Planning & Development Act, 2000 - 2020,
European Communities (Environmental Impact Assessment) Regulations 1989 (as amended),
Planning & Development Regulations, 2001 (as amended)

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

NON-TECHNICAL SUMMARY

Clutterland Substation and transmission lines
Grange Castle South Business Park

November 2020

MARSTON
PLANNING CONSULTANCY

NON-TECHNICAL SUMMARY

1.1 This Non-Technical Summary of the Environmental Impact Assessment Report (EIA Report) has been prepared on behalf of UBC Properties LLC to accompany an application to South Dublin County Council (SDCC) for permission for two no. 110kV transmission lines and a 110kV Gas Insulated Switchgear (GIS) substation compound along with associated and ancillary works and is described as follows:

1.2 The proposed 110kV GIS Substation Compound is to be located on lands to the east of the 3 no. data centres permitted under South Dublin County Council Reg. Ref. SD20A/0121, and within an overall landholding bound to the north by the R134 / New Nangor Road; to the west by the realigned Baldonnel Road; to the south by the Grange Castle South Business Park access road; and to the east by the Grange Castle Motor Company within Baldonnel, Dublin 22. The site of the proposed development has an area of c. 7.7 hectares.

1.3 The proposed 110kV Gas Insulated Switchgear (GIS) Substation Compound includes the provision of a two storey GIS Substation building (with a gross floor area of 1,447sqm) (known as the Clutterland Substation), four transformers, a Client Control Building (with a gross floor area of 380sqm), lighting masts, car parking, associated underground services and roads within a 2.6m high fenced compound and all associated construction and ancillary works;

1.4 A proposed underground single circuit 110kV transmission line will connect the proposed Clutterland 110kV GIS Substation to the existing 220kV / 110kV Castlebaggot Substation to the immediate south. The proposed transmission line covers a distance of approximately 180m within the townlands of Ballybane, and Aungierstown and Ballybane;

1.5 A proposed underground single circuit 110kV transmission line will connect the proposed Clutterland 110kV GIS Substation to the existing 110kV underground Kilmahud-Corkagh circuit to the north-west. The proposed transmission line covers a distance of approximately 1.1km within the townlands of Ballybane and Grange and will include 3 joint bays along its length;

1.6 The development includes provision of a unit substation and 49kVa electricity connection (approximately 300m in length to the Grange Castle South Business Park access road to the south of the proposed substation) for the proposed GIS substation building. The development includes the connections to the two substations (existing and proposed) as well as to the Kilmahud-Corkagh circuit, changes to landscaping permitted under SDCC Reg. Ref. SD20A/0121 and changes to planting within Grange Castle Business Park and all associated construction works, and all ancillary works.

1.7 For detailed information and key mitigation and remedial measures please consult the full EIA Report document. Having regard to Article 3 of the 2014 EIA Directive, and the Circular Letter PL 1/2017 of the Department of Housing, Planning, Community and Local Government, this document has been titled an Environmental Impact Assessment Report (EIA Report).

Purpose of the EIA Report

1.8 The objective of this EIA Report is to identify and predict the likely environmental impacts of the Proposed Development; to describe the means and extent by which they can be reduced or ameliorated; to interpret and communicate information about the likely impacts; and to provide an input into the decision making and planning process. The EIA Report is the primary element of the Environmental Impact Assessment (EIA) process and is recognised as a key mechanism in promoting sustainable development, identifying environmental issues, and in ensuring that such issues are properly addressed within the capacity of the planning system.

1.9 EirGrid will be the transmission system operator (TSO). ESB Networks will be the transmission asset owner (TAO). Figure 1.1 presents a site layout plan showing the route of the proposed underground transmission lines, the proposed GIS substation, and the 49kVa supply underground cable installation.

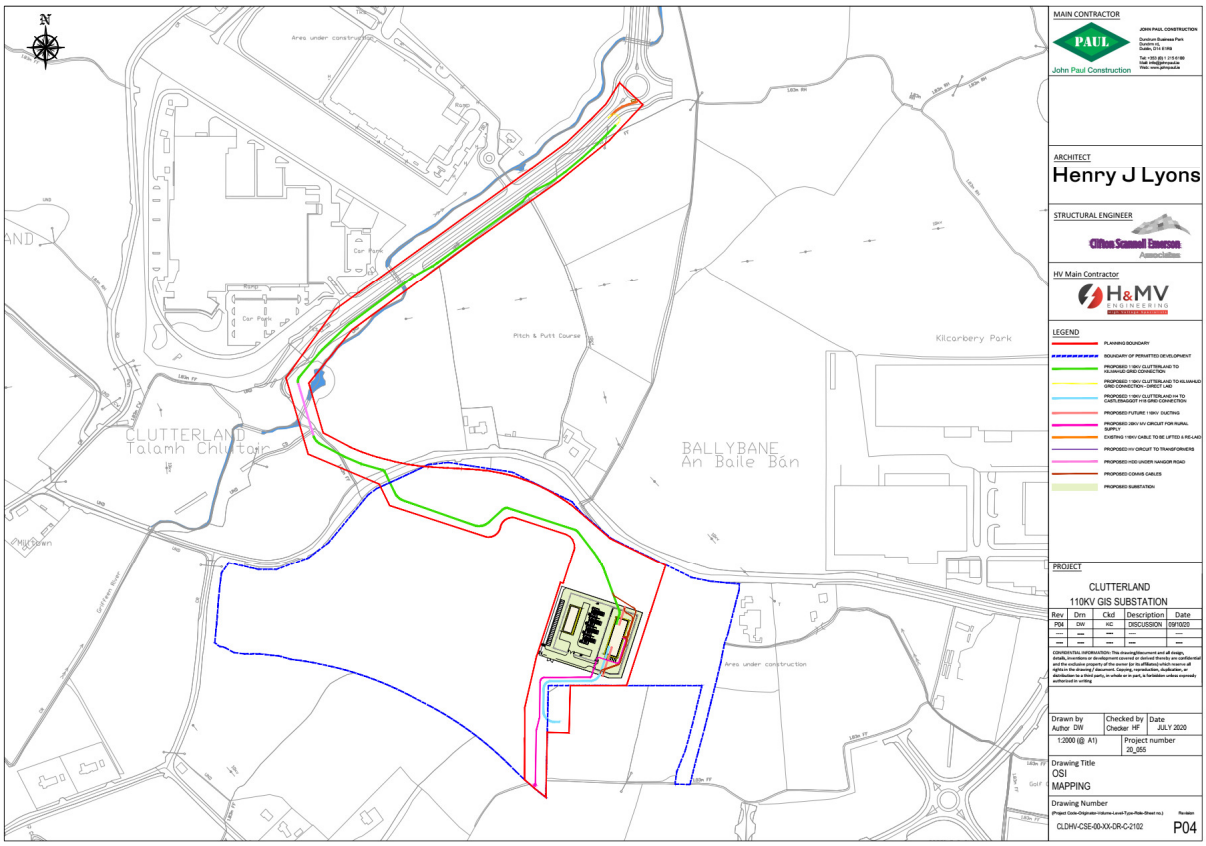

Figure 1.1 Proposed site layout plan of the Proposed Development site (red line) indicating proposed 110kV transmission lines (green and cyan line), 49kVa supply cable line (pink line) as well as the permitted development site (dashed blue outline) (Source: Drawing no. CLDHV-CSE-00-XX-DR-C-2102, CSEA)

Requirements for an EIA Report

1.10 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 Development is not listed under Annex I EIA Directives. An EIA Report has been provided as the Proposed Development is required to provide the permanent power supply for the Permitted Development of three data centres granted under SDCC Planning Ref. SD20A/0121 and the Permitted Development required an EIA Report to accompany the planning application.

1.11 This EIA Report has been prepared in accordance with the requirements of the 2014 EIA Directive (2014/52/EU) and the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018. It is prepared in the Grouped Format Structure as set down in the Environmental Protection Agency (EPA) Draft "*Guidelines on the Information to be Contained in Environmental Impact Assessment Reports*" (2017). In general, the EIA Report follows the framework presented in the EPA Draft "Advice Notes for Preparing Environmental Impact Statements" (2015)

Permitted Development

1.12 The applicant, UBC Properties LLC is the same as under the Permitted Development. The Proposed Development is designed to support power demand for the Permitted Development (Reg. Ref. SD20A/0121) that received its Final Grant of permission on the 3rd September 2020. The Permitted Development is for 3 no. two storey data centres and ancillary elements with a total gross floor area of 80,269sqm.

