing' scenario, no construction will take place, and the site will be retained in its current state. In the absence of the proposed development being constructed, the waste situation at the site will remain largely unchanged, and thus the 'Do Nothing' scenario is considered to have a neutral impact on population and human health.

Construction Phase

The principal potential impact on human beings in relation to the generation of waste during the construction phase is that incorrect management of waste could result in littering which could cause a nuisance to the public and attract vermin to the premises.

The proposed development will generate a range of non-hazardous and hazardous waste materials during site excavation and construction. General housekeeping will also generate waste materials, as well as typical municipal wastes generated by construction employees, including food waste. These materials will require temporary storage within the construction site or adjacent to it, pending collection by a waste contractor. If waste material is not managed and stored correctly, it is likely to lead to litter or pollution of the development site which leads to the indirect effect of vermin being present in affected areas. In the absence of mitigation, the effect on the local environment is deemed ***negative, significant,*** and ***long-term*****.**

The use of non-permitted waste contractors or unauthorised waste facilities could give rise to inappropriate management of waste, resulting in indirect negative environmental impacts including pollution. In the absence of mitigation, the effect on the local environment is likely to be ***long-term, significant,*** and ***negative*****.**

Wastes arising should be taken to suitably registered / permitted / licensed waste facilities for processing and segregation, reuse, recycling, recovery and / or disposal, as appropriate. There

is sufficient capacity within the region for the acceptance of the likely C&D waste arisings at facilities in the region. In the absence of mitigation however, the effect on the local environment is likely to be ***short-term, significant,*** and ***negative*****.**

There will be soil and stones excavated to facilitate construction of the development. The development engineers (BMCE) have estimated that c.49,513m^3 of bulk excavation and removal will be required (excluding a 400mm layer of topsoil) subsoil and rock. It is currently envisaged that 25,000m ^{3} of excavated material can be reused onsite, if suitable for reuse. When excavated materials is not deemed suitable or not required it will need to be removed for appropriate offsite reuse, recovery, recycling, and / or disposal.

The following mitigation measures are to be implemented during the construction phase of the proposed development.

- Prior to commencement, the appointed contractor(s) will be required to refine / update the Resource and Waste Management Plan (RWMP) in compliance with any planning conditions, detailing specific measures to minimise waste generation and resource consumption, and provide details of the proposed waste contractors and destinations of each waste stream.

- The Contractor will implement the RWMP throughout the duration of the proposed excavation and construction phase.

Operational Phase

The potential impacts on the environment of improper, or a lack of, waste management during the operational phase would be a diversion from the priorities of the waste hierarchy, which would lead to small volumes of waste being sent unnecessarily to landfill. In the absence of mitigation, the effect on the local and regional population and human health is likely to be ***indirect, long-term, significant,*** and ***negative*****.**

The generation of waste materials during the operational phase of development is unavoidable due to the nature of the proposed development. If waste material is not managed and stored correctly, it is likely to lead to litter or pollution issues on site and in adjacent areas. The knock-on effect of such an issue is the presence of vermin in affected areas. In the absence of mitigation, the effect on the local and regional environment is likely to be ***indirect, long-term, significant,*** *and* ***negative.***

A number of measures will be employed in order to reduce the amount of waste produced, manage the waste generated responsibly and handle the waste in such a manner that minimises the effects on the environment. Details of estimated quantities and types of waste are outlined in Appendix 12.1 of the EIAR. The waste hierarchy concept is employed where the preferred option for waste management is prevention and minimisation of waste, followed by preparation for reuse and recycling/recovery, energy recovery and least favoured of all, disposal.

All waste materials will be segregated into appropriate categories and will be temporarily stored in appropriate bins or other suitable receptacles in designated, easily accessible areas of the site.

A project specific OWMP has been prepared and included as Appendix 12.2, and the mitigation measures outlined in this OWMP will be implemented in full as part of the mitigation strategy of the site which will ensure a high level of recycling, reuse, and recovery at the development. The following measures are to be implemented:

- The Operator/Facilities Manager will ensure on-site segregation of all waste materials into appropriate categories;
- The Operator / Facilities Manager will ensure that all waste materials will be stored in colour coded bins or other suitable receptacles in designated, easily accessible locations. Bins will be clearly identified with the approved waste type to ensure there is no cross contamination of waste materials;
- The Operator / Facilities Manager will ensure that all waste collected from the Site of the proposed development will be reused, recycled, or recovered, where possible, with the exception of those waste streams where appropriate facilities are currently not available; and,
- The Operator / Facilities Manager will ensure that all waste leaving the Site will be transported by suitable permitted contractors and taken to suitably registered, permitted, or licensed facilities.

5.6.8 Hydrology

Do Nothing Scenario

In the 'Do Nothing' scenario, no construction will take place, and the site will be retained in its current state.

Construction Phase

Potential Impacts on Surface Water Quality

There is potential for water (rainfall and/or groundwater) to become contaminated with pollutants released during construction activity. If not mitigated, contaminated water can pose a temporary risk.

During construction of the development, there is a risk of accidental pollution incidences from the following sources:

- Suspended solids (muddy water with increase turbidity) - arising from exposed ground, stockpiles and access roads, and ground disturbance;
- Cement/concrete (increase turbidity and pH) - arising from construction materials;
- Hydrocarbons and other construction chemicals (ecotoxic) - arising from accidental spillages from construction plant or onsite storage;
- Wastewater (nutrient and microbial rich) - arising from accidental discharge from on-site toilets and washrooms.

Based on the potential for release, the nature of the discharge, and distance to Natura sites there is no likelihood of an impact on the surface water quality in the Liffey or Natura dites.

In the absence of mitigation measures the potential impacts during the construction phase on surface water quality are following EIA guidance ***negative, not significant*** and ***temporary.***

Potential Impacts on Surface Water Flow and Quantity

Land clearing, earthworks and excavations will be required for construction phase operations to facilitate site clearance, construction of new plateaux levels for the units, construction of new buildings, foundations and installation of services. This will include site levelling, construction, and building foundation excavation, this will necessitate the removal of vegetation cover and the excavation of soil and subsoils.

The gradual introduction of impermeable surfaces and the compaction of soils across the construction site as a result of the land clearing and earthworks will reduce the infiltration capacity and increase the rate and volume of direct surface run-off. The potential impact of this is a possible increase in surface water run-off and sediment loading, which could potentially impact local drainage if not adequately mitigated. This increase in the rate and volume of direct surface run-off can result in increased sediment loading, scouring impacts local drainage and watercourse, and downstream impacts.

There are no surface water abstractions proposed, therefore no potential impacts on the quantity of surface water.

Based on the distance to Natura sites there is no likelihood of an impact on the surface water flow or water quality in the Liffey or Natura sites. As the canal is fully lined there is no potential for a source pathway linkage.

In the absence of mitigation measures the potential impacts during the construction phase on surface water flow and quantity following EPA guidance is ***negative***, ***not significant*** and ***short term***.

Potential Impacts on Human Health and Populations

A reduction in water quality via unmitigated pollutants entering waterbodies has the potential to lead to negative impacts on human health and populations. Hydrocarbons and petroleum products for example have the greatest risk for human health when they are in drinking water. However, it is noted that there are no recorded Recreational Waters, Bathing Waterbodies, or Surface Water Drinking RPA, within immediate vicinity of the site.

Therefore, on this basis in the absence of mitigation measures the potential impacts during the construction phase on human health and populations due to changes to the hydrological environment are ***negative, not significant*** and ***short term***.

Potential Impacts on Water Framework Directive Status

There is a potential of accidental discharges during the construction phase, however these are temporary short-lived events that will not impact on any surface water status long term and as such will not impact on trends in water quality and overall WFD status assessment.

There is no potential impact on water framework directive status, therefore no specific mitigation measures are required.

Operational Phase

Potential Impacts on Surface Water Quality

Surface water runoff from roads, car parking areas, and vehicles and machinery that may be used for the purpose of the intended media activities on site, can potentially contain elevated levels of contaminants such as hydrocarbons. These pollutants such as hydrocarbons that are a known carcinogen (cause cancer) in many animals and suspected to be carcinogenic to humans and changes in water pH in runoff water may result in adverse changes in water chemistry (dissolved oxygen content, biological oxygen demand etc).

It is proposed to construct a new SuDs for the development to collect runoff from roofs and paved areas and any additional runoff from landscaped areas which doesn't percolate to ground. It is proposed that the new surface water network within the site will convey surface water flows to two swales located within the 50m buffer zone between the proposed development and the Grand Canal to the North of the site. Surface water flows from the site will outfall to the existing watercourse approx. 100m West of the site connecting eventually to the River Liffey. The swales will be designed to accommodate flows for the 1 in 100-year storm event. A hydrobrake will be fitted at the outfall of each swale which will limit the flow exiting the site to the existing greenfield runoff rate QBAR (57.5 l/s).

As no bulk oil storage is proposed, there is no potential for impact on off-site water bodies or Natura sites. Even without mitigation, based on the hazard loading and distance to the Liffey and the Natura sites there is no potential for an impact.

In the absence of mitigation measures (or design measures) the potential impacts during the operational phase on surface water quality are ***negative***, ***not significant,*** and ***long-term***.

Potential Impacts on Surface Water Flow and Quantity

The proposed increase in hardstanding area has the potential to resulting in increase in run-off from the site if not adequately mitigated. An increase in surface water run off can have an adverse effect on the hydrological regime of downstream environments via flooding and inundation to downstream properties.

As described above the buildings lie outside of the 0.1% AEP event and are therefore located within Flood Zone C, which indicates low flood risk. The design of the development and drainage infrastructure will ensure that the run-off rate is similar to greenfield run-off.

Pluvial flooding is the result of rainfall-generated overland flows which arise before run-off can enter a watercourse or sewer. It is usually associated with high intensity rainfall and typically occurs in the summer months. The SFRA Indicative Pluvial Flood Maps were also reviewed. As illustrated, no localised pluvial flood risk for the site or vicinity was identified. The design incorporates drainage which will remove the potential for any pluvial flooding on site.

The proposed measures ensures that all development will not be impacted by the predicted flood events. In the absence of mitigation measures (or design measures) the potential impacts during the operational phase on surface water flow and quantity are following EPA guidance ***negative*, not *significant,*** and ***long-term***.

Potential Impacts on Human Health and Populations

A reduction in water quality via unmitigated pollutants entering local water streams has the potential to lead to negative impacts on human health and populations. Hydrocarbons and petroleum products for example have the greatest risk for human health when they are in drinking water. However, it is noted that there are no recorded Recreational Waters, Bathing Waterbodies, or Surface Water Drinking RPA, located downstream in the immediate vicinity of the site.

The potential for unmitigated off-site flooding as a result of the increased hardstanding areas, and due to the flood risk at the site the proposed development has the potential to impact on human health, populations, and material assets, located downstream of the site.

In the absence of mitigation measures the potential impacts during the operation phase on human health and populations due to changes to the hydrological environment are ***negative*, *not significant*** and ***long term*.**

Potential Impacts on Water Framework Directive Status

Although there are long-term discharges of surface water runoff planned which could have an impact on the status of the surface water body, they are not likely to impact surface water bodies. In the scenario of an accidental release, there is potential for a temporary impact only, which would not be of a sufficient magnitude to effect a change in the current water body status.

There is no potential impact on water framework directive status, therefore no specific mitigation measures are required.

Proposed Mitigation Measures

The accompanying Construction Environmental Management Plan (CEMP) prepared by BMCE outlines some of the proposed mitigation measures to be employed during the construction phase including:

- **Item 1:** Hydrocarbons from carparking area entering the watercourse.

  Possible Impact: Water quality impacts. Reduction in habitat quality.

  Mitigation: Designated parking at least 50m from any watercourse. If there is a spill / leak the contractor will have sufficient time to implement clean up before the contamination can travel 50m.

  Result of Mitigation: Ensures no soil disturbance or hydrocarbons leak near aquatic zone.

- **Item 2:** Pollutants from site compound and / or material storage areas entering the watercourse.

  Possible Impact: Water quality impacts. Reduction in habitat quality.

  Mitigation: The site compound shall be located at least 100m from any watercourse. This provides sufficient time for the contractor to implement clean up should a spill / leak occur before contamination can travel 100m. Fuels, oils, greases, and other potentially polluting chemicals shall be stored in bunded compounds or at a location at least 50m from any body of water. Bunds are to be provided with 110% capacity of storage container. Spill kits shall be kept on site at all times and all staff trained in their appropriate use.

  Result of Mitigation: Prevents pollution of the aquatic zone from toxic pollutants.

- **Item 3:** Faecal coliforms if there is inadequate containment and treatment of onsite toilet and washing facilities.

  Possible Impact: Water quality impacts. Reduction in habitat quality.

  Mitigation: On site toilet and washing facilities will be maintained to a high standard and on a regular basis. Any leaks will be addressed promptly.

  Result of Mitigation: Prevents pollution of the aquatic zone from faecal coliforms.

- **Item 4:** Concrete/cementitious materials entering the watercourse from washdown and pours.

  Possible Impact: Water quality impacts. Reduction in habitat quality.

  Mitigation: A designated washdown area within the Contractor's compound shall be used for cleaning of any equipment or plant, with the safe disposal of any contaminated water. Pouring of cementitious materials shall be carried out in the dry.

  Result of Mitigation: Prevents pollution of the aquatic zone from toxic pollutants, ensures invasive species material is transported off site.

5.7 Cumulative Impacts

The proposed development combined with other permitted developments and planned developments within the vicinity of Grange Castle, have the potential to result in cumulative impacts on Population and Human Health during the construction and operational phases of the development. An online planning search was undertaken for projects that are known to have permission/be under construction and applications awaiting determination within the vicinity of the subject site. The identified projects are included in Appendix 1.1.

Should the construction phase of the proposed development coincide with the construction of other reasonably foreseeable projects within the Grange Castle area, there is potential for

cumulative impacts. This and other projects in the area will be carried out in accordance with Construction and Environmental Management Plans as agreed with South Dublin County Council. The potential for cumulative effects arising from construction works is therefore considered to be negative, slight, and temporary.

Once operational the project has potential to have cumulative impacts on population and human health in the area through increased demand on water and energy infrastructure in the area, increased traffic and increased visual impact as the largely agricultural lands in Grange Castle West are incrementally developed. These matters have all been assessed in the various chapters of the EIAR with mitigation measures proposed where appropriate. We consider the potential for cumulative effects once operational to be neutral , slight, and long term.

Please note that each relevant chapter of this EIAR provides its own assessment of cumulative impacts. No significant cumulative impacts have been identified.

5.8 Interactions

Where potentially likely and/or significant interactions between human health and other environmental factors associated with the proposed development are identified, they are explored and discussed in greater detail in the subsequent chapters of this EIAR.

5.9 Difficulties

There were no difficulties encountered in the preparation of this chapter of the EIAR.

5.10 References

1. South Dublin County Council Development Plan 2022-2028.
2. Pobal: www.pobal.ie
3. Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessments (Department of Housing, Planning and Local Government – August 2018).
4. Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, Draft August 2017).
5. Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2002).
6. Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment (European Union, 2017).
7. Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (DHPLG, 2018).
8. Central Statistics Office (2022) – Census 2022, Census 2016.
9. Central Statistics Office (2023) – CSO PxStat.
10. ESRI (2023) – Quarterly Economic Commentary, Winter 2023.
11. Department of Health (2022) – Health in Ireland Key Trends, 2022.

6 Biodiversity

6.1 Introduction

This chapter provides an assessment of the effects of the Proposed Development on the ecological environment, i.e. flora and fauna. It has been compiled in compliance with Directive 2011/92/EU of the European Parliament and Council of the 13th December 2011 on the assessment of the effects of certain public and private projects on the environment as amended by Directive 2014/52/EU of the European Parliament and Council of the 16th April 2014 (EIA Directive), the Planning and Development Act 2000 as amended, and the European Commission's guidance on the preparation of the EIA Report (2017) and follows the EPA EIA Report Guidelines (2022).

6.1.1 Statement of Authority

This chapter of the EIAR has been prepared by Ger O'Donohoe M.Sc. of Moore Group providing information on habitats in the study area. Ger is the principal ecologist with Moore Group and has 30 years' experience in ecological impact assessment. He graduated from ATU Galway in 1993 with a B.Sc. in Applied Freshwater & Marine Biology and subsequently worked in environmental consultancy while completing an M.Sc. in Environmental Sciences, graduating from Trinity College, Dublin in 1999. (He also has over 15 years' experience of carrying out bat surveys and has completed the Bat Conservation Ireland, Bat Detector Workshop which is the standard training for the carrying out of bat surveys in Ireland and follows the Bat Conservation Ireland 'Bat Survey Guidelines' - Aughney *et al*., 2008'. In addition, Ger is an active member of the Galway Bat Group and Bat Conservation Ireland, which monitors bat populations in Ireland, and facilitates the education of bat communities to the public.

Expertise on Birds and Mammals has been provided by John Curtin of Éire Ecology. John Curtin B.Sc. is the principal ecologist with Éire Ecology and has over 10 years of experience in ecological impact assessment having conducted plant, habitats, birds, bats and mammal surveys since 2010 including at windfarm and solar sites. John holds a first class honours degree in Environmental Science from NUI Galway, and has served on the Council of Bat Conservation Ireland since 2017. Primarily a field worker with experience in botanical and habitat identification, ornithological surveys, monitoring and mammal surveys. [amended text] The Report on Birds and Bats is presented as Appendix 6.1. to this Chapter.

Ross Macklin of Triturus Environmental Ltd. was contacted to undertake Otter Surveys for the proposed development. Ross is a highly experienced aquatic ecologist. He undertakes Fisheries, Substrate RHAT surveys, Newt surveys and Otter Surveys regularly. He is the principal author of the Dublin City Otter Survey; a Report prepared by Triturus Environmental Ltd. for Dublin City Council as an action of the Dublin City Biodiversity Action Plan 2015-2020. The Report on Otters is presented as Appendix 6.2. to this Chapter.

6.1.2 Description of the Subject Site

The proposed development site is located to the south of the Grand Canal at Grange Castle West in west Dublin. The proposed development areas comprise arable land which are bounded by fringing woodland adjacent to the Grand Canal. Access to the site will be provided by an extension of the eastern section of the Grange Castle West Business Park (GCWBP) access route. Refer to Chapter 3 for a full description of the proposed development.

6.2 Methodology

This chapter of the EIA Report concentrates on ecological features within the development area of significance, primarily designated habitats and species. This includes habitats/species listed in Annex I, II and IV of the EU Habitats Directive, rare plants and animals listed in the Flora Protection Order[1] and The Wildlife Act 1976 (as amended) and other semi-natural habitats of conservation value.
The objectives of the assessment are achieved by:

- Identifying baseline conditions of the site and its environs.
- Identifying the sensitivity of receptors with potential to be affected by changes in the baseline conditions.
- Predicting the magnitude of likely changes to the baseline receiving environment.
- Assessing the significance of effect taking into account sensitivity of receptors and magnitude of effect.
- Identifying and assessing appropriate mitigation measures, including alternatives.
- Assessing the significance of residual effects, taking account of any mitigation measures.

Desktop research to determine existing records in relation to habitats and species present in the study areas was firstly undertaken. This included research on the National Parks and Wildlife Services (NPWS) metadata website, the National Biodiversity Data Centre (NBDC) database and a literature review of published information on flora and fauna occurring in the Proposed Development study areas.

[amended text]
Specific methodologies for the Birds and Bats Surveys and Otter Survey are presented in the relevant Appendices in Appx. 6.1 and 6.2. To avoid repetition, they are not included below.

Other environmental information for the area was reviewed, e.g. in relation to soils, geology, hydrogeology and hydrology (Chapter 7 and Chapter 8 of this EIA Report). Interactions in terms of the Chapters on these topics presented in this EIA Report were important in the determination of source vector pathways and links with potentially hydrologically connected areas outside the Proposed Development site. For example, the determination of water courses and pathways to offsite water bodies or pathways to ground and potentially sensitive aquifers if present.

The potential effects on European sites are assessed in this chapter of the EIA Report in relation to the requirements of the EIA Directive and Irish legislation and does not purport to comprise information for the purposes of the screening assessment to be carried out by the competent authority or authorities pursuant to Article 6(3) of the Habitats Directive. The obligation to undertake Appropriate Assessment derives from Article 6(3) of the Habitats Directive and is the subject of an Appropriate Assessment process presented in separate reports but with pertinent data included in relevant section herein on European sites.

6.2.1 Legislation, Policy & Guidance

EU Habitats Directive
The "Habitats Directive" (Council Directive 92/43/EEC) on the Conservation of Natural Habitats and of Wild Flora and Fauna) is the main legislative instrument for the protection and

[1] Statutory Instruments. S.I. No. 235 Of 2022 Flora (Protection) Order 2022. Government Of Ireland

conservation of biodiversity within the European Union. The Habitats Directive provides for the designation, conservation and protection of sites comprising Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), collectively forming the Natura 2000 network of 'European sites'. Article 3 of the Habitats Directive obliges Member States to designate as SACs sites hosting the natural habitat types listed in Annex I and habitats of the species listed in Annex II of the Habitats Directive. Article 10 of the Habitats Directive requires that Member States endeavour to improve the ecological coherence of the Natura 2000 network to manage and conserve features of the landscape which are of major importance for wild fauna and flora, for example ecological corridors or stepping-stones which are important for the migration, dispersal and genetic exchange of species.

Article 6(2) obliges Member States to take the necessary measures to avoid the deterioration of an SAC, or disturbance of a species for which the site is designated. Article 6(3) sets out the requirement for an "Appropriate Assessment", to ensure that a proposed plan or project will not have an adverse effect on the integrity of a SAC. Article 7 applies the requirements of Article 6(2) and 6(3) of the Habitats Directive to SPAs designated under the Birds Directive.
In addition and separate to the Appropriate Assessment requirements, Article 12 of the Habitats Directive obliges Member States to establish a regime of strict protection for certain species listed in Annex IV of the Directive, wherever they occur within their natural range. The protection for species under Article 12 of the Habitats Directive is not confined to the boundary of SACs. Species listed in Annex IV include the otter and certain species of bat.

EU Birds Directive

The "Birds Directive" (European Council (2009) Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds) confers legal protection to all naturally occurring wild birds within the EU territory. Member States are obliged to adopt the necessary measures to maintain the population of bird species, and that includes, in accordance with Article 3, an obligation to create, maintain and manage habitats for birds, and specifically for the species of Bird listed in Annex I of the Directive, Article 4 requires Member States to create SPAs which, by virtue of Article 7 of the Habitats Directive, form part of the Natura 2000 network of European sites and are subject to the Appropriate Assessment requirements under Article 6(3) of the Habitats Directive.

Additionally, Article 5 of the Birds Directive requires that Member States establish a general system of protection for all naturally occurring wild birds within the EU territory, similar to the system of strict protection required for Annex IV species under the Habitats Directive.

Wildlife Acts 1976 - 2024[2]

The primary domestic legislation providing for the protection of wildlife in general, and wild birds in particular, and the control of some activities adversely impacting upon wildlife is the Wildlife Act of 1976, as amended. The aims of the Wildlife Act, according to the National Parks and Wildlife Service (NPWS) 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." All wild bird species are protected under the Act. The European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) made significant amendments to the Wildlife Acts to ensure consistency with the Habitats and Birds Directives.

[2] Wildlife Act 1976, as amended. Administrative consolidation of the Wildlife Act 1976, Law Reform Commission (2024)

Birds and Natural Habitats Regulations

The Habitats Directive and the Birds Directive have been transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477/2011). The Planning and Development (Amendment) Act 2010 also transposed the requirements under Article 6 of the Habitats Directive relating to the appropriate assessment of plans and projects into the Planning and Development Acts 2000 to 2022.

SDCC Development Plan, 2022 – 2028

SDCC Development Plan sets out the following objectives:

NCBH9 Objective 7: To ensure that all development proposals along the Grand Canal are accompanied by an EcIA (ecological impact assessment) prepared by a qualified ecologist and that the recommendations of the EcIA are incorporated into any development proposals including a landscape plan prepared by a qualified landscape architect.

An Ecological Impact Assessment (EcIA) is a process of identifying, quantifying and evaluating potential effects of development-related or other actions on habitats, species and ecosystems (CIEEM, 2019). When an EcIA is undertaken as part of an EIA process, it is subject to the EEIA Regulations (under the Planning and Development Regulations 2001-2023). This biodiversity chapter, along with the relevant appendices, meets the requirements of the aforementioned SDCC Plan objective and is provided to assist SDCC with its decision making in respect of the Proposed Development.

6.3 Assessment Criteria

6.3.1 Study Area

While the main focus of biodiversity was on the proposed development site within the red line boundary, see Figure 6.1 below, with the study extending outside the boundary area as appropriate was taken into account in addition to potential biological and hydrological connectivity in relation to European sites in a Zone of Influence, which is detailed further in Section 6.3.2 below.

The ecological surveys were designed based upon the characteristics of the Proposed Development and its likely significant impacts on the baseline environment during construction and/or operation. The study areas are described as follows.

Habitats

The area within or immediately adjacent to the Proposed Development footprint where fauna species could be directly or indirectly affected during construction/operation.
The study area of this assessment included the footprint of the overall landholding as detailed below and shown on Figure 6.1.

Figure 6.1: Site Location with overall redline boundary and future access road to the east.

Rare and/or Protected Flora

The area within or immediately adjacent to the Proposed Development footprint where rare and/or protected flora could be directly or indirectly affected during construction/operation.

Fauna species

Other than those listed below (includes badger, otter, other protected mammal species, amphibians, and reptiles). The area within or immediately adjacent to the Proposed Development footprint where fauna species could be directly or indirectly affected during construction/operation.

Bats

The area suitable for roosting, foraging and/or commuting bats (e.g. bridges, hedgerows, treelines, woodland and/or watercourses) within or immediately adjacent to the Proposed Development footprint where bats could be directly or indirectly affected during construction/operation.

Breeding Birds

All wild birds, and their nests and eggs, are protected under the Wildlife Acts. Some bird species are also listed on Annex I of the Birds Directive, and / or as SCIs within designated European sites.

Species considered to be Key Ecological Receptors of the Proposed Development include the following:

- Red and Amber Birds of Conservation Concern in Ireland (BoCCI) (Gilbert *et al.* 2021)[3] species listed for their breeding populations.

6.3.2 Zone of Influence

The ZoI, or distance over which a likely significant effect may occur will differ across the subject ecological receptors, depending on the predicted impacts and the potential impact pathway(s). The results of both the desk study and the suite of ecological field surveys undertaken have established the habitats and species present along the Proposed Development. The ZoI is then informed and defined by the sensitivities of each of the ecological receptors present, in conjunction with the nature and potential impacts associated with the Proposed Development. In some instances, the ZoI extends beyond the study area (e.g. surface water quality effects of a sufficient magnitude can extend, and affect, receptors at significant distances downstream). For example, the pollution of a water course by a significant quantity of a substance that could have an effect on a sensitive habitat or species where the substance was carried downstream to a receiving environment such as a protected coastal estuary.

The ZoI of the Proposed Development in relation to terrestrial habitats is generally limited to the footprint of the Proposed Development and the immediate environs (to take account of shading or other indirect impacts, such as air quality). Hydrogeological / hydrological linkages (e.g. rivers or groundwater flows) between impact sources and wetland / aquatic habitats can often result in impacts occurring at significant distances.

The ZoI of air quality effects is generally local to the Proposed Development. Construction dust tends to be deposited within 350m of a construction site, the majority of the deposition occurs within the first 50m (refer to Chapter 9 (Air Quality) for more detail).

