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Non-Technical Summary of Environmental Impact Assessment Report

**DATA CENTRE DEVELOPMENT
CRUISERATH ROAD
DUBLIN 15.**

Prepared by: AWN Consulting, December 2022

Prepared for: Universal Developers LLC

NON-TECHNICAL SUMMARY

1.0 INTRODUCTION

This is the non-technical summary of an Environmental Impact Assessment (EIA) Report prepared by AWN Consulting Ltd. (AWN) on behalf of Universal Developers LLC ('the Applicant') to accompany a planning application to Fingal County Council (FCC) for a data centre development on a site at Cruiserath Road, Dublin 15.

The existing campus is owned and operated by Amazon Data Services Ireland Limited (ADSIL) (herein referred to as 'the Operator'), the Irish entity of Amazon Web Services (AWS) which is part of the Amazon.com, Inc group of companies. The Proposed Development is to support AWS's customers in Ireland. The location of the Proposed Development is shown in Figure 1.1.



Figure 1.1 Location of the Proposed Development in the context of the wider area

The Proposed Development, for which a seven-year permission is sought, comprises the provision of three new data centre buildings (referred to herein as Buildings E, F, and G) along with associated structures and emergency generators, parking and vehicular routes, landscaping, and associated development (referred to herein as the 'Proposed Development'). A full description of the Proposed Development is provided in Chapter 2 (Description of the Proposed Development).

Planning Rationale

The planning rationale for the proposed data centre development is outlined fully in the Planning Report prepared by John Spain Associates which is provided as part of the planning documentation. It is summarised in Section 1.1.1 of Chapter 1 of the EIA Report.

Need for the Development

The recent Government Statement on the Role of Data Centres in Ireland's Enterprise Strategy (July 2022) states that 'Ireland is home to a significant cluster of digital infrastructure and service providers. To maximise the benefits of technology advancements including from 5G, AI and virtual reality, Ireland will need to continue to facilitate sustainable data centre development and the associated technological and economic spill overs. Digital Infrastructure such as data centres underpins our technology sector, which is increasingly cloud based. Ireland's technology sector accounts for €52 billion (16%) of gross value added and employs 140,000 people – equivalent to 6 per cent of total national employment with 40 per cent growth over the last five years.

The Operator

AWS's Ireland Region was established in 2007, and since this time the company has invested significantly in the country. Between 2011-2020 alone, AWS directly invested €4.4 billion in Ireland, with an economic output effect of €7.5 billion. This level of investment generated growth in economic output of €1.45 billion per year. AWS support more than 8,700 jobs, including more than 3,000 direct AWS employees, almost 4,000 in contractor and supplier companies linked to our data centres and 1,700 jobs linked to our Irish investment.

AWS is resolutely committed to sustainability. In 2019, Amazon co-founded The Climate Pledge, a commitment to reach net-zero carbon emissions by 2040—10 years ahead of the Paris Agreement. As part of this, Amazon is on a path to powering its global operations with 100% renewable energy by 2025.

Consultation and Scoping

Informal scoping of potential environmental impacts was undertaken with the Planning Authority through the pre-application meeting held on August 11th 2022. Public participation in the EIA process will be affected through the statutory planning application process. Information on the EIA Report has also been uploaded to the Department of Housing, Planning and Local Government's EIA Portal.

Requirement for an EIA

The requirement for EIA for certain types and scales of development is set out in the EIA Directives (2011/92/EU and 2014/52/EU), European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (the bulk of which came into operation in September 2018), the European Communities (Environmental Impact Assessment) Regulations 1989-2006, Planning and Development Act 2000 (as amended) and the Planning and Development Regulations 2001-2022. This EIA Report is prepared in accordance with the 2011 EIA Directive (2011/92/EU), as amended by the 2014 EIA Directive.

The Proposed Project is not listed under Annex I EIA Directives and it is below the relevant threshold as set out in the Planning and Development Regulations 2001-2022 for Annex II projects. The threshold for "industrial estate development projects, where the area would exceed 15 hectares" as set out in Part 2 of Schedule 5 of the Regulations was considered to be most relevant threshold in the context of the Proposed Development in the subject location. The Proposed Development site area (13.14 hectares) does not exceed this threshold but as it forms a third phase of data centre development within the overall landholding for which an EIA report has been prepared therefore an EIA Report is provided.

The main objective of an EIA, as set out in Article 3(1) of the 2014 EIA Directive, is to identify, describe and assess the direct and indirect significant impacts of a project

on population and human health, biodiversity, land, soils, water, air & climate (including noise), material assets, cultural heritage and the landscape and the interaction between the aforementioned factors. This EIA Report describes the findings of the EIA process to the Planning Authority, to help determine if consent should be granted. It also informs statutory consultees, other interested parties, and the public in general, about the likely effects of the project on the environment.

Regulatory Control

The Birds Directive (2009/147/EC) and the Habitats Directive (92/42/EEC) put an obligation on EU Member States to establish the Natura 2000 network of sites of highest biodiversity importance for rare and threatened habitats and species. An Appropriate Assessment (AA) Screening has been undertaken for the Proposed Development, the results of which are presented in Appendix 8.1 of Chapter 8 (Biodiversity).

The Water Framework Directive (WFD) 2000/60/EC aims to protect and enhance the quality of the water environment (both surface water and groundwater) across all European Union member states. A WFD Assessment has been undertaken for the Proposed Development, the results of which are presented in Appendix 7.3 of Chapter 7 (Hydrology).

An Industrial Emissions Directive ("IED") licence application (EPA Ref: P1182-01) has recently been submitted to the EPA principally relating to the operation of the diesel powered back-up generators at the permitted developments at the Proposed Development Site. This IED licence will be amended to include the Proposed Development on grant of planning permission. The IED licence application is made notwithstanding and strictly without prejudice to the fact that the Operator expects to operate the emergency generators for no more than 18 hours per annum in compliance with the EPA note entitled 'Operation of emergency generation plant by large energy users', issued in December 2021, which states that installations with large scale emergency generation capacity are not required to hold an IED licence if they "limit operations at 50 MWth input load or more to no more than 18 hours per annum". The IED licence application is made out of an abundance of caution and in exercise of the Operator's rights at law, while reserving all other rights.

The Proposed Development will require an EPA Greenhouse Gas (GHG) Emissions permit in accordance with the EPA Act 1992, as amended. A GHG Permit is in place for the emergency generators at Building A (Permit Register Number: IE-GHG197-10524-1). This permit has been amended to include additional back-up generators at Buildings B and C. Subject to grant of planning permission for the Proposed Development, it is intended that the permit will also be amended to include the additional back-up generators from the Proposed Development (Refer to Chapter 9 Air Quality and Climate).

The Proposed Development will not be a Seveso/COMAH facility. The only substance stored on site controlled under Seveso/COMAH will be diesel for back-up generators and the quantities proposed do not exceed the relevant thresholds of the Seveso Directive. The only substance stored on site controlled under Seveso/COMAH will be diesel for generators and the amounts proposed do not exceed the relevant thresholds of the Seveso Directive (2,500 tonnes or c. 2,778m³ of diesel for lower tier and 25,000 tonnes or c. 27,778m³ of diesel for upper tier, with the conversion based on a diesel density of 0.9 g/ml). The Health and Safety Authority (HSA) register shows that the Proposed Development is not located within close proximity or within statutory consultation distances of any Notified Seveso

Establishment. Refer to Section 5.3.3 of Chapter 5 (Human Health and Population) for more detail.

Contributors to the EIA Report

The preparation and co-ordination of the EIA Report has been completed by AWN in conjunction with specialist subcontractors. The role and responsibility of each contributor, their qualifications and relevant experience are detailed in Chapter 1 (Introduction) Table 1.1 of the EIA Report.

2.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT

Description of the Site

The location of the subject site (illustrated as a red line boundary) in the context of the overall landholding (illustrated as a blue line boundary) and wider area is shown in Figure 1.1.

Blanchardstown Town Centre and Village is located c. 2.5 km to the south and Tyrrelstown is located to the immediate west of the R121. The residential properties at Tyrrelstown are the closest residential properties to the site (c. 60 m west of the Proposed Development site boundary) and are separated from the Proposed Development site by the R121 dual carriageway, landscaped areas within the overall landholding, and landscaping and treelines adjacent to the residential area facing onto Cruiserath Road. The overall landholding is not located directly adjacent to any areas of national or local environmental sensitivity/designation.

The subject site is primarily cleared of vegetation and is relatively flat though it slopes gently northwards. A Gas Insulated Switchgear (GIS) building (Building D) with associated electrical infrastructure (permitted under ABP ref. VA06F.306834) has recently been constructed within the southern portion of the Proposed Development site, and an area of approx. 16,000m² at the centre of the site currently serves as a construction compound (including car parking) for the construction of Buildings B and C.

Proposed Development Description

The proposed data centres are referred to as Buildings E, F and G. The permitted data centres, Buildings A, B and C (and their associated ancillary developments) to the south and east and the permitted GIS Substation (Building D) in the southern portion of the Proposed Development site do not form part of the 'Proposed Development' and are referred as the 'Permitted Developments' throughout this Non-Technical Summary and the EIA Report.

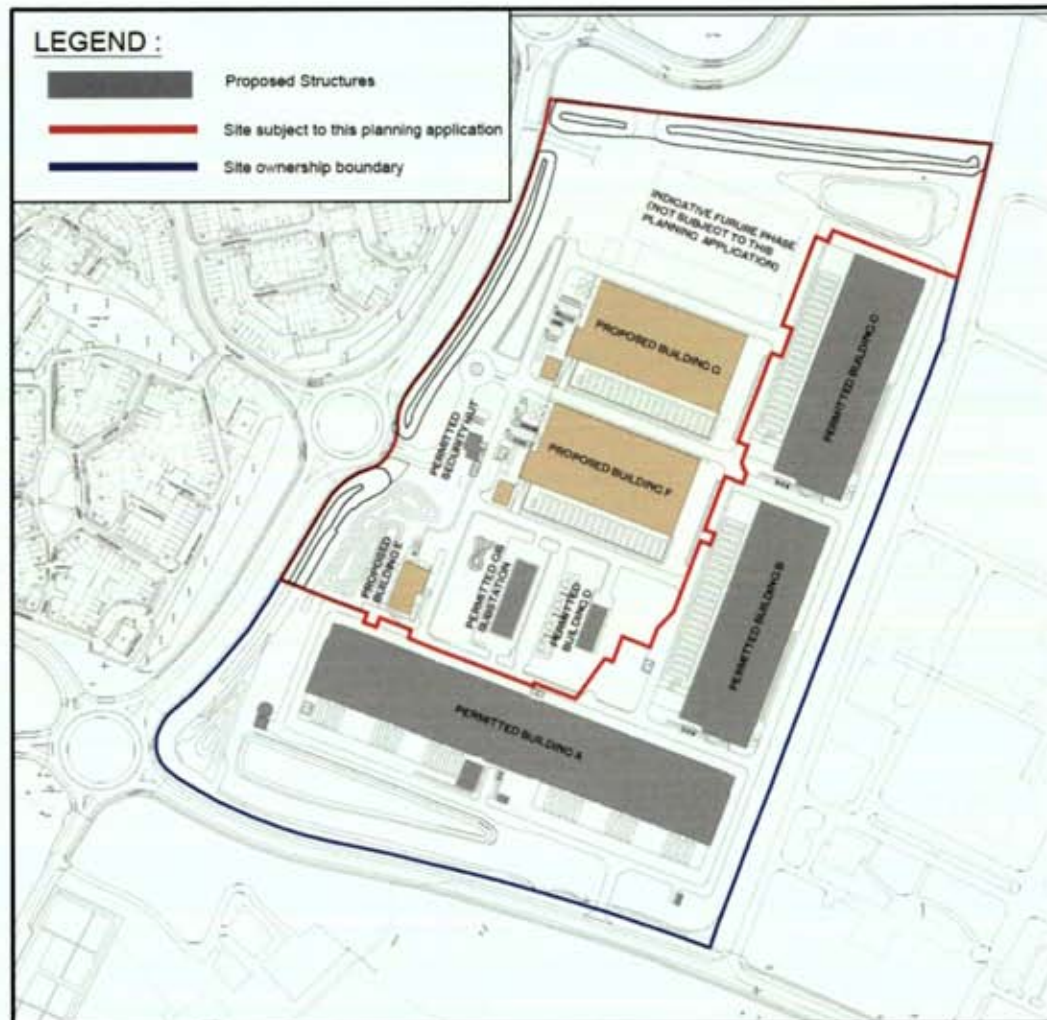


Figure 2.1. Site layout plan of the proposed and permitted developments (Source: Henry J. Lyons Architects November 2022)

The description of the proposed development for which a seven-year permission is sought, as set out within the public notices, is as follows:

- "Construction of three data centre buildings (Data Centre E, Data Centre F, and Data Centre G), with a gross floor area (GFA) of c. 1,425 sq.m, c. 20,582 sq.m, and c. 20,582 sq.m respectively, each over two levels (with Data Centre F and G each including two mezzanine levels);
- Data Centre F and G will be located in the north-western portion of the overall landholding, with a primary parapet height of c. 19.8 metres and each will accommodate data halls, associated electrical and mechanical plant rooms, a loading bay, maintenance and storage space, office administration areas, with plant and solar panels at roof level;
- Data Centre E (which will be ancillary to Data Centre F and G) will be located within the south-western portion of the overall landholding, with a primary parapet height of c. 13.1 metres and will accommodate data halls, associated electrical and mechanical plant rooms, a loading bay, maintenance and storage space, office administration areas, with plant at roof level;
- Emergency generators and associated flues will be provided within compounds adjoining each of the three data centre buildings (1 no. for Data Centre E, 19 no. for Data Centre F, and 19 no. for Data Centre G);

- *The development includes one diesel tank and two filling areas to serve the proposed emergency generators;*
- *Provision of ancillary structures including two MV buildings, water storage tanks and three bin stores;*
- *Construction of access arrangements and internal road network and circulation areas, footpaths, provision of car parking (105 no. spaces), motorcycle parking (12 no. spaces) and bicycle parking (56 no. spaces), hard and soft landscaping and planting (including alteration to a landscaped berm to the north of proposed Data Centre E), lighting, boundary treatments, and all associated and ancillary works including underground foul and storm water drainage network, and utility cables."*

Further detail on the Proposed Development, site infrastructure and secondary facilities on the site are provided in Section 2.2.6 of Chapter 2 of the EIA Report.

Permitted Development Description

The overall landholding is the subject of a previously granted planning permissions as follows:

- Building A: Data centre and associated ancillary development to the south of the subject site. This development also provided for the implementation of boundary treatments and landscaping within the overall landholding and for entrances to the overall landholding from the R121 and Cruiserath Road (ABP Reg. Ref. PL 06F.248544 & FCC Reg. Ref. FW17A/0025). Building A is fully operational.
- Buildings B and C: Two data centres and associated ancillary development to the east of the subject site (FCC Reg. Ref.: FW19A/0087). This is currently under construction. Building B is due for completion in May 2024. Building C is due for completion in May 2025.
- Building D: GIS Substation on the southern portion of the subject site. This has recently been constructed and is fully operational. (ABP Reg. Ref.: VA 06F.306834)

In addition, permission was also granted for a medium voltage (MV) substation to the southeast of Building A (FCC Reg. Ref.: FW20A/0164). This development has been completed on site. Permission was also granted for provision of artificial lighting to the substation compound, transformers, and GIS building permitted under ABP Ref: 30683420 and to the client control building permitted under ABP ref: PL06F.248544/ FCC Reg. Ref; FW17A/0025 and FW21A/0039, along with all associated site and ancillary works.

Further detail on the permitted developments, site infrastructure and secondary facilities on the site are provided in Section 2.2.3- 2.2.6 of Chapter 2 of the EIA Report.

Indicative Future Development

The revised indicative masterplan as shown in Figure 2.1 includes the potential for future development of one further data centre building in the northernmost portion of the Proposed Development site. This building may be developed by the Operator over the coming years, subject to customer demand. The design of the indicative future development, if proceeded with, will be further developed and refined and will be subject to a separate planning application and EIA Report.

Phases of the Project

Under the EPA EIA Report Guidelines 2022, the description of the existence of the project is required to define all aspects of the proposed lifecycle of the Proposed Development under the following headings:

Construction

The construction of the Proposed Development will comprise four main stages, namely:

- Site preparation works;
- Building Structure Construction;
- Building Envelop Construction; and
- Internal Fit Out (including Mechanical & Electrical (M&E) and commissioning.

It is anticipated that the construction of the Proposed Development will be completed during normal construction hours i.e. 7am to 7pm Monday to Friday with a half day working on Saturday (8am -2pm). However, it may be necessary, that the appointed contractors will need to carry out certain operations outside these hours. Such occurrences will be notified to the local authority, where required and generally kept to a minimum. Where they do occur, contractors will ensure they take place over as short a timeframe as possible and as such are unlikely to cause excessive disturbance.

The total peak construction population on site is estimated to be of the order of c. 400 staff (average 275). For the construction of Building E, the total peak construction population on site is estimated to be of the order of c. 120 staff (average 80). The worst-case peak for all three developments would be 560 staff. Site staff will include management, engineers, construction crews, supervisors and indirect staff.

Subject to grant of planning permission, construction work will be undertaken on a phased basis, with Building E commencing construction first, followed by Building F and then Building G. The target date (earliest possible date) for commencement of construction of Building E is Q2 2023 (due to be fully operational end of Q3 2024). The target date (earliest possible date) for commencement of construction of Building F is Q2 2024 (due to be fully operational end of Q3 2026). The construction of Building G will be subject to the build out of Building F and customer demand. The target date (earliest possible date) for the commencement of construction of Building G is Q2 2025 (and fully operational by end Q3 2028).

It is proposed that the construction access and haul roads for vehicles that have been established for the construction of Buildings B and C will be maintained and utilised for the Proposed Development, where possible. The construction compound will facilitate office, portable sanitary facilities, equipment storage, waste storage, parking etc. for contractors.

The primary activities that will be required during the site preparation phase for the Proposed Development will be shallow excavations and levelling of the site to the necessary base level for construction, surveying and setting out for structures.

Following the completion of site levelling, all structures will require concrete pad foundations to structural engineer specifications. It is anticipated that foundations will require moderate scale excavations. Due to the shallow depth of bedrock (see Chapter 6) it is anticipated that some rock breaking will be necessary.

It is envisioned that c. 35,625m³ soil/stones will be excavated from the site to facilitate construction. Topsoil will be reused on site, where possible. Surplus soils/stones will be removed from site for offsite reuse, recover and/or disposal at suitably authorised facilities. It is estimated that the importation of c. 17,560m³ of engineered fill will be required to facilitate construction.

The building structures will comprise concrete floor slabs and structural steel frame. The construction of the walls and roofs of the buildings will closely follow the completion of structures. The internal fit out will include mechanical and electrical services, architectural finishes and installation of plant and equipment. Typically, the contractors will start by fitting out the administration area and 1st data storage room as early as possible once the building envelope is complete. The construction of the rest of the building will continue around it. The outer finishing of the building envelope will be of similar high quality and appearance to Building A.

The internal road system will initially be composed of hard-core material, rolled and compacted sufficiently to support initial construction including civil/structural sub grade works. The soft landscaping will be undertaken and completed during the construction and commissioning phases of the Proposed Development.

An Outline Construction Environmental Management Plan (OCEMP) has been prepared by CS Consulting Group and is included with the planning application documents.

Commissioning

Once the first data storage room is built, specialist contractors will be mobilised to complete the commissioning of the first data storage room and related plant. Commissioning will be carried out on a phased basis as each data storage room is completed, over a period of several months.

Operation

Once operational, each data centre will "go live" and serve data customers on an ongoing basis. The server systems and the supporting infrastructure will be monitored by site staff and faults identified and remedied as required. Staff are primarily required onsite for security, ongoing monitoring and maintenance of plant and equipment.

Once operational, c. 50 full time employees will be present on site daily in each building for Buildings F and G, including external staff, maintenance contractors and visitors, as required. The number of external staff, maintenance contractors and visitors will typically be c. 15 staff per day. (Staff will be present on a shift basis, so numbers will vary throughout the day with up to 7 no. of the staff on night shifts each day). Building H will have c. 4 full time employees present on site daily.

Decommissioning

The lifespan of the Proposed Development is not defined but it is anticipated that it will be at least 10 - 20 years. It is likely that regular maintenance and periodic upgrading of the facility over time will enable it to continue to meet future demands. Upon closure all buildings, plant, equipment, drainage networks etc. at the site will be fully decontaminated and decommissioned in accordance with prevailing best practice. The buildings once rendered environmentally safe will more than likely be retained and sold on for future use following closure. At present, there are no changes anticipated to the Proposed Development over its expected lifetime.

Description of other Developments

A list of the other developments in the vicinity of the Proposed Development is provided in Chapter 3 (Planning and Development Context) of the EIA Report.

Sustainability, Energy Efficiency and Resource Use

The Operator is resolutely committed to building a sustainable business for their customers and the planet. In 2019, the Operator co-founded The Climate Pledge—a commitment to be net zero carbon across their business by 2040, 10 years ahead of the Paris Agreement. Part of that commitment is powering the Operator's global cloud infrastructure with 100% renewable energy, including in Ireland. As part of this commitment, the Operator is investing and innovating in efficiency in every aspect of their operations and is on a path to be powered by 100% renewable energy by 2025 – five years ahead of its original target of 2030. Subject to a grant of permission, this will include the power load for the Proposed Development which will be up to 73.1MW.

Amazon is the largest corporate purchaser of renewable energy in the world and has announced a total of 379 renewable energy projects across 21 countries globally, representing 18.5 gigawatts (GW) of renewable energy capacity. Once fully operational, Amazon's current global renewable energy portfolio will generate 50,000 gigawatt hours (GWh) of clean energy, which is the equivalent amount of electricity needed to power 13.4 million European homes each year. Amazon was the first company in Ireland to deliver unsubsidised Corporate Power Purchase Agreements (CPPAs). This means Amazon is helping to add renewable energy to the grid without direct government support, thus reducing subsidy costs on other local energy users. In Ireland alone, Amazon has committed to offtake 100% of the power from renewable wind projects in Cork, Donegal, and Galway. Amazon does not own these projects, but our commitment to purchasing the power and environmental attributes from these projects enable them to be built. In total, these three wind projects are projected to add 229 megawatts of renewable energy to the Irish grid, reducing carbon emissions by 366,000 tonnes of CO₂ each year, and producing enough renewable energy to power 185,000 Irish homes, per annum. These three wind projects will make Amazon the largest single corporate buyer of renewable energy in the country.

The energy strategy for the Proposed Development is set out in an Energy Statement prepared by Ethos Engineering which accompanies the planning application. The Proposed Development has been designed to the highest energy efficiency standards. A Building Energy Rating (BER) of A3 or higher is targeted for the office development with the utilization of high efficiency VRF Air Conditioning and roof mounted PV Panels to generate on site renewable electricity to be compliant with nZEB "Nearly Zero – Energy Buildings" requirements. The Energy Statement also describes how waste heat associated with the facility could be utilised with a future district heating scheme developed by others.

To reduce both energy and water use in its data centres, the Operator utilises direct evaporative cooling systems, which predominately utilises outside air to cool servers. This means that for more than 95% of the year it uses no water to cool its facilities. For the remaining 5% of time during high temperatures, cooling is undertaken by adiabatic cooling which requires water supply. The proposed development is projected to utilise as little as c. 1110m³ water annually for cooling (Building E is projected to use 62m³ cooling water annually and Buildings F and G are projected to use 524m³ cooling water each per annum). Furthermore, the proposed buildings are designed to harvest up to 95% of the annual cooling water requirements through rainwater harvesting, reducing the water requirement from the mains supply when rainwater is available. Additionally the proposed development includes 2170m³ of on

site water storage. This proposed on site water storage will be designed to maximise the storage and utilisation of rainwater for up to 95% of cooling water needs. Hence providing a reduction in use of mains supply for cooling water.

Subject to availability, it is expected that fuel for the proposed development will be renewable diesel. This will have significant environmental and sustainability benefits, as described in Section 2.2.6.6 of Chapter 2 of the EIA Report.

Major Accidents/Disasters

There is no potential for major accidents and disasters in relation to the following external natural disasters; landslides, seismic activity and volcanic activity and sea level rise/flooding and the assessment (Section 2.7 of Chapter 2).

There is a potential impact on the receiving environment as a result of minor accidents/leaks of fuel/oils during the construction and operational phases. However, the implementation of the mitigation measures set out in the EIA Report will ensure the risk of a minor/accident is low and that the residual effect on the environment is imperceptible.

3.0 PLANNING AND DEVELOPMENT CONTEXT

The Planning Report produced by JSA outlines the National and Regional Planning Context, Local Planning Policy Context, and Relevant Planning Considerations, such as Economic Development and Employment, Energy and Sustainability, Land Use Zoning as it relates to the Proposed Development.

The Proposed Development is to be located on a site which is zoned HT (High Technology) within the Fingal County Development Plan 2017-2023, with the objective to: *provide for office, research and development and high technology/high technology manufacturing type employment in a high quality built and landscaped environment*. The 'HT' Zoning Objective does not make specific reference in the list of permitted uses to a data centre. However, having regard to the permitted uses (such as high technology manufacturing, industry light, office and utility installations) under the County Development Plan land use zoning matrix, it is considered that the Proposed Development complies with the land use zoning objective for the site. As set out in the JSA Planning Report, it is considered that the proposed data centre development accords with the HT zoning objective and the vision for HT zoned lands as set out in the Development Plan.

The subject site and overall landholding are not located directly adjacent to any areas of national or local environmental sensitivity/designation.

The overall landholding is located within an established employment and industrial area of Fingal. Cruiserath is well placed with respect to a range of employment, retail, community, educational and recreation facilities including the Blanchardstown Town Centre; the James Connolly Memorial Hospital; and the Institute of Technology, Blanchardstown; and Tyrrelstown village centre.

The closest residential properties are in Tyrrelstown, located c. 60m west of the proposed site boundary (across the R121). They are separated from the Proposed Development site by the R121 dual carriageway, landscaped areas within the overall landholding, and landscaping and treelines adjacent to the residential area facing onto Cruiserath Road.

There are 4 no. Industrial Emissions Licenced Sites and IPPC Licenced sites within 1km of the site; Alexion Pharma International Operations Unlimited Company (P1030), Mallinckrodt Pharmaceuticals Ireland Limited (EPA Ref: P1060), Swords Laboratories Unlimited Company Trading As Bristol Myers Squibb Cruiserath Biologics (EPA Ref: P0552) and Ipsen Manufacturing Limited (EPA Ref: P0117). Figure 3.1 illustrates the planning history for the site. Section 3.3.2 summarises planning permissions which have potential for cumulative impacts (Appendix 3.1). These are considered in terms of cumulative impact in Chapter 16.



Figure Error! No text of specified style in document..1 Aerial view of the subject site with the approximate boundaries of the previous permissions within the wider landholding (Source: JSA Planning Report/Google Maps)

Section 3.3.2 summarises planning permissions which could have cumulative impacts (Appendix 3.1). These are considered in terms of cumulative impact in Chapter 16.

4.0 ALTERNATIVES

EIA legislation and the prevailing guidelines and best practice require that EIA Reports describe "reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects", addressing:

- Do Nothing Alternative;
- Alternative project locations;
- Alternative designs/technologies/layouts;
- Alternative processes; and
- Alternative mitigation.

Chapter 4 of the EIA Report describes the alternatives that were considered for the Proposed Development, where applicable, under each of these headings and the reasons for the selection of the chosen option including consideration of environmental effects.

Do Nothing Alternative

As the campus in which the Proposed Development is located has been developed for Building A with the entrances, access roads, perimeter fencing and landscaping established, and the campus will be further developed for permitted Buildings B, C and D, the 'do nothing' alternative is to leave the site as a data centre facility site, with the north western portion of the site largely unutilized. This is not considered to be an efficient use of the site. This Proposed Development is a logical addition to the Permitted Development and is in keeping with the indicative masterplan of the site as outlined in the EIS/EIARs for the Permitted Developments. The Do-Nothing scenario has been considered in each chapter of the EIA Report.

Alternative Project Locations

As part of the planning application for Building A, the Operator undertook a detailed assessment of a number of different locations in order to determine the most appropriate location for the Proposed Development (and indicative masterplan) including consideration of environmental effects. The Operator undertook an updated assessment of three potential alternative sites (including the chosen site) in Leinster for the Proposed Development in order to determine the most appropriate location for the Proposed Development. An initial desktop environmental assessment of these three sites was completed by AWN Consulting to help inform the Operator regarding the environmental aspects of each of the sites which is provided as Appendix 4.1 of Chapter 4 of the EIA Report. All three potential sites were determined as suitable for data centre developments, in terms of environmental considerations, with appropriate mitigation measures. Of the three sites, the Cruiserath site was chosen as the preferred site. Particular advantages of the preferred site included: suitable zoning, neighbouring activities, availability of lands, design of site for industrial activities and availability of required infrastructure. In addition, given the proximity of the chosen site to the permitted data centres in Cruiserath i.e. Building A, B and C, it will have synergistic benefits with the Permitted Development allowing for efficiency in operations and maintenance including connectivity to infrastructure on the existing campus, minimising traffic movements for employees serving multiple facilities and minimising waste collections as waste collections for all the facilities in the vicinity can be done on the same occasion.

Alternative Design/Layouts

In the preparation for Proposed Development, two alternative layouts for the Proposed Development, roadways and parking arrangements were considered.

The EIS for the Permitted Development of Building A illustrated a preliminary indicative masterplan for seven additional future data centre buildings orientated east to west within the Permitted Development site boundary. As part of the design process for the Permitted Development of Buildings B and C, the indicative masterplan was updated and refined. As part of the design process for the Proposed Development the building references have been adjusted and the indicative masterplan has been modified slightly (See Figure 4.2 in Chapter 4 of the EIA Report), with Buildings F and G and the future indicative Building H now facing the same way. The modified arrangement provided a more efficient fit for the buildings (i.e. better use of space). The generators on Building G will be less prominent, with visual screening provided by Building F. Each arrangement considered the environmental sensitivities associated with the surrounding land

use i.e. the proximity to the residential areas at Tyrellstown and the nearby Carlton Hotel as well the BMS facility located directly to the east of the site.

The design and configuration of the Proposed Development was also made with respect to the future indicative development of one further data centre to the north of the site. The location of the Proposed Development in the north western portion of the overall landholding allows for the potential addition of one further data centre building on the Proposed Development site, with minimal additional environmental effects.

It should be noted that the location of the back-up generators has been optimised so that generator stacks are not located along the western boundary of the overall landholding which would be closest boundary to the residential receptors. Subsequent chapters of the EIA Report (including Air Quality, Noise & Vibration and Landscape and Visual Impact) include mitigation proposals to address the location of the back-up generators for the Proposed Development.

Site layout considerations were primarily made based on the following factors:

- Minimising potential impacts on the environmental sensitivities associated with the surrounding land uses (e.g. the proximity to the residential areas at Tyrellstown and the nearby Carlton Hotel);
- Location of the wastewater and stormwater systems (including attenuation) and proximity to the existing drainage services available;
- Location of diesel tanks proximal to area of usage and therefore minimise risk of accidental loss to ground;
- Location of the permitted Substation which is currently under construction;
- Ease of site access and minimizing impact on traffic movements along the R121; and
- Orientation of the data centre buildings to optimise the use of the space available.
- In addition, the stack heights for the back-up generators have been modelled in an iterative fashion (i.e. with incremental increases in stack heights modelled) to ensure that an adequate stack height was selected to aid dispersion of the emissions.

Several arrangements were considered in the development of the preferred site design/layout, however the configuration shown in Figure 4.2 in Chapter 4 of the EIA Report represents the most practical configuration considering the indicative future development and consideration of the environmental sensitivity of the site's surroundings.

Alternative Processes

In terms of the proposed technology, the Proposed Development will employ the same data server technology that is used by the Operator at their other facilities on the site, in the greater Dublin area and around the world and represents state of the art technology.

Alternative technologies are considered on an ongoing basis by the Operator as a part of each of its designs based on many factors including technical feasibility, environmental impact, efficiency, security, reliability and cost.

The Operator is committed to continually assessing and improving this technology particularly with respect to minimising power and water consumption, in

accordance with the goals of Ireland's Framework for Sustainable Development 'Our Sustainable Future'. The Operator's designs are constantly evolving, and hardware is chosen with energy efficiency central to the decision-making process.

Section 4.5 of Chapter 4 of the EIA Report provides an overview of alternative cooling technologies considered.

The Mechanical and Electrical Engineering Energy Statement which accompanies the planning application explains the reasoning for the selection of certain technologies to demonstrate that the Proposed Development represents a low energy solution whilst operating as a functional, critical data centre development.

Alternative Mitigation

For each aspect of the environment, each specialist has considered the impact on the existing environment from the Proposed Development and reviewed feasible mitigation measures to identify the most suitable measure appropriate to the environmental setting the project design. In making a decision on the most suitable mitigation measure the specialist has considered relevant guidance and legislation. In each case, the specialist has reviewed the mitigation measures available and considered the use of the mitigation in term of the likely residual impact on the environment. The four established strategies for mitigation of effects have been considered: avoidance, prevention, reduction and offsetting. Mitigation measures have also been considered based on the effect on quality, duration of impact, probability and significance of effects.

For example, alternative noise attenuation options were considered at the design stage of the Proposed Development. The two main options considered were generators with a reduced noise rating or the use of screening around the back-up generators. Noise modelling showed that both options afforded a similar level of noise attenuation and so the decision to use screens was made on the basis of operational/maintenance considerations and not environmental grounds.

Conclusion

Based on the assessment of reasonable alternatives (in relation to location, layout, design, technology, mitigation) relevant to the Proposed Development and its specific characteristics as set out in Chapter 4 of the EIA Report, the selected site is considered to be a suitable location for the Proposed Development from both an environmental perspective and a planning perspective.

In terms of processes/technologies, the Operator has selected processes/technologies based on many factors including technical feasibility, environmental impact, efficiency, security, reliability and cost. The Operator is committed to continually assessing and improving this technology particularly with respect to minimising power and water consumption.

It is considered that the proposed site has significant capacity for development and is highly suitable for data centre use.

5.0 POPULATION AND HUMAN HEALTH

This chapter has been prepared to assess any likely significant impacts on Population and Human Health in respect of the Proposed Development. Issues examined include health sensitivity of population, location and character of the local environment, Risk of Major Accident Hazards or Disasters, air quality, noise and

vibration, landscape amenity, tourism visual impact, land and water emissions, traffic and transportation and health and safety.

The main potential impacts on population and human health from the Proposed Development are potential for spills/leaks, air emissions, noise, visual, and traffic impacts. The assessed impacts with mitigation are summarised below.

Construction Phase

It is predicted that there will be a positive impact on local business activity during the construction phase with the increased presence of construction workers using local facilities and economic benefits for providers of construction materials and other supporting services. Overall the construction phase is predicted to have an **imperceptible, temporary and neutral** impact on local businesses and residences.

With reference to Landscape, the significance of construction stage impacts is deemed to be **not significant** within the immediate surrounds of the site, however this quickly reduces to **not significant to imperceptible** within the wider study area where construction activities will not be discernible. The Proposed Development will have no discernible effect on local tourism as no natural amenities impacted.

With reference to land and water, emissions to human health during construction are considered to have a **short-term, imperceptible** effect on quality.

The residual impacts on air quality or climate from the construction of the Proposed Development will be **short-term and imperceptible** with regard to human health.

At noise sensitive locations in the surrounding area potential **negative, not significant** and **short-term** effects are likely.

The predicted impact on traffic and transportation, will be **short-term** and **not significant** for the construction phase.

There are no significant potential impacts on Human Health from Major Accident Hazards and/or Natural Disasters; therefore, there are no predicted impacts.

Operational Phase

The Proposed Development will result in an **imperceptible, positive** impact due to increased employment opportunities and improved accessibility to jobs in the North Blanchardstown area during the operation phases.

With reference to Landscape and Visual, the site is not considered to be significant or sensitive from a landscape and visual aspect. Landscape and visual effects arising from the Proposed Development will be **not significant** and will generally range from **moderate to slight and neutral**. Landscape and visual effects from the wider locality, including from the residential areas to the west of the R121, will be **not significant or imperceptible**. The Proposed Development will have no discernible effect on local tourism.

There are no likely significant impacts on the land and water emissions associated with the proposed operational stage of the site with mitigation in place. As such the impact on human health is considered to have a **long-term, imperceptible** significance.

Once the mitigation measures outlined in Section 9.6 of Chapter 9 of the EIA Report are implemented, the residual impacts on air quality or climate from the operational

phases of the Proposed Development will be **long-term, negative** and ranging from **imperceptible to slight**.

Ambient noise levels are and will continue to be dictated by road traffic noise in the area while a low level of plant noise is expected to be audible during lulls in other sources (e.g. distant traffic noise). In terms of the nearest commercial property a **moderate, negative, long-term** effect is predicted however the character of the noise environment in the vicinity of this location will not be altered.

The residual traffic impacts of the Proposed Development will be **slightly negative and imperceptible**.

There are no significant potential impacts on Human Health from Major Accident Hazards and/or Natural Disasters; therefore, there are no predicted impacts.

6.0 LAND, SOILS, GEOLOGY AND HYDROGEOLOGY

This chapter assesses and evaluates the potential impacts 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.

The Geological Survey of Ireland (GSI) describe the underlying aquifer as is classified as a *(PI) Poor Aquifer - Generally Unproductive except for Local Zones* on the eastern portion of the site. The western portion of the site the classification is defined as *(LI) Locally Important Aquifer, i.e. bedrock aquifer which is moderately productive only in local zones*. The GSI currently classifies the aquifer vulnerability in the region as 'High', and this was confirmed by site specific investigations which showed overburden thickness up to c. 2.0m. As such the vulnerability at the site is considered to be *High to Extreme* vulnerability following the GSI classification system for aquifer vulnerability assessment.

The Groundwater Body (GWB) underlying the site is the Dublin GWB (EU Groundwater Body Code: IE_EA_G_008). Currently, the EPA (2022) classifies the Dublin GWB as having 'Good Status', with a Ground Waterbody Risk score of 'under review'.