The Operator

1.13 Eirgrid will be the transmission system operator (TSO) and ESB Networks will be the transmission asset owner (TAO). EirGrid will operate transmission stations, including the proposed new GIS substation, remotely from their control centres. However, ESB Networks will carry out all local operations on Eirgrid's behalf.

Consultation

1.14 The Applicant met with An Bord Pleanála (ABP) to confirm the Proposed Development was an SID application and to discuss the scope of the planning application. Consultation has also been undertaken with Eirgrid and ESB Networks to ensure the Proposed Development design meets their requirements.

1.15 In addition, the relevant specialists and project engineers (CSEA) have liaised directly and independently with statutory bodies (including the Water Services and Parks Departments of SDCC, Irish Water, Eirgrid, ESB, National Parks & Wildlife Services, and the Department of Defence etc.) by correspondence during the course of the EIA Report preparation. All EIA contributors/authors have incorporated advice and comments received from consultees into the relevant chapters of this EIA Report.

Regulatory control

1.16 The proposed transmission of electricity is not an EPA regulated activity in terms of the Industrial Emissions Directive (Directive 2010/75/EU) (which replaced the IPPC directive). The TSO and TAO will ensure the relevant regulatory requirements relating to power activities are met.

Contributors to the EIA Report

1.17 The preparation and co-ordination of the EIA Report has been completed by Marston Planning Consultancy Ltd. 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. DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1 The Proposed Development is to be located on a site of c. 7.7 hectares that consists of a primarily greenfield site within the Grange Castle South Business Park. The proposed 110kV GIS Substation Compound; the transmission line to the existing 110kV underground Kilmahud Corkagh circuit and the 49kVa (MV) cable installation are located on lands that at the time of making this application are in the control or ownership of SDCC. The transmission line to the existing 220kV / 110kV Castlebaggot Substation to the immediate south is located on lands that are in the control or ownership of SDCC and ESBN.

2.2 The proposed development primarily comprises the provision of two no. 110kV transmission lines and a 110kV Gas Insulated Switchgear (GIS) substation compound along with associated and ancillary works and is described as follows:

- The proposed 110kV GIS Substation Compound is to be located on lands to the east of the 3 no. data centres permitted under South Dublin County Council Reg. Ref. SD20A/0121, and within an overall landholding bound to the north by the R134 / New Nangor Road; to the west by the realigned Baldonnel Road; to the south by the Grange Castle South Business Park access road; and to the east by the Grange Castle Motor Company within Baldonnel, Dublin 22. The site of the proposed development has an area of c. 7.7 hectares.

- The proposed 110kV Gas Insulated Switchgear (GIS) Substation Compound includes the provision of a two storey GIS Substation building (with a gross floor area of 1,447sqm) (known as the Clutterland Substation), four transformers, a Client Control Building (with a gross floor area of 380sqm), lighting masts, car parking, associated underground services and roads within a 2.6m high fenced compound and all associated construction and ancillary works.

- A proposed underground single circuit 110kV transmission line will connect the proposed Clutterland 110kV GIS Substation to the existing 220kV / 110kV Castlebaggot Substation to the immediate south. The proposed transmission line covers a distance of approximately 180m within the townlands of Ballybane, and Aungierstown and Ballybane.

- A proposed underground single circuit 110kV transmission line will connect the proposed Clutterland 110kV GIS Substation to the existing 110kV underground Kilmahud-Corkagh circuit to the north-west. The proposed transmission line covers a distance of approximately 1.1km within the townlands of Ballybane and Grange and will include 3 joint bays along its length.

- The development includes provision of a unit substation and 49kVa electricity connection (approximately 300m in length to the Grange Castle South Business Park access road to the south of the proposed substation) for the proposed GIS substation building. The development includes the connections to the two substations (existing and proposed) as well as to the Kilmahud-Corkagh circuit, changes to landscaping permitted under SDCC Reg. Ref. SD20A/0121 and changes to planting within Grange Castle Business Park and all associated construction works, and all ancillary works.

2.3 The route of the underground 110kV transmission line to the Castlebaggot Substation passes around the northern and part of the western boundary of the Castlebaggot Substation before passing into the Substation approximately half way along its western boundary with the Proposed Development site. The estimated length of the 110kV cable route is c. 180m.

2.4 The route of the underground 110kV transmission line to the Kilmahud-Corkagh circuit passes to the north of two of the permitted two storey data centre buildings (Buildings A and C) as permitted under Reg. Ref. SD20A/0121. It then passes under the former Nangor Road (now cut off at either end) before passing across SDCC owned land before passing under the culverted Griffeen River and under the realigned Nangor Road (R134) and passing along the wayleave on the east side of the Grange Castle Business Park internal access road before looping around to connect to the Kilmahud-Corkagh circuit. The estimated length of the 110kV cable route is c. 1.1kms. A proposed joint bay is to be installed at the connection to the Kilmahud-Corkagh circuit as well as along this route.

2.5 The route of the proposed 49kVa supply cable installation will link from the proposed Clutterland Substation and pass within the SDCC wayleave to the west of the Castlebaggot Substation before connecting into existing MV cabling infrastructure within the SDCC wayleave along the Grange Castle South Business Park access road. The estimated length of the 49kVa supply cable route is c. 300m.

2.6 The design of each underground 110kV transmission line will comprise a single 110kV circuit installed underground in high-density polyethylene (HDPE) ducting. The 110kV cables will be a standard XLPE (cross-linked polyethylene) copper cable. XLPE does not contain oil, therefore there is no risk of migration of oil into the ground in the event of a failure (such as a short circuit, a joint fail, a termination failure etc.). These types of failures would not have the potential to result in a perceptible environmental impact.

2.7 The installation of the HDPE ducting will require the excavation of one trench along each of the routes; each containing one 110kV circuit. The optimum depth of excavation of the trenches will typically be 1.3m below ground level but may increase up to c. 3.5m at utility crossings. The typical width of each trench is 0.85m, however this may vary depending on ground conditions and the location of existing services. Between five and six separate ducts will be installed in each trench. For the purposes of this assessment, reference to the 'transmission lines' refers to both the transmission line to the Castlebagot substation and the transmission line to the Kilmahud-Corkagh circuit.

2.8 Horizontal directional drilling is proposed for a c. 100m length of the 110kV transmission line from the Kilmahud-Corkagh circuit. The location of the directional drilling is under the culverted Griffeen River where the 110kV transmission line from the Kilmahud-Corkagh circuit crosses under the New Nangor Road. The depth of the drilling is expected to be c. 6m in depth and require four separate directional drillings that will be c. 1m apart.

2.9 The design of the 49kVa supply underground cable will comprise a looped 10kV circuit installed underground in PVC ducting. The 10kV cables will be a standard XLPE (cross- linked polyethylene) Aluminium cable. XLPE does not contain insulating fluid, therefore there is no risk of migration of insulating fluid into the ground in the event of a failure (such as a short circuit, a joint fail, a termination failure etc.).

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

- Application for Planning Permission – October 2020;
- Commence Site Construction works (subject to grant of planning permission) – Q2 2021; and
- Completion of Construction – Q2, 2022; and completion of Commissioning – Q3 2022.

Phases of the Proposed Development

2.11 Under the *EPA Draft EIA Report Guidelines 2017*, the description of the each of the phases of the Proposed Development is required in order to define the aspects of the lifecycle of the Proposed Development under the following headings:

- Construction;
- Commissioning;
- Operation;
- Decommissioning; and
- Description of other related projects.

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

Construction

2.13 It is estimated that the civil and commissioning works will take approximately 13 months. In general, the impact of the construction period would be short-term in nature. In general, the civil works element of work will require between 15 - 20 (average) and 30 (peak) staff. It is proposed that the accesses and haul roads for vehicles, the contractors' compound and fencing that will have been

established for the construction of the Permitted Development will be utilised for the Proposed Development.

2.14 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.

2.15 Contractors will be required to submit and adhere to a method statement and a Construction Environmental Management Plan (CEMP). The primary potential effects from construction are temporary / short-term effects (less than one year / greater than one year and less than seven years) and are anticipated to include:

- Potential 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;
- Potential 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 clearance, levelling and excavations etc.; and
- Potential effects on the local road network and its environs due to construction workers and other staff attending site during preparation, construction and commissioning phases.

