

Planning Application to Dublin City Council
Environmental Impact Assessment Report
Proposed Data Storage Facility Development
Clonshaugh Business and Technology Park,
Dublin 17

Prepared by
AWN Consulting Ltd.
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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 Mullins Developments (hereafter referred to as 'the Applicant') to accompany a planning application to Dublin City Council (DCC) for development at the former Diamond Innovations site (Unit 1C), Clonshaugh Business & Technology Park, and adjacent lands, Dublin 17. The development will be operated by Amazon Data Services Ireland Ltd. (herein referred to as 'the Operator'). The proposed development site is c. 15 hectares in extent. The location of the proposed development is shown on Figure 1.1.

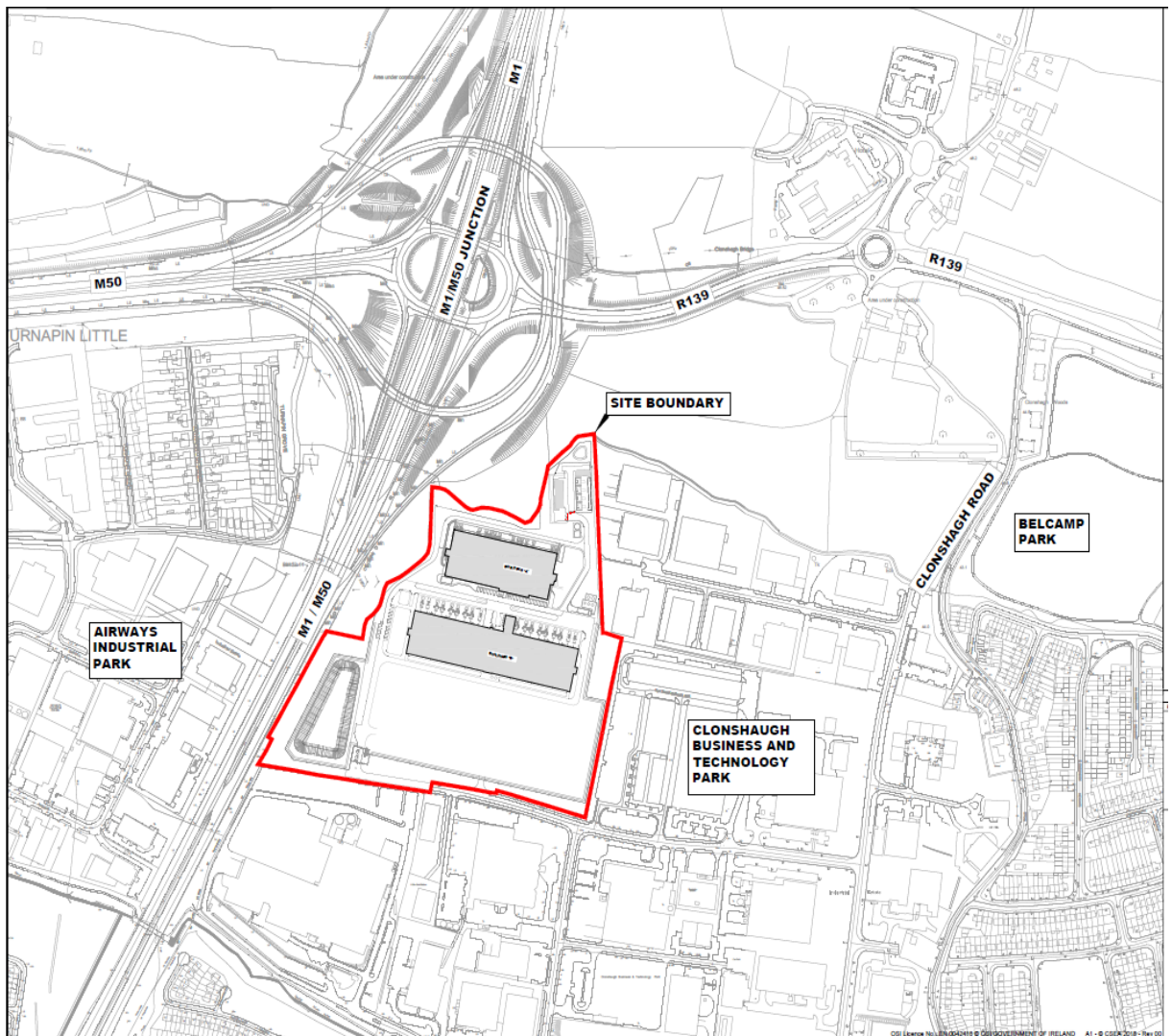


Figure 1.1 Site Location with site boundary in red

The proposed development will comprise the construction of a new two-storey c. 16,860m² building for use as a data storage facility containing data storage rooms, electrical and mechanical plant rooms and support areas including offices and welfare facilities, loading bays, back-up generators, water storage tanks, car parking, landscaping and associated site infrastructure. A full description of the development is provided in Chapter 3 (Description of the Proposed Development).

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 2001-2017. 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). Thresholds for Annex II projects are set out in the Planning and Development Regulations 2001-2017. In accordance with Part II Schedule 5 of these Regulations, an EIA is required for Class 10(a) "*Industrial estate development projects where the area would exceed 15 hectares*". As the subject site is c. 15 ha in total, an EIA Report has been prepared for the development.

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. The EIA Report (previously referred to as an Environmental Impact Statement or EIS) reports on the findings of the EIA process to date and informs the Planning Authority, statutory consultees, other interested parties and the public in general about the likely effects of the project on the environment.

This EIA Report has been prepared in accordance with the requirements of the 2014 EIA Directive (2014/52/EU) and Environmental Protection Agency (EPA) Draft "*Guidelines on the Information to be Contained in Environmental Impact Assessment Reports*" (2017).

The Operator

The operator provides data storage, management and dissemination. To date, the operator has developed a number of data facilities in Ireland and are a significant Irish employer.

Consultation

The operator met with DCC prior to the initial development of the site in accordance with permission Reg. Ref. 3874/15 which was granted in 2016. The discussions with the Planning Department identified the proposed build out of the overall campus and included discussions on scale, nature and extent of the proposed development to ensure the requirements of the Council were incorporated into the design of the facilities. In addition, the relevant specialists have liaised with typical statutory bodies (including Irish Water, Eirgrid and ESB, NPWS etc.) by correspondence during the course of the EIA Report preparation.

Regulatory Control

The proposed development activity is not an EPA regulated activity in terms of the Industrial Emissions Directive.

The existing data storage facility developments on the site have an EPA Greenhouse Gas Emissions Permit (Ref. IE-GHG183–10507-02) as required by the Environmental Protection Agency Act 1992, as amended. It is anticipated, that the existing permit will be amended to incorporate the proposed additional back-up generators, subject to grant of planning permission for the proposed development. This will be applied for by the operator in due course prior to commencement of the activity.

In accordance with the recent legislation relating to the Medium Combustion Directive (2015/2193), the back-up generators will be registered as required with the EPA. However, the generators are exempt from complying with the emission limit values set out in the Directive, as they will not operate for more than 500 hours per annum.

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) of the EIA Report.

2.0 DESCRIPTION OF THE EXISTING DEVELOPMENT

Site Location

The subject site is c. 15 hectares in extent and is located in Clonsaugh Business & Technology Park in North Dublin c. 7km from Dublin Airport, c. 7km from Dublin City Centre and c. 2.5km from the M50 motorway (refer to Figure 1.1).

The surrounding area is predominantly commercial/industrial with some undeveloped land. The business estate is occupied by a wide variety of industrial/commercial users including Allergan (pharmaceutical), Butlers Chocolates (factory and café) and Brinks Ireland (security).

Physically the development site is relatively flat (typically just over 50m AOD Malin) however, the site falls c. 3m from west to east.