Based on the TII methodology (refer Appendix 6.1), the criteria for rating site importance of hydrogeological features, the importance of the hydrogeological features at this site is rated as *Low Importance*. This is based on the assessment that the attribute has a low-quality significance or value on a local scale. The aquifer is a poorly productive bedrock aquifer over part of the site and moderately productive only in local zones for the remainder of the site and is not used for public water supply or generally for potable use.

Construction

Based on the natural conditions present and with appropriate mitigation measures detailed in Chapter 6 of the EIA Report to reduce the potential for any impact of accidental discharges to ground during this phase, the predicted impacts on land soils, geology and hydrogeology during construction (following EPA EIA Report Guidelines 2022) are considered to have a **short-term, imperceptible** significance, with a **neutral** impact on quality.

Operation

There are no likely significant impacts on the land, geological or hydrogeological environment associated with the proposed operational stage of the site with mitigation in place. As such the impact is considered to have a **long-term, imperceptible significance** with a **neutral** impact on quality i.e. no effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.

Following the NRA criteria for rating the magnitude and significance of impacts on the geological and hydrogeological related attributes, the magnitude of impact is considered Negligible for the construction and operational phases.

Overall, the potential effects on the WFD status to the waterbodies are considered no impact for the construction or operational phases of the Proposed Development, i.e. no deterioration of the WFD status of the underlying bedrock aquifer.

7.0 HYDROLOGY

This chapter assesses and evaluates the potential impacts of the Proposed Development on the local hydrology. 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.

The topography is generally consistent and flat across the site (approximately +85 mAOD). The Proposed Development is located within situated in Hydrometric Area No. 09 of the Irish River Network and located within the Tolka Sub-Catchment (Tolka_SC_010, 09_10).

The River Tolka is located c. 1.54 km south of the site. The Mooretown Stream (tributary of the Tolka) lies c. 330 metres (m) north of the site. As there is no open drains or streams on the site, there is no direct hydrological connection between the development site and these off-site waterbodies.

According to the available CFRAM maps and CS Consulting's Stage 1 Flood Risk Assessment (CS Consulting Group, 2022), there is no risk of flooding affecting the site from fluvial or coastal sources, since the site lies within Flood Zone C (i.e., where the probability of flooding from rivers is less than 0.1% or 1 in 1,000).

Based on the NRA methodology (refer to Appendix 7.1), for rating the importance of hydrological features, the importance of the hydrological features at this site is rated as *Low Importance*. This is based on the assessment that the attribute has a low-quality significance or value on a local scale. The Tolka River is the ultimate receiving waterbody for the site, it is not a source of local potable water, and is not widely used as a local water amenity i.e. not regionally significant.

A Water Framework Assessment (WFD) report was carried out for the Proposed Development and the methodology for this assessment is set out within the report. The WFD Assessment is included as Appendix 7.3 of Chapter 7 of the EIA Report. Overall, this WFD assessment has shown there is no potential for change in the water body status and risk as a result of the operation of the Proposed Development.

Construction

The project design incorporates SuDS (Sustainable urban Drainage Systems) measures to protect the natural hydrological regime including attenuation ponds,

hydrocarbon interceptors, bunding of any oil storage etc. Mitigation measures to protect water quality during construction are included in the Outline Construction Environmental Management Plan (OCEMP) for the Proposed Development.

The implementation of mitigation measures detailed in Chapter 7 of the EIA Report will ensure that the potential impacts on the surface water environment do not occur during the construction phase and that the residual impact will be **short-term-imperceptible- neutral**.

Operation

During operation there are limited risks to surface water receptors and no direct hydrological pathway. The development does not include the storage of bulk chemicals, other than diesel. The implementation of mitigation measures highlighted in Chapter 7 will ensure that the potential impacts on the surface water environment do not occur during the operational phase and that the predicted impact will be **long-term-imperceptible- neutral**.

8.0 BIODIVERSITY

This chapter provides an assessment of the impacts of the Proposed Development in question on the ecological environment, i.e. flora and fauna.

The Proposed Development areas currently comprise recolonising bare ground, earth banks seeded with wildflowers and buildings and artificial surfaces.

There are no rare or protected habitats recorded in the study area. The site development areas are considered of Low Local Ecological Value. All European sites are at least 8km distant from the Proposed Development, with the closest being the Rye Water Valley/Carlton SAC, 8.82km to the southwest. There is no direct connectivity to any European site.

Site assessment has confirmed:

- no badger setts along field boundaries which would be disturbed and no signs of badgers in the study area
- no potential for otter habitats on site
- results from the NBDC datacentre show that there are no records of bats in a specific polygon surrounding the Cruiserath site. There are no mature trees to be removed and no bat roosts to be disturbed
- the site is currently under construction and not attractive to birds of conservation concern.

The potential effects on local ecology are **neutral** and **imperceptible** for the construction phase. With the employment of appropriate mitigation measures outlined in Section 8.6 with regard to local biodiversity, the Proposed Development will have a **neutral, imperceptible** and **long-term effect** on biodiversity.

The conclusion of a report for AA Screening (Appendix 8.1) is that the possibility of any adverse effects on the integrity of the European Sites considered, or on the integrity of any other European Site (having regard to their conservation objectives), arising from the Proposed Development, either alone or in combination with other plans or projects, can be excluded.

9.0 AIR QUALITY AND CLIMATE

This chapter of the EIA Report evaluates the impacts which the Proposed Development may have on air quality & climate.

Construction

Based on the phased approach employed for construction at the site (as per Chapter 2), and the implementation of dust management measures as outlined in the OCEMP, there is minimal potential for cumulative impact on air quality and climate from simultaneous construction of the nearby Permitted Developments, the proposed Kilshane grid connection project and the indicative future development with the Proposed Development.

Best practice mitigation measures are proposed for the construction phase of the Proposed Development which will focus on the pro-active control of dust and other air pollutants to minimise generation of emissions at source. The mitigation measures that will be put in place during construction of the Proposed Development will ensure that the impact of the development complies with all EU ambient air quality legislative limit values which are based on the protection of human health. Therefore, the impact of construction of the Proposed Development is likely to be **neutral, short-term** and **imperceptible** with respect to human health.

Construction traffic is the primary source of emissions during this phase. Due to the duration and nature of the construction activities, CO₂ and N₂O emissions from construction vehicles and machinery will have a **short-term** and **not significant** cumulative impact on climate.

Operation

Modelling included assessment of the Proposed Development, the existing permitted developments and neighbouring BMS and Alexion facilities, a further cumulative scenario has been modelled to assess the combined impact from the Proposed Development and the back-up diesel generators associated with a potential future data centre building to the north of Building F. Details of the cumulative modelling is included in Chapter 9, Section 9.8.2. The stack heights of the back-up diesel generators for the Proposed Development have been designed in an iterative fashion to ensure that an adequate height was selected to aid dispersion of the emissions and achieve compliance with the EU ambient air quality standards at all off-site locations (including background concentrations). The cumulative operational phase impact of the Proposed Development is assessed based on modelling as **long-term, negative** and **slight**.

Cumulative

As the predicted impacts to air quality and climate are deemed short-term and not significant for construction of the Proposed Development assuming dust mitigation measures are implemented, the cumulative impacts from simultaneous construction of the Proposed Development and any permitted developments within 350m of the site are deemed **negative, short-term** and **not significant** with similar, best practice mitigation measures in place for those developments.

During operation, the air dispersion modelling assessment assessed the impact to air quality from the build out of the overall site (i.e. the Proposed Development as well as the data centres associated with the Permitted Developments and an indicative future development of an additional data centre facility (Building H)) and including the air emissions from the nearby facilities of BMS and Alexion. The results indicate that the ambient ground level NO₂ concentrations are within the relevant air quality

standards for NO₂ at all locations beyond the site boundary for all diesel generators at the site (including those associated with the Permitted Developments and indicative future development at the site). The residual impacts on air quality or climate from the operational phases of the Proposed Development will be **long-term, negative** and **slight**.

The location and scale of the proposed 110kV substation compound associated with the proposed Kilshane GIS Substation was taken into consideration in the air quality modelling but it is not a potential source of air emissions.

As outlined in Chapter 9, Section 9.7.2.3, cumulative indirect electricity usage for the overall site including the Proposed Development, Permitted Development and indicative future development would be equivalent to 607,523 tonnes of CO₂eq per year. As the Proposed Development is over 20 MW, a greenhouse gas emission permit will be required for the facility which will be regulated under the EU-wide Emission Trading Scheme (ETS). Electricity providers form part of the ETS and thus greenhouse gas emissions from these electricity generators are not included when determining compliance with the targeted 42% reduction in the non-ETS sector i.e. electricity associated greenhouse gas emissions will not count towards the Effort Sharing Decision target. Thus, any necessary increase in electricity generation due to data centre demand will have no impact on Ireland's obligation to meet the EU Effort Sharing Decision. On an EU-wide basis, where the ETS market in 2021 was approximately 1,308 million tonnes CO₂eq, the impact of the emissions associated with the Proposed Development will be less than 0.015% of the total EU-wide ETS market which is imperceptible. The Proposed Development in conjunction with the permitted developments and future indicative development, will be no more than 0.046% of the total EU-wide ETS market which is imperceptible.

Thus, given that the use of electricity to power the facility will achieve net zero by 2050 and the commitment to offset all interim fossil fuel derived GHG emissions by the purchase of CPPAs the predicted impact to climate is deemed to be **indirect, long-term, negative** and **slight**.

The Proposed Development in conjunction with the Permitted Developments and future indicative development, will consume 219.7MW per year in total which translates to 1,925 GWh annually. The NO_x emissions associated with this electricity over the course of one year (i.e. 1,925 GWh based on 219.7MW for 8,760 hours per annum) will equate to 397 tonnes per annum which is 0.58% of the National Emission Ceiling limit for Ireland from 2020 onwards. Similarly, SO₂ emissions associated this electricity over the course of one year (1,925 GWh) will equate to 142 tonnes per annum which is 0.56% of the National Emission Ceiling limit for Ireland from 2020. Additionally, NMVOC emissions associated this electricity over the course of one year (1,925 GWh) will equate to 20 tonnes per annum which is 0.04% of the National Emission Ceiling limit for Ireland from 2020.

Thus, the NO_x, SO₂ and NMVOC indirect emissions associated with the operation of the Proposed Development are **indirect, long-term, negative** and **slight** with regards to regional air quality.

As discussed in Chapter 2 of this EIA Report, the Operator's three wind farm projects (in Galway, Cork and Donegal) are projected to deliver 229 MW of renewable energy capacity each year. The Operator has committed to offtake 100% of the power from these renewable energy projects. Therefore, renewable energy sources will be used to provide electricity to the site thereby reducing the indirect pollutant emissions from electricity generation.

10.0 NOISE AND VIBRATION

This chapter assesses the anticipated noise and vibration impact associated with the Proposed Development at nearby noise sensitive locations.

The baseline noise environment has been established through an environmental noise survey conducted at the site in order to quantify the existing noise environment. The survey was conducted in accordance with ISO 1996: 2017: Acoustics – Description, measurement and assessment of environmental noise.

Construction Phase

There is no published statutory Irish guidance relating to the maximum permissible noise level that may be generated during the construction phase of a project. Local authorities or An Bord Pleanála normally control construction activities by imposing limits on the hours of operation and/or applying noise limits for construction noise at noise-sensitive locations.

Reference has been made to BS 5228 2009+A1 2014 Code of practice for noise and vibration control on construction and open sites. Part 1 to set appropriate construction noise limits for the development site. Construction noise contours have been prepared on this basis using computer-based noise modelling.

Construction noise levels predicted at nearest sensitive properties are predicted to be below the threshold for significant impact during the general construction phase. The application of binding noise limits, hours of operation, along with implementation of appropriate noise and vibration control measures, will ensure that noise and vibration impact are minimised.

At noise sensitive locations in the surrounding area potential **negative, not significant** and **short-term** effects are likely.

Operational Phase

The primary sources of outward noise in the operational context are long term and will comprise noise from the generators and building services plant noise associated with the data centre building.

Detailed computer-based noise modelling of the site shows that the noise levels of the subject site, in combination with the permitted buildings on site are within the noise criteria.

The Proposed Development also includes emergency generators for use when a power outage or issue with supply from the national grid has occurred and is required to keep the data centres operation. It should be noted that such an event is an extremely rare occurrence. Similarly, using detailed noise modelling, the predicted noise levels are within the criteria for this situation.

In the context of the surrounding road network the Proposed Development will not generate significant additional traffic.

The overall effect is therefore **negative, slight to moderate** and **long-term**.

11.0 LANDSCAPE AND VISUAL

The proposed development of Buildings E, F & G will not be particularly or prominently visible outside the immediate site surrounds of the Cruiserath and R121 Roads. The proposed development will form part of the western extent of the emerging high-tech and industrial context of the overall lands including the completed and operational Building A along the southern portion of the lands and the operational GIS substation and emerging Buildings B and C along the eastern side of the lands adjoining the Bristol Meyers Squibb campus. A strong landscaped boundary defines the southern, western and northern edges of the overall site along the Cruiserath Road, the R121 and Cruiserath Drive respectively.

The landscape and visual impact of the development will vary from slight/not significant to moderate as much of the surrounding context is industrial land or zoned green-field lands where other high-tech developments have been established and continue to evolve. The residential area of Tyrrelstown is located to the west of the zoned high-tech lands and is substantially separated from the lands by the R121 and mature landscaping between the residential areas and the R121. A series of photomontages have been prepared from representative locations and are included in *Appendix 11.1* of the EIA Report.

The construction stage of the proposed development has the potential for impacts associated with typical construction activity, including site disturbance, excavation working, material import and the emergence of new structures. Other developments, similar in scale and nature, have recently been developed within the site environs, and the permitted Buildings A, B and C and the GIS substation have also been developed or under construction. Given the existing context and low sensitivity of the site, and the ongoing construction activity of Buildings A, B and C and the GIS substation building, it is considered that the landscape and visual impact during construction will be **short term, slight moderate** and **neutral to negative** in nature.

On completion of the proposed development, the development site will intensify in its presentation as a modern high-tech campus with high-quality contemporary clean-lined industrial buildings and associated landscape development. The proposed development will be perceived as a continuation of the permitted and emerging Buildings A, B and C and the GIS substation development, and as part of the wider evolving high-tech developments. A series of *photomontages* illustrate the appearance of the proposed development from a series of representative vantage points within the visual context of the development site. Given the existing context and the established and ongoing development on site and the similar nature of the proposed development, it is considered that the landscape and visual impact during operation will range from **slight to moderate**, and from **neutral to positive**.

The primary mitigation for visual impact comprises the previously established perimeter site landscaping together with reinforcement and interplanting undertaken as part of the permitted Building A, B and C and the GIS substation building. Together, these measures provide a strong landscape edge and visual screening along the Cruiserath Road, the R121 and Cruiserath Drive. The built elements of the proposed development are also designed to as high quality clean-lined contemporary structures that are commensurate with the high-tech zoning of the lands and also established and emerging developments on the overall site. The proposed development will further expand the soft landscaping associated with the permitted developments integrating with the attenuation pond areas and extending the native tree planting, ground cover and wildflower meadow planting.

The lands are zoned for development as proposed and the scheme provides for an appropriate and high-quality response to the permitted land use.

12.0 ARCHAEOLOGICAL, ARCHITECTURAL AND CULTURAL HERITAGE

This chapter assesses the predicted impacts of the Proposed Development on archaeological, architectural and cultural heritage using a number of sources including the Record of Monuments and Places, the National Inventory of Architectural Heritage, the Excavations Database, cartographic, aerial photography and documentary sources.

There are no recorded archaeological sites or monuments within the Proposed Development lands, as listed in the Record of Monuments and Places for Co. Dublin. There are 15 recorded archaeological sites within the study area. None of these sites will be impacted, either directly or indirectly, by the Proposed Development works.

There are no recorded archaeological stray finds from the site, though finds recovered during archaeological excavations in the wider area indicate human habitation from the Bronze Age onwards in the area.

Archaeological excavations in the area in advance of development works over the past two decades has also revealed a number of previously unrecorded archaeological sites. The results of the excavation of these sites further indicate prehistoric and medieval settlement and activity in the area.

There are no architectural heritage structures within the site boundary. There are five within the wider study area, recorded in the National Inventory of Architectural Heritage. There are also five sites listed in the Fingal County Council Development Place 2017-2023 Record of Protected Structures. None of these will be impacted on by the Proposed Development.

As the lands in which the Proposed Development is located have been subjected to an extensive programme of archaeological geophysics (License no. 19R0030) and archaeological testing (Excavation no. 2019:699), and this work did not identify any archaeologically significant features, no further mitigation is required on site.

The construction phase of the Proposed Development will not impact directly on any sites included in the RMP. Previous archaeological investigations on site did not identify any significant archaeological features. Therefore, the effect is **neutral** and **imperceptible**. The operational phase of the Proposed Development is not predicted to have any impact on archaeological, architectural and cultural heritage.

13.0 TRAFFIC AND TRANSPORTATION

This chapter assesses the impact that the Proposed Development will have on the surrounding road network during construction and operation.

The junction capacity analysis was carried out using the ARCADY computer-modelling program (Junctions 9), developed by the Transport Research Laboratory in the UK. This program models capacity, queues and delays at roundabout junctions.

Construction Phase

At the construction stage the site will generate a maximum of 542 operatives' vehicles per day accessing the site made up of 157 HGV, 43 LGV and 342 car movements.

Construction activities will be largely contained within the boundary of the site. There will be a requirement for construction materials to be brought to the site as well as specialist plant. It is anticipated that these deliveries will occur throughout the day and will be infrequent.

Given the temporary nature of the peak construction phase and the implementation of mitigation measures, the overall impact of the construction phase is considered **short-term, negative and not significant**.

Operational Phase

At operational stage there will be a maximum of 67 two-way trips to and from the site for the AM peak and 18 for the PM peak.

The junction capacity analysis results in Table 13.12 of Chapter 13 show that the ratio of flow to capacity (RFC) values do not experience significant change between the base scenario and the scenario with the development.

The predicted impact for of the Proposed Development will be **long-term, slightly negative and imperceptible** for the operational phase.

14.0 MATERIAL ASSETS**Ownership and Access**

The site of the Proposed Development as described in Chapter 2 (Description of the Proposed Development) is owned by the Operator.

The main access to the site will be via the existing access-controlled entrance from the R121 roundabout to the west of the site. An existing temporary construction access is also in place on Church Road at the north-western corner of the application site. This is configured as a left-in/left-out priority-controlled junction, with access from/to the southbound carriageway of Church Road only. This currently serves as the sole access for all construction traffic to and from the overall site and shall also serve as the sole access for traffic related to construction of the Proposed Development.

The Proposed Development is located within the overall masterplan lands and is zoned for High Technology development. As such it is no longer in use as agricultural land and there is no potential for impact on land use as a result of the Proposed Development.

Power and Electrical Supply

The power requirements for the existing, permitted and Proposed Development will be provided from the existing 220kV GIS substation on site (Building D) located south of proposed Buildings F and G, and to the east of proposed Building E. A connection agreement to supply the Proposed Development is in place with EirGrid. The existing substation and transmission line is designed to support power demand for the existing, permitted and Proposed Developments as well as the future indicative data centre development.

In the event of a loss of power supply to the site (i.e., temporary grid blackout), the diesel powered back-up generators will be activated. Building F and Building G will each have 18 back-up diesel generators and one house generator whilst Building E will have one back-up diesel generator. These generators are designed to automatically activate and provide power to the Proposed Development pending restoration of mains power. An uninterruptible power supply (UPS) system is also provided for the short-term transition from mains power to back-up generators. Based on the Operator's experience, the back-up generators will rarely be used other than for routine testing.

The Proposed Development will have a peak operational power demand of 36MW for Buildings F and G, and 1.08MW for Building E, with an overall peak operational demand for all three buildings of 73.1MW. The Proposed Development in conjunction with the Permitted Developments and future indicative development, will have a peak operational power demand of 219.7MW per year.

EirGrid has accounted for the Proposed Development and the indicative masterplan in the All-Island Generation Capacity Statement 2017-2026 (published April 2017). The existing, permitted, proposed and future indicative development within the overall landholding were included in the 'material enquiry' cohort noted in the Capacity Statement.

A number of sustainability measures have been incorporated into the design of the Proposed Development including the installation of an array of photovoltaic panels on the roof of Building G and F. The Energy Statement describes how provision will be made in the Proposed Development so that waste heat associated with the facility could be utilised with a future district heating scheme developed by others.

Telecommunications

A fibre optic cable distribution network is in place for the Permitted Developments, and it will be extended to the Proposed Development. No works are required outside of the redline for connection. There is sufficient capacity available in the network for the permitted and Proposed Developments.

Surface Water Infrastructure

The surface water drainage system for the Proposed Development incorporates SUDs measurements and runoff control in the form of attenuation, hydrocarbon treatment (interceptors) and an outlet flow control device (hydrobrake) which will restrict discharge from the overall landholding to 65.5 l/s. The proposed surface water network will be divided into two catchments (ref: Chapter 7, section 7.6.3 and the *Engineering Services Report* prepared by CS Consulting Group). Catchment 1 will incorporate Buildings G and F and the future indicative datacentre. Catchment 2 will incorporate Building E and car park and its associated hardstand areas. Rainwater runoff from yards and the proposed road network in Catchment 1 will be directed to the existing permitted attenuation pond which has adequate capacity of 4,450m³. Rainwater runoff from the roof of Building E, yards, road network and car parking area in Catchment B will flow to storm water bio retention area (with a capacity of 140m³) located to the west of Building E.

Foul Drainage

Domestic effluent arising from occupation of the data centre buildings will be collected in newly constructed foul drainage network within the subject site and discharged to the foul drainage network on the R121 to the south-east of the overall site, via the foul drainage network for the Permitted Developments. The wastewater discharged from the site will ultimately discharge to the Ringsend WWTP. A copy of the

Confirmation of Feasibility (ref.CDS22004011) (CoF) is included in the Engineering Report provided with planning. Foul water drainage is presented in drawing A104CSC-XX-00-DRC 0005-0006 provided with planning.

Water Supply

Water is required for cooling equipment, cleaning, general potable supply for drinking and sanitary facilities. The water supply will be sourced from mains water supply that serves the existing site. The total domestic and cooling water requirement for the Proposed Development is 3008m³ per annum. However, having the benefit of rainwater harvesting and on-site cooling water storage (fed by rainwater harvesting) will reduce yearly demand.

To reduce both energy and water use in its data centres, the Operator utilises direct evaporative cooling systems, which predominately utilises outside air to cool servers. This means that for more than 95% of the year it uses no water to cool its facilities. For the remaining 5% of time during high temperatures, cooling is undertaken by adiabatic cooling which requires water supply. The Proposed Development is projected to utilise as little as c. 1110m³ water annually for cooling (Building E is projected to use 62 m³ cooling water annually and Buildings F and G are projected to use 524 m³ cooling water each, per annum). Furthermore, the proposed buildings are designed to harvest up to 95% of the annual cooling water requirements through rainwater harvesting, reducing the water requirement from the mains supply when rainwater is available. Additionally the Proposed Development includes 2170 m³ of on site water storage (overground and underground storage tanks). This proposed on site water storage will be designed to maximise the storage and utilisation of rainwater for up to 95% of cooling water needs. Hence providing a reduction in use of mains supply for cooling water. If the water storage is required to be topped up from mains water, it will be during low demand periods and mitigate impacts of the proposed demand to the Dublin Water Supply Area as per the requirements of the Confirmation of Feasibility from Irish Water (ref.CDS22004011).

The implementation of mitigation measures detailed in Chapter 14 will ensure that the predicted impacts on the material assets will be **short-term, neutral** and **imperceptible** for the construction phase and **long-term, neutral** and **not significant** for the operational phase.

15.0 WASTE MANAGEMENT

This Chapter of the EIAR comprises an assessment of the likely impact if any, of the Proposed Development on the waste generated from the development as well as identifying proposed mitigation measures to minimise any associated impacts.

The assessment of the impacts of the Proposed Development, arising from the consumption of resources and the generation of waste materials, was carried out taking into account the methodology specified in relevant guidance documents, along with an extensive document review to assist in identifying current and future requirements for waste management, including national and regional waste policy, waste strategies, management plans, legislative requirements and relevant reports.

During the construction phase, typical construction waste materials will be generated which will be source segregated on-site into appropriate

skips/containers and removed from site by suitably permitted waste contractors to authorized waste facilities. Where possible, materials will be reused on-site to minimize raw material consumption. Source segregation of waste materials will improve the re-use opportunities of recyclable materials off-site.

Site preparation, excavations and levelling works required to facilitate construction of foundations, access roads and the installation of services will generate soils/stones. It is envisioned that c. 35,625m³ soil/stones will be excavated from the site to facilitate construction. Topsoil will be reused on site, where possible. Surplus soils/stones will be removed from site for offsite reuse, recover and/or disposal at suitably authorised facilities. There has been no evidence of residual contamination on the site to date and therefore it is anticipated that excavated soils/stones will be clean/inert material suitable for re-use, recovery and/or disposal offsite.

A carefully planned approach to waste management and adherence to the site-specific Resource and Waste Management Plan during the construction phase will ensure that the effect on the environment will be **short-term, neutral** and **imperceptible**.

Dedicated areas have been allocated for storage of waste materials generated during the operational phase of the development. The waste storage areas have been allocated to ensure a convenient and efficient management strategy with source segregation a priority. Waste will be collected from the waste storage areas by permitted waste contractors and removed off-site for re-use, recycling, recovery or disposal at suitably authorised facilities.

Provided the mitigation measures outlined in Chapter 15 are implemented and a high rate of reuse, recycling and recovery is achieved, the predicted impact of the operational phase on the environment will be **long-term, neutral** and **imperceptible**.

16.0 CUMULATIVE IMPACTS

This chapter of the EIA Report considers the likely cumulative effects on the environment of the Proposed Development with the existing, permitted developments and future indicative developments within the overall landholding and the cumulative effects with developments in the locality (including planned and permitted developments), with particular focus on the following developments, where relevant:

- The permitted data centre facility (Building A) to the south of the site within the overall landholding which is fully operational,
- The permitted data centre facilities (Building B and C) to the west of the site within the overall landholding, which are currently under construction and Building D (GIS) which is constructed,
- The potential future indicative masterplan of one additional data centre facilities on the northernmost portion of the site,
- Proposed Kilshane Energy Power Plant and 220kV GIS substation on lands at Kilshane Road, Kilshane, Finglas and underground 220kV transmission line which will connect to a spare bay in the existing Cruiserath 220kV GIS substation (Building D) on the Proposed Development site,
- Other developments in the locality i.e. developments in the area that have been granted planning permission in the past five years within the FCC local

authority area (Full list of developments considered is provided in Chapter 3 of the EIA Report).

The potential cumulative impacts are assessed for each environmental aspect and the predicted impact for each aspect for each scenario is described in Chapter 16 of the EIA Report. With mitigation for each environmental aspect, it is predicted that there will be no significant long-term cumulative effects.

17.0 INTERACTIONS – INTERRELATIONSHIPS BETWEEN THE ASPECTS

This chapter of the EIA Report addresses potential interactions and inter-relationships between the environmental factors discussed in the preceding chapters. This covers both the construction and operational phase of the Proposed Development.

In the main, the majority of EIA Report chapters have already included and described assessments of potential interactions between aspects however this section of the assessment presents a summary and assessment of the identified interactions. In summary, the majority of interactions are *neutral*.



Environmental Impact Assessment Report

**DATA CENTRE DEVELOPMENT
CRUISERATH ROAD
DUBLIN 15.**

Prepared by: AWN Consulting, December 2022

Prepared for: Universal Developers LLC

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1.0 INTRODUCTION

1.1 PROPOSED DEVELOPMENT

This Environmental Impact Assessment (EIA) Report has been prepared and coordinated by AWN Consulting ('AWN') alongside various experienced subject matter experts, (Table 1.3.1 below), on behalf of Universal Developers LLC ('the Applicant'), to accompany planning application to Fingal County Council (FCC) for a data centre development on a site located at Cruiserath Road, Dublin 15.

The existing campus is owned and operated by Amazon Data Services Ireland Limited (ADSIL), the Irish entity of Amazon Web Services (AWS) which is part of the Amazon.com, Inc group of companies. The Proposed Development is to support AWS's customers in Ireland.

The Proposed Development, for which a seven-year permission is sought, comprises the provision of three new data centre buildings (referred to herein as Buildings E, F, and G) along with associated structures and emergency generators, parking and vehicular routes, landscaping, and associated development (referred to herein as the 'Proposed Development'). A full description of the Proposed Development is provided in Chapter 2 (Description of the Proposed Development).

The location of the Proposed Development in the context of the wider area is shown in Figure 1.1. The site (red line) is within an overall landholding (blue line) that is bound to the south by the Cruiserath Road / R121, to the west by Church Road / R121, to the north by Hollywood Road and the Carlton Hotel, and to the east by Bristol-Myers Squibb pharmaceutical facility Blanchardstown Town Centre and Village is located a short distance to the south and Tyrrelstown is located to the immediate west of the R121. The residential properties at Tyrrelstown are separated from the subject site by the R121 dual carriageway and include a mature tree-lined boundary which screens the residential properties from the R121. The subject site also contains semi-mature boundary tree planting.



Figure 1.1 Location of the Proposed Development in the context of the wider area

The nearest residential development is located c. 60m to the west of the subject site, separated by the R121 dual carriageway, landscaped areas within the subject site, and landscaping and treelines adjacent to the residential area facing onto Cruiserath Road.

1.1.1 Planning Rationale

The planning rationale for the proposed data centres development is outlined fully in the Planning Report prepared by John Spain Associates which is provided as part of the planning documentation. This can be summarised as follows:

- The Proposed Development is to be located on a site which is zoned HT (High Technology) within the Fingal County Development Plan. The acceptability of data centre development on HT zoned lands under the current County Development Plan is well established, with several examples of such developments provided herein, including in the immediate vicinity of the subject site.
- A data centre (Building A) and associated works were previously subject to a grant of permission on appeal from An Bord Pleanála to the south of the three new proposed buildings under Reg. Ref.: Reg. Ref.: FW17A/0025 & ABP Reg. Ref.: PL 06F.248544. That facility has been constructed and is now operational. Permission for two further data centres (Building B and C) and associated works has been granted to the east of the three new proposed data centres under Reg. Ref.: Reg. Ref.: FW19A/0087 and these are currently under construction. This demonstrates the suitability of the subject site for development of this nature.
- The overall landholding also accommodates a recently constructed substation (permitted under ABP Ref.: VA 06F.306834) and a 220kV Gas Insulated Switchgear (GIS) substation which was subject to a grant of permission by An Bord Pleanála following an application under section 182 of the Planning and Development Act 2000 as amended.
- The architectural design of the Proposed Development utilises high quality materials and reflects the existing pattern of development in the surrounding area, while introducing improvements and enhancements to provide a high-quality frontage to Cruiserath Road to the west of the site.

- The national and local planning policy context is supportive of the development of Information and Communication Technology (ICT) infrastructure, including data centres, as such infrastructure underpins Ireland's international position as a location of choice for high-value foreign direct investment.
- The Government's recently published (July 2022) *Statement on the Role of Data Centres in Ireland's Enterprise Strategy* establishes six separate principles that detail the type of data centres for which the Government has a preference. These principles, as set out in that Statement, are also to "inform and guide decisions on future data centre development". The Proposed Development is fully consistent with each of those principles.
- The Proposed Development benefits from an existing connection agreement in respect of electricity supply.
- The Proposed Development has been prepared to accord with the relevant policies, objectives and standards of the Fingal Development Plan 2017-2023.
- The Proposed Development will be compatible with its surroundings and the pattern of development in the vicinity, which comprises for the most part of large industrial type buildings.

1.1.2 Need for the Development

The recent Government Statement on the Role of Data Centres in Ireland's Enterprise Strategy (July 2022) states that 'Ireland is home to a significant cluster of digital infrastructure and service providers. To maximise the benefits of technology advancements including from 5G, AI and virtual reality, Ireland will need to continue to facilitate sustainable data centre development and the associated technological and economic spillovers. Digital Infrastructure such as data centres underpins our technology sector, which is increasingly cloud based. Ireland's technology sector accounts for €52 billion (16%) of gross value added and employs 140,000 people – equivalent to 6 per cent of total national employment with 40 per cent growth over the last five years.

1.1.3 The Operator

AWS offers customers access to more than 200 fully featured services from its data centres. This means that organisations of all sizes and in all industries – from the fastest-growing startups to the largest enterprises, government bodies, educational institutions or healthcare providers – can use cloud computing to lower costs and innovate faster. This allows government bodies, large enterprises, start-ups, education institutions, healthcare providers and individuals to leverage the cloud to lower costs and innovate faster. AWS's Ireland Region was established in 2007, and since this time the company has invested significantly in the country. Between 2011-2020 alone, AWS directly invested €4.4 billion in Ireland, with an economic output effect of €7.5 billion. This level of investment generated growth in economic output of €1.45 billion per year. AWS support more than 8,700 jobs, including more than 3,000 direct AWS employees, almost 4,000 in contractor and supplier companies linked to our data centres and 1,700 jobs linked to our Irish investment. AWS enables 550 Irish supplier and contractor companies, creating increased business and export opportunities.

AWS is resolutely committed to sustainability. In 2019, Amazon co-founded The Climate Pledge, a commitment to reach net-zero carbon emissions by 2040—10 years ahead of the Paris Agreement. As part of this, Amazon is on a path to powering its global operations with 100% renewable energy by 2025 – five years ahead of its original target of 2030, and before the proposed Data Centres F & G are due to come into operation. Amazon is the largest corporate purchaser of renewable energy in the world, and has announced a total of 379 renewable energy projects across 21 countries globally, representing 18.5 gigawatts (GW) of renewable energy capacity.

Once fully operational, Amazon's current global renewable energy portfolio will generate 50,000 gigawatt hours (GWh) of clean energy, which is the equivalent amount of electricity needed to power 13.4 million European homes each year. Amazon was the first company in Ireland to deliver unsubsidised Corporate Power Purchase Agreements (CPPAs). This means Amazon is helping to add renewable energy to the grid without direct government support, thus reducing subsidy costs on other local energy users. In Ireland alone, Amazon has committed to offtake 100% of the power from renewable wind projects in Cork, Donegal, and Galway. Amazon does not own these projects, but our commitment to purchasing the power and environmental attributes from these projects enable them to be built. In total, these three wind projects are projected to add 229 megawatts of renewable energy to the Irish grid, reducing carbon emissions by 366,000 tonnes of CO₂ each year, and producing enough renewable energy to power 185,000 Irish homes, per annum. These three wind projects will make Amazon the largest single corporate buyer of renewable energy in the country.

AWS's renewable strategy and climate focus – which is consistent with government's own climate goals of achieving 70% renewable energy usage by 2030 – is very much evident in its investment in Irish infrastructure. AWS has already announced three onshore wind projects here, one of which is now operational and is delivering clean energy to the country's electricity grid. It is also supporting the new district heating scheme in Tallaght, South Dublin, by providing heat from a nearby data centre. The system will initially heat 47,000 m² of public sector buildings – an area three times the size of the city's Croke Park stadium pitch – as well as 3,000m² of commercial space and 135 affordable rental apartments. This is projected to save 1,500 tonnes of carbon per annum during the first phase, the equivalent of a 60 per cent reduction in carbon emissions. These renewable wind and district heating projects have been achieved through collaboration and partnerships with government, renewable energy developers, and local utilities. They reflect the company's continued commitment to sustainability, both in Ireland and internationally.

1.1.4 Consultation and Scoping

Consultation undertaken is detailed in Section 3.5 of Chapter 3 (Planning and Development Context).

The structure, presentation and the non-technical summary of the EIA Report, all facilitate the dissemination of the information contained in the EIA Report. A core objective is to ensure that the public and local community are aware of the likely environmental impacts of projects prior to the granting of consent.

Informal scoping of potential environmental impacts was undertaken with the Planning Authority through the pre-application meeting held on August 11th 2022. Public participation in the EIA process will be affected through the statutory planning application process. Information on the EIA Report has also been uploaded to the Department of Housing, Planning and Local Government's EIA Portal.

A copy of this EIA Report document and Non-Technical Summary of the EIA Report document is available for inspection and/or purchase at the offices Fingal County Council (the relevant Planning Authority) at a fee not exceeding the reasonable cost of reproducing the document.

1.2 RELEVANT LEGISLATIVE REQUIREMENTS

1.2.1 Environmental Impact Assessment

An Environmental Impact Assessment (EIA) is the process of examining the anticipated environmental effects of a proposed project. The Environmental Impact Assessment Report (EIA Report) is prepared by the developer and is submitted to a Planning Authority as part of the Planning Permission process.

The requirement for EIA for certain types and scales of development is set out in the EIA Directives (2011/92/EU and 2014/52/EU), European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (the bulk of which came into operation in September 2018), the European Communities (Environmental Impact Assessment) Regulations 1989-2006, Planning and Development Act 2000 (as amended) and the Planning and Development Regulations 2001-2022. It should be noted that this EIA Report is prepared in accordance with the 2011 EIA Directive (2011/92/EU), as amended by the 2014 EIA Directive.

The EIA Directives list those projects for which an EIA is mandatory (Annex I) and those projects for which an EIA may be required (Annex II). With regard to Annex II projects, Member States can choose to apply thresholds or use case by case examination or a combination of both to assess where EIA is required. In Ireland, a combination of both has been applied.

The Proposed Project is not listed under Annex I EIA Directives and it is below the relevant threshold as set out in the Planning and Development Regulations 2001-2022 for Annex II projects. The threshold for "*industrial estate development projects, where the area would exceed 15 hectares*" as set out in Part 2 of Schedule 5 of the Regulations was considered to be most relevant threshold in the context of the Proposed Development in the subject location. The site is the subject of a previously granted planning permission for a data centre building (referred to herein as Building A) and associated ancillary development (An Bord Pleanála, ABP Reg. Ref.: PL06F.248544 / FCC Reg. Ref.: FW17A/0025). The Permitted Development exceeded this 15-hectare threshold (as it is 26.14 hectares in extent) and as such an EIA Report (previously referred to as an Environmental Impact Statement or EIS) was completed for the Permitted Development (Building A). The second phase of data centre development within the overall landholding comprised two data centres (Buildings B and C), an EIA Report was provided with planning and associated works which were granted permission to the east of the Proposed Development site under (Reg. Ref.: FW19A/0087). A description of the permitted data centre developments (Buildings A, B and C) is provided in Chapter 2 (Description of the Proposed Development) and an analysis of the cumulative impact of the permitted and Proposed Developments is included in Chapter 16 of the EIAR. The Proposed Development site area (13.14 hectares) does not exceed this threshold but as it forms a third phase of data centre development within the overall landholding for which an EIA report has been prepared therefore an EIA Report is provided.