2.16 Each chapter of the EIA Report assesses the potential impact of the construction and operation of the Proposed Development on the receiving environment and summaries of the impacts and effects are detailed below.

2.17 A Schedule of Mitigation measures to be implemented as part of the Proposed Development has been included as part of the EIA Report (Appendix 2.2).

Commissioning

2.18 Once the construction of the Proposed Development is completed, ESB Networks will be mobilised to complete the commissioning. Commissioning will be carried out over a period of months. Commissioning works primarily involve a suitably qualified individual connecting the relevant cables to a switchgear within the substations. Following this, energisation can take place. As there is no requirement for chemicals usage and minimal access to the route by personnel there is no likely environmental effect as a result of commissioning.

Operation

2.19 EirGrid will be the transmission system operator (TSO) and ESB Networks will be the transmission asset owner (TAO). EirGrid will operate transmission stations, including the existing Castlebaggot substation and the proposed new GIS substation, remotely from their control centres. However, ESB Networks will carry out all local operations on Eirgrid's behalf. ESB Networks will undertake local operational activities from the substations with only interim inspections along the underground 110kV transmission line and 49kVa supply cable installation.

2.20 There are no full-time staff required for operation. However, maintenance of the substation will be required by ESB Networks, including a routine weekly inspection, and a more comprehensive inspection once per year. The weekly inspection of the GIS substation will take a maximum of 8 hours on a single day and will be conducted by up to 2 staff. In addition to the weekly inspections, more comprehensive maintenance works will take place annually on each cubicle. This will require up to 4 staff to conduct testing at the substation over a maximum period of 15 days (120 hours).Traffic relating to staff movements have been assessed as part of the traffic and transportation chapter of this EIA Report (Chapter 13).

2.21 Minor volumes of hydrocarbons will be stored within bunds in the event of a leakage of either transformer oils or diesel fuels from the emergency back-up house generator. The generator is located within the GIS building, and provides back-up power to the controls and lighting systems within the GIS building in the event of a power outage.

Decommissioning

2.22 The lifespan of the Proposed Development is not defined but it is anticipated that it will be maintained, and periodic upgrading undertaken over a long lifetime to meet future demand and upgrade in technology.

2.23 If the GIS substation is no longer required over the long term, then full decommissioning in accordance with prevailing best practice will be undertaken.

2.24 Retirement of any cables will involve decoupling the cable from the switchgear. An excavation pit of approximately 10sqm will then be established. The cable to be retired will be identified within this excavation pit and spiked (to ensure that decoupling from the switchgear has been successful and the cable is not live). The cable will then be cut and capped to protect the exposed cable. The excavated pit can be reinstated using the excavated material with no import of fill required for this part of the Proposed Development. The retired cable can remain in situ in the ground, with the potential for it to be returned to operation should it be required in the future.

2.25 As result of the Proposed Development, the existing Corkagh - Kilmahud Circuit will be decommissioned. This will result in the cables being disconnected from the transmission network and being taken out of operation by the TSO. Typically, the ducts and cables are left in situ. In certain circumstances the cables may be pulled from their ducts using a steel wire and a cable winch and taken to an appropriately licensed waste facility using standard construction vehicles. The decommissioning and/or removal of the cable is ultimately a matter for the ESB/EirGrid in their function as TAO/TSO and does not form part of the Proposed Development.

Description of other developments

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

Sustainability energy efficiency & resource use

2.27 Eirgrid and ESB Networks are committed to running their businesses in the most environmentally friendly way possible. ESB Networks is a subsidiary within ESB Group. The ESB Group has identified energy efficiency as a strategic priority within its Brighter Future strategy. ESB Group is a commercial semi-state-owned company (95% state-owned) and is committed to supporting and being exemplar in the delivery of Ireland's 2020 public sector targets. These targets, outlined in the fourth National Energy Efficiency Action Plan (2017 – 2020) (NEEAP), include an energy efficiency target of 33% for the public sector.

Major accidents / disasters

2.28 The 2014 EIA Directive and associated EPA Draft EIA Report Guidelines 2017 and the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018, 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; that are landslides, seismic activity and volcanic activity and sea level rise/flooding.

2.29 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.

2.30 The potential for major accidents to occur at the site of the Proposed Development has also been considered with reference to Seveso/Control of Major Accident Hazards (COMAH) Regulations. No significant effects were identified as the only substance stored on the lands subject to the Proposed Development, controlled under Seveso/COMAH, will be diesel stored in a 1000 Litre tank to supply diesel to the 1 MWth back-up generator that will provide a house supply for the proposed GIS substation. The tank and generator will be located within area bunded area within the GIS substation building. Diesel will also be stored on the Permitted Development site for the emergency back-up

generators. The volumes of diesel to be stored within the Proposed and Permitted Developments does not exceed the relevant thresholds of the Seveso Directive.

2.31 The potential risk of flooding on the site was also assessed. A Stage 2 Flood Risk Assessment was carried out and it was concluded that the development is not at risk of flooding. The assessment indicates that the Proposed Development would not adversely impact on the flood risk for other neighbouring properties.

3. PLANNING AND DEVELOPMENT CONTEXT

3.1 Following consultation with An Bord Pleanála (ABP) it was confirmed that the Proposed Development meets the relevant criteria and constitutes a Strategic Infrastructure Development (SID) under Section 182A & 182B of the Planning and Development Act 2000 (as amended).

3.2 The site for the Proposed Development is within the functional area of South Dublin County Council (SDCC), and therefore the Planning and Development Framework with which the development complies is defined by the South Dublin County Development Plan 2016-2022. The Proposed Development is to be located within an area zoned EE (Enterprise and Employment) under the County Development Plan with the stated aim:

"*To provide for enterprise and employment related uses.*"

3.3 The Proposed Development will provide the power supply needed to support the power demand for the Permitted Development of three data centres (Buildings A, B and C as detailed in Chapter 2) that received its Final Grant of Permission on the 3rd September 2020 under SDCC Planning Reg. Ref. SD20A/0121.

3.4 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 immediate environs of the proposed route for the transmission lines, the Cyrus One Development to the immediate south of the Proposed Development, other neighbouring industrial parks and surrounding areas. The SDCC Planning Department website was consulted, and permissions granted within the previous five years (since September 2015) were examined.

3.5 The Proposed Development will be in keeping with all of the aspects of the relevant policy documents (as set out in Chapter 3) and SDCC'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.

4. ALTERNATIVES

4.1 EIA legislation and the prevailing EPA Draft Guidelines as set out in Chapter 1 of this EIA Report and best practice require that EIA Reports consider 'reasonable alternatives', for projects with regard to their environmental effects addressing:

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

Do Nothing Alternative

4.2 In the event that the Proposed Development does not proceed, the Permitted Development (SDCC Reg. Ref. SD20A/0121), once constructed, would be left without a permanent power supply. The permanent power supply is designed to provide the full power requirement of Buildings A, B and C of the Permitted Development to facilitate the full operation of each data centre within the Permitted Development site. Without the permanent power supply that the Proposed Development will provide, Building A would only operate at a fraction of its capability, and Buildings B and C could not operate

at all, until such a time as another application is made and permission granted for an alternative permanent power supply for these developments.

4.3 In a do nothing alternative the Proposed Substation part of the Proposed Development site would remain undeveloped within the Permitted Development site, and would be recolonized by vegetation.

Alternative project locations

GIS Substation

4.4 The location of the proposed GIS substation was identified as part of the Permitted Development as granted under SDCC Planning Reg. Ref. SD20A/0121. The location of the proposed substation under the Permitted Development and under the Proposed Development has remained unchanged. Its location was assessed having regard to the environmental effects, particularly in terms of visual impact, as well as the length of the 110kV transmission line and therefore construction phase impacts as well as constraints along the route as a result of other infrastructure; to connect to the Castlebaggot 220kv / 110kV substation. The location of the proposed substation enables a strong architectural expression to the public front of the permitted development. It also enables the proposed substation to be well screened from the public domain.

4.5 Alternative site layouts were considered for the Permitted Development that included locating the permanent 110kV GIS Substation to the west at the entrance into the Grange Castle South Business Park as well as other positions to the east of the site; and orientating the three permitted data centres in various different arrangements. The visual impact of the proposed substation at the western end of the Permitted Development site was considered as having a negative visual impact at the entrance to the Grange Castle South Business Park.