With regards to hydrological impacts, the distances over which water-borne pollutants are likely to remain in sufficient concentrations to have a likely significant effect on receiving waters and associated wetland / terrestrial habitat is highly site-specific and related to the predicted magnitude of any potential pollution event. Evidently, it will depend on volumes of discharged waters, concentrations and types of pollutants (in this case sediment and/or hydrocarbons), volumes of receiving waters, and the ecological sensitivity of the receiving waters.

The ZoI of the Proposed Development in relation to likely significant effects on most breeding bird species is generally limited to habitat loss within the footprint of the Proposed Development.

6.3.3 Ecology Surveys

Habitat Surveys

The habitat survey was carried out in two stages. The first stage comprised desktop research to determine existing records in relation to habitats and species present in the study area as defined by the area of the Proposed Development, site boundaries and surrounding buffer zones up to 150m away. This distance referred to by the standard ecological impact

[3] Gilbert, G., Stanbury, A., Lewis, L. (2021). Birds of Conservation Concern in Ireland 4: 2020–2026. Irish Birds 9: 523-544.

assessment guidance[4] is adequate to address potential effects on mobile species such as otters or badgers, if present.

The second stage of the survey involved a site visit to establish the existing environment in the footprint of the Proposed Development area and surrounding buffer zones. Areas which were highlighted during desktop assessment were investigated in closer detail according to the Heritage Council Best Practice Guidance for Habitat Survey and Mapping (Smith *et al.*, 2011). Habitats in the Proposed Development area were classified according to the Heritage Council publication "A Guide to Habitats in Ireland" (Fossitt, 2000). This publication sets out a standard scheme for identifying, describing and classifying wildlife habitats in Ireland. This form of classification uses codes to classify different habitats based on the plant species present. Species recorded in this report are given in both their Latin and English names. Latin names for plant species follow the nomenclature of "An Irish Flora" (Parnell & Curtis, 2012).

Habitats were surveyed by Moore Group Ecologists on 12 August 2022 and 16 April 2023 by conducting study area walkovers covering the main ecological areas identified in the desktop assessment. The survey dates are within the optimal survey period for botanical and faunal species. A photographic record was made of features of interest and kept on file.

Additional habitat surveys were completed by Éire Ecology ecologists during mammal and bird surveys outlined below and in detail in Appendix 6.1. [amended text] Surveys were conducted from November 2022 to March 2024 encompassing two wintering bird periods, a bird breeding season and bat active and wintering seasons. The survey types were determined most appropriate to establish a baseline species assemblage, along with spatial and temporal distribution of species activity within the proposed planning boundary.
Otter habitats were surveyed in September 2024.

Mammals (Excluding Bats)

A preliminary badger survey conducted in 2023 was updated in 2024. Signs of badgers were searched for while surveying the study areas noting any sights, signs or any activity in the vicinity especially along adjacent boundaries. A search for any evidence such as setts, trails with hair evidence, latrines or snuffle holes was made.

The otter survey area comprised approximately 3km of contiguous canal (north and south bank) between Brownstown 200m west of the development boundary and Gollierstown Bridge. Otter sign surveys of the Grand Canal, using total corridor otter survey (TCOS) methodology were undertaken in September 2024. The survey was completed during dry, mild, bright and settled conditions, which ensured that a good representation of habitat marked by otter could be recorded in the field, including territorial marking or marking of feeding and potential breeding areas.

Each otter sign was logged by type, location (handheld GPS), condition and approximate age for later interpretation to distinguish differences in habitat use and activity. Spraints were subjectively assessed as either very fresh, fresh, mixed-age (recent and older spraints, typically indicative of a regular sprainting site) or old (spraint not recently deposited and degrading). Furthermore, indicative counts of spraint (i.e. number of individual spraints) and the number of sprainting sites (often separate clusters in one area) were noted. This helped indicate the frequency of otter marking, which can clarify levels of activity in particular areas, inclusive of breeding (holt) and resting (couch) areas.

[4] Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009);Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2019).

Bats

[amended text]Appendix 6.1 presents the methodology for the assessment of bats at the proposed development site.

Site visits to establish the existing environment in the footprint of the proposed development with particular reference to birds, bats and mammals. Signs of mammals were searched while surveying the study area at several occasions throughout winter of 2022 and spring 2023 noting any sights, signs or any activity in the vicinity especially along adjacent boundaries. The potential to host bat roosts was examined at the time of a walkover survey. A photographic record was made of the main features of interest. A static bat detector survey was conducted in May 2023 and again in August / September 2024. A bat emergence survey was conducted on the 6th of June 2023 while an at height potential roost feature assessment of trees was conducted on the 29th of August 2024. Bird surveys were conducted from November 2022 to March 2024.

Bat surveys conducted on the site included a winter assessment of buildings adjacent to the site. The original site outline did not contain trees. The site subsequently moved to the north, bordering the Grand Canal and an associated woodland strip. Additional surveys included static bat surveys and emergence survey of buildings were conducted in the bat active season. Updated static surveys were conducted in 2024 alongside an at height potential roost feature survey of the northern woodland strip.

Birds

Appendix 6.1 presents the methodology for the assessment of birds at the proposed development site. Specific details of survey dates are provided and not repeated here.

Surveys commenced in November 2022 and originally focused on the Media Park site. In February 2023 bird surveys expanded to encompass the entire SDCC landholdings. Bird surveys originally consisted of vantage point watches, thermal night time transects, daylight transects (wintering and breeding) and hinterland. From October 2023 methodologies changed to paired transect surveys timed to coincide with high tide in Dublin Bay. Hinterland surveys were also expanded westward from this time.

6.3.4 Categorisation of the Baseline Environment

Desktop research to determine existing records in relation to habitats and species present in the study areas included research on the National Parks and Wildlife Services (NPWS) metadata website, and the National Biodiversity Data Centre (NBDC) database. The following resources assisted in the production of this chapter of the report.

- The following mapping and Geographical Information Systems (GIS) data sources, as required:
- National Parks & Wildlife (NPWS) protected site boundary data;
- Ordnance Survey of Ireland (OSI) mapping and aerial photography;
- OSI/Environmental Protection Agency (EPA) rivers and streams, and catchments;
- Digital Elevation Model over Europe (EU-DEM);
- [amended text]Google Earth and Bing aerial photography 1995-2024;
- Online data available on Natura 2000 sites as held by the National Parks and Wildlife Service (NPWS) from www.npws.ie including:
    - Natura 2000 - Standard Data Form;
    - Conservation Objectives;
    - Site Synopses;

- National Biodiversity Data Centre records:
- Online database of rare, threatened and protected species;

- Publicly accessible biodiversity datasets.
  - Status of EU Protected Habitats in Ireland. (National Parks & Wildlife Service, 2019) ; and
- Relevant Development Plans;
  - South Dublin County Development Plan 2022-2028

6.3.5 Assessment Methodology

Following desktop assessment and fieldwork, an evaluation of the development area and determination of the potential effects on the flora and fauna of the area is based on the following guidelines and publications:

- Guidance document on Article 6(4) of the Habitats Directive 92/43/EEC (EC, 2007);
- Guidance document on the strict protection of animal species of Community interest under the Habitats Directive (EC, 2021);
- Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (DEHLG, December 2009, Rev 2010);
- EPA Guidelines on Information to be contained in an EIA REPORT (EPA, 2022);
- Best Practice Guidance for Habitat Survey and Mapping (Heritage Council, 2011);
- Ecological Surveying Techniques for Protected Flora & Fauna (NRA, 2008);
- Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009);
- Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2019).

6.4 Receiving Environment

6.4.1 Designated Habitats

The potential for source pathway receptor connectivity is firstly identified in AA Screening through GIS interrogation and detailed information is then provided on sites with connectivity. European sites that are located within a potential Zone of Influence of the Proposed Development are presented in Report for AA Screening.

The Proposed Development is located at Grange Castle Business Park West, Co Dublin, adjacent to and south of the Grand Canal pNHA. There are no water courses on site and all surface water drains to ground or field boundaries with no pathways to off-site water courses.

The Lucan Stream located c. 800m to the east has been incorporated into newly developed attenuation ponds (part of South Dublin County Council access road network) and is culverted under the Grand Canal and parts of Adamstown and under the N4 at west Lucan where it eventually joins the River Liffey c. 4.7 km downstream. The hydrological pathway via the River Liffey to the European sites located in Dublin Bay at Alexandra Road Extension, Dublin Port is over 25 river km downstream.

There will be no direct or indirect effects on any Annexed habitats. There are no direct pathways and no connectivity to any European sites in the Zone of Influence. All of the European sites in Table 1 with the exception of the North Bull Island SPA are excluded at this preliminary screening stage due to distance of removal and large dilution factor which occurs in the downstream water bodies including the River Liffey and Dublin Bay itself.

Site Code	Site name	Distance (km)[5]
000206	North Dublin Bay SAC	20.38
000210	South Dublin Bay SAC	17.97
000397	Red Bog, Kildare SAC	14.05
001209	Glenasmole Valley SAC	10.51
001398	Rye Water Valley/Carton SAC	3.92
002122	Wicklow Mountains SAC	11.97
004006	North Bull Island SPA	20.37
004024	South Dublin Bay and River Tolka Estuary SPA	17.26
004236	North-West Irish Sea SPA	21.24

Table 6.1 European Sites located within the potential Zone of Influence[6] of the Proposed Development.

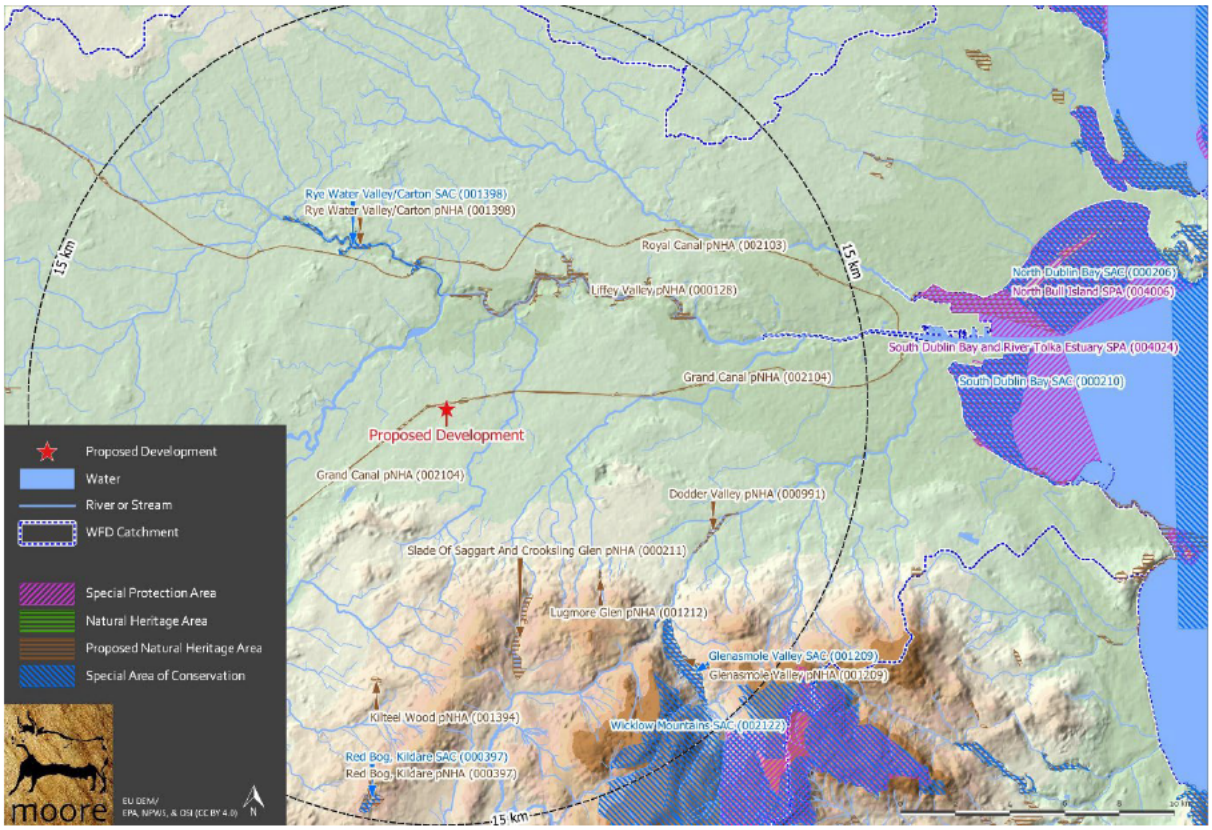


Figure 6.2: Showing European sites and NHAs/pNHAs within the wider Potential Zone of Influence of the Proposed Development.

[5] Distances indicated are the closest geographical distance between the Proposed Development and the European site boundary, as made available by the NPWS.
[6] All European sites potentially connected irrespective of the nature or scale of the Proposed Development.

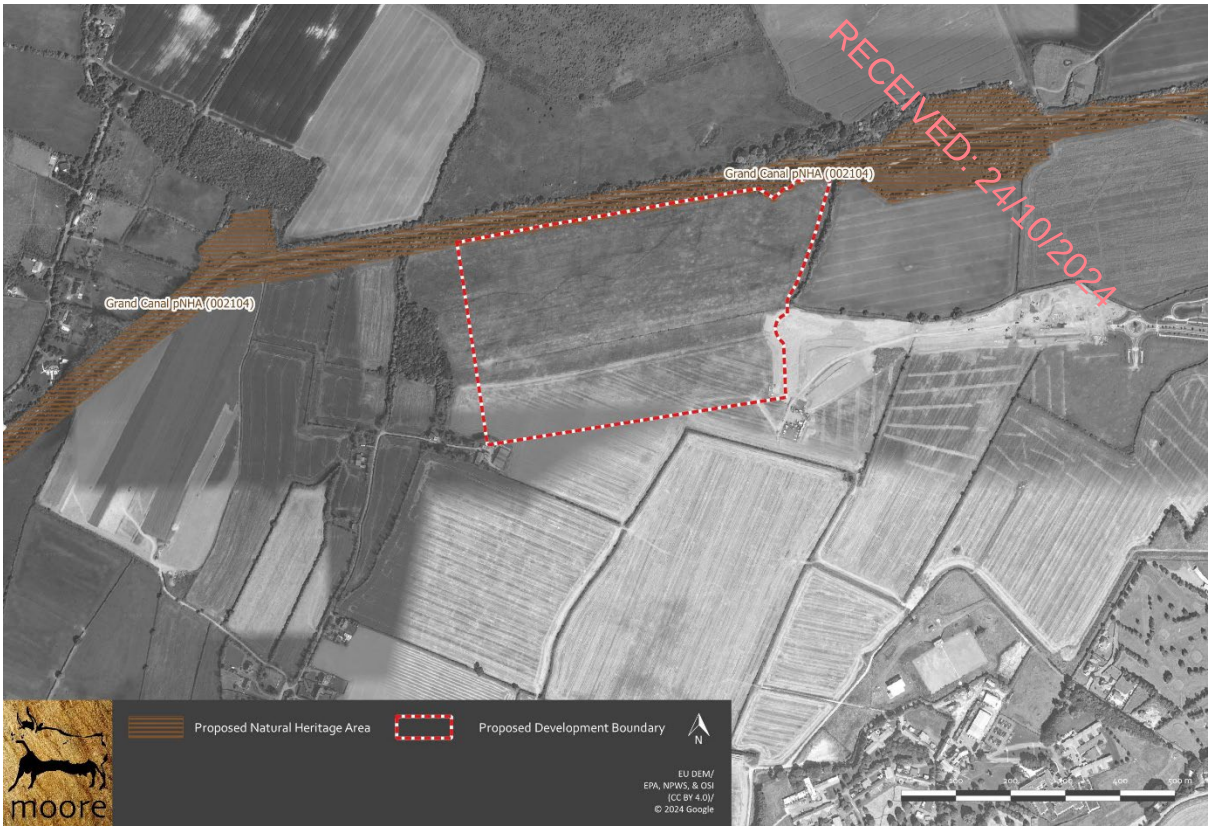


Figure 6.3: Showing conservation areas in the nearer Potential Zone of Influence of the Proposed Development; the Grand Canal pNHA.

6.4.2 Non-designated Habitats

The site comprises fields of existing arable land, see the Habitat Map in Figure 6.4. A list of habitats recorded and their corresponding Fossitt codes is presented in Table 6.2.

The habitat of highest value is the Woodland fringe of the Grand Canal (WD1). This woodland provides a green corridor of between 15m and up to 45m in width for Badgers, Otters, Bats and Birds and as a proposed Natural Heritage Area it has *de facto* conservation status at a National level.

Areas of woodland c. 100m further to the west are located outside the proposed development site and have high local value as a supporting habitat for birds and bats. They provide continuation of commuting corridor for bats along the Grand Canal into the environment to the south.

The open fields within the site comprise Arable land (BC1) of relatively low botanical ecological value. Their value is linked to Yellowhammer birds, a species confined predominantly to the east coast as the Bird Watch Ireland species info says 'Declining resident mainly in the east and south of Ireland. Strongly tied to cereal cultivation' and Golden Plover were recorded within the site and a buffer zone up to 150m from the site boundary. The site is of ecological value for wintering Golden Plover, an Annex II Birds Directive listed species, which can be found within the site and the surrounds in regionally important numbers.

There were no invasive species recorded during site visits.

Habitat	Habitat Category	Habitat Type
(F) Freshwater	(FW) Watercourses	(FW3) Grand Canal
(W) Woodland	(WD) Highly modified/Non-native woodland	(WD1) Mixed woodland
	(WL) Linear woodland/scrub	(WL1) Hedgerows
(B) Cultivated and built land	(BC) Cultivated land	(BC1) Arable crops
	(BL) Built land	(BL3) Buildings and artificial surfaces

Table 6.1: Details of habitats recorded and their corresponding Fossitt codes.

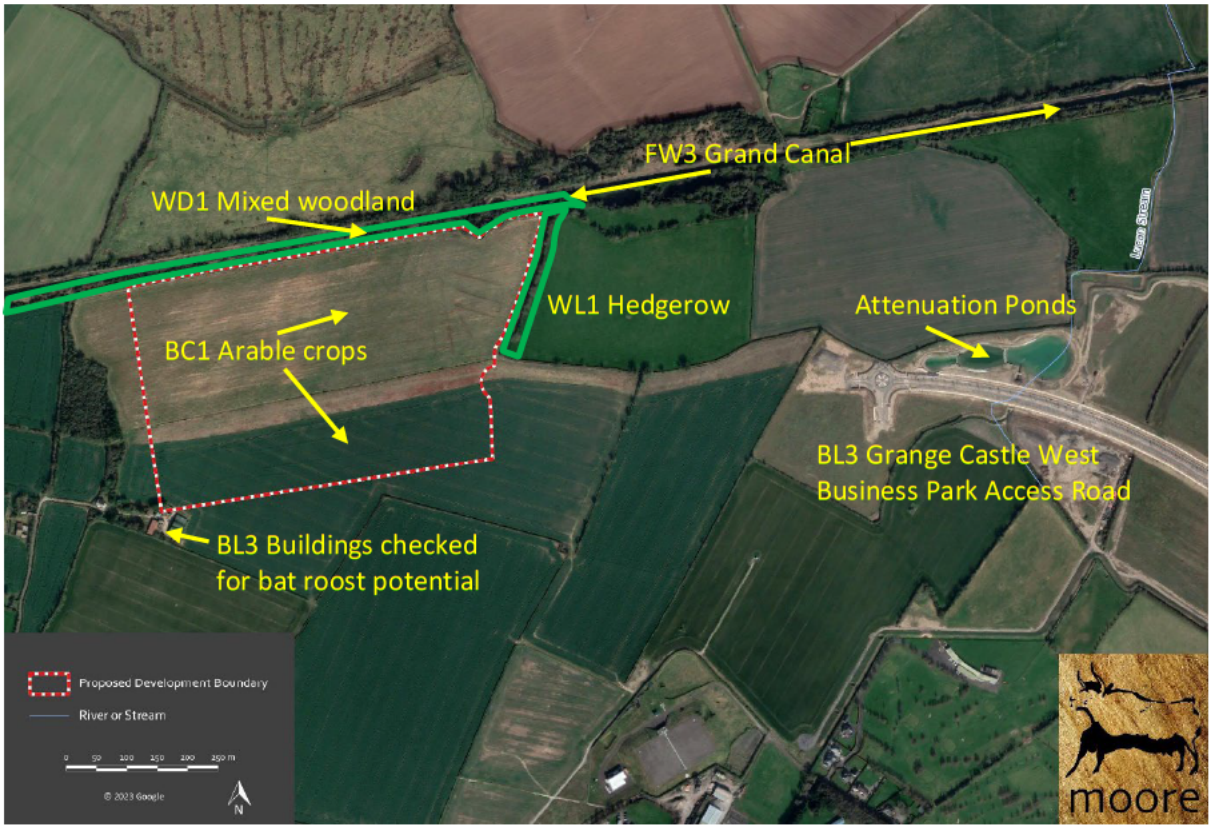


Figure 6.4: Showing the main habitat types present in the proposed development area.

The woodland fringing the southern towpath of the Grand Canal include mixed species of Oak (*Quercus petraea*), Ash (*Fraxinus excelsior*), Sycamore (*Acer pseudoplatanus*), Wych elm (*Ulmus glabra*), Hawthorn (*Crataegus monogyna*) interspersed with Elder (*Sambucus nigra*) and Blackthorn (*Prunus spinosa*).

The understory of this woodland type habitat is comprised of a dense thicket in many places of Bramble (*Rubus fruticosus* agg.) and Ivy, (*Hedera helix*) with patches of Nettle (*Urtica diocia*), Germander speedwell (*Veronica chamaedrys*), Ground Ivy (*Glechoma hederacea*), Cleavers (*Galium aparine*), Hogweed (*Heracleum sphondylium*), Cow parsley (*Anthriscus sylvestris*) and occasional Lords and ladies (*Arum maculatum*).

6.4.3 Fauna

Bats

Seven species of bat were positively identified during the various bat surveys: Common Pipistrelle (*Pipistrellus pipistrellus*), Soprano Pipistrelle (*Pipistrellus pygmaeus*), Nathusius Pipistrelle (*Pipistrellus Nauthusii*), Brown Long-eared bat (*Plecotus auritus*), Leisler's bat (*Nyctalus leisleri*), Natterer's Myotis (*Myotis Nattererii*), Daubenton's Myotis (*Myotis Daubentonii*). In addition, several unidentified Myotis bat species were recorded, these being either Whiskered, Natterers or Daubenton's bats. Finally, several Pipistrelle calls recorded from the static detectors had a peak frequency of 40kHz, thus could be either Common or Nathusius' Pipistrelle.

No evidence of a bat roost was found during any survey. Static surveys reveal the site is of limited value to bats however the northern woodland provides a valuable screen for the Grand Canal where very high bat activity occurs. It is the surveyor's opinion that as long as this northern woodland is effectively screened (from lighting and disturbance) impact on the local bat population will be negligible

Otters

A very low number of otter signs (*n*=2) were recorded within the survey area during the current otter survey, comprising a total of 1.5km of contiguous canal habitat. This equated to a mean of 1.3 otter signs per kilometre of linear canal habitat including north and south banks, a low frequency of signs similar to previous Triturus surveys of the Grand Canal.

Two main areas of otter habitat existed in the study areas. This included the small quarry ponds on the south bank of the Grand Canal west of Gollierstown Bridge and the Grand Canal itself. While these habitats were mature and supported fish species including perch, roach, pike and tench (pers. obs) high levels of human disturbance was considered to account for the low levels of otter activity. A total of *n*=2 otter signs were recorded in the study area that included a single inactive holt and spraint site. The low density of otter signs recorded would be consistent with historical densities recorded on the Grand Canal (Triturus 2022). The single old spraint site was recorded under Gollierstown Bridge on the north bank. Bridges are routinely and preferentially marked by otters in higher disturbance habitats (Triturus, 2022; Brazier & Macklin, 2020; Macklin et al. 2019) given a greater level of seclusion and cover relative to adjoining areas. The absence of fresh spraint in the survey area supports very infrequent and or no recent use of the study area by otter. With regards to the high levels of human disturbance examples included remnants of bankside fires and hunting (shells found during the survey) that likely deterred frequent otter usage of the study area.

A single inactive holt was recorded near the old quarry ponds to the northeast of the study area and east of Gollierstown Bridge on the south bank of the Grand Canal. Given the absence of otter scent, no recent spraint deposition and the higher disturbance levels observed in the study area, the identified holt is not considered currently active. Active holts typically have nearby fresh spraint, strong otter scent and have low levels of disturbance (Brazier & Macklin, 2020). Otters, along with their breeding (holts) and resting places (couches), are protected under provisions of the Wildlife Acts 1976 to 2023. Otter breeding areas are especially sensitive to direct human disturbance (Mason & Macdonald, 2009), with otter reproductive success known to be higher in less disturbed habitats; hence their preferential fidelity for low-disturbance areas (Scorpio et al., 2016; Ruiz-Olmo et al., 2011; Loy et at., 2009; Kruuk, 2006). The high level of observed disturbance inclusive of well-worn human trails, hunting in the area

and more limited seclusion along the canal banks created less optimal conditions for active holt and couch areas as previously stated.

Whilst the identified holt showed no signs of current otter use at the time of survey, this does not mean the holt will not become active or occupied in the future. This is especially so in light of the relative paucity of suitable breeding areas for otters along the Grand Canal corridor with continued encroachment and peri-urbanisation.

Badgers

In order to ascertain if badgers were using the site and surrounding area, a preliminary walkover survey was carried on the 22nd February 2023 by the original site layout. Evidence such as sett, trails with hair evidence, latrines or snuffle holes were sought. No evidence of badgers were found. A further survey of the entire SDCC lands was conducted on the 14th of March 2023, while the Media Park site was rechecked on the 29th of August and 09th of September 2024. In addition, evidence of badgers was sought during the numerous other surveys conducted when on site.

Overall evidence of badgers throughout the SDCC site is low with two tracks noted to [redacted] from May and July 2023. The August 2024 survey did note some snuffle holes [redacted] confined to a strip adjacent [redacted] In addition, a burrow was noticed on [redacted] t to the site. A trail camera left recording here was stolen.

Birds

The site of the proposed development consists of tillage, hedgerows and built land.
Species of note found within the site include Black-headed Gull, Buzzard, Golden Plover, Great Black-backed Gull, Herring Gull, Kestrel, Meadow Pipit, Mew Gull, Northern Lapwing, Redwing and Snipe.

Flocks of Golden Plover were noted on 35 occasions with highest flock recorded at 215 individuals flying over the site, 400 flying over SDCC lands and 560 just to the west of the site.

Golden plover were observed perched on the ground feeding. Lower numbers of Lapwing were also recorded (peaking at 9). Mute swan, cormorant and mallard were observed flying along the canal and not associating themselves with the subject site. Gulls were typically observed overflying the site. Snipe were observed nine times, flushed by surveyors. Redwing; a red listed wintering passerine were noted on one occasion from the VP surveys. No flocks of numbers equating to national importance were recorded.

Wintering and breeding bird transects were conducted within the site and the greater SDCC site. The only confirmed breeding species found within the site was Meadow Pipit.

Wintering night time thermal transects were also completed once per month through each wintering period. The Media Park site contains a northern section where bird crop cover was planted. This crop area was unsuitable for thermal surveys as the vegetation masked the presence of birds. Daylight transects were instead conducted through this area.

Results show the site is used at times by roosting birds with Golden plover (5 observations with max of 29 recorded), Lapwing (1 observation of 9), Snipe and Black headed gulls recorded. Higher numbers were noted from the greater SDCC lands.