The main objective of an EIA, as set out in Article 3(1) of the 2014 EIA Directive, is to identify, describe and assess the direct and indirect significant impacts of a project on population and human health, biodiversity, land, soils, water, air & climate (including noise), material assets, cultural heritage and the landscape and the interaction between the aforementioned factors. This EIA Report describes the findings of the EIA process to the Planning Authority, to help determine if consent should be granted. It also informs statutory consultees, other interested parties, and the public in general, about the likely effects of the project on the environment.

1.2.2 Habitats and Birds Directive

The Birds Directive (2009/147/EC) and the Habitats Directive (92/42/EEC) put an obligation on EU Member States to establish the Natura 2000 network of sites of highest biodiversity importance for rare and threatened habitats and species.

Natura 2000 sites in Ireland are European sites, including Special Protection Areas (SPAs), and Special Areas of Conservation (SACs).

The Directives set out a key protection mechanism to consider the possible nature conservation implications of any plan or project on the Natura 2000 site network before any decision is made to allow that plan or project to proceed; the process known as Appropriate Assessment (AA).

An Appropriate Assessment (Stage 1) Screening comprises an initial impact assessment of a project; examining the direct and indirect impacts that it might have on its own or in combination with other plans and projects, on one or more Natura 2000 sites in view of the sites' conservation objectives.

An Appropriate Assessment Screening has been undertaken for the Proposed Development, the results of which are presented in Appendix 8.1 of Chapter 8 (Biodiversity).

1.2.3 Water Framework Directive

The Water Framework Directive (WFD) 2000/60/EC aims to protect and enhance the quality of the water environment (both surface water and groundwater) across all European Union member states. The WFD requires all EU member states to classify the current condition or 'status or potential' of surface and groundwater bodies and to set a series of objectives for maintaining or improving conditions so that water bodies maintain or reach 'good status or potential' during the next river basin management planning cycle. Environmental Protection Agency (EPA) and planning authorities are the competent authority for implementing the WFD in Ireland. As part of their role, these authorities must consider whether proposals for new developments (other than where exemptions apply) have the potential to:

- Cause a deterioration of a water body from its current status or potential; and/or
- Prevent future attainment of good status or potential where not already achieved.

As a result, new developments that have the potential to impact on current or predicted WFD status are required to determine whether the project will cause a deterioration of the status of the body of surface water or if it would jeopardise the attainment of good surface water status, having regard to the existing status of the water body as designated in accordance with the Directive.

A WFD Assessment has been undertaken for the Proposed Development, the results of which are presented in Appendix 7.3 of Chapter 7 (Hydrology).

1.2.4 Integrated Pollution Prevention and Control / Industrial Emissions Directive

The Integrated Pollution Prevention and Control (IPPC) Directive was transposed into Irish law by the Protection of the Environment Act, 2003, and the Industrial Emissions Directive 2010/75/EU under the European Union (Industrial Emissions) Regulations 2013, S.I. 138 of 2013.

These Regulations primarily amend the Environmental Protection Agency (EPA) Act 1992 to introduce a system of licensable activities from both the Integrated Pollution Prevention and Control (IPPC) and Industrial Emissions (IE) Directives. The First Schedule of the EPA Act lists the activities that are licensable.

An Industrial Emissions Directive ("IED") licence application (EPA ref: P1182-01) has recently been submitted to the Environmental Protection Agency principally relating to the operation of diesel-powered emergency generators at the Permitted Development at the Proposed Development Site. This IED licence will be amended to include the Proposed Development on grant of planning permission.

The IED licence application is made notwithstanding and strictly without prejudice to the fact that the Operator expects to operate the emergency generators for no more than 18 hours per annum in compliance with the EPA note entitled 'Operation of emergency generation plant by large energy users', issued in December 2021, which states that installations with large scale emergency generation capacity are not required to hold an IED licence if they "limit operations at 50 MWth input load or more to no more than 18 hours per annum". The IED licence application is made out of an abundance of caution and in exercise of the Operator's rights at law, while reserving all other rights.

1.2.5 Greenhouse Gas Emissions Regulations

The Proposed Development will require an EPA Greenhouse Gas (GHG) Emissions permit in accordance with the EPA Act 1992, as amended. A GHG Permit is in place for the back-up emergency generators at Building A (Permit Register Number: IE-GHG197-10524-1). This permit has been amended to include additional back-up generators at Buildings B and C. Subject to grant of planning permission for the Proposed Development, it is intended that the permit will also be amended to include the additional back-up generators at the Proposed Development (Refer to Chapter 9 (Air and Climate) for more information. The amendment application will be submitted by the Operator prior to commencement of the scheduled activity and meets the requirements of the Climate Action and Low Carbon Development (Amendment) Act 2021 and the obligation imposed on An Bord Pleanála and local authorities (in Section 17) to *"in so far as practicable, perform its functions in a manner consistent with—*

- (a) the most recent approved climate action plan,*
- (b) the most recent approved national long term climate action strategy,*
- (c) the most recent approved national adaptation framework and approved sectoral adaptation plans,*
- (d) the furtherance of the national climate objective, and*
- (e) the objective of mitigating greenhouse gas emissions and adapting to the effects of climate change in the State."*

1.2.6 Seveso Directive / COMAH Regulations

The Seveso Directive (Directive 82/501/EEC, Directive 96/82/EC, Directive 2012/18/EU) was developed by the EU after a series of catastrophic accidents involving major industrial sites and dangerous substances. Such accidents can give rise to serious injury to people or serious damage to the environment, both on and off the site of the accident. The Chemicals Act (Control of Major Accident Hazards involving Dangerous Substances) Regulations 2015 (S.I. No. 209 of 2015) (the "COMAH Regulations"), implement the latest Seveso III Directive (2012/18/EU).

The purpose of the COMAH Regulations is to transpose the Seveso Directive into Irish law and lay down rules for the prevention of major accidents involving dangerous substances, and to seek to limit as far as possible the consequences for human health and the environment of such accidents, with the overall objective of providing a high level of protection in a consistent and effective manner.

The Proposed Development will not be a Seveso/COMAH facility. The only substance stored on site controlled under Seveso/COMAH will be diesel / renewable diesel for back-up generators and the quantities proposed do not exceed the relevant thresholds of the Seveso Directive.

The Health and Safety Authority (HSA) register shows that the Proposed Development is not located within close proximity or within statutory consultation distances of any Notified Seveso Establishment. Refer to Section 5.3.3 of Chapter 5 (Human Health and Population) for more detail.

1.3 FORMAT OF THIS EIA REPORT

This EIA Report has been prepared in accordance with the requirements of EIA Directives (2011/92/EU and 2014/52/EU) and the associated legislation and relevant guidance, including:

- European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018;
- European Communities (Environmental Impact Assessment) Regulations 1989-2006;
- Planning and Development Act 2000 (as amended);
- Planning and Development Regulations 2001 (as amended);
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022);
- Draft Advice Notes for Preparing Environmental Impact Statements (EPA, 2015);
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment" (August 2018);
- Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017);
- Environmental Impact Assessment of Projects – Guidance on Scoping (European Commission, 2017).
- Commission notice regarding application of the Environmental Impact Assessment Directive (Directive 2011/92/EU of the European Parliament and of the Council, as amended by Directive 2014/52/EU) to changes and extension of projects - Annex I.24 and Annex II.13(a), including main concepts and principles related to these (2021/C486/01)

Using a grouped format structure, the EIA Report examines each environmental aspect in a separate chapter. Each chapter generally covers the following:

- Assessment Methodology;
- Receiving Environment (baseline conditions);
- Characteristics of the Proposed Development;
- Potential Impacts of the Proposed Development;
- Mitigation Measures;
- Predicted Impacts of the Proposed Development (pre mitigation measures); and
- Residual Impacts (post mitigation measures) of the Proposed Development.

Each chapter considers the "Do nothing" scenario. Cumulative impacts for each environmental topic are assessed in Chapter 16 of this EIA Report.

Interactions i.e. the interrelationship between each environmental aspect, are assessed as they occur in each chapter. The final chapter of the EIA Report, Chapter 17 shows where interactions have been identified and how they have been addressed.

A Non-Technical Summary of the findings of the EIA Report is provided as a separate document.

1.3.1 Contributors to the EIA Report

The preparation and co-ordination of this EIA Report has been completed by AWN Consulting in conjunction with specialist subcontractors. Specialist inputs were provided by the following (Table 1.1):

Table 1.1 Roles and Responsibilities in the EIA Report

Role		Company
EIA Project Management		AWN –Elaine Neary and Teri Hayes
Engineering Design		Ethos Engineering and CS Consulting Group
Architectural Design		Henry J. Lyons Architects
EIA Chapter No.	Chapter Title	Company & Consultant
	Non-Technical Summary	AWN – Input from each specialist
Chapter 1	Introduction	AWN – Elaine Neary
Chapter 2	Description of the Proposed Development	AWN – Elaine Neary
Chapter 3	Planning and Development Context	AWN – Jonathan Gauntlett and Elaine Neary
Chapter 4	Alternatives	AWN – Elaine Neary
Chapter 5	Population and Human Health	AWN – Jonathan Gauntlett and Lorraine Walsh
Chapter 6	Land, Soils, Geology & Hydrogeology	AWN – Teri Hayes and Colm Driver
Chapter 7	Hydrology (including WFD Assessment)	AWN – Teri Hayes and Colm Driver
Chapter 8	Biodiversity (including AA Screening Report)	Moore Group – Ger O' Donohoe
Chapter 9	Air Quality & Climate	AWN – Dr Edward Porter
Chapter 10	Noise & Vibration	AWN – Mike Simms
Chapter 11	Landscape and Visual	Brady Shipman Martin - John Kelly
Chapter 12	Archaeological, Architectural and Cultural Heritage	CRDS Ltd. – Stephen Mandal
Chapter 13	Traffic & Transportation	CST Group – Philip Bayfield
Chapter 14	Material Assets	AWN – Elaine Neary
Chapter 15	Waste Management (including C&D Waste Management Plan)	AWN – Elaine Neary
Chapter 16	Cumulative Impact	AWN – Elaine Neary with Input from each specialist
Chapter 17	Interactions- Interrelationship between the Aspects	AWN – Elaine Neary with Input from each specialist

Project Director, Teri Hayes, BSc MSc PGeo Dip Environment and Planning Law. Teri is a member of the International Association of Hydrogeologists (Irish Group) – former president and a professional member of the Institute of Geologists of Ireland. Teri is a Director with AWN Consulting with 25 years of experience in water resource management and environmental assessment and risk analysis. She has project managed and contributed to numerous environmental impact assessments and design of appropriate mitigation measures, acted as an expert witness at public hearings, lectured in EIA for post graduate classes and providing expert advice on EIA sections for planning authorities.

Project Manager/EIA Co-ordinator/Selected Chapters, Elaine Neary, BA (Natural Sciences), MAppSc. (Environmental Science) and is a Chartered Member of the Institute of Waste Management (MCWIM). She is an Associate in AWN and has over 18 years' experience in environmental consultancy with extensive experience in Environmental Impact Assessment and EPA IED/IPPC and Waste Licence Application and Co-Ordination. She has project managed, coordinated and prepared specialist inputs for numerous EIA Reports.

Selected Chapters, Jonathan Gauntlett is a Principal Environmental Consultant in AWN Consulting with ongoing roles in impact assessment, licensing, environmental compliance and project management. Recent projects include; SID and planning applications for ICT facilities; EPA Licence applications for biopharma and ICT facilities. Jonathan has over 9 years' experience in environmental compliance, planning and management of Environmental Impact Assessments, licensing, and urban planning. Jonathan has a BSocSc (Environmental Planning) and BBA (Economics) from the Waikato University in New Zealand and has experience working in the environmental consultancy, planning, and regulatory fields from Ireland, the UK and New Zealand.

Human Health and Population, Lorraine Walsh holds a BSc (Environmental Management) and recently joined AWN Consulting as a Senior Environmental Consultant. Lorraine brings over 7 years' experience from the manufacturing and waste industries in environmental compliance, EPA IED/IPPC licenses, waste management, environmental consultancy, and ISO compliance. Lorraine has helped prepare specialist inputs in numerous EIAR's for large scale developments nationwide.

Land, Soils, Geology, Hydrogeology & Hydrology, WFD Assessment, Teri Hayes, (as above)

Land, Soils, Geology, Hydrogeology & Hydrology, WFD Assessment, Colm Driver (BSc MSc MIT). Colm is an Environmental Consultant (Hydrogeologist) with AWN Consulting with over 6 years' experience in the field of environmental sciences including hydrogeology, soils, geology, geotechnical engineering, and impact assessment. His role at AWN includes responsibility for groundwater related projects including groundwater resource management and assessment, aquifer characterisation and source protection plans, contaminated land assessments, groundwater modelling, hydrogeology and geology in EIAR. His experience also includes the provision of hydrogeological conceptual site models (CSM) and ArcGIS mapping. Colm is a member of the International Association of Hydrogeologists (Irish Group), Irish Brownfield Network and Institute of Geologists Ireland.

Biodiversity/Appropriate Assessment, Ger O'Donohoe, Ger is a Consultant Ecologist with Moore Group. Ger graduated from GMIT in 1993 with a B.Sc. in Applied Freshwater & Marine Biology and completed an M.Sc. in Environmental Sciences, graduating from TCD in 1999. Ger has over 20 years of experience as an environmental consultant with experience in the planning and management of

numerous complex Environmental Impact Assessments for large scale developments nationwide. He has wide ranging experience as an expert witness at public hearings.

Air Quality & Climate, Dr. Edward Porter is Director with responsibility for Air Quality with AWN Consulting and has completed Chapter 9. He holds a BSc from the University of Sussex (Chemistry), has completed a PhD in Environmental Chemistry (Air Quality) in UCD where he graduated in 1997 and is a Full Member of the Royal Society of Chemistry (MRSC CChem), the Institute of Environmental Sciences (MIEnvSc) and the Institute of Air Quality Management (MIAQM). He specialises in the fields of air quality, EIA and air dispersion modelling.

Noise & Vibration, Mike Simms (Senior Acoustic Consultant) holds a BE and MEngSc in Mechanical Engineering and is a member of the Institute of Acoustics and of the Institution of Engineering and Technology. Mike has worked in the field of acoustics for over 20 years. He has extensive experience in all aspects of environmental surveying, noise modelling and impact assessment for various sectors including, wind energy, industrial, commercial and residential.

Landscape and Visual, John Kelly, BArch (Hons) MRIAI. John is a qualified Architect and Managing Partner of Brady Shipman Martin and has over 25 years' experience of direct involvement in the planning, design and environmental assessment of major infrastructure, industrial, educational, commercial, tourism, leisure and energy projects, as well as large scale mixed-use master-plans. John utilises and develops photographic, surveying and digital methodologies that assist in establishing a thorough understanding of the three-dimensional characteristics of sites and their context.

Archaeology Cultural Heritage, Dr Stephen Mandal holds an honours science in geology (1991) and a PhD in geoarchaeology (1995) from Trinity College Dublin. He is founder and managing director of CRDS Ltd. (established in 1997; incorporated in 1999), archaeological, cultural and architectural heritage consultants. He has over 25 years' experience in the management of archaeological projects of all scale, from EIA Reports to large scale excavations. He is a professional member of the Institute of Archaeologists of Ireland, the Institute of Geologists of Ireland, and the European Federation of Professional Geologists.

Traffic & Transportation, Philip Bayfield, BE MSc CEng MIEI MICE). Phillip is a Chartered Engineer with over 30 years' experience in the industry. He has overseen civil and structural engineering design of variety of projects including several road and bridge schemes, commercial, educational, public and residential buildings as well as works in the public domain and has been responsible for project team management, resourcing, programming and account management. Projects include the Sutherland School of Law Enabling Works Contract on behalf of UCD, Thornton Hall Access Road and Thornton Hall Offsite Works projects on behalf of the Irish Prison Service, Scotch Hall Development, Kildare Civic Offices infrastructure and Beacon Gateway. Philip is also an experienced PSDP coordinator.

1.4 DESCRIPTION OF EFFECTS

The quality, magnitude and duration of potential effects are defined in accordance with the criteria provided in the EPA *'Guidelines on the information to be contained in Environmental Impact Assessment Reports'* (2022) as outlined in Table 1.2.

Table 1.2 Description of Effects as per EPA Guidelines (2022)

Characteristic	Term	Description
Quality of Effects	Positive	A change which improves the quality of the environment
	Neutral	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
	Negative/Adverse	A change which reduces the quality of the environment
Describing the Significance of Effects	Imperceptible	An effect capable of measurement but without significant consequences
	Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences
	Slight Effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities
	Moderate Effects	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends
	Significant Effects	An effect, which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment
	Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
	Profound Effects	An effect which obliterates sensitive characteristics
Describing the Extent and Context of Effects	Extent	Describe the size of the area, the number of sites, and the proportion of a population affected by an effect.
	Context	Describe whether the extent, duration, or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?)
Describing the Probability of Effects	Likely Effects	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
	Unlikely Effects	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
Describing the Duration and Frequency of Effects	Momentary Effects	Effects lasting from seconds to minutes
	Brief Effects	Effects lasting less than a day
	Temporary Effects	Effects lasting less than a year
	Short-term Effects	Effects lasting one to seven years.
	Medium-term Effects	Effects lasting seven to fifteen years
	Long-term Effects	Effects lasting fifteen to sixty years
	Permanent Effects	Effects lasting over sixty years
	Reversible Effects	Effects that can be undone, for example through remediation or restoration
	Frequency of Effects	Describe how often the effect will occur. (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually)
Describing the Type of Effects	Indirect Effects (a.k.a secondary or Off-site effects)	Effects on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway.
	Cumulative Effects	The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects.

Characteristic	Term	Description
	'Do Nothing Effects	The environment as it would be in the future should the subject project not be carried out
	'Worst case' Effects	The effects arising from a project in the case where mitigation measures substantially fail
	Indeterminable Effects	When the full consequences of a change in the environment cannot be described
	Irreversible Effects	When the character, distinctiveness, diversity, or reproductive capacity of an environment is permanently lost
	Residual Effects	The degree of environmental change that will occur after the proposed mitigation measures have taken effect
	Synergistic Effects	Where the resultant effect is of greater significance than the sum of its constituents (e.g. combination of Sox and NOx to produce smog)

1.5 ADDITIONAL ASSESSMENTS REQUIRED

This section addresses the additional approvals and assessments required under other EU Directives and legislation, which were as follows:

- **Flood Risk Assessment** - A Stage 1 Flood Risk Assessment has been undertaken by CS Consulting Group for the site and is appended to Chapter 7 (Hydrology) as Appendix 7.2.
- **Water Framework Directive (WFD) Screening Assessment** – A screening report has been prepared by AWN in response to the requirements of the Water Framework Directive and is appended to Chapter 7 (Hydrology) as Appendix 7.3. of this EIA Report; and
- **Appropriate Assessment Screening Report** – A screening report has been completed by Moore Group for the Proposed Development, as required under the Habitats and Birds Directive (92/43/EEC and 79/409/EEC) and is appended to Chapter 8 (Biodiversity) as Appendix 8.1. of this EIA Report.

In addition, a glint and glare assessment was undertaken to determine whether the photovoltaic (PV) solar panel installation has the potential to cause any glint and glare impact upon specific receptors. This report is appended to Chapter 14 as Appendix 14.1.

1.6 FORECASTING METHODS AND DIFFICULTIES IN COMPILING THE SPECIFIED INFORMATION

Forecasting methods and evidence used to identify and assess the significant effects on the environment for each environmental aspect are set out in each chapter.

There were no significant difficulties in compiling the specified information for this EIA Report. Any issues encountered during the assessment of individual factors are noted within the relevant chapters.

2.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1 INTRODUCTION

As described in Chapter 1 (Introduction), the Applicant is applying to FCC for the provision of three new data centre buildings (referred to herein as Buildings E, F and G) along with associated structures and emergency generators, parking and vehicular routes, landscaping, and associated development on a site located at Cruiserath Road, Dublin 15.

The following chapter presents a description of the Proposed Development as required by the relevant planning legislation and guidance listed below:

- EIA Directive (2011/92/EU), as amended by the 2014 EIA Directive (2014/52/EU) (herein referred to as the EIA Directive)
- European Commission '*Environmental Impact Assessment of Projects - Guidance on the preparation of the Environmental Impact Assessment Report*' (2017)
- EPA '*Guidelines on the Information to be Contained in Environmental Impact Assessment Reports*' (2022) (herein referred to the as the EPA EIA Report Guidelines 2022),
- EPA '*Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA, 2017)', and
- EPA Draft '*Advice Notes for Preparing Environmental Impact Statements*' (2015) (herein referred to as the EPA Draft Advice Notes for EIS 2015).

This chapter draws on and has been informed by the project design and summarises the key relevant details of the Proposed Development and its lifecycle as it relates to EIA Report. The EIA Report should be read in conjunction with full application package that includes complete elevations and floor plans, site layout plans including utilities and building drawings. The specialist assessments reported in this EIA Report have been conducted using this description, and the full application package as a guide to the details of the Proposed Development.

2.2 CHARACTERISTICS OF THE APPLICATION

2.2.1 Description of Overall Landholding and Site Context

The lands related to the Proposed Development (referred to as the Subject Site) are located within an overall landholding bounded to the south the Cruiserath Road / R121, to the west by Church Road / R121, to the north by Hollywood Road and the Carlton Hotel, and to the east by Bristol-Myers Squibb (herein referred to as BMS) pharmaceutical facility. The location of the subject site (illustrated as a red line boundary) in the context of the overall landholding (illustrated as a blue line boundary) and wider area is shown in Figure 1.1.

Blanchardstown Town Centre and Village is located c. 2.5 km to the south and Tyrrelstown is located to the immediate west of the R121. The residential properties at Tyrrelstown are the closest residential properties to the site (c. 60 m west of the Proposed Development site boundary) and are separated from the Proposed Development site by the R121 dual carriageway, landscaped areas within the overall landholding, and landscaping and treelines adjacent to the residential area facing onto Cruiserath Road. The overall landholding is not located directly adjacent to any areas of national or local environmental sensitivity/designation.

The overall landholding is 26.14 hectares in extent and comprises a formerly green-field site which was previously used for arable crops and was then left fallow for a number of years. In 2018, planning permission was granted for a data centre building (referred to herein as Building A) and associated ancillary development on the southern portion of the overall landholding (ABP Reg. Ref.: PL06F.248544 / FCC Reg. Ref.: FW17A/0025). This development also provided for the implementation of boundary treatments and landscaping within the overall landholding and for entrances to the overall landholding from the R121 and Cruiserath Road. A second phase of data centre development was granted permission in 2019 (Reg. Ref.:FW19A/0087) which comprises two data centres (referred to herein as Buildings B and C) and associated ancillary development. Building A is fully operational, and the overall landholding is now established as a data centre campus. Buildings B and C are currently under construction at the site. A full description of the permitted data centre developments (Buildings A, B and C) is provided Section 2.2.3.

The Subject Site falls entirely within the overall landholding described above. It is c. 13.14 hectares in extent. It is located to the north of Building A and to the west of Buildings B and C. The Subject Site is primarily undeveloped (land has been cleared of vegetation) and is relatively flat though it slopes gently northwards. A Gas Insulated Switchgear (GIS) building (Building D) with associated electrical infrastructure (permitted under ABP ref. VA06F.306834) has recently been constructed within the southern portion of the Proposed Development site, and an area of approx. 16,000m² at the centre of the site currently serves as a construction compound (including car parking) for the construction of Buildings B and C.

2.2.2 Proposed Development Description

Figure 2.1 presents a site layout plan of the Proposed Development and Permitted Development. The proposed data centres are referred to as Buildings E, F, and G. (Please refer to the planning drawings for end views and elevations of the proposed data centres and associated structures). The permitted data centres, Buildings A, B and C (and their associated ancillary developments) to the south and east and the permitted GIS Substation (Building D) in the southern portion of the Proposed Development site do not form part of the 'Proposed Development' and are referred to as the 'Permitted Developments' throughout this EIA Report.

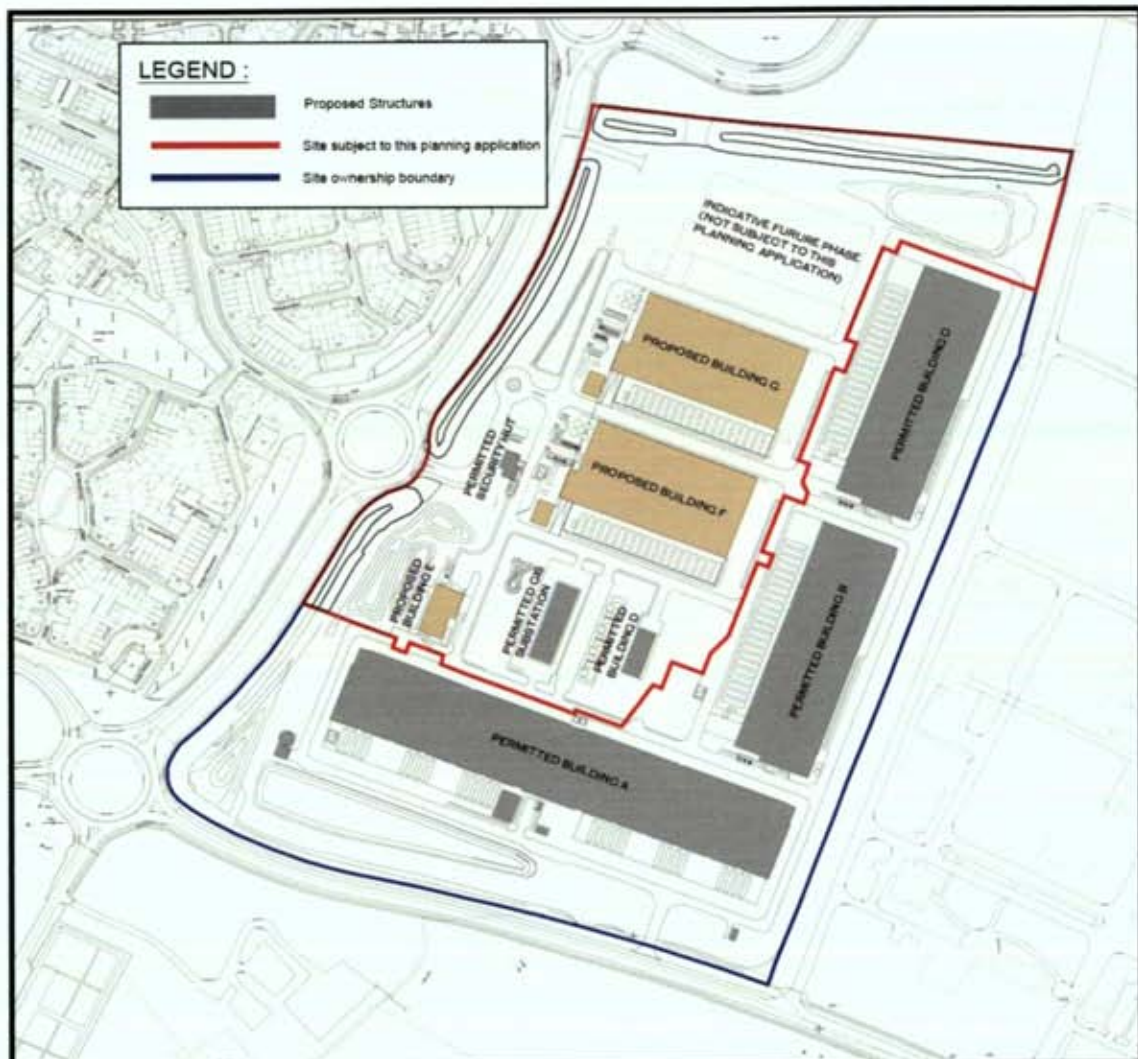


Figure 2.1. Site layout plan of the Proposed and Permitted Developments (Source: Henry J. Lyons Architects November 2022)

The Proposed Development will consist of (as set out in the public notices):

- Construction of three data centre buildings (Data Centre E, Data Centre F and Data Centre G), with a gross floor area (GFA) of c. 1,425 sq.m, c. 21,582 sq.m, and c. 21,582 sq.m respectively, each over two storeys (with Data Centre F and G each including two mezzanine levels), with plant at roof level;
- Data Centre F and G will be located in the north-western portion of the overall landholding, with a primary parapet height of c. 19.8 metres and each will accommodate data halls, associated electrical and mechanical plant rooms, a loading bay, maintenance and storage space, office administration areas, with plant and solar panels at roof level;
- Data Centre E (which will be ancillary to Data Centre F and G) will be located within the south-western portion of the overall landholding, with a parapet height of c. 13.1 metres and will accommodate data halls, associated electrical and mechanical plant rooms, a loading bay, maintenance and storage space, office administration areas, with plant at roof level;
- Emergency generators and associated flues will be provided within compounds adjoining each of the three data centre buildings (19 no. for Data Centre F, 19 no. for Data Centre G and 1 no. for Data Centre E).
- Buildings F and G will share a 40,000L “top up” tank from which diesel will be piped to double skinned belly tanks at each generator. Building E has one

generator which will have its own double-skinned belly tank with 9,000L capacity.

- Ancillary structures including two Medium Voltage switch gear (MV) buildings, water storage tanks and three bin stores;
- Access arrangements and internal road network and circulation areas, footpaths, provision of car parking (105 no. spaces including 12 electric car spaces), motorcycle parking (12 no. spaces) and bicycle parking (56 no. spaces), hard and soft landscaping and planting, lighting, boundary treatments, and all associated and ancillary works including underground foul and storm water drainage network, and utility cables."

Visually, the Proposed Development is intended to complement the appearance of the Permitted Development on the overall landholding and also complement the industrial buildings adjoining and in the vicinity of the site including BMS, Mallinckrodt and Alexion pharmaceutical facilities along Cruiserath Road to the south of the site. (Further details on the visual treatment of the proposed building are provided in Chapter 11 Landscape and Visual Impact).

2.2.3 Permitted Development Description

As stated in Section 2.2.1, the overall landholding is the subject of previously granted planning permissions as follows:

- Building A: Data centre and associated ancillary development to the south of the subject site. This development also provided for the implementation of boundary treatments and landscaping within the overall landholding and for entrances to the overall landholding from the R121 and Cruiserath Road (ABP Reg. Ref. PL 06F.248544 & FCC Reg. Ref. FW17A/0025). Building A is fully operational.
- Buildings B and C: Two data centres and associated ancillary development to the east of the subject site (FCC Reg. Ref.: FW19A/0087). This is currently under construction. Building B is due for completion in May 2024. Building C is due for completion in May 2025.
- Building D: GIS Substation on the southern portion of the subject site. This has recently been constructed (ABP Reg. Ref.: VA 06F.306834).

In addition, permission was also granted for a medium voltage (MV) substation to the southeast of Building A (FCC Reg. Ref.: FW20A/0164). This development has been completed on site. Permission was also granted for provision of artificial lighting to the substation compound, transformers, and GIS building permitted under ABP Ref: 30683420 and to the client control building permitted under ABP ref: PL06F.248544/ FCC Reg. Ref; FW17A/0025 and FW21A/0039, along with all associated site and ancillary works.

The Permitted Development Building A comprises the following (based on the development description for the application as originally submitted to FCC):

- *Construction of a data storage facility building with an overall height of c. 13 metres, containing data halls, associated electrical and AHU Plant Rooms, a loading bay, maintenance and storage space, office administration areas, screened plant and solar panels at roof level, all within a building with a total gross floor area of 20,739 sq.m;*
- *Emergency generators, emission stacks and a paladin fencing boundary treatment are provided in the adjacent compound;*

- *A temporary client control building, a transformer bay, a temporary substation, a permanent MV Switchroom building and a permanent MV / Control room building are to be provided for the construction phase;*
- *The permanent power supply will include the construction of a 220kv Gas Insulated Switchgear (GIS) substation building with a GFA of 1,350 sq.m and construction of 4 no. transformer bays;*
- *A water sprinkler pump room and storage tank, humidifier tanks and diesel tanks and filling area;*
- *Modification of the existing entrance and a new access control point to the lands from the existing roundabout on the R121 / Church Road to the west of the application site and a single-storey gate house / security building at this entrance with a GFA of 152 sq.m. A secondary entrance is proposed on the southern boundary, which also provides for construction access;*
- *Construction of internal road network and circulation areas, footpaths, provision of 46 no. car parking spaces (inclusive of 5 no. visitor parking spaces and 3 no. disabled spaces), 1 no. motorbike parking space and 15 no. cycle parking spaces;*
- *Landscaping and planting, boundary treatment, lighting, security fencing, bollards and camera poles, and all associated site works including underground foul and storm water drainage network, attenuation areas, and utility cables, on an application site area measuring 26.14 hectares.*

The Proposed Development will utilise some of the infrastructure permitted under the Building A permission including the main entrance to the west of the site from the R121 roundabout, internal road access network, perimeter security fencing, and internal and perimeter site landscaping.

The Permitted Development Buildings B and C comprise the following (based on the development description for the application submitted to FCC):

- *Construction of two data centre with a maximum overall height of c. 22 metres;*
- *Each of the two data centre will accommodate data halls, associated electrical and mechanical Plant Rooms, loading bays, maintenance and storage space, office administration areas, screened plant and solar panels at roof level;*
- *Each of the proposed data centre will have a gross floor area over two levels of c. 21,705 sq.m (43,410 sq.m in total);*
- *Emergency generators (24 for each data storage facility), and associated emission stacks are provided in compounds adjacent to each of the two buildings;*
- *The development includes a diesel tank and a filling area to serve the proposed emergency generators;*
- *Construction of internal road network and circulation areas, footpaths, provision of 50 no. car parking spaces for each of the two data centre (100 no. in total), and 25 no. cycle parking spaces for each of the two data centre (50 no. in total);*
- *Connections to vehicular access routes, roads, services and infrastructure permitted under An Bord Pleanála Reg. Ref.: PL06F.248544 / Fingal County Council Reg. Ref.: FW17A/0025;*
- *Hard and soft landscaping and planting, lighting, and all associated works including underground foul and storm water drainage network, attenuation area, and utility cables.*

The Permitted Development Building D comprises the following (based on the development description for the application as submitted directly to ABP):

- *The proposed 220kV GIS substation is to be located on lands to the north of the data storage facility permitted under An Bord Pleanála Reg. Ref.: PL06F.248544 / Fingal County Council Reg. Ref.: FW17A/0025, to the west of the data centre permitted under Fingal County Council Reg. Ref.: FW19A/0087, and within an overall landholding bound to the south by the R121 / Cruiserath Road, to the west by the R121 / Church Road and to the north by undeveloped land and Cruiserath Drive, Dublin 15. The site of the Proposed Development has an area of c. 12.39 hectares.*
- *The proposed 220kV GIS substation includes the provision of four transformers and a two storey GIS substation building (with a gross floor area of 1,988 sq.m) within a 2.6 m high fenced compound.*
- *The proposed double circuit 220kV transmission line will run through private lands between the proposed 220kV GIS substation and the existing Corduff 110kV and 220kV substation (permitted under An Bord Pleanála Reg. Ref.: PL06F.129046 / Fingal County Council Reg. Ref.: F01A/1464), located on lands to the west of Corduff Road, Dublin 15. The proposed transmission line covers a distance of approximately 1.8 km within the townlands of Cruiserath, Co. Dublin, Goddamendy, Co. Dublin, and Bay, Co. Dublin.*
- *The underground transmission line will follow a route originating at the proposed 220kV GIS substation, extending north towards Cruiserath Drive before realigning eastward and crossing below an existing private roundabout by way of horizontal directional drilling. The transmission line then proceeds eastwards, passing beneath a land drain associated with the Mooretown Stream, before entering the existing Corduff substation from the south.*
- *The development includes adjacent access paths, connections to the two substations (existing and proposed, including 2 no. new cable bays at the extant Corduff Substation), changes to landscaping, security fencing and berms permitted under An Bord Pleanála Reg. Ref.: PL06F.248544 / Fingal County Council Reg. Ref.: FW17A/0025, provision of car parking within the substation compound, provision of a 49kVA electricity connection (470m in length, traversing the Cruiserath Road to the southwest of the proposed substation site) for the substation building, landscaping, services, all associated construction works, and all ancillary works.*

2.2.4 Data Centre Processes

Data centres are centralised computer server systems on a large scale. At typical data centre scale, as per proposed Buildings F and G (and indeed as per Buildings A, B, C and the future indicative data centre in the north of the overall site), they offer significant advantages (and economies of scale) over traditional in-house data storage systems.

The primary advantages are:

- Higher reliability and redundancy of systems;
- 24/7 monitoring and maintenance of storage by staff;
- Higher security and data protection; and
- Flexibility – ability to increase or decrease storage requirements at short notice in line with specific business needs.

It has been well publicised in recent years, that Ireland's climate is highly suited to data centre operations. The relatively cool steady Irish climate means that a data centre here can be cooled primarily using outside air (via roof mounted air handling units). This reduces the need for additional more expensive and less sustainable forms of cooling, often required elsewhere around the world. Refer to Chapter 4 (Alternatives), Sections 4.3.1 and Section 4.5 for further detail. In order to support economic growth,

the demand for cloud computing and data storage continues to be high and the Proposed Development is intended to help meet this need.

Building E differs in function to data centre Buildings F, G and permitted Buildings A, B and C. It will be a data repository which requires significantly less power consumption than typical data centres. Building E will be designed to house tape media that provides a long-term data storage solution for customers. It will utilise magnetic tape media which requires environmental conditions such as temperature, humidity and particulate-free (ISO 14644-1 Class B for cleanliness levels) to be maintained in a narrow band (16-25°C and 20-50%RH). As such Building E will have a negligible cooling water demand (< 200 m³ per annum) and lower operational power demand with only one back-up generator (1.08MW) required for this building.

The need for the development is outlined in Section 1.1.1 of Chapter 1.