Site History

The subject site was owned and operated by GE Superabrasives, latterly Diamond Innovations Ireland Operations (DIIO), for c. 25 years. The company made a variety of industrial diamond and related abrasive products. The site ceased manufacturing in 2013 and closed in 2014. During 2014, the facility underwent an extensive closure and decommissioning process under the oversight of the EPA in accordance with the requirements of the DIIO Integrated Pollution Prevention and Control (IPPC) Licence (P0532-01). The site was put up for sale and acquired by the operator in 2015. All the DIIO buildings were demolished in 2016 (under Planning Reg. Ref.: 3634/15).

Prior to the DIIO operation, it is understood the site was greenfield/undeveloped agricultural land. Clonsaugh Business and Technology Park was established by the IDA in the early 1980's and has been developed ever more intensively since that time.

Existing Site Layout

The layout of the existing permitted data storage facilities, ancillary buildings and structures and attenuation ponds are illustrated in Figure 2.1 below.

Building A (which is fully operational) occupies the majority of the northern half of the site. Building B (currently under construction with one data storage room operational) occupies the central portion of the site. At present there are up to 250 construction staff on site daily, working on the construction of Building B and associated infrastructure.

Some of the Operator’s operations staff for Building B are also present on site (since early Q1 2018) and the level of operations will increase as each of the data storage rooms are completed and commissioned. It is expected that construction of Building B will be fully complete by Q1 2019. Building C is due to commence in Q4 2018 and will be fully operational by Q4 2021.

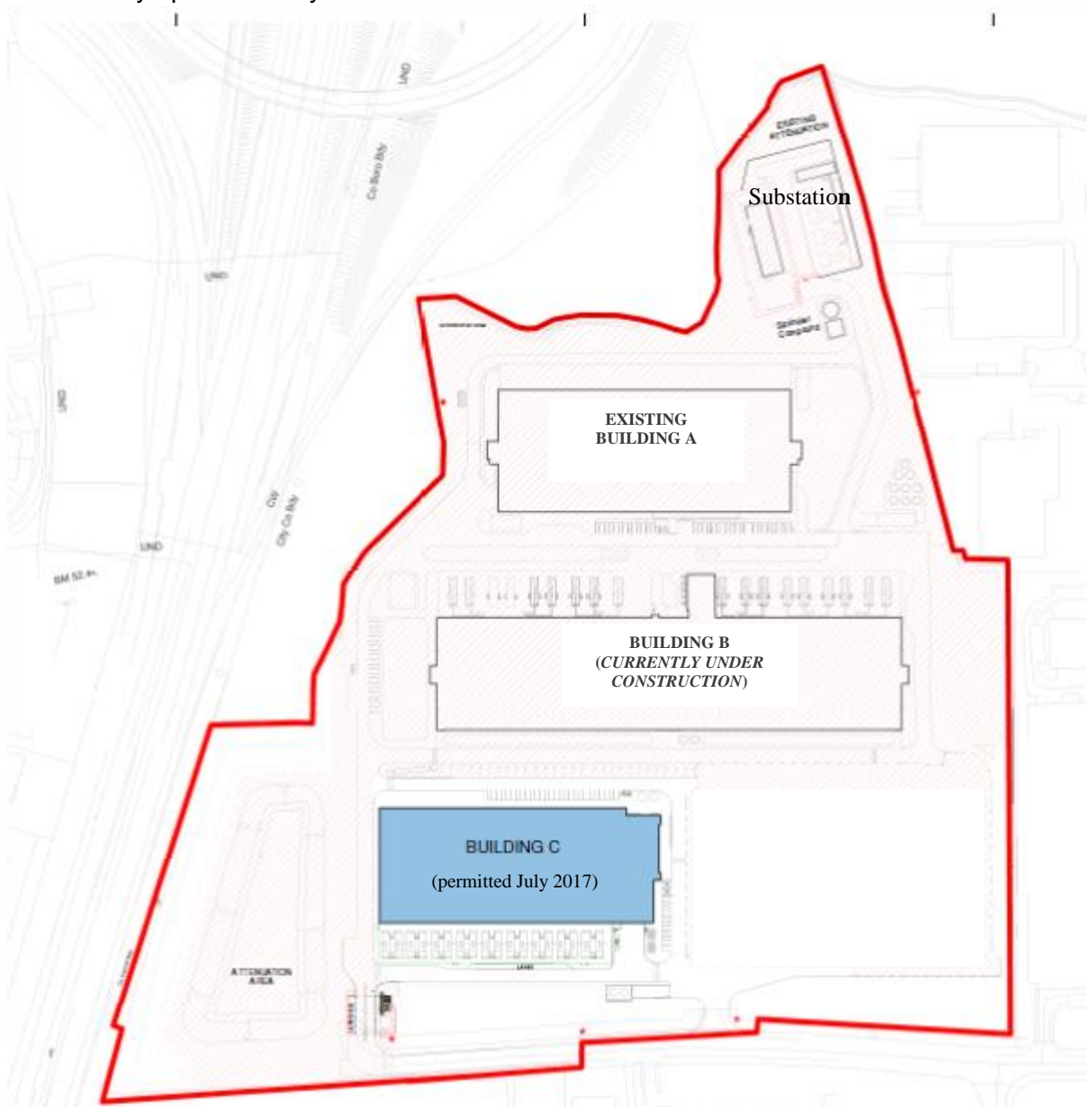


Figure 2.1 Current Site Layout

Further detail on the existing and permitted buildings and infrastructure on the site are provided in Chapter 2 (Description of the Existing Development) of the EIA Report.

3.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT

Figure 3.1 presents the location of the proposed development, Building D in the south eastern corner of the existing site. The existing data storage facilities i.e. Building A (which is currently operational), Building B (which is currently under construction) and Building C (which is recently permitted) do not form part of the 'proposed development' and are referred as the 'existing facilities(s)' on the site throughout the EIA Report.

The proposed development will comprise the following:

- (1) The construction of a new two-storey c. 16,860m² building for use as a data storage facility containing; data storage rooms, electrical and mechanical plant rooms and support areas including offices and welfare facilities, loading bays, back-up generators and water storage tanks; mechanical plant at roof level is screened from view on all sides by permanent screens;
- (2) 40 no. car parking spaces associated infrastructure and landscaping

Visually the appearance of the proposed data storage facility is intended to complement the existing data storage facilities present on site. Significant landscaping has been permitted through previous planning at the site (Building B and C planning approvals amendment (Planning Permission Reg. Ref. DCC 4449/16 and planning Ref DCC 3096/18). This proposed development includes a small additional strip of landscaping between Buildings B and D.