4.6 It was not deemed practicable to consider an alternative location for the proposed permanent 110kV GIS Substation during the assessment of this application beyond that considered as alternative locations as set out under Chapter 4 of this EIA Report.

110kV Transmission Line Routes

4.7 The assessment of the alternative routes for the 110kV transmission lines considered four route options for the 110kV transmission line to the Kilmahud-Corkagh circuit, as follows:

- *Options 1 and 2* – via the Grange Castle South Business Park access road, Baldonnel Road and internal Grange Castle access road;
- *Option 3* – to the north of permitted Buildings C and B of the Permitted Development; across SDCC owned lands and under the Nangor Road before passing along the eastern side of the internal access road within Grange Castle Business Park; and
- *Option 4* – under the Baldonnel Stream to the north and along the New Nangor Road (R134 before passing along the eastern side of the internal access road within Grange Castle Business Park.

4.8 Option 3 was deemed to be the most suitable location for this 110kV transmission line. A preliminary appraisal of the environmental impact and feasibility of these routes was undertaken. Due to the level of road works required, as well as the restriction of other 110kV lines running along the New Nangor Road (R134) it was deemed that Options 1 and 4 were not viable. There were no environmental constraints that would preclude development of either Option 2 or 3.

4.9 A review of relevant environmental criteria by each specialist show a preference for Option 3 based on the greater length of the Option 2 route and closer nature of this route to residential properties.

4.10 The assessment of the alternative routes for the 110kV transmission line to the 220kV / 110kV Castlebaggot substation was defined by the layout of the proposed Clutterland 110kV substation, and the position of the connection into the Castlebaggot substation on its western periphery, as well as other infrastructure. There were therefore no reasonable alternative routes available for this line. The route passes along the wayleave outside of the Castlebaggot substation from the proposed Clutterland 110kV substation. The estimated length of this route is c. 180m.

49kVa supply route

4.11 Two alternative routes were considered for the 49kVa supply cable installation which connected the proposed Clutterland 110kV GIS substation to a suitable 49kVa supply tie in. The first of these route options extended a distance of c. 1.1km and ran to the north of the proposed substation and required drilling under the Baldonnel Stream. Option 1 then ran to the New Nangor Road and then along and within wayleaves on the southern side of the New Nangor Road. In addition to the potential impact on hydrology in terms of drilling under the open steam there were also constraints relating to traversing multiple lands. Option 2, the preferred route extends through SDCC wayleaves around the Castlebaggot substation to the south and then east along the Grange Castle South Business Park access road to a point within Profile Park; extending to a connection point near the vehicular entrance into the site off the Grange Castle South access road.

Alternative design / Layouts

4.12 The proposed 110kV GIS substation is designed based on requirements stipulated by the TSO i.e. EirGrid. The design of the substation is centred around the equipment requirements of EirGrid that are required to provide an efficient and safe service. From a "design and layout" point of view, therefore, the flexibility to select alternative designs and layouts was not available to the Applicant and there are therefore no reasonable alternatives to the design / layout of the proposed 110kV GIS substation.

4.13 Alternative design options for the 110kV transmission cables and the 49kVa supply cable installation considered the provision of overhead lines. By their very nature, overhead lines require corridors to run along alignments that must be clear of all other development. In the case of both a significantly wide corridor would be required. This would effectively sterilise the land in this corridor.

4.14 Two no. single circuit 110kV underground transmission lines were chosen above the overhead alternative as it enables more power to be transferred over a particular distance and requires less land to do so – minimising ecological and visual impacts of the Proposed Development and reducing installation costs.

Alternative processes and technologies

4.15 This section typically examines the project processes in relation to likely emissions to air and water, likely generation of waste and likely effect on traffic to determine the process that is least likely to impact on these parameters. The underground 110kV transmission lines and the 49kVa supply cable installation will become an integral part of the national high voltage electricity grid which is currently operated by ESB Networks.

4.16 The underground cable installations must meet EirGrid's strict specifications to ensure it will be seamlessly absorbed into the national grid infrastructure and can provide a reliable power supply. From a "process design" point of view, therefore, the flexibility to select alternative processes for integrating into the current national grid is not available to the Applicant.

4.17 The EirGrid specifications for auxiliary power supplies (i.e. the 49kVa supply cable installation) are set out in Document Reference: XDS GFS 08 001 R2 *Functional Specification Station Auxiliary Power Supplies*.

4.18 In terms of the proposed processes, the proposed GIS substation and new cable bays will employ the same electricity generation and transmission processes that are used by EirGrid at their other facilities in Ireland and represents the most up-to-date and state of the art processes currently available. As appropriate, alternative processes are considered on an ongoing basis by both EirGrid and ESB Networks as a part of each of their operations based on many factors including technical feasibility, environmental impact, efficiency, security, reliability and cost. Therefore, from a "process design" point of view, the flexibility to select alternative processes for integrating into the current national grid is not available to the Applicant.

4.19 The proposed GIS substation is designed based on requirements stipulated by EirGrid. The design of the substation is centred around the equipment requirements of the EirGrid that are required to provide an efficient and safe service. From a "design and layout" point of view, therefore, the flexibility to select alternative technologies was not available to the Applicant.

Alternative mitigation

4.20 For each aspect of the environment, each specialist has considered the existing environment, likely impacts of the Proposed Development and reviewed feasible mitigation measures to identify the most suitable measures appropriate to the environmental setting of the Proposed Development. 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 Chapter 2 - Appendix 2.2). In each case, a comparison of environmental effects was made, and the specialist has reviewed the possible mitigation measures available and considered the use of the mitigation in terms of the likely residual impact on the environment. The four established strategies for mitigation of effects have been considered: avoidance, prevention, reduction and offsetting (not required in this development).

4.21 Mitigation measures have also been considered based on the effect on quality, duration of impact, probability and significance of effects. The selected mitigation measures are set out in each of the EIA Report Chapters 4-14 and are summarised in Chapter 2 - Appendix 2.2.

Conclusions on Alternatives

4.22 The selected route for the 110kV transmission lines is deemed to be most suitable route for the Proposed Development taking into account access to land, cost and environmental effects. During construction the proposed 110kV routes (similar to the alternative route assessed i.e. Option 2) will have a ***short-term***, ***neutral*** and ***imperceptible*** *to* ***not significant*** environmental effect. It is noted that the proposed route and the alternative route considered (i.e. Option 2) were considered to have a ***neutral, imperceptible,*** *and* ***long-term*** environmental effect during the operational phase.

4.23 The selected route for the 49kVa supply cable installation was deemed to be most suitable route for the Proposed Development taking into account access to land, cost and environmental effects. During construction the proposed 49kVa supply route (similar to the alternative route assessed) will have a ***short-term***, ***neutral*** and ***imperceptible*** environmental effect. It is noted that the proposed route and the alternative route considered (i.e. Option 1) were considered to have a ***neutral, imperceptible,*** *and* ***long-term*** environmental effect during the operational phase.

4.24 The design of the proposed GIS substation and new cable bays have been selected with due regard to minimising the environmental and visual impact once in situ. The selection of the design has been constrained to the standard specifications required by EirGrid for connection to the national grid. In conclusion, it is considered that the Proposed Development and design is the most suitable choice to provide the support required to meet the power requirements of the Permitted Development.

5. POPULATION AND HUMAN HEALTH

5.1 This chapter evaluated the impacts, if any, of the Proposed Development on population and human health with specific focus on Employment, Human Health and Amenity. Human health in this context is addressed through a review of expected effects on air quality and climate, noise and vibration and traffic.

5.2 There will be a short-term, imperceptible, positive effect on local business with the limited presence of a very small number of construction workers of 15-30 using local facilities during the construction phase of each cable installation. However, the main potential impacts on human beings associated with the Proposed Development will be in relation to air quality, noise and visual effects during the construction stage. The potential impacts are assessed within the corresponding chapters of this EIA Report and are summarised below. These are short-term impacts.