2.2.5 Indicative Future Development

The EIS for the Permitted Development of Building A illustrated a preliminary indicative masterplan for seven additional future data storage buildings orientated east to west within the Permitted Development site boundary. As part of the design process for the Permitted Development of Buildings B and C, the indicative masterplan was updated and refined (See Figure 4.1 in Chapter 4 Alternatives), with a reduced number of buildings (five instead of seven) and an alternative orientation (north to south instead of east to west) for two of the buildings i.e. the Proposed Development buildings. As part of the design process for the Proposed Development, the indicative masterplan has been modified as illustrated in Figure 2.1.

The revised indicative masterplan as shown in Figure 2.1 includes the potential for future development of one further data centre building in the northernmost portion of the Proposed Development site. This building may be developed by the Operator over the coming years, subject to customer demand. The design of the indicative future development, if proceeded with, will be further developed and refined and will be subject to a separate planning application and EIA Report. The Proposed Development is not dependent on the development of the future indicative building. The cumulative assessment has as far as practically possible, considered the future environmental impacts of future potential phase of the masterplan. Such future potential impacts might also be considered to be potential indirect impacts of the phase for which permission is sought.

The potential cumulative impact of the Proposed Development with the indicative future development, has been assessed in Chapter 16 (Cumulative Impact) of this EIA Report to the extent possible, having regard to the preliminary nature of that plan.

2.2.6 Proposed Site Infrastructure and Secondary Facilities

2.2.6.1 Surface Water Drainage

The proposed surface water network for the Proposed Development will be divided into two catchments. Catchment 1 will incorporate the Buildings F and G and the future indicative building, which are all north of existing Building D. Catchment 2 will incorporate Building E and car park and its associated hardstand areas.

Rainwater runoff from hardstand area (roofs, paved areas) and the proposed road network in Catchment 1 will be directed through the new surface water drainage network for the Proposed Development to the existing permitted attenuation pond which has a capacity of 4,450 m³. The attenuation pond was designed to cater for the

existing Buildings B and C (requiring 1,840 m³) and the proposed Buildings F and G, together with the future indicative building (requiring 2,610 m³ in total).

The proposed drainage design includes hydrocarbon interceptor systems to ensure the quality of surface water discharge is controlled prior to attenuation and discharge offsite. The existing hydrobrake located to the east of the detention pond shall be amended to change the discharge rate from 33.0 l/sec to 57.8 l/sec, in order to accommodate the new hardstanding area of the Proposed Development. The outfall shall be via gravity to the existing manhole to the south-east of the overall development site. A shut off valve is included in the design to ensure that discharges from the overall landholding can be shut off in the event of a fire or other form of significant surface water contamination event.

Runoff from Catchment 2 will flow to a wetland area with a storage volume of 140 m³, located to the west of Building E. This has been designed to provide attenuation storage sufficient for a 1-in-100-year storm, including an allowance for the predicted effects of climate change. Overflow from this wetland area will outfall to an existing on-site storm sewer and will be limited to a discharge rate of 1.0 l/sec.

The cumulative discharge rate from the entire site will not exceed the permitted discharge rate of 126.3 l/s granted under planning ref. FW17A/0025.

Rainwater runoff from roof areas of Buildings F and G will be directed to a rainwater harvesting system at each building which will provide cooling water for the air handling units (AHUs). The rainwater will be treated in a filtration and Ultraviolet (UV) disinfection system and will be stored in water storage tanks. The rainwater harvesting system will overflow to the stormwater network when there is no demand from the water storage tanks. The rainwater harvesting system is described in detail in Section 4.73 of the *Energy Statement* prepared by Ethos, which is included with the planning application documents.

Sustainable Urban Drainage Systems (SUDs) have been incorporated into the drainage design for the Proposed Development including permeable paving, bio-retention areas as well as the wetland to the west of Building E.

Further detail on the surface water drainage system and the basis of its design is provided in the *Engineering Services Report* and drawings prepared by CS Consulting Group, which accompanies the planning application. Chapter 7 (Hydrology) and Chapter 14 (Material Assets) address the impacts on surface water drainage.

2.2.6.2 Cooling Water Discharge

Residual cooling water, associated with the adiabatic cooling process, will be discharged from the air handling units (AHUs) to the surface water drainage network. This results in a peak rate of discharge from the Air Handling Units (AHUs) of 4.8 l/s for buildings F and G in total. As the cooling water will only be required during periods of hot dry weather, the discharge to the surface water network will not coincide with rainfall events.

2.2.6.3 Foul Drainage

Domestic effluent arising from occupation of the data centre buildings will be collected in newly constructed foul drainage network within the subject site and discharged to the IDA foul drainage network on the R121 to the south-east of the overall site, via the foul drainage network for the Permitted Development. In addition, rainwater collected from the generator flue stacks will be directed to the foul network via hydrocarbon interceptors.

Due to topographical constraints on site, the foul effluent generated at the proposed Buildings F and G shall be collected in a new pumping station to the east of Building G, which shall pump the collected foul wastewater to an existing manhole within the data centre campus site that connects to a second, existing pumping station within the overall site. The wastewater shall then be pumped to a further existing internal manhole, before ultimately discharging by gravity to the IDA foul drainage network, via an existing manhole to the south-east of the overall development site. The very low volume of foul effluent generated at the proposed Building E will discharge via gravity to an existing on-site foul manhole.

There are no requirements for new foul connections outside the overall landholding. The wastewater discharged from the site will ultimately discharge to the municipal Waste Water Treatment Plant (WWTP) at Ringsend. There are no proposed process water emissions.

A copy of the Confirmation of Feasibility (COF ref. CDS22004011) is included in the Engineering Report provided with planning.

Further detail in relation to wastewater emissions is presented in the CS Consulting Group *Engineering Services Report*, Chapter 7 Hydrology and Chapter 14 Material Assets.

2.2.6.4 Water Supply

Water is required for cooling equipment, cleaning, general potable supply for drinking and sanitary facilities.

Each of the proposed buildings F and G will have water storage (over ground and underground tank storage) sufficient to provide the annual industrial water supply need, which will be filled from rainwater harvesting, and mains water as required. These tanks shall be refilled prior to the summer cooling season.

The total domestic and cooling water requirement for the Proposed Development is 3008 m³ per annum. However, having the benefit of rainwater harvesting and on-site cooling water storage (fed by rainwater harvesting) will reduce yearly demand.

To reduce both energy and water use in its data centres, the Operator utilises direct evaporative cooling systems, which predominately utilises outside air to cool servers. This means that for more than 95% of the year it uses no water to cool its facilities. For the remaining 5% of time during high temperatures, cooling is undertaken by adiabatic cooling which requires water supply. The Proposed Development is projected to utilise as little as c. 1110 m³ water annually for cooling (Building E is projected to use 62 m³ cooling water annually and Buildings F and G are projected to use 524 m³ cooling water each, per annum). Furthermore, the proposed buildings are designed to harvest up to 95% of the annual cooling water requirements through rainwater harvesting, reducing the water requirement from the mains supply when rainwater is available. Additionally, the Proposed Development includes 2170 m³ of onsite water storage (overground and underground storage tanks). This proposed on site water storage will be designed to maximise the storage and utilisation of rainwater for up to 95% of cooling water needs. Hence providing a reduction in use of mains supply for cooling water. If the water storage is required to be topped up from mains water, it will be during low demand periods and mitigate impacts of the proposed demand to the Dublin Water Supply Area as per the requirements of the Confirmation of Feasibility (CoF) from Irish Water (ref. CDS22004011).

As noted in the previous section, IW provided a Confirmation of Feasibility (CoF) for the Proposed Development and this is included with the Engineering Services Report provided with the planning application.

Further detail in relation to water supply is presented in the CS Consulting Group *Engineering Services Report*, Chapter 7 Hydrology and Chapter 14 Material Assets.

2.2.6.5 Electricity

The power requirements for the Proposed Development will be provided from the existing 220kV GIS substation on site (permitted and constructed under An Bord Pleanála Reg. Ref.: VA 06F.306834) located south of proposed Buildings F and G, and to the east of proposed Building E. A connection agreement to supply the Proposed Development is in place with EirGrid. Full details on power supply, energy efficiency and sustainability are provided in the Energy Statement included as part of this planning application.

The existing substation and transmission line is designed to support power demand for the Permitted and Proposed Developments as well as the future indicative development.

The Proposed Development will have a peak operational power demand of 36MW for Buildings F and G, and 1.08MW for Building E, with an overall peak operational demand for all three buildings of 73.1MW.

The Proposed Development in conjunction with the Permitted Developments and future indicative development, will have a peak operational power demand of 219.7MW per year.

2.2.6.6 Generators and Diesel Storage

In the event of a loss of utility power e.g. temporary grid blackout, back-up generators will maintain power to the critical loads. These generators are designed to automatically activate and provide power pending restoration of the utility. An uninterruptible power source or UPS system with battery energy storage is also provided for the short-term transition from mains power to generator power.

The Operator has recently signed a supply agreement for renewable diesel (also referred to as hydrotreated vegetable oil or HVO). Subject to availability, it is expected that fuel for the proposed development will be renewable diesel. This will have significant environmental and sustainability benefits, as detailed further below.

Renewable diesel is a hydrotreated vegetable oil, which is made of paraffinic hydrocarbon. The fuel is derived from the same feedstock used to produce biodiesel. However, instead of using a transesterification process, renewable diesel is produced via a Hydrotreated process. This process involves the use of hydrogen which removes the oxygen from fatty acids producing a mix of linear paraffins, CO₂ and water. The hydrocarbons created are similar to existing diesel fuel components which achieves any desired ratio without any concerns regarding fuel quality.

The fuel has a stable shelf life due to lower oxygen content, is resistant to water intrusion, and generally burns cleaner based on the higher Cetane number, reduced aromatics, and minimal sulphur content. Renewable diesel is considered a 'drop-in' replacement fuel and can be blended with fossil diesel at any ratio up to, and including, 100%. Generator vendors have advised that their standard generator emissions datasheets will not be updated and as such we have modelled Air Quality using fossil fuel (diesel) – see Chapter 9 Air Quality and Climate.

Renewable diesel is considered to have significantly lower emissions¹ by the Greenhouse Gas Protocol, as plants used as feedstocks for bio-based fuels absorb CO₂ as they grow. The absorption of CO₂ by these plants offsets the CO₂ produced during combustion. By way of example, fossil fuel derived diesel has total lifecycle emissions of approximately 94 gCO₂e/MJ while renewable diesel using waste cooking oil as a feedstock can be as low as 5.6 gCO₂e/MJ.

Building F and Building G will each have 18 critical back-up generators and one standby administration (house) generator whilst Building E will have one critical back-up generator.

Bulk renewable diesel will be supplied to the back-up generators in Buildings F and G from a single 40,000 litre bulk storage tank which will be located within a bund capable of retaining greater than 110% of the storage tank capacity and with provision for removal of rainwater and serviced from a contained refuelling pad. Renewable diesel will be piped from the bulk storage tank to the back-up generator units (each generator will have its own internal double-skinned belly tank). Building E will have one generator which will have its own internal double-skinned belly tank with 9,000 Litre capacity and services from a contained refuelling pad.

It is anticipated, based on the Operator's experience, that standby generators will rarely be used. They will be tested periodically to maintain operational readiness (See Chapter 9 for testing regime). The assessment of the impact of these emissions is presented in Chapter 9 Air Quality and Climate.

2.2.6.7 Telecommunications

A fibre optic cable distribution network is in place on the site for the Permitted Developments, and it will be extended within the site to service the Proposed Development. There is sufficient capacity in the network for the Proposed Development.

2.2.6.8 Fire Water System

A fire water ring main installed for the Permitted Developments will be extended to the Proposed Development to provide firefighting water to hydrants in the event of a fire. The existing Permitted Development fire water sprinkler pump room and adjacent water storage tank (400 m³) will service the Proposed Development.

2.2.6.9 Security and Lighting

Other than during construction, all traffic intending on accessing the facility will approach and access the site through the existing western entrance off the R121 roundabout. A maximum speed limit of 20km/hour will be in place on the access road. A pair of access gates are manned and maintained by security personnel 24/7. (The access gates have been designed to act as a vehicle trap as and when required).

During construction of the Proposed Development, all construction traffic will use a temporary construction access on Church Road at the north-western corner of the application site. This will be configured as a left-in/left-out priority-controlled junction, with access from/to the southbound carriageway of Church Road only.

There is also an additional entrance to the south of the overall landholding which will be used for emergency access.

¹ <https://www.eia.gov/energyexplained/biofuels/biodiesel-and-the-environment.php>

Security will ensure that the procedure for accessing the campus is followed at all times.

A record will be maintained of all personnel visiting the site (including deliveries etc.). All visitors to site will be monitored and supervised at all times.

A 3m high security fence was constructed around the perimeter of the overall landholding as part of the Permitted Development of Building A. The Proposed Development will be partly screened from the R121 by this fence and by existing landscaped berms and semi-mature boundary tree planting.

The intention is that boundary planting will be strengthened as part of the Proposed Development landscape strategy which includes the planting of full-grown mature trees and plants at the initial construction stage (refer to Chapter 11 Landscape and Visual Impact).

CCTV cameras will be installed at strategic locations around the development to ensure all boundaries and approaches to the facility are adequately monitored. A motion detection system (passive infra-red system known as a "red wall") combined with CCTV and security lighting will be utilised.

The lighting design (both security and environmental lighting) has been assessed and optimised for the site, to ensure no obtrusive glare, light spillage or other light nuisance on neighbouring residential receptors or business users. These sensitive receptors are discussed in more detail in Chapter 5 (Human Health and Population). A lighting report was prepared by Ethos and is included with the planning application.

2.2.6.10 Site Roads and Parking

As above, the main access to the site will be via the western entrance to be constructed off the R121 roundabout. Access arrangements and potential traffic safety impacts are considered in Chapter 13 (Traffic and Transportation).

Car parking (105 no. spaces), bicycle parking (56 no.) and 12 no. motorcycle parking will be provided in designated areas as described in Chapter 13 (Traffic and Transportation) and illustrated on the planning application drawings. This is to allow for parking for full time staff as well as external staff, maintenance contractors and visitors attending the site.

2.3 PHASES OF THE PROJECT

Under the current EPA EIA Report Guidelines 2022, the description of the existence of the project is required to define all aspects of the proposed lifecycle of the Proposed Development under the following headings:

- Description of Construction;
- Description of Commissioning;
- the Operation of the Project;
- Changes to the Project (including Decommissioning); and
- Description of Other Related Projects.

The following sections present a description of each of these aspects.

2.3.1 Description of Construction

The construction of the Proposed Development will comprise four main stages, namely;

- Site preparation works;
- Building Structure Construction;
- Building Envelope Construction; and
- Internal Fit Out (including Mechanical & Electrical (M&E)).

Working Hours

It is anticipated that the construction of the Proposed Development will be completed during normal construction hours i.e. 7am to 7pm Monday to Friday with a half day working on Saturday (8am to 2pm).

However, it may be necessary that the appointed contractors will need to carry out certain operations outside these hours e.g for concrete pours etc. Such occurrences will be notified to the local authority, where required and generally kept to a minimum. Where they do occur, contractors will ensure they take place over as short a timeframe as possible and as such are unlikely to cause excessive disturbance.

However, it may be necessary, that the appointed contractors will need to carry out certain operations outside these hours e.g for concrete pours etc. Such occurrences will be notified to the local authority, where required and generally kept to a minimum. Where they do occur, contractors will ensure they take place over as short a timeframe as possible and as such are unlikely to cause excessive disturbance.

Staffing

For the construction of Buildings F and G, the total peak construction population on site is estimated to be of the order of c. 400 staff (average 275). For the construction of Building E, the total peak construction population on site is estimated to be of the order of c. 120 staff (average 80). The worst-case peak for all three developments would be 560 staff. Site staff will include management, engineers, construction crews, supervisors and indirect staff.

Construction Schedule

Subject to grant of planning permission, construction work will be undertaken on a phased basis, with Building E commencing construction first, followed by Building F and then Building G.

A summary of the proposed target dates (earliest possible dates) for the construction of Building E are set out below.

- Application for Planning Permission – Q4 2022
- Commence Site Construction works on Data Centre E (subject to grant of planning permission) – Q2 2023.
- Commence Operation of Data Centre E – Q2 2024
- Complete Construction Works Data Centre E – Q3 2024
- Completion of commissioning works at Data Centre E – End of Q3 2024

A summary of the proposed target dates (earliest possible dates) for the construction of Building F are set out below.

- Commence Site Construction works on Data Centre F (subject to grant of planning permission) – Q1 2024
- Commence Operation of First Data Hall Data Centre F – Q2 2025 (subject to EPA GHG permit approval)
- Complete Construction Works Data Centre F – Q3 2026
- Complete Commissioning Works (Final Data Hall) – End of Q3 2026

The construction schedule for Building G will be subject to the build out of Building F and customer demand. A summary of the proposed target dates (earliest possible dates) for the construction of Building G are set out below.

- Commence Site Construction works on Data Centre G (subject to grant of planning permission) – Q1 2025.
- Commence Operation of First Data Hall Data Centre G– Q2 2026 (subject to EPA GHG permit approval)
- Complete Construction Works Data Centre G – Q3 2028
- Complete Commissioning Works (Final Data Hall) – End of Q3 2028

The target dates for construction and completion of commissioning, subject to grant of permission, outlined above are summarised as follows:

Table 2.1 Target timelines for construction and completion

Building Ref.	Construction Commencement	Completion of Commissioning
E	Q2 2023	Q3 2024
F	Q1 2024	Q3 2026
G	Q1 2025	Q3 2028

Site Preparation

The construction of Buildings B and C is currently underway at the site. It is targeted that the construction of Building B will be complete Q2 2024. Building C is targeted to be completed by Q2 2025. As previously noted, the construction compound for Buildings B and C is currently located in the centre of the subject site. Subject to grant of permission for the Proposed Development, the construction compound will be relocated to the north of the proposed location of Building G and will be used for Buildings B, C and the Proposed Development. This is detailed in Section 3.1 of the Outline Construction Environmental Management Plan (OCEMP) prepared by CS Consulting Group which is included with the planning application documents.

It is proposed that the construction access and haul roads for vehicles, that have been established for the construction of Buildings B and C, will be maintained and utilised for the Proposed Development, where possible.

The construction compound will facilitate office, portable sanitary facilities, equipment storage, waste storage, parking etc. for contractors.

The Proposed Development site has already been largely cleared (of any vegetation etc.) and levelled as part of the Permitted Developments.

The primary activities that will be required during the site preparation phase for the Proposed Development will be shallow excavations and levelling of the site to the necessary base level for construction, surveying and setting out for structures.

A combination of bulldozer, excavators, trucks and other soil shifting plant will commence the main excavations and levelling aspects.

2.3.1.1 Building Construction Works

Foundations and Structure

Following the completion of site clearance and levelling, all structures will require foundations to structural engineer specifications. Building structures will comprise standard structural steel frames.

The substructure system for the proposed buildings is to be a network of shallow spread footings in the form of discrete and combined pad foundations under building columns and larger bases under stair and lift cores.

There are large underground water storage tanks located to the western flank of Building F and Building G. These underground tanks are constructed in reinforced concrete and designed as water retaining structures. The excavation depth for the tank is approximately 5.0 metres deep to account for roof slab, depth of water storage in the tank and the foundation slabs. The underground tank foundations are spread foundations at depth. The formation level (i.e. underside of foundations approx.) will be in the stiff brown clay material circa minimum 1.5 metres below existing ground level."

It is anticipated that foundations will require moderate scale excavations. Due to the shallow depth of bedrock (see Chapter 6) it is anticipated that some rock breaking will be necessary. This has been considered in the noise and vibration assessment (Chapter 10).

Local minor dewatering may be required during excavation works and groundworks (depending on the time of year development works are carried out). Mitigation measures are included in the OCEMP to manage settlement of silty runoff water during construction.

Levelling/Cut and Fill

Cut and fill will be required to facilitate construction, expansion of the drainage network and ancillary works. Subsoil stripping and localised stockpiling of soil will be required for short periods of time during construction. CS Consulting Group have estimated that a volume of c. 35,625 m³ of material will be exported offsite for offsite reuse, recovery and/or disposal. Refer to Chapter 15 (Waste Management) and Resource and Waste Management Plan (RWMP) prepared by CS Consulting Group which is included as Appendix 15.1 of this EIA Report.

The importation of fill will be required to facilitate construction. CS Consulting Group have estimated that the importation of up to c. 17,560 m³ engineered fill will be required to facilitate construction.

Any temporary storage of spoil required will be managed to prevent accidental release of dust and uncontrolled surface water run-off which may contain sediment etc.

Building Envelopes and Finishes

The building structure will comprise concrete pad foundations, structural steel frame and concrete floor slabs. The construction of the walls and roofs of the buildings will closely follow the completion of structures. The internal fit out will include mechanical and electrical services, architectural finishes and installation of plant and equipment. Typically, the contractors will start by fitting out the administration area and 1st data storage room as early as possible once the building envelope is complete. The construction of the rest of the building will continue around it.

The outer finishing of the building envelope is intended to be of a similar high quality and appearance to Building A.

As stated in Section 4.11 of the Planning Report which accompanies the planning application, the design of the buildings has been carefully considered by Henry J. Lyons Architects in order to complement adjoining land uses. High quality, durable materials and finishes are proposed throughout, as illustrated within the Henry J. Lyons's drawing pack and Architectural Design Statement. The materiality and design of the buildings seeks to respond to the design of the existing and permitted structures within the overall landholding, while introducing additional articulation, with a particular focus on enhancing the building frontages to the R121 to the west.

Roads, Services and Landscaping

The internal road system will initially be composed of hard-core material, rolled and compacted sufficiently to support initial construction including civil/structural sub grade works.

As noted above, excavations will be required for site levelling, preparation and the installation of services such as power, telecommunications, water supply, water storage, surface water and foul drainage across the site. Account of the impact of these excavations and the volumes of excavated material generated from them has been taken into account throughout this EIA Report. Further details on excavations and the volumes of excavated material are presented in Chapter 15 – Waste Management.

The soft landscaping will be undertaken and completed during the construction and commissioning phases of the Proposed Development.

2.3.1.2 Material Sourcing, Transportation and Storage

Materials

Key materials will include steel, concrete, composite cladding, piping, electrical cabling, mechanical and electrical equipment and architectural finishes. A 'Just in Time' delivery system will operate to minimise storage of materials on site.

Sourcing

Where possible it is proposed to source general construction materials from the Dublin area to minimise transportation distances.

Storage

Aggregate materials such as sands and gravels will be stored in clearly marked receptacles within a secure area in the construction compound to prevent contamination. Liquid materials will be stored within temporary bunded areas, doubled skinned tanks or bunded containers (all bunds will conform to standard bunding specifications – BS EN 1992-3:2006) to prevent spillage.

Transportation

Construction materials will be brought to site by road. Construction materials will be transported in clean vehicles (as per Section 9.6.1.5 of Chapter 9 – Air Quality & Climate, a wheel wash will be installed at the main site entrances to ensure that construction vehicles are clean). Lorries/trucks will be properly enclosed or covered during transportation of friable construction materials and spoil to prevent the escape material along the public roadway.

Waste Management

Chapter 15 contains a detailed description of waste management relating to construction of the Proposed Development. A site-specific Resource and Waste Management Plan (prepared by CS Consulting Group) is included as Appendix 15.1 of this EIA Report. The Resource and Waste Management Plan will be refined and updated in advance of the works to ensure best practice is followed in the management of waste from the Proposed Development.

Noise, Vibration and Dust Nuisance Prevention

With regard to construction activities, reference will be made to BS 5228 (i.e. BS 5228-1:2009+A1:2014 and BS 5228-2:2009+A1:2014) *Code of practice for noise and vibration control on construction and open sites*, which offers detailed guidance on the control of noise and vibration from demolition and construction activities. Various mitigation measures have been considered and will be implemented during the construction of the Proposed Development, such as:

- Limiting the hours during which site activities are likely to create high levels of noise are permitted, e.g. soil levelling/excavations;
- Establishing channels of communication between the contractor/developer, local authority and residents;
- Appointing a site representative responsible for matters relating to noise and vibration, and;
- Monitoring typical levels of noise during critical periods and at sensitive locations in accordance with the Outline Construction Environmental Management Plan (OCEMP) and any relevant planning conditions. Monitoring will be carried out by the contractor.

Furthermore, it is envisaged that a variety of practicable noise control measures will be employed. These may include:

- Selection of plant with low inherent potential for generation of noise;
- Erection of acoustic barriers as necessary around items such as generators or high duty compressors, and;
- Siting of noisy plant as far away from sensitive receptors as permitted by site constraints.

Noise and vibration control measures are discussed in detail in Chapter 10 Noise and Vibration. Details of the planned monitoring is outlined in the Outline Construction Environmental Management Plan (OCEMP).

The potential for dust to be emitted depends on the type of construction activity being carried out in conjunction with environmental factors including levels of rainfall, wind speeds and wind direction. The potential for impact from dust depends on the distance to potentially sensitive locations and whether the wind can carry the dust to these locations. As described in Section 9.5.1.1, the majority of dust produced will be deposited close to the generated source.

In order to ensure that no dust nuisance occurs, a series of measures will be implemented including:

- Hard surface roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads will be restricted to essential site traffic only;
- If required, any area/road that has the potential to give rise to fugitive dust will be regularly watered, as appropriate, during dry and/or windy conditions;

- Vehicles using site roads will have their speed restricted, and this speed restriction must be enforced rigidly. Indeed, on any un-surfaced site road, this will be 20km/hour, and on hard surfaced roads as site management dictates;
- In dry conditions vehicles delivering material with dust potential (soil, aggregates) will be enclosed or covered with tarpaulin at all times to restrict the escape of dust;
- Wheel washing facilities will be provided for vehicles exiting the site to ensure that mud and other wastes are not tracked onto public roads;
- Public roads outside the site will be regularly inspected for cleanliness and cleaned as necessary; and
- At all times, these procedures will be strictly monitored and assessed. In the event of dust emissions occurring outside the site boundary, movements of materials likely to raise dust would be curtailed and satisfactory procedures implemented to rectify the problem before the resumption of construction operations.

Dust nuisance control measures are discussed in further detail in Chapter 9 (Air Quality and Climate).

Water Discharges

Welfare facilities will be provided for the contractors on site during the construction works. Portable sanitary facilities will be provided.

Any surface water run-off will be adequately contained and treated prior to being discharged into the FCC drainage network. See Chapter 7 (Hydrology) for a full description of mitigation measures proposed.

Construction Impacts

Each of the following EIA Report chapters (Chapters 5-16) includes an assessment of the potential impact of construction works on their individual environmental aspect and sets out the relevant mitigation measures relating to each aspect.

An Outline Construction Environmental Management Plan (OCEMP) has been prepared by CS Consulting Group and is included with the planning application documents. This Plan will be updated by the appointed Contractor to include the mitigation measures detailed in this EIA Report and relevant planning conditions. The updated Plan will be agreed by the Contractor with FCC in advance of the commencement of the initial construction phase. The nominated Contractor will be required to implement the CEMP and to minimise the impact of all aspects of the construction works on the local environment. The CEMP will include emergency response procedures in the event of a spill, leak, fire or other environmental incident related to construction.

The primary potential effects from construction are all short-term and are anticipated to include;

- Effects in terms of nuisances relating to the air quality of the environs due to dust and other particulate matter generated from excavation works and effects on the noise environment due to plant and equipment involved in construction;
- Effects on the land, soils, geology & hydrogeology of the site during construction i.e. some loss of protection of the underlying aquifer to contaminants during site levelling and excavations etc.; and
- Effects on the local road network and its environs due to construction workers and other staff attending site during preparation, construction and commissioning phases.

Mitigation measures to address each of these potential short-term effects are presented in each individual EIA Report chapter.

The companies involved in the construction of the Permitted Developments have engaged with the community and provided funding to local clubs and organisations. This initiative will be continued for the Proposed Development if granted permission.

2.3.2 Description of Commissioning

Once the first data storage room is built, specialist contractors will be mobilised to complete the commissioning of the first data storage room and related plant. Commissioning will be carried out on a phased basis as each data storage room is completed, over a period of several months.

Any hard landscaping and final soft landscaping will be completed during commissioning.

2.3.3 Operation of the Project

Data centre Operation

Once operational, each data centre will “go live” and serve data customers on an ongoing basis. The server systems and the supporting infrastructure will be monitored by site staff and faults identified and remedied as required. Staff are primarily required onsite for security, ongoing monitoring and maintenance of plant and equipment.

Staffing

Once operational, c. 50 full time employees will be present on site daily in each building for Buildings F and G, including external staff, maintenance contractors and visitors, as required. The number of external staff, maintenance contractors and visitors will typically be c. 15 staff per day. (Staff will be present on a shift basis, so numbers will vary throughout the day with up to 7 no. of the staff on night shifts each day). Building E will have c. 4 full time employees present on site daily.

Traffic relating to staff movements have been assessed as part of the traffic and transportation chapter of this EIA Report (Chapter 13).

2.3.4 Decommissioning of the Project

The lifespan of the Proposed Development is not defined but it is anticipated that it will be at least 10 - 20 years. It is likely that regular maintenance and periodic upgrading of the facility over time will enable it to continue to meet future demands.

Upon closure all buildings, plant, equipment, drainage networks etc. at the site will be fully decontaminated and decommissioned in accordance with prevailing best practice. The buildings once rendered environmentally safe will more than likely be retained and sold on for future use following closure.

At present, there are no changes anticipated to the Proposed Development over its expected lifetime.

2.3.5 Description of Other Developments

A list of the other developments in the vicinity of the Proposed Development is provided in Chapter 3 (Planning and Development Context) of this EIA Report.

2.4 SUSTAINABILITY ENERGY EFFICIENCY & RESOURCE USE

The Operator is resolutely committed to building a sustainable business for their customers and the planet. In 2019, the Operator co-founded The Climate Pledge—a commitment to be net zero carbon across their business by 2040, 10 years ahead of the Paris Agreement. Part of that commitment is powering the Operator's global cloud infrastructure with 100% renewable energy, including in Ireland. As part of this commitment, the Operator is investing and innovating in efficiency in every aspect of their operations and is on a path to be powered by 100% renewable energy by 2025 – five years ahead of its original target of 2030. Subject to a grant of permission, this will include the power load for the Proposed Development which will be up to 73.1MW.

Amazon is the largest corporate purchaser of renewable energy in the world and has announced a total of 379 renewable energy projects across 21 countries globally, representing 18.5 gigawatts (GW) of renewable energy capacity. Once fully operational, Amazon's current global renewable energy portfolio will generate 50,000 gigawatt hours (GWh) of clean energy, which is the equivalent amount of electricity needed to power 13.4 million European homes each year. Amazon was the first company in Ireland to deliver unsubsidised Corporate Power Purchase Agreements (CPPAs). This means Amazon is helping to add renewable energy to the grid without direct government support, thus reducing subsidy costs on other local energy users. In Ireland alone, Amazon has committed to offtake 100% of the power from renewable wind projects in Cork, Donegal, and Galway. Amazon does not own these projects, but our commitment to purchasing the power and environmental attributes from these projects enable them to be built. In total, these three wind projects are projected to add 229 megawatts of renewable energy to the Irish grid, reducing carbon emissions by 366,000 tonnes of CO₂ each year, and producing enough renewable energy to power 185,000 Irish homes, per annum. These three wind projects will make Amazon the largest single corporate buyer of renewable energy in the country.

The JSA Planning Report submitted with the planning application outlines how the Proposed Development complies with the new *Government Statement on the Role of Data Centres in Ireland's Enterprise Strategy* (July 2022).

2.4.1 Energy Efficiency Benefits

Customers are able to support their own goals to become sustainable by moving to the cloud. The results of a recent study of US enterprise data centres by 451 Research found the Operator's data storage facilities to be 3.6 times more energy efficient than the traditional alternative and achieved an 88% reduction in carbon footprint for workloads that moved from on-premises data storage to the Operator's, helping the Operator's customers to become greener in the cloud.

The Proposed Development has been designed to the highest energy efficiency standards. A Building Energy Rating (BER) of A3 or higher is targeted for the office development with the utilization of high efficiency VRF Air Conditioning and roof mounted PV Panels to generate on site renewable electricity to be compliant with nZEB "Nearly Zero – Energy Buildings" requirements.

To reduce both the energy and water use in their Irish data centres, the Operator utilises direct evaporative cooling systems, which predominately utilizes outside air to cool the servers. This means that for more than 95% of the year they use no water to cool their data centres in Ireland. Furthermore, the proposed buildings are designed to harvest up to 95% of the annual cooling water requirements through rainwater harvesting (see Section 2.2.6.4 above).

2.4.2 Sustainability

In preparation for this application, the Operator and their design team have undertaken an assessment of a variety of sustainable design measures to assist with achieving its overall sustainability and energy efficiency targets.

The energy strategy for the Proposed Development is set out in an Energy Statement prepared by Ethos Engineering which accompanies the planning application. The Energy Statement demonstrates how the energy performance and the sustainability of construction of the proposed data centres meets or exceeds legislative and planning requirements. The Ethos Energy Statement states that the energy strategy has been approached in a holistic manner using the energy hierarchy “Be Lean, Be Clean, Be Green” in accordance with the *Mayor of London Draft Energy Assessment Guidance (April 2020)* (a hierarchy proposed and/or endorsed internationally and by many local authorities) in order to comply with NZEB, Part L 2021 requirements for energy performance and greenhouse gas emissions. Sustainable design features include enhanced building fabric performance, high efficiency HVAC systems and high efficacy lighting with occupancy and daylight control where appropriate. Renewable technologies including heat pumps, high efficiency electrically commutated (EC) direct drive fans and photovoltaic panels.

Airside heat recovery systems with air to air heat pumps will be installed in the office areas in each building. These systems are to accommodate the fresh air and heating/cooling requirements for the space.

All air supply and extract systems serving the data storage rooms will be provided with high efficiency EC direct drive fans. The EC direct drive fan is the most efficient fan solution available to facilitate demand control. These fans are lighter in weight and require less power than a traditional centrifugal fan with variable speed drive (VSD). Typically, savings of 10-20% in power consumption is achievable with an EC fan versus a centrifugal fan.

An array of photovoltaic (PV) panels will be installed on the roof of Building F and G and the use of direct drive EC fans for facilitating air supply and extract systems. According to the Energy Statement, a PV array of 26kWp would be required for each of Building F and G for compliance with Nearly Zero Energy Building requirements. The PV array proposed will consist of 285 PV modules, each of 300Wp, yielding a total peak power generated of 85.5kWp to offset the lighting and IT electrical power requirements during the peak summer months for the administration section of the building. The installation exceeds that required for code compliance under NZEB. These will feed back into the electrical supply for the administration section of each building, serving lighting, office area general services and office IT equipment.

The design of the airside heat recovery systems is such that they could accommodate the future installation of heat recovery coils in the central plant. The installation of these heat recovery coils could allow the removal of heat from air after it passes through the data storage rooms and before its reintroduction to the data storage halls or its exhaustion to the atmosphere. This provision could supply heat energy to a future district heating scheme developed by others external to the site boundary. Underground piping will be provided by the Operator for future possible piping of recovered heat to the site boundary. In order to benefit from such a heat recovery system, district heating infrastructure external to the site would have to be installed and developed by others, including plate heat exchangers, pumps and distribution networks.

In addition to the environmental benefits inherently associated with running applications in the cloud, the Operator also focuses on reducing water usage and

storage in their data centres by efficient design and rainwater harvesting (as detailed in Section 2.2.6).

SUDs measures have been incorporated into the design as detailed in Section 2.2.6 including permeable paving, bio-retention areas as well as the wetland to the west of Building E.

The landscaping approach has incorporated pollinator friendly planting. The implementation of a mobility management plan and use of electric car charging encourages sustainable transport.

All other sustainability measures proposed have been set out in detail the Energy Statement.

2.5 HEALTH & SAFETY

2.5.1 Design and Construction Health and Safety

The Proposed Development has been designed in accordance with the Safety, Health and Welfare at Work Act 2005 (S.I. 10 of 2005) as amended and the Safety, Health and Welfare at Work (General Application) Regulations 2007 (S.I. 299 of 2007- 2020 as amended and associated regulations. The health and safety planning for the construction phase of the Proposed Development will consider any appropriate measures to safeguard workers' health and safety with regards to Covid-19, should they be required at the time.

The Proposed Development has been designed by skilled personnel in accordance with internationally recognised standards, design codes, legislation, good practice and experience based on a number of similar existing facilities operated by the Operator.

2.5.2 General Operational Health and Safety

The Operator implements an Environmental Safety and Health Management System at each of its facilities. Prior to start up a comprehensive set of operational procedures will be established (based on those used at other similar facilities) to ensure a smooth roll out of operations at each facility. The Operator will also implement any appropriate health and safety measures to safeguard workers' health and safety with regards to Covid-19, should they be required at the time.

2.6 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

The Proposed Development is to be located on lands zoned HT (High Technology) adjacent to other industrial development. The EIAR demonstrates that the Proposed Development, when operational, will generate limited additional traffic, air, noise and water emissions and waste generation from activities.

This EIAR has assessed the potential impact of the Proposed Development during construction and operation. During construction, there is the potential for short-term nuisance impacts from traffic, dust, noise and construction waste, if not carefully managed. The Operator will require contractors to continue to operate in compliance with the CEMP as is the current practice on site, to ensure each of these potential impacts are minimised. An OCEMP is provided with this planning application.

2.7 MAJOR ACCIDENTS/DISASTERS

The 2014 EIA Directive and associated EPA EIA Report Guidelines 2022 requires that the vulnerability of the project to major accidents, and natural disasters (such as earthquakes, landslides, flooding, sea level rise etc.) is considered in the EIA Report. The site has been assessed in relation to the following external natural disasters; landslides, seismic activity and volcanic activity and sea level rise/flooding as outlined below.

Landslides, Seismic Activity and Volcanic Activity

There is a negligible risk of landslides occurring at the site and in the immediate vicinity due to the topography and soil profile of the site and surrounding areas. There is no history of seismic activity in the vicinity of the site. There are no active volcanoes in Ireland so there is no risk of volcanic activity. Further detail is provided in Chapter 6 (Land, Soils, Geology & Hydrogeology).

Flooding/Sea Level Rise

The potential risk of flooding on the site was also assessed. A Stage 1 Flood Risk Assessment was carried out by CS Consulting Group. The assessment identified no flood hazards on the Proposed Development site. The Proposed Development resides within Flood Zone C and is not at risk of flooding from a 1% or 0.1% Annual Exceedance Probability (AEP) event. The flood zonation confirms that the site is suitable for this type of industrial development. Furthermore, it is not expected that the Proposed Development would adversely impact the flood risk for other neighbouring properties. Further detail is provided in Chapter 7 (Hydrology) and Appendix 7.2 Stage 1 Flood Risk Assessment. Given the inland location of the site, it is not at risk from sea level rise.