A review of the first wintering season showed high numbers of Golden plover surrounding the site. From October 2023 hinterland surveys shifted to focus on potential Golden plover habitat to the south, west and north in order to find more information on this species. The refocused 2023/2024 winter season sought to identify if these birds are associated with the coastal SPA's such as North Bull Island or are they a Southeast Dublin flock. In addition, it was important to establish if the Grange site is one of many areas of interest for this flock and where else do they feed and rest.

The Bird Survey results in Appendix 6.1 details species recorded. The following data on Golden Plover is pertinent to the overall assessment and included as such.

Large flocks of Golden plover overwinter in Ireland before returning to Iceland to breed. These can be found in a variety of habitats including coastal and inland and are often associated with wetlands as well as tilled fields. In addition, Ireland hosts a small breeding population limited to the acidic uplands of NW counties.

S. Gillings (1999) states this species avoids lands in winter over 200m in elevation and prefer winter cereals, bare till and grassland with a sward height of 7cm or less. They are also renowned for cold weather movements, likely moving towards the coast during cold snaps to avoid frozen ground. (Gilling, 2007) found that Golden plover tend to ignore seemingly suitable lands more than Lapwing and can often be found repeatedly utilising the same fields in preference to other similar fields.

The closest SPA with Golden Plover as a Conservation Objective is North Bull Island SPA located 20.4km to the east. IWeBs data (splitting Dublin Bay into numbered subsites) collating high tide counts for waterbirds from the Bull Island areas shows this species has highly variable counts thus does not remain at the SPA regularly but avails of surrounding terrestrial habitats. The peak count from the seven subsites within which the North Bull Island resides, varied from 7548 total in 2018/2019 to a low of 35 in 2021/2022. In addition to the coastal sites, Golden plover can be found to the west, with a small breeding population located in the Curragh and wintering flocks in the wider Kildare area. Wintering surveys conducted in grasslands at Clonburris, 3.5km to the east did not find Golden Plover. This is unsurprising as the grasslands here are rank and typically over 7cm in sward height thus unfavourable for this species.

The Grange Castle Media Park site is less important for Golden plover than lands to the south of the application site. While flocks were noted circling over the area, they rarely interacted with the subject site. As previously mentioned, the bird crop cover within the site is not a favourable habitat for this species. The flock shows a particular affinity to fields just to the south of the site.

It is estimated that the wintering population of Golden Plover in Ireland is 92,000. For a record to reach National Importance it requires numbers of over 920 birds.

An estimation for regional important numbers was derived from a 1% threshold of the combining mean peak data from the County Dublin SPA's (1995/96 to 99/00) alongside IWeBS data (2011/12 to 20/21) from sites outside of designated areas. This suggests records of over 94 Golden plover in Dublin reach regional importance.

Records within the subject site have reached **Regional Importance**.

6.5 Predicted Impacts of the Proposed Development

There are no rare or protected habitats recorded in the study area inside the proposed development boundary. The nearest habitat of conservation value is the Grand Canal corridor which is part of the Grand Canal pNHA.

There are no Habitats Directive Annexed habitats at the proposed development site. The habitats under the footprint of the proposed development are of relatively low local ecological value.

There are no direct pathways to water courses leading to European sites. The new surface water network within the site will convey surface water flows to two swales located within the 50m buffer zone between the proposed development and the Grand Canal to the North of the site. Surface water flows from the site will outfall to the stream west of the site, which eventually joins the River Liffey.

The hydrological pathway to the European sites located in Dublin Bay at Alexandra Road Extension, Dublin Port is over 25 river km downstream. All of the European sites in Dublin Bay with the exception of the North Bull Island SPA were excluded at preliminary screening stage due to distance of removal and large dilution factor which occurs in the downstream water bodies including the River Liffey and Dublin Bay itself.

The overall findings of Golden plover from the various surveys can be summarised below;

- The subject site (max of 215 Golden Plover recorded in February 2023) and greater SDCC landholding has hosted regionally important numbers of Golden plover.
- It appears this flock of approx. 500 birds found in the south Dublin region are most frequently recorded near the subject lands (as demonstrated from hinterland surveys)
- Towards high tide in Dublin Bay the flock typically can be seen entering towards the site from the south-east to south, rather than the north-east indicating that these are not ex-situ birds from the North Bull Island SPA. At other times the flock have been observed within the site at low tide thus indicating the flock is not influenced by tides.
- No flock was observed flying from the north-east into or leaving the site, the direction of the North Bull Island SPA.
- The site is used by lower numbers during the night time for feeding and roosting. This demonstrates the site is not only used for feeding birds but is also used a resting place thus increasing the value of the site for this species.

Notwithstanding there is a paucity of studies examining the wintering range for Golden Plover, (Gillings, 1999) have observed where two wintering Golden plover with distinct markings were regularly observed making movements between sets of fields up to 10 km to 12 km apart. The North Bull Island SPA is 20.41km away from the subject lands.

Given the above results it is highly unlikely this flock is an ex-situ population associated with the Bull Island SPA and is most likely a distinct South-west Dublin flock. In the circumstances, we are satisfied beyond reasonable scientific doubt, in view of the best scientific knowledge, and having regard to the conservation objectives of the North Bull Island SPA, that the

proposed development, individually or in combination with other plans and projects, would not be likely to have a significant effect on the North Bull Island SPA."

6.5.1 Do Nothing Scenario

If the proposed development were not to proceed, the site would continue to be managed as arable farmland. The resulting scenario would incur **neutral effects**.

6.5.2 Construction Phase

Habitats

There will be a loss of c. 2 Ha or 0.2km^2 of relatively low value (ecologically) arable farmland. The overall effect on biodiversity is **imperceptible** and **neutral**. However, the value of these lands as supporting habitat to Golden Plover is examined further below.

The Lucan Stream rises in the ditches draining this part of west Dublin and has been recently directed to a new attenuation pond to serve the construction of the GCWBP access road. The stream is culverted under the Grand Canal and parts of Adamstown and under the N4 at west Lucan where it joins the River Liffey c. 4.7 river km downstream. The hydrological pathway to the European sites located in Dublin Bay at Dublin Port is over 25 river km downstream.

There will be **no direct or indirect effects** on any Annexed habitats. There are no direct pathways and no connectivity to any European sites in the Zone of Influence. All of the European sites in Table 6.1 with the exception of the North Bull Island SPA are excluded at preliminary screening stage due to distance of removal and large dilution factor which occurs in the downstream water bodies including the River Liffey and Dublin Bay itself.

Given the above results it is highly unlikely this flock is an ex-situ population associated with the Bull Island SPA and is most likely a distinct South-west Dublin flock. In the circumstances, we are satisfied beyond reasonable scientific doubt, in view of the best scientific knowledge, and having regard to the conservation objectives of the North Bull Island SPA, that the proposed development, individually or in combination with other plans and projects, would not be likely to have a significant effect on the North Bull Island SPA."

Golder Plover is a red-listed bird species, and while the loss of the subject lands will not result in a significant impact with those birds currently utilising the site having sufficient alternative suitable lands in the immediate hinterland.

Fauna

Nonvolant Mammals

Overall evidence of badgers throughout the SDCC site is low with two tracks noted [redacted] from May and July 2023. The August 2024 survey did note some snuffle holes within t[redacted]

The absence of fresh spraint in the survey area supports very infrequent and or no recent use of the study area by otter.

Fox and rabbits can be found throughout the site. There will be **no significant negative effects** on any species of nonvolant fauna including badgers or otters during the construction stage.

Bats
No loss of bat roosts will occur due to the development. The development of the site will not impact bats utilising the Grand Canal however may have a slight impact on feeding bats. Highest activity recorded was from Leisler's bat; a species adept at hunting over artificial surfaces thus the transformation of the site may result in only a medium negative to neutral impact. It is important to limit artificial lighting within the site to ensure no additional light pollution occurs on bat friendly habitat features.

The magnitude of the impact is assessed as **Very Low**. Species recorded are Medium sensitivity species + Negligible Impact = Very Low effect significance. No likely significant effects at a local level are predicted.

Birds
The predicted impacts of the proposed development are outlined in Appendix 6.1 attached with particular emphasis on species of interest including Buzzard, Kestrel, Meadow pipit Lapwing, Snipe and Redwing. No likely significant effects at a local level are predicted for these species.

6.5.3 Operational Phase

There will be **no significant negative operational effects** on adjacent habitats.

Habitats
The stormwater from the proposed development will be managed through a combination of several drainage techniques, including permeable pavement, filter drains, swales, and attenuation ponds. These methods in conjunction with a flow controlled device will restrict the release (designed to greenfield runoff rate of 2L/s/ha) of stormwater to the GCWBP Attenuation Basin through 2no. designated outfall locations.

There is no real likelihood of any significant effects on European Sites in the wider catchment area.

Fauna
Nonvolant mammals
There will be **no significant negative effects** on any species of nonvolant fauna including badgers or otters during the operational stage.

Bats
Guidance on lighting has been based on the Bats & Lighting document; (BCI, 2010), the Bats and artificial lighting in the UK Guidance Note 08/18 (BCT, 2018) and Guidelines for consideration of bats in lighting projects. EUROBATS Publication Series No. 8 (Voigt, 2018). Lighting can alter the behaviour of bats and the insects they prey on. Night flying insects can be attracted to lights particularly sources that emit an ultraviolet component or have a high blue spectral content. Whilst some species of bat such as Leisler's and Pipistrelle species can take advantage of this occurrence, other species such as Daubenton's bat and brown long-eared avoid such areas. Lighting can create barriers for bat species both entering roosts and using commuting routes such as rivers, treelined roads and woodland edges. 'Consideration should be given to ensure that dark wildlife corridors remain in the landscape to allow bats and other wildlife to travel safely to and from feeding habitats.' This is considered further in Section 6.6 below in Mitigation. A study by Emery (Emery, 2008) concluded that shielding and masking of streetlights can reduce light spillage by as much as 40%. While internal and

external louvers are more effective, the external louvers can reduce light spillage by as much as 97%.

Birds
The predicted impacts of the proposed development are outlined in Appendix 6.1 attached with particular emphasis on species of interest including Buzzard, Kestrel, Meadow pipit Lapwing, Snipe and Redwing. No likely significant effects at a local level are predicted for these species.

6.6 Mitigation Measures

6.6.1 Construction Phase

Habitats
There are no specific mitigation measures for habitats during the construction phase. Treelines located at the periphery of the site will be retained.

Vegetation removal could impact on nesting passerines such as blackbird and wren thus ideally this activity should be carried out only outside the bird-nesting season March 1st – August 31st in order to avoid impacts on nesting birds.

Fauna
Nonvolant mammals
There are no specific mitigation measures for nonvolant mammals during the construction phase.

Bats
No loss of bat roosts will occur due to the development. The development of the site will not impact bats utilising the Grand Canal. It is important to limit artificial lighting within the site to ensure no additional light pollution occurs on bat friendly habitat features, considered under the operational phase below.

Birds
Vegetation removal (soil heaps with sticks) could impact on nesting passerines such as blackbird and wren thus ideally this activity should be carried out only outside the bird-nesting season March 1st – August 31st in order to avoid impacts on nesting birds. In the event this work is required earlier an ecological clerk of works should be onsite to ensure no nesting birds are present. Should an occupied nest be found the clearance works will have to wait until after fledging.

An Ornithologist ECoW will be employed during the construction phase to micromanage construction locations to avoid disturbance on key species.

Whilst halting the construction to times outside the wintering period was considered, the scale of works was not considered impactful enough to negatively impact wintering birds both within the site and in the surrounds. Rather, an ECoW will be involved in the construction and limit construction in areas based on when they are of value to birds. The monitoring section below outlines how bird surveys will continue during the construction phase and based on these results micro exclusion zones can be put in place. Potential buffer zones and timings when works may need to be halted here. For Golden Plover, a 300m buffer zone will be set in place surrounding the typical resting place of identified flocks. A 300m buffer surrounding this

area marginally encroaches within the development site. In order to reduce visual impacts on the species it is proposed to erect 3m high hoarding along the southern and eastern edge of the site prior to the wintering period. The appointed ECoW should regularly visit the site during the wintering period and map flocks behavior. Should flocks of Golden plover be noted within 300m of the southern or western edge of the site this person should have the authority to halt noisy works temporarily. This method based on co-operation between overseeing ornithologist, site manager and NPWS / Local Authority representative will allow works to continue throughout the year whilst also avoiding disturbances to key species at vulnerable times.

Newer equipment will be utilised where possible, newer equipment is generally quieter than older equipment. When older equipment is used consideration will be given to potential modifications that are available to reduce noise levels.

All equipment will be well maintained which is known to reduce noise levels.

6.6.2 Operational Phase

Habitats

In addition to retention of existing green areas where feasible, the proposed development includes a Landscape Plan which provides for biodiversity offset through the additional planting.

The Landscape Plan provides for extensive planting along a supporting strip adjacent to the southern boundary of the Grand Canal corridor and supports native species proposals having regard to the All-Ireland Pollinator Plan for the promotion of supporting habitats and a positive impact in terms of Biodiversity Nett Gain.

Fauna

Nonvolant Mammals

There are no specific mitigation measures for nonvolant mammals during the operational phase.

Bats

It is important to limit artificial lighting within the site to ensure no additional light pollution occurs on bat friendly habitat features.

The lighting plan is designed so that there is a maximum of 1 lux light spill in areas to the north and west where Canal and treelines are located. This will be achieved by using well controlled optics, and mounting the luminaires without any tilt, or with a small 5 degree tilt – away from the boundaries in question. This will result in an overall upward light ratio of 0%.

All lights will use an amber-white spectrum which does not contain any blue light component. This colour type has less of a negative effect on invertebrates and bats in comparison to older models. In other areas of the site with less potential for disturbance 3000k warm white lighting has been proposed (instead of typical 4000k neutral white).

A dark zone will be established to the north of the site. A static monitoring program and Lux survey should be completed in the grassland to the north of the site, adjacent to the Grand Canal prior and after construction.

Birds

SDCC has suitable lands (41 hectares) to the west of the Grange Castle West Business Park where Golden plover flocks have been observed. It is the surveyor's opinion that with the correct management regime, these lands can provide viable alternative feeding to the Grange Castle West Business Park. Of these lands, 31 hectares are from high to moderate suitability for Golden plover.

A bird box scheme will be enacted along the Landscape Plan proposed woodland strip bordering the Grand Canal.

6.7 Monitoring or Reinstatement

As mentioned in Appendix 6.1, construction phase monitoring will be important to identify disturbance buffers of species of interest. In addition, to onsite construction phase monitoring, an Ornithologist ECoW should be on hand during enhancement works of the donor site and prepare a report of works conducted here.

Monitoring of the success of the proposed measures will also be important thus a comprehensive post construction monitoring of the wintering Golden plover population should be conducted for three years both within the SDCC landholding and the donor site. An appropriate survey regime should be put in place noting if Golden plover are utilising the donor site. Annual reports should be submitted to South Dublin County Council and NPWS.

6.8 Residual Impacts

6.8.1 Construction Phase

With the employment of appropriate mitigation measures with regard to local biodiversity, the Proposed Development will have a **neutral, imperceptible effect** on biodiversity.

6.8.2 Operational Phase

The provision of suitable lands agreed with South Dublin County Council will offset the loss of feeding ground for Golden Plover so that there will be no long term effect.

The Landscape Plan provides for extensive planting along a supporting strip adjacent to the southern boundary of the Grand Canal corridor and supports native species proposals having regard to the All-Ireland Pollinator Plan for the promotion of supporting habitats and a positive impact in terms of Biodiversity Nett Gain and is considered a **positive impact**.

There will be **no negative operational effects** on biodiversity, habitats or fauna therefore, there are no residual effects.

6.9 Cumulative Impacts

A review of the National Planning Application Database was undertaken. The database was then queried for developments granted planning permission within 1,500m of the Proposed Development within the last three years, these are presented in Table 6.3 below.

Planning Ref.	Description of development	Comments
SD23A/0331	10-year permission for development for a Filling & Packaging Facility for medicines, located at Grange Castle Business Park West, Milltown and Loughtown Upper Townlands, New Nangor Road, Clondalkin, Dublin 22	Given the proposed mitigation measures for the avoidance of negative effects on biodiversity, the potential for in-combination or cumulative effects will be avoided.
SD23A/0039 permitted	Provision of an establishment to which to European Communities (Major Accident Hazards involving Dangerous Substances) Regulations 2006 as amended by Chemicals Act (Control of Major Accident Hazards involving Dangerous Substances) Regulations 2015 apply, consisting a change of use; The new establishment will include all the existing and permitted buildings (SD13A/0143 as amended by SD13A/0265, SD14A/0194 as amended by SD15A/0343, SD16A/0088 as amended by AD17A/0318 & SD20A/0283, SD21A/0203 & SD21A/0288, all within an existing campus; The proposal relates to the total quantum of fuel oil to be stored within existing and permitted tanks across the existing and permitted buildings; For the avoidance of doubt no works or physical development is proposed and the application relates to an existing development which comprises or is for the purpose of an activity requiring an integrated pollution prevention and control (IE) licence.	Given the proposed mitigation measures for the avoidance of negative effects on biodiversity, the potential for in-combination or cumulative effects will be avoided.
SD23A/0079 permitted	Alterations to a previously approved development (Reg. Ref. SD15A/0061 and Reg. Ref. SD16A/0398) which relates to a 10-year permission for the construction of a Peaker Power Plant in a single storey building with a mezzanine level, together with associated plant equipment including water & fuel tanks. The alterations to the previously approved development (Reg. Ref. SD15A/0061 & SD16A/0398) include the following: (i) alterations to the previously approved building within the eastern portion of the site as follows: (a) an increase in the overall footprint of the building to the north-west to include office space, and staff facilities at ground floor level; and to the north-east to include a boiler room at ground floor level; (b) revised roof footprint to the rear of the building, with the roof being lowered to the rear; (c) relocation of stair cores and updates to building elevations, including the introduction of additional glazing; (d) amendments to the external open service yard to the north of the building including the removal of the previously approved transformer rooms, addition of containerised plant and minor alterations to the location of sha□ towers; (e) a minor increase in the height (by 600mm) of the screen to the service yard. Alterations to the western portion of the site include; (ii) minor amendments to the positioning of the internal roadway; (iii) amendments to the tank	Given the proposed mitigation measures for the avoidance of negative effects on biodiversity, the potential for in-combination or cumulative effects will be avoided.

Planning Ref.	Description of development	Comments
	bund area and tank arrangement to the west of the site, and the addition of contained plant and a pump house building; (iv) minor amendment to the location of the approved tanker unloading area; (v) relocation of car parking spaces from the south of the site to the north of the main bund areas, with the exception of the approved accessible parking space; (vi) provision of a gas skid & support structure to the south-west of the site; (vii) provision of an enlarged plant compound to the west of the bund area and relocation of transformers to this compound; (viii) revisions to the positioning and an increase in size of the approved pipe bridge to align with services; (ix) provision of a new bicycle parking shelter comprising 8 no. parking spaces; (x) amendments to so landscaping to accommodate the revised layout and; (xi) drainage, boundary treatments, site lighting, EV car charging ports; and all associated site development and ancillary works necessary to facilitate the development. The capacity of the plant will be 115MW as approved under Reg. Ref. SD15A/ 0061. This application relates to development which comprises of an activity which requires an Industrial Emissions Licence in accordance with the First Schedule of the EPA Act 1992 as amended.	
SD23A/0123 permitted	Permission for development consisting of the completion of the development granted permission under Planning Application Reg. Ref. SD16A/0236 subject to the amendments and alterations to the previously approved biopharmaceutical manufacturing facility and warehouse extension and other additional, new development not forming part of SD16A/0236, located at the Pfizer site at Grange Castle Business Park, New Nangor Road; The modifications to the approved development will consist of alterations and modifications to previously approved site buildings and infrastructure required to support the proposed development they include, (a) A 6-level biopharmaceutical manufacturing building sized approximately 30,469sq.m (previously approximately 34,650sq.m) and approximately 35 metres high (previously approximately 28.2m high), with stairwells approximately 38m high, and roof-mounted plant and equipment, including solar panels; Modifications to the existing Development and Manufacturing Facility including elevational alterations and modifications to existing plant and equipment; (b) A single-storey warehouse building extension with high-bay, sized approximately 3,200 square metres (previously approximately 1,142sq.m) and approximately 17.5m high, with roof-mounted plant and equipment, including solar panels; (c) A single-storey pedestrian and materials link sized approximately 1,687sq.m (previously approximately 750sq.m) and approximately 6.95m high; (d) A new, additional 4-level extension to the existing DS1 biopharmaceutical manufacturing building, to	Given the proposed mitigation measures for the avoidance of negative effects on biodiversity, the potential for in-combination or cumulative effects will be avoided.

Planning Ref.	Description of development	Comments
	accommodate material li□s and storage areas, sized approximately 1,925sq.m and approximately 38.2m high, to the south elevation of the existing building; (e) A new, additional single-storey chiller building sized approximately 395 square metres and approximately 6.25m high, with roof-mounted plant and equipment; (f) A new, additional single-storey plant and utilities building sized approximately 256sq.m and approximately 6.25m high, with roof-mounted plant and equipment; (g) Provision of relocated car park from its previously permitted location at the northeast of the side to a new location to the southeast of the proposed biopharmaceutical facility; including approximately 273 additional car parking spaces, including accessible car parking spaces, electric vehicle charging, motorcycle parking, dedicated car-pooling spaces and cycle parking, all accessed from the internal Grange Castle Business Park roads. Mobility parking is located adjacent and directly north of the proposed facility; (h) A relocated, single-storey security building sized approximately 60 sq.m and 6m high; (i) The proposed site infrastructure includes additional cooling towers/heat exchangers, a tank farm, pipe-bridges, surface water harvest tanks, docks and yard areas, including associated items of plant and equipment, an electric vehicle charging and solar panel substation to service photovoltaic panels over new car parking spaces, photovoltaic solar panels located over new car parking spaces, electrical generators, underground pumping facilities and internal roads and paths, fencing and site lighting, and the use of the existing Pfizer site entrance (Gate No.3) for heavy goods vehicles; (j) The development includes modifications to and the extension of, the existing internal road network within the Pfizer Campus; (k) Proposed new landscaping includes new landscaped and planted areas, replacement and reinforcement of the existing landscaping and modifications to existing berms and perimeter security fencing and gates; (l) Proposed new signage based at ground level and on the building facades on the proposed new production building; (m) The works include temporary contractor compounds, temporary car parking and the temporary use of existing site entrances during construction activities; (n) Proposed new surface water management infrastructure for the site, consisting of underground attenuation systems, rainwater harvest cisterns and distribution pipework; (o) All associated site works including sustainability features described in points (a) to (l); Planning permission for the construction of a temporary contractors car park on land to the west of the Pfizer facility with access off Grange Castle Business Park and the reinstatement of the lands to agriculture a□er the need for the car park expires; The application is seeking permission of 5 years for the completion of the development granted permission under PA Ref:	

Planning Ref.	Description of development	Comments
	SD16A/0236 subject to the above amendments and alterations to the previously approved Biopharmaceutical Manufacturing Facility and Warehouse and other additional, new, development not forming part of SD16A/0236; This application consists of a development for an activity for which a licence under Part IV of the Environmental Protection Agency Act 1992 (as amended by the Protection of the Environment Act, 2003) is required; An Environmental Impact Assessment Report (EIAR) accompanies this planning application.	
SDZ23A/0011 permitted	Change of use of unit 3 (56sqm) from Class 1 (retail) to Class 9 (Residential Training Centre) and associated signage and ancillary works. The development will take place within Adamstown Strategic Development Zone.	Given the proposed mitigation measures for the avoidance of negative effects on biodiversity, the potential for in-combination or cumulative effects will be avoided.
SD20B/0027	Construction of a new Battery Energy System Storage (BESS) and Power Trunk building and all associated elements; Demolition of all existing structures on site associated with the current golf centre - including main clubhouse and a number of ancillary structures (total 1,009.84sq.m); Construction of a two storey power trunk building (maximum height 10.3m) over basement of 1,982.61sq.m containing MV switchgear; Construction of a BESS to reach a total capacity of 186.3 MWe; The facility will be within an open three storey structure (maximum height of 17.3m), totalling 18,560.9sq.m in area, containing 63 battery containers, & 63 no containers containing power invertors, step up transformers and electrical switchgear and roof level array of 1384 PV panels; 1 two storey administrative welfare buildings (298.26sq.m) associated with the BESS facility; It will be provided with a pre-cast wastewater treatment plant (up to 6 P.E.) discharging to percolation area with polishing filter for foul effluent; 1 single storey Fire Pump and Water Service Plantroom of 174.1sq.m, with associated water tank -associated with the BESS facility; 1 underground rainwater harvesting tank (volume 125 cubic meters - associated with the BESS facility of 35sq.m; 9 car parking spaces (including 3 disabled and 2 electric vehicle charging parking spaces) and 8 cycle spaces; The removal of an existing 15m high telecommunication support structure; Internal road network and new servicing access road from an entrance on Peamount Lane - with amendments to the existing entrance, comprising widening the entrance, provision of new security checkpoint, se□ng back of the boundary to achieve sufficient visibility splays, and reinstatement of appropriate boundary treatment	Given the proposed mitigation measure for the avoidance of negative effects on biodiversity, the potential for in-combination or cumulative effects will be avoided.

Planning Ref.	Description of development	Comments
	along the Peamount Lane frontage; Site landscaping, planting, berms and retaining walls along site boundaries and security fencing; and all associated site services, lighting, infrastructural works and attenuation (SUDS features, underground storage and an above ground pond).	
SD23A/0301 undecided	Permission for development consisting of: The construction of five logistics / warehousing units (Units 1-5) with associated office accommodation, service yards, ancillary structures/areas, and substations. The overall floor area of the proposed logistics/warehousing units is c. 56,932 s.q.m. (Gross Internal Area (GIA)) with a total of c. 4,336 s.q.m. of office space. See following breakdown of each unit: Unit 1 will comprise GIA c. 10,432 s.q.m. including c.579 s.q.m. of associated office space) and measures c.17.9m from finished floor level (FFL) to roof ridge; Unit 2 will comprise GIA c. 18,065 s.q.m. (including c.1,005 s.q.m. of associated office space) and measure c.18.4m from FFL to roof ridge; Unit 3 will comprise GIA c. 6,325 s.q.m. (including c.579 s.q.m. of associated office space) and measure c.17.4m from FFL to roof ridge; Unit 4 will comprise GIA c.8,762 s.q.m. (including c.484 s.q.m of associated office space) and measures c.17.8m from FFL to roof ridge; Access to the site will be from the existing roundabout to the south of the site; Provision of no. 419 car parking spaces and 172 bicycle spaces to serve the proposed development; Associated works for the diversion of the existing foul sewer within the site; The provision of attenuation basins/wetlands across the site; Associated works for re-routing of the existing ESB overhead wires which traverse the site to underground cables within the site; The formation of plateaus on the site with surplus excavated material to allow for the future Phase 2 development and; All ancillary landscaping, boundary treatments, internal roads and roundabout, cycle/pedestrian paths, associated infrastructure, and site development works to support the development.	Given the proposed mitigation measures for the avoidance of negative effects on biodiversity, the potential for in-combination or cumulative effects will be avoided. This adjacent Project has been assessed by the same Consultant Ornithologist and a determination of no significant effect in combination is acceptable given the provision of suitable lands agreed with South Dublin County Council to offset the loss of feeding ground for Golden Plover.

Table 6.2: Current Permissions/Applications within 2km of the site that were granted in 2023. Note: Planning Application SD23A/0301 is pending decision.