5.3 The main potential impacts on human beings and human health associated with the Proposed Development will be during the construction stage. Mitigation measures, such as dust management, noise management and traffic management, will be put in place during construction of the Proposed

Development which will ensure that the impact of the Proposed Development complies with all EU ambient air quality legislative limit values (see Chapter 10), which are based on the protection of human health and noise limits (see Chapter 9) meet adopted noise limit values which are based with due consideration of the effect on human health. The impact of construction of the Proposed Development is likely to be short-term and not significant with respect to human health.

5.4 The potential impact on human health due to air quality during the Operational Phase is considered to be ***long-term, imperceptible*** and ***neutral.*** The potential impact on human health due to noise during the Operational Phase is set out in Chapter 9 and is considered to be ***negative***, ***not significant*** and ***long-term***.

5.5 In terms of traffic, the predicted impact of the development on human beings and in particular road users will be ***short-term, negative*** and ***not significant*** for the construction phase and ***long-term, neutral*** and ***imperceptible*** for the operational phase. Any significant construction works will take place outside of main commuter hours and at worst case a single lane carriageway will remain operational where road works are required. Mitigation measures will be put in place, including night-time and weekend works, to minimise impacts on traffic flow during the construction phase (see Chapter 12).

5.6 Overall, it is expected that the Proposed Development will have a positive and long-term impact on the immediate hinterland through facilitating additional power supply to fuel future industrial and commercial activity which in turn results in increased employment opportunities and the associated economic and social benefits.

6. BIODIVERSITY

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

6.2 There are no rare or protected habitats recorded in the study area. The site may be considered of Low Local 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.

6.3 There is connectivity between the Proposed Development site and the Baldonnel Stream and Griffeen River that ultimately drain into the River Liffey. There will be no direct impacts on the European sites in Dublin Bay.

6.4 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 local ecological value and, as such, is predicted to have a ***neutral*** and ***imperceptible*** effect on biodiversity.

7. LAND, SOILS GEOLOGY AND HYDROGEOLOGY

7.1 The chapter assesses and evaluate the potential impacts to land, soils, geology and hydrogeology during the construction and operational phases of the Proposed Development.

7.2 The site and local area is underlain by the Lucan formation, also called the Dinantian (Upper Impure) Limestones or ‘Calp’ limestone. No bedrock outcrops were encountered during the site investigations or are recorded by the GSI within the red line of the Proposed Development. The bedrock aquifers underlying the Proposed Development site according to the GSI National Draft Bedrock Aquifer Map are classified as Dinantian Limestones (Calp). The GSI has classified this aquifer as Locally Important.

7.3 The GSI currently classifies the aquifer vulnerability in the region of the Proposed Development as ‘Extreme’ (E) on the west of the site and ‘High’ (H) on the east of the site. Extreme vulnerability indicates an overburden depth of 0-3m is present, while High vulnerability indicates an overburden depth of 3-5m is present. Site investigation confirmed that presence of limestone bedrock was found at depths that were typically in the range 2.0 to 2.6 m BGL.

7.4 Based on the NRA methodology (refer Appendix 7.1), the criteria for rating site importance of hydrogeological features, 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 Aquifer but is not widely used for public water supply or generally for potable use.

7.5 The Groundwater Body (GWB) underlying the site is the Dublin GWB (EU Groundwater Body Code: IE_EA_G_008). Assessments carried out under the 1st Cycle Water Framework Directive 2013-2018 concluded an overall groundwater status as "*Good*" through the assessment programme. Currently the Dublin GWB has a WFD risk score of "*not at risk*" meaning the Dublin GWB is likely to meet its WFD targets. There is no evidence of springs or karstification in this area according to the GSI Karst database (2015).

7.6 Shallow cut and fill will be required to facilitate construction of the substation and the installation of the 100kV transmission lines and 49kVa supply cable installation. Excavations are required for installation of the transmission lines and 49kVa supply cable installation.

7.7 The installation of the transmission line will require the excavation of one trench along each of the routes; each containing one 110 kV circuit. The optimum depth of excavation of the trenches required to facilitate installation of the ducting will typically have an optimum depth of excavation of 0.95-1m below ground level but may increase to up to c. 3.5 m at utility crossings. The typical width of each trench is 0.525m; however, this may vary depending on ground conditions and existing services.

7.8 Subsoil stripping and localised stockpiling of soil will be required during construction. It is estimated that approximately 24,300 m^3 of soils will be excavated to facilitate construction of the Proposed Development. Suitable soils and stones will be reused on site as backfill in the grassed areas, where possible. However, it is currently envisaged that majority of the excavated material will require removal offsite.

7.9 The implementation of mitigation measures outlined in Chapter 7 will ensure that the predicted impacts on the geological and hydrogeological environment do not occur during the construction phase and that the residual impact will be ***short-term-imperceptible-neutral***. 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***.

7.10 The implementation of mitigation measures highlighted in Chapter 7 will ensure that the predicted impacts on the geological and hydrogeological environment do not occur during the operational phase and that the residual impact will be ***long-term-imperceptible-neutral.*** 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***.

8. HYDROLOGY

8.1 The chapter evaluates the potential impacts on the surrounding hydrological environment during the construction and operational phases of the Proposed Development. The area is drained by the Baldonnel Stream that leads into the Griffeen River.

8.2 The route of the 110kV transmission line crosses a land drain associated with the Mooretown Stream. It is proposed to cross this land drain via horizontal directional drilling (HDD). A Stage 2 Flood Risk Assessment was completed. The assessment showed that the west part of the site is shown to be an area that is affected by the 0.1% AEP Flood Event (1 in 1000 year). As part of the application for the Permitted Development under SDCC Planning Reg. Ref. SD20A/0121; RPS undertook a further flood study for the area that indicated that the Proposed Development site is within the 1% AEP Flood Event (1 in 100 year).

8.3 As a mitigation measure, it is recommended to incorporate a compensatory flood storage within the Proposed Development site with a safe discharge route to the Baldonnel stream located along the

northern boundary. The proposed compensatory storage volume of 750 m^3 plus freeboard is required to be designed to accommodate the 1% AEP event taking into account climate change as per the OPW guidelines for new developments. The results of the hydraulic analysis indicated that proposed compensatory storage with a limited peak discharge rate of 75 l/s to the stream will not increase the flood risk to the stream and at other locations.

8.4 The Baldonnel Stream runs east to west through the northern section of the proposed development. The stream originally (and indeed currently) runs under the Boland's site on the eastern boundary of the subject site westwards through the holding. The original course of the stream took it northwards under the Nangor Road where it joined the Griffeen River on the western side of the Grifols facility in Grange Castle Business Park, to the north of the subject site.

8.5 As part of the realignment of the Nangor Road, and as part of flood alleviation works, South Dublin County Council (SDCC) has realigned the watercourse to continue along the southern edge of the Nangor Road, at surface, before continuing, via a culvert, to outfall to the Griffeen upstream of its original confluence at a new confluence immediately southeast of the new Nangor Road – Baldonnel Road junction. Storm water runoff from the site will outfall to the Baldonnel Stream and then into the Griffeen River. The outfall to the Baldonnel Stream will be controlled through the permitted attenuation ponds granted under SDCC Planning Reg. Ref. SD20A/0121 that will receive storm water which has passed through gully's (to aid in the removal of debris) and a suitably sized oil separator to ensure any hydrocarbon pollution is removed prior to storm water entering the attenuation pond. A further stage to improve overall storm water quality is the construction of 'forebays' that allow small intensity rainfall events to be stored separated from the main water body. This allows for any detritus material to be removed from the water and aids in particulate removal, increasing overall storm water quality prior to disposal.

8.6 All four attenuation ponds, including the one into which the substation will drain, have suitably sized 'forebays' to achieve this requirement. There is capacity under the attenuation design under the Permitted Development granted under SD20A/0121 to accommodate runoff from the Proposed Development. The Permitted Development design includes oil separator interceptor systems to ensure the quality of storm water discharge is controlled prior to attenuation and discharge offsite.

8.7 To further minimise risk to water quality, mitigation measures are planned during the construction work. These include compliance of contractors with a Construction Environmental Management Plan (CEMP) including management of silty water, management of any accidental local spills from construction vehicles and management of run-off during works in the vicinity of the land drain associated with the Baldonnel Stream. By maintaining these distances and the employment of best practice methods it is anticipated to avoid local pollution of the Baldonnel Stream.