Seveso/COMAH

As stated in Section 1.2.6 of Chapter 1 (Introduction), the Proposed Development will not be a Seveso/COMAH facility. The only substance stored on site controlled under Seveso/COMAH will be diesel for generators and the amounts proposed do not exceed the relevant thresholds of the Seveso Directive (2,500 tonnes or c. 2,778m³ of diesel for lower tier and 25,000 tonnes or c. 27,778m³ of diesel for upper tier, with the conversion based on a diesel density of 0.9 g/ml).

The Chemical Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015 (S.I. 209 of 2015) define the "consultation distance" as a distance or area relating to an establishment, within which there are potentially significant consequences for human health or the environment from a major accident at the establishment, including potentially significant consequences for developments such as residential areas, buildings and areas of public use, recreational areas and major transport routes.

Establishments are either lower tier establishments or upper-tier COMAH sites with above threshold quantities of dangerous substances present, and to which the provisions of the 2015 COMAH regulations apply. Table 2.2 lists the nearest sites that are notified to the Health and Safety Authority (HSA) as COMAH establishments under the 2015 COMAH Regulations. Table 2.2 also lists the distance to the establishments, and the consultation distance as set out in Table 12.13 of the Fingal Development Plan.

Table 2.2 Nearest Seveso/COMAH site, consultation distance and distance to Proposed Development site.

Seveso / COMAH site	Consultation distance	Distance to Proposed Development site
Barclay Chemicals Manufacturing Ltd. (t/a Barclay Crop Protection), Damastown Way, Damastown Industrial Park, Mulhuddart, Dublin 15		1600 m
Chemco (Ireland) Limited (t/a Chemsourc Logistics), Macetown North, Damastown Industrial Estate, Dublin 15	700 m	1 600 m
Contract & General Warehousing Ltd., Westpoint Business Park, Navan Rd. Mulhuddart, Dublin 15	700 m	2100 m
Astellas Ireland Co., Ltd Damastown Road, Damastown Industrial Park, Mulhuddart, Dublin 15	1,000 m	2400 m

It is concluded that the Proposed Development site is not located within the consultation distance of any COMAH establishment that is notified to the HSA. Therefore, there are no implications for major accident hazards at the Proposed Development site.

Minor Accidents/Leaks

There is a potential impact on the receiving environment as a result of minor accidents/leaks of fuel/oils during the construction and operational phases. However, the implementation of the mitigation measures set out in Chapters 6 and 7 will ensure the risk of a minor/accident is low and that the residual effect on the environment is imperceptible.

2.8 RELATED DEVELOPMENT AND CUMULATIVE IMPACTS

As detailed in Section 2.2.2, the Proposed Development site is located on a landholding which is the subject of previously granted planning permissions for Buildings A, B, C and D. Buildings A and D are fully operational. Buildings B and C are currently being constructed on a phased basis with Building B due to be completed in Q2 2024 and Building C due to be completed in Q2 2025. The proposed Buildings E, F and G will also be built on phased basis to meet customer demand. Building E is due to commence construction in Q2 2023, with completion in Q3 2024. Building F is due to commence construction in Q1 2024, with Building G due to commence construction in Q1 2025, subject to customer demand. Based on these target dates, up to three data centre buildings could be under construction concurrently. However, where up to three data centre buildings are under construction concurrently, due to the phased nature of the works, it is likely that one of the buildings would be at commissioning stage, another at the super-structure stage of construction whilst the other would be in the earlier stages of construction.

As previously stated, the northernmost portion of the subject site has the capacity for the potential for future development of one further data centre building.

The cumulative impact of the Permitted Development, Proposed Development and potential future development of the overall landholding has been considered in Chapter 16 Cumulative Impact, to the extent possible, having regard to the preliminary nature of that plan.

ABP SID Ref VC06F.313090 and FW22A/0204 Kilshane Energy

In September 2022, an application for a gas powered energy peaking plant (Kilshane energy) and a 220kV GIS substation on lands at Kilshane Road, Kilshane, Finglas and

underground 220kV transmission line was submitted. The transmission line will connect to a spare bay in the existing Cruiserath 220kV GIS substation (Building D) on the Proposed Development site. This connection is not required for or related to the Proposed Development. As stated in Section 2.2.6, the power requirements for the existing, permitted and Proposed Development within the overall landholding will be provided from the existing GIS substation on the site and a connection agreement to supply the Proposed Development is already in place with EirGrid. This SID application is a separate undertaking by others, which is connecting into the spare bay in the existing GIS substation, in order to enable the continued strengthening and development of the transmission grid in the wider area. The SID will simply result in the Kilshane development being connected into the national transmission grid at Cruiserath, with the existing, Permitted and Proposed Developments on the overall landholding continuing to take power from the grid. Nonetheless, it is anticipated that the construction of the future Kilshane transmission line in the vicinity of and on the Proposed Development site, will temporarily overlap with the construction of the Permitted and Proposed Developments on the site. As such, the cumulative impacts of the construction phase of these projects have been considered in Chapter 16 Cumulative Impact of this EIAR. The overall construction period for these Proposed Developments are c. 29 months commencing in 2025.

As part of the assessment of the impact of the Proposed Development, the cumulative impacts of the Proposed Development with other developments that are currently permitted or under construction within the vicinity of the site, neighbouring industrial parks and surrounding areas have been assessed. A list of the other developments considered is provided in Chapter 3 (Planning and Development Context). The cumulative impact assessment of the Proposed Development with these other developments is provided in Chapter 16 of this EIA Report.

3.0 PLANNING AND DEVELOPMENT CONTEXT

3.1 INTRODUCTION

The history of Permitted Development and rationalisation for the Proposed Development against relevant planning policies objectives is addressed in the Planning Report that accompanies this application prepared by John Spain Associates (JSA, 2022). The Planning Report produced by JSA outlines the National and Regional Planning Context, Local Planning Policy Context, and Relevant Planning Considerations, such as Economic Development and Employment, Energy and Sustainability, Land Use Zoning as it relates to the Proposed Development

The purposes of this planning and development context chapter is to give background to the EIA project team (Table 1.1, Chapter 1 Introduction) and the Planning Authority, public and other stakeholders primarily on the environmental sensitivity of areas likely to be affected by the Proposed Development paying particular attention to the existing and approved land uses within the vicinity of the site.

The consideration of likely significant cumulative effects, for each environmental factor, has been documented in Chapter 16 (Cumulative Impacts). A table of notable existing and approved land uses based on a review of planning permissions on the Fingal planning application website is included in Appendix 3.1. This appendix it is not intended to be an exhaustive list of all Permitted Developments, the intent is to provide the Planning Authority with context by outlining the relevant existing or Permitted Developments that could give rise to likely significant cumulative effects in combination with the Proposed Development. Appendix 3.1 has been used in the consideration of significant cumulative effects of the Proposed Development and the existing and approved land uses within the vicinity of the site.

In addition, this chapter describes the environmental planning and development context of the Proposed Development within the context of the relevant Fingal County Council (FCC) planning policy as it specifically relates to this EIA and the assessment of environmental effects.

3.2 DEVELOPMENT CONTEXT

Existing Development Site

The Proposed Development is located within an overall landholding bounded to the south by the Cruiserath Road / R121, to the west by Church Road / R121, to the north by Hollywood Road and the Carlton Hotel, and to the east by the BMS pharmaceutical facility.

The overall landholding is 26.14 hectares in extent and comprises of a formerly green-field site which was previously used for arable crops and was then left fallow for a number of years. Much of the surrounding land has been developed in the past 10-15 years, mainly for industrial use (to the east and south) and residential (to the west).

In 2018, planning permission was granted for a data centre building (referred to herein as Building A) on the southern portion of the overall landholding and associated ancillary development (ABP Reg. Ref.: PL06F.248544 / FCC Reg. Ref.: FW17A/0025). This development also provided for the implementation of boundary treatments and landscaping within the overall landholding and for entrances to the overall landholding from the R121 and Cruiserath Road. A second phase of data centre development was

granted permission in 2019 (Reg. Ref.: FW19A/0087) which comprises two data centres (referred to herein as Buildings B and C) and associated ancillary development. Building A is fully operational, and the overall landholding is now established as a data centre campus. Buildings B and C are currently under construction at the site. A full description of the permitted data centre developments (Buildings A, B and C) is provided Section 2.2.3.

The subject site falls entirely within the overall landholding described above. It is c. 13.14 hectares in extent. It is located to the north of Building A and to the west of Buildings B and C. The subject site is undeveloped (site has been cleared of vegetation as part of previous planning approval) and is relatively flat though it slopes gently northwards. The GIS Substation (Building D) was recently constructed in the southernmost portion of the Proposed Development site, and an area of approx. 16,000m² at the centre of the site currently serves as a construction compound (including car parking) for the construction of Buildings B and C.

The Proposed Development is to be located on a site which is zoned HT (High Technology) within the Fingal County Development Plan. The acceptability of data centres development on HT zoned lands under the current County Development Plan is well established.

The subject site and overall landholding are not located directly adjacent to any areas of national or local environmental sensitivity/designation. An appropriate assessment screening confirms there is no potential for impact on a Natura site as a result of the Proposed Development (Ref Chapter 8 Appendix 8.1).

Planning permissions for the Permitted Developments on the overall landholding are set out in Section 3.3.1 of this Chapter.

Commercial and Employment Areas

The overall landholding is bounded to the north by Hollywood Road and the Carlton Hotel, and to the east by the BMS pharmaceutical facility.

The overall landholding is located within an established employment and industrial area of Fingal. Cruiserath is well placed with respect to a range of employment, retail, community, educational and recreation facilities including the Blanchardstown Town Centre; the James Connolly Memorial Hospital; and the Institute of Technology, Blanchardstown; and Tyrrelstown village centre.

Residential Areas

The closest residential properties are in Tyrrelstown, located c. 60m west of the proposed site boundary (across the R121). They are separated from the Proposed Development site by the R121 dual carriageway, landscaped areas within the overall landholding, and landscaping and treelines adjacent to the residential area facing onto Cruiserath Road.

Industrial Emissions Licenced Sites and Seveso Sites

A review of licenced sites (Industrial Emissions Licenced Sites and IPPC Licenced sites) within 1 km of the Site includes is including below:

- Alexion Pharma International Operations Unlimited Company (P1030), located to the southeast of the Site in College Business & Technology Park

- Mallinckrodt Pharmaceuticals Ireland Limited (EPA Ref: P1060) located to the south in College Business & Technology Park
- Swords Laboratories Unlimited Company Trading as Bristol Myers Squibb Cruiserath Biologics (EPA Ref: P0552) located to the east in Cruiserath Road
- Ipsen Manufacturing Limited (EPA Ref: P0117) located to the east in Blanchardstown Industrial Park.

There are no Notified Seveso Establishments within 1 km of the Proposed Development site as detailed in Section 1.2.6 of Chapter 1 (Introduction) and Section 2.7 of Chapter 2 (Description of the Proposed Development).

3.3 PLANNING PERMISSIONS

3.3.1 Subject Site & Wider Landholding – Permitted Data Centre Development

This section sets out the relevant planning history pertaining to the subject site and adjacent lands. The Permitted Developments are already described in Section 2.2.3 of Chapter 2, but those descriptions are expanded upon below.

A planning history search, undertaken via the FCC online planning search system indicates that 5 no. planning applications have been subject to grants of permission on the overall landholding. The developments permitted under these applications are either constructed or under construction. Figure 3.1 illustrates the boundaries of these permissions, while further detail is provided below on each of these permissions.



Figure 3.1 Aerial view of the subject site with the approximate boundaries of the previous permissions within the wider landholding (Source: JSA Planning Report/Google Maps)

Building A - An Bord Pleanála Reg. Ref.: PL06F.248544 / FCC Reg. Ref.: FW17A/0025

An order to grant permission dated the 18th of January 2018 was issued by An Bord Pleanála for the development of a data centre on a site bounded by the R121 Cruiserath Road, R121 Church Road, and Hollywood Road, Dublin 15.

The development description for the application as originally submitted to FCC was as follows:

- *“Construction of a data centre building with an overall height of c. 13 metres, containing data halls, associated electrical and AHU Plant Rooms, a loading bay, maintenance and storage space, office administration areas, screened plant and solar panels at roof level, all within a building with a total gross floor area of 20,739 sq.m;*
- *Emergency generators, emission stacks and a paladin fencing boundary treatment are provided in the adjacent compound;*
- *A temporary client control building, a transformer bay, a temporary substation, a permanent MV Switchroom building and a permanent MV / Control room building are to be provided for the construction phase;*
- *The permanent power supply will include the construction of a 220kv Gas Insulated Switchgear (GIS) substation building with a GFA of 1,350 sq.m and construction of 4 no. transformer bays;*
- *A water sprinkler pump room and storage tank, humidifier tanks and diesel tanks and filling area;*
- *Modification of the existing entrance and a new access control point to the lands from the existing roundabout on the R121 / Church Road to the west of the application site and a single-storey gate house / security building at this entrance with a GFA of 152 sq.m. A secondary entrance is proposed on the southern boundary, which also provides for construction access;*
- *Construction of internal road network and circulation areas, footpaths, provision of 46 no. car parking spaces (inclusive of 5 no. visitor parking spaces and 3 no. disabled spaces), 1 no. motorbike parking space and 15 no. cycle parking spaces;*
- *Landscaping and planting, boundary treatment, lighting, security fencing, bollards and camera poles, and all associated site works including underground foul and storm water drainage network, attenuation areas, and utility cables, on an application site area measuring 26.14 hectares.”*



Figure 3.2 Extract from the site layout plan of the permitted scheme for Building A

An Environmental Impact Statement (EIS) was submitted with the application which assessed the potential Environmental Impacts of Building A.

A decision to grant permission subject to conditions was issued for the development by FCC, however, the decision of the Planning Authority was appealed to An Bord Pleanála by two no. Third Parties. One of the Third Parties requested an Oral Hearing which was subsequently facilitated by An Bord Pleanála. An Order to grant permission for the data centre was issued by An Bord Pleanála under ABP Reg. Ref. PL 06F.248544 (FCC Reg. Ref.: FW17A/0025).

This application provided for the delivery of landscaping, boundary treatments, and access arrangements for the overall landholding, within which the current application site is located.

Building A, has been completed and is now operational. Refer to Figure 3.2.

Building B and C - FCC Reg. Ref.: FW19A/0087 – Two Data Storage Facilities

An order to grant permission dated the 27th of August 2019, subject to 19 conditions, was issued for the development of two data storage facilities to the north of the permitted data centre mentioned above.

The development description for the application as originally submitted to FCC was as follows:

- Construction of two data storage facilities with a maximum overall height of c. 22 metres;
- Each of the two data storage facilities will accommodate data halls, associated electrical and mechanical Plant Rooms, loading bays, maintenance and storage space, office administration areas, screened plant and solar panels at roof level;

- Each of the proposed data storage facilities will have a gross floor area over two levels of c. 21,705 sq.m (43,410 sq.m in total);
- Emergency generators (24 for each data centre), and associated emission stacks are provided in compounds adjacent to each of the two buildings;• The development includes a diesel tank and a filling area to serve the proposed emergency generators;
- Construction of internal road network and circulation areas, footpaths, provision of 50 no. car parking spaces for each of the two data storage facilities (100 no. in total), and 25 no. cycle parking spaces for each of the two data storage facilities (50 no. in total);
- Connections to vehicular access routes, roads, services and infrastructure permitted under An Bord Pleanála Reg. Ref.: PL06F.248544 / FCC Reg. Ref.: FW17A/0025;
- Hard and soft landscaping and planting, lighting, and all associated works including underground foul and storm water drainage network, attenuation area, and utility cables.

The application site is located to the north of the data centre permitted under An Bord Pleanála Reg. Ref.: PL06F.248544 / FCC Reg. Ref.: FW17A/0025, and within an overall landholding bound to the south by the R121 / Cruiserath Road, to the west by the R121 / Church Road and to the north by undeveloped land and Cruiserath Drive.

An Environmental Impact Assessment Report (EIAR) was submitted to the Planning Authority with the planning application.

Buildings B and C are currently under construction on site. Refer to Figure 3.3.

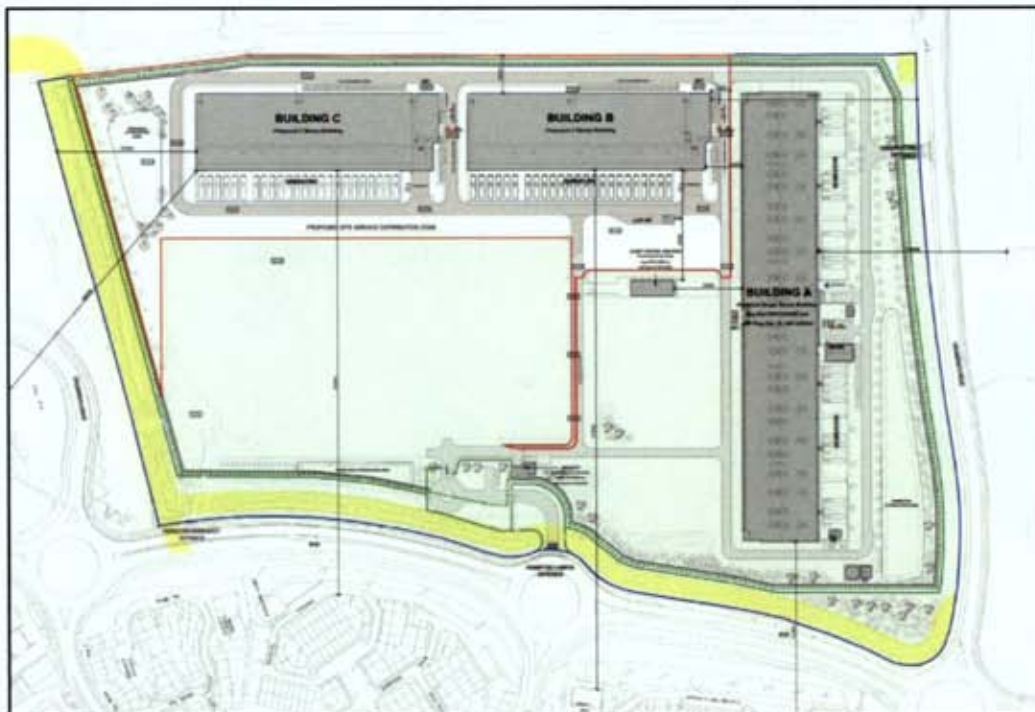


Figure 3.3 Extract from the site layout plan of the permitted scheme for Buildings B and C.

Building D - An Bord Pleanála Reg. Ref.: VA 06F.306834 – Substation & Grid Connections

An order to grant permission dated the 9th of October 2020, subject to 10 conditions, was issued by An Bord Pleanála for the development of a double circuit 220kV transmission line and a 220kV gas insulated switchgear (GIS) substation to the north of the data centre permitted under Reg. Ref.: FW17A/0025 & ABP Reg. Ref.: PL 06F.248544.

The development description for the application as submitted directly to An Bord Pleanála under section 182 of the Planning and Development Act 2000 as amended was as follows:

“The proposed 220kV GIS substation is to be located on lands to the north of the data centre permitted under An Bord Pleanála Reg. Ref.: PL06F.248544 / FCC Reg. Ref.: FW17A/0025, to the west of the data storage facilities permitted under FCC Reg. Ref.: FW19A/0087, and within an overall landholding bound to the south by the R121 / Cruiserath Road, to the west by the R121 / Church Road and to the north by undeveloped land and Cruiserath Drive, Dublin 15. The site of the Proposed Development has an area of c. 12.39 hectares.

The proposed 220kV GIS substation includes the provision of four transformers and a two storey GIS substation building (with a gross floor area of 1,988 sq.m) within a 2.6 m high fenced compound.

The proposed double circuit 220kV transmission line will run through private lands between the proposed 220kV GIS substation and the existing Corduff 110kV and 220kV substation (permitted under An Bord Pleanála Reg. Ref.: PL06F.129046 / FCC Reg. Ref.: F01A/1464), located on lands to the west of Corduff Road, Dublin 15. The proposed transmission line covers a distance of approximately 1.8 km within the townlands of Cruiserath, Co. Dublin, Goddamendy, Co. Dublin, and Bay, Co. Dublin.

The underground transmission line will follow a route originating at the proposed 220kV GIS substation, extending north towards Cruiserath Drive before realigning eastward and crossing below an existing private roundabout by way of horizontal directional drilling. The transmission line then proceeds eastwards, passing beneath a land drain associated with the Mooretown Stream, before entering the existing Corduff substation from the south.

The development includes adjacent access paths, connections to the two substations (existing and proposed, including 2 no. new cable bays at the extant Corduff Substation), changes to landscaping, security fencing and berms permitted under An Bord Pleanála Reg. Ref.: PL06F.248544 / FCC Reg. Ref.: FW17A/0025, provision of car parking within the substation compound, provision of a 49kVA electricity connection (470m in length, traversing the Cruiserath Road to the southwest of the proposed substation site) for the substation building, landscaping, services, all associated construction works, and all ancillary works.”

An Environmental Impact Assessment Report (EIAR) was submitted to An Bord Pleanála with the planning application.

Building D, has now been constructed on site and is fully operational. Refer to Figure 3.4.



Figure 3.4 Extract from the site layout plan of the permitted electricity transmission development application for Building D.

FCC Reg. Ref.: FW20A/0164 – MV Substation

An order to grant permission dated the 14th of January 2021 (subject to 8 conditions) was issued by the Planning Authority for the development of a medium voltage (MV) substation to the southeast of the data centre permitted under Reg. Ref.: FW17A/0025 & ABP Reg. Ref.: PL 06F.248544. This development has been completed on site. Refer to Figure 3.5.

The development description for the application submitted to FCC was as follows:

"The construction of a medium voltage (MV) substation. The MV substation building will have a total gross floor area of c. 30 sq.m, and an overall height of c. 4 metres. The Proposed Development includes the provision of electrical connections associated with the MV substation, along with all associated hard and soft landscaping, services, and all ancillary works. All on a site with an area of 0.33 hectares. The application site is located to the south of the data centre permitted under An Bord Pleanála Reg. Ref. L06F.248544 / FCC Reg Ref. FW17A/0025, and within an overall landholding bound to the south by the R121/Cruiserath Road, to the west by the R121/Church Road and to the north by Cruiserath Drive."

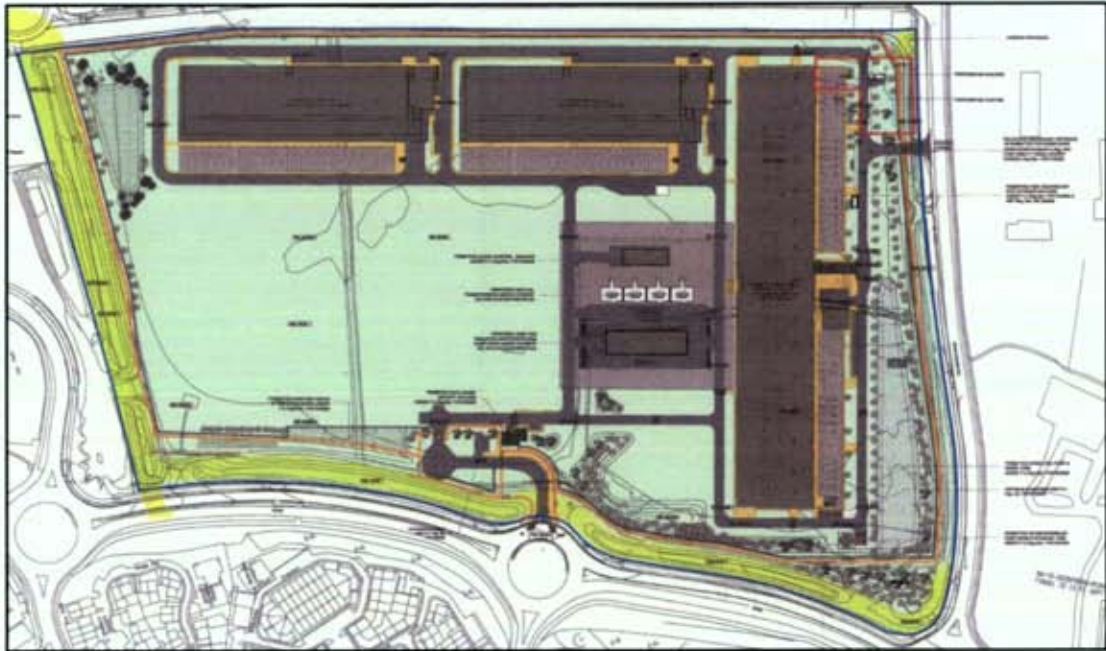


Figure 3.5 Extract from the site layout plan of the permitted MV substation application

FCC Reg. Ref.: FW21A/0039 – Artificial lighting

An order to grant permission dated the 2nd of June 2021, subject to 4 conditions, was issued by the planning authority for the provision of artificial lighting to the substation compound, transformers, and Gas Insulated Switchgear (GIS) building permitted under An Bord Pleanála ref: 30683420 and to the client control building permitted under An Bord Pleanála ref: PL06F.248544/ FCC Reg. Ref; FW17A/0025, along with all associated site and ancillary works.

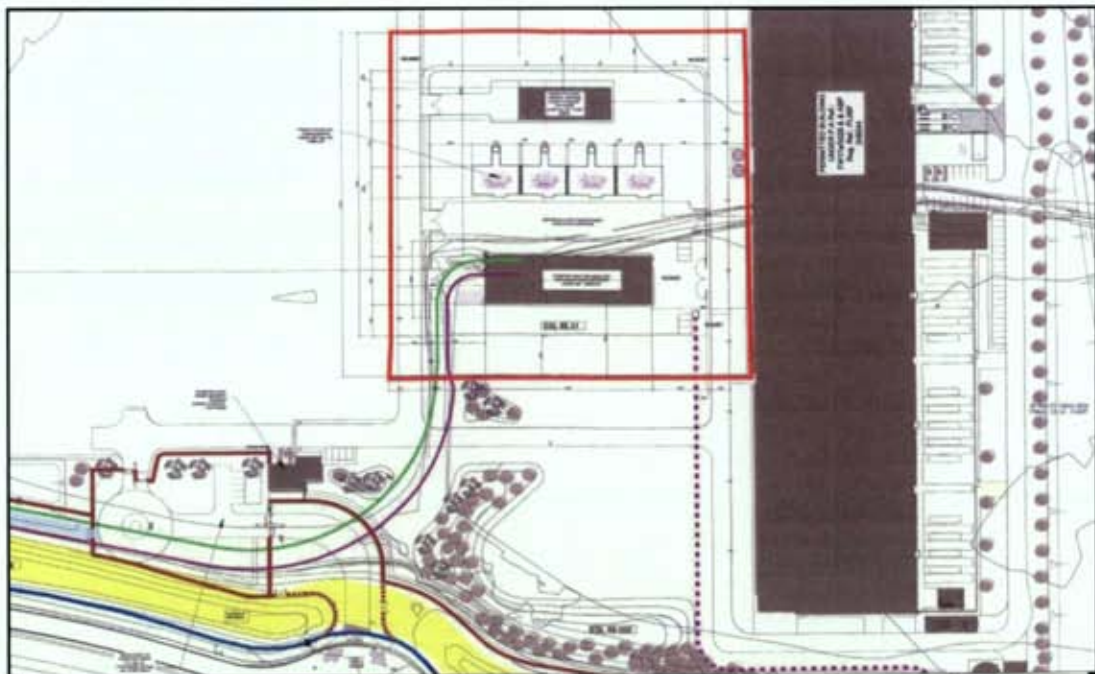


Figure 3.6 Extract from the site layout plan of the permitted scheme

3.3.2 Development within the vicinity of the Proposed Development site

The National Planning Application Map was consulted for the previous 5 years to identify notable applications (Proposed Development), or applications granted permission (Permitted Development) within that period within 1 km of the development site. The National Planning Application Map includes planning application data sourced from the 31 individual local authorities across Ireland. This list of consented projects is shown in Appendix 3.1 at the end of this chapter. The review of the online planning tool noted a large number of changes of use, retention and other minor alterations within the adjoining business parks (Blanchardstown Corporate Park and College Business and Technology Park) as well as the residential area of Tyrellstown. These proposed and consented development have been, where relevant, considered as a part of the overall project impact.

There is no specific guidance available on an appropriate study area to focus the assessment of existing land use and/or permitted projects. The research area has been established using expert judgement and based on the accessibility of data and taking into consideration the potential for impact from the Proposed Development.

It is acknowledged that projects like the one proposed can have an impact on activity in a larger area than only the subject site itself. Generally, the closer to the works, the greater the potential for impacts. The most significant environmental impacts are likely to be confined within 50-350m of the Proposed Development based on local proximity to the site. Some effects from the Proposed Development, including air quality and traffic, might have a larger area of effect, and these are addressed in further detail in the corresponding expert assessments that are set out in the relevant Chapters of this EIA Report.

The project being considered, is not expected to have Regional, National or International, or Transboundary impacts as emissions do not extend outside of the local area.

Permissions which could potentially have cumulative impacts from the list of consented development (Appendix 3.1) are disused in further in the following sections.

FCC Reg. Ref.: FW19A/0177

On the 30th of January 2020, a final grant of permission was issued by FCC for development primarily to the west and to the south of the subject site.

The Permitted Development consists of the provision of underground cabling over a route of 6.4km in length involving the excavation of a trench for sections and excavations to access existing ducting.

FCC Reg. Ref.: FW18A/0121

On the 13th of November 2018, a final grant of permission was issued by FCC for development to the north of the subject site.

The Permitted Development comprises of *inter alia* construction of a two-storey office building with landscaped roof and central circular planted open courtyard along with vehicular access, landscaping and SUDs. Retention permission was also granted for a 2.4-metre-high fence to the northern and western site boundaries.

The design and siting of the current development proposal has been progressed with cognisance of this adjacent Permitted Development so as to mitigate impact on this adjoining permitted land use.

FCC Reg. Ref.: FW21A/0060 Swords Laboratories T/A Bristol Myers Squibb

On the 29th June 2021, a final grant of permissions was issued by FCC for a development at BMS to the east of the subject site.

The Permitted Development comprises of *inter alia* a permanent construction compound, located to the centre of the BMS site consisting of 4 no. single storey workshops sized 70 square metres and 4.1 meters high, 1 no. toilet facility sized 50 meters square and 3.1 meters high and office/canteen facility sized 50 square meters and 3.1 meters high.

FCC Reg. Ref.: FW20A/0153

On the 21st April 2021, a final grant of permissions was issued by FCC at Blanchardstown Corporate Park.

The Permitted Development comprises of *inter alia* the construction of 2 no. office buildings, (Block A and Block B), with a total gross floor area of c. 23,180 sq m (excluding c. 17,607 sq m basement levels). Block A comprises 9,477 sq m approximately of office floor space in a 4 to 6 storey building over single basement level and including a ground floor level cafe (245 sq m), fourth floor roof terrace (167 sq m) and 1 no. plant room (393 sq m) at roof level. Block B comprises c. 13,703 sq m of office floor space in a 4 to 9 storey building over two basement levels and including 1 no. plant room (364 sq m) at roof level.

ABP SID Ref VC06F.313090 and FW22A/0204 Kilshane Energy

In September 2022, an application for a gas powered energy peaking plant (Kilshane energy) and a 220kV GIS substation on lands at Kilshane Road, Kilshane, Finglas and underground 220kV transmission line was submitted. The transmission line will connect to a spare bay in the existing Cruiserath 220kV GIS substation (Building D) on the Proposed Development site. This connection is not required for or related to the Proposed Development. As stated in Section 2.2.6, the power requirements for the existing, Permitted and Proposed Development within the overall landholding will be provided from the existing GIS substation on the site and a connection agreement to supply the Proposed Development is already in place with EirGrid. This SID application is a separate undertaking by others, which is connecting into the spare bay in the existing GIS substation, in order to enable the continued strengthening and development of the transmission grid in the wider area. The SID will simply result in the Kilshane development being connected into the national transmission grid at Cruiserath, with the existing, permitted and Proposed Developments on the overall landholding continuing to take power from the grid. Nonetheless, it is anticipated that the construction of the future Kilshane transmission line in the vicinity of and on the Proposed Development site, will temporarily overlap with the construction of the Permitted and Proposed Developments on the site. As such, the cumulative impacts of the construction phase of these projects have been considered in Chapter 16 Cumulative Impact of this EIAR. The overall construction period for these Proposed Developments are c. 29 months commencing in 2025.

Planned Development

As outlined in the revised indicative masterplan (Figure 2.1) there is a potential future data centre development at the northern perimeter of the site area.

3.4 FCC DEVELOPMENT PLAN 2017-2023

3.4.1 Site and Surrounding Land Zoning Objective

The application site is subject to the HT – High Technology zoning objective under the 2017-2023 County Development Plan as indicated in Figure 3.7.



Figure 3.7 Extract from Zoning Map 12 of the Fingal County Development Plan 2017-2023 (approximate extent of the subject site outlined in red).

The Proposed Development is located in an area zoned as 'High Technology', with the objective to: *provide for office, research and development and high technology/high technology manufacturing type employment in a high quality built and landscaped environment*

The 'HT' Zoning Objective does not make specific reference in the list of permitted uses to a data centre. However, having regard to the permitted uses (such as high technology manufacturing, industry light, office and utility installations) under the County Development Plan land use zoning matrix, it is considered that the Proposed Development complies with the land use zoning objective for the site.

As set out in the Planning Report prepared by JSA, it is considered that the proposed data centre development accords with the HT zoning objective and the vision for HT zoned lands as set out in the Development Plan.

3.4.2 Objectives and Policies

Relevant planning objectives and policies are set out in the individual EIA Report Chapters.

3.5 CONSULTATION WITH FCC PLANNING DEPARTMENT

AWN, the Operator and the project team have liaised with the relevant departments of FCC in advance of lodgment of this application. A pre-planning meeting was held with FCC on 11th August 2022. Representatives of the Planning, Drainage, Roads/Transportation and Public Realms - Parks departments of FCC attended.

Please refer to the planning application for further details.