Golder Plover is a red-listed bird species, and while the loss of the subject lands will not result in a significant impact with those birds currently utilising the site having sufficient alternative suitable lands in the immediate hinterland. However, the cumulative loss associated with the future proposed development of the Grange Castel West Business Park will likely result in a significant impact on this species in the absence of future mitigation. It is therefore important that alternative, suitable lands are identified and managed and made available to the golden plover currently utilising the Grange Castle West Business Park before the Business Park is completed.

SDCC has suitable lands (41 hectares) to the west of the Grange Castle West Business Park where Golden plover flocks have been observed. It is the surveyor's opinion that with the correct management regime, these lands can provide viable alternative feeding to the Grange Castle West Business Park. Of these lands, 31 hectares are from high to moderate suitability for Golden plover.

These lands were examined on the 30th of August 2024 by John Curtin (ecologist) and Rik Pannett (arborist). The lands marked as moderate high potential have overgrown hedgerows that reduce the potential for wintering waders to utilise the lands. These hedgerows consist mainly of Hawthorn, Elder, Hazel, Elm and Sally with gappy trees (typically ash) interspersed. All hedge species are suitable for coppicing.

Advice on increasing the suitability of these lands for wintering waders.

- The hedgerows found on the site have ecological value and should not be removed. The arborist has however stated these hedgerows would be fine coppiced to a height of 1m while leaving the trees as they are. These low hedgerows will still provide ecological corridors however will be low enough to increase the favorability of waders. Hedgerows that are suggested for this management are shown in Figure 7-1. Hedges should be clipped in September of each year.
- Lands identified should contain a mixture of approx. 50% tillage and 50% grassland however all lands should be unoccupied from October to March inclusive and have a sward height no greater than 7cm.
- Increasing the invertebrate level by eliminating the use of herbicides, pesticides and managing lands organically.
- Creation of a shallow pond area would be of benefit to a variety of species.
- Land management strategies will be agreed with farmers and will form part of the conditions of relevant land management licences issued by the Council to farmers managing the relevant lands.

Monitoring of the success of the proposed measures will also be important thus a comprehensive post construction monitoring of the wintering Golden plover population should be conducted for three years both within the SDCC landholding and the donor site. An appropriate survey regime should be put in place noting if Golden plover are utilising the donor site. Annual reports should be submitted to South Dublin County Council and NPWS.

Given the proposed mitigation measure for the avoidance of negative effects on biodiversity, the potential for in-combination or cumulative effects will be avoided.

With the employment of appropriate mitigation measures with regard to local biodiversity, the Proposed Development will have a neutral, imperceptible residual effect on biodiversity during construction.

The provision of suitable lands agreed with South Dublin County Council will offset the loss of feeding ground for Golden Plover so that there will be no long term residual effect during operation.

The Landscape Plan provides for extensive planting along a supporting strip adjacent to the southern boundary of the Grand Canal corridor and supports native species proposals having regard to the All-Ireland Pollinator Plan for the promotion of supporting habitats and a positive impact in terms of Biodiversity Nett Gain and is considered a positive impact.
There will be no negative operational effects on biodiversity, habitats or fauna therefore, there are no residual effects.

6.10 References

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Department of the Environment, Heritage and Local Government (2010). Guidance on Appropriate Assessment of Plans and Projects in Ireland (as amended February 2010).

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7 LAND, SOILS, GEOLOGY AND HYDROGEOLOGY

7.1 Introduction

This Chapter assesses and evaluates the likely significant effects of the development on the land, soil, geological and hydrogeological aspects of the site and surrounding area. In assessing likely *potential* and predicted effects, account is taken of both the importance of the attributes and the predicted scale and duration of the likely effects.

A description of the proposed development is provided in Chapter 3.

7.1.1 Statement of Authority

This chapter of the EIAR has been prepared by Hana Blandford and Marcelo Allende.

Hana Blandford is an Environmental Consultant at AWN, working on a range of projects involving EIA Reports, EPA licence applications and site visits carrying out Soil, Water and Air sampling for analysis. She holds a BSc. Agri-Environmental Science with structured electives in Earth Sciences from University College Dublin.

Marcelo Allende (BSc, BEng) is a Senior Environmental Consultant (Hydrologist) at AWN with over 17 years of experience in Environmental Consulting as well as hydrological and hydrogeological technical studies. Marcelo holds a degree in Water Resource Civil Engineering from the University of Chile. He has worked on a wide of range of projects including multi-aspect environmental investigations, geo-environmental impact assessments, groundwater resource management, hydrological and hydrogeological conceptual and numerical modelling, strategic and site specific flood risk assessments, Due Diligence reporting, baselines studies, soils, surface water and groundwater monitoring and field sampling programmes on a variety of brownfield and greenfield sites throughout Ireland as well as overseas in Chile, Argentina, Peru and Panama. He also has detailed knowledge of environmental guidance, legislation, regulations & standards, and expertise in GIS (expert level) and MATTE studies at COMAH establishments. He is currently a member of the International Association of Hydrogeologists (IAH, Irish Group) and a member of Engineers Ireland (MIEI).

7.1.2 Description of the Subject Site

The proposed development will comprise the construction of studio/sound stages with ancillary support offices, workshop buildings a TV studio building, outdoor stage areas, a TV studio and reception building, outdoor stages, a dining hall building, a standalone café, hardstanding areas including a backlot area and shooting lanes, production suite buildings, 3-storey car parking deck with ancillary offices, an electrical substation, gate houses, surface car parking and HGV parking area, a waste collection area, rooftop PV panels, green roofs and associated development works, ~~and~~ landscaping [amended text] **and a biodiversity buffer area along the northern boundary of the site and abutting the Grand Canal NHA** [amended text]. A full description of the proposed development is provided in Chapter 3.

7.2 Methodology

7.2.1 Criteria for Rating of Effects

This chapter evaluates the effects, if any, which the proposed development will have on Land, Soils, Geology and Hydrogeology having regard to the Environmental Protection Agency (EPA) '*Guidelines on the Information to be contained in Environmental Impact Assessment Reports*' (EPA, 2022) as well as in line with Article 94 and Schedule 6 of the Planning and Development Regulations 2001 (as amended) and Article 5 and Annex IV of the EIA Directive (2011/92/EU, as amended).

The Draft EPA document entitled '*Advice Notes for Preparing Environmental Impact Statements*' (EPA, 2015) is also followed in this geological and hydrogeological assessment and classification of environmental effects. Due consideration is also given to the guidelines provided by the Institute of Geologists of Ireland (IGI) in the document entitled '*Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements*' (IGI 2013).

The document entitled '*Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes*' by the Transport Infrastructure Ireland (TII) formerly National Roads Authority (NRA) (TII, 2009) is referenced where the methodology for assessment of impact is appropriate.

The rating of potential environmental effects on the land, soil, geological and hydrogeological environment is based on the standard EIAR impact predictions table taken from the EPA Guidelines which takes account of the quality, significance, duration, and type of effect characteristic identified.

The duration of each effect is considered to be either momentary, brief, temporary, short-term, medium term, long-term, or permanent. Momentary effects are considered to be those that last from seconds to minutes. Brief effects are those that last less than a day. Temporary effects are considered to be those which are construction related and last less than one year. Short term effects are seen as effects lasting one to seven years; medium-term effects lasting seven to fifteen years; long-term effects lasting fifteen to sixty years; and permanent effects lasting over sixty years.

The TII (2009) criteria for rating the magnitude and significance of impacts on the geological related attributes and the importance of hydrogeological attributes at the site during the EIA stage.

The principal attributes (and effects) to be assessed include the following:

- Geological heritage sites within the vicinity of/ within the perimeter of the proposed development site;
- Landfills, industrial sites in the vicinity of the site and the potential risk of encountering contaminated ground;
- The quality, drainage characteristics and range of agricultural use(s) of subsoil around the site;
- Quarries or mines in the vicinity and the potential implications (if any) for existing activities and extractable reserves;
- The extent of topsoil and subsoil cover and the potential use of this material on site as well as any requirement to remove it off-site as waste for disposal (D) or recovery (R) options;

- High-yielding water supply wells/ springs in the vicinity of/ within the site boundary to within a 2km radius and the potential for increased risk presented by the proposed development;
- Classification (regionally important, locally important etc.) and extent of aquifers underlying the site boundary area;
- Increased risks presented to the groundwater bodies by the proposed development associated with aspects such as, for example, the removal of subsoil cover, removal of aquifer (in whole or part thereof), spatial drawdown in water levels, alteration in established flow regimes, and changes in local/ regional groundwater quality;
- Natural hydrogeological/ karst features in the area and potential for increased risk presented by the activities at the site; and
- Groundwater-fed ecosystems and the increased risk presented by operations both spatially and temporally.

7.2.2 Sources of Information

Desk-based geological information on the substrata (both Quaternary deposits and bedrock geology) underlying the extent of the site was obtained through accessing databases and other archives where available. Data was sourced from the following:

- Geological Survey of Ireland (GSI) - on-line mapping, Geo-hazard Database, Geological Heritage Sites & Sites of Special Scientific Interest, Bedrock Memoirs and 1: 100,000 mapping;
- Teagasc soil and subsoil database;
- Ordnance Survey Ireland - aerial photographs and historical mapping;
- Environmental Protection Agency (EPA) – website mapping and database information;
- National Parks and Wildlife Services (NPWS) – Protected Site Register; and
- South Dublin County Council - illegal landfill information.
- SDCC Development Plan 2022 – 2028.

Site specific data was derived from the following sources:

- Ground Investigation Report - Ground Investigations Ireland (GII), Nov 2023.
- Flood Risk Assessment (BMCE), Oct 2023.
- Outline Construction Environmental Management Plan (BMCE), Dec. 2023.
- Civil Engineering Infrastructure Report for Planning (BMCE), Oct 2023.
- Various design site plans and drawings; and
- Consultation with design engineers.

The relevant reports are included with the planning documentation.

7.3 Receiving Environment (Baseline & Predicted Baseline)

The site area of the proposed Media Park is 22.6 ha. This is referred to as 'the site' and is located within the administrative jurisdiction of South Dublin County Council (SDCC). The existing ground levels slope downwards by approx. 7.6m from 75.5mOD (meters ordnance datum) at the south-east corner of the site to approx. 67.9mOD at the north-west corner of the site. The site is a greenfield site which is currently used for agriculture and is located west of the Grange Castle Business Park and c.700m north of Peamount Hospital. Gollierstown Bridge is located to the northeast of the site and Grand Canal pNHA (site code: 002104) runs along the north of the site.

Figure 7.1: Indicative Location of Site outlined approximately in red

7.3.1 Existing Land Use and Site History

The existing site consists of greenfield site and is bound to the east and south by agricultural lands, the west by Grange Castle Business Park, and to the north by the Grand Canal.

Historical Ordnance Survey maps were examined during the preparation of this EIA Chapter. O.S. maps were available from 1830 (the historic 6" maps) and 1900 from the historic 25" maps. Based on a review of the OSI and Google Imagery aerial photograph records the site has been in its current state of development since at least 1995. The historic maps indicate that the majority of the subject site appears to be greenfield to present date and has historically been used for agricultural purposes with some farm house dwellings situated at the south-west boundary. The site is undeveloped on all historical maps reviewed.

Review of the hydrogeology and geology in the surrounding region indicate that there are no sensitive receptors such as groundwater-fed wetlands, Council Water Supplies/ Group Water Schemes or geological heritage sites which could be impacted by this development.

7.3.2 Surrounding Land Use

There are no licenced facilities within the site boundary or adjacent to the proposed development site. There are IEL, IPPC and Waste Facilities located in the wider study area and are as follows:

- Takeda Ireland Limited (P0693-02), located at Grange Castle Business Park, Nangor Road, Dublin 22, Dublin, D22 XR57, c. 2.1 km to the west;
- Grange BackUp Power Limited (P1033-02), located Grange Castle Business Park Nangor Road, Clondalkin, Dublin 22, c. 2.5 km to the west; and
- Pfizer Ireland Pharmaceuticals (Grange Castle), located at The Pfizer Biotech Campus at Grange Castle, Grange Castle International Business Park, Kilmahuddrick, Grange and Nangor Townlands, Nangor Road, Clondalkin, Dublin 22, c. 3.2 km to the west.

Consultation with South Dublin County Council have confirmed that there are no known illegal/historic landfills within 500 metres of the site.

7.3.3 Soils and Subsoils

The GSI/Teagasc mapping shows that the soil type beneath the local area comprises 3 no. principal soil types. The northern portion of the site comprises of Bedrock at surface – Calcarous (BminSW). The majority of the site (East and West) Deep well drained mineral – Mainly Basic (BminDW) and Mineral poorly drained - Mainly Basic (BminPD) (refer to Figure 7.2 below).

Figure 7.2 Teagasc Soils (Source: GSI, 2023)

The GSI/Teagasc mapping database of the subsoils in the area of the subject site indicates 2 no. principal soil types as shown in Figure 7.3 below. The subsoil present across the site is:

- Low permeable Limestone till (TLs)
- Bedrock Outcrop or Subcrop (Rck) is located on the Northen boundary of the site.

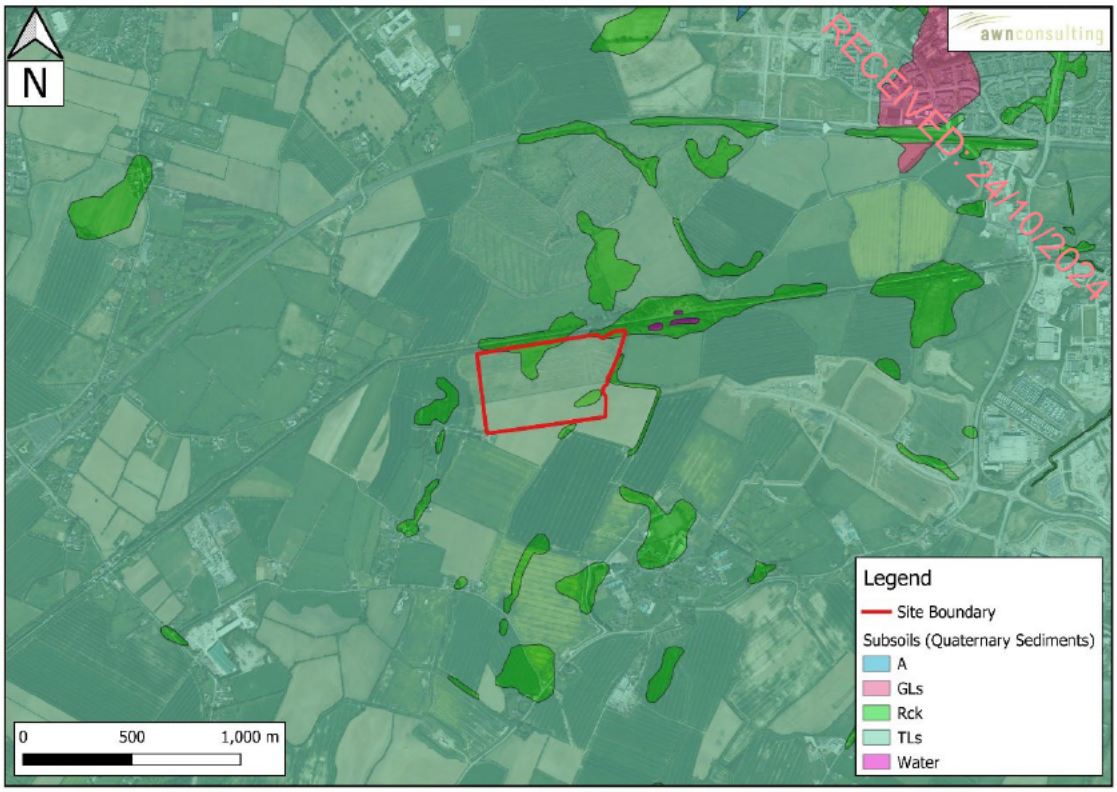

Figure 7.3 Subsoils Map (Source: GSI, 2023)

7.3.3.1 Site Investigations

Site investigations were carried out by Ground Investigations Ireland (GII) between September and November 2023 at the site of the proposed site. The following works were undertaken:

- 29 No. Trial Pits to a maximum depth of 2.50m BGL;
- 6 No. Soakaways to determine soil infiltration;
- 9 No. Dynamic Probes to determine soil strength/density characteristics;
- 9 No. Rotary Core Boreholes to a maximum depth of 6.90m BGL;
- 12 No. Plate bearing tests to determine the modulus of subgrade reaction and equivalent CBRE values;
- Geotechnical & Environmental Laboratory testing.

The sequence of subsoils deposits recorded during the site investigations are shown in Table 7.1.

Table 7.1 Strata Noted from Site Investigations (GII, Ground Investigation report, 2023)

Name	Depths/ Notes
Topsoil	Topsoil was encountered in all the exploratory holes and was present to a maximum depth of 0.50m BGL.
Cohesive Deposits	Cohesive deposits were encountered beneath the topsoil and were described typically as *brownish grey to brown slightly sandy gravelly CLAY with medium cobble content*. The secondary sand and gravel constituents varied across the site and with depth, with granular lenses occasionally present in the glacial till matrix. These deposits had low, medium or high cobble and boulder content, where noted on the exploratory hole logs.

Name	Depths/ Notes
Granular Deposits	Granular deposits were encountered were encountered within or below the cohesive deposits at several locations and were typically described *as brownish grey slightly sandy clayey subangular to subrounded fine to coarse GRAVEL or brownish grey slightly gravelly clayey fine to medium SAND*. The secondary sand/gravel and silt/clay constituents varied across the site and with depth while low, medium or high cobble and boulder content were also present where noted on the exploratory hole logs.
Bedrock	The rotary core boreholes recovered *interbedded medium strong to strong thinly laminated to thinly bedded dark grey fine grained argillaceous LIMESTONE and weak black calcareous MUDSTONE*. This is typical of the Lucan Formation, which is noted on the Geological Survey Ireland's (GSI) geological mapping of the site. The degree of weathering ranged from fresh to highly weathered. Calcite veins and rare visible pyrite were noted during logging which are typically present within the Lucan Formation. The depth to rock varies from 0.70m BGL in RC06 to a maximum of 4.20m BGL in RC02. The total core recovery is good, typically 100% with some of the uppermost runs dropping to 80% or 90%. The SCR and RQD both are relatively poor in the upper weathered zone, often recovered as non-intact, however both indices show an increase with depth in most of the boreholes.

Site investigation points and site layout are illustrated in Figure 7.4 below.

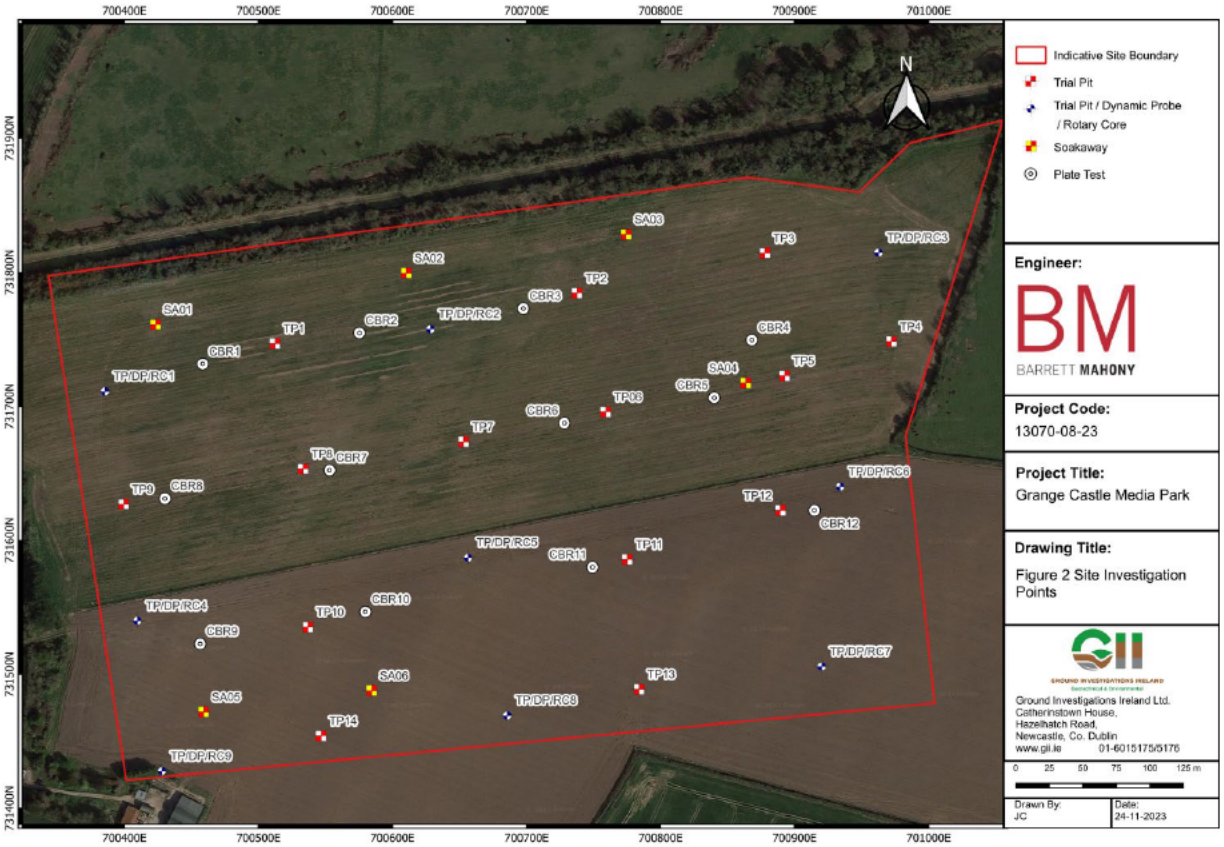

Figure 7.4 Site Investigation Points (Source GII, Grounds Investigation Report, 2023)

7.3.4 Bedrock Geology

Inspection of the available GSI (2023 on-line mapping database) shows that the site is almost entirely underlain by the Lucan formation, Age Bracket (Late Chadian to Asbian), Rock Unit code (CDLUCN).

This geological formation comprises dark-grey to black, fine-grained, occasionally cherty, micritic limestones that weather paler, usually to pale grey. There are rare dark coarser grained calcarenitic limestones, sometimes graded, and interbedded dark-grey calcar (Refer to Figure 7.5 below).

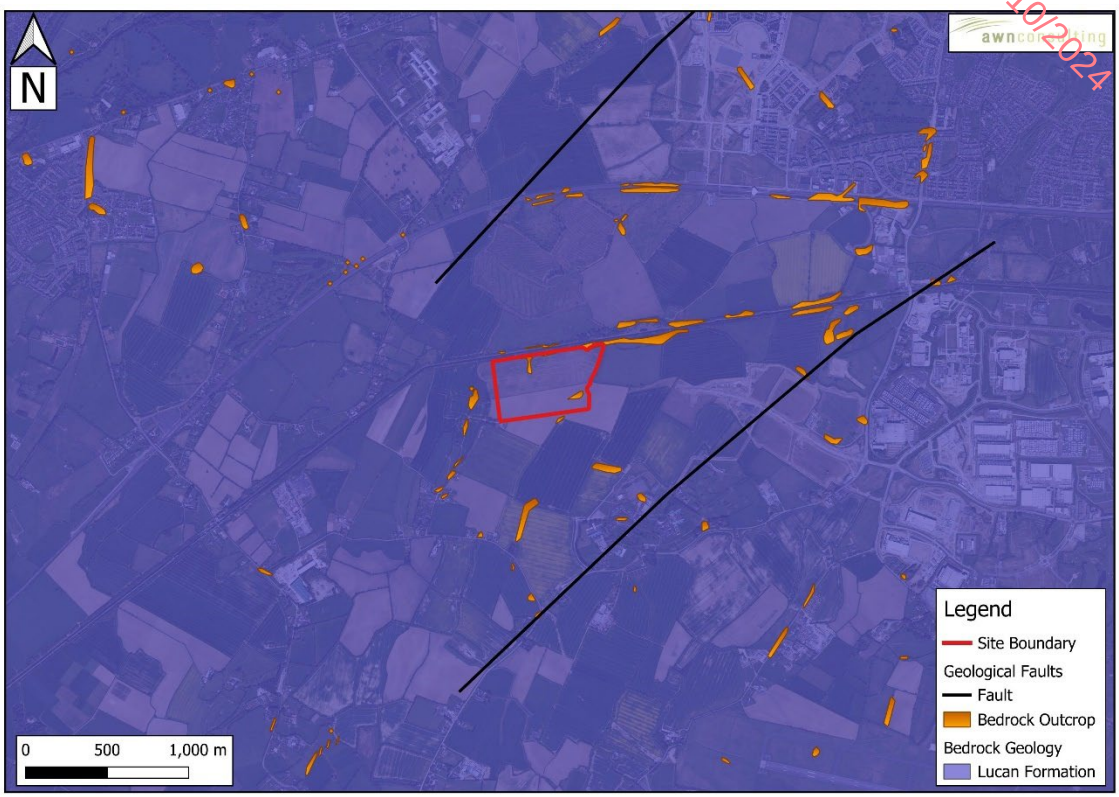

Figure 7.5 Bedrock Geology Map (Source: GSI, 2023)

7.3.5 Regional Hydrogeology

The bedrock aquifers underlying the proposed development site, according to the GSI (www.gsi.ie/mapping) National Draft Bedrock Aquifer Map, are classified as a *"Ll, Locally Important Aquifer – Bedrock which is Moderately Productive only in Local Zones"* (refer to Figure 7.6 below).

This is consistent with the site investigation data obtained from the site investigations carried out by Grounds Investigation Ireland (GII) between September and November 2023 at the proposed site.

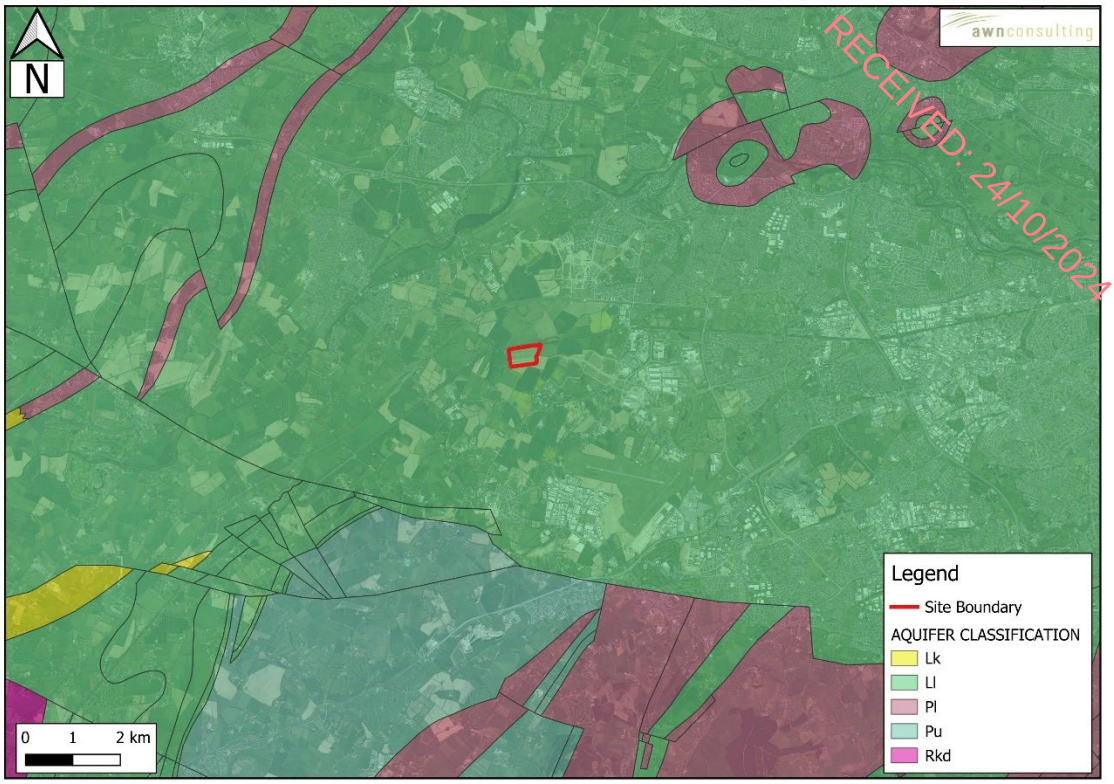

Figure 7.6 Aquifer Classification Map (Source : GSI, 2023)

Based on the most recent data (www.epa.ie) the Dublin GWB (IE_EA_G008) for which the proposed development is located entirely within, has a status of *"Good"* (2016-2021) and is *"under review".*

In addition, no groundwater source protection zones, which are zones defined by the GSI within which development is limited in order to protect groundwater from potential pollution, are not identified by the GSI under the site or in the immediate vicinity. There are no karst features in the area.