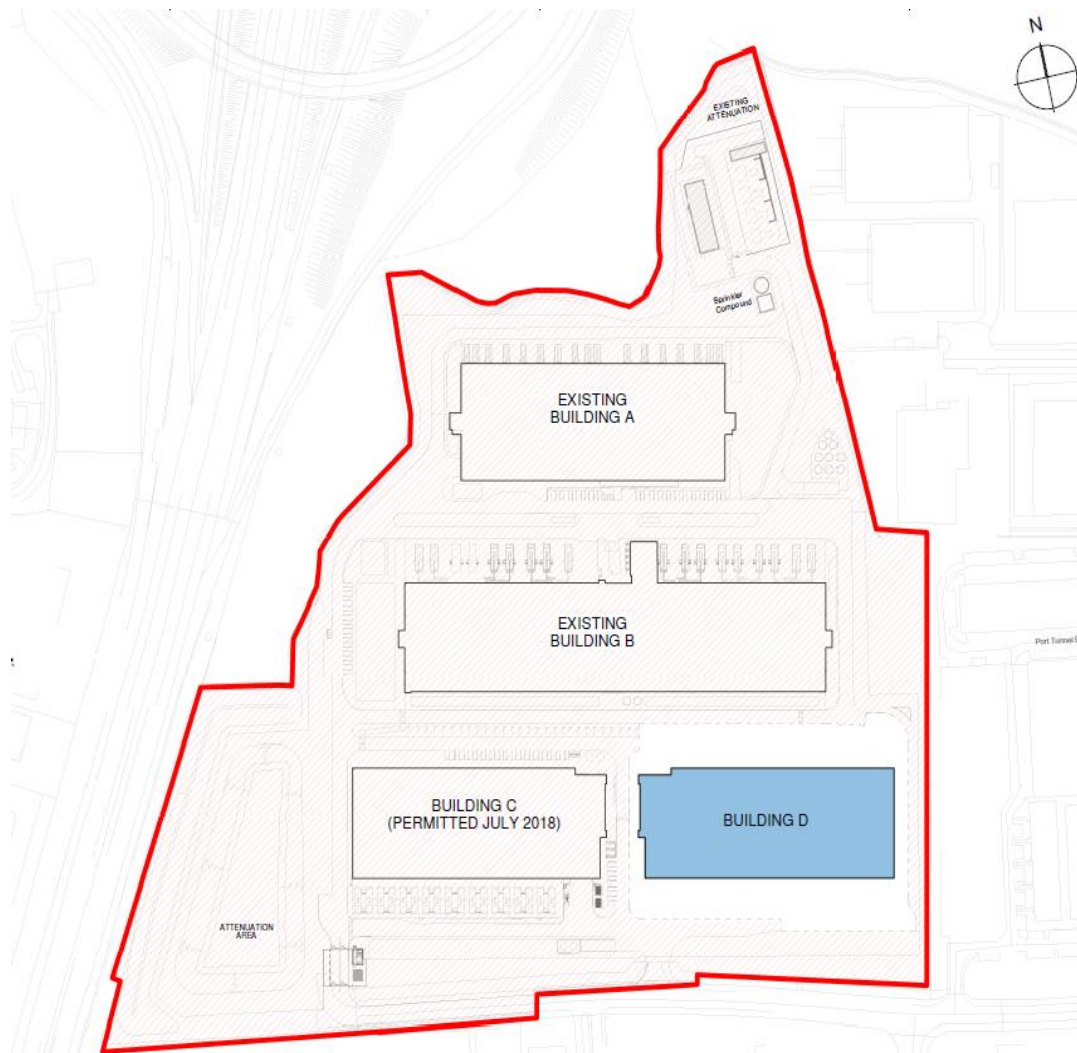


Figure 3.1 Proposed Site Layout

A summary of the proposed target dates (earliest possible dates) for the construction are as follows:

- Application for Planning Permission – Oct 2018;
- Commence Site Construction works (subject to grant of planning permission) – Q4 2020,
- Commence Operation of First Data Hall – Q3 2021 (subject to EPA GHG permit approval);
- Complete Commissioning Works (Final Data Storage Room) – End Q4 2022.

Further detail on the proposed development, infrastructure and secondary facilities on the site are provided in Section 3.2.3 of the EIA Report.

Existence of the Project

Under the current Draft EPA *Guidelines on the information to be contained in EIA Reports*, 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;
- Commissioning;

- Operation;
- Decommissioning; and
- Description of Other Developments.

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 M&E.

Subject to grant of planning permission, construction work for the proposed development is anticipated to commence in Q4 2020.

It is anticipated that construction will be completed during normal construction hours i.e. 7am to 7pm Monday to Friday with a half day working on Saturday (8am - 1pm). However, it is possible that the appointed contractors may wish to carry out certain operations outside these hours i.e. evening hours during long summer days 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.

The total peak construction population on site is estimated to be of the order of c. 400 staff (average 275). Site staff will include management, engineers, construction crews, supervisors and indirect staff.

The construction of Building B is currently underway at the site (due to be fully operational in Q2 2019). It is proposed that the accesses and haul roads for vehicles, the contractor's compound and fencing that have been established for the construction of Building B will be maintained and utilized for construction of Building C and then the proposed development. The construction compound will facilitate office, portable sanitary facilities, equipment storage, parking etc. for contractors. It will be used for the duration of the works. The south eastern portion of the site, where it is proposed to locate the proposed development, has already been largely cleared (of any vegetation etc.) and levelled.

The primary activities that will be required during the site preparation phase for the proposed development will be further site clearance, excavations and levelling of the site to the necessary base level for construction, surveying and setting out for structures and any rerouting of services/connections to services.

Following the completion of site levelling, all structures will require foundations to structural engineer specifications. Building structures will comprise standard structural steel frames. It is envisioned that 1,750 m³ soil/stones arising on the site will be exported from site to a licenced facility.

It is estimated that 4150 m³ importation of soils/stones will be required to facilitate construction. Contractors will be required to submit and adhere to a method statement (including the necessary risk assessments) and indicating the extent of the areas likely to be affected and demonstrating that this is the minimum disturbance necessary to achieve the required works.

The construction of the walls and roofs of the building will closely follow the completion of structures. Typically, the contractors will start by building from the centre of the building and begin fitting out the first data storage room as early as possible in the process. 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 quality and appearance to existing facilities.

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. A significant proportion of the landscaping which will provide screening for the proposed development has been included in the Building B and C planning approvals amendment (Planning Permission Reg. Ref. DCC 4449/16 and planning Ref DCC 3096/18).

Commissioning

Once the first data storage room is built, specialist contractors will be mobilized 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. Commissioning will be carried out over several months.

Any hard landscaping and final soft landscaping (primarily between Building B and the proposed development) will be completed.

Operation

Once operational each data storage facility 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.

It is anticipated that c. 30 full time employees will be present on site daily with additional external staff, maintenance contractors and support service visitors, as required. The number of external staff maintenance contractors and visitors will typically be c. 10 staff per day.

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 facilities 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.

Description of other Developments

A list of the other developments in the vicinity of the proposed development including Allergan and Butlers Chocolate amongst others is provided in Chapter 4 Planning and Alternatives of this EIA Report. (In terms of construction projects some of these developments are completing alterations or extensions, however the majority of these are relatively small scale).

Sustainability, Energy Efficiency and Resource Use

The operator is committed to running its business in the most environmentally friendly way possible. In addition to the environmental benefits inherently associated with running applications in the cloud, the operator has a long-term commitment to achieve 100% renewable energy usage.

The operator is committed to supporting sustainable, cost-effective renewable energy in the Republic of Ireland. The operator's current electricity supplier in Ireland sources and retires Guarantees of Origin (GO's) for every megawatt-hour (MWh) the operator uses. For every MWh a renewable project generates, it produces a GO, which is used to track

renewable production and quite literally guarantee its origin (these GO's are subsequently retired to ensure each is only used once).

The operator issued a request for proposal to the Irish market in late 2017 which is seeking to enable new renewable projects that would not have otherwise been feasible without a power purchase agreement (PPA). This process is now advancing.

A typical data storage facility achieves approximately 65% server utilization rates versus 15% at on-premises servers. This typically means companies moving their data storage to the cloud require less than a quarter of the server infrastructure they would need if provided on-premises. A typical on-premises data storage facility is 29% less efficient in their use of power compared to a typical large-scale data storage facility that uses world-class facility designs, cooling systems, and workload-optimized equipment. Adding these together (fewer servers used plus better power efficiency), cloud customers need 16% of the power required by those on-premises infrastructure. This represents an 84% reduction in the amount of power required.

Major Accidents/Disasters

The 2014 EIA Directive and associated Draft EPA EIA Guidelines require that the vulnerability of the project to major accidents and/or 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, volcanic activity and sea level rise/flooding as outlined below. The potential for major accidents to occur at the facility has also been considered with reference to Seveso/Control of Major Accident Hazards (COMAH) Regulations.

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.

Flooding/Sea Level Rise

The potential risk of flooding on the site was also assessed. A Stage 1 Flood Risk Assessment was carried out and it was concluded that the development is not at risk of flooding. Furthermore, the proposed development design has adequate

attenuation etc. to ensure there is no potential impact on flood risk for other neighbouring properties.

Seveso/COMAH

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.

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 the EIA Report will ensure the risk of a minor/accident is low and that the residual effect on the environment is imperceptible.

4.0 PLANNING AND ALTERNATIVES

Planning and Development Context

The site for the proposed development is situated within the administrative area of DCC, and therefore the Planning and Development Framework with which the development complies is defined by the Dublin City Council Development Plan 2016-2022.