APPENDIX 3.1
LIST OF PLANNING PERMISSIONS

Appendix 3.1 Planning Search – Granted Permissions			
FCC Planning Application Reference No. (An Bord Pleanála Case Reference) & Applicant	Summary Description of Development	Location of Development	Decision Date
FW22A/0011 BT Communications Ireland Limited	The Proposed Development will consist of Alterations to the exterior of an existing office and telecoms operation centre building to provide additional area for the provisional upgrade of plant. An extension to an existing plant area to the south and west of the building, and a new plant area to the east of the building, will together provide 890 m ² additional plant space.	Block 5, Blanchardstown Corporate Park 1, Dublin 15, Dublin, D15 PY54	Permission Granted 28 th April 2022
FW21A/0174 Alexion Pharma International Operations UC	Permission for construction of warehouse extension to the east of existing warehouse and associated works. The development will comprise of ground floor and two internal technical mezzanine floors split over 2 levels of total floor area 2545m ² and total building height of 12.4m. Proposed Development will be constructed in 2 phases.	College Business & Technology Park, Cruiserath Road, Blanchardstown, Dublin 15	Permission Granted 22 nd December 2021
FW21A/0173 Betania Ltd.	Minor amendments to existing planning approvals (FW16A/0181; FW18A/0103; FW19A/0212). The development shall consist of the provision of new vehicle & pedestrian entrance gates (to remain open during the adjoining school term hours) and associated fencing; amended external finishes; amended external entrance canopy; extended louvre screening at first floor level; and the retention of minor elevation adjustments, a revised fire escape stairs enclosure and a new retaining wall on the east boundary of the site.	Betania Church, Powerstown Road, Tyrrelstown, Dublin 15	GRANT PERMISSION & GRANT RETENTION 15 November 2021
FW21A/0069 Alexion Pharma International Operations UC	The Proposed Development is for a centralised waste yard which comprises a bunded and fenced enclosure with vehicular entrance & exit points, pedestrian access gate, a single storey waste storage building, a separate sheltered drum wash station, and associated site works & lighting.	College Business & Technology Park, Blanchardstown Road North, Blanchardstown, Dublin 15	Permission Granted 16 th September 2021
FW21A/0117 Channon Limited	Modifications to a previously Permitted Development (Reg Ref. F00A/1299) to include a change of use at first floor level of 'Block 3' from restaurant to office (490 sq.m) with associated internal alterations; minor external works to the building's facade and provision of 8 no. bicycle spaces for the proposed new office use.	Block 3, Tyrrelstown Link Road L3095, Blanchardstown Coporate Park, Dublin 15.	GRANT PERMISSION 19 August 2021
FW21A/0060 Swords Laboratories T/A Bristol Myers Squibb	Permission for a permanent construction compound, located to the centre of the BMS site consisting of 4 no. single storey workshops sized 70 square metres and 4.1 meters high, 1 no. toilet facility sized 50 meters square and 3.1 meters high and office/canteen facility sized 50 square meters and 3.1 meters high.	Cruiserath & Goddamendy Townlands, Cruiserath	Permission Granted 29 th June 2021

		Road, Mulhuddart, Dublin 15	
FW21A/0013 IPUT plc	Development at a c.5.19 HA site, the development will principally consist of a single storey extension of 3,767 sq.m. to the existing distribution centre which will increase its gross floor area from 17,435 sq.m to 21,202 sq.m. The maximum height of the extension will be 15.74 no. metres to match the existing height of the distribution centre. The development will also comprise elevational changes to the south-eastern frontage.	Musgraves Distribution Centre, Unuts 14-16 Blanchardstown Corporate Park, Dublin 15	Permission Granted 5 th May 2021
FW21A/0007 Mallinckrodt Pharmaceuticals Ireland Ltd	The development consisting of/will consist of the retention and reconfiguration of the existing temporary car park (27 no. parking spaces) located to the west side of the car park with associated drainage. The retention of 4 car parking spaces to the south of existing carpark. Planning permission for 2 new automated traffic barriers and removal of adjoining car spaces. Planning permission to convert an existing temporary contractor's carpark to new 25 staff carpark spaces and a commercial vehicle set down area for 10 vehicles with associated landscaping lighting footpaths, and access stairs. Total car parking spaces 191 (existing car parking planning permission total 136 spaces) all on a site 5.03 hectares which forms part of a previously permitted Planning Ref. No. FW16A/0080 and FW15A/0038.	Site located at College Business & Technology Park, Cruiserath Road, Blanchardstown, Dublin 15	Permission Granted 21 st April 2021
FW20A/0153 Channor Limited	The construction of 2 no. office buildings, (Block A and Block B), with a total gross floor area of c. 23,180 sq m (excluding c. 17,607 sq m basement levels). Block A comprises 9,477 sq m approximately of office floor space in a 4 to 6 storey building over single basement level and including a ground floor level cafe (245 sq m), fourth floor roof terrace (167 sq m) and 1 no. plant room (393 sq m) at roof level. Block B comprises c. 13,703 sq m of office floor space in a 4 to 9 storey building over two basement levels and including 1 no. plant room (364 sq m) at roof level.	Site 2, Tyrrelstown Link Road L3095(Corduff Road), Blanchardstown Corporate Park, Blanchardstown, Dublin 15	Permission Granted 21 st April 2021
FW20A/0197 Gembira Limited	Planning permission for alterations to the residential scheme permitted under Reg. Ref FW14A/0108, as amended by Reg. Ref: FW16A/0099 Reg. Ref FW16A/0148, Reg. Ref: fw17a/0016 and Reg. Ref FW18A/0132 (as extended) on site at Hollywoodrath, Hollystown, Dublin 15. The alterations result in the creation of four terrace block 3 units each. The proposal includes associated siting, boundary changes, boundary treatment and infrastructural works within the area of the proposed alterations.	Hollywoodrath, Hollystown, Dublin 15	Permission Granted 11 th March 2021
FW20A/0210 Tyrellstown Montessori School	Planning permission for the revision of previously approved Planning Application FW20A/0011. The revisions include; 1 - To increase capacity from 38 to 44 children, 2 - Change operating hours from previously approved 8.30am - 5.30pm to 7.30am - 6.30pm Monday to Friday , 3 - Retention permissio for a single storey roof structure covering the rear outdoor play area (built Autumn 2020), 4 - All associated site works.	Tyrellstown Montessori School, Unit 2, Block D, Tyrellstown District Centre, Tyrellstown, Co. Dublin	GRANT PERMISSION & GRANT RETENTION 08 February 2021

<p>FW20A/0164 MIK Developments</p>	<p>The construction of a medium voltage (MV) substation. The MV substation building will have a total gross floor area of c. 30 sq.m, and an overall height of c. 4 metres. The Proposed Development includes the provision of electrical connections associated with the MV substation, along with all associated hard and soft landscaping, services, and all ancillary works. All on a site with an area of 0.33 hectares. The application site is located to the south of the data centre permitted under An Bord Pleanála Reg. Ref. L06F.248544 / FCC Reg Ref. FW17A/0025, and within an overall landholding bound to the south by the R121/Cruiserath Road, to the west by the R121/Church Road and to the north by Cruiserath Drive.</p>	<p>Site at Cruiserath Road, Dublin 15.</p>	<p>Permission Granted 14th January 2021</p>
<p>FW20A/0053 The Electricity Supply Board</p>	<p>The Electricity Supply Board (ESB) intends to apply for planning permission for development on a 4.8 ha site located in the townlands of Goddamendy and Cruiserath to the north of the existing ESB National Supply Store, Corduff Road, Dublin 15 (Eircode D15 KX23). The development will consist of a 75 MWe (electrical output) aero derivative gas fired turbine for the generation of electricity and will include the following elements: (a) c. 240 sq.m. aero derivative gas fired turbine module up to c. 15.4 m high with a c. 30 m high stack; (b) ancillary buildings comprising: (1) c. 390 sq.m., c. 5.1m high liquid fuel treatment building; (2) c. 11.1 sq.m. single storey gaseous fire suppression cabinet; (3) c. 200 sq.m., c. 5.4 m high water treatment plant and pumps building; (4) c. 21 sq.m., c. 6.6 m high generator circuit breaker building; (5) c. 11.9 sq. m., single storey continuous emissions monitoring hut; (6) c. 29.7 sq.m., single storey spare parts storage building; (7) c. 87 sq.m., c. 4.7 m high control & instrumentation communications module; (8) c. 87 sq.m., c. 4.7 m high power control module; (9) c. 87 sq.m., c. 4.7 m high electrical equipment module; (10) c. 36 sq.m., single storey compressed air and fire suppression system building; (11) c. 128 sq.m., c. 6 m high gas compressor building; (12) c. 75 sq.m., single storey fire fighting pumps building; (13) c. 48 sq.m., c. 6 m high gas reducing station building; (14) c. 150 sq.m., c. 5.1 m high welfare facilities building; (c) industrial / electrical plant comprising: (1) c.12 m high liquid fuel tank (c. 1,501 cubic metre capacity) within a c. 1,296 sq.m. bunded area; (2) c. 3.8 sq.m., c. 3.3 m high lube oil skid; (3) c. 3 sq.m., c. 2.5 m high liquid fuel forwarding skid; (4) c. 10.5 sq.m., c. 3.7 m high water injection skid; water wash cart (c. 4.8 m in length, c. 2.2 m wide, and c. 1.8 m high); (5) a transformer compound enclosed on three sides (c. 195 sq.m., c. 5.6 m high) housing a main transformer and a unit transformer; (6) demineralised water tank (c. 12 m high, c. 1,501 cubic metre capacity); (7) raw fire water tank (c. 16 m high, c. 2,650 cubic metre capacity); (8) a house transformer compound enclosed on three sides (c. 11 sq.m., c. 2.5 m high); (9) fin fan coolers c. 46 sq.m., c. 5 m high; (10) gas compressor cooler c. 28 sq.m., c. 4 m high; (11) fenced gas receiving & metering station containing various items of industrial plant, and elevated pipework c. 1,200 sq. m.; and (12) an emergency diesel generator; (d) boundary and internal palisade fencing and gates (c. 2.6 m high); (e) ancillary site clearance and development works including provision of areas of hardstanding and car parking, internal access roads, landscaped berms and planting, pipe bridges, and on-site</p>	<p>Land to the north of the existing ESB National Supply Store, Corduff Road, in the townlands of Goddamendy and Cruiserath, Dublin 15, D15 KX23</p>	<p>Permission Granted 18th November 2020</p>

	<p>services including site drainage and attenuation. The site will be accessed from the existing entrance off the Corduff Road with a new 2.6m high palisade entrance gate located to the west of the existing entrance gate. Planning permission is being sought for a duration of 10 years. The Proposed Development is for the purposes of an activity requiring a licence from the Environmental Protection Agency under the Industrial Emissions Directive. The planning application may be inspected or purchased at a fee not exceeding the reasonable cost of making a copy, at the offices of the Planning Authority during its public opening hours and a submission or observation in relation to the application may be made to the Authority in writing on payment of the prescribed fee within the period of 5 weeks beginning on the date of receipt by the Authority of the application.</p>		
FW20A/0036 McArdle Skeath	<p>The erection of 2 No.9m high sprinkler water storage tanks, with associated containerised pump house and a mono-pitched maintenance shed to the south-east of site, together with all associated site works.</p>	Bay, Hollywoodrath & Goddamendy TDs, Dublin 15	Permission Granted 22 nd October 2020
FW19A/0177 ESB Engineering & Major Projects	<p>The Electricity Supply Board (ESB) intends to apply for planning permission for development on a site at this address: (a) Proposed underground cable route originating from the existing Macetown ESB station (on Damastown Avenue in the townland of Macetown Middle), running in an easterly direction along Damastown Avenue and the R121 (in the townlands of Macetown Middle, Macetown South, Tyrrelstown, Cruiserath and Buzzardstown), to a permitted medium voltage (MV) substation located within a permitted data centre (An Bord Pleanála, Reg. Ref.:PL06F.248544 / FCC Reg. Ref.: FW17A/0025) in the townlands of Cruiserath and Tyrrelstown; (b) Proposed underground cable route originating from the existing Corduff ESB station (Corduff Road in the townlands of Goddamendy and Bay), running in a northerly direction along the Corduff Road, then a westerly direction along the N3-M2 Link Road, then running in a southerly and easterly direction along the R121 (in the townlands of Bay, Hollywoodrath, Cruiserath and Tyrrelstown) to a permitted MV substation located within a permitted data centre (An Bord Pleanála, Reg. Ref.:PL06F.248544 / FCC Reg. Ref.: FW17A/0025) in the townlands of Cruiserath and Tyrrelstown. The development will consist of: A c.1m wide trench of depth c. 1m within a 4m wide corridor, in which underground cable ducts and cables will be installed. The two separate underground cable installations will consist of the following: (a) a c. 3km MV underground cable and all ancillary electrical equipment connecting Macetown ESB station to a permitted MV substation located within a permitted data centre (An Bord Pleanála, Reg. Ref.:PL06F.248544 / FCC Reg. Ref.: FW17A/0025); (b) a c. 3.4km MV underground cable and all ancillary electrical equipment connecting Corduff ESB station, to a permitted MV substation located within a permitted data centre (An Bord Pleanála, Reg. Ref.:PL06F.248544 / FCC Reg. Ref.: FW17A/0025). An Environmental Impact Assessment Report (EIAR) which complies with the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. 296 of 2018) will be submitted to the Planning Authority with the application. The Environmental Impact Assessment Report (EIAR) will be</p>	Townlands of Macetown Middle, Macetown South, Tyrrelstown, Cruiserath, Buzzardstown, Goddamendy Bay	Permission Granted 30 th January 2020

	available for inspection or purchase at a fee not exceeding the reasonable cost of making a copy, during office hours at the offices of the planning authority. The planning application and EIAR may be inspected or purchased at a fee not exceeding the reasonable cost of making a copy, at the offices of the Planning Authority during its public opening hours and a submission or observation in relation to the application, including the EIAR, may be made to the Authority in writing on payment of the prescribed fee within the period of 5 weeks beginning on the date of receipt by the Authority of the application.		
FW19A/0060 Channor Limited	The construction of a local support facility 'Wellness Centre' comprising of 2 no. single storey buildings with a total combined GFA of 975 sqm, one titled 'LIVE WELL' for exercise and meditation and the other 'EAT WELL', a facility for food and relaxation, both to service local working population. Retention permission also sought for 27 no. existing car parking spaces as a part of this application and assigned to new development only. Landscaping and associated site works to include 10 bicycle spaces, drainage, utility services and internal pathways all on an overall site with an area of 0.42 ha.	Site 2, Blanchardstown Corporate Park, Dublin 15	Permission Granted 12 th July 2019
FW19A/0058 Gembira Limited	Replacement of 36 no. permitted residential units with 43 no. residential units comprising 42 no. 3 bed terrace houses (House Type B8A, B3B, B8B) and 1 no. 3 bed detached house (House Type J2). -Relocation of 10 no. House Types H, 1 no. House Type H(i) and provision of 1 no. additional House Type H(i) (4 bed semi-detached). -No change is proposed to 5 no. permitted units within the area of proposed modifications (2 no. House Type A6, 2 no. House Type A7, 1 no. House Type C3). -Provision of a 692 sq.m public open space area.	Hollywoodrath, Hollystown, Dublin 15	Permission Granted 3 rd July 2019
19DR/003 O'Toole Transport Ltd	Construction of a single storey ESB substation (22.5sqm) on the site of a proposed new logistics warehouse distribution complex building.	Bay Lane, The Ward, Mulhuddart, Dublin 15	Grant Disp/Relaxation (with Conditions) 18 th June 2019
FW18A/0132 Gembira Ltd	Permission for the relocation of approved residential units and the addition of a further 17 residential units	Hollywoodrath, Hollystown, Dublin 15	Permission Granted 23 rd January 2019
FW18A/0121 Bestseller Retail Ireland Ltd	Permission for the construction of a two-storey office building with landscaped roof and central circular planted open courtyard, as well as associated car parking and road infrastructure modifications.	Cruiserath Drive, Townland of Cruiserath, Mulhuddart, Dublin 15	Permission Granted 8 th October 2018

FW18A/0103 Betania Limited	Permission for the construction of a new single storey ESB Substation and all ancillary site works.	Betania Church, Powerstown Road, Tyrrelstown, Dublin 15	Permission Granted 6 th September 2018
FW18A/0054 Channon Limited	Permission for the construction of 2 office buildings with 6 levels of office space with rooftop plant, as well as associated car parking and storage facilities.	Tyrellstown Link Road L3095, Blanchardstown Corporate Park, Dublin 15	Permission Granted 21 st August 2018
FW17A/0146 IDA Ireland	Permission for the construction of c.350 metres of single carriageway park roadway, footpaths, public lighting, landscaping and all associated site works and services	College Business & Technology Park, Blanchardstown Road North, Blanchardstown, Dublin 15	Permission Granted 4 th October 2017
FW17A/0097 Jacobs Engineering Ireland Limited	Permission for the extension of the existing permitted car park located to the North West of the BMS site consisting of 99 additional car spaces and an area dedicated to parking for busses	Swords Laboratories t/a Bristol-Myers sq, Cruiserath Road, Mulhuddart, Dublin 15	Permission Granted 4 th August 2017

4.0 ALTERNATIVES

4.1 INTRODUCTION

EIA legislation and the prevailing guidelines and best practice require that EIA Reports describe “reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects”, addressing:

- Do Nothing Alternative;
- Alternative project locations;
- Alternative designs/technologies/layouts;
- Alternative processes; and
- Alternative mitigation.

This chapter describes the alternatives that were considered for the Proposed Development, where applicable, under each of these headings and the reasons for the selection of the chosen option including consideration of environmental effects.

4.2 DO NOTHING ALTERNATIVE

The Proposed Development site is within an existing data centre campus which has been the subject of previously granted planning permissions for three data centres, a GIS Substation and associated ancillary development, Buildings A, B, C and D (ABP Reg. Ref.: PL06F.248544 / FCC Reg. Ref.: FW17A/0025, FCC Reg. Ref. FW19A/0087 and ABP Ref.: VA06F.306834). Building A, located to the south of the Proposed Development, is fully operational, and Buildings B and C, located to the east of the Proposed Development, are currently under construction. Building D is constructed within the southernmost portion of the Proposed Development site, with the construction compound for Buildings B, C and D currently located in the centre of the Proposed Development site.

The Permitted Development Building A included construction of the main entrance to the west of the site from the R121 roundabout, emergency access to the south of the site from the R121, internal road access network, perimeter security fencing, and internal and perimeter site landscaping.

As the campus in which the Proposed Development is located has been developed for Building A with the entrances, access roads, perimeter fencing and landscaping established, and the campus will be further developed for permitted Buildings B, C and D, the ‘do nothing’ alternative is to leave the site as a data storage facility site, with the north western portion of the site largely unutilized. If not developed as proposed, the land would regrass and the overall impact on the receiving environment would be as per the impact of the Permitted Development only. This is not considered to be an efficient use of the site. This Proposed Development is a logical addition to the Permitted Development and is in keeping with the indicative masterplan of the site as outlined in the EIS/EIARs for the Permitted Developments.

The Do-Nothing scenario has been considered in each chapter of the EIA Report.

4.3 ALTERNATIVE PROJECT LOCATIONS

As part of the planning application for Building A (ABP Reg. Ref.: PL06F.248544 / FCC Reg. Ref.: FW17A/0025), the Operator undertook an assessment of a number of different locations in order to determine the most appropriate location for the Proposed Development.

As detailed in the planning application for Building A, the Operator identified that the overall landholding would accommodate seven further data centre buildings. As stated in Section 2.5.5 of Chapter 2 (Description of the Development), the indicative masterplan (Figure 4.1 below) has been updated and refined as part of the design process for the Proposed Development and includes the permitted and Proposed Developments and the potential for future development of one further data centre building to the north of Building G.

From the Operator's perspective, there were two main components to assessing alternative project locations namely:

1. Selection of preferred country; and
2. Selection of preferred site location.

4.3.1 Selection of Preferred Country

The selection of Ireland as the preferred country location for this development was based largely on the need for additional capacity in the region. The Operator and its affiliated companies develop data centre facilities across the EU and globally. The location of facilities is selected in order to provide the most secure, extensive, reliable and best performing cloud computing infrastructure available.

In general, Ireland is a suitable location for data centre developments due to the moderate climate, which means that data storage facilities here can be cooled primarily using outside air (via roof mounted air handling units). This reduces the need for additional, more energy intensive forms of cooling, which often can be required elsewhere around the world. This also benefits the facilities sustainability as data storage facilities in Ireland require far less air conditioning and temperature control systems, which means substantially less power and water demand requirements. This has the effect of reduced air and noise emissions compared with countries with a warmer climate.

Additionally, Ireland has a skilled workforce, a stable political and regulatory system, and government policies that enable large-scale renewable power projects. Certain advantages of locating data centres in Ireland are detailed in recent reports such as *A Study of the Economic Benefits of Data Centre Investment in Ireland*, May 2018 commissioned by the IDA Ireland and the Government Statement on *The Role of Data Centres in Ireland's Enterprise Strategy*, June 2018 and more recent *Government Statement of the Role of Data Centres in Ireland's Enterprise Strategy July 2022*

4.3.1 Selection of Preferred Site Location

The Operator's overall preference is to locate these facilities in Leinster due primarily to the existence of a number of high-quality industrial parks with suitably zoned lands, as well as proximity to the Operator's existing facilities allowing for greater efficiency for the management and maintenance of its sites.

Candidate sites were assessed in terms of:

1. Site zoning and suitability of neighbouring activities (high technology, clean industry, non-intrusive industry i.e. avoiding areas close to quarrying and other potential sources of noise and vibration etc.);
2. Availability of a land bank which is of suitable size and suitable for industrial development (including cost to acquire lands);
3. Availability and ease of grid connection for power;
4. Potential impacts on the environment including impacts on human health, soil, water and hydrology, biodiversity, air quality, noise, heritage, visual amenity and local traffic;
5. Suitability of ground conditions for construction of the development; and
6. Availability of required infrastructure and emergency services for operation of the facilities.

The above factors were critical in the original selection of this site in Cruiserath. It was concluded that this site met the highest proportion of the necessary criteria of the candidate sites with particular advantages including:

- Suitable zoning;
- Low environmental sensitivity being within a predominantly industrial area and no openwater connection to a water receptors or a Natura site.
- Site specifically designed for large scale industrial activities with good water, wastewater and road access;
- Proximity to and availability of suitable power supply via the existing Corduff Substation; and
- Synergistic benefits of locating the proposed facility in relatively close proximity to its existing data storage facilities at Blanchardstown IDA Industrial Park.

As stated above, the aforementioned site selection was undertaken as part of the original application for Building A on the overall landholding (ABP Reg. Ref.: PL06F.248544 / FCC Reg. Ref.: FW17A/0025). The Operator undertook an updated assessment of three potential alternative sites (including the chosen site) in Leinster for the Proposed Development in order to determine the most appropriate location for the Proposed Development (Appendix 4.1).

The choice of sites was based on a number of initial criteria (land size and shape, land-use zoning, availability for purchase). An initial desktop environmental assessment of these three sites was completed by AWN Consulting to help inform the Operator regarding the environmental aspects of each of the sites.

The environmental criteria considered at this early stage of the EIA process are laid out in Table 4.1

Table 4.1 *Environmental Criteria used to assess the alternative site locations*

Environmental Criteria	
<ul style="list-style-type: none"> • Human Health and Population • Health Impacts • Economic Impact 	Land, Soils, Geology & Hydrogeology <ul style="list-style-type: none"> • Geological Heritage • Presence of contaminated land • Economic reserve and land use • Aquifer resource and impact on existing water supply • Aquifer vulnerability and water quality
Water & Hydrology <ul style="list-style-type: none"> • Natural hydrological regime and water quality • Flood risk • Water supply, wastewater and stormwater drainage 	Biodiversity <ul style="list-style-type: none"> • Potential impact on habitats of high ecological value • Potential impact on protected and designated habitats/sites
Air Quality & Climate <ul style="list-style-type: none"> • No. of sensitive receptors potentially impacted with respect to dust and combustion gases • Climate Change 	Noise & Vibration <ul style="list-style-type: none"> • Potential impact of noise disturbance on sensitive receptors
Landscape & Visual Impact <ul style="list-style-type: none"> • Desktop review of development Plan landscape and visual sensitivity • Identification of likely visual receptors 	Archaeology, Architecture & Cultural Heritage <ul style="list-style-type: none"> • Review of Department of Arts, Heritage, Regional and Rural and Gaeltacht Affairs Archaeological Survey database.
Traffic & Transportation <ul style="list-style-type: none"> • Status of current road network 	Material Assets & Waste Management <ul style="list-style-type: none"> • Ownership and Access • Resource Consumption • Soil Disposal • Waste Generated

An environmental comparison of the alternative sites was undertaken, based upon desktop information available at the time. See Appendix 4.1 for Comparison of Alternative Sites.

All three potential sites were determined as suitable for data centre developments, in terms of environmental considerations, with appropriate mitigation measures.

The candidate sites were also assessed by the design team in terms of the following criteria;

- Site zoning and suitability of neighbouring activities (high technology, clean industry, non-intrusive industry i.e. avoiding areas close to quarrying and other potential sources of noise and vibration etc.);
- Availability of necessary land type and quantity of lands;
- Availability of other infrastructure required and emergency services for operation of the facilities; Site specifically designed for large scale industrial activities with good water, wastewater and road access
- Availability and ease of grid connection for power;
- Availability of other infrastructure required and emergency services for operation of the facilities;
- Proximity to other data storage facilities run by the Operator;
- Suitability of ground conditions for construction of the development.

Of the three sites, the Cruiserath site was chosen as the preferred site. Particular advantages of the preferred site included:

- Suitable zoning;
- Suitability of neighbouring activities (commercial/non-intrusive industry i.e. avoiding areas close to quarrying and other potential sources of noise and vibration etc.);
- Availability of necessary land type and quantity of lands; and
- Site specifically designed for large scale industrial activities.
- Site has the required infrastructure available. As detailed in Chapter 2, the power requirements for the site will be provided via the dedicated Cruiserath 220kV GIS Substation. The Substation has been sized to provide for the load, and no further expansion of the Substation is required. A connection agreement to supply the existing, permitted and Proposed Developments within the overall landholding is in place with EirGrid.

The Proposed Development is a logical addition to the Permitted Developments and is in keeping with the indicative masterplan (see Figure 4.1) for the overall landholding and as outlined in the EIS/EIARs for the Permitted Developments (Buildings A, B and C) and the addendum to the EIS which was submitted at the oral hearing for the Permitted Development of Building A.

In addition, given the proximity of the chosen site to the Permitted Development i.e. Building A, B, C and D, it will have synergistic benefits with the Permitted Development allowing for efficiency in operations and maintenance including connectivity to infrastructure on the existing campus, minimising traffic movements for employees serving multiple facilities and minimising waste collections as waste collections for all the facilities in the vicinity can be done on the same occasion. The Proposed Development benefits from an existing connection agreement in respect of electricity supply.

4.4 ALTERNATIVE DESIGN/LAYOUTS

In the preparation for Proposed Development, a number of alternative layouts and configurations for the Proposed Development, roadways and parking arrangements were considered.

In addition, alternative arrangements (two) for the potential future indicative building in the northern portion of the Proposed Development site were also considered. The EIS for the Permitted Development of Building A illustrated a preliminary indicative masterplan for seven additional future data storage buildings orientated east to west within the Permitted Development site boundary. As part of the design process for the Permitted Development of Buildings B and C, the indicative masterplan was updated and refined (See Figure 4.1), with a reduced number of buildings (five instead of seven) and an alternative orientation (north to south instead of east to west) for two of the buildings i.e. the Proposed Development buildings. The alternative arrangement of the buildings allowed for a central service spine which optimises the servicing of the buildings and allowed Buildings (as named at that time as E, F and G) to be set back from the R121 Cruiserath Road and the residential developments as much as possible. This arrangement shows Buildings E, F and G mirroring each other with the generators for Building F back-to-back with Building G.



Figure 4.1 *Indicative masterplan proposed in the planning application for Buildings B and C (Source: MCA Architects May 2019) Noting Building nomenclature at that time which*

As part of the design process for the Proposed Development the building references have been adjusted and the indicative masterplan has been modified slightly (See Figure 4.2), with Buildings F and G and the future indicative Building now facing the same way. The modified arrangement provided a more efficient fit for the buildings (i.e. better use of space). The generators on Building F will be less prominent, with visual screening provided by Building G.

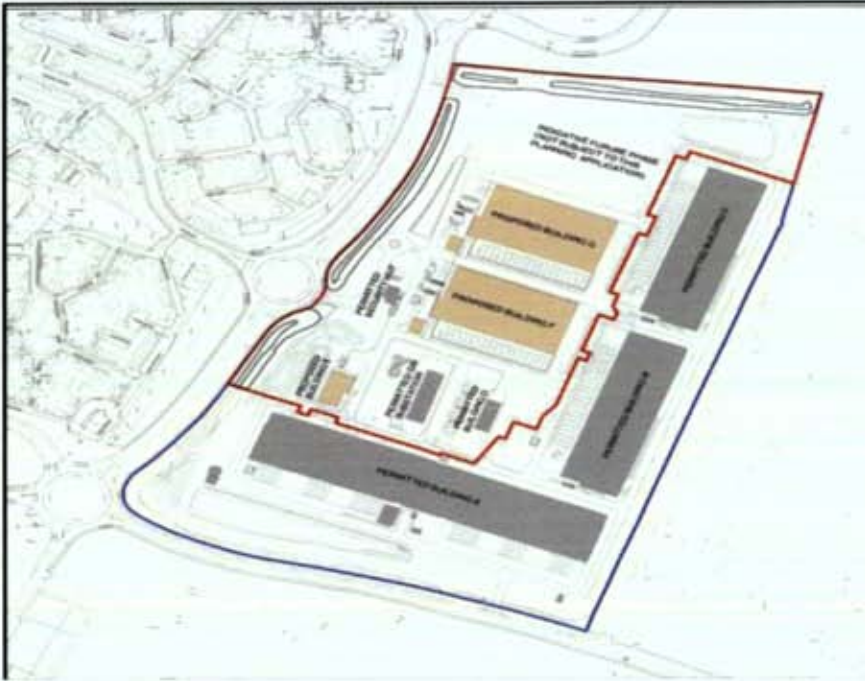


Figure 4.2 Current indicative masterplan for the site (Source: Henry J. Lyons November 2022)

Each arrangement considered the environmental sensitivities associated with the surrounding land use i.e. the proximity to the residential areas at Tyrellstown and the nearby Carlton Hotel as well the BMS facility located directly to the east of the site (Ref Chapter 1, Figure 1.1).

The design and configuration of the Proposed Development was also made with respect to the future indicative development of one further data centre to the north of the site (ref Figure 4.2). The location of the Proposed Development in the north western portion of the overall landholding allows for the potential addition of one further data centre building on the Proposed Development site. It should be noted that at this stage the future development of is indicative only and, if proceeded with, will be further developed and refined in future and will be subject a separate planning application and EIA Report.

It should be noted that the location of the back-up generators has been optimised so that generator stacks are not located along the western boundary of the overall landholding which would be closest boundary to the residential receptors. Subsequent chapters of the EIA Report (including Air Quality, Noise & Vibration and Landscape and Visual Impact) include mitigation proposals to address the location of the back-up generators for the Proposed Development.

Site layout considerations were primarily made based on the following factors:

- Minimising potential impacts on the environmental sensitivities associated with the surrounding land uses (e.g. the proximity to the residential areas at Tyrellstown and the nearby Carlton Hotel);
- Location of the wastewater and stormwater systems (including stormwater attenuation) and proximity to the existing drainage services available;
- Location of diesel / renewable diesel tanks proximal to area of usage and therefore minimise risk of accidental loss to ground;
- Location of the permitted Substation;

- Ease of site access and minimizing impact on traffic movements along the R121; and
- Orientation of the data centre buildings to optimise the use of the space available.
- The stack heights for the back-up generators have been modelled in an iterative fashion (i.e. with incremental increases in stack heights modelled) to ensure that an adequate stack height was selected to aid dispersion of the emissions (Ref Chapter 9, section 9.2.5.1).

Two arrangements were considered in the development of the preferred site design/layout, however the configuration shown in Figure 4.2 represents the most practical configuration considering the indicative future development and consideration of the environmental sensitivity of the site's surroundings.

4.5 ALTERNATIVE PROCESSES/TECHNOLOGIES

In terms of the proposed technology, the Proposed Development will employ the same data server technology that is used by the Operator at their other facilities on the site, in the greater Dublin area and around the world and represents state of the art technology.

Alternative technologies are considered on an ongoing basis by the Operator as a part of each of its designs based on many factors including technical feasibility, environmental impact, efficiency, security, reliability and cost.

The Operator is committed to continually assessing and improving this technology particularly with respect to minimising power and water consumption, in accordance with the goals of Ireland's Framework for Sustainable Development '*Our Sustainable Future*' DOELG 2012.. AWS is committed to building a sustainable business for its customers and the planet. In 2019, Amazon co-founded The Climate Pledge, a commitment to reach net zero carbon emissions by 2040, 10 years ahead of the Paris Agreement. As part of that commitment, the company is on a path to powering its operations by 100% renewable energy by 2025, five years ahead of its original 2030 target.

Additionally, AWS is a founding member and signatory of the Climate Neutral Data Centre Pact. The Pact was launched in January 2021. It now includes 78 companies and 22 associations committed to ensuring the design and operation of data centres across Europe meet ambitious sustainability criteria. The Climate Neutral Data Centre Pact establishes a Self-Regulatory Initiative which has been developed in co-operation with the European Commission. It supports the European Green Deal, which aims to make Europe the world's first climate neutral continent by 2050. The Self-Regulatory Initiative sets ambitious goals that will facilitate Europe's essential transition to a greener economy. It commits signatories to ensuring their data centres are climate neutral by setting ambitious measurable targets for 2025 and 2030 in the following areas:

- Prove energy efficiency with measurable targets
- Purchase 100% carbon-free energy
- Prioritise water conservation
- Reuse and repair servers
- Look for ways to recycle heat

The Operator's designs are constantly evolving, and hardware is chosen with energy efficiency central to the decision-making process

The Mechanical and Electrical Engineering Energy Statement (Document Ref. 22-DO30) which accompanies the planning application explains the reasoning for the selection of certain technologies to demonstrate that the Proposed Development represents a low energy solution whilst operating as a functional, critical data centre development.

The Proposed Development has been designed to the highest energy efficiency standards. Building Energy Rating BER - A3 or higher is targeted with the utilization of high efficiency VRF Air Conditioning. Available roof space has been utilised for roof mounted PV Panels to generate on site renewable electricity. The Proposed Development includes 2.5 times more Photovoltaic Solar Panels that would be required for a "Nearly Zero – Energy Buildings" requirements.

Cooling Systems

As set out in the *Energy Statement*, the data storage rooms are supplied with fresh air which is sufficient to cool the space for the majority of the annual running hours, c. 95% of the year. For a small number of hours (when temperatures exceed 26 degrees Celsius) during the peak cooling season, evaporative cooling is required. The system utilizes fans to supply air directly from outside to the data storage rooms. The air is warmed as it passes across the servers located in the data storage rooms and, subject to external ambient conditions, this air is either recirculated or exhausted to atmosphere. The evaporative cooling system uses treated/stored rainwater as far as it is available. Only if the volume of stored rainwater is depleted is mains water at ambient temperature conditions used to provide cooling. This is expected to only occur on peak cooling days, in the dry months. The system does not require chillers/compressors, which minimizes the use of electrical power to maintain the data storage room environmental conditions.

Building E will use recirculation air cooling via pumped refrigerant free cooling computer room air conditioning (CRAC) units and associated roof mounted condensers which is best suited to the strict temperature and humidity controls and intermittent cooling demand required for tape storage facilities. This supplies cooled air to the tape libraries and this air is recirculated to provide energy efficient cooling.

In selecting the cooling solutions for the Proposed Development the operator is complying with its commitments to the Climate Pledge (<https://www.climateneutraldatacentre.net/>) which includes that its Data centres and server rooms in Europe shall meet a high standard for energy efficiency.

To reduce both energy and water use in its data centres, the Operator utilises direct evaporative cooling systems, which predominately utilises outside air to cool servers. This means that for more than 95% of the year it uses no water to cool its facilities. For the remaining 5% of time during high temperatures, cooling is undertaken by adiabatic cooling which requires water supply. The Proposed Development is projected to utilise as little as c. 1110m³ water annually for cooling (Building E is projected to use 62m³ cooling water annually and Buildings F and G are projected to use 524m³ cooling water each per annum). Furthermore, the proposed buildings are designed to harvest up to 95% of the annual cooling water requirements through rainwater harvesting, reducing the water requirement from the mains supply when rainwater is available. Additionally the Proposed Development includes 2170m³ of on site water storage. This proposed

on site water storage will be designed to maximise the storage and utilisation of rainwater for up to 95% of cooling water needs. Hence providing a reduction in use of mains supply for cooling water. If the water storage is required to be topped up from mains water it will be during low demand periods and mitigate impacts of the proposed demand to the Dublin Water Supply Area as per the requirements of the Confirmation of Feasibility from Irish Water (ref.CDS22004011).

The alternatives to free air cooling considered by the Operator were as follows:

1. Air cooling by indirect air-cooling AHU (air handling unit)
2. Chilled-water cooling derived from free-cooling, hybrid cooling towers with chiller assist

Air cooling by indirect air-cooling (IAC) AHU: This 'all air'-based cooling solution incorporates air handling plant mounted externally to the white space. Treated air is distributed to the white space via ductwork or through a plenum. Air is supplied at a relatively low velocity to the cold aisle, giving more control than traditional floor-void distribution. The hot air is returned to the IAC via ductwork and is cooled by the outdoor ambient air at a plate heat exchanger. To assist the cooling process during warm months, the ambient air is adiabatically cooled (water evaporation), which then cools the warm air at the plate heat exchanger in the IAC unit. The water used for adiabatic cooling is bulk-stored in the event of a mains supply outage. The process water is distributed from a central pump plantroom to the IAC units. This is a proven, cost effective technology but it can result in acoustic challenges in comparison to the other alternatives. Direct air cooling employed in The Operators building is a more energy efficient solution as there is no plate heat exchanger. Heat exchangers present in indirect systems introduce an inefficiency in the IAC system.

Chilled-water cooling derived from free-cooling, hybrid cooling towers with chiller assist: This chilled-water solution serves CRAC units typically supplying cold air to the white space through a floor void. The source of the cooling water is via 'free cooling' cooling towers located externally, usually on the roof. Ambient air is used to cool the warm return water from the CRAC units, with evaporative cooling added during the warmer months. At peak times, when approaching the towers' cooling-load limits, refrigeration chillers are used to run in parallel with the cooling towers. This requires large plant space, there is increased risk of water leaks and higher maintenance costs than the alternatives outlined above. Chilled water cooling utilises compressor and refrigerant based technology and the Operator has identified that compressor less cooling technologies for the data centres are a more energy efficient method of cooling the data processing facilities as they operate without the use of refrigerants and compressors which are the primary power using equipment for mechanical systems,

Free air cooling (IAC), which is the system proposed for Buildings G and F, requires a high capital investment but lower operating costs and is more efficient, resulting in lower water and power consumption than the other alternatives considered.

As stated, the Operator will consider and update on an ongoing basis the technologies/processes used on site in terms of technical feasibility, environmental impact, efficiency, security, reliability and cost.

As outlined in Section 2.4.2 of Chapter 2 of this EIA Report and also in the *Energy Statement*, high efficiency electrically commutated (EC) direct drive fans will be used in all air supply and extract systems serving the data storage rooms. These fans are lighter in weight and require less power than a traditional centrifugal fan with variable

speed drive (VSD). Typically, savings of 10-20% in power consumption is achievable with EC fans versus centrifugal fans.

4.6 ALTERNATIVE MITIGATION

For each aspect of the environment, each specialist has considered the feasible mitigation measures to identify the most suitable measure appropriate to the environmental setting the project design. In making a decision on the most suitable mitigation measure the specialist has considered relevant guidance and legislation (these are identified in the table of mitigation measures in Appendix 1.1 of Chapter 1). In each case, the specialist has reviewed the mitigation measures available and considered the use of the mitigation in term of the likely residual impact on the environment. The four established strategies for mitigation of effects have been considered: avoidance, prevention, reduction and offsetting. Mitigation measures have also been considered based on the effect on quality, duration of impact, probability and significance of effects.

For example, alternative noise attenuation options were considered at the design stage of the Proposed Development. The two main options considered were generators with a reduced noise rating or the use of screening around the back-up generators. Noise modelling showed that both options afforded a similar level of noise attenuation and so the decision to use screens was made on the basis of operational/maintenance considerations and not environmental grounds.

The selected mitigation measures are set out in each of the EIA Report Chapters 5-16.

4.7 CONCLUSIONS

Based on the assessment of reasonable alternatives (in relation to location, layout, design, technology, mitigation) relevant to the Proposed Development and its specific characteristics as set out in this chapter, the selected site is considered to be a suitable location for the Proposed Development from both an environmental perspective and a planning perspective. In terms of processes/technologies, the Operator has selected processes/technologies based on many factors including technical feasibility, environmental impact, efficiency, security, reliability and cost. The Operator is committed to continually assessing and improving this technology particularly with respect to minimising power and water consumption.

The site is currently zoned for High Technology use and is therefore in keeping with the policies and objectives of the Fingal County Development Plan (see Chapter 3).

The siting of the proposed facility at an existing undeveloped portion of the overall landholding in Cruiserath, as well as the overall design of the facility and the design of the future indicative masterplan development, have been carefully selected based on a suitably comprehensive assessment of alternative site locations, designs and processes. The Proposed Development will enhance the utilisation of the site. Assessment of the design and location of the stacks and back-up generators in the project design have been considered to minimise environmental effects.

The site has the required infrastructure readily available for the Proposed Development which has been accommodated under the previous planning permissions at the site. As detailed in Chapter 2, the power requirements for the Proposed Development will be provided via the dedicated Cruiserath 220kV GIS Substation. The addition of the

Proposed Development to the site will have synergistic benefits allowing for efficiency in operations and maintenance.

In conclusion it is considered that the Proposed Development site has significant capacity for development and is highly suitable for data storage facility use.