7.3.6 Aquifer Vulnerability

A review of the groundwater Vulnerability data from the Geological Survey Ireland (GSI) website was also carried out and classified with an (E) - Extreme Vulnerability status (indicating 0-3 m of high permeability soil) (see figure 7.7 below).

This is consistent with the site investigation data obtained from the site investigations carried out by Ground Investigations Ireland (GII) in November 2023 at the proposed development site where ground water encountered at the most shallow depths of SA02 (2.00 BGL), SA04 (1.50m BGL), RC1 (1.90m BGL), RC2 (2.20m BGL), RC4 (1.30m BGL), TP1 (1,60m BGL) and TP8 (1.30m BGL). Bedrock Outcrop or Subcrop (Rck) are located on the northern boundary of the site with further areas of bedrock outcrops located to the south-east of the site, according to GSI mapping.

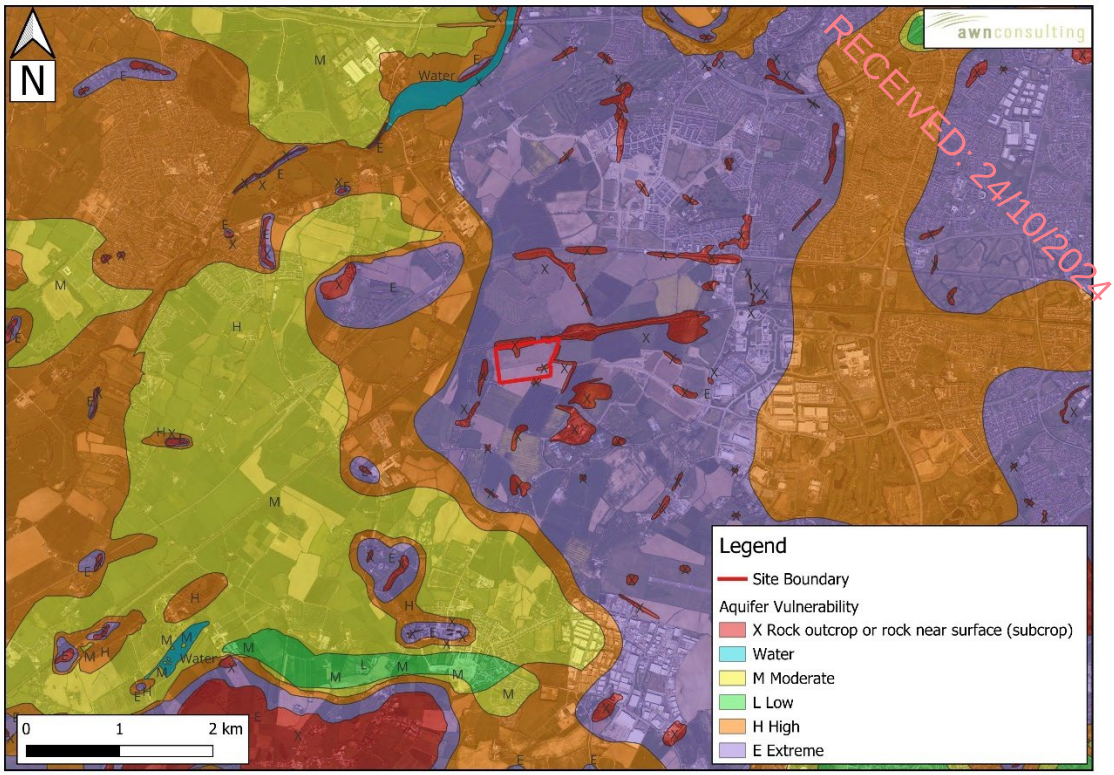

Figure 7.7 Aquifer Vulnerability (Source GSI, 2023).

7.3.7 Groundwater wells and Flow Direction

The GSI Well Card Index is a record of wells drilled in Ireland, water supply and site investigation boreholes. It is noted that this record is not comprehensive as licensing of wells is not currently a requirement in the Republic of Ireland.

This index shows a number of wells in the wider vicinity of the proposed development site. 1 no Borehole (GSI Name: 2923SWW129) is located c. 1.22 km Northwest of the site. Its use is categorized as unknown therefore it is unlikely that the well is used for potable supply.

The site is not located near any public groundwater supplies or group schemes. There are no groundwater source protection zones in the immediate vicinity of the site. The closest are c. 9.47 km south (Kilteel GWS) and c. 10.5 km north (Dunboyne PWS) which the proposed site is outside the zone of contribution of these supplies.

Figure 7.8 below presents the GSI well search for the area surrounding the site (note this source does not include all wells) and Table 7.2 summarises the details of recorded wells present within this search area.

Regional ground water flow is likely to be in line with local topography, from the south-east to the north-west.

Figure 7.8 GSI Well Search Map (Source: GSI, 2023)

Table 7.2 GSI Well Card Index (Source: GSI, 2023)

GSI NAME	ORIGNAME	TYPE	EASTING	NORTHING	TOWNLAND	COUNTY
2923SWW206	TW 1	Borehole	301600	234600	LUCAN	Dublin
2923SWW129		Borehole	299890	232640	STACUMNY	Kildare
2923SWW121		Unknown	297210	232990	CELBRIDGE	Kildare
2923SWW120		Unknown	295650	231450	KILLADOON	Kildare
2921NWW128	TRIAL WELL NO.1	Borehole	297320	228320	LYONS DEMESNE	Kildare
2921NWW129	TRIAL WELL NO.2	Borehole	297320	228260	LYONS DEMESNE	Kildare
2921NWW130	TRIAL WELL NO.3	Borehole	297540	228330	LYONS DEMESNE	Kildare
2921NEW002		Borehole	306300	228730	CHEEVERSTOWN	Dublin
2921NEW003		Borehole	306570	228740	BELGARD	Dublin
2923SEW006		Borehole	307320	231530	CLONDALKIN	Dublin

7.3.8 Groundwater Quality

7.3.8.1 Regional Scale

The Water Framework Directive (WFD) Directive 2000/60/EC was adopted in 2000 as a single piece of legislation covering rivers, lakes, groundwater and transitional (estuarine) and coastal waters. In addition to protecting said waters, its objectives include the attainment of 'Good Status' in water bodies that are of lesser status at present and retaining 'Good Status' or better where such status exists at present. 'Good Status' was to be achieved in all waters by 2015, or at latest 2027, as well as maintaining 'high status' where the status already exists. The EPA co-ordinates the activities of the River Basin Districts, local authorities and state agencies in

implementing the directive, and operates a groundwater quality monitoring programme undertaking surveys and studies across the Republic of Ireland.

Presently, the groundwater body in the region of the site (Dublin GWB – IE_EA_G_008) is classified under the WFD Risk Score (EPA 2023) as *"Review"* meaning the GWB status is under review. The Dublin GWB was given a classification of *"Good"* for the last WFD Cycle (2016-2021).

7.3.9 Geological Heritage

The Geological Survey Ireland (GSI) Public Viewer (www.gsi.ie/mapping) was reviewed to identify sites of geological heritage for the site and surrounding area. The Grand Canal (Proposed NHA) is one site of geological heritage in the immediate vicinity of the proposed site. It is on the northern boundary of the proposed development. Newcastle Buried Channel (SD010) is an audited site c. 2.58 km south-east of the proposed development and Belgard Quarry (SD002) is an audited site c. 4.96 km south-east of the proposed development.

7.3.10 Geohazards

The GSI landslide database was consulted and the nearest landslide to the proposed development was c. 5.5 km to the north-east, referred to as the Strawberry beds landslide which occurred on 1st of January 2016. There have been no recorded landslide events at the site. Due to the local topography and the underlying strata, there is a negligible risk of a landslide event occurring at the site.

In Ireland, seismic activity is recorded by the Irish National Seismic Network. The Geophysics Section of the School of Cosmic Physics at the Dublin Institute for Advanced Studies (DIAS) has been recording seismic events in Ireland since 1978. The station configuration has varied over the years. Currently there are five permanent broadband seismic recording stations in Ireland and operated by DIAS. The seismic data from the stations comes into DIAS in real-time and are studied for local and regional events. Records since 1980 show that the nearest seismic activity to the proposed location was in the Irish sea (1.0 – 2.0 Ml magnitude) and ~55 km to the south in the Wicklow Mountains. There is a very low risk of seismic activity to the proposed development site.

There are no active volcanoes in Ireland so there is no risk from volcanic activity.

7.3.11 Soil Quality

There are no legislated threshold values for soils in Ireland. Soil samples were compared to Generic Assessment Criteria (GAC) derived to be protective of human health, water bodies (including groundwater) and also ecology for residential and commercial / industrial end use.

GAC in the UK has been derived using the Contaminated Land Exposure Assessment (CLEA) model to be protective of human health for a number of different land uses. Land Quality Management (LQM) and the CIEH (Chartered Institute of Environmental Health) developed a document in July 2009 detailing their own research and derivation of their own 'LQM GACs'. A total of 82 substances, including many organic substances had LQM GACs derived, for the standard land uses of residential, commercial / industrial and allotments. This was updated in 2015 following further research and the derived results are now called LQM / CIEH Suitable 4 Use Levels (S4UL). The LQM / CIEH S4ULs are intended for use in assessing the potential risks posed to human health by contaminants in soil and as transparently derived and cautious "trigger values" above which further assessment of the risks or remedial action may be needed. For each contaminant, S4ULs have been derived for six land use scenarios based on

assessing exposure pathways in each planning scenario. In this instance, the commercial scenario has been considered. Soil type and soil organic matter (SOM) has an influence on the behaviour of contaminants. S4ULs have been derived for three SOM contents (1%, 2.5% and 6%) to cover the likely range in soils. A prudent approach has been taken by considering the lower 1% SOM content.

The UK values do not have any legal standing within the Republic of Ireland and no statutory guidance for assessing the significance of soil contamination currently exists. However, the values do provide a means of placing the data within context when considering magnitude of risk, and it is considered appropriate to have used these in that capacity in this assessment.

In addition, in line with the requirement of Council Decision 2003/33/EC, establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC, during the 2023 site investigations, a number of samples were recovered from the site and sent for analysis. In order to assess materials, which may be excavated and removed from site, in terms of waste classification, a selection of samples collected were analysed for a suite of parameters which allowed for the assessment of the soils in terms of total pollutant content for classification of materials as hazardous or non-hazardous referred to as the 'RILTA Suite'.

The parameter list for the RILTA suite includes analysis of the solid samples for arsenic, barium, cadmium, chromium, copper, lead, nickel, mercury, zinc, chloride, fluoride speciated aliphatic and aromatic petroleum hydrocarbons, pH, soluble sulphate, sulphide, phenols, total dissolved solids, moisture content, soil organic matter and an asbestos screen. The total pollutant content analysis also provides analytical data which can be used to assess the quality of the subsoils underlying the Site and allow an assessment of their suitability for a range of proposed uses against generic assessment criteria.

The RILTA Suite also includes those parameters specified in the EU Council Decision Establishing Criteria for the Acceptance of Waste at Landfills (Council Decision 2003/33/EC), referred to as Waste Acceptance Criteria (WAC), which for the solid samples are pH; total organic carbon (TOC); speciated aliphatic and aromatic petroleum hydrocarbons; benzene, toluene, ethylbenzene and xylene (BTEX); phenol; polychlorinated biphenyls (PCB); and polycyclic aromatic hydrocarbons (PAH).

All parameter concentrations recorded values below the most conservative threshold value for the LQM / CIEH for HHRA (Human Health Risk Assessment) Residential Threshold at 1% SOM (refer to Table 7.3 below).

The laboratory analysis did not identify any asbestos containing materials (ACMs) in any of the samples tested.

Table 5.4 Soil Quality Results

Sample ID					TP1	TP2	TP/DP/RC3	TP5	TP7	TP9	TP/DP/RC9	TP10	TP12	TP13
Laboratory					Element	Element	Element	Element	Element	Element	Element	Element	Element	Element
Report					23/15190	23/15190	23/15190	23/15190	23/15190	23/15190	23/15190	23/15190	23/15190	23/15190
Sample Type					Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Depth					0.5	0.6	0.5	0.4	0.5	0.5	0.4	0.5	0.5	0.4
Sample Date					08/09/2023	08/09/2023	08/09/2023	08/09/2023	08/09/2023	08/09/2023	08/09/2023	08/09/2023	08/09/2023	08/09/2023
Parameters	**Units**	**LOD**	**LQM/CIEH S4ul for HHRA Residental Threshold (mg/kg)**	**LQM/CIEH S4ul for HHRA Commercial Threshold (mg/kg)**										
Metals														
Antimony	mg/kg	<1	nv	nv	-	-	3	2	-	2		3	2	1
Arsenic	mg/kg	<0.5	40	640	8.5	5.7	18.9	15.4	8.2	9.2	8.4	16.8	14.3	11.6
Barium	mg/kg	<1	nv	nv	68	40	79	76	45	55	52	75	51	47
Cadmium	mg/kg	<0.1	85	190	1	1.1	2.4	1.6	0.6	1	1.3	2.2	2.1	1.6
Chromium	mg/kg	<0.5	910	8,600	19.3	20.7	44.5	36.8	35.6	24.6	21.6	38.4	25.1	31.2
Copper	mg/kg	<1	7,100	68,000	13	19	42	35	15	16	24	38	36	19
Lead	mg/kg	<5	nv	nv	17	14	43	62	24	16	18	28	23	23
Mercury	mg/kg	<0.1	1.2	58vap (25.8)	-	-	0.2	0.2	-	-	-	-	0.1	-
Molybdenum	mg/kg	<0.1	nv	nv	1.4	1.1	3.1	2.5	0.9	1.5	1.8	2.8	2.5	2.5
Nickel	mg/kg	<0.7	180	980	25.3	29.1	86	58	26	29.2	40.6	73.4	75.1	43.7
Selenium	mg/kg	<1	430	12,000	-	6	2	2	-	-	2	2	1	1
Zinc	mg/kg	<5	40,000	730,000	57	64	156	157	74	69	94	166	265	119
PAH MS														
Naphthalene	mg/kg	<0.04	2.3	190(76.4)sol	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	mg/kg	<0.03	170	83000(86.1)sol	-	-	-	-	-	-	-	-	-	-
Acenaphthene	mg/kg	<0.05	210	84000(57.0)	-	-	-	-	-	-	-	-	-	-
Fluorene	mg/kg	<0.04	170	63000(30.9)sol	-	-	-	-	-	-	-	-	-	-
Phenanthrene	mg/kg	<0.03	95	22,000	0.06	-	-	-	-	-	-	-	-	-
Anthracene	mg/kg	<0.04	2,400	520,000	-	-	-	-	-	-	-	-	-	-
Fluoranthene	mg/kg	<0.03	280	23,000	0.08	-	-	-	-	-	-	-	-	-
Pyrene	mg/kg	<0.03	620	54,000	0.07	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	mg/kg	<0.06	7.2	170	0.08	-	-	-	-	-	-	-	-	-
Chrysene	mg/kg	<0.02	15	350	0.06	-	-	-	-	-	-	-	-	-
Benzo(bk)fluoranthene	mg/kg	<0.07	nv	nv	0.08	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	mg/kg	<0.04	2.2	35	0.06	-	-	-	-	-	-	-	-	-
Indeno(123cd)pyrene	mg/kg	<0.04	nv	500	-	-	-	-	-	-	-	-	-	-
Dibenzo(ah)anthracene	mg/kg	<0.04	0.24	4	-	-	-	-	-	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	<0.04	320	3,900	-	-	-	-	-	-	-	-	-	-
Coronene	mg/kg	<0.04	nv	nv	-	-	-	-	-	-	-	-	-	-
PAH 6 Total	mg/kg	<0.22	nv	nv	0.22	-	-	-	-	-	-	-	-	-
PAH 17 Total	mg/kg	<0.64	nv	nv	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	<0.05	2.6	44	0.06	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	<0.02	77	1,200	0.02	-	-	-	-	-	-	-	-	-
Benzo(j)fluoranthene	mg/kg	<1	nv	nv	-	-	-	-	-	-	-	-	-	-
PAH Surrogate % Recovery	mg/kg	<0	nv	nv	97	96	91	98	95	97	93	92	94	87
Mineral Oil (C10-C40)	mg/kg	<30	nv	nv	-	-	-	-	-	-	-	-	-	-
TPH CWG														
Aliphatics														
>C5-C6	mg/kg	<0.1	42	3,200 (304) sol	-	-	-	-	-	-	-	-	-	-
>C6-C8	mg/kg	<0.1	100	7,800 (144)sol	-	-	-	-	-	-	-	-	-	-
>C8-C10	mg/kg	<0.1	27	2,000 (78)sol	-	-	-	-	-	-	-	-	-	-
>C10-C12	mg/kg	<0.2	130	9,700 (48)sol	-	-	-	-	-	-	-	-	-	-
>C12-C16	mg/kg	<4	1100	59,000 (24)sol	-	-	-	-	-	-	-	-	-	-
>C16-C21	mg/kg	<7	65,000 (combined)	1,600,000 (combined)	-	-	-	-	-	-	-	-	-	-
>C21-C35	mg/kg	<7	65,000	1,600,000	-	-	-	-	-	-	-	-	-	-
>C35-C40	mg/kg	<7	65,000	1,600,000	-	-	-	-	-	-	-	-	-	-
Total aliphatics C5-40	mg/kg	<26	nv	nv	-	-	-	-	-	-	-	-	-	-
Aromatics														
>C5-EC7	mg/kg	<0.1	370	26,000(1220)sol	-	-	-	-	-	-	-	-	-	-
>EC7-EC8	mg/kg	<0.1	860	56,000(869)vap	-	-	-	-	-	-	-	-	-	-
>EC8-EC10	mg/kg	<0.1	47	3,500(613)vap	-	-	-	-	-	-	-	-	-	-
>EC10-EC12	mg/kg	<0.2	250	16,000(364)sol	-	-	-	-	-	-	-	-	-	-
>EC12-EC16	mg/kg	<4	1800	36,000(169)sol	-	-	-	-	-	-	-	-	-	-
>EC16-EC21	mg/kg	<7	1900	28,000	-	-	-	-	-	-	-	-	-	-
>EC21-EC35	mg/kg	<7	1900	28,000	-	-	-	-	-	-	-	-	-	-
>EC35-EC40	mg/kg	<7	1900	28,000	-	-	-	-	-	-	-	-	-	-
Total aromatics C5-40	mg/kg	<26	nv	nv	-	-	-	-	-	-	-	-	-	-
Total aliphatics and aromatics C5-40	mg/kg	<52	nv	nv	-	-	-	-	-	-	-	-	-	-
Methyl Tertiary Butyl Ether	ug/kg	<5	nv	nv	-	-	-	-	-	-	-	-	-	-
Benzene	mg/kg	<0.005	0.38	27	-	-	-	-	-	-	-	-	-	-
Toluene	mg/kg	<0.005	880(869)vap	56,000(869)vap	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	mg/kg	<0.005	83	5,700(518)vap	-	-	-	-	-	-	-	-	-	-
m/p-Xylene	mg/kg	<0.005	m: 820 p: 790	m: 6,200(625)vap p: 5,900(576)sol	-	-	-	-	-	-	-	-	-	-
o-Xylene	mg/kg	<0.005	88	6,600(478)sol	-	-	-	-	-	-	-	-	-	-
PCB 28	ug/kg	<5	nv	nv	-	-	-	-	-	-	-	-	-	-
PCB 52	ug/kg	<5	nv	nv	-	-	-	-	-	-	-	-	-	-
PCB 101	ug/kg	<5	nv	nv	-	-	-	-	-	-	-	-	-	-
PCB 118	ug/kg	<5	nv	nv	-	-	-	-	-	-	-	-	-	-
PCB 138	ug/kg	<5	nv	nv	-	-	-	-	-	-	-	-	-	-
PCB 153	ug/kg	<5	nv	nv	-	-	-	-	-	-	-	-	-	-
PCB 180	ug/kg	<5	nv	nv	-	-	-	-	-	-	-	-	-	-
Total 7 PCBs	ug/kg	<35	nv	nv	-	-	-	-	-	-	-	-	-	-
Natural Moisture Content	%	<0.1	nv	nv	14.6	13.4	20	18.2	17.6	16.4	14.3	22.9	15.2	53.3
Moisture Content (% Wet Weight)	%	<0.1	nv	nv	12.8	11.8	16.7	15.4	14.9	14.1	12.5	18.6	13.2	34.7
Hexavalent Chromium	mg/kg	<0.3	6	33	-	-	-	-	-	-	-	-	-	-
Chromium III	mg/kg	<0.5	910	8,600	19.3	20.7	44.5	36.8	35.6	24.6	21.6	38.4	25.1	31.2
Total Organic Carbon	%	<0.02	nv	nv	0.46	0.46	1.18	1.9	0.77	0.61	0.79	0.85	0.73	1.36
pH	pH units	<0.01	nv	nv	8.71	8.78	7.52	7.21	8.56	8.74	8.45	8.21	8.58	8.35

Legend

0.45 Results exceed LQM/CIEH S4ul for HHRA Residential Threshold without homegrown produce at 1% SOM (mg/kg)

0.45 Results exceed LQM/CIEH S4ul for HHRA Commercial Threshold at 1% SOM (mg/kg)

\- Results below LOD

nv Guideline threshold value not available

nd Parameter not analised

Notes

HHRA 2015 - LQM/CIEH Suitable 4 Use Levels based on 'Commercial' and/or 'residential' land use using 1% SOM. Metals are compared against a 6% SOM

Sol : sol S4UL presented exceed the solubility saturation limit, which is presented in brackets

Vap: vap S4UL presented exceed the vapour staturation limit which is presented in brackets

7.3.12 Areas of Conservation

According to the NPWS (2023) on-line database there are no special protected area within the boundary of the proposed development site. The closest European listed sites are as follows;

- Rye Water Valley/Carton SAC [Site Code: 004026] c. 3.9 km north of the proposed development site;
- Glenasmole Valley SAC [Site Code: 001209] c. 10.6 km south-east of the proposed development site; and
- South Dublin Bay and River Tolka Estuary SPA [Site Code: 004024] c. 17.6 km east of the proposed development site.
- North Bull Island SPA (Site Code: IE004006) c.20.7 to north east of the site.
- North-West Irish Sea SPA (Site Code: IE004236) c.22.2 to the east of the site.
- North Dublin Bay pNHA c. 20.9 km to the northeast of the site.
- South Dublin Bay pNHA c. 19.4 km to the east of the site.

In addition, Grand Canal is a proposed Natural Heritage Area which is located on the northern boundary of the proposed development site.

Figure 7.9 below presents the location of these protected areas in the context of the proposed development site.

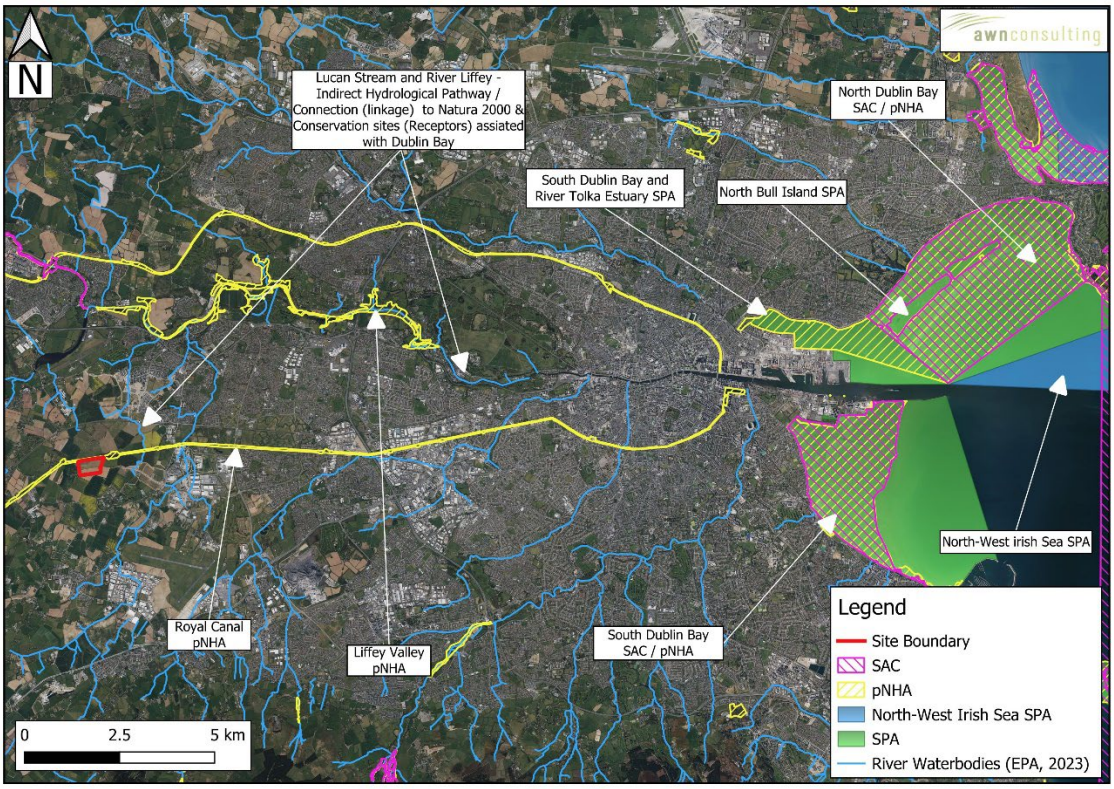

Figure 7.9 Natura 2000 Sites in the Context of the Subject Site

7.3.13 Conceptual Site Model

- The GSI/ Teagasc mapping shows that the soil type beneath the site comprises 3 no. principal soil types. The northern portion of the site comprises of Bedrock at surface – Calcarous (BminSW). The majority of the site (East and West) Deep well drained mineral – Mainly Basic (BminDW) and Mineral poorly drained - Mainly Basic(BminPD).