8.8 As such the predicted impact will be ***short term, imperceptible*** and ***neutral*** during construction. During operation there is no likely impact on receiving water bodies. Therefore, the assessed impact is ***long term imperceptible*** and ***neutral.*** As there is no overall change in the existing hydrological regime, the potential cumulative impact with respect to water and hydrology is deemed to be ***not significant***.

9. NOISE AND VIBRATION

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

9.2 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.

9.3 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.

9.4 During the construction phase of the Proposed Development there will be some impact on nearby noise sensitive properties due to noise emissions from site traffic and other activities. The application of noise limits and hours of operation, along with implementation of appropriate noise and vibration control measures, will ensure that noise and vibration impact is kept to a minimum. The resultant impacts will be ***minor, negative*** and ***temporary*** in nature.

9.5 Proprietary noise and vibration control measures will be employed in order to ensure that noise emissions from building services plant during the operational phase do not exceed the adopted criterion at the façade of any nearby noise sensitive locations. In addition, noise emissions should be broadband in nature and should not contain any tonal or impulsive elements. The resultant noise impact is ***negative***, ***not significant*** and ***long-term***.

9.6 Any change in noise levels associated with vehicles at road junctions during the Operational Phase in the vicinity of the Proposed Development is expected to be ***imperceptible.*** The resultant noise impact is ***neutral, imperceptible*** and ***long-term.***

10. AIR QUALITY

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

Air Quality

10.2 In terms of the existing air quality environment, data available from similar environments indicates that levels of particulate matter less than 10 microns and particulate matter less than 2.5 microns (PM10/PM2.5) are, generally, well within the National and European Union (EU) ambient air quality standards.

10.3 An assessment of the potential dust impacts as a result of the construction phase of the Proposed Development was carried out based on the UK Institute of Air Quality Management (IAQM) guidance. This established the sensitivity of the area to impacts from construction dust in terms of dust soiling of property and human health effects.

10.4 The sensitivity of the area was combined with the dust emission magnitude for the site under three distinct categories: earthworks, construction and track out (movement of vehicles) in order to determine the mitigation measures necessary to avoid significant dust impacts.

10.5 Once mitigation measures, such as dust and traffic management, are implemented the impacts to air quality during the construction of the Proposed Development are considered, ***short-term*** and ***imperceptible***, posing no nuisance at nearby sensitive receptors (such as local residences).

Climate

10.6 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 temporary and not significant in relation to Ireland's obligations under the EU 2020 target.

10.7 There are no predicted impacts to air quality or climate during the operational phase of the Proposed Development. Therefore, the operational phase is considered ***neutral*** for both air quality and climate.

Human health

10.8 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 will ensure that the Proposed 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.

10.9 The proposed cables will be underground and will have no impact air quality in relation to human health once operational. In addition, the proposed substation does not have the potential for any emissions which could impact air quality in terms of human health during operation.

11. LANDSCAPE AND VISUAL IMPACT

11.1 The Proposed Development is situated mostly within the site of the Permitted Development SDCC Planning Reg. Ref. SD20A/0121) and is intrinsically and visually linked to the permitted data centre development. The Proposed Development is integrated into the Permitted Development site as follows:

- The proposed substation will be located deep within the wider site to the east and adjacent to the existing Castlebaggot Substation. It is proposed at a location of approximately 105m from the northern boundary and 150m from the eastern boundary of the Permitted Development site.
- The proposed substation is located to the immediate east of the 'Building C', which is part of the Permitted Development. To the north and east of the proposed substation a landscape scheme is proposed as part of the Permitted Development that includes berms, woodland screening, grassland meadows and attenuation ponds.
- An underground 110kV transmission line will run westwards from the Substation within the wider site towards the Baldonnel Rd and New Nangor road junction, and from this point it will run parallel to the internal Grange Castle Business Park road to connect to the existing 110kV underground Kilmahud-Corkagh circuit. The underground trenching is accommodated within the overall landscape scheme. The other underground 110kV transmission line will run from the proposed substation to the Castlebaggot substation within the Permitted Development site apart from its connection into the substation.

11.2 The location from which the proposed substation element of the Proposed Development site is most visually prominent is from the New Nangor Road directly to the north where the road abuts the Permitted Development site boundary. From this section of road the Proposed Development site is fully visible in the foreground as there is currently no vegetation due to the road widening works. While the Proposed Development site is visible in the foreground it is the existing Google data centre and the Cyrus One data centre that is under construction to the south that dominate this view. This view is expansive but due to the flat topography and vegetation, little of the wider landscape is visible. The Proposed Development site is also visible from the Grange Castle South Business Park access road to the south of the site. However, here it is only visible for the section where the Permitted Development site directly abuts the road due to the level of built development in this area.

11.3 The Proposed Development site is not visible from locations in the wider landscape due to the flat nature of the topography, the scale of the local built development and the significant number of trees in the area. In general the site is not considered to be sensitive from a landscape character or visual perspective. The lands are within a local and wider landscape of recently constructed large buildings. This Business Park environment is well established and is continually evolving including a large data centre under construction and an adjacent large data centre recently built to the south. Directly adjacent to this Proposed Development the Castlebaggot Substation has been built and there is an extant planning permission for the Permitted Development on the wider site. A number of new roads and road upgrades have recently taken place in the local area.

11.4 The construction compounds, temporary car parking and storage facilities etc. will be located sensitively to avoid any local visual sensitivities. Furthermore, as the Proposed Development site is located within and adjacent to the existing Grange Castle Business Park with recent built developments, including the data centres under the Permitted Development to the west; and those granted and under construction to the south, the visual elements associated with construction would be considered part of the existing urban landscape.

11.5 The construction of the underground transmission lines will require trenching and stockpiling of material along its route. The roads along which the 110kV transmission line passes to the Kilmahud-Corkagh circuit have recently been upgraded and wayleaves for the trenches are accommodated within these schemes. The temporary works required to install the cables would be similar to works

that have been undertaken in this area recently and will require some recently planted trees alongside this road to be removed.

11.6 With the above considered the impact on the landscape character during construction would be negative and considered ***moderate*** in magnitude and ***temporary*** in its duration.

11.7 The operational phase will give rise to a noticeable change in the landscape character. The initial removal of an agricultural field landscape to be replaced with built development would be considered a negative impact on the landscape character. However, the Permitted Development on these lands will significantly alter the landscape character and this new landscape will surround the substation that forms part of the Proposed Development.

11.8 The landscape measures under the Permitted Development will significantly improve the quality of the landscape character of this area. The significant amount of native woodland, wetland and grassland habitats to be created would have a very positive impact on the landscape character of this area and the wider environment. The initial impact of the built development on the landscape character could be perceived as negative in the short term due to the change in type from a field to a built structure. In the context of the surrounding development however, this impact would be significantly reduced. In the long term the level of this impact will continue to reduce further as the habitats establish and become integrated into the surrounding landscape.

11.9 The site is specifically zoned for this type of development and there have been recent built developments of a much larger scale in the local vicinity including a Substation. Many of these built developments are dominant in views from the Proposed Development site. In this context the Proposed Development would be considered a continuation of existing trends in the local area.

11.10 The landscape proposals include the establishment of a significant level of native woodland, hedgerows and native wetland and grassland meadows. This landscape treatment will contribute positively to the landscape character of the area.

11.11 The overall impact on the landscape character would therefore be considered **neutral**, **temporary and slight** due to the level of recently built and Permitted Development in the vicinity and the proposed development is located in a part of the site which has little value in terms of landscape character.

12. TRAFFIC AND TRANSPORTATION

12.1 This chapter assesses the traffic impact the Proposed Development will have on the surrounding road network during construction and operation. The main part of the Proposed Development site is bounded by the R134 New Nangor Road to the north, a motor dealership to the east, Grange Castle South Business Park access road to the south, and L2001 Baldonnel Road further to the west. Public transport services are provided locally, with 2 no. Dublin Bus services operating within the vicinity of the site.

12.2 The proposed Clutterland substation element of the Proposed Development will contain 4 no. car parking spaces to exclusively accommodate all maintenance personnel attempting to service the proposed Substation. These will be provided in addition to the 150 no. car parking spaces permitted under SDCC Planning Reg. Ref. SD20A/0121. The proposed new spaces will be located to the south of the 110kV GIS building within the substation compound.