APPENDIX 4.1
COMPARISON OF ALTERNATIVE SITES

As part of the planning application for the Proposed Development, the Operator undertook an assessment of a number of potential alternative project locations in order to determine the most appropriate location for the proposed development. The main sites considered were:

- Site 1 – Cruiserath Road, Dublin 15
- Site 2 – Stockhole Lane, Clonshaugh, Co. Dublin
- Site 3 – R155, Ratoath, Co. Meath

The assessment included a preliminary desktop review of environmental sensitivities of each of the sites. This information has been tabulated below to provide a comparison of the environmental sensitivities of the sites for each environmental aspect. It should be noted that any comparisons made below are based on the information available to AWN Consulting at the time of writing.

Environmental Criteria	Site 1 Cruiserath	Site 2 Clonshaugh	Site 3 Ratoath
Human Health & Population	Human Health & Population	Human Health & Population	Human Health & Population
Health Impacts	The site is considered to be a medium sensitivity environment for human health impacts for construction and low sensitivity for operations due to the proximity of residential receptors to the site.	The site is considered to be a medium sensitivity environment for human health impacts for construction and low sensitivity for operations due to the proximity of residential receptors to the site.	The site is considered to be a medium sensitivity environment for human health impacts for construction and low sensitivity for operations due to the proximity of residential receptors to the site.
Economic Impact	<p>There will be increased employment associated with both the construction and operation of a data centre development on this site.</p> <p>There is no conflict with existing economic activities. The site is located at Cruiserath Road, Dublin and is zoned HT - High Technology under the Fingal County Development Plan 2017-2023.</p> <p>The nearest tourism/amenity site is Tyrrelstown Park GAA Pitches (c. 830m northwest of the site). The data centre development would not have a perceptible impact on these lands.</p>	<p>There will be increased employment associated with both the construction and operation of a data centre development on this site.</p> <p>There is no conflict with existing economic activities. The site is zoned HT - High Technology under the Fingal County Development Plan 2017-2023.</p> <p>The nearest tourism/amenity site is the Clayton Hotel and Belcamp Park. The data centre development is not likely to have a significant impact on these lands.</p>	<p>There will be increased employment associated with both the construction and operation of a data centre development on this site.</p> <p>There is no conflict with existing economic activities. The lands within the site and to the south are currently agricultural lands, all of which are zoned "E2 - General Enterprise and Employment" under the Meath County Development Plan 2021-2027.</p> <p>The nearest tourism/amenity site is the Ratoath BMX Club directly north c. 200m. The data centre development would not have a perceptible impact on these lands.</p>

Environmental Criteria	Site 1 Cruiserath	Site 2 Clonshaugh	Site 3 Ratoath
Land, Soils, Geology & Hydrogeology	Land, Soils, Geology & Hydrogeology	Land, Soils, Geology & Hydrogeology	Land, Soils, Geology & Hydrogeology
Geological Heritage	There is no potential for impact on any geological heritage site (2 no. geological heritage sites within 4.2km of the subject lands).	There is no potential for impact on any geological heritage site. The nearest geological heritage site is the Feltrim Quarry, which is located c. 2.6Km to the north of the site.	There is no potential for impact on any geological heritage site. The nearest geological heritage site is Dunshaughlin, an area of depression over 1km ² which is located approximately 4.2Km to the northwest.
Contaminated Land	There are no licensed landfills or section 22 illegal landfills within 1km of the site. Previous consultation with FCC confirmed that there are no known Section 22 illegal landfills or other historic landfills within 1 km of the site. This has been confirmed by subsequential site investigations and recent development at the site.	There are no licensed landfills within 500m of the site. Consultation with Fingal County Council is required to assess the likelihood of a section 22 illegal landfill located in the area of the development.	There are no licensed landfills within 500m of the site. Consultation with Meath County Council is required to assess the likelihood of a section 22 illegal landfill located in the area of the development.
Economic reserve/land use	<p>The nearest recorded mineral site is c.1.2km east of the site, and the closest active quarry is Huntstown Quarry c.2.5km east of the site.</p> <p>The land take for this option is primarily former agricultural land with disturbed topsoil, the area of development is relatively small in the context of agricultural land available in the overall region. Change of land use has been established previously for similar developments in the area including one existing data centre which is fully operational to the south and two (2) no. data centre buildings under construction on the eastern portion of the masterplan site (permitted under FCC planning reg. ref. FW17A/0025/An Bord Pleanála ref. PL06F.248544 and FCC reg. ref. FW19A/0087).</p>	<p>The nearest active local quarry (Feltrim Quarry) is located c. 2.6km to the north. This limestone quarry produces aggregates and fill materials for construction.</p> <p>There is no connectivity between the proposed development site and these mining/quarry areas.</p> <p>The land take for this option is primarily agricultural land. The area of development is relatively small in the context of agricultural land available in the overall region.</p>	<p>The nearest active local quarry (Kilmessan Quarry) is located c. 12.6km to the northwest. This limestone quarry produces aggregates, hardcore walling stone and fill materials for construction.</p> <p>There is no connectivity between the proposed development site and these mining/quarry areas.</p> <p>The land take for this option is primarily agricultural land. The area of development is relatively small in the context of agricultural land available in the overall region.</p>
Aquifer Resource/Water supply	The majority of the site is located over a (LI) Locally Important Aquifer in the west – “Bedrock which is Moderately Productive only in Local Zones”.	The site is located over a (LI) Locally Important Aquifer – “Bedrock which is Moderately Productive only in Local Zones”.	The site is located over a (LI) Locally Important Aquifer – “Bedrock which is Moderately Productive only in Local Zones”.

Environmental Criteria	Site 1 Cruiserath	Site 2 Clonshaugh	Site 3 Ratoath
	<p>The rest of the site to the east is located over a (PI) Poor Aquifer - Poor Aquifer - Bedrock which is Generally Unproductive except for Local Zones</p> <p>The GSI (2019) Well Card Index shows a number of groundwater monitoring and abstraction wells within a 3 km radius of the site; the abstraction wells generally supply a mix of use ranging from domestic to public to industrial use.</p> <p>The site is well outside of the zone of influence of any known public or private water supplies (closest ones are c. 5km due east and used for public supply purposes).</p> <p>The site is also outside source protection zones for any groundwater protection schemes (Dunboyne PWS is located c.5km due east of the proposed development site).</p>	<p>The GSI (2019) Well Card Index shows a number of groundwater monitoring and abstraction wells within a 3 km radius of the site. There is no information on whether they are still in use.</p> <p>The nearest public groundwater supply is c. 16.7Km west to the site (Dunboyne - Inner Source Protection area) The site is outside of the Source Protection Zone delineated for this supply.</p>	<p>The GSI (2019) Well Card Index shows a number of groundwater monitoring and abstraction wells within a 3 km radius of the site. There is no information on whether they are still in use.</p> <p>The nearest public groundwater supplies are located c. 4.5Km west-northwest and 5.2 Km north to the site (Dunshauglin and Curragha PWS, respectively). The site is outside of the Source Protection Zone delineated for this supply.</p>
Aquifer Vulnerability/water quality	<p>The Groundwater Body underlying the site is the Dublin GWB, and is classified as Highly vulnerable due to overburden depth.</p> <p>According to the EPA, the aquifer has "Good Status" and the WFD Risk Score system indicates the GWB as 'Not at risk'.</p>	<p>The Groundwater Body underlying the site is the Dublin GWB, and is classified as low vulnerability due to overburden depth.</p> <p>According to the EPA, the aquifer has "Good Status" and the WFD Risk Score system indicates the GWB as 'Not at risk'.</p>	<p>The Groundwater Body underlying the site is the Swords GWB which is classified low vulnerability due to overburden depth.</p> <p>According to the EPA, the aquifer has "Good Status" and the WFD Risk Score system indicates the GWB as 'Not at risk'.</p>
Water & Hydrology	Water & Hydrology	Water & Hydrology	Water & Hydrology
Natural Hydrological Regime and Water Quality	<p>The potential site lies within the Liffey and Dublin Bay Catchment and its tributaries. The most significant drainage system in the vicinity is the River Tolka and its tributaries, which are located c. 1.54 km south of the site.</p> <p>The Mooretown Stream lies c. 330 metres (m) north of the site. There are no watercourses</p>	<p>The potential site lies within the Liffey and Dublin Bay Catchment and its tributaries. The most significant drainage system in the vicinity is the River Mayne and its tributaries, of which two are located c. 350m north and c. 180m south of the site, flowing c. 5km East to the Baldoyle (Mayne) Estuary SAC and SPA which has a WFD status of 'Moderate'.</p>	<p>The potential site lies within the Nanny-Devlin Catchment and its tributaries. The most significant drainage system in the vicinity is the Broadmeadow River and its tributaries. The Broadmeadow River which is located c. 950m north of the site and flows west to east into the Malahide Estuary has Poor 2010-2015 ecological status and elevated</p>

Environmental Criteria	Site 1 Cruiserath	Site 2 Clonshaugh	Site 3 Ratoath
	<p>on the site to act as a direct pathway to the Tolka and tributaries.</p> <p>The EPA classifies the WFD Ecological Status for the Tolka waterbody as having 'Poor Status' (2013-2018) with a current WFD River Waterbody risk score of 1a, 'At risk of not achieving good status'.</p> <p>Based on the NRA methodology for rating the importance of hydrological features, the importance of the hydrological features at this site is rated as Low Importance. This is based on the assessment that the attribute has a low-quality significance or value on a local scale. The Tolka River is the ultimate receiving waterbody for the site, it is not a source of local potable water, and is not widely used as a local water amenity.</p>	<p>The EPA classifies the WFD Ecological Status for the Mayne waterbody as having 'Poor Status' (2013-2018) with a current WFD River Waterbody risk score of 1a, 'At risk of not achieving good status'.</p> <p>There are no watercourses on the site to act as a direct pathway to the River Mayne. The Site appears to be bounded by field drains which may contain flowing water and ultimately drain to the Mayne River. A site walkover is required to investigate these potential pathways.</p> <p>The Mayne River is the ultimate receiving waterbody for the site, it is not a source of local potable water, and is not widely used as a local water amenity.</p>	<p>orthophosphate throughout in this subcatchment.</p> <p>The EPA classifies the WFD Ecological Status for the Broadmeadow waterbody nearest to the proposed site as having 'Poor Status' (2013-2018) with a current WFD River Waterbody risk score of 1a, 'At risk of not achieving good status'.</p> <p>The Ratoath Stream bordering the site directly west has a direct hydrological connection to the site and may act as pathway to the Broadmeadow River.</p> <p>The Site appears to be bounded by field drains which may contain flowing water and ultimately drain to the Broadmeadow River. A site walkover is required to investigate these potential pathways.</p>
Flood Risk	<p>The site historically has no recorded flood events as noted in the OPW's flood maps (2022). The Fingal County Councils Strategic Flood Risk Assessment Maps has indicated that the subject lands are located outside the 0.1% AEP Zone.</p> <p>The proposed development resides within Flood Zone C and is not at risk of flooding from a 1% or 0.1% Annual Exceedance Probability (AEP) event. The flood zonation confirms that the site is suitable for this type of industrial development.</p>	<p>The site historically has no recorded flood events as noted in the OPW's flood maps (2022). The Fingal County Councils Strategic Flood Risk Assessment Maps has indicated that the subject lands are located outside the 0.1% AEP Zone.</p> <p>The flood map for the potential site indicates that the site is located outside the 0.1%AEP flood extent and is therefore within Flood Zone C.</p>	<p>According to the OPW (2022) on-line database while there are no flood events recorded in the wider area there is no apparent historical risk of flooding in the immediate vicinity of the site.</p> <p>The flood map for the potential site is under review following an objection/submission however the designation for site previously indicated that the site is located outside the 0.1%AEP flood extent and is therefore within Flood Zone C.</p>
Water Supply, Wastewater and Stormwater Drainage	<p>There is an existing 500mm diameter IDA watermain in the south east corner of the overall landholding, which is fed from mains water supply.</p>	<p>Construction and operation of a data centre at this location will have no impact on the required infrastructure i.e. water supply, foul sewer and stormwater sewer capacity.</p>	<p>Construction and operation of a data centre at this location will have no impact on the required infrastructure i.e. water supply, foul sewer and stormwater sewer capacity.</p>

Environmental Criteria	Site 1 Cruiserath	Site 2 Clonshaugh	Site 3 Ratoath
	<p>There is an existing 375mm diameter connection to this foul drainage network in the south eastern corner of the overall landholding.</p> <p>There is an existing 900mm diameter connection to the IDA surface water drainage system under the R121 in the south east corner of the overall landholding.</p> <p>Construction and operation of a data centre at this location will have no impact on the required infrastructure i.e. water supply, foul sewer and stormwater sewer capacity.</p>		
Biodiversity	Biodiversity	Biodiversity	Biodiversity
Designated Conservation Areas	<p>There are 7 sites within a 15km radius of the site, of which the Rye Water Valley/Carton SAC is the closest, 8.82km from the proposed site.</p> <p>A review of aerial photography, Ordnance Survey Ireland (OSI) mapping and OSI Geographical Information System (GIS) data for rivers and streams indicates that there are no notable surface water features onsite and no direct hydrological pathways to offsite surface water bodies. This was confirmed during fieldwork on 6 July 2022. There is no connectivity with the 7 European sites.</p> <p>The potential for adverse effects on the European sites considered are unlikely given the following:</p> <ul style="list-style-type: none"> There is limited hydrological connectivity with a good degree of mixing and attenuation between the project site and the Tolka River, and 	<p>There are 17 sites within a 15km radius of the site, of which Baldoyle Bay SAC and SPA are the closest, c. 4.8km east from the proposed site.</p> <p>There is a potential direct pathways to the River Mayne and Baydoyle SAC/SPA through field drains located onsite.</p> <p>Based on a desktop review, there appears to be no direct connectivity with the remaining 15 sites. The potential for adverse effects on the European sites are considered to be unlikely given the following:</p> <ul style="list-style-type: none"> There is potentially limited hydrological connectivity with a good degree of mixing and attenuation between the project site and the Baldoyle SPA/SAC, and The project will be connected to municipal sewers, and there will be no uncontrolled surface water discharge to the Mayne River. 	<p>There is only 1 site within a 15km radius of the site. The Rye Water Valley/Carton SAC is c. 13km from the proposed site. There are no direct pathways that link the site to the Rye Water Valley/Carton SAC.</p> <p>There is a potential pathway to the Malahide Estuary SPA and SAC over 18km away through the Broadmeadow River.</p> <p>The potential for adverse effects on the European sites are considered to be unlikely given the following:</p> <ul style="list-style-type: none"> There is limited hydrological connectivity with a good degree of mixing and attenuation between the project site and the Malahide Estuary, and The project will be connected to municipal sewers, and there will be no uncontrolled surface water discharge to the Broadmeadow River.

Environmental Criteria	Site 1 Cruiserath	Site 2 Clonshaugh	Site 3 Ratoath
	<ul style="list-style-type: none"> The project will be connected to municipal sewers, and there will be no uncontrolled surface water discharge to the River Boyne. 		
Habitat Evaluation	The site is an area of low local ecological value and, as such, is predicted to have a neutral and imperceptible effect on biodiversity.	The site is an area of low local ecological value and, as such, is predicted to have a neutral and imperceptible effect on biodiversity.	The site is an area of low local ecological value and, as such, is predicted to have a neutral and imperceptible effect on biodiversity.
Air Quality & Climate	Air Quality & Climate	Air Quality & Climate	Air Quality & Climate
Dust Emission	<p>The receiving environment is considered a medium sensitivity environment for dust soiling and human health impacts during construction.</p> <p>There are more than 100 air sensitive receptors within 200m of the site and the surrounding area is mainly residential to the west and industrial in nature to the east and south-east. The receiving environment is considered a medium sensitivity environment for the operational phase of a proposed data centre development.</p> <p>There are a number of existing and permitted data centre developments within 1000m of the site boundary. A cumulative assessment of the potential impacts of these data storage facilities operating simultaneously with a proposed data centre at this site would need to be conducted to ensure no significant impacts from NOx emissions on ambient air quality in the vicinity of this site.</p>	<p>The receiving environment is considered a medium sensitivity environment for dust soiling and a low sensitivity environment for human health impacts during construction.</p> <p>There are more than ten air sensitive receptors within 200m of the site and the surrounding area is mainly rural / commercial in nature with some additional residential housing to the south of the site which are >200m from site boundary. The receiving environment is considered a medium sensitivity environment for the operational phase of a proposed data centre development.</p> <p>There are a number of existing and permitted data centre developments within 1000m of the site boundary. A cumulative assessment of the potential impacts of these data storage facilities operating simultaneously with a proposed data centre at this site would need to be conducted to ensure no significant impacts from NOx emissions on ambient air quality in the vicinity of this site.</p>	<p>The receiving environment is considered a low sensitivity environment for dust soiling and a low sensitivity environment for human health impacts during construction.</p> <p>There are more than ten air sensitive receptors within 200m of the site and the surrounding area is mainly rural in nature with some residential estates to the northeast and southeast of the site. The receiving environment is considered a low / medium sensitivity environment for the operational phase of a proposed data centre development.</p> <p>There are no nearby data centres and thus a cumulative impact assessment would not be necessary.</p>
Climate Change	Based on the scale and short-term nature of the construction period, the potential impact	Based on the scale and short-term nature of the construction period, the potential impact	Based on the scale and short-term nature of the construction period, the potential impact

Environmental Criteria	Site 1 Cruiserath	Site 2 Clonshaugh	Site 3 Ratoath
	<p>on climate from construction of a data centre at any of the three sites will not be significant</p> <p>There will be no direct emissions of CO2 from the site during normal operations. In relation to indirect CO2 emissions from electricity usage, all three sites would contribute a similar level of indirect CO2 emissions assuming the data centres to be constructed would be of a similar scale irrespective of the location.</p>	<p>on climate from construction of a data centre at any of the three sites will not be significant</p> <p>There will be no direct emissions of CO2 from the site during normal operations. In relation to indirect CO2 emissions from electricity usage, all three sites would contribute a similar level of indirect CO2 emissions assuming the data centres to be constructed would be of a similar scale irrespective of the location..</p>	<p>on climate from construction of a data centre at any of the three sites will not be significant</p> <p>There will be no direct emissions of CO2 from the site during normal operations. In relation to indirect CO2 emissions from electricity usage, all three sites would contribute a similar level of indirect CO2 emissions assuming the data centres to be constructed would be of a similar scale irrespective of the location.</p>
Noise & Vibration	Noise & Vibration	Noise & Vibration	Noise & Vibration
Noise	<p>There a number of residential properties to the west of the site. There are a number commercial properties to the east, north and south of the site.</p> <p>The overall site has a number of similar operational and permitted facilities (operated by the applicant)</p> <p>Fingal CC require noise emissions from the day to day activities of the development do not exceed 55 L_{A,T} by day, 50 L_{A,T} for evening periods and 45dB L_{A,T} by night.. pre-existing background noise levels in the area.</p> <p>This option requires attenuation to be considered for specific plant items but the required noise limits are achievable.</p>	<p>The surroundings are a mix of agricultural and commercial uses, There a number of commercial and residential properties to the beyond the eastern, southern and western sides of the site.</p> <p>Site is close to the R139 and the M50/M1; Review of the EPA Round 3 Noise Maps indicates that prevailing noise levels are likely to be higher than other sites considered.</p> <p>In order to achieve appropriate noise criteria, it is likely it would be required to provide attenuation for specific plant items but it would be expected that the required noise limits would be achievable.</p>	<p>There a number of residential properties in the town of Ratoath to the north and east. There are individual houses to the south-east. There is a recreational facility (BMX bicycle track) to the north.</p> <p>Site is close to the R155 but further away from other major routes; Review of the EPA Round 3 Noise Maps indicates that prevailing noise levels are likely to be lower than other sites considered.</p> <p>In order to achieve appropriate noise criteria it is likely it would be required to provide attenuation for specific plant items but it would be expected that the required noise limits would be achievable.</p>
Vibration	<p>Based on the distance of the site from sensitive receptors, and with application of good construction practices vibration impacts would not be expected in relation to the construction of the development.</p> <p>In relation to day to day operations associated with the site vibration impacts off site would not be a material issue.</p>	<p>Based on the distance of the site from sensitive receptors, and with application of good construction practices vibration impacts would not be expected in relation to the construction of the development.</p> <p>In relation to day to day operations associated with the site vibration impacts off site would not be a material issue.</p>	<p>Based on the distance of the site from sensitive receptors, and with application of good construction practices vibration impacts would not be expected in relation to the construction of the development.</p> <p>In relation to day to day operations associated with the site vibration impacts off site would not be a material issue.</p>

Environmental Criteria	Site 1 Cruiserath	Site 2 Clonshaugh	Site 3 Ratoath
Landscape & Visual	Landscape & Visual	Landscape & Visual	Landscape & Visual
Landscape Character	<p>According to the Fingal Dublin County Development Plan the site is not located within an area of rural or high amenity zone, it is not a specified sensitive landscape area and has no protected or significant views.</p> <p>There are no designated landscapes or protected structures within the immediate area of the subject lands. The Cruiserath site is located within an area that is both already developed by similar industries to data storage facilities and on lands that are zoned for industries similar to a data centre.</p>	<p>According to the Fingal County Development Plan the site is not located within an area of rural or high amenity zone, it is not a specified sensitive landscape area. There are no designated landscapes or protected structures within the immediate area of the subject lands.</p> <p>The Clonshaugh site is located within an area that is primarily characterised by low lying agricultural lands proximate to the urban and developed fringe. The lands within the site and are zoned for "HT - High Technology" under the Fingal County Development Plan 2017-2023 and FCC draft plan for 2023-2029.</p>	<p>According to the Meath County Development Plan the site is not located within an area of rural or high amenity zone, it is not a specified sensitive landscape area and has no protected or significant views. There are no designated landscapes or protected structures within the immediate area of the subject lands.</p> <p>The Ratoath site is located within an area that is primarily characterised by the rural environment, proximate to the urban fringe. The lands within the site and to the south are agricultural, all of which are zoned "E2 - General Enterprise and Employment".</p>
Visual Receptors	<p>Visual receptors for Cruiserath is primarily the residential area of Tyrrelstown, located to the west of the zoned high-tech lands and is separated from the lands by the R121 and mature landscaping between the residential areas and the R121.</p> <p>Road users whose sensitivity is low as their focus is not generally on the landscape environment, and workers in the nearby businesses who are also considered to have low sensitivity.</p>	<p>Visual receptors for Clonshaugh are primarily the single residencies living on Clonshaugh Road and Stockhole Lane who are considered to have high sensitivity with little buffering them from the site. Patrons and workers in the nearby Clayton Hotel such are also considered to have medium sensitivity.</p> <p>Road users along Clonshaugh Road and the R139 are considered to have low sensitivity as their focus is not generally on the landscape environment.</p> <p>Mitigation planting and screening measures will likely be required.</p>	<p>Visual receptors for Ratoath are primarily the residents living along Fairyhouse Road and Seagrave Hall housing estate to the north along with the single residences located along the R155. These residents are considered to have high sensitivity.</p> <p>Road users along Fairyhouse Road (R155) are considered to have low sensitivity as their focus is not generally on the landscape environment.</p> <p>Mitigation planting and screening measures will likely be required.</p>
Archaeology, Architecture & Cultural Heritage	Archaeology, Architecture & Cultural Heritage	Archaeology, Architecture & Cultural Heritage	Archaeology, Architecture & Cultural Heritage
Archaeological Monuments Record	There are 11 SMR records and 6 NIAH records within 1.5 km of the site. The closest SMR (DU013-010001/010003, a 15th century church with surrounding graveyard) is located	There are 17 SMR records and 14 NIAH records within 1.5 km of the site. The closest SMR (DU014-056, a 16 th /17 th century house) is located c. 500m southwest of the site. The	There are 9 SMR records and 6 NIAH records within 1.5 km of the site. The closest SMR (ME045-066, an enclosure) is located c. 1.1km east of the site. The closest NIAH

Environmental Criteria	Site 1 Cruiserath	Site 2 Clonshaugh	Site 3 Ratoath
	<p>c. 600m south of the site. The closest NIAH (11346003, is the same 15th century church) located c. 600m south of the site.</p> <p>Sixteen archaeological excavations have been conducted within 1.5km of the site. Two of these have uncovered archaeological remains dating from pre-history to the post-medieval period.</p> <p>Cartographic sources indicate that the site has been in agricultural use for at least the past c. 200 years.</p> <p>A full archaeological impact assessment will be required, and at this stage the probability of previously unrecorded sub-surface archaeological features occurring on the site cannot be ruled out.</p>	<p>closest NIAH (11349005, a 19th century house) is located c. 250m east of the site.</p> <p>Nine archaeological excavations have been conducted within 1.5km of the site. Four of these have uncovered archaeological remains dating from pre-history to the post-medieval period.</p> <p>Cartographic sources indicate that the site has been in agricultural use for at least the past c. 200 years.</p> <p>A full archaeological impact assessment will be required, and at this stage the probability of previously unrecorded sub-surface archaeological features occurring on the site cannot be ruled out.</p>	<p>(14336014, an 18th/19th century house) is located c. 1.3km north of the site.</p> <p>Thirty two archaeological excavations have been conducted within 1.5km of the site. Eleven of these have uncovered archaeological remains dating from pre-history to the post-medieval period.</p> <p>Cartographic sources indicate that the site has been in agricultural use for at least the past c. 200 years.</p> <p>A full archaeological impact assessment will be required, and at this stage the probability of previously unrecorded sub-surface archaeological features occurring on the site cannot be ruled out.</p>
Material Assets	Material Assets	Material Assets	Material Assets
Traffic	<p>There are a number of operational and permitted data storage facilities (operated by the client) on the site. While a traffic impact assessment including the cumulative impact assessment of the potential impacts of these data storage facilities operating simultaneously with the proposed data storage facilities at this site would need to be conducted to ensure no significant impacts from traffic on the surrounding road network, it would appear that the existing road infrastructure is capable of carrying both the construction related traffic and the operational traffic associated with the provision of data storage facilities.</p>	<p>Access to the site is currently provided onto the R139. This current access is not sufficient for data centres and new access will need to be provided.</p> <p>While a traffic impact assessment would need to be conducted, it would appear that the existing road infrastructure is capable of carrying both the construction related traffic and the operational traffic associated with the provision of data storage facilities. Site design will need to account for the provision of an access point from the R139.</p>	<p>While a traffic impact assessment would need to be conducted, it would appear that the existing road infrastructure is capable of carrying both the construction related traffic and the operational traffic associated with the provision of a data centre development.</p>
Waste Management	<p>There is currently sufficient waste management capacity within the surrounding area to permit the development of a data</p>	<p>There is currently sufficient waste management capacity within the surrounding area to permit the development of a data</p>	<p>There is currently sufficient waste management capacity within the surrounding area to permit the development of a data</p>

Environmental Criteria	Site 1 Cruiserath	Site 2 Clonshaugh	Site 3 Ratoath
	<p>centre development at this site to meet the requirements of regional and national waste legislation and promote the management of waste in line with the priorities of the waste hierarchy.</p>	<p>centre development at this site to meet the requirements of regional and national waste legislation and promote the management of waste in line with the priorities of the waste hierarchy.</p>	<p>centre development at this site to meet the requirements of regional and national waste legislation and promote the management of waste in line with the priorities of the waste hierarchy.</p>
Utilities	<p>There is an existing 500mm diameter IDA watermain in the south east corner of the overall landholding, which is fed from mains water supply.</p> <p>There is an existing 375mm diameter connection to this foul drainage network in the south eastern corner of the overall landholding.</p> <p>There is an existing 900mm diameter connection to the IDA surface water drainage system under the R121 in the south east corner of the overall landholding. The IDA surface water network was originally sized to accommodate future development of the area and has sufficient capacity to accommodate run-off from the site.</p> <p>The power requirements for the Proposed Development would be provided from the existing 220kV GIS substation on site.</p> <p>A fibre optic cable distribution network is in place for the Permitted Developments, and it could be extended to the Proposed Development. There is sufficient capacity in the network for the Proposed Development.</p>	<p>At the time this study was conducted, it was not feasible to establish the availability of a power supply for this site.</p> <p>The storm water drainage for the site is currently discharged directly to ground and drainage ditches. The development of data centres at these lands will be required to attenuate to greenfield run-off rates under current legislation.</p> <p>As the Proposed Development will not contribute any additional stormwater drainage to the stormwater network over the natural greenfield rate, the development will therefore have no perceptible impact on the water quality in any overflow situation.</p> <p>There is currently no foul drainage infrastructure on this potential site. Foul drainage networks in this area would discharge to the Ringsend WWTP. When all the proposed works are complete at the WWTP in 2025, the Ringsend Wastewater Treatment Plant will be able to treat wastewater for up to 2.4 million population within.</p> <p>Further assessment will be required with Irish Water about access to mains water supply.</p> <p>A fiber optic cable distribution network is not in place for the site however similar High-tech developments are located in close proximity to proposed site within the Clonshaugh Technology and Business Park.</p>	<p>At the time this study was conducted, it was not feasible to establish the availability of a power supply for this site.</p> <p>The surface water runoff presently goes to ground throughout the majority of the site, with the northern part draining through a series of ditches to the Ratoath Stream and Broadmeadow River. The development will be required to attenuate to greenfield run-off rates under current legislation.</p> <p>As the Proposed Development will not contribute any additional stormwater drainage to the stormwater network over the natural greenfield rate, the development will therefore have no perceptible impact on the water quality in any overflow situation.</p> <p>There is currently no foul drainage infrastructure on the potential site. Further assessment of the local network will be required to assess the foul drainage capacity in the area.</p> <p>Further assessment will be required with Irish Water about access to mains water supply, data centre.</p> <p>It is unknown as to what communications services exist at this potential site.</p>

5.0 POPULATION AND HUMAN HEALTH

5.1 INTRODUCTION

This chapter has been prepared to assess any likely significant impacts on Population and Human Health in respect of the Proposed Development.

The EU (2017) *Guidance on the preparation of the Environmental Impact Assessment Report* outlines that human health is a very broad factor that is be highly project dependent. This guidance states:

The notion of human health should be considered in the context of the 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.

Human health should be considered in the context of environmental pathways which may affect health such as air quality, noise, water and soil quality. All can contribute to negative effects on human health by facilitating the transport of contaminants or pollutants. An evaluation of the effects of these pathways on health, by considering the accepted standards of safety in dose, exposure or risk of air quality and noise levels for example, is considered appropriate, as these standards have been arrived at via scientific and medical research.

The EPA Draft Advice Notes for EIS (2015) explains that the scope of population and human health is project dependant but should consider significant impacts likely to affect aspects such as: convenience (expanded range of transport options); displaced settlement patterns (residential); employment opportunities; land use patterns; access for tourism, amenity, health impacts and/or nuisance due to noise, dust or water pollution; and health and safety.

The EPA EIA Report Guidelines (2022) notes that the transposing legislation does not require assessment of land-use planning, demographic issues or detailed socioeconomic analysis (EPA, 2022). Furthermore, the EPA Draft Advice Notes for EIS (2015) states that issues such as employment, commercial competition, zoning, property prices, agri-business and other social and economic issues are dealt with by more specific instruments (such as the Planning Acts).

Furthermore, in accordance with the EPA EIA Report Guidelines (2022) the assessment of impacts on population and human health should refer to the assessments of those factors under which human health effects might occur, as addressed elsewhere in the EIA Report. The likely significant impacts on with Human Health and Population in regards to issues such as soils, geology and hydrogeology, water, air quality, noise and vibration, traffic and landscape are addressed in detail within the following EIA chapters:

- Chapter 6 - Land, Soils, Geology and Hydrogeology;
- Chapter 7 - Hydrology;
- Chapter 9 - Air Quality;
- Chapter 10 - Noise and Vibration;
- Chapter 11 - Landscape and Visual Impact; and

- Chapter 13 - Traffic and Transportation.

Where these topics are dealt with in further detail elsewhere in this EIA Report, the relevant chapters have been cross referenced in this Chapter to provide the Planning Authority with a context for their determination.

The assessment of other health and safety issues that are carried out under other EU Directives are also relevant. These may include reports prepared under the Industrial Emissions, Waste Framework, Landfill, Strategic Environmental Assessment, Seveso III, Water Framework Directive, Floods or Nuclear Safety Directives. In keeping with the requirement of the amended Directive, an EIA Report considers the results of such assessments without duplicating them.

5.2 METHODOLOGY

5.2.1 Relevant Legislation and Guidance

This chapter has been prepared in accordance with:

- EPA EIA Report Guidelines (2022)
- Health Impact Assessment Guidance. Institute of Public Health (IPH), (IPH, 2021).
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report European Commission (EU, 2017)
- EPA Draft Advice Notes for EIS 2015

This chapter follows these guidelines and will examine the health effects relevant to the Proposed Development as they relate to the relevant study area.

The description of the sensitivity, magnitude and significance, outlined within this assessment are based on the Health Impact Assessment Guidance (IPH, 2021) criteria, while the probability and duration of effects are based on the definitions set out within Section 3.7 of the EPA EIA Report Guidelines (2022).

5.2.2 Data Sources of information

- 2011 Census carried out by the Central Statistics Office (CSO) 10 April 2011. Made available from <https://www.cso.ie/en/>
- 2016 Census carried out by the Central Statistics Office (CSO) 24 April 2016. Made available from <https://www.cso.ie/en/>
- Pobal HP Deprivation Index based on 2011 Census Data (CSO) Made available from <https://www.pobal.ie/>
- Pobal HP Deprivation Index based on 2016 Census Data (CSO) Made available from <https://www.pobal.ie/>
- Google maps available from <https://www.google.com/maps>
- OpenStreetMap and contributors available from <https://www.openstreetmap.org>
- GeoHive contributors and available from <https://www.geohive.ie/>

5.2.3 Study Area

There is no specific guidance available on an appropriate study area to focus the assessment of existing land use and/or permitted projects. The research area has been established using expert judgement and based on the accessibility of data and taking into consideration the potential for impact from the Proposed Development.

It is acknowledged that projects like the one proposed can have an impact on activity in a larger area than only the site itself. Generally, the closer to the works, the greater the potential for impacts. The most significant environmental impacts are likely to be confined within 50-350 m of the Proposed Development. Some effects from the Proposed Development, including air quality and traffic, might have a larger area of effect, and these are addressed in further detail in the corresponding expert assessments that set out the chapters within this EIA Report.

The project being considered, is not expected to have Regional, National or International, or Transboundary impacts on Human Health. Therefore, the Study area has been restricted to the neighbouring community (site-specific population), and wider community (local population). A general study area of 1 km from the site location is included for population statistics, while the wider area of 2.5 km from the site location has been used to inform the baseline description of the area.

In the desk-based assessment of Population Health Sensitivity the use of Electoral Divisions (ED) statistics from CSO have been utilised. Electoral Divisions are the smallest legally defined administrative areas in the state; developed with the intention of producing areas roughly equivalent in both population and "rateable value" (CSO).

The selection ED within the study area has included ED'S that are either entirely contained within or partially within 1 km of the Proposed Development site. In the case of the Proposed Development, the site is located within The Ward (ED 4041), and within 1km of the site are the ED's of Blanchardstown-Tyrrelstown (ED 4015), Blanchardstown-Mulhuddart (ED 4013).

5.2.4 Population Impact Assessment Categories

5.2.4.1 Assessment Sensitivity of Population

The assessment of significance of an impact is a professional appraisal based on the sensitivity of the receptor and the magnitude of effect. Within any area, the sensitivity of individuals in a population will vary. The Health Impact Assessment Guidance (IPH, 2021) sets out conceptual model of the different components of sensitivity (Figure 5.1). It uses criteria (segments) and indicative classifications (levels) to explore, and explain, a finding of sensitivity. The conclusion may be summarised as a high, medium, low or negligible sensitivity to change.

The existing sensitivity of the receiving environment (in terms of population and human health) has been appraised for the study area with a desk-based assessment of routine demographic and health indicators, rather than the use of surveys or collection of primary data. This includes analysis of existing data (based on the availability of information) from the Central Statistics Office (CSO) and Pobal to build up a profile of the baseline population information within the study area. Topographical maps and Google maps have also been used to inform the baseline description of the area to inform the proximity of the Site to areas of economic activity, employment, community infrastructure, emergency services, tourism and recreation amenities.

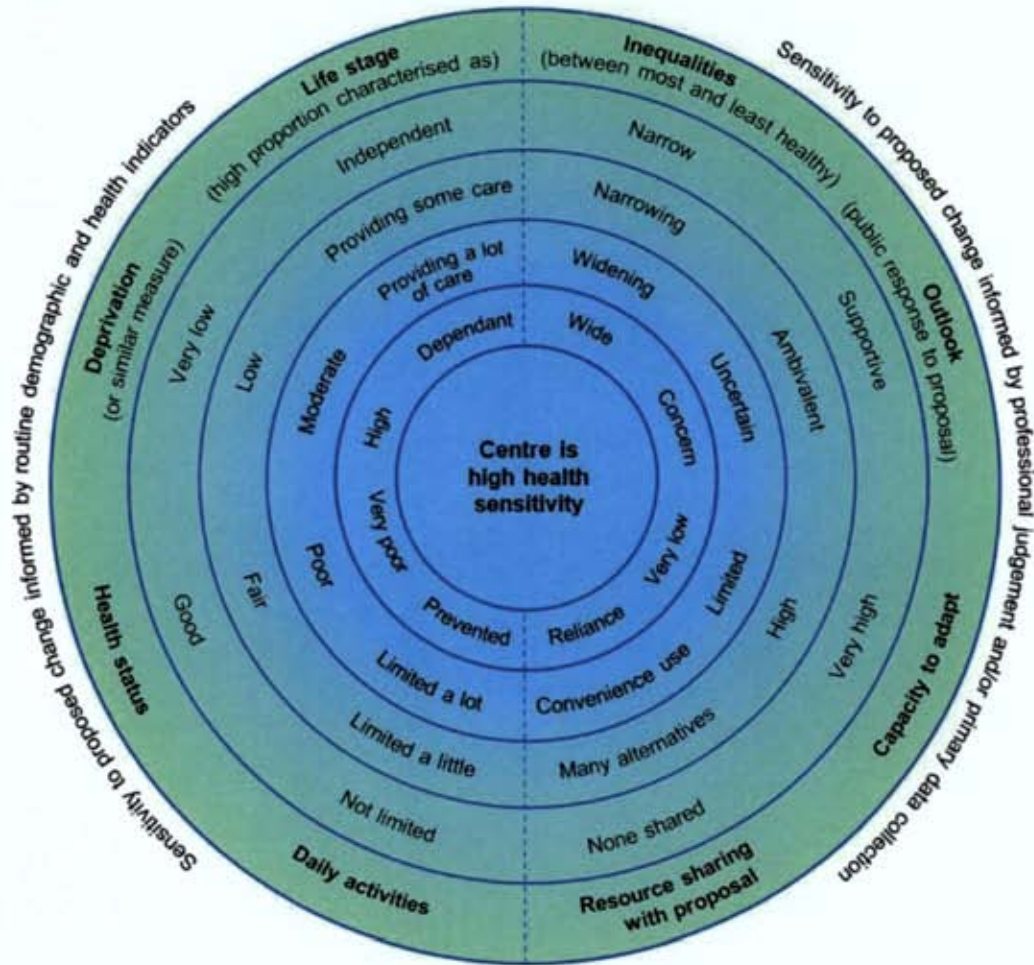


Figure 0.1 Health sensitivity: conceptual model (Source: Health Impact Assessment Guidance (IPH, 2021))

5.2.4.2 Magnitude of Impact

Magnitude considers the characteristics of the change which would affect the receptor as a result of the proposal. The Health Impact Assessment Guidance (IPH, 2021) sets out a conceptual model of the different components of sensitivity (Figure 5.2). Again, this model provides different components of *magnitude*. It uses criteria (segments) and indicative classifications (levels) to explore, and explain, a finding of *magnitude*. The conclusion may be summarised as a high, medium, low or negligible magnitude of change.