The proposed development is located in an 'Employment/Enterprise Zone' within the Clonshaugh Business & Technology Park, a designated industrial park. The Plan identifies the Industrial Park as Zone Z6 with the aim to *"provide for the creation and protection of enterprise and facilitate opportunities for employment creation."*

In relation to this land use zoning, the plan states that: *"Z6 lands constitute an important land bank for employment use in the city, which is strategically important to protect. The primary objective is to facilitate long-term economic development in the city region."*

Permissible uses in this zone include 'Science and technology-based industry' which is defined in the Development Plan to include 'data processing'.

Within Zone Z6 lands, the development principle relating to employment is *"To create dynamic and sustainable employment areas. Any re-development proposals on Z6 lands should ensure that the employment element on site should be in excess of that on site prior to re-development in terms of the numbers employed and/or floor space."*

Once Building B and C are fully operational, the existing and permitted developments will employ up to 96 no. permanent full-time positions. The proposed development is anticipated to create c. 30 additional permanent full-time positions). In addition, up to 10 no. maintenance contractors and other visitors will also service the site daily. As such, the proposal will meet the requirements of the development principle.

As part of the assessment of the impact of the proposed development, account has been taken of developments that are currently permitted or under construction within the Clonshaugh Business and Technology Park, neighbouring industrial park and surrounding areas.

The DCC Planning Department website was consulted in order to generate a list of granted planning permissions from the surrounding areas of the proposed development within the previous three years. This list is presented in Table 4.1 of Chapter 4 of the EIA Report. As the site is within close proximity of the boundary between the DCC and Fingal County Council (FCC) administrative boundaries, the FCC website was also consulted, and the list of notable planning permissions is presented in Table 4.2 of Chapter 4 of the EIA Report.

Details of previous planning permissions (related to previous site occupants as well as the operator) are also detailed in Chapter 4 of the EIA Report.

The operator met with DCC prior to the initial development of the site in accordance with permission for construction of Building A (Planning Reg. Ref. 3874/15) which was granted in 2016. The discussions with the Planning Department identified the proposed build out of the overall campus and included discussions on scale, nature and extent of the proposed development to ensure the requirements of the Council were incorporated into the design of the facility.

The proposed development will be in keeping with all of the aspects of the relevant policy documents (as set out in Chapter 4). The proposed development will be situated on suitably zoned lands in a purpose-built Industrial Estate in the Clonshaugh area.

DCC's stated policies and objectives to conserve, protect and enhance the environmental resources and assets of the region will not be contravened by the proposed development as described in the relevant chapters within the EIA Report.

The proposed development complies fully with the stated requirements of DCC and will deliver a key piece of supporting infrastructure which is of significant importance to the operator, a major employer in the Information and Communications Technology (ICT) sector in Ireland.

Alternatives

EIA legislation and the prevailing guidelines and best practice require that EIA Reports

consider 'alternatives' for projects with regard to their environmental effects addressing:

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

Do Nothing Alternative

As the site is already being developed as an operating data storage facility with three permitted development, the 'do nothing' alternative is to leave the site as a data storage facility site, with the south eastern portion of the site largely unutilized. This is not considered to be an efficient use of the site. This proposed development is a logical extension of the existing data storage facilities permitted and in place/under construction at the site and is in keeping with the planned build-out of the site as discussed with DCC.

Alternative Project Locations

As part of the planning application for Building A (Planning Reg. Ref. 3874/15), 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 selection of Ireland as the preferred country location for this development was based largely on climatic conditions, the highly skilled local workforce, and strategic business considerations. The Irish climate means that data storage facilities require significantly less cooling compared with many other countries with associated benefits of less power and water demand requirements. This has a knock-on effect of reduced air and noise emissions.

In the development of the project (and the operator's other facilities developed in the greater Dublin area in recent years), the company has completed detailed assessments on a number of candidate sites. The sites considered were both greenfield and vacant industrial sites. The operator's overall preference is to locate these facilities in Dublin 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. It was concluded that this site met the highest proportion of the necessary criteria of the candidate sites with particular advantages including:

- Proximity to and availability of suitable power supply and infrastructure;
- Suitable zoning;
- Low environmental sensitivity being within a business park adjacent to the M50, and in terms of distance to residential development and no significant ecological or water receptors. Site specifically designed for large scale industrial activities with good water, wastewater and road access.

Alternative Design/Layouts

In the preparation of the site masterplan, a number of alternative arrangements and configurations of future buildings, roadways, parking arrangements and access arrangements were considered. The location of the proposed building (Building D) on the south eastern portion of the site is essentially as indicated on the original indicative masterplan discussed with DCC.

In terms of environmental considerations, it was identified that air emissions effects were the most important potential constraint to the available layout options. The stack heights for the gas 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.

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

- Minimising potential impacts on the environmental sensitivities associated with the surrounding land uses (which are predominantly industrial in nature but include residential development to the west and further to the south);
- Location of stacks on the southern façade and generators on the southern aspect of the data storage facility in consideration of those nearest receptors.
- Location of the wastewater and stormwater systems (including attenuation) and proximity to the existing storm-water drainage services available;

- Location of diesel tanks proximal to area of usage and therefore minimise risk of accidental loss to ground;
- Orientation of the data storage facility development to optimise the use of the space available;
- Ease of site access and minimising impact on traffic movements throughout the internal road network of the industrial park.

Alternative Processes

In terms of the proposed technology, these data storage facilities 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.

The operator is committed to continually assessing and improving this technology particularly with respect to minimizing 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.

Alternative Mitigation

The mitigation measures proposed are outlined in each of the EIA Report chapters and are similar to those applied to the existing developments on the site. These represent the best practice for achieving minimal impact on the receiving environment. Whilst alternatives were considered in the EIA process, the measures presented represent the best options for the site.

Conclusion

The selected site is an ideal location for the proposed development from both an environmental perspective and from a planning perspective. The site has the required infrastructure readily available for the development which has been accommodated under previous planning permissions at the site. A new power connection to the site will be facilitated via a proposed underground double circuit 110kV transmission cable installation which will be subject to its own planning application and EIA Report. The addition of the proposed development to the site will have synergistic benefits allowing for efficiency in operations and maintenance.

The siting of the proposed data storage facility on an existing industrial site, as well as the overall design of the buildings and campus, have been carefully chosen based on a comprehensive assessment of alternative site locations, designs and processes. The proposed development will considerably enhance the utilization of the site.

In conclusion, it is considered that the proposed site has capacity for the development, particularly from a functionality perspective, and is therefore highly suitable for a data storage facility usage.

5.0 POPULATION AND HUMAN HEALTH

This chapter evaluates the impacts if any, of the proposed development on population and human health. In accordance with the Draft EPA EIA Report Guidance (2017), this chapter has considered the "*existence, activities and health of people*" with respect to "*topics which are manifested in the environment such*

as employment and housing areas, amenities, extended infrastructure or resource utilisation and associated emissions”.

Issues examined in this chapter include demography, population, employment, social infrastructure, landscape, amenity and tourism, natural resources, air quality, noise and vibration, material assets, traffic and health and safety.

The immediate surrounding area is primarily occupied by commercial/industrial business parks most notably to the east and south. The closest residential properties are located c. 240m west of the site boundary (across the M1/M50 motorway) within the Turnapin Little residential area.

There are a number of primary and secondary schools in the vicinity of the proposed development with the closest being Scoil Fhursa Primary School in Kilmore c.890m south-east of the site. The nearest hospital to the proposed development is Beaumont Hospital located c.1.3km to the south of the site. The Coolock Health Centre is also located c. 1 km south- east of the site along the R104.

In terms of landscape amenity, 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 Coolock Lane Park (c. 500m to the south), Santry Park (c. 750m to the south-west) and Belcamp Park (c. 550m to the east) which are all small recreational parks.

Tourism is not a major industry in the immediate environs of the site, however Butlers Chocolate Experience is located c. 250m east of the site within the industrial park and attracts visitors and tourists. Dublin Airport is located c. 7km to the north-west of the site.