12.3 A Traffic Impact Assessment (TIA) was undertaken by CS Consulting Group to evaluate the Permitted Development's traffic implications on the road network in vicinity to the Permitted Development site. The assessment determined the expected traffic impact during the operational and construction phases. The junction analysis and findings of this assessment undermines all conclusions reached in relation to the traffic impact of the Proposed Development.

12.4 The potential impacts 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).

12.5 During the construction phase, it is envisaged that HGV traffic will travel via the M50 and the N7, via the R136 and R134 New Nangor Road. Construction traffic will use the same route for access and egress to/from the site.

12.6 The likely traffic generation of the Proposed Development during the construction phase was estimated based on contractor experience of similar Substation works and underground cable installation works, taking into account the scale of the substation and the length of underground cables to be installed, also noting that the underground cable routes are mostly off-road.

12.7 It is likely that the construction of the Proposed Development would take place over a period of approximately 13 months from the commencement of construction for site development works, with a peak construction trip generation of 30 return car vehicular trips and 10 HGVs entering and exiting the site per day.

12.8 The traffic generation estimated for the Proposed Development, indicates that up to two no. vehicles trips are estimated to be generated by the proposed 110kV GIS Substation on critical time periods. These number of vehicles movements shall be expected only during the worst case scenario which shall happen once per year.

12.9 Given the short-term nature of the peak construction phase, the overall impact of the construction phase is considered ***short-term, negative*** and ***not significant*** and shall not affect the performance of the junctions assessed. The construction phase of the Proposed Development will occur at the same time as the first phase of the Permitted Development that will generate 300 return car vehicular trips and 120 HGVs entering and exiting the site per day.

12.10 The proposed Clutterland substation does not require any full time staff to operate it on a daily basis. However, maintenance of the substation will be required, including a routine weekly inspection, and a more comprehensive inspection once per year. The weekly inspection will take a maximum of 8 hours on a single day and will be conducted by up to two ESB staff.

12.11 In addition to the weekly inspections, more comprehensive maintenance works will take place annually on each cubicle. This will require up to 4 ESB staff to conduct testing at the substation over a maximum period of 15 days (120 hours). This represents the worst case scenario for traffic generation related to the proposed Substation during the operational phase.

12.12 The traffic generation estimated for the Proposed Development, indicates that up to two no. vehicles trips are estimated to be generated by the proposed 110kV GIS Substation on critical time periods. These number of vehicles movements shall be expected only during the worst case scenario which shall happen once per year. Therefore, the impact of the operational phase of the development was found to be ***long-term, neutral*** and ***imperceptible.***

13. CULTURAL HERITAGE

13.1 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 South Dublin County Council Development Plan 2016-2022, the National Inventory of Architectural Heritage, the topographical files of the National Museum of Ireland, the Excavations Database, cartographic and documentary sources.

13.2 There are two recorded monuments within the immediate vicinity of the Proposed Development site, two enclosures (DU021-108, DU021-109). A concentric enclosure (DU021-108) extends into the Proposed Development site from the south; while enclosure (DU021-109) is recorded c. 262m west of the Proposed Development site. Both DU021-108 and DU021-109 have been subject to archaeological excavation and have been fully preserved by record. There are no National Monuments or sites subject to preservation orders within the vicinity of the Proposed Development site.

13.3 There is one protected structure in the environs of the site: a farm house (RPS 155/ NIAH Reg. No. 11208015), located c. 410m south-west of the Proposed Development site. A total of four structures are included in the NIAH in the vicinity of the Proposed Development site, including the protected structure.

13.4 Extensive archaeological investigations have taken place within the Proposed Development site and the surrounding environs in recent years. The enclosure (DU021-108) within the site was defined using geophysical survey and targeted test trenching and designated AH1. It was subsequently subject to pre- excavation works and later fully excavated and recorded, under licence 17E0590 in 2019. It consisted of a double-ditched enclosure and associated features. One additional area within the Proposed Development site has been subject to excavation. This consisted of a number of disturbed linear features of possible medieval date, based on the retrieval of medieval pottery from some of the features, excavated under licence 17E0578.

13.5 Cartographic analysis and aerial photographic coverage suggest the Proposed Development site was formerly in use as agricultural land. Aerial photography shows the enclosures DU021-108 and DU021-109 as well as the AH2 enclosure or ring-ditch. Satellite imagery from Google Earth 2019 shows a modern house which was located in the northeast of the Proposed Development site has been removed. This was confirmed by field inspection.

13.6 No specific cultural heritage sites were identified in the vicinity of the Proposed Development site, with the townland boundaries which ran through the site, removed in the past.

13.7 Whilst the Proposed Development site has been subject to extensive archaeological testing and subsequent excavation in a number of areas, there is potential for small or isolated archaeological features to survive beneath the existing ground level outside the footprint of the test trenches and the excavated areas. Ground disturbances associated with the Proposed Development site have the potential to directly and negatively impact on any such remains. Dependant on the nature, extent and significance of archaeological deposits, impacts (prior to the application of mitigation) may range from moderate negative to significant negative.

13.8 No potential negative impacts upon the architectural resource are predicted as a result of the construction of the Proposed Development. No potential negative impacts upon the cultural heritage resource are predicted as a result of the construction of the Proposed Development.

13.9 No significant impacts during operation are predicted upon the archaeological, architectural and cultural heritage resource.

14. WASTE MANAGEMENT

14.1 This chapter evaluates the impacts associated with waste management during the construction and operational phases of the Proposed Development.

14.2 In terms of waste management, the receiving environment is largely defined by South Dublin County Council (SDCC) as the local authority responsible for setting and administering waste management activities in the area.

14.3 The Proposed Development will generate surplus excavated material, as well as waste from the welfare facilities and site office at the site compound during the Construction Phase. Surplus excavated material classified as waste (as opposed to a by-product) will be segregated at source and transferred directly from site by a suitably permitted waste contractor(s) to suitably authorised receiving facilities.

14.4 Waste materials generated at the site compound from the welfare facilities and site office will be temporarily stored in dedicated receptacles at the site compound pending collection by a suitably permitted waste contractor(s). The waste storage area will need to be easily accessible to waste collection vehicles.

14.5 If waste material is not managed and stored correctly on the site or at the site compound, it is likely to lead to litter or pollution issues at site, site compound and/or on adjacent properties. The knock-on effect of litter issues is the presence of vermin on the site, site compound and the surrounding areas. Waste material will be appropriately managed on site so as to avoid these issues.

14.6 The use of non-permitted waste contractors for transportation or unauthorised receiving facilities could give rise to inappropriate management of waste and result in negative environmental impacts or pollution. Removal and reuse/recycling/recovery/disposal of waste material from site will be carried out in accordance with the Waste Management Act 1996 (as amended), the Waste Management (Collection Permit) Regulations 2007 (as amended) and the Waste Management (Facility Permit & Registration) Regulations 2007 (as amended). It is essential that all waste materials are dealt with in accordance with regional and national legislation, as outlined previously, and that time and resources are dedicated to ensuring efficient waste management practices.

14.7 Wastes will be collected by a suitably permitted contractor(s) and be transferred to suitably registered/permitted/licenced waste facilities for processing and segregation, reuse, recycling, recovery and/or disposal. There are numerous authorised waste facilities in the Leinster region which can accept non-hazardous and hazardous waste materials and acceptance of waste from the Proposed Development would be in line with daily activities at these facilities. At present, there is sufficient capacity for the acceptance of the predicted construction waste materials at facilities in the region.

14.8 Where offsite reuse of the wastes generated is not feasible, recycling and/or recovery of the waste will be carried where possible. Recovery and recycling of construction waste has a positive impact on sustainable resource consumption, for example where waste trees/shrubbery is mulched into a landscaping product or waste asphalt is recycled for use in new pavements. The use of recycled materials, where suitable, reduces the consumption of natural resources.

14.9 There is a quantity of material (made ground and soils and stones) which will need to be excavated to facilitate the Proposed Development. Clean inert soils and stones excavated will be reused on site as backfill, where practical. In the event that potentially contaminated material is encountered, correct classification and segregation of the excavated material is required to ensure that any potentially contaminated materials are identified and handled in a way that will not impact negatively on the health and safety of workers as well as on the receiving environment, both on and off-site. Contaminated material will need to be removed off-site for appropriate treatment and/or disposal.

14.10 Reuse of suitable clean inert excavated material onsite, where practical, will reduce consumption of natural quarry resources.