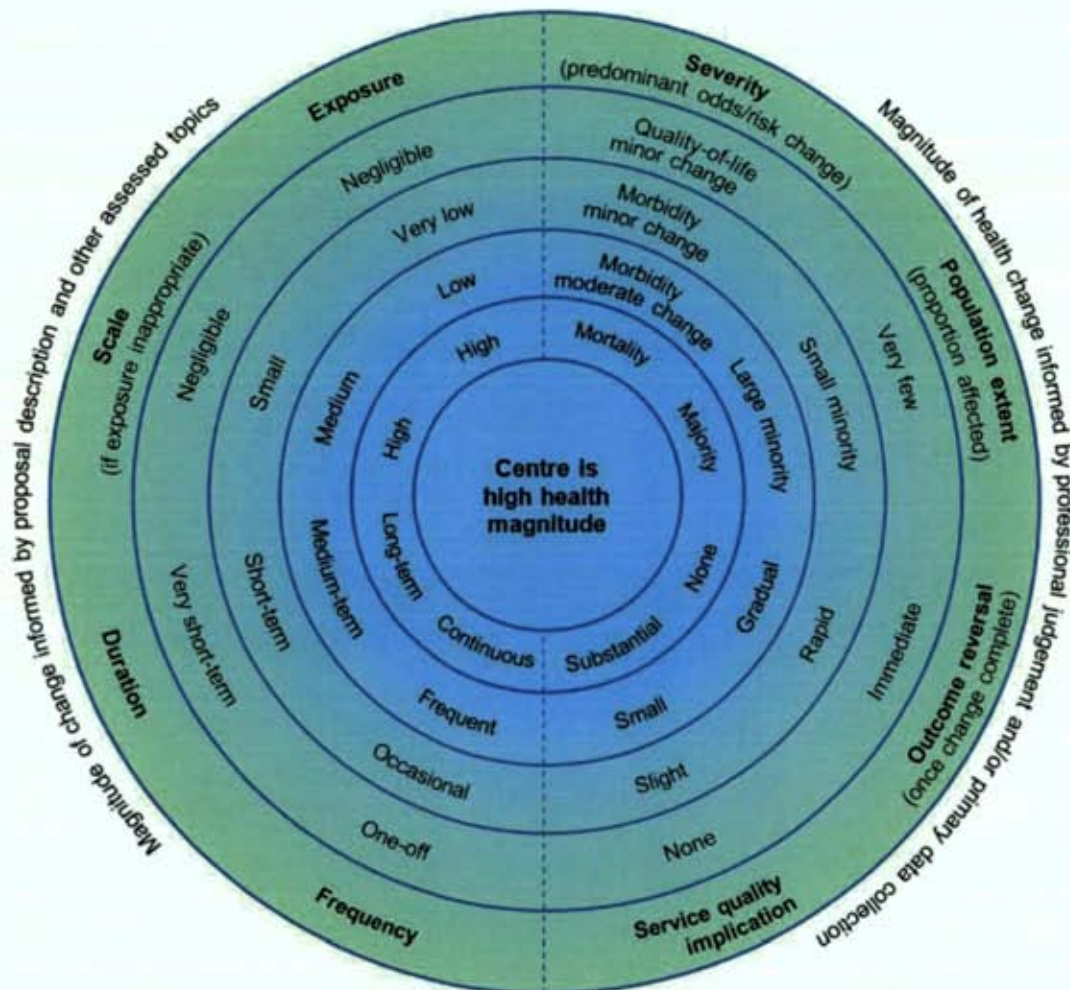


Figure 0.2 Health magnitude: conceptual model (Source: Health Impact Assessment Guidance (IPH, 2021))

5.2.4.3 Significance of Effects

Significance relies on informed, expert judgement about what is important, desirable or acceptable with regards to changes triggered by the proposal in question. The assessment of the significance of effects in this assessment is a professional appraisal and has been based on the relationship between the magnitude of the effects and the sensitivity of the receptor.

The Health Impact Assessment Guidance (IPH, 2021) sets out a conceptual model of the different components of significance. It uses criteria (segments) and indicative classifications (levels) to explore, and explain, a finding that a health effect is significant or not significant.

The Health Impact Assessment Guidance (IPH, 2021) model brings together different types of evidence, e.g. scientific literature, public health priorities, regulatory standards and health policy. The model thus not only take into account a range of evidence sources, but also a diversity of professional perspectives, e.g. academics, public health practitioners, regulators and policy makers.

The model below, includes the factors of magnitude of impact and the sensitivity of receptors as determined in Section 4.2.4.1 and Section 4.2.4.2 above. This EIA

assessment typically relies on regulatory thresholds, where there would be formal monitoring by regulators, to set out the acceptability or desirability of change to population health.

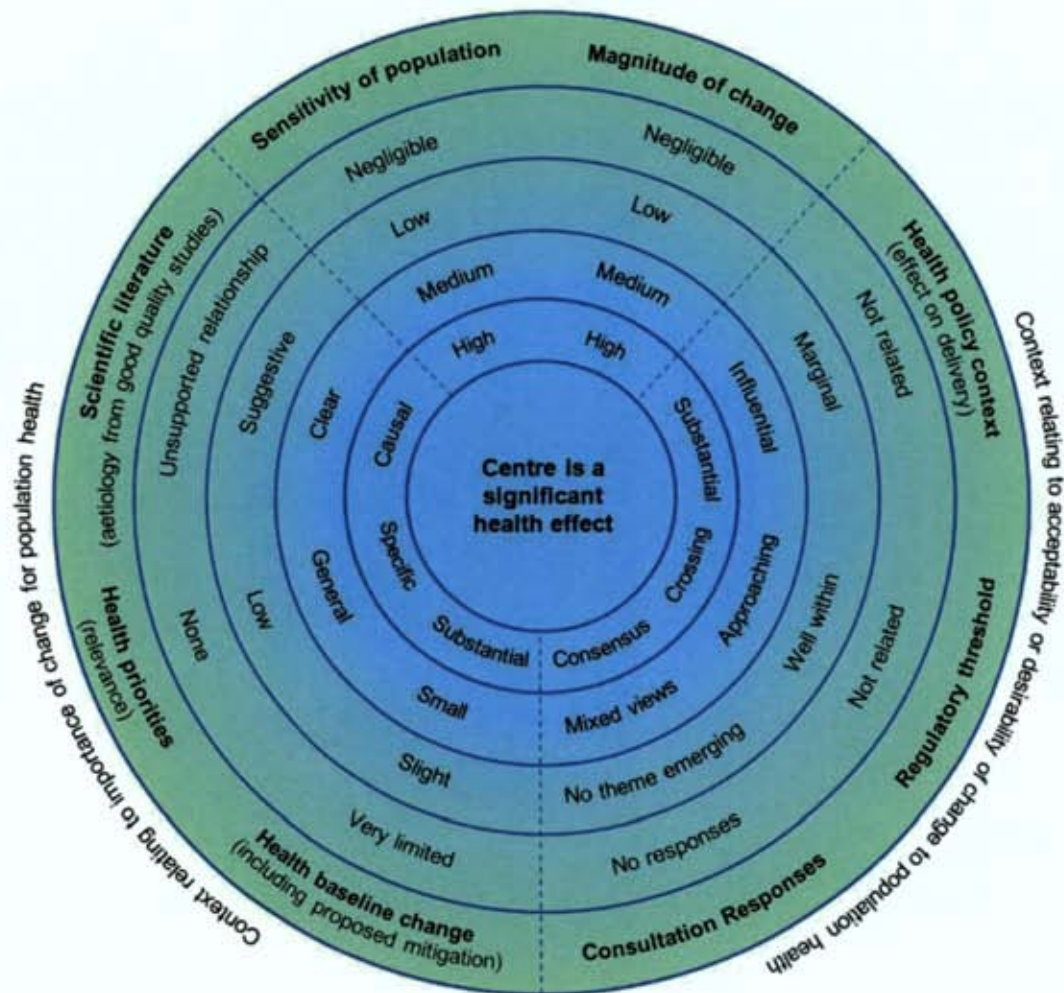


Figure 0.3 Health significance: conceptual model

5.2.5 Difficulties Encountered / Forecasting Methods

No particular difficulties were encountered in preparing the population assessment.

There are uncertainties in relation to assessing impacts on individuals or communities due to the lack of individual health data and the difficulty in predicting effects, which can only be based on general guidance and assumptions.

Forecasting methods and methodology, if any, are set out within the specialist chapters that this assessment relies upon.

5.3 RECEIVING ENVIRONMENT

5.3.1 Population Health Sensitivity within the Study Area

The purpose of the population health sensitivity assessment is to identify the likely sensitivity of the local population and its capacity to absorb change. It is considered

that for the purpose of this assessment that available data on: Population; Deprivation; Life Stage; and Health Status within the Study Area provides sufficient information to establish the population sensitivity and to provide the Planning Authority with a context for this assessment.

5.3.1.1 Population

The latest census data (2016) shows that the population in The Ward ED, Blanchardstown-Tyrrelstown ED, Blanchardstown-Mulhuddart ED saw a higher population growth as compared (Table 5.4). The 2022 census has shown a preliminary result of the state population at 5.1 million, this is an increase of 7.6% from 2016.

Table 0.1 Population change at National, County and Electoral Division level from 2011 – 2016 (Source: www.cso.ie)

Area	Population for Census Year		% Change 2011-2016
	2011	2016	
State - Republic of Ireland	4,588,252	4,761,865	+3.8
The Ward ED	8,241	9,602	+16.5
Blanchardstown-Tyrrelstown ED	2,112	3,257	+54.2
Blanchardstown-Mulhuddart ED	3,866	4,123	+6.6

Age Profile

The age profile of the population in the area is an important parameter as it provides a good insight into the potential labour force, the demand for schools, amenities, other facilities and the future housing demand.

Table 5.2 shows the age profiles at National level and the three ED's in the study area for 2016.

Table 5.2 Age profile at National level and the three ED's of the study area (Source: www.cso.ie)

Area	0-14	15-24	25-44	45-64	65+	Total Persons
State	21%	12%	30%	24%	13%	4,761,865
The Ward	33%	9%	43%	13%	2%	9,602
Blanchardstown-Tyrrelstown	33%	15%	33%	17%	3%	3,257
Blanchardstown-Mulhuddart	31%	13%	37%	17%	2%	4,123
Study Area (Mean)	32%	12%	38%	16%	2%	5,660

This table shows that in the Study Area, the dominant age grouping is 25-44 at 43%, 33% and 37% of the total population, respectively. This also reflects that the overall labour force population (15-64 age group) in the Study Area is reflective of the National level. This is in keeping with census data from 2011 and 2006.

5.3.1.2 Socioeconomics

Education

Census data presenting the highest level of education completed by people living in the Study Area community and Dublin West area is presented in Table 5.3. The data

shows that higher levels of educational attainment in the Study Area are marginally lower with those in Dublin West.

Table 5.3 Highest level of education completed locally and at County level in 2016 for key educational levels. (Source: www.cso.ie)

Area	No formal education	Primary education	Upper secondary	Honours Bachelor's Degree, Professional qualification or both	Postgraduate Diploma or Degree	Total Persons
Dublin West	1.2%	6.7%	18.3%	13.5%	12.4%	71,887
The Ward ED	0.9%	3.2%	17%	12%	9.5%	4811
Blanchards town - Tyrellstown ED	2%	8.7%	21.3%	5%	4%	1,491
Blanchards town - Mulhuddart ED	1.3%	8.5%	21%	8%	7%	2,080
Study Area (Mean)	1.4%	6.8%	19.7%	8.3%	6.8%	2,794

(Note: the table presents key milestone education levels and excludes lower secondary, technical or vocational qualification, advanced certificate/completed apprenticeship, higher certificate, ordinary bachelor degree/national diploma, Ph.D./higher or where information was not stated).

Deprivation

The Health Impact Assessment Guidance (IPH, 2021) outlines that impact assessments should consider if the population is already stressed by limited resources or high burdens as well as if groups are affected that have reduced access to financial, social and political resources. Deprivation differences between areas are indicative of social gradients, which are central to the consideration of health inequalities.

Deprivation statistics for Ireland are available from the Pobal HP Deprivation Index that shows the overall affluence and deprivation. This Index draws on data from the national Census and combines three dimensions of relative affluence and deprivation: Demographic Profile, Social Class Composition and Labour Market Situation that are measured by ten key socio-economic indicators from the Census of Population.

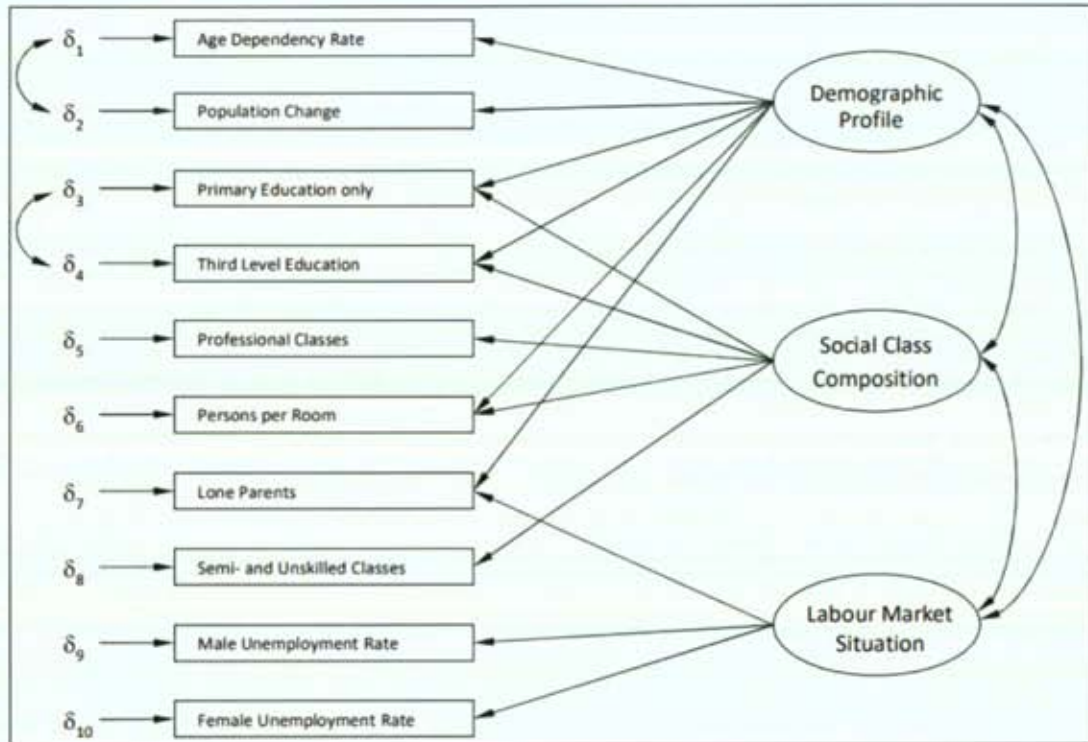


Figure 0.4 Basic Model of the Pobal HP Deprivation Index

The Pobal HP Deprivation Index Relative Index Score allows for the provision of descriptive labels with the scores, which are grouped by standard deviation as seen in Table 5.2 below.

In order to make a uniform assessment using the conceptual model as set out in Figure 5.1 above a relative Population Sensitivity the Deprivation Score of 'Very disadvantaged', or 'Extremely disadvantaged' would represent a high sensitivity. Conversely, a 'Extremely affluent' or 'Very affluent' would represent a very low sensitivity.

Table 0.4 Pobal HP Index Relevant Index Score labels (Source: Pobal HP Deprivation Index)

Deprivation Score	Pobal HP Description	Sensitivity of Population
> 30	Extremely affluent	Very Low
20 to 30	Very affluent	Very Low
10 to 20	Affluent	Low
0 to 10	Marginally above average	Low
0 to -10	Marginally below average	Moderate
-10 to -20	Disadvantaged	Moderate
-20 to -30	Very disadvantaged	High
< -30	Extremely disadvantaged	High

The data in Table 5.4 show the Pobal HP Deprivation Index Relevant Index Scores for the Study Area based on the 2016 Census. These figures show for the year 2016 that and the study area is 'Marginally Above Average' as compared with the ROI is that is as "Marginally Below Average'. This indicates a Low Population Sensitivity (Deprivation) within the study area.

Table 0.5 Deprivation Score within the Study Area (Pobal HP Deprivation Index, 2016 Census)

Area	Deprivation Score	Pobal HP Description
State - Republic of Ireland	-4.2	Marginally Below Average
The Ward ED	5.85	Marginally Above Average
Blanchardstown-Tyrrelstown ED	-6.67	Marginally Below Average
Blanchardstown-Mulhuddart ED	-3.47	Marginally Below Average

5.3.1.3 Life Stage (Age Dependency)

The Health Impact Assessment Guidance (IPH, 2021) outlines that life-course analysis is often used in public health and reflects differing health sensitivities and needs at different ages. Typically, children and older people are particularly sensitive to change, including due to being dependants. Dependents are defined for statistical purposes as people outside the normal working age of 15-64. Dependency ratios are used to give a useful indication of the age structure of a population with young (0-14) and old (65+) shown as a percentage of the population of working age (15-64).

A low dependency ratio indicates that there is a larger proportion of working population age (15–64) years as compared to young (0-14) and old (65+). Conversely, a high dependency ratio indicates that there is a larger proportion of young (0-14) and old (65+) as compared to working population age. High dependency ratio can also indicate if some groups are more likely to be at home during the day (for example, due to childcare, or retired persons) and would therefore be more likely to be impacted by a development within the area.

Age dependency ratio are available through the Pobal Online Geo-Profiling tools (<https://maps.pobal.ie/>) which are based on the national Census.

The age dependency ratio for the study area is shown in Table 5.6 below. From these dependency ratios we can tell that the study area is less dependent when compared with ROI as a whole. Indicating a largely 'independent' population within the Study Area as compared ROI which can be defined as per the conceptual model as 'providing some care' to 'providing a lot of care'.

Table 0.6 Age Dependency Ratio within the Study Area (Pobal Geo-Profiling, 2016 Census)

Area	Age Dependency Ratio for Census Year	
	2011	2016
State - Republic of Ireland	49.30	52.70
The Ward ED	34.10	35.02
Blanchardstown-Tyrrelstown ED	37.31	32.36
Blanchardstown-Mulhuddart ED	33.81	33.13

5.3.1.4 Health Status (General Health)

The CSO as part of the census records an overall self-reported measure of population health within Ireland. Areas with a poor health status are typically considered to be of a higher sensitivity and more susceptible to change in environmental conditions.

Table 5.7 below shows the Self-reported measure of population health within the Study Area compared to ROI. This shows the area predominately self reports their health as 'Very Good' in-line with national trends.

Table 0.7 Self-reported measure of population health (CSO, 2016 Census)

Area	% population describing their general health					
	Not Stated	Very Bad	Bad	Fair	Good	Very Good
State - Republic of Ireland	3.33%	0.29%	1.32%	8.04%	27.65	59.38%
The Ward ED	9.66%	0.12%	0.61%	4.34%	25.3%	59.9%
Blanchardstown-Tyrrelstown ED	10.29%	0.31%	1.35%	7.34%	27.23%	53.48%
Blanchardstown-Mulhuddart ED	4.55%	0.21%	0.58%	7.3%	30.53%	56.07%

5.3.1.5 Ability to perform daily activities

People's ability to perform day-to-day activities is relevant to population sensitivity, particularly where there are changes in access to services or community amenities. Persons with disabilities can also be more susceptible to the changes in environmental conditions. The CSO as part of the census records an overall self-reported measure of persons with disabilities within Ireland.

Table 5.8 details the number of persons with a disability compared to the population as a whole. The data shows that the study area has a lower % of Persons with a disability than the national average; indicating that for persons within the area there is a relatively limited restrictions on daily activity.

Table 0.8 Persons with a disability (CSO, 2016 Census)

Area	Persons with a disability	Population	% Persons with a disability
State - Republic of Ireland	643,131	4,761,865	14%
The Ward ED	653	9602	6.8%
Blanchardstown-Tyrrelstown ED	397	3,257	12%
Blanchardstown-Mulhuddart ED	464	4,123	11.25%

5.3.1.6 Summary of Population Health Sensitivity

The sensitivity of the surrounding area has been considered based on the details of the published data available from CSO and Pobal. The study area has seen a population growth between the 2011 and 2016 census. The Pobal HP Deprivation Index shows the area be Marginally Above Average indicating a Low Population Sensitivity (Deprivation) within the study area.

There is a low age dependency ratio, therefore a large proportion of the population is within working age, thus considered as largely independent and judged to be not sensitive to change. The information presented above for the study area shows, a high proportion (59.9%) describes their health status as 'Very Good' and low proportion as 'bad' or 'very bad'. The data shows that the study area has a lower % of Persons with a disability than the national average; indicating that for persons within the area there is a relatively limited restrictions on daily activity.

The population within the study area is therefore not particularly sensitive to change, with a ranking of low sensitivity.

5.3.2 Location and Character of the Local Environment

The purpose of describing the location and character of the local environment provides useful information on the current local community and usage within the study area provide the Planning Authority with a context for this assessment. This includes

community and social infrastructure that covers a range of services and facilities that meet local and strategic needs and contribute towards a good quality of life. In this context it includes local business, residential areas, education, health facilities, emergency services, and places of worship, and green infrastructure.

Furthermore, the baseline identifies tourism and landscape amenity within the study Area which provides an indication on current intrinsic values placed on the area for local, national and international users that may be impacted by the Proposed Development.

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.

While a general study area of ED's within 1 km from the site location is included for population statistics, the wider area of 2.5 km from the site location has been used to inform the baseline description of the area.

5.3.2.1 Community and Social Infrastructure within the Study Area

Residential and Employment areas

The site is located at Cruiserath Road, Dublin and is zoned HT - High Technology under the Fingal County Development Plan 2017-2023. The site is bound to the south by the R121/ Cruiserath Road, to the West by the R121/ Church Road, to the North by Hollywood Road, and Carlton Hotel, and to the east by the BMS pharmaceutical facility. The immediate surrounding area is primarily occupied by commercial/industrial business parks most notably to the north, east and south rather than residential development. The closest residential properties are located c. 60m to the west of the site boundary (across the R121) within the Curragh Hall, Ballentree Village and Bishops Orchard residential areas. Notable facilities within the vicinity of the site include; Bristol Meyers Squib (pharmaceuticals), Alexion (pharmaceuticals), Carlton Hotel, IBM (software) Mallinckrodt (Pharmaceuticals) and Astellas (pharmaceuticals).

The closest shopping centres of note is the Blanchardstown Centre c. 2.5 km south of the site. Dublin Airport is located c. 8 km east of the site.

Education, Childcare, Schools

There are a number of primary and secondary schools in the vicinity of the Proposed Development including:

- St Lukes National School and Tyrrelstown Educate Together National School in Tyrrelstown c. 500m north west of the site;
- Powerstown Educate Together National School c. 300m west of the site; and
- Lady's Well National School c. 900m south-west of the site.

The closest third level institution in the area is the Technical University of Dublin (TUD) Blanchardstown campus located c. 780m to the south-east of the site.

Healthcare Services

The nearest hospital to the site is Connolly Hospital located c. 2.7km to the south of the site.

The closest aged care facility is Elm Green Nursing Home c. 3km south east of the site.

Emergency Services

The Blanchardstown Garda Station (c 2.6km south of the site) and Blanchardstown Fire Station located in Blanchardstown (c. 3.1km south of the site).

Places of Worship

There are 3 places of worship in the study area of the Proposed Development with St Luke the Evangelist Church Blanchardstown and the Blanchardstown Baptist Church c. 1km south of the site and St Patrick's Catholic Church c 1.8km south east of the site.

5.3.2.2 Landscape, Amenity, Green Infrastructure and Tourism within the Study Area

Landscape, Amenity and Green infrastructure

In terms of landscape amenity, there are no specific amenity objectives on the site. Likewise, there are no protected trees, woodlands or hedgerows, or protected views pertaining to the site. The local landscape setting is generally flat with no prominent landscape features located near the site. The primary areas of landscape amenity in the immediate vicinity are Lady's Well Park (c. 550m to the south), and Tolka Valley Park (c. 1.2km to the south-west), which are all small recreational parks. Primary amenity areas such as Dublin Bay and Phoenix Park are located c. 12km south-east and c. 5.5km south-south-east of the site, respectively.

Tourism

Tourism is returning to strong growth and continues to play a hugely influential role in Ireland's economic success.

The development site is located within Fingal County which has scenic 88 km coastline and a number of attractive towns as well as several centres of residential, retail and service industries surrounding a traditional market gardening region. The Tourism Statement Of Strategy And Work Programme 2017 – 2022 outlines tourism in the county as a range of:

...coastal scenery and harbour towns, cultural and heritage attractions as well as the experiences of outdoor activities, retail and food. A comprehensive range of activities for the visitor is currently promoted. These include golf, angling, equestrian, shooting/archery, walking and cycling, watersports, tennis, as well as spectator sports of cricket, rugby, soccer and gaelic games. Water based tours are also available.

Tourism is not a major industry in the immediate environs of the site, however the National Aquatic Centre is located c. 1.8km south of the site attracting visitors and tourists. The closest shopping centre is the Blanchardstown Shopping Centre c. 2.5km south of the site. The Carlton Hotel Blanchardstown is located c. 100m north of the site (across Cruiserath Drive). Dublin Airport is located c. 8km to the east of the site.

5.3.2.3 Natural Resources within the Study Area

Geological Heritage, and Economic Resources

A review of Geological Survey Ireland online maps has shown that there are no extractive industries, active quarries, or areas of geological heritage within the Study Area. There is one mineral location east of the site in the townland of Cloghran, c. 900m from the site, of both lead and limestone. The closest active quarry is the Huntstown Quarry in Finglas c. 2.5km east of the site, which is operated by Roadstone Ltd. The Priest Town Tectonite (Limestone boulder moraine) is also located c. 4.2km north northwest of the subject site.

Recreational Waters and Bathing Waterbodies

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 protected Recreational Waters or Bathing Waterbodies within the Study Area. The site is in the vicinity to the River Tolka and its tributaries, which are located c. 1.54km south of the site. The Mooretown Stream lies c. 330m north of the site.

Drinking Water Resources

A review of Environmental Sensitivity Mapping online maps that includes the Water Abstraction locations, and Groundwater Source Protection Areas has been undertaken. This shows no Groundwater Source Protection Areas within the Study Area. There are several Water Abstraction locations and groundwater monitoring within a 3 km radius of the site; the abstraction wells generally supply a mix of use ranging from domestic to public to industrial use. These wells are generally located in the Calp Limestone with recorded yields ranging between ca. 16m³/d to 115m³/d. From static water levels (SWL) measured and included in the published EIS for adjacent Bristol Meyers Squib site (Jacobs, 2015) groundwater flow has been found to be in a southerly direction towards the Tolka River and likely towards the River Liffey on a more regional scale. Further detail is provided in Chapter 6 (Land, Soils, Geology and Hydrogeology).

5.3.3 Risk of Major Accident Hazards or Disasters

The potential for a project to cause risks to human health, cultural heritage or the environment due to its vulnerability to external accidents or disasters is considered where such risks are significant, e.g. the potential effects of floods on sites with sensitive facilities. Where such risks are significant then the specific assessment of those risks in the form of a Seveso Assessment (where relevant) or Flood Risk Assessment may be required.

The Proposed Development site has been assessed in relation to the following external natural disasters; landslides, seismic activity, volcanic activity and sea level rise/flooding as outlined below.

Landslides, Seismic Activity and Volcanic Activity

There is a negligible risk of landslides occurring at the site and in the immediate vicinity due to the topography and soil profile of the site and surrounding areas. There is no history of seismic activity in the vicinity of the site. There are no active volcanoes in Ireland so there is no risk of volcanic activity. Further detail is provided in Chapter 6 (Land, Soils, Geology and Hydrogeology).

The Proposed Development site is not vulnerable to landslides, seismic activity or volcanic activity. Therefore, there is no significant potential for the Proposed Development to cause risks to human health due to its vulnerability to landslides, seismic activity or volcanic activity.

Proximity to Seveso or Industrial Emissions Sites

The potential for major accidents to occur at the facility has also been considered with reference to establishments registered with the Health and Safety Authority in accordance with the Control of Major Accident Hazards (COMAH) Regulations that implements the Seveso III Directive.

These regulations define the “consultation distance” as a distance or area relating to an establishment, within which there are potentially significant consequences for human health or the environment from a major accident at the establishment, including potentially significant consequences for developments such as residential areas, buildings and areas of public use, recreational areas and major transport routes.

The site is not a Seveso facility, however, there are 4 no. of Seveso facilities within the Study Area. Table 5.9 below details the sites, the consultation distance and the distance to the proposed facility.

Table 5.9 *Nearest Seveso/COMAH site, consultation distance and distance to Proposed Development site*

Seveso / COMAH site	Consultation distance	Distance to Proposed Development site
Barclay Chemicals Manufacturing Ltd. (t/a Barclay Crop Protection), Damastown Way, Damastown Industrial Park, Mulhuddart, Dublin 15		1600 m
Chemco (Ireland) Limited (t/a Chemsorce Logistics), Macetown North, Damastown Industrial Estate, Dublin 15	700 m	1 600 m
Contract & General Warehousing Ltd., Westpoint Business Park, Navan Rd. Mulhuddart, Dublin 15	700 m	2100 m
Astellas Ireland Co., Ltd Damastown Road, Damastown Industrial Park, Mulhuddart, Dublin 15	1,000 m	2400 m

It is concluded that the Proposed Development site is not located within the consultation distance of any COMAH establishment that is notified to the HSA. Therefore, there are no implications for major accident hazards at the Proposed Development site.

Risk of Flooding

The potential risk of flooding on the site was also assessed. As stated in Section 7.3.2 of Chapter 7 Hydrology, a Site-Specific Flood Risk Assessment was completed (CS Consulting Group, 2022), and the assessment identified no flood hazards for the Proposed Development. The Proposed Development resides within Flood Zone C and is not at risk of flooding from a 1% or 0.1% Annual Exceedance Probability (AEP) event. The flood zonation confirms that the site is suitable for this type of industrial development.

5.4 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The subject site is 13.14 hectares in extent and is located along the R121 Cruiserath Road, Dublin 15. It is located entirely within an overall landholding of 26.14 hectares which is being developed as a data centre campus, with data centre Building A fully operational and data centres Building B and C currently under construction within the overall landholding. Refer to Section 2.2.3 for a detailed description of the Permitted Developments.

The Subject Site occupies the northwest portion of the overall landholding and is primarily undeveloped with the exception of Building D which has recently been constructed within the southernmost portion of the subject site, and an area at the centre of the site currently serves as a construction compound (including car parking) for the construction of Buildings B and C.

Much of the surrounding land has been developed in the past 10-15 years, mainly for industrial use (to the east and south) and residential (to the west). The site is not located directly adjacent to any areas of national or local environmental sensitivity/designation.

The Proposed Development is described in further detail in Chapter 2 (Description of the Proposed Development).

5.5 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

The main potential impacts on population and human health from the Proposed Development are potential for spills/leaks, air emissions, noise, visual, and traffic impacts. The baseline environment, pollution pathways, relevant mitigation measures and residual impacts have been assessed in greater detail within the corresponding specialist chapters; Chapter 6 (Land, Soils, Geology and Hydrogeology); Chapter 7 (Hydrology); Chapter 9 (Air Quality), Chapter 10 (Noise and Vibration); Chapter 11 (Landscape and Visual); and Chapter 13 (Traffic and Transportation).

A summary of the main potential impacts as they are relevant to human health criteria during construction, commissioning, operation and decommissioning of the Proposed Development is presented herein.

5.5.1 Construction Phase

5.5.1.1 Potential Impacts on Businesses and Residences

The main potential impacts on local businesses and residences associated with the Proposed Development will be in relation to nuisances; air quality, noise, visual impact and traffic. The potential impacts and mitigation measures to address them are dealt with within the corresponding chapters of this EIA Report as follows:

- Chapter 9 – Air Quality & Climate
- Chapter 10 – Noise and Vibration
- Chapter 11 – Landscape and Visual Impact
- Chapter 13 – Traffic and Transportation

It is predicted that there will be a slight positive impact on local business activity during the construction phase with the increased presence of up to 400 no. construction workers using local facilities. The companies involved in the construction of the

Permitted Developments have engaged with the community and provided funding to local clubs and organisations. This initiative will be continued for the Proposed Development if granted permission.

However, during construction, there is the potential for short-term nuisance impacts from traffic, dust, noise and construction waste, as well as the potential additional housing demand in the wider commuter area as a result of increased employment provided by the Proposed Development. It is also anticipated that the Proposed Development will have indirect positive effects on employment in terms of construction material manufacture, maintenance contracts, equipment supply, landscaping etc. It is likely that the Proposed Development will have a negligible significance of effects on businesses and residences with respect to human health.

5.5.1.2 Potential Impacts on Landscape Amenity and Tourism

There will be no impact on the local parks or the larger amenity areas. The Proposed Development will have any impact on local tourism or shopping amenities. The Proposed Development will not create any wastewater discharge which could have a potential impact on local amenities or the local population.

Further detail is provided in Chapter 11 (Landscape and Visual Impact).

5.5.1.3 Potential Impact from Land and Water Emissions on Human Health

With reference to Chapter 6 (Land, Soils, Geology and Hydrogeology) and Chapter 7 (Hydrology) during construction of the Proposed Development, there is a risk to land, soil and groundwater from the following sources:

- Water (rainfall and/or groundwater) contamination with pollutants associated with construction activity. Contaminated water which arises from construction sites can pose a significant short-term risk to groundwater quality for the duration of the construction if contaminated water is allowed percolate to the aquifer. The potential main contaminants include:
 - Suspended solids (muddy water with increased turbidity (measure of the degree to which the water loses its transparency due to the presence of suspended particulates) – 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;
 - Wastewater (nutrient and microbial rich) – arising from poor on-site toilets and washrooms.
- Accidental spillages which are not mitigated may result in localised contamination of soils and groundwater underlying the site, should contaminants migrate through the subsoil's and impact the underlying groundwater. Groundwater vulnerability at the site is currently classified as 'High' to 'Extreme' throughout the Proposed Development site. Any soil stripping will also further reduce the thickness of subsoil and the natural protection they provide to the underlying aquifer.
- Excavation of soil and near-rock head – this will not change the overall vulnerability category for the site which is already 'high to extreme'. Capping of significant areas of the site by hardstand/ building following construction and installation of drainage will minimise the potential for contamination of the aquifers beneath the site also.

- Contamination of Local Water Courses - there is a risk of accidental pollution incidences from the following sources:
- Spillage or leakage of fuels (and oils) stored on site.
- Spillage or leakage of fuels (and oils) from construction machinery or site vehicles.
- Spillage of oil or fuel from refuelling machinery on site.
- The use of concrete and cement.
- Storage of chemical on site.

The magnitude of the impact for the construction phase without mitigation and design measures is **short-term** in duration with **not significant effect** rating to the underlying subsoil and aquifer present across the Proposed Development site.

5.5.1.4 Potential Impact from Air Quality on Human Health

The greatest potential impact on air quality during the construction phase of the Proposed Development is from construction dust emissions as a result of excavation works, infilling and landscaping activities and storage of soil in stockpiles. This leads to the potential for nuisance dust. As detailed in Chapter 9 (Air Quality & Climate), best practice mitigation measures will be implemented for the construction phase of the Proposed Development which will focus on the pro-active control of dust and other air pollutants to minimise generation of emissions at source. The mitigation measures that will be put in place during construction of the Proposed Development will ensure that the impact of the development complies with all EU ambient air quality legislative limit values, which are based on the protection of human health and the environment.

Construction traffic would be expected to be the dominant source of greenhouse gas emissions as a result of the Proposed Development. Construction vehicles and machinery will give rise to CO₂ and N₂O emissions during construction of the Proposed Development. The Institute of Air Quality Management document '*Guidance on the Assessment of Dust from Demolition and Construction*' (IAQM, 2014) states that site traffic and plant is unlikely to make a significant impact on climate. Climate change is discussed in more detail in Chapter 9.

Initial commissioning activities will involve testing of the back-up generators on site in a similar manner to the operational phase testing, i.e. the first testing sequence will be commissioning of the standby generators. The operational modelling has considered testing of the generators on a weekly and quarterly basis and this does not result in a significant impact to air quality. Therefore, it is predicted that the initial commissioning tests will result in an **imperceptible** impact to air quality in the **short-term**.

5.5.1.5 Potential Impact from Noise and Vibration on Human Health

Exposure to excessive noise is becoming recognised as a large environmental health concern. According to the 2015 European Commission report 'Noise Impacts on Health', (European Commission, 2015), the most common effects of noise on the vulnerable include;

- Annoyance
- Sleep Disturbance
- Heart and circulation problems
- Quality of Life
- Cognitive Process
- Hearing