The site itself has been in industrial use (originally by Diamond Innovations) since 1989, prior to which it was a greenfield site. Historical Ordnance Survey (OS) maps indicate that much of the surrounding land has also been in industrial use for 20-30 years. As such, much of the agricultural resource in the surrounding area has already been lost over recent decades.

Impact Assessment

The potential impacts on local businesses and residences associated with the proposed development will be in relation to air quality, noise and visual impact.

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, however the impact during the operational phase will be less with c. 30 no. full time employees (and up to 10 no. additional maintenance staff and other visitors) anticipated.

Mitigation measures that will be put in place for control of dust and other air pollutants 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 short-term and imperceptible with respect to human health.

Air dispersion modelling was undertaken to assess the impact of the back-up generators associated with the proposed development and indicative future development with reference to EU ambient air quality standards which are based on the protection of human health. As demonstrated by the dispersion modelling results, emissions from the site assuming scheduled testing as well as emergency operation of the back-up generators are compliant with all National and EU ambient air quality limit values and, therefore, will not result in a significant impact on human health.

Noise emissions associated with the construction phase of the development are expected to be less than the prevailing ambient noise level at the nearest sensitive locations. As a result, the existing noise environment is not expected to change significantly as a result of the temporary – short term construction phase. In addition, due to the distance between the site and the nearest sensitive locations, vibration impacts generated during construction are expected to be negligible. Therefore, the noise and vibration impact of the construction phase of the proposed development is likely to be short-term and imperceptible with respect to human health.

Noise modelling was undertaken to assess the impact of the proposed operation of the development with reference to noise limits typically applied by DCC and the EPA. As demonstrated by the modelling results, noise emissions associated with the proposed development during the operational phases are compliant with the adopted noise limit values which are based with due consideration of the effect on human health. Furthermore, the predicted increases in noise level at the nearest noise sensitive locations conclude that the associated impact is negligible. In essence, the existing soundscapes that are encountered at the nearest noise sensitive locations are predicted to remain unchanged with the operation of the proposed data storage facility and associated infrastructure and, therefore, will not result in a significant impact on human health.

The development will not generate any perceptible levels of vibration during operation and therefore there will be no impact from vibrations on human health.

The location of the proposed development within an existing industrial/commercial park will have a minimal impact on the local landscape amenities, local tourism or shopping amenities.

The proposed development will require additional electrical power supply from the national grid. Eirgrid has provided confirmation that there is sufficient capacity from the existing area network for the required power demand. There is no predicted impact on power supply to local residential or business users. Further information is provided in Chapter 14.

The traffic assessment shows that the existing public road network is currently operating well and that there is capacity on the road network within the industrial park for the additional traffic movements on a short-term basis during construction and long-term for the operational phase.

The proposed development has the potential for an impact on the health and safety of workers employed on the site, particularly during the construction phase. The activities of contractors during the construction phase will be carried out in accordance with the Safety, Health and Welfare at Work (Construction) Regulations 2013 (S.I. No. 291 of 2013) to minimize the likelihood of any impacts

on worker's health and safety. During the operational phase of the development, the operator will implement an Environmental Safety and Health Management System and associated procedures at the facility.

The impacts on the local population in terms of residents and businesses are considered to be mainly positive in the sense of creating direct employment opportunities and indirect additional business, both during the construction and operational phases.

Mitigation measures proposed to minimize the potential impacts on human health in terms of air quality and climate and noise and vibration are discussed in Chapters 9 and 10, respectively. Mitigation measures to reduce the impact of additional traffic movements to and from the development are set out in Chapter 13 of the EIA Report.

Overall, it is expected that the proposed development will have a **positive** and **long-term** impact on the immediate hinterland through continued employment opportunities and the associated economic and social benefits.

6.0 LAND, SOILS, GEOLOGY AND HYDROGEOLOGY

This chapter assesses and evaluates the potential impacts of the proposed development on the land, geological and hydrogeological environment.

The subsoil has been classified as limestone till (Carboniferous). This is the dominant subsoil type in the region and is a glacial deposit which is known as Dublin Boulder Clay. Dublin Boulder Clay is characterised by its extreme stiffness and low permeability and the site is underlain by c. 20 m of this material. This aids in the protection of the Locally Important (LI) underlying aquifer which has a low vulnerability as categorised by the GSI. The bedrock is primarily limestone and is part of the Lucan formation. The underlying aquifer is of Good Status as per the EPA online mapping tool. There is no evidence of karstification, geohazards or extractive industries in the area around the site.

Based on the National Roads Authority (NRA)/Institute of Geologists of Ireland (IGI) criteria for rating the importance of hydrogeological features (refer to Appendix 6.2 of the EIA Report), the importance of the hydrogeological features at this site is rated as **Medium Importance**. This is based on the assessment that the attribute has a medium quality significance or value on a local scale. The aquifer is a *locally important* (LI) bedrock aquifer over part of the site. As the area is served by public mains, it is unlikely that it is used for potable water supply. In addition, it does not host any groundwater dependent ecosystems (SACs/NHAs).

The proposed site was previously occupied by DIIO. DIIO was granted an IPPC Licence (Ref. P0532-01) by the EPA in 1999 for the production of industrial diamonds. The facility began operations in 1989 and closed in 2013. The proposed development site includes the DIIO site as well as additional lands to the north, east and west which are understood to have previously been undeveloped. The EPA licence that applied to the DIIO site was surrendered in May 2015. Under the relevant legislation, the EPA can only remove or surrender an IPPC Licence once they are satisfied the site is not *“causing or likely to cause environmental pollution and the site of the activity is in a satisfactory state and that all environmental liabilities have been addressed”* (EPA,2012). The DIIO buildings and the

associated site infrastructure were demolished under a separate planning permission. It is estimated that approximately 1,750m³ of soils and stones will be excavated to facilitate construction. It is envisaged that excavated material will be exported from site to a licenced facility. The importation of 4,150m³ of clean soils/stones will be required to facilitate construction.

The potential impacts of construction and mitigation measures proposed have been identified and will be included in the Construction Environmental Management Plan (CEMP) for the proposed development. Mitigation measures include:

Rainfall on excavated and stripped soil can lead to runoff with high suspended solids (SS) content during the construction phase. This can pose a potential impact to water bodies in the area. In advance of works beginning a CEMP will be developed and this will set procedures for the settlement and release of runoff with high suspended solids. Furthermore, stockpiles will be subject to an appropriate earthwork handling protocol and it is anticipated that any stockpiles will be formed within the boundary of the site. There will be no direct link or pathway from this area to any surface water body.

All fill and aggregate for the proposed development will be sourced from reputable suppliers as per the project Contract and Procurement Procedures. All suppliers will be vetted for the appropriate certificates, management status and regulatory compliance standards.

All fuel tanks shall be stored in designated areas, and bunded to a volume of 110% of the capacity of the tank within the bund (plus an allowance of 30 mm for rainwater ingress). Refueling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles, will take place in a designated area (or where possible off the site) which will be away from surface water gully's or drains.

Earthwork operations will be carried out such that surfaces, as they are being raised, shall be designed with adequate drainage, falls and profile to control run-off and prevent ponding and flowing. Due to the very low permeability of the Dublin Boulder Clay and the relative shallow nature for foundation excavations, infiltration to the underlying aquifer is not anticipated. Should any discharge of construction water be required during the construction phase, discharge will be to foul sewer regulated under a Discharge Licence obtained from the Regulator (Irish Water) issued under the Water Pollution Act.

Following implementation of mitigation measures detailed in Chapter 6 of the EIA Report, the predicted impact during construction of the proposed development will be **short-term, imperceptible** and **neutral**.