- The subsoil underlying the site comprises of Limestone till (TLs) and Bedrock Outcrop or Subcrop (Rck) is located on the Northen boundary of the site.
- During site investigations carried out by GII in 2023, top soil was encountered to a maximum depth of 0,50m BGL. Cohesive deposits were encountered beneath the topsoil and were described typically as *sandy gravelly CLAY.* Granular deposits were encountered within or below the cohesive deposits and were typically described as *sandy clayey GRAVEL or gravelly clayey SAND.* The rotary core boreholes recovered interbedded medium strong to strong thinly laminated to thinly bedded dark grey fine grained argillaceous LIMESTONE and weak black calcareous MUDSTONE.
- Geological Survey Ireland's (GSI) geological mapping of the site indicates that the site is typical of the Lucan formation.
- The site is underlain mostly by a "Locally Important Aquifer – Bedrock which is Moderately Productive only in Local Zones"

A Local Cross Section can be seen in Figure 7.10 below.

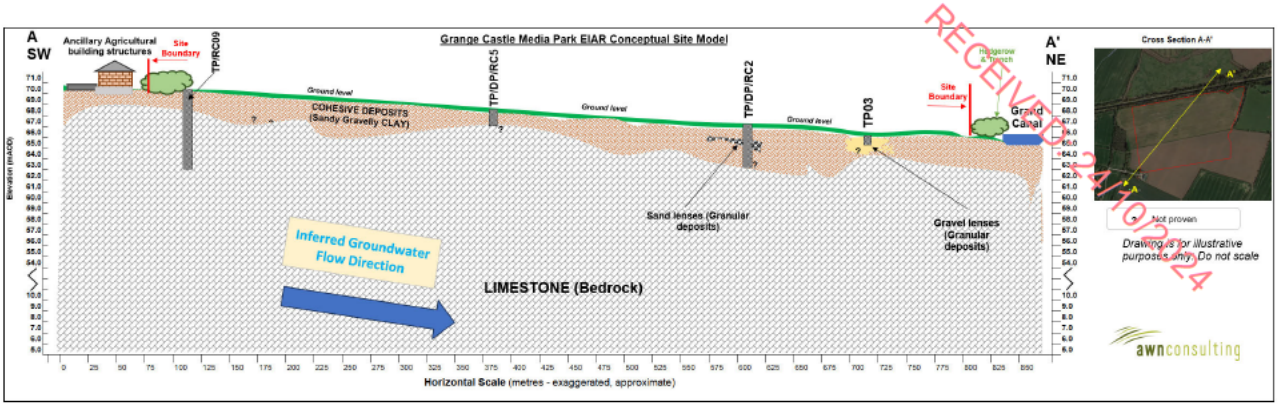

Figure 7.10 Local Cross Section

7.3.14 Rating of Importance of Geological and Hydrological Attributes

Based on the TII (previously NRA) methodology (2009), criteria for rating site importance of geological features, the importance of the bedrock and soil features at this site is rated as '*Low importance*' due to local geological attributes has a low quality, significance or value on a local scale.

Based on the TII methodology (2009) (see Appendix 7.1) the importance of the hydrological features at this site is rated '*Low importance*' based on the assessment that the attribute has a medium quality significance or value on a local scale. The aquifer is a *Locally Important Aquifer* and is not widely used for public water supply or generally for potable use. In addition, the site does not contain a surface water network, therefore, there is no *direct* hydrogeological connection between the site and any protected sites.

7.4 Characteristics of the Proposed Development

The proposed development will comprise the construction of studio/sound stages with ancillary support offices, workshop buildings a TV studio building outdoor stage areas, a TV studio and reception building, outdoor stages, a dining hall building, a standalone café, hardstanding areas including a backlot area and shooting lanes, production suite buildings, 3-storey car parking deck with ancillary offices, an electrical substation, gate houses, surface car parking and HGV parking area, a waste collection area, rooftop PV panels, green roofs and associated development works and landscaping.

A detailed description of the proposed development is set out in Chapter 3 of this EIAR (Description of Proposed Development).

The details of the construction and operation of the development in the terms of Land, Soils, Geology and Hydrology is detailed on the Table 7.3 below.

Table 7.3:

Phase	Activity	Description
Construction	Discharge to Ground	Run-off percolating to ground at the construction site.
	Site Levelling and Excavations	Excavations and levelling of the Site to the necessary base level for construction will require approximately 72,646m^3 of fill and the excavation of an estimated 49,646 m^3 of soil and rock (estimated 8,032 m^3) rock. It is estimated that approximately 50% of the excavated soil and rock can be reused on site.

	Storage of soils/aggregates	Topsoil on site ~~(excluding the ecological buffer zone area to the north next to the canal)~~ will be stripped back and stockpiled within the site boundary for reuse. [amended text] **No topsoil within the ecological buffer zone will be stripped back, other than what is required for the construction of the swales** [amended text]. This will be stored on site in the materials and waste storage area prior to reuse. Topsoil will be stored in stockpiles of max 2m high as per best practice. The stockpiles will be managed and maintained by the main contractor. The application of herbicide in advance of site clearance is not permitted.
	Dewatering	No significant dewatering is anticipated during the construction phase which would result in the localised lowering of the water table. There may be localised pumping of surface run-off from the excavations during and after heavy rainfall events to ensure that the excavation is kept relatively dry. Given the shallow depth of the bedrock, dewatering mainly associated with perched groundwater within the subsoils and some strikes from the upper weathered bedrock can also be expected.
Operation	Increase in hard standing area	The proposed development will result in the increase in hardstanding area. Therefore, groundwater recharge and groundwater regime will be affected at a local scale.
	Storage of hazardous material	Main Contractor shall be responsible for the use and storage of all such materials on sites, in accordance with the manufacturers requirements and in accordance with the current health and safety legislation applicable at the time. If fuel storage for the purpose of vehicles or machinery used during the proposed media activities is proposed to take place on site, then as a minimum the Main Contractor shall provide, operate and maintain, a proprietary self-contained and 110% self-bunded fuel store system, complete with pump, dispensing hose, removable fuel particle filter, automatic shut off trigger. In addition, a 120 litre oil/hydrocarbon spill kit and an oil spill drip tray shall be maintained in readiness on site, in the event of an accidental fuel / oil or hydraulic fluid spill / leak from construction plant or equipment.

As outlined in Table 7.3 above the activities required for the construction phase of the proposed development represents the greatest risk of potential impact on the geological and hydrogeological environment. These activities primarily pertain to the site preparation, excavation, and infilling activities required to facilitate construction of the proposed development.

7.5 Predicted Impacts of the Proposed Development

7.5.1 Construction Phase

7.5.1.1 Potential Impacts on Land, Soils, Geology and Hydrogeology

Due to the nature of the site, substantial fill will be required (approx. 72,646m^3). Where possible excavated rock will be crushed and re-used as fill material on site. Additional fill material required for the site shall be imported externally.

There is potential for groundwater to become contaminated with pollutants associated with construction activity. Contaminated groundwater which arises from construction sites can pose a significant short-term risk to the underlying Dublin GWB quality for the duration of the construction if contaminated water is allowed percolate to the aquifer. The potential main contaminants include:

- Pollution due to discharges or spillages during the construction phase;
    - Suspended solids (muddy water with increase turbidity) – arising from excavation and ground disturbance;
    - Cement/concrete (increase turbidity and pH) – arising from construction materials;
    - Hydrocarbons (ecotoxic) – accidental spillages from construction plant or onsite storage Soils contaminated by petroleum hydrocarbons can affect soil health. They can harm soil microorganisms, reducing their number and activity;
    - Wastewater (nutrient and microbial rich) – arising from accidental discharge from on-site toilets and washrooms.
- Excavation of soil and near-surface rock head will be required for levelling of the site to render it suitable for building the building platform. Local removal and reinstatement (including infilling) of the 'protective' topsoil and subsoil cover across the development area at the site will not change the overall vulnerability category for the site which is already *'extreme'*. Capping of significant areas of the site by hardstand/ building following construction and installation of drainage will minimize the potential for contamination of the aquifers beneath the site.

As mentioned above, the proposed development will probably involve groundwater dewatering. This dewatering will be mainly associated with perched groundwater within the subsoils and some strikes from the upper weathered bedrock. In case of occurrence, this dewatering will be a short-lived event and will not impact on the groundwater regime of the Dublin GWB and on the quantitative aspects of waterbody status such as baseflow for hydrological waterbodies.

In the absence of mitigation measures the potential impacts during the construction phase on land, soils and geology, hydrogeology (groundwater) are ***negative***, ***not significant*** and ***short term***.

7.5.1.2 Potential Impacts on Human Health and Population

A reduction in groundwater quality via unmitigated pollutants entering the soil or Dublin GWB (as set out in Section 7.5.1.1) has the potential to lead to negative impacts on human health and populations. Hydrocarbons and petroleum products for example have the greatest risk for human health when they are in drinking water.

As identified in Section 7.3.7, the index shows a number wells in the wider vicinity of the proposed development site. 1 no Borehole (GSI Name: 2923SWW129) is located c. 1.22 km Northwest of the site. Its use is categorized as unknown therefore it is unlikely that the well is used for potable supply.

The site is not located near any public groundwater supplies or group schemes. There are no groundwater source protection zones in the immediate vicinity of the site. The closest are c. 9.47 km south (Kilteel GWS) and c. 10.5 km north (Dunboyne PWS) which the proposed site is outside the zone of contribution of these supplies.

Furthermore, humans can also be exposed to petroleum hydrocarbons or other contaminants by inhaling the fumes / dust from contaminated soil. Depending on the type of contaminant and the level of exposure, soil contamination can have serious health implications.

However, as yet unknown groundwater supplies or abstractions, and as yet unknown soil contamination may exist. Therefore, on this basis in the absence of mitigation measures the potential impacts during the construction phase on human health and populations due to changes to the potential for contamination of soil and groundwater are ***negative***, ***not significant*** and ***short term***.

7.5.1.3 Potential Impacts on Water Framework Directive Status

There is a potential of accidental discharges during the construction phase (as set out in Section 7.5.1.1), however these are temporary short-lived events that will not impact on the water status of the underlying bedrock aquifer long-term and as such will not impact on trends in water quality and over all status assessment.

There is no potential impact on Water Framework Directive status, therefore no specific mitigation measures are required.

7.5.2 Operational Phase

7.5.2.1 Potential Impacts on Land, Soils, Geology and Hydrogeology

There is no abstraction of groundwater proposed. There are no discharges to ground included in the design.

There is a potential for leaks or spills of petroleum hydrocarbons on site during operation of the development which has the potential to impact on soil, and groundwater water quality if not adequately mitigated. Unmitigated leaks or spills may lead to contamination of soil or groundwater, soils that are contaminated by petroleum hydrocarbons can affect soil health.

In the absence of mitigation measures (or design measures) the potential impacts during the operational phase on land, soils, geology and hydrogeology are ***negative***, ***moderate,*** and ***long-term***.

7.5.2.2 Potential Impacts on Human Health and Population

A reduction in groundwater quality via unmitigated pollutants entering the soil or Dublin GWB (as set out in Section 7.5.1.1) has the potential to lead to negative impacts on human health and populations. Hydrocarbons and petroleum products for example have the greatest risk for human health when they are in drinking water.

As identified in Section 7.3.7, the index shows a number wells in the wider vicinity of the proposed development site. 1 no Borehole (GSI Name: 2923SWW129) is located c. 1.22 km Northwest of the site. Its use is categorized as unknown therefore it is unlikely that the well is used for potable supply.

The site is not located near any public groundwater supplies or group schemes. There are no groundwater source protection zones in the immediate vicinity of the site. The closest are c. 9.47 km south (Kilteel GWS) and c. 10.5 km north (Dunboyne PWS) which the proposed site is outside the zone of contribution of these supplies.

Furthermore, humans can also be exposed to petroleum hydrocarbons or other contaminants by inhaling the fumes / dust from contaminated soil. Depending on the type of contaminant and the level of exposure, soil contamination can have serious health implications.

However, as yet unknown groundwater supplies or abstractions, and as yet unknown soil contamination may exist. Therefore, on this basis in the absence of mitigation measures the potential impacts during the construction phase on human health and populations due to changes to the potential for contamination of soil and groundwater are ***negative***, ***not significant*** and ***short term***.

7.5.2.3 Potential Impacts on Water Framework Directive Status

There is no long-term discharge planned which could have an impact on the status of the water body. In the scenario of an accidental release (unmitigated leaks mentioned above) there is potential for a temporary impact only which would not be of a sufficient magnitude to effect a change in the current water body status.

There is no potential for adverse or minor temporary or localised effects on the Dublin GWB during the operational phase. Therefore, it has been assessed that it is unlikely that the proposed development will cause any significant deterioration or change in water body status or prevent attainment, or potential to achieve the WFD objectives.

7.6 Mitigation Measures

The design has taken account of the potential impacts of the development on the soils, geology and hydrogeology environment local to the area where construction is taking place and containment of contaminant sources during operation. Measures have been incorporated in the design to mitigate the potential effects on the surrounding land, soils, geology and hydrogeology.

7.6.1 Construction Phase

BMCE and project team have prepared a *Construction Environmental Management Plan (CEMP)* (2023) that is included with the application documentation. This outline and explains the construction techniques and methodologies which will be implemented during construction of the proposed development.

Construction works and the proposed mitigation measures are informed by best practice guidance from Inland Fisheries Ireland on the prevention of pollution during development projects including but not limited to:

- SDCC document *'Construction and Demolition Waste Management Plan Pre-Planning Guidance, Sept 2017'*

- Department of the Environment, Climate and Communications publication *'Construction and Demolition (C&D) Waste, April 2021'*
- Department of Environment Heritage and Local Government document *'Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects, July 2006'*
- ProPG document *'Planning & Noise – Professional Practical Guidance on Planning & Noise - New Residential Development May 2017'*
- *CIRIA C532: Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors*
- *CIRIA C692: Environmental Good Practice on Site*
- *BPGCS005: Oil Storage Guidelines.*
- *CIRIA C648: Control of Water Pollution from Linear Construction Projects.*

The CEMP will be implemented and adhered to by the construction Contractor and will be overseen and updated as required if site conditions change by the Project Manager, Environmental Manager and Ecological Clerk of Works where relevant. All personnel working on the Site will be trained in the implementation of the procedures.

The CEMP sets out the proposed procedures and operations to be utilised on the proposed construction site to protect water quality. The mitigation and control measures outlined in the CEMP will be employed on site during the construction phase. All mitigation measures outlined here, and within the CEMP will be implemented during the construction phase, as well as any additional measures required pursuant to planning conditions which may be imposed.

7.6.1.1 Land, Soils, Geology and Hydrogeology

Suspended Solids

In order to manage the potential impact associated with sediment and sediment runoff the following mitigation measures will be implemented during the construction phase.

- The [amended text] **50m** buffer zone ~~of minimum 10 m~~ [amended text] from the Grand Canal will be established early in the construction phase where no construction works will take place [amended text] **other than construction of the swales** [amended text].
- During earthworks and excavation works care will be taken to ensure that exposed soil surfaces are stable to minimise erosion. All exposed soil surfaces will be within the main excavation site which limits the potential for any offsite impacts.
- Run-off water containing silt will be contained on site via settlement tanks and treated to ensure adequate silt removal.
- Silt reduction measures on site will include a combination of silt fencing and settlement measures (silt traps, silt sacks and settlement tanks/ponds).
- Any hard surface site roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.
- A power washing facility or wheel cleaning facility will be installed near to the site compound for use by vehicles exiting the site when appropriate,
- A stabilised entranceway consisting of an aggregate on a filter cloth base that is located at any entry or exit point of the construction site.
- The temporary storage of soil will be carefully managed. Stockpiles will be tightly compacted to reduce runoff and graded to aid in runoff collection. Topsoil will be

stored in stockpiles of max 2m high as per best practice. The stockpiles will be managed and maintained by the main contractor.

- Construction materials, including aggregates etc. will be stored a minimum of 20 meter buffer distance from any surface water bodies and surface water drainage points.
- Aggregate materials such as sands and gravels will be stored in clearly marked receptacles within a secure compound area to prevent contamination.
- Movement of material will be minimised to reduce the degradation of soil structure and generation of dust.
- Excavations will remain open for as little time as possible before the placement of fill. This will help to minimise the potential for water ingress into excavations.
- Weather conditions will be considered when planning construction activities to minimise the risk of run-off from the site.

In addition to the measure above, all excavated materials will be visually by suitably qualified persons assessed for signs of possible contamination such as staining or strong odours. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of potential contaminants to ensure that historical pollution of the soil has not occurred. Should it be determined that any of the soil excavated is contaminated, this will be segregated and appropriately disposed of by a suitably permitted/licensed waste disposal contractor.

Cement/concrete works

Where feasible all ready-mixed concrete will be brought to site by truck. A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline wastewaters or contaminated storm water to the underlying subsoil.

No wash-down or wash-out of ready-mix concrete vehicles during the construction works will be carried out at the site within 10 meters of an existing surface water drainage point. Wash-outs will only be allowed to take place in designated areas with an impervious surface where all wash water is contained and removed from site by road tanker or discharged to foul sewer submit to agreement with Uisce Eireann / SDCC.

The construction contractor will be required to implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the Site will be suitably trained in the implementation of the procedures.

Hydrocarbons and other construction chemicals

The following mitigation measures will be implemented during the construction phase in order to prevent any spillages to ground of fuels and other construction chemicals and prevent any resulting to surface water and groundwater systems:

- Designation of bunded refuelling areas on the Site;
- Provision of spill kit facilities across the Site;
- Where mobile fuel bowsers are used, the following measures will be taken:
    - Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use;
    - The pump or valve will be fitted with a lock and will be secured when not in use;
    - All bowsers to carry a spill kit and operatives must have spill response training;

- Portable generators or similar fuel containing equipment will be placed on suitable drip trays.

In the case of drummed fuel or other potentially polluting substances which may be used during the construction phase, the following measures will be adopted:

- Secure storage of all containers that contain potential polluting substances in a dedicated internally bunded chemical storage cabinet unit or inside a concrete bunded area;
- Oil and fuel storage tanks shall be stored in designated areas, and these areas shall be stored within temporary bunded areas, doubled skinned tanks or bunded containers to a volume of 110% of the capacity of the largest tank/container. Drainage from the bunded area(s) shall be diverted for collection and safe disposal.
- Clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage;
- All drums to be quality approved and manufactured to a recognised standard;
- If drums are to be moved around the Site, they will be secured and on spill pallets; and
- Drums will be loaded and unloaded by competent and trained personnel using appropriate equipment.

Refuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in a designated area or within the construction compound (or where possible off the site) which will be away from surface water gulleys or drains minimum 20 m buffer zone). In the event of a machine requiring refuelling outside of this area, fuel will be transported in a mobile double skinned tank. An adequate supply of spill kits and hydrocarbon adsorbent packs will be stored in this area. All relevant personnel will be fully trained in the use of this equipment. Guidelines such as "Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors" (CIRIA 532, 2001) will be complied with.

The construction contractor will be required to implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the Site will be suitably trained in the implementation of the procedures.

Wastewater Management

Foul wastewater discharge from the site will be managed and controlled for the duration of the construction works.

Site welfare facilities will be established to provide sanitary facilities for construction workers on site. The main contractor will ensure that sufficient facilities are available at all times to accommodate the number of employees on site. Foul water from the offices and welfare facilities on the site will discharge into the existing sewer on site (the cabins may initially need to have the foul water collected by a licensed waste sewerage contractor before connection to the sewer line can be made).

The construction contractor will implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the Site will be suitably trained in the implementation of the procedures.

7.6.1.2 Human Health and Populations

It has been established (Section 7.5.1.1) that there are no recorded groundwater boreholes for domestic use within the vicinity of the site, and the site is not located near any public groundwater supplies or group schemes, or groundwater source protection zones. On a precautionary basis, the mitigation measures set out in Section 7.6.1.1, will be implemented during the construction works for the protection of human health and populations.

Furthermore, as stated in Section 7.6.1.1 all excavated materials will be visually assessed by suitably qualified persons for signs of possible contamination such as staining or strong odours. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of potential contaminants to ensure that historical pollution of the soil has not occurred. Should it be determined that any of the soil excavated is contaminated, this will be segregated and appropriately disposed of by a suitably permitted/licensed waste disposal contractor. All sampling and soil handling will be undertaken by suitably qualified and trained persons using suitable personal protective equipment to avoid risks to human health.

7.6.1.2 Water Framework Directive Status

It has been established that while, there is a potential of accidental discharges during the construction phase this will not impact on trends in water quality and overall WFD status assessment. On a precautionary basis, the mitigation measures set out in Section 7.6.1.1 will be implemented during the construction works for the protection of groundwater quality.

7.6.2 Operational Phase

7.6.2.1 Land, Soils, Geology, and Hydrogeology

The proposed development design includes hardstand cover across the site and as set out in the BMCE Civil Engineering Infrastructure Report for Planning Report, the proposed surface water drainage system is designed to comply with the 'Greater Dublin Strategic Drainage Study (GDSDS) Regional Drainage Policies Technical Document – Volume 2, New Developments, 2005' and the 'Greater Dublin Regional Code of Practice for Drainage Works, V6.0 2005'. CIRIA Design Manuals C753, C697 and C609 have also been used to design the surface water drainage system within the site.

It is proposed to construct a new surface water drainage system for the development to collect runoff from roofs and paved areas and any additional runoff from landscaped areas which doesn't percolate to ground. It is proposed that the new surface water network within the site will convey surface water flows to two swales located within the 50m buffer zone between the proposed development and the Grand Canal to the North of the site. Surface water flows from the site will outfall to the existing watercourse approx. 100m west of the site which is culverted beneath the Grand Canal and eventually connects to the River Liffey. The swales will be designed to accommodate flows for the 1 in 100-year storm event. A hydrobrake will be fitted at the outfall of each swale which will limit the flow exiting the site to the existing greenfield runoff rate QBAR (57.5 l/s). Therefore, the risk of accidental discharge has been adequately addressed through design.

7.6.2.2 Human Health and Populations

It has been established that there are no recorded groundwater boreholes for domestic use within the vicinity of the site, and the site is not located near any public groundwater supplies or group schemes, or groundwater source protection zones.

7.6.2.3 Water Framework Directive Status

It has been established that while, there is a potential of accidental discharges during the operational phase this will not impact on trends in water quality and overall WFD status assessment. It is noted that, as set out in Chapter 8 (Hydrology) the surface water discharges from the site are indirect, and will be adequately attenuated via SuDS measures to ensure there is no long-term negative impact to the quality status of any body of surface water or groundwater under the WFD.

7.7 Residual Impacts

7.7.1 Construction Phase

7.7.7.1 Land, Soils, Geology, and Hydrogeology

The implementation of the mitigation and monitoring measures detailed in Section 7.6.1 will ensure that the potential impacts on land, soils, geology, hydrogeology during the construction phase are adequately mitigated. The residual effect on surface water quality during the construction phase is considered to be ***neutral, imperceptible*** and ***short-term***.

Following the TII criteria (refer to Appendix 7.1) for rating the magnitude and significance of impacts on the geological and hydrogeological related attributes, the magnitude of impact is considered **negligible**.

7.7.7.2 Human Health and Populations

The implementation of the mitigation and monitoring measures detailed in Chapter 5 of the EIAR will ensure that the potential impacts on human health and populations during the construction phase are adequately mitigated. The residual effect on surface water quality during the construction phase is considered to be ***neutral, imperceptible*** and ***short-term.***

7.7.7.3 Water Framework Directive Status

Even in the absence of the mitigation and monitoring measures detailed in Section 7.6.1 and 7.7.1, there will be no predicted degradation of the current groundwater body (chemically, ecological and quantity) or any impact on its potential to meet the requirements and/or objectives in the Water Framework Directive.

There are appropriately designed mitigation measures which will be implemented during the construction phase to protect the hydrogeological environment. There is a potential of accidental discharges during the construction phase, however these are temporary short-lived events that will not impact on the water status of groundwater bodies long-term and as such will not impact on trends in water quality and over all status assessment.

The residual effect on Water Framework Status during the construction phase is considered to be ***neutral, imperceptible*** and ***short-term***.

7.7.2 Operational Phase

Land, Soils, Geology, Hydrogeology

The residual effect on land, soils, geology and hydrogeology during the operational phase is considered to be ***neutral, imperceptible*** and ***long-term***.

Following the TII criteria (refer to Appendix 7.1) for rating the magnitude and significance of impacts on the geological and hydrogeological related attributes, the magnitude of impact is considered **negligible**.

Human Health and Populations

The residual effect on human health and populations during the operational phase is considered to be ***neutral, imperceptible*** and ***long-term***.

Water Framework Directive Status

Even in the absence of the mitigation and monitoring measures detailed in Section 7.6.2 and 7.7.2, there will be no predicted degradation of the current water body (chemically, ecological and quantity) or any impact on its potential to meet the requirements and/or objectives of the Water Framework Directive.

There are appropriately designed mitigation and design measures which will be implemented during the construction phase to protect the hydrogeological environment. There is a potential of accidental discharges during the construction and operational phases, however these are temporary short-lived events that will not impact on the water status of underlying aquifer long-term and as such will not impact on trends in water quality and over all status assessment.

There are no planned discharges to groundwater during the operational phase and no long-term groundwater dewatering for the Project. The proposed development design includes hardstand cover across the site and double containment of underground fuel storage and transfer at the proposed petrol station.

7.8 Cumulative Impacts

The cumulative impact of the proposed development with any/all relevant other planned or permitted developments are discussed below. For details on the developments considered refer to Chapter 3 of this EIA report.

Existing developments that are already built and in operation contribute to the characterisation of the baseline environment. As such any further environmental impacts that the proposed development may have in addition to these already constructed and operational developments has been assessed in the preceding sections of this chapter.

7.8.1 Construction Phase

There are existing residential and commercial developments close by, along with the multiple permissions remaining in place in the area. Multiple developments in the area could potentially be developed concurrently or overlap in the construction phase.

The works contractors for other planned or permitted developments will be obliged to ensure that measures are in place to protect soil and water quality in compliance with legislative standards for receiving water quality (European Communities Environmental Objectives (Groundwater) Regulations (S.I. 9 of 2010 and S.I. 266 of 2016).
The implementation of mitigation and monitoring measures detailed in Section 7.6.1; as well as the compliance of permitted development with their respective planning conditions, will ensure there will be minimal cumulative potential for change to the land, soils, geology, hydrogeological environment during the construction phase of the proposed development. The residual cumulative impact of the proposed development in combination with other

planned or permitted developments can therefore be considered to be ***neutral, imperceptible*** and ***short-term***.

7.8.2 Operational Phase

In relation to the potential cumulative impact on land, soils, geology and hydrogeology during the operational phases, the operational activities which would have potential cumulative impacts are as follows:

- Increased hard standing areas will reduce local recharge to ground and increase surface water run-off potential if not limited to the green field run-off rate from the Site. Cumulatively this development and others in the area will result in localised reduced recharge to ground and increase in surface run-off.
- Increased risk of accidental discharge of hydrocarbons from car parking areas, along roads, and in areas where the media activities require machinery or vehicles, is possible unless diverted to the surface water system with petrol interceptor.
- There will be a loss of greenfield area locally as part of the proposed Project.

The development will result in an increase in hard standing which will result in localised reduced recharge to ground. The site is underlain mostly by a "Locally Important Aquifer – Bedrock which is Moderately Productive only in Local Zones". The cumulative impact is considered to be imperceptible. The implementation of SuDs measures on site will mitigate against and reduce the recharge rate to ground.

All developments are required to ensure they do not have an impact on the receiving water environment in accordance with the relevant legislation (Water Framework Directive and associated legislation) such that they would be required to manage run-off and fuel leakages. The proposed development is also located on lands that have been zoned for Enterprise and Employment in the South Dublin Development Plan which has been subject to Strategic Environmental Assessment (SEA).