14.11 The predicted effect of construction waste generated from the Proposed Development is considered to be ***short-term, neutral*** and ***not significant***.

14.12 During the operational phase, a structured approach to waste management will promote resource efficiency and waste minimisation. Provided the mitigation measures 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***.

15. MATERIAL ASSETS

15.1 This chapter evaluates the impacts, if any, which the Proposed Development may have on Material Assets. The EPA Draft EIA Report Guidelines 2017 state that material assets are now taken to mean built services and infrastructure, roads and traffic as well as waste management. In this EIA Report, the impacts on some of the material assets described above have been considered in the following chapters:

- Chapter 5, Population and Human Health;
- Chapter 10, Air Quality & Climate;
- Chapter 12, Traffic & Transportation; and
- Chapter 14, Waste Management.

15.2 This chapter assesses ownership and access (including buildings and other structures), built services and infrastructure.

Ownership and access

15.3 The site of the Proposed Development as described in Chapter 2 Description of the Proposed Development is under the following ownership:

- GIS substation and the majority of the 110kV transmission line to the Castlebaggot substation, and c. 450m of the 110kV transmission line to the Kilmahud-Corkagh circuit is within lands that are being purchased by UBC Properties LLC (the applicant) from SDCC;
- The rest of the 110kV transmission line to the Kilmahud-Corkagh circuit continues through SDCC lands outside the main data centre site and along a wayleave through the Grange Castle Business Park;
- The lands for the remaining portion of the 110kV transmission line route to the existing Castlebaggot substation are owned by the TAO (ESB Networks);
- The 49kVa supply cable installation route is mostly within the main data centre site that are being purchased by UBC Properties LLC (the applicant) from SDCC, with its connection into existing infrastructure being within the Grange castle South Business Park lands owned by SDCC.

15.4 Letters of consent, to apply for development on the lands have been obtained from ESB Networks and SDCC and are included with the planning application.

15.5 The main access to the GIS substation compound will be via the permitted main access-controlled entrance from the Grange Castle South Business Park access road to the south. A secondary access is located to the east of the main access and to the immediate west of the Castlebaggot substation compound. This will also be accessed from the Grange Castle South Business Park access road to the south. The Permitted Development site will be fully secured with a 3m high security fence, CCTV and surveillance systems with a 2.6m high fence around the proposed 110kV GIS substation compound. There is good visibility on approach to both access points as detailed in Chapter 12 - Traffic and Transportation.

15.6 The implementation of mitigation measures will ensure that the predicted impacts on the material assets during the construction phase will be ***short-term, neutral*** and ***imperceptible*** for the construction phase.

Power and Electrical Supply

15.7 The construction compound and temporary power supply that will be established for the construction of Building A will be utilised for the Proposed Development. The power requirements for the construction phase will be relatively minor and therefore the power demand for the construction phase would have a potential short-term, imperceptible impact.

15.8 The excavation of trenches within the vicinity of existing electrical services will be carried out in consultation with ESB Networks to ensure there is no impact on existing users.

15.9 The Proposed Development has been designed in accordance with the requirements of ESB Networks. Eirgrid has confirmed that there is sufficient power available from the existing area network for the Proposed Development. There are no predicted impacts associated with power and electrical supply, and telecommunications for the Proposed Development for the operational phase.

Telecommunications

15.10 A fibre optic cable distribution network will be installed within the site for the Permitted Development to serve Buildings A, B and C. The connection into the wider telecommunications network will be undertaken by a statutory telecommunications operator. There are ***no potential impacts*** associated with telecommunications for the Proposed Development for the operational phase.

Surface water infrastructure

15.11 The surface water drainage network for the Permitted Development was designed to accommodate surface water drainage from the Proposed Development. As such, there is capacity for the Permitted Development to accommodate surface water runoff from the Proposed Development and no potential impacts on the surface water infrastructure.

15.12 The route of the 110kV transmission line to the Kilmahud-Corkagh circuit traverses under an existing culverted part of the Griffeen River. The transmission line will pass beneath the culvert by way of horizontal directional drilling (HDD). Chapter 8 Hydrology addresses the impacts on the River associated with this transmission line. There are no predicted impacts on the Griffeen River. There are no potential impacts associated with surface water infrastructure for the Proposed Development for the construction phase.

15.13 It is proposed to collect the surface water runoff from the Proposed Development and discharge an attenuated flow via two of the four proposed attenuation ponds and their associated forebays permitted under Reg. Ref. SD20A/0121 to its immediate north and east into the Baldonnel Stream and the existing surface water drainage network. The surface water drainage network for the Permitted Development was designed to accommodate surface water drainage from the Proposed Development. As such, there is capacity for the Permitted Development to accommodate runoff from the Proposed Development.

15.14 The underground single circuit 110kV transmission lines from the proposed substation to the existing Castlebaggot 220kV / 110kV substation and to the Kilmahud-Corkagh circuit, the underground 49kVa supply cable installation from the existing cabling to the south of the site; do not require any surface water drainage infrastructure. The cable installations are underground and the joint bays will be constructed on a primarily permeable gravel surface.

15.15 There are no potential impacts associated with surface water infrastructure for the Proposed Development for the operational phase.

Foul drainage infrastructure

15.16 Welfare facilities (canteens, toilets etc.) will be available within the construction compound for the permitted data centre development on the site approved under Reg. Ref. SD20A/0121 and it is proposed that it can be utilised for the small number of staff required for the construction phase of the Proposed Development. The increase in wastewater discharges, if any, will be imperceptible and will not affect existing users. There may be a requirement to discharge stormwater, collected in the trenches for the 110kV transmission lines and/or 49kVa supply cable installation, to sewer. Any discharge water will be treated using a siltbuster or similar to remove suspended solids to ensure

there is no impact on the foul drainage network. There will be no impact from construction works on the existing foul sewer network during construction.

15.17 Domestic effluent arising from the welfare facilities at the GIS substation will be minimal and will be collected within the permitted foul drainage network within the site and discharged to the local foul drainage network. The underground single circuit 110kV transmission lines from the proposed substation to the existing Castlebaggot 220kV / 110kV substation and to the Kilmahud-Corkagh circuit, the underground 49kVa supply cable installation from the existing cabling to the south of the site; do not require any foul drainage infrastructure. There are **no potential impacts** associated with foul drainage infrastructure for the Proposed Development for the operational phase.

Water supply

15.18 Welfare facilities (canteens, toilets etc.) will be available within the construction compound for the permitted data centre development on the site approved under Reg. Ref. SD20A/0121 and it is proposed that it can be utilised for the small number of staff required for the construction phase of the Proposed Development. The increase in water demand, if any, will not be significant enough to impact existing users.

15.19 A pre-connection enquiry (PCE) form was submitted to Irish Water (IW) as part of the Permitted Development application (Reg. Ref. SD20A/0121) which as well as addressing the water demand for the Permitted Development also addressed water demand for the Proposed Development. IW provided a confirmation of feasibility (CoF) for the development on the 20th May 2020 (IW Reference Number: Reference No CDS20000724).

15.20 The underground single circuit 110kV transmission lines from the proposed substation to the existing Castlebaggot 220kV / 110kV substation and to the Kilmahud-Corkagh circuit, the underground 49kVa supply cable installation from the existing cabling to the south of the site; do not require any water supply. There are **no potential impacts** associated with water supply for the Proposed Development for the operational phase.

16. CUMULATIVE EFFECTS

16.1 This chapter of the EIA Report considers the potential cumulative effects on the environment of existing, or approved projects. In addition to existing projects, the potential cumulative effects includes the Proposed Development with the Permitted Development granted under SDCC Reg. Ref. SD20A/0121; the MV connection to be undertaken by the statutory undertaker to the east; and the ongoing construction of the Cyrus One data centre to the immediate south of the Proposed Development site, in the locality (including, as far as practically possible, planned and Permitted Developments).

16.2 The cumulative effect of all these planned and permitted developments with the Proposed Development during the construction phase is generally ***short-term*** due to the length of the construction phase (13 months) with a range of quality of impacts that range primarily in the ***not significant, imperceptible*** and ***neutral*** range.

16.3 The cumulative effect of all these planned and permitted developments with the Proposed Development during the operational phase is generally ***long-term, imperceptible*** and ***neutral*** in nature.

17. INTERACTIONS

17.1 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.

17.2 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.