During the Operational phase, there are limited activities that could potentially impact on the land soils, geological and hydrogeological environment. Fuel storage tanks will be stored above ground in designated areas with an impervious base. All bunds will be capable of containing 110% of the capacity of the tank within the bund (plus an allowance of 30 mm for rainwater ingress). Diesel will be piped from the bulk storage tank to belly tanks at each of the back-up generator units. The belly tanks will be double skinned. Delivery of fuel will be undertaken following a documented procedure which minimises risk of spills and spill containment/clean-up kits shall be readily available on site. It is anticipated, based on operator's experience, that the back-up generators will rarely be used. There will be no emissions to ground or the underlying aquifer from operational activities.

The predicted impact during operation of the proposed development, following implementation of mitigation measures detailed in Chapter 6 of the EIA Report will be **long-term, imperceptible** and **neutral**.

7.0 HYDROLOGY

This chapter assesses and evaluates the potential impacts of the proposed development on the surrounding water & hydrological environment. The area is drained by the Santry River which runs approx. 280m south of the site. Storm water drainage from the site currently discharges to the attenuation ponds on-site prior to discharge (via a Class 1 Bypass Oil Separator and flow control devices) to the existing storm water system along the Business Estate Road. This eventually discharges into the Santry River. There are no streams on the site itself or along its boundaries.

There are two water quality monitoring stations located on the Santry River which obtained a Q3-Poor Status & Q1-Bad Status at last measurement (both in 2016). Currently, the EPA (2017) classifies the Water Framework Directive (WFD) Ecological Status for this waterbody as having 'Poor Status', with a WFD River Waterbody risk score (period for WFD Status 2010-2015) of 1a, '*At risk of not achieving good status*'.

Based on the NRA methodology (refer to Appendix 7.1 of the EIA Report), the criteria 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 Santry River is the 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.

The potential risk of flooding on the site was also assessed. A Stage 1 Flood Risk Assessment was completed for the site. The assessment identified no flood hazards for the proposed development. The development resides within Flood Zone C and is not at risk of flooding from a 1% or 0.1% Annual Exceedance Potential (AEP) event.

The potential impacts of construction and mitigation measures proposed have been identified and will be included in the Construction Environmental Management Plan (CEMP) for the proposed development. The mitigation measures include:

During the construction phase at this site there is potential for a slight increase in run-off due to the introduction of impermeable surfaces and the compaction of soils. The potential impact of this is a possible increase in surface water run-off and sediment loading which could potentially impact local drainage. As there is no direct pathway to surface water from this site there is no likely potential impact on offsite watercourses.

Run-off water containing silt will be contained on site and treated to ensure adequate silt removal. Silt reduction measures on site will include a combination of silt fencing, settlement measures (silt traps, silt sacks and settlement tanks/ponds). The site of the proposed development currently drains all surface

water runoff to two attenuation ponds, the main pond (4,200m³) is located to the west of the site with the smaller one located at the northern tip of the site. Temporary storage of soil will be carefully managed with excavations remaining open for as little time as possible and weather conditions will be considered when planning construction activities.

The proposed development will require site preparation, excavations and levelling for foundations, car parks and access roads, for the installation of services and landscaping. As there is no direct pathway to surface water from this site there is no likely potential impact on offsite watercourses. Excavations will not extend to bedrock and is not expected that temporary dewatering will be required based on the clayey nature of the soil. Some removal of perched rain water from the excavation may be required. Volumes will be quite low, and all pumped water will be subject to onsite settlement before release.

During the construction phase there is a risk of accidental pollution incidences to local water courses from spillages or leakages of fuel/oils from a number of onsite activities. There is also a potential risk from the use of concrete and cement.

To minimize any impact from material spillages, all oils, paints etc. used during construction will be stored within temporary bunded areas. All tanks will be bunded to 110% of the capacity of the largest tank/container within the bunded area(s) (plus an allowance for 30mm of rainwater ingress). Refueling of construction vehicles and the use of any hydraulic oils or lubricants will take place in a designated area (or where possible off site) which will be away from surface water gullies or drains. All contractors will be required to implement the CEMP.

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***.

During operation there are limited risks to surface water receptors. There is a potential for leaks and spillages from the fuel tank to occur on site. In addition to this there is a potential for leaks and spillages from vehicles along access roads, loading bays and in parking areas. Any accidental emissions of oil, petrol or diesel could cause contamination if the emissions enter the water environment unmitigated.

The containment measures planned will minimize the risk of release of solid/liquid material spillages to the water environment. Containment measures will include storage of fuels on site will be in bunded containers or compartments. The design of all bunds will conform to standard bunding specifications - BS EN 1992-3:2006.

The current surface water drainage network will be expanded in accordance with Sustainable Urban Drainage Systems (SuDS) to accommodate the additional hard standing and porous asphalt surfacing. The existing attenuation ponds have been appropriately sized to accommodate this.

In the event of a fire at the facility, firewater will also be contained via the attenuation ponds.

As there is no direct pathway to surface water from this site there is no likely potential impact on offsite watercourses.

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 is located within suburban environment of Clonshaugh Business & Technology Park in North Dublin. The lands in which the proposed development is located have no formal designations. The nearest European sites are located at Baldoyle Bay and North Dublin Bay.

The footprint of the proposed development comprises buildings and artificial surfaces and amenity grassland that has become rank and is classified as poor Improved grassland. The site is predominantly under construction and few green areas remain.

There are no rare or protected habitats recorded in the study area inside the site boundary. The site may be considered of Low Ecological Value. There are no predicted significant impacts on local ecology.

None of the qualifying habitats or species of the European sites occur under the footprint of the proposed works areas. There are no water courses on the site and no relevant hydrological connectivity or biological connectivity to the European sites considered in this assessment. Given the above analysis, all European sites may be excluded from the assessment at a preliminary screening stage.

The proposed development will have no predicted impacts on European sites, therefore cumulative impacts can be ruled out.

The development is located in an area of low ecological value and, as such, is predicted to have a **neutral** and **imperceptible** effect on biodiversity. There is no requirement for monitoring with regard to Biodiversity.

9.0 AIR QUALITY AND CLIMATE

This chapter evaluates the impacts which the proposed development may have on air quality & climate.

In terms of the existing air quality environment, data available from similar environments indicates that levels of nitrogen dioxide (NO₂) and PM₁₀/PM_{2.5} are, generally, well within the National and European Union (EU) ambient air quality standards.

Air dispersion modelling was carried out using the United States Environmental Protection Agency's regulatory model AERMOD. The aim of the study was to assess the contribution of operational emissions of NO₂ from the proposed development to off-

site levels of this pollutant. The modelling was undertaken to assess the impact to ambient air quality from the following three scenarios:

- **Do Nothing Scenario:** Emergency operation of 48 of the 53 permitted and existing back-up generators for Buildings A, B and C. The scenario also included weekly and quarterly testing of all existing generators associated with Buildings A, B and C.
- **Proposed Development Scenario:** Emergency operation of 64 of the 71 back-up generators. The scenario also included weekly and quarterly testing of all 71 generators.
- **Cumulative Impact Scenario:** The cumulative impact scenario assessed the combined impact of the proposed development as outlined above as well as the emergency operations and scheduled testing of 40 existing back-up diesel generators associated with three neighbouring data storage buildings at an existing data storage facility approximately 200m southeast of the site of the proposed development.

The emission points were modelled at the following stack heights:

- Back-up Generators for proposed development, permitted development Building C and existing Building A – 20m;
- Back-up Generators for existing Building B – 25m;

Modelling Results for proposed development based on conservative predicted operational conditions

USEPA Methodology

The modelling assessment has found that ambient NO₂ concentrations as a result of the Do Nothing Scenario, the Proposed Development Scenario and the Cumulative Impact Scenario are in compliance with the relevant ambient air quality limit values at all locations at or beyond the site boundary. The impacts to air quality from operation of the proposed development are therefore deemed **long-term** and **slight** in terms of significance and **negative** in terms of quality (following the EPA terminology for description of effects in EIA Reports).

For the Proposed Development Scenario, emissions from the site assuming scheduled weekly and monthly testing as well as emergency operation of the back-up generators for 60 hours per year will lead to an ambient NO₂ concentration (including background) which is 83% of the maximum ambient 1-hour limit value (measured as a 99.8th%ile) and 87% of the annual limit value at the worst-case location at or beyond the site boundary.