The implementation of mitigation and monitoring measures detailed in Section 7.6.1; as well as the compliance of the above permitted development with their respective planning and zoning conditions, will ensure there will be minimal cumulative potential for change to the land, soils, geology, hydrogeological environment during the operational phase of the proposed development. The residual cumulative impact of the proposed development in combination with other planned or permitted developments can therefore be considered to be ***neutral, imperceptible*** and ***long-term***.

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8 Hydrology

8.1 Introduction

This chapter assesses and evaluates the likely significant effects of the development on the hydrological aspects of the site and surrounding area. In assessing likely potential and predicted effects, account is taken of both the importance of the attributes and the predicted scale and duration of the likely effects.

8.1.2 Statement of Authority

This chapter of the EIAR has been prepared by Hana Blandford and Marcelo Allende.

Hana Blandford is an Environmental Consultant at AWN, working on a range of projects involving EIA Reports, EPA licence applications and site visits carrying out Soil, Water and Air sampling for analysis. She holds a BSc. Agri-Environmental Science with structured electives in Earth Sciences from University College Dublin.

Marcelo Allende (BSc, BEng) is a Senior Environmental Consultant (Hydrologist) at AWN with over 17 years of experience in Environmental Consulting as well as hydrological and hydrogeological technical studies. Marcelo holds a degree in Water Resource Civil Engineering from the University of Chile. He has worked on a wide of range of projects including multi-aspect environmental investigations, geo-environmental impact assessments, groundwater resource management, hydrological and hydrogeological conceptual and numerical modelling, strategic and site specific flood risk assessments, Due Diligence reporting, baselines studies, soils, surface water and groundwater monitoring and field sampling programmes on a variety of brownfield and greenfield sites throughout Ireland as well as overseas in Chile, Argentina, Peru and Panama. He also has detailed knowledge of environmental guidance, legislation, regulations & standards and expertise in GIS (expert level) and MATTE studies at COMAH establishments. He is currently a member of the International Association of Hydrogeologists (IAH, Irish Group) and a member of Engineers Ireland (MIEI).

8.1.2 Description of the Subject Site

The proposed development will comprise the construction of studio/sound stages with ancillary support offices, workshop buildings a TV studio building, outdoor stage areas, a TV studio and reception building, outdoor stages, a dining hall building, a standalone café, hardstanding areas including a backlot area and shooting lanes, production suite buildings, 3-storey car parking deck with ancillary offices, an electrical substation, gate houses, surface car parking and HGV parking area, a waste collection area, rooftop PV panels, green roofs and associated development works, ~~and~~ landscaping [amended text] **and a biodiversity buffer area along the northern boundary of the site and abutting the Grand Canal NHA** [amended text]. A full description of the proposed development is provided in Chapter 3.

8.2 Methodology

8.2.1 Criteria for rating of effectiveness

This chapter evaluates the effects, if any, which the development has had or will have on Hydrology having regards to the Environmental Protection Agency (EPA) 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (EPA, 2022). In addition, the document entitled 'Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes' by the Transport

Infrastructure Ireland (TII, 2009, previously NRA) is referenced where the methodology for assessment of impact is appropriate.

The rating of potential environmental effects on the hydrological environment is based on the standard EIAR impact predictions table included in Chapter 1 which takes account of the quality, significance, duration and type of effect characteristic identified (in accordance with impact assessment criteria provided in the EPA Guidelines (2022) publication).

The duration of each effect is considered to be either momentary, brief, temporary, short-term, medium term, long-term, or permanent. Momentary effects are considered to be those that last from seconds to minutes. Brief effects are those that last less than a day. Temporary effects are considered to be those which are construction related and last less than one year. Short term effects are seen as effects lasting one to seven years; medium-term effects lasting seven to fifteen years; long-term effects lasting fifteen to sixty years; and permanent effects lasting over sixty years.

The TII criteria for rating the magnitude and significance of impacts and the importance of hydrological attributes at the site during the EIA stage are also relevant in assessing the impact and are presented in Tables 1-3 in Appendix 8.1.

The principal attributes (and effects) to be assessed include the following:

- River and stream water quality in the vicinity of the site (where available);
- Surface watercourses near the site and potential impact on surface water quality arising from proposed development related works including any discharge of surface water run-off;
- Localised flooding (potential increase or reduction) and floodplains including benefitting lands and drainage districts (if any); and
- Surface water features within the area of the site.

8.2.2 Sources of Information

Desk-based hydrological information in the vicinity of the site was obtained through accessing databases and other archives where available. Data was sourced from the following:

- Environmental Protection Agency (EPA) – website mapping and database information. Envision water quality monitoring data for watercourses in the area;
- River Basin Management Plan for Ireland 2018-2021.
- *Draft* River Basin Management Plan for Ireland 2022-2027.
- South Dublin County Development Plan 2022-2029.
- The Planning System and Flood Risk Management, Guidelines for Planning Authorities (Department of the Environment, Heritage and Local Government (DoEHLG) and the Office of Public Works (OPW));
- Office of Public Works (OPW) flood mapping data (www.floodmaps.ie)
- Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors' (CIRIA 532, 2001); and
- National Parks and Wildlife Services (NPWS) – Protected Site Register.

Site specific data was derived from the following sources:

- Ground Investigation Report - Ground Investigations Ireland (GII), Nov 2023.
- Flood Risk Assessment (BMCE), Oct 2023.
- Outline Construction Environmental Management Plan (BMCE), Dec 2023.

- Civil Engineering Infrastructure Report for Planning (BMCE), Oct 2023.
- Various design site plans and drawings; and
- Consultation with design engineers.

The reports mentioned above are included as part of the planning application.

8.3 Receiving Environment

The site area of the proposed development is 22.6 ha. This is referred to as 'the site' and is located within the administrative jurisdiction of South Dublin County Council (SDCC). The existing ground levels slope downwards by approx. 7.6m from 75.5mOD (meters ordnance datum) at the south-east corner of the site to approx. 67.9mOD at the north-west corner of the site. The site is a greenfield site which is currently used for agriculture and is located west of the Grange Castle Business Park and c.700m north of Peamount Hospital. Gollierstown Bridge is located to the northeast of the site and Grand Canal pNHA (site code: 002104) runs along the north of the site.

It is proposed to construct a new surface water drainage system for the development to collect runoff from roofs and paved areas and any additional runoff from landscaped areas which doesn't percolate to ground. It is proposed that the new surface water network within the site will convey surface water flows to two swales located within the 50m buffer zone between the proposed development and the Grand Canal to the North of the site.

Surface water flows from the site will outfall to the existing watercourse approx. 100m West of the site. This watercourse is culverted beneath the Grand Canal and flows north-west towards the River Liffey. The swales will be designed to accommodate flows for the 1 in 100-year storm event. A hydrobrake will be fitted at the outfall of each swale which will limit the flow exiting the site to the existing greenfield runoff rate QBAR (57.5 l/s).

Figure 8.1: Site Location (Source: Google Earth Pro, 2023)

8.3.1 Hydrology

The proposed development site is located within former ERBD (now the Irish River Basin District), as defined under the European Communities Directive 2000/60/EC, establishing a framework for community action in the field of water policy – this is commonly known as the Water Framework Directive (WFD). The proposed development site is located in the Eastern River Basin District (ERBD).

According to the EPA maps, the proposed development site lies within the Liffey and Dublin Bay Catchment (Catchment ID: 09) and the Liffey_SC_090 Sub-Catchment.

The Grand Canal (fully lined waterbody) is located along the sites northern boundary. A second waterbody, the Lucan stream is located c. 880.8 m east of the proposed development site, flowing north and does not traverse the site nor does it connect to the Grand Canal.

Figure 8.2: Surface Water Environment (EPA, 2023)

8.3.2 Surface Water Quality

The proposed development is located within the Irish River Basin District), as defined under the European Communities Directive 2000/60/EC, establishing a framework for community action in the field of water policy – this is commonly known as the Water Framework Directive (WFD). It is situated in Hydrometric Area No. 09 of the Irish River Network and is located within the Liffey and Dublin Bay Catchment (Catchment ID: 09) and the Liffey_SC_090 Sub Catchment.

The WFD requires 'Good Water Status' for all European waters to be achieved through a system of river basin management planning and extensive monitoring by 2015 or, at the least, by 2027. 'Good status' means both 'Good Ecological Status' and 'Good Chemical Status'. In 2009 the first River Basin Management Plan (RBMP) 2009-2015 was published. The second cycle river basin management plan was carried out between 2018-2021 with the previous management districts now merged into one Ireland River Basin District (Ireland RBD). The third cycle (2022-2027) is currently being undertaken.

During the development of this Plan, a prioritisation exercise was undertaken by the local authorities, the EPA and other stakeholders to identify those water bodies that require immediate action within this plan cycle to 2021. During the catchment characterisation, the EPA identified those water bodies either *'At Risk'* of not achieving their objectives or *'Under Review'*. The outcome of this prioritisation process was the selection of 190 Areas for Action across the 5 Local Authority regions. Within these 190 areas, a total of 726 water bodies were selected for initial actions during this RBMP cycle. There are 832 water bodies identified as being *'At Risk'* of not achieving their environmental objectives under this Plan that have not been included in the Areas for Action. For most of these water bodies, targeted actions will be undertaken in the third cycle RBMP from 2022-2027. The draft 3rd cycle RBMP has been reviewed in the context of ensuring mitigation measures comply with current and expected

future measures required to be implemented for protection of water body status within the context of the Proposed Project.

The strategies and objectives of the WFD in Ireland have influenced a range of national legislation and regulations. These include the following:

- European Communities (Water Policy) Regulations, 2003 (S.I. No. 722 of 2003);
- European Communities (Drinking Water) Regulations 2014 (S.I. 122 of 2014);
- European Communities Environmental Objectives (Surface Waters); Regulations, 2009 (S.I. No. 272 of 2009 as amended SI No. 77 of 2019)
- European Communities Environmental Objectives (Groundwater) Regulations, 2010 (S.I. No. 9 of 2010 S.I. No. 366 of 2016);
- European Communities (Good Agricultural Practice for Protection of Waters) Regulations, 2010 (S.I. No. 610 of 2010); and
- European Communities (Technical Specifications for the Chemical Analysis and Monitoring of Water Status) Regulations, 2011 (S.I. No. 489 of 2011)
- Statutory Instrument (SI) No. 293 of 1988 European Communities (Quality of Salmonid Waters) Regulations 1988
- Local Government (Water Pollution) Acts 1977-1990
- SI No. 258 of 1988 Water Quality Standards for Phosphorus Regulations 1998
- Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites (Eastern Regional Fisheries Board);
- Central Fisheries Board Channels and Challenges – The enhancement of Salmonid Rivers;
- CIRIA C532 Control of Water Pollution from Construction Sites Guidance for Consultants and Contractors;
- CIRIA C648 Control of Water Pollution from Constructional Sites;
- Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes (NRA/TII, 2006).

Surface water quality is monitored periodically by the EPA at various regional locations along with principal and other smaller watercourses. The EPA assess the water quality of rivers and streams across Ireland using a biological assessment method, which is regarded as a representative indicator of the status of such waters and reflects the overall trend in conditions of the watercourse. The biological indicators range from Q5 - Q1. Level Q5 denotes a watercourse with good water quality and high community diversity, whereas Level Q1 denotes very low community diversity and bad water quality.

In relation to the subject site, the nearest active EPA monitoring station located in the vicinity of the site is:

- Lucan Br' (EPA Code: RS09L012100), located in the River Liffey (LIFFEY_170 c.4.2 km downstream of the proposed development site. The most recent status recorded by the EPA (2022) is classified as Q3-4/Moderate.

Refer to Figure 8.3 below for locations of this EPA quality monitoring point in the context of the site.

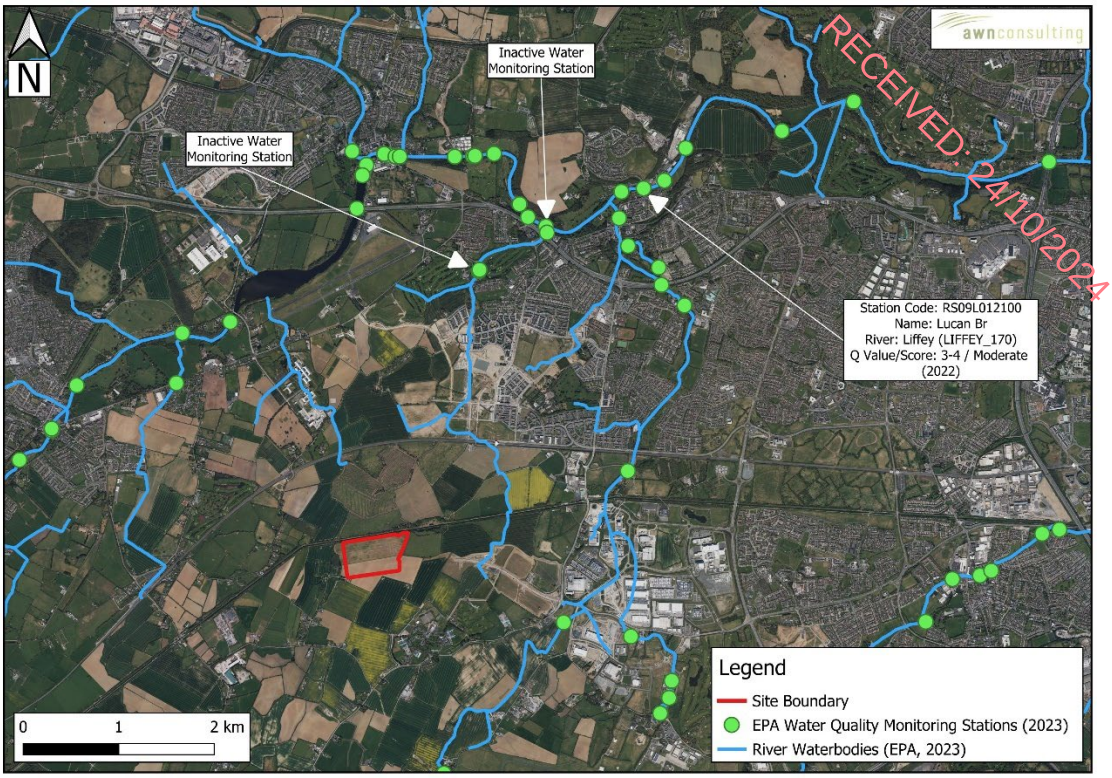

Figure 8.3: EPA Surace Water Quality Stations (EPA, 2023)

The nearest watercourse located in the vicinity of the site is the Lucan Stream (EPA Code: IE_EA_09L012100) located to the east belonging to the LIFFEY_170 surface water body. It is currently classified by the EPA as having '*Poor*' water quality status for the period 2016-2021 and is '*At Risk of not achieving good status*'.

8.3.3 Bathing Waters and Recreational Waterbodies

The local environment also includes areas of natural resources that relate to populations and human health that may be impacted by the proposed development, this includes economic resources, recreational and bathing waters, and drinking water resources.

A review of Environmental Sensitivity Mapping online maps that includes the Register of Protected Areas (RPA) under the Water Framework Directive (WFD) has shown that there are no Recreational Waters, Bathing Waterbodies, or Surface Water Drinking RPA, located within the vicinity of the proposed development.

8.3.4 Utilities and Drainage Infrastructure

Existing Stormwater / Surface Water Drainage

The site is a greenfield site and does not contain a surface water network. The Grand Canal runs East-West along the northern boundary of the site. There is also an existing watercourse running South-North approx. 100m West of the site. The Grange Castle West Access Road to the East of the site, contains a 450mm diameter and a 375mm diameter surface water pipeline for the purpose of handling surface water related to the public road only.

Foul Water Drainage

A new foul sewer network is proposed as part of the permitted Grange Castle West Access Road (planning application reference no. SD188/0009) to the East of the site.

A new gravity network will serve the proposed development site. A permanent connection is proposed into the proposed foul pipeline permitted as part of the Grange Castle West Access Road (planning application reference no. SD188/0009) to the East of the site. Design of the foul sewer network and pumping station will be in accordance with the Uisce Éireann 'Code of Practice for Wastewater' and standard details.

8.3.5 Flood Risk Assessment

BMCE Consulting have prepared a Flood Risk Assessment for the proposed development site that is included with the planning application documentation. The Flood Risk Assessment was undertaken in accordance with the following relevant guidelines and policies:

- Department of the Environment Heritage and Local Government (DEHLG) and the Office of Public Works (OPW) Guidelines for Planning November 2009 on 'The Planning System and Flood Risk Management Guidelines for Planning Authorities'.
- The Planning and Development Act 2000.

BMCE have undertaken a review of the historic flood information and indicates no flood risk in the immediate vicinity of the site.

Floodmaps.ie

The OPW host a National Flood hazard mapping website, www.floodinfo.ie, which highlights areas at risk of flooding through the collection of recorded data and observed flood events. The following past flood events in the surrounding area (refer to Figure 8.4 below).

Figure 8.4: Extract from Floodinfo.ie showing past flooding events in the vicinity of the proposed development site (Source: BMCE Consulting FRA, 2023).

A flood was recorded at Shinkeen Hazelhatch River Road in November 2000, approximately 1.84km to the west of the site. Flooding also occurred on Peamount Road in November 2000, approximately 1.4km to the south of the subject site. On 5th November 2000 flooding occurred at Peamount R134 R120 junction, located approximately 1.33km south-east of the proposed development. The source of the flood waters was due to an extreme weather event which brought about heavy rainfall and high winds. Reports noted that blocked gullies caused by falling leaves may have exacerbated the flood levels.

Based on available and recorded information as outlined above, the subject site is considered not to have been subject to flooding in recent history.

Coastal Flooding

Coastal flooding occurs when sea levels along the coast of estuaries exceed neighbouring land levels or overcome coastal defences where these exist. A review of the OPW Tidal Flood Extents Mapping was carried out and indicates no coastal flooding at the subject site for the following flood event probabilities:

- 10% Tidal AEP (Annual Exceedance Probabilities) or 1 in 10 year return period.
- 0.5% Tidal AEP or 1 in 200 year return period.
- 0.1% Tidal AEP or 1 in 1000 year return period.

Therefore, the risk of tidal flooding is considered low as the subject site lies outside the 0.1% AEP.

Fluvial Flooding

Fluvial flooding occurs when rivers and streams break their banks and water flows out onto the adjacent low-lying areas. A review of the OPW Fluvial Flood Extents Mapping was carried out and indicates negligible probability fluvial flooding at the subject site for the following flood event probabilities:

- 10% Fluvial AEP (Annual Exceedance Probabilities) or 1 in 10 year return period.
- 1% Fluvial AEP or 1 in 200 year return period.
- 0.1% Fluvial AEP or 1 in 1000 year return period.

A review of the OPW Flood Maps database does not indicate any history of flood events at or near the subject site.

Flood risk modelling conducted on behalf of the OPW under the Eastern CFRAM (Catchment Flood Risk Assessment and Management) Study indicates that the subject site is not within an area with a fluvial flood event AEP of 0.1% or greater. The risk of fluvial flooding within the site is therefore considered low. An area adjacent to the site and encompassing part of the site is noted in the OPW Flood Maps as under review. BMCE contacted the OPW, and they have confirmed that they currently do not intend to revise this area as there is no flooding risk.

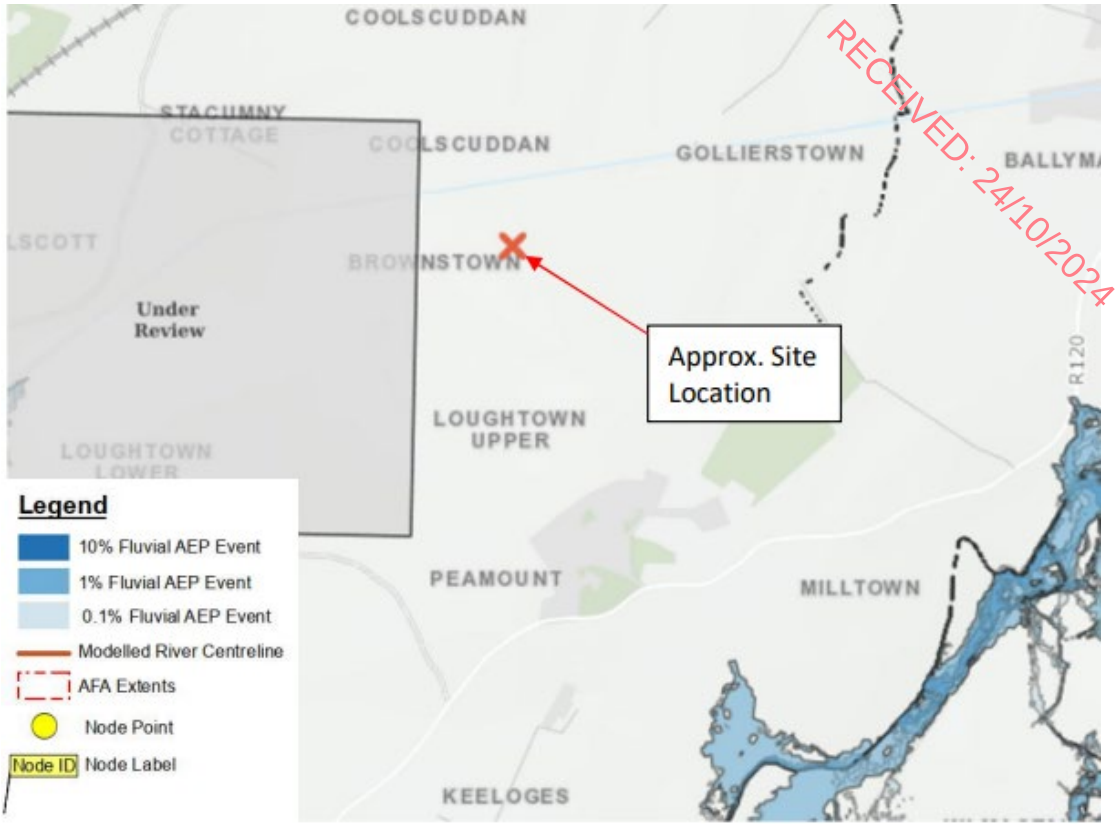

Figure 8.5: Fluvial Flood Extents (Source: OPW Eastern CFRAM Study)

8.3.6 Areas of Conversation

According to the NPWS (2023) on-line database there are no special protected area within the boundary of the proposed development site. The Grand Canal is a proposed Natural Heritage Area which is located on the northern boundary of the proposed development site. The lands in which the development is located have no formal designations. As the canal is a contained feature (fully lined) there is no potential for a source pathway linkage. In addition, there is an indirect hydrological pathway / connection to nationally designated sites in Liffey Valley and in Dublin Bay via the stream to the west of the site, which is likely to outfall to the River Liffey which subsequently discharges to Dublin Bay. According to the NPWS (2023) online database, the following areas of conservation have a hydraulic/hydrological connection to the subject lands, albeit at a huge distance with a large dilution factor in Dublin Bay:

- Rye Water Valley/Carton SAC [Site Code: 004026] c. 3.9 km north of the proposed development site;
- Glenasmole Valley SAC [001209] c. 10.6 km south-east of the proposed development site; and
- South Dublin Bay and River Tolka Estuary SPA [004024] c. 17.6 km east of the proposed development site.
- North Bull Island SPA (Site Code: IE004006) c.20.7 to north east of the site.
- North-West Irish Sea SPA (Site Code: IE004236) c.22.2 to the east of the site.
- North Dublin Bay pNHA c. 20.9 km to the northeast of the site.
- South Dublin Bay pNHA c. 19.4 km to the east of the site.

Figure 8. 6 below presents the location of these protected areas in the context of the proposed development site.

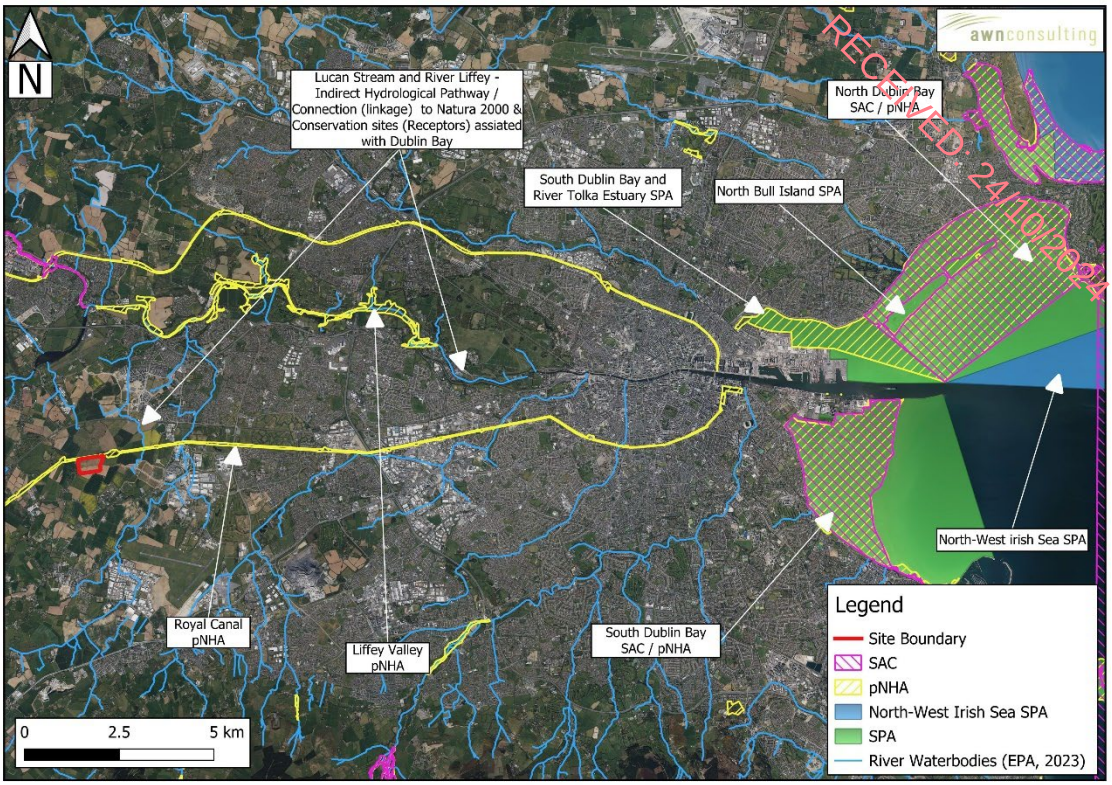

Figure 8.6: Natura 2000 Sites in the Context of the Subject Site

8.3.7 Rating of Importance of Hydrological Attributes

Based on the TII methodology (2009) (See Appendix 8.1) the importance of the hydrological features at this site is rated as '*Low importance'* based on the assessment that the attribute has a low-quality significance or value on a local scale, based on the fact that it is not an area of water supply, within a flood zone or an amenity area.

8.4 Characteristics of the Proposed Development

A detailed description of the proposed development is set out in Chapter 3 of this EIAR (Description of the Proposed Development). The details of the construction and operation of the development in terms of Hydrology are detailed in the subsections below.

8.4.1 Construction Phase

The key civil engineering works which relate to the water and hydrological environment during construction of the proposed development are summarised below:

<u>Storage of Soil/Aggregates</u>

Topsoil on site ~~(excluding the ecological buffer zone area to the north next to the canal)~~ will be stripped back and stockpiled within the site boundary for reuse. [amended text] **No topsoil within the ecological buffer zone will be stripped back, other than what is required for the construction of the swales** [amended text]. This will be stored on site in the materials and waste storage area prior to reuse. Topsoil will be stored in stockpiles of max 2m high as per best practice. The stockpiles will be managed and maintained by the main contractor. Any excavated material temporarily stockpiled onsite for re-use during reinstatement will be

managed to prevent accidental release of dust and uncontrolled surface water run-off which may contain sediment etc.