For the Cumulative Impact Scenario, emissions from all back-up generators modelled assuming scheduled weekly and monthly testing as well as emergency operation of the back-up generators for 60 hours per year will lead to an ambient NO₂ concentration (including background) which is 83% of the maximum ambient 1-hour limit value (measured as a 99.8th%ile) and 93% of the annual limit value at the worst-case location at or beyond the site boundaries.

UK EA Methodology

The results for the Proposed Development Scenario indicate that in the worst -case year, the back-up generators can operate for up to 98 hours per year before there is a likelihood of an exceedance of the ambient air quality standard (at a 95th percentile confidence level). However, the UK guidance recommends that there should be no running time restrictions

placed on these generators which (aside from testing) are only used to provide power on site only during an emergency scenario.

Climate

Based on the scale and temporary nature of the construction works, the potential impact on climate change and transboundary pollution from the construction of the proposed development is deemed to be short-term and not significant in relation to Ireland's obligations under the EU 2020 target.

No significant on-site CO₂ emissions will occur as a result of the proposed development whilst the use of electricity for the proposed development would indirectly result in emissions equivalent to an upper limit of 0.01% of Ireland's national annual CO₂ emissions. The cumulative electricity usage for the entire site including the existing, permitted and proposed developments would be equivalent to 0.54% of Ireland's national annual CO₂ emissions.

Human Health

The best practice dust 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 **short-term** and **imperceptible** with respect to human health.

As demonstrated by the dispersion modelling results, pollutant concentrations with the proposed development operational are compliant with all National and EU ambient air quality limit values and, therefore, will not result in a significant impact on human health.

Mitigation Measures

A dust minimisation plan will be implemented during the construction phase of the proposed development to ensure that no significant dust nuisance occurs outside the site boundary. With regards to the operational phase, provided each stack is built to the minimum heights determined by the air dispersion modelling, no further mitigation measures are required.

Residual Impacts

If the mitigation measures outlined in this assessment are implemented, there will be no residual impacts of significance on air quality or climate from the construction or operational phases of the proposed development.

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 existing noise climate has been surveyed at nearby noise sensitive receptors over the course of typical day and night-time periods. Road traffic movements, both distant and local, were noted as the most significant source of noise during both daytime and night-time periods. Other noise sources included aircraft activities associated with Dublin Airport and other typical noise sources expected in a suburban environment (e.g. pedestrian activity, dogs barking, distant plant noise etc.).

When considering a development of this nature, the potential noise and vibration impact on the surroundings must be considered for each of two distinct stages: the short-term impact of the construction phase and the longer-term impact of the operational phase.

During the construction phase of the proposed development there will be some impact on nearby noise sensitive properties due to noise emissions from site activity and traffic. The application of noise limits and limits on the hours of operation, along with implementation of appropriate noise and vibration control measures, will ensure that noise

and vibration impact is kept to a minimum. The resultant impact is ***slight, negative*** and ***temporary and short-term***.

The primary sources of noise during the operational phase of the proposed development will be long-term and include the introduction of additional building services plant for general site operation, additional building services plant (i.e. generators) for emergency site operation and the introduction of additional vehicular traffic on existing public roads. Proprietary noise and vibration control measures will be employed in order to ensure that emissions from building services plant do not exceed the relevant criteria at nearby noise sensitive locations. Any change in noise levels associated with additional vehicles at road junctions in the vicinity of the proposed development is expected to be imperceptible. The resultant noise impact is ***not significant, negative*** and ***long-term***.

No significant sources of vibration will be present during the operational phase. There are therefore no predicted vibration impacts at neighbouring dwellings during the operational phase. The resultant vibration impact is ***imperceptible, neutral*** and ***long-term***.

11.0 LANDSCAPE AND VISUAL

The proposed development is to be located in the north western portion of the established Clonshaugh Business and Technology Park which is located to the immediate south east of the M1 / M50 interchange in north Dublin. The site is bound on its western and northern sides by the M50 motorway and the M1/M50 interchange respectively, and the woodlands area of Woodlands House is also to the north. The Santry River corridor defines the southern boundary of the business park and provides a separation between the site and existing residential development to the south. Similarly, the Clonshaugh Road defines the eastern boundary of the business park and separates it from residential developments to the east.

Within the wider industrial and residential area, within a c. 1.0km radius of the site, there are a number of parkland areas that provide recreational and sporting amenity, including Belcamp Park, Coolock Lane Park, and Santry Park.

The site is located within the administrative area of Dublin City Council and is zoned Zoned Z6: Employment/Enterprise in the Dublin City Development Plan, with the objective '*...to provide for the creation and protection of enterprise and facilitate opportunities for employment creation*'. Land Use Zoning in the wider area reflects the residential and open space uses.

There are no protected views and prospects; tree preservation objectives or orders; or special landscape designations within or in the vicinity of the site.

The overall site is visually flat, but substantially contained to the west and north by elevated motorway embankments. The site is partially developed with two Data Centre facilities either in operation or substantially complete. There is an existing permission for a third Data Centre facility on the southwest of the overall site. The proposed development is to the southeast of the overall site and has been substantially cleared and is being used on a temporary basis as a construction compound and for construction staff parking in accordance with the existing planning permissions.

The proposed development is of a significant scale; however, the architectural design will provide a clean-lined contemporary light industrial type building, with contrasting shades of grey metal panels and stainless-steel flues that is consistent with the emerging development on the overall site. The permitted Data Centre facility includes landscape proposals that will enhance and reinforce existing boundaries and establish a high-quality campus-like setting at the site. The permitted Data Centre facility anticipates the proposed development, and the permitted landscape proposals will provide mitigation and enhancement for the proposed development.

The proposed development is well-sited and will not give rise to significant landscape or visual impacts from surrounding areas, either during construction, in operation or of a residual nature.

In summary, it is considered that the proposed development is in-keeping with the established / envisaged uses and with the zoning of the industrial estate lands. The site is located adjacent to elevated motorway infrastructure and also within an established Business and Technology Park that are not considered to be visually significant or sensitive. From the wider and more sensitive landscape context of parklands and residential areas, the proposed development is generally well-screened and will not give rise to any significant landscape and visual effects.

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 Place, the Dublin City Development Plan, the Fingal County Development Plan, the topographical files of the National Museum of Ireland, the Excavations Database, cartographic and documentary sources.

There are no direct impacts on archaeological, architectural or cultural heritage sites associated with the proposed development, however there is the possibility that there are sub-surface archaeological features surviving within the site.

It is recommended that a geophysical survey be undertaken of areas that have not previously been subject to development or construction-related activities. Archaeological testing trenching should be undertaken based on the results of that geophysical survey.

Should archaeological features or material be uncovered during archaeological testing or any phase of construction, ground works should cease immediately and the National Monuments Service of the Department of Culture, Heritage and the

Gaeltacht should be informed. Time must be allowed for a suitably qualified archaeologist to inspect and assess any material. If it is established that archaeologically significant material is present, the National Monuments Service may require that further archaeological mitigation be undertaken.

The mitigation measures detailed in Chapter 12 of the EIA Report are subject to the approval of the Dublin City Archaeologist and the National Monuments Service, Department of the Culture, Heritage and the Gaeltacht.

The implementation of mitigation measures detailed in Chapter 12 will ensure that the effect during the construction phase is **neutral** and **imperceptible**.

The operational phase of the proposed development is not predicted to have any impact on archaeological 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 site is located in close proximity to the M50 in an existing industrial/business park. There are limited public transport services locally, with 2 no. Dublin Bus services operating in the area. Pedestrian facilities are of a good quality while cycle infrastructure is limited at present.

The potential impact of the proposed development has been considered for both the construction and operational stages based on Transport Infrastructure Ireland (TII) guidelines set out in the Traffic & Transport Assessment Guidelines (2014).

A number of traffic surveys were carried out on the local road network in November 2016, which were factored up in accordance with TII Project Appraisal Guidelines to establish construction and opening year traffic flows in the area.