The application of herbicide in advance of site clearance is not permitted.

Storage of Hazardous Material

Temporary storage of fuel required for on site for construction traffic. Liquid materials i.e., fuel storage will be located within temporary bunded areas, doubled skinned tanks or bunded containers (all bunds will conform to standard bunding specifications - BS8007-1987) to prevent spillage.

Construction activities will necessitate storage of cement and concrete materials, temporary oils, and fuels on site. Small localised accidental releases of contaminating substances including hydrocarbons have the potential to occur from construction traffic and vehicles operating on site.

Dewatering

The proposed development will probably involve groundwater dewatering. This dewatering will be mainly associated with perched groundwater within the subsoils and some strikes from the upper weathered bedrock. In case of occurrence, this dewatering will be a short-lived event and will not impact on the groundwater regime of the Dublin GWB and on the quantitative aspects of waterbody status such as baseflow for hydrological waterbodies.

Disposal of Foul Wastewater

Foul wastewater drainage from site offices and compounds, where not directed to the existing combined sewer network, shall be contained and disposed of off-site in an appropriate manner and in accordance with the relevant statutory regulations, to prevent the pollution of watercourses.

Flood Risk Management

Highlighted in BMCE Flood Risk Assessment, during extreme rainfall events and where the proposed drainage system is blocked, there is a chance that localised ponding will occur. Ensuring that internal finished floor levels are set above the highest external surface levels in the vicinity will allow for any runoff or ponding to be retained on access road and landscaped areas. The swale has been designed with top water levels (TWL) of at least 500mm below the lowest finished floor level (FFL). This measure, during the unlikely event is considered appropriate for the nature of the development.

In addition to the allowance of an additional 20% flow for climate change, the surface water system has also been designed with an additional 10% increase in impermeable area to allow for urban creep.

In the event of pump failure, any overland flows will convey any flood waters towards the swale / ecological buffer zone to the north of the site. This area is at a lower level and has more than sufficient capacity to accommodate any flood waters arising from a 1 in 1000-year storm event or worse. Liaison with the Ecologist Ger O'Donoghue (see section 6.5.3, Chapter 6) on this strategy, has confirmed there is no ecological concerns and there will be no significant negative operational effects on adjacent habitats.

8.4.2 Operational Phase

The proposed development characteristics which relate to the water and hydrological environment during operation of the proposed development are summarised below:

Surface Water Management

The development of this site will result in increased paved and impermeable areas that could create pressure on the environment and existing services due to the generation of increased run-off and pollution. In order to avoid this the development will be designed in accordance with the principles of Sustainable Drainage Systems (SuDS) as embodied in the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS) and, where practical, with the requirements of the South Dublin County Council. The GDSDS addresses the issue of sustainability by requiring designs to comply with a set of drainage criteria which aim to minimize the impact of urbanization by replicating the run-off characteristics of the greenfield site. The criteria provide a consistent approach to addressing the increase in both rate and volume of run-off as well as ensuring the environment is protected from pollution that is washed off roads and buildings.

The runoff generated from the site will be attenuated using two swales located to the North of the site. The total runoff from the site will be controlled at the greenfield runoff rate for the site QBAR (57.5l/s) through the use of a hydrobrake located at the outfall of the swale. All surface water will pass through at least one SuDS measure, including permeable paving, green roof systems and swales.

Two swales will be located within the 50m buffer zone to the North of the site between the proposed development and the Grand Canal. Swale 1 will provide a storage volume of 10,000m^3 and Swale 2 will provide a storage volume of 5,400m^3.

The swales will be designed to accommodate a 1 in 100-year storm with a 20% increase climate change and will form the last part of the SuDS management train. An increase of 10% has been taken into account for all impermeable areas to allow for potential urban creep. A hydrobrake will be fitted downstream of each swale in order to attenuate the total flow from the site to the Greenfield runoff rate (QBAR) of 57.5 l/s.

Foul Drainage Proposed

A new gravity network will serve the proposed development site. A permanent connection is proposed into the proposed foul pipeline permitted as part of the Grange Castle West Access Road (planning application reference no. SD188/0009) to the East of the site. Due to the development size and the relationship between the levels on site and the invert level of the foul pipe in Grange Castle West Access Road, it will only be possible to discharge foul flows from some of the buildings located to the east of the site by gravity to the foul line on Grange Castle West Access Road. The remainder of the foul flows will be collected in a new internal foul sewer network and discharged by gravity to a pumping station at the western boundary of the site. Foul flows will then be pumped via a rising main to an outfall manhole at the eastern boundary of the site before discharging by gravity to the proposed foul sewer in Grange Castle West Access Road. See drawing C-11200 for details. The foul lines and the Foul water will ultimately be discharged to the Ringsend Treatment Plant. Design of the foul sewer network and pumping station will be in accordance with the Uisce Éireann 'Code of Practice for Wastewater' and standard details.

Water Supply

The proposed watermain connection to the development will be from the permitted watermain as part of the Grange Castle West Access Road (planning application reference no. SD188/0009) to the East of the site. All proposed water mains will be HDPE 150 SDR17 in accordance with Uisce Éireann Standards.

Hydrants will be provided on the watermain at a max distance of 46m from any part of a building in accordance with the Department of the Environment's Building Regulations "Technical Guidance Document Part B Fire Safety". Hydrants shall comply with the requirements of BS 750:2012 and shall be installed in accordance with UÉ Code of Practice and Standard Details. Sluice valves will be provided at appropriate locations to facilitate isolation and purging of the system. Air valves will be provided at high points for system venting. Design of the watermain will be in accordance with the Uisce Éireann 'Code of Practice for Water Supply' and standard details.

8.5 Predicted Impacts of the Proposed Development

8.5.1 Construction Phase

Potential Impacts on Surface Water Quality

There is potential for water (rainfall and/or groundwater) to become contaminated with pollutants released during construction activity. If not mitigated, contaminated water can pose a temporary risk.

During construction of the development, there is a risk of accidental pollution incidences from the following sources:

- Suspended solids (muddy water with increase turbidity) – arising from exposed ground, stockpiles and access roads and ground disturbance.
- Cement/concrete (increase turbidity and pH) – arising from construction materials.
- Hydrocarbons and other construction chemicals (ecotoxic) – accidental spillages from construction plant or onsite storage.
- Wastewater (nutrient and microbial rich) – arising from accidental discharge from on-site toilets and washrooms.

Based on the potential for release, the nature of the discharge, and distance to Natura sites there is no likelihood of an impact on the surface water quality in the Liffey or Natura sites.

In the absence of mitigation measures the potential impacts during the construction phase on surface water quality are following EIA guidance ***negative***, ***not significant*** and ***temporary***.

Potential Impacts on Surface Water Flow and Quantity

Land clearing, earthworks and excavations will be required for construction phase operations to facilitate site clearance, construction of new plateaux levels for the units, construction of new buildings, foundations and installation of services. This will include site levelling, construction, and building foundation excavation, this will necessitate the removal of vegetation cover and the excavation of soil and subsoils.

The gradual introduction of impermeable surfaces and the compaction of soils across the construction site as a result of the land clearing and earthworks will reduce the infiltration capacity and increase the rate and volume of direct surface run-off. The potential impact of

this is a possible increase in surface water run-off and sediment loading, which could potentially impact local drainage if not adequately mitigated. This increase in the rate and volume of direct surface run-off can result in increased sediment loading, scouring impacts local drainage and watercourse, and downstream impacts.

There are no surface water abstractions proposed, therefore no potential impacts on the quantity of surface water.

Based on the distance to Natura sites there is no likelihood of an impact on the surface water flow or water quality in the Liffey or Natura sites. As the canal is fully lined there is no potential for a source pathway linkage.

In the absence of mitigation measures the potential impacts during the construction phase on surface water flow and quantity following EPA guidance is ***negative***, ***not significant*** and ***short term***.

Potential Impacts on Human Health and Populations

A reduction in water quality via unmitigated pollutants entering waterbodies has the potential to lead to negative impacts on human health and populations. Hydrocarbons and petroleum products for example have the greatest risk for human health when they are in drinking water. However, it is noted that there are no recorded Recreational Waters, Bathing Waterbodies, or Surface Water Drinking RPA, within immediate vicinity of the site.

Therefore, on this basis in the absence of mitigation measures the potential impacts during the construction phase on human health and populations due to changes to the hydrological environment are ***negative***, ***not significant*** and ***short term***.

Potential Impacts on Water Framework Directive Status

There is a potential of accidental discharges during the construction phase, however these are temporary short-lived events that will not impact on any surface water status long-term and as such will not impact on trends in water quality and overall WFD status assessment.

There is no potential impact on water framework directive status, therefore no specific mitigation measures are required.

8.5.2 Operational Phase

Potential Impacts on Surface Water Quality

Surface water runoff from roads, car parking areas, and vehicles and machinery that may be used for the purpose of the intended media activities on site, can potentially contain elevated levels of contaminants such as hydrocarbons. These pollutants such as hydrocarbons that are a known carcinogen (cause cancer) in many animals and suspected to be carcinogenic to humans and changes in water pH in runoff water may result in adverse changes in water chemistry (dissolved oxygen content, biological oxygen demand etc).

It is proposed to construct a new SuDs for the development to collect runoff from roofs and paved areas and any additional runoff from landscaped areas which doesn't percolate to ground. It is proposed that the new surface water network within the site will convey surface water flows to two swales located within the 50m buffer zone between the proposed development and the Grand Canal to the North of the site. Surface water flows from the site

will outfall to the existing watercourse approx. 100m West of the site connecting eventually to the River Liffey. The swales will be designed to accommodate flows for the 1 in 100-year storm event. A hydrobrake will be fitted at the outfall of each swale which will limit the flow exiting the site to the existing greenfield runoff rate QBAR (57.5 l/s).

As no bulk oil storage is proposed, there is no potential for impact on off-site water bodies or Natura sites. Even without mitigation, based on the hazard loading and distance to the Liffey and the Natura sites there is no potential for an impact.

In the absence of mitigation measures (or design measures) the potential impacts during the operational phase on surface water quality are ***negative***, ***not significant,*** and ***long-term***.

Potential Impacts on Surface Water Flow and Quantity

The proposed increase in hardstanding area has the potential to resulting in increase in run-off from the site if not adequately mitigated. An increase in surface water run off can have an adverse effect on the hydrological regime of downstream environments via flooding and inundation to downstream properties.

As described above the buildings lie outside of the 0.1% AEP event and are therefore located within Flood Zone C, which indicates low flood risk. The design of the development and drainage infrastructure will ensure that the run-off rate is similar to greenfield run-off.

Pluvial flooding is the result of rainfall-generated overland flows which arise before run-off can enter a watercourse or sewer. It is usually associated with high intensity rainfall and typically occurs in the summer months. The SFRA Indicative Pluvial Flood Maps were also reviewed. As illustrated, no localised pluvial flood risk for the site or vicinity was identified. The design incorporates drainage which will remove the potential for any pluvial flooding on site.

The proposed measures ensures that all development will not be impacted by the predicted flood events. In the absence of mitigation measures (or design measures) the potential impacts during the operational phase on surface water flow and quantity are following EPA guidance ***negative***, **not *significant,*** and ***long-term***.

Potential Impacts on Human Health and Populations

A reduction in water quality via unmitigated pollutants entering local water streams has the potential to lead to negative impacts on human health and populations. Hydrocarbons and petroleum products for example have the greatest risk for human health when they are in drinking water. However, it is noted that there are no recorded Recreational Waters, Bathing Waterbodies, or Surface Water Drinking RPA, located downstream in the immediate vicinity of the site.

The potential for unmitigated off-site flooding as a result of the increased hardstanding areas, and due to the flood risk at the site the proposed development has the potential to impact on human health, populations, and material assets, located downstream of the site.

In the absence of mitigation measures the potential impacts during the operation phase on human health and populations due to changes to the hydrological environment are ***negative***, ***not significant*** and ***long term***.

Potential Impacts on Water Framework Directive Status

Although there are long-term discharges of surface water runoff planned which could have an impact on the status of the surface water body, they are not likely to impact surface water bodies. In the scenario of an accidental release, there is potential for a temporary impact only, which would not be of a sufficient magnitude to effect a change in the current water body status.

There is no potential impact on water framework directive status, therefore no specific mitigation measures are required.

8.6 Mitigation Measures

The design has taken account of the potential impacts of the development on the hydrological environment local to the area where construction is taking place and containment of contaminant sources during operation. Measures have been incorporated in the design to mitigate the potential effects on the surrounding water bodies.

8.6.1 Construction Phase

BMCE and project team have prepared an *Outline Construction Environmental Management Plan (CEMP)* (2023) that is included with the application documentation. This outline CEMP explains the construction techniques and methodologies which will be implemented during construction of the proposed development.

Construction works and the proposed mitigation measures are informed by best practice guidance from Inland Fisheries Ireland on the prevention of pollution during development projects including but not limited to:

- SDCC document *'Construction and Demolition Waste Management Plan Pre-Planning Guidance, Sept 2017'*
- Department of the Environment, Climate and Communications publication *'Construction and Demolition (C&D) Waste, April 2021'*
- Department of Environment Heritage and Local Government document *'Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects, July 2006'*
- ProPG document *'Planning & Noise – Professional Practical Guidance on Planning & Noise - New Residential Development May 2017'*
- *CIRIA C532: Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors*
- *CIRIA C692: Environmental Good Practice on Site*
- *BPGCS005: Oil Storage Guidelines.*
- *CIRIA C648: Control of Water Pollution from Linear Construction Projects.*

The CEMP will be implemented and adhered to by the project team, including the Ecological Clerk of Works where relevant. All personnel working on the Site will be trained in the implementation of the procedures.

The CEMP sets out the proposed procedures and operations to be utilised on the proposed construction site to protect water quality. The mitigation and control measures outlined in the CEMP will be employed on site during the construction phase. All mitigation measures outlined here, and within the CEMP will be implemented during the construction phase, as

well as any additional measures required pursuant to planning conditions which may be imposed.

8.6.1.1 Surface Water Quality

Suspended Solids

In order to manage the potential impact associated with sediment and sediment runoff the following mitigation measures will be implemented during the construction phase.

- The 50m buffer zone from the Canal will be established early in the construction phase where no construction works will take place [amended text] **other than construction of the swales** [amended text]. During earthworks and excavation works care will be taken to ensure that exposed soil surfaces are stable to minimise erosion.
- All exposed soil surfaces will be within the main excavation site which limits the potential for any offsite impacts.
- Any hard surface site roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.
- A power washing facility or wheel cleaning facility will be installed near to the site compound for use by vehicles exiting the site when appropriate,
- The temporary storage of soil will be carefully managed. Stockpiles will be tightly compacted to reduce runoff and graded to aid in runoff collection.
- Construction materials, including aggregates etc. will be stored a minimum of 50 meter buffer distance from any surface water bodies and SuDs points.
- Aggregate materials such as sands and gravels will be stored in clearly marked receptacles within a secure compound area to prevent contamination.
- Movement of material will be minimised to reduce the degradation of soil structure and generation of dust.
- Excavations will remain open for as little time as possible before the placement of fill. This will help to minimise the potential for water ingress into excavations.
- Weather conditions will be considered when planning construction activities to minimise the risk of run-off from the site.

In addition to the measures above, all excavated materials will be visually assessed by suitably qualified persons for signs of possible contamination such as staining or strong odours. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of potential contaminants to ensure that historical pollution of the soil has not occurred. Should it be determined that any of the soil excavated is contaminated, this will be segregated and appropriately disposed of by a suitably permitted/licensed waste disposal contractor.

Cement/concrete works

Where feasible all ready-mixed concrete will be brought to site by truck. A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline wastewaters or contaminated storm water to the underlying subsoil.

No wash-down or wash-out of ready-mix concrete vehicles during the construction works will be carried out at the site within 10 meters of an existing SuDs point. Wash-outs will only be allowed to take place in designated areas with an impervious surface where all wash water is

contained and removed from site by road tanker or discharged to foul sewer submit to agreement with Irish Water / SDCC.

The construction contractor will be required to implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the Site will be suitably trained in the implementation of the procedures.

Hydrocarbons and other construction chemicals

The following mitigation measures will be implemented during the construction phase in order to prevent any spillages to ground of fuels and other construction chemicals and prevent any resulting to surface water and groundwater systems:

- Designation of bunded refuelling areas on the Site;
- Provision of spill kit facilities across the Site;
- Where mobile fuel bowsers are used, the following measures will be taken:
    - Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use;
    - The pump or valve will be fitted with a lock and will be secured when not in use;
    - All bowsers to carry a spill kit and operatives must have spill response training;
    - Portable generators or similar fuel containing equipment will be placed on suitable drip trays.

In the case of drummed fuel or other potentially polluting substances which may be used during the construction phase, the following measures will be adopted:

- Secure storage of all containers that contain potential polluting substances in a dedicated internally bunded chemical storage cabinet unit or inside a concrete bunded area;
- Oil and fuel storage tanks shall be stored in designated areas, and these areas shall be stored within temporary bunded areas, doubled skinned tanks or bunded containers to a volume of 110% of the capacity of the largest tank/container. Drainage from the bunded area(s) shall be diverted for collection and safe disposal.
- Clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage;
- All drums to be quality approved and manufactured to a recognised standard;
- If drums are to be moved around the Site, they will be secured and on spill pallets; and
- Drums will be loaded and unloaded by competent and trained personnel using appropriate equipment.

Refuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in a designated area or within the construction compound (or where possible off the site) which will be away from surface water gulleys or drains minimum 20 m buffer zone). In the event of a machine requiring refuelling outside of this area, fuel will be transported in a mobile double skinned tank. An adequate supply of spill kits and hydrocarbon adsorbent packs will be stored in this area. All relevant personnel will be fully trained in the use of this equipment. Guidelines such as “Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors” (CIRIA 532, 2001) will be complied with.

The construction contractor will be required to implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the Site will be suitably trained in the implementation of the procedures.

Wastewater Management

Foul wastewater discharge from the site will be managed and controlled for the duration of the construction works.

Site welfare facilities will be established to provide sanitary facilities for construction workers on site. The main contractor will ensure that sufficient facilities are available at all times to accommodate the number of employees on site. Foul water from the offices and welfare facilities on the site will discharge into the existing sewer on site (the cabins may initially need to have the foul water collected by a licensed waste sewerage contractor before connection to the sewer line can be made).

The construction contractor will implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the Site will be suitably trained in the implementation of the procedures.

8.6.1.2 Human Health and Populations

It has been established that there are no recorded Recreational Waters, Bathing Waterbodies, or Surface Water Drinking RPA, located within the vicinity of the proposed site. On a precautionary basis, the mitigation measures set out in Section 8.6.1 will be implemented during the construction works for the protection of human health and populations.

8.6.1.3 Potential Impacts on Water Framework Directive Status

It has been established that while, there is a potential of accidental discharges during the construction phase this will not impact on trends in water quality and overall WFD status assessment. On a precautionary basis, the mitigation measures set out in Section 8.6.1, will be implemented during the construction works for the protection of surface water quality.

8.6.2 Operational Phase

8.6.2.1 Surface Water Quality

The design has taken account of the potential impacts of the development on surface water quality; measures have been incorporated in the design to mitigate these potential impacts.

The proposed development stormwater drainage network design includes sustainable drainage systems (SuDS), these measures by design ensure the stormwater leaving the site is of a suitable quality prior to discharge. SuDS are drainage systems that are environmentally beneficial, causing minimal or no long-term detrimental damage. As set out in BMCE Engineering Services Report the proposed/existing SuDs for this development has been designed as a sustainable urban drainage system with grass swales, permeable paving and green roofs to:

- Treat runoff and remove pollutants to improve quality
- Restrict outflow and to control quantity
- Increase amenity value

The proposed surface water SuDS approach will attenuate the rate of surface water runoff from the development, intercept first flush flows and improve the quality of water that is intercepted by the SuDs through biodegradation, pollutant adsorption and settlement and

retention of solids. There is a low potential loading of hazardous substances during operation (mainly leaks for vehicles) and the drainage design incorporates SuDS measures to treat normal run-off water quality in order to meet surface water regulations.

8.6.2.2 Human Health and Populations

It has been established that there are no recorded Recreational Waters, Bathing Waterbodies, or Surface Water Drinking RPA. On a precautionary basis, the mitigation measures set out in Section 8.6.2 will be implemented during the operational phase for the protection of human health and populations, and downstream material assets.

8.6.2.3 Potential Impacts on Water Framework Directive Status

It has been established that while, there is a potential of accidental discharges during the operational phase this will not impact on trends in water quality and overall WFD status assessment. On a precautionary basis, mitigation measures will be implemented during the construction works for the management of surface water flows the indirect discharges. The surface water discharges from the site are indirect, and will be adequately attenuated via SuDS measures to ensure there is no long-term negative impact to the WFD water quality status.

8.7 Residual Impacts

The residual impacts are those that would occur after the mitigation measures have taken effect. The following is a summary of the residual impacts associated with the hydrological environment:

8.7.1 Construction Phase

Surface Water Quality

The implementation of the mitigation and monitoring measures will ensure that the potential impacts on surface water quality during the construction phase are adequately mitigated. There will be no change to overall flow and quality within the hydrological regime as a result of construction. The residual effect on surface water quality during the construction phase is considered to be ***neutral, imperceptible*** and ***short-term***.

Surface Water Flow and Quantity

The implementation of the mitigation and monitoring measures will ensure that the potential impacts on surface water flow and quantity during the construction phase are adequately mitigated. There will be no change to overall flow and quality within the hydrological regime as a result of construction. The residual effect on surface water flow and quantity during the construction phase is considered to be ***neutral, imperceptible*** and ***short-term***.

Human Health and Populations

The implementation of the mitigation and monitoring measures will ensure that the potential impacts on human health and populations (and material assets) during the construction phase are adequately mitigated. There will be no change to overall flow and quality within the hydrological regime as a result of construction. The residual effect on human health and populations during the construction phase is considered to be ***neutral, imperceptible*** and ***short-term***.

Water Framework Directive Status

There is a potential of accidental discharges during the construction phase, however these are temporary short-lived events that will not impact on the water status of waterbodies long-term or overall and as such,. there will be no predicted degradation of the current water body (chemically, ecological and quantity) or any impact on its potential to meet the requirements and/or objectives in the second RBMP 2018-2021 (River Basin Management Plan) and draft third RBMP 2022-2027, even in the absence of the mitigation and monitoring measures.

There are appropriately designed mitigation measures which will be implemented during the construction phase to protect the hydrological environment. There is a potential of accidental discharges during the construction phase, however these are temporary short-lived events that will not impact on the water status of waterbodies long-term and as such will not impact on trends in water quality and over all status assessment.

The residual effect on human health and populations during the construction phase is considered to be ***neutral, imperceptible*** and ***short-term***.

8.7.2 Operational Phase

Surface Water Quality

The implementation of the mitigation and monitoring measures will ensure that the potential impacts on surface water quality once the proposed development is constructed and operational are adequately mitigated. The residual effect on surface water quality during the operational phase is considered to be ***neutral, imperceptible*** and ***long-term***.

Surface Water Flow and Quantity

The implementation of the mitigation and monitoring measures will ensure that the potential impacts on surface water flow and quantity once the proposed development is constructed and operational are adequately mitigated. The residual effect on surface water flow and quantity during the operational phase is considered to be ***neutral, imperceptible*** and ***long-term***.

Human Health and Populations

The implementation of the mitigation and monitoring measures will ensure that the potential impacts on human health and populations (and material assets) once the proposed development is constructed and operational are adequately mitigated. The residual effect on human health and populations during the operational phase is considered to be ***neutral, imperceptible*** and ***long-term***.

Water Framework Directive Status

Even in the absence of the mitigation and monitoring measures there will be no predicted degradation of the current water body (chemically, ecological and quantity) or any impact on its potential to meet the requirements and/or objectives in the second RBMP 2018-2021 (River Basin Management Plan) and draft third RBMP 2022-2027.

There are appropriately designed mitigation measures which will be implemented during the operational phase to protect the hydrological environment (receptors). There is a potential of accidental discharges during the operational phase, however these are temporary short-lived events that will not impact on the water status of waterbodies long-term and as such will not impact on trends in water quality and over all status assessment.

There are no untreated discharges of wastewater during the operational phase to any open waterbody / watercourse receptors. The discharges to surface water will be adequately treated via SuDS measures to ensure there is no long-term negative impact to the WFD water quality status of the receiving watercourse (receptor). The SuDS and proposed measures have been designed in detail with the ultimate aim and objective of protecting the hydrological (& hydrogeological) environment. The SuDS and project design measures will be maintained correctly as per specifications to ensure long-term / on-going integrity of same.

The residual effect on human health and populations during the operation phase is considered to be ***neutral, imperceptible*** and ***short-term***.

8.8 Cumulative Impacts

8.8.1 Construction Phase

In relation to the potential cumulative impact on hydrology during the construction phases, the construction works which would have potential cumulative impacts are as follows:

- Surface water run-off during the construction phase may contain increased silt levels or become polluted from construction activities. Run-off containing large amounts of silt can cause damage to surface water systems and receiving watercourses.
- Stockpiled material will be stored on hardstand away from surface water drains, and gullies will be protected during works to ensure there is no discharge of silt-laden water into the surrounding SuDs .
- Contamination of local water sources from accidental spillage and leakage from construction traffic and construction materials is possible unless project-specific measures are put in place for each development and complied with.

The works contractors for other planned or permitted developments will be obliged to ensure that measures are in place to protect soil and water quality in compliance with legislative standards for receiving water quality (European Communities Environmental Objectives (Groundwater) Regulations (S.I. 9 of 2010 and S.I. 266 of 2016).

The implementation of mitigation and monitoring measures detailed in Section 8.6.1; as well as the compliance of permitted development with their respective planning conditions, will ensure there will be minimal cumulative potential for change to the hydrology environment during the construction phase of the proposed development. The residual cumulative impact of the proposed development in combination with other planned or permitted developments can therefore be considered to be ***neutral, imperceptible*** and ***short-term***.

8.8.2 Operational Phase

In relation to the potential cumulative impact on hydrology during the operational phases, the operational activities which would have potential cumulative impacts are as follows:

- Increased hard standing areas will reduce local recharge to ground and increase surface water run-off potential if not limited to the green field run-off rate from the

Site. Cumulatively this development and others in the area will result in localised reduced recharge to ground and increase in surface run-off.
- Increased risk of accidental discharge of hydrocarbons from car parking areas, the petrol station, and along roads is possible unless diverted to surface water system with petrol interceptor.
- There will be a small loss of greenfield area locally as part of the proposed Project.

The development will result in an increase in hard standing which will result in localised reduced recharge to ground. The site is underlain mostly by a "Locally Important Aquifer – Bedrock which is Moderately Productive only in Local Zones". The cumulative impact is considered to be imperceptible. The implementation of SuDs measures on site will mitigate against and reduce the recharge rate to ground.

All developments are required to ensure they do not have an impact on the receiving water environment in accordance with the relevant legislation (Water Framework Directive and associated legislation) such that they would be required to manage run-off and fuel leakages.

The implementation of mitigation and monitoring measures detailed in Section 8.6.2; as well as the compliance of the above permitted development with their respective planning conditions, will ensure there will be minimal cumulative potential for change to hydrology environment during the operational phase of the proposed development. The residual cumulative impact of the proposed development in combination with other planned or permitted developments can therefore be considered to be ***neutral, imperceptible*** and ***long-term***.

8.9 References

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