The traffic generation of the proposed development during the construction stage was established based on construction traffic recorded at a similar data storage facility site. The construction staging for the proposed development (Building D) will be such that a number of Building C data halls will be operational, with the final Building C data hall being fit out at the same time Building D is at peak construction. Therefore, the worst-case construction traffic impact for Building D has been assessed using peak construction traffic for Building D, final fit out construction traffic for Building C and operational traffic for Building C. The impact of the construction phase of the development was found to be **short-term, negative** and **not significant** during peak construction.

The operational stage trip generation potential was estimated for the proposed development based on a first principles assessment of the expected staff numbers and shift times. A worst-case scenario trip generation was assumed. The impact of the operational phase of the development was assessed as a percentage of traffic flows on adjoining roads and was found to be **long-term, neutral** and **imperceptible**, with the development's operational traffic volumes below the thresholds stated in the TII Guidelines for Traffic and Transport Assessments, 2014 for junction analysis.

14.0 MATERIAL ASSETS

This chapter prepared by AWN Consulting Ltd evaluates the impacts, if any, which the proposed development may have on Material Assets. The Draft EPA EIA Guidelines (2017) state that material assets are now taken to mean built services and infrastructure, roads and traffic and waste management. The Draft EPA Advice notes also give the following examples of material assets; assimilative capacity of air, ownership and access and tourism. In the EIA Report, the impacts on the various material assets described above have been considered in the following chapters of this EIA Report as follows:

- Chapter 5 Population and Human Health;
- Chapter 8 Air Quality & Climate;
- Chapter 13 Traffic & Transportation; and
- Chapter 15 Waste Management.

This chapter assesses ownership and access, built services and infrastructure.

Ownership and Access

The proposed development site is owned by the operator and there are existing facilities on the site built by the operator.

Once constructed, the permitted substation on the site will be an ESB Networks asset. Access to the substation will be provided to ESB Networks by the operator.

The main access to the site will be via the existing access-controlled entrance from the business park road in the south-western corner of the site. A second access is provided for construction at the access point associated with the former industrial site i.e. southern boundary. This construction entrance may be maintained as a secondary entrance once the construction of the proposed development is complete. The site is fully secured with a 3m high security fence, CCTV and surveillance systems. There is good visibility on approach to both access points.

Power and Electrical Supply

Power is currently supplied to the existing data storage facilities via a temporary 110kV supply. Construction of a 110kV Substation is due to commence on site (DCC Reg. Ref.: 3288/16). It is proposed that power to the permitted Substation on site will be provided via a connection to the existing Belcamp 220kV and 110 kV Substation to the north east. The connection proposed is an underground double circuit 110kV transmission cable installation. The provision of the proposed cable installation will be subject to its own planning application and EIA Report. It is expected that this will be installed prior to commencement of construction of the proposed development.

The proposed development will have a maximum operational electrical demand of 24.5MW, with an overall maximum operational demand for the campus of 98MW.

In the event of a loss of power supply to the site (i.e. temporary grid blackout) diesel powered back-up generators will be activated at each facility. These generators are designed to automatically activate and provide power to the plant pending restoration of mains power.

The power requirements for the proposed development are in line with the associated connection method and voltage level and Eirgrid have confirmed adequacy of supply from the local network and permitted Substation that will be constructed on site.

Telecommunications

A fibre optic cable distribution network was installed for the Building A development and it was extended for Building B and will be for Building C. The existing telecommunications and fibre services within the site will be extended to the proposed data storage facility. There will be no offsite connections required.

As the connection works are entirely within the site boundary, it not anticipated that this would have any potential offsite impact. It has been confirmed by discussions the utility providers that there is sufficient capacity available in the area network for the proposed development

Water Supply

The site already contains a live 150mm watermain, which is fed from the public supply. This watermain is to remain in place.

The design of the existing data storage facilities (and related agreement with Irish Water) requires a peak water demand of up to 6.56l/s. Ongoing improvements in design and other measures have enabled the operator to gradually reduce peak water supply requirements. It has been discussed and agreed with Irish Water that no increase in peak water demand is required for this development.

On-site water storage is and will be provided at each of the existing and proposed data storage facilities. When completed, total water storage of 512m³ will be provided on site for the campus.

Water will be supplied to the proposed development in a pressurised pipe system to the water storage tanks. Supply will be provided from the existing 150mm watermain on the site. As the connection works are entirely within the site boundary, it not anticipated that this would have any potential offsite impact.

Foul Drainage

The foul drainage infrastructure for the overall site was completed under Planning Reg. Ref. 4449/16. There is an existing 225mm diameter foul sewer within the proposed development site on the southern boundary which connects to the public foul sewer on Business Estate Road. This sewer will be extended within the site to facilitate the proposed development. As the construction works are entirely within the site boundary, it not anticipated that this would have any offsite impact.

Based on the nature and extent of the proposed development, the expected daily dry weather flow (DWF) is 1.41m³/day. The operator has engaged with Irish Water to ensure that there is sufficient capacity in the public sewer to cater for the proposed development.

Surface Water Infrastructure

The surface water drainage infrastructure for the overall site was completed under Planning Reg. Ref. 4449/16. This included the construction of attenuation ponds, a main pond to the west of the site and a smaller pond at the northern tip of the site.

There is an existing 375mm diameter connection from the main attenuation pond to the surface water sewer within the Business Estate Road along the southern boundary of the site.

The main attenuation pond was designed to accommodate surface water run-off from the overall site (i.e. the total hardstanding areas for the existing, proposed and indicative future development within the site boundary). The total overall hardstanding areas on the site, on completion of the proposed development, will be c. 6.4 ha. The main attenuation pond is designed to cater for a total hardstanding of 7.67 ha. Therefore, no additional attenuation storage is required.

It is proposed to also provide porous asphalt surfacing along the northern side of the proposed building in order to provide interception of rainfall and reduce the rate and volume of runoff volume.

Surface water runoff, not being intercepted, from the proposed development will be collected and attenuated to the allowable greenfield run-off rate (55.2 l/s), in accordance with the Greater Dublin Strategic Drainage Study and associated Technical Guidance Document on Sustainable Drainage Systems (SuDS). In addition, the discharge from site will pass through a Class 1 Bypass Oil Separator prior to exiting the site to remove any hydrocarbons remaining in the network.

The implementation of mitigation measures detailed in Chapter 14 of the EIA Report will ensure that the predicted impacts on the material assets will be **short-term**, **neutral** and **imperceptible** for the construction phase.

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

The proposed development entails moderate power usage however Eirgrid have confirmed the availability of supply and there will therefore be no significant impact on material assets to the wider economy. The overall predicted impact of the proposed development can be classed as **long-term** and **not significant** with respect to material assets.

15.0 WASTE MANAGEMENT

This chapter has been prepared to address the issues associated with waste management during the construction and operational phases of the proposed development.

An assessment was carried out of the potential impacts associated with resource consumption and waste management during the construction and operational phases of the proposed development. The receiving environment is largely defined by DCC as the local authority responsible for setting and administering waste management activities in the area through regional and development zone-specific policies and regulations.

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. Construction of foundations and services will require the excavation of c. 1,750 m³ of soil and stones. The project engineers have advised that there will be limited opportunities for reuse of the material onsite. 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 Construction and Demolition 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. This waste will be generated from the building staff and will comprise of typical commercial waste types. 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 area by permitted waste contractors and removed off-site for re-use, recycling, recovery or disposal.

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 potential cumulative impacts on the environment of the proposed development with the following:

- Other developments on the site i.e. the existing data storage facilities, Building's; A and B (still in construction), the permitted substation and the permitted data storage facility (Building C);
- Other developments in the locality i.e. developments in the area that have been granted planning permission in the past three years within both the Dublin City Council and Fingal County Council local authority areas (Full list of developments considered is provided in Chapter 4 of the EIA Report). This includes the unlikely scenario of the construction of the transmission cable at the same time as the proposed development.

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 cumulative effects.

17.0 INTERACTIONS

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***.