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Greener Ideas

PROFILE PARK POWER PLANT

ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIAR)

VOLUME I – NON TECHNICAL SUMMARY

JUNE 2021

PROFILE PARK POWER PLANT

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EIAR – NON-TECHNICAL SUMMARY

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Client:	GREENER IDEAS LIMITED
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Project Number	11069

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D01	Planning Issue	LB	10/06/21	MMC	14/04/21	MMC	21/06/21

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1.0 INTRODUCTION

1.1 Background

Greener Ideas Limited is proposing to develop a gas fired power plant with capacity to generate up to 125MW of electricity at a site located in Profile Park, Dublin 22.

This type of power plant will operate when electricity demand is higher than average, typically during morning and evening peak usage times. The plant will regularise energy provision in the electricity grid especially in the context of an increase in use of renewable energy technologies, such as wind and solar power. The plant technology allows the delivery of an efficient, safe and secure electricity system by helping to manage fluctuating electricity demands and compensate for shortages occurring from wind or solar power. This will accommodate and support Irelands transition to a low-carbon economy and mean that Ireland can continue to invest in renewable sources of power in order to meet future national and EU targets. The power plant may also have the capacity in to facilitate the electricity needs of data centre development in Profile Park and its surrounding areas. The design of the plant and its ultimate usage is therefore flexible such that it may provide power directly to the national electricity grid and/or to nearby data centre development.

An Environmental Impact Assessment (EIA) Report has been prepared in order to inform the planning application for the proposed power plant which has been submitted to South County Council for statutory approval. It should be noted that the application seeks a 10-year planning permission. The EIA Report is also prepared in support of Industrial Emissions licence application to the Environmental Protection Agency.

1.2 BACKGROUND TO ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

An Environmental Impact Assessment (EIA) is required to ensure that projects that are likely to have significant effects on the surrounding area and the environment are properly assessed. Any significant effects discovered in the assessment must be avoided or minimized where possible. The findings and outcome of the EIA are presented as a report, known as an Environmental Impact Assessment Report (EIAR).

TOBIN Consulting Engineers has prepared the EIAR in accordance with relevant and specific environmental legislation, guidance and advice notes. The report has been compiled in consultation with statutory bodies, interested parties and the local community. Further details on the consultation process are provided in Section 1.5 below.

This document is Volume I of the EIAR. It is a Non-Technical Summary (NTS), which gives a brief description of the project and the assessment of the relevant environmental matters in non-technical language. The additional Volumes contain information as described below:

- Volume II: The Main EIAR – Contains detailed information relating to the proposed power plant and the findings of the Environmental Impact Assessment Report on the surrounding area. Volume 2 also contains drawings, figures and maps.
- Volume III: Appendices: This Volume contains information and data that has been used in the Environmental Impact Assessment Report and is referred to in Volume 2.

The purpose of this NTS is to provide a concise overview, in non-technical terms, of the issues, effects and mitigation measures highlighted by the environmental impact assessment report and presented in the main EIAR, Volume 2.

1.3 THE APPLICANT

Greener Ideas Limited is a joint venture company comprising of Bord Gáis Energy and Mountside Properties Limited. GIL is developing a portfolio of energy projects and has secured planning permission for gas fired power plants and battery energy storage plants in Kilkenny, Tipperary and Roscommon.

Bord Gáis Energy (BGE) has been in operation in Ireland since 1976. Today, BGE provides gas, electricity and home care services to over 730,000 residential and business customers throughout the country. It operates the 445 MW Combined Cycle Gas Turbine (CCGT) power plant in Whitegate, County Cork. BGE's sustainable principles include:

- To provide products and services to customers that support a low carbon future;
- To support the creation of a sustainable low carbon energy system for Ireland; and
- To strive for a net zero internal carbon footprint from our own corporate operations.

In 2014, BGE became part of the global Centrica plc Group. Centrica is a leading international energy services and solutions provider. Centrica supplies energy and services to over 26.2 million customer accounts mainly in Ireland, the UK and North America through its brands including BGE, British Gas and others.

Mountside Properties Limited are shareholders in the operation of the 400 MW CCGT power plant in Tynagh, County Galway.

1.4 THE NEED FOR THE PROPOSED DEVELOPMENT

At present, based on Sustainable Energy Authority of Ireland (SEAI)'s Renewable Energy in Ireland 2020 publications Ireland is expected to fall short of its mandatory European target for a 16% renewable energy share by 2020, with overall achievement approximately 14.2%[1] by 2020. Progress towards its other targets were anticipated as follows:

- 33.2% renewable electricity by 2020 (target is 40%);
- 6.5% renewable heat by 2020 (target is 12%); and
- 7.2% renewable transport by 2020 (target is 10%).

When final statistics are published it is clear that Ireland will not have achieved its 2020 targets. The need to significantly improve its performance in terms of decarbonisation in order to meet the 2030 targets are more and more important. Strategic policies and binding targets on greenhouse gas emissions set out within European and national plans, investment in lower carbon technologies for electricity generation is a key prerequisite in achieving Ireland's 2030 renewable energy target and subsequent net zero carbon energy system by 2050.

In response to the binding European and national total energy consumption targets EirGrid began a multi-year programme, "Delivering a Secure, Sustainable Electricity System" known as the DS3 Programme. To date the DS3 Programme has enabled EirGrid to increase levels of renewable generation on the system from 50% to 65%, with the aim to increase levels to 75% gradually over the coming years and ultimately achieve 95% renewable generation by 2030.

The DS3 Programme is designed to ensure that the increasing amount of renewable energy required on the Irish power system can operate in an efficient, secure and safe manner. The provision of the proposed power plant in Profile Park will help EirGrid in managing the integration of renewable energy generators into the electricity grid by providing quick response capabilities in two ways. Firstly, the plant will have the capability of providing DS3 services that EirGrid will require to maintain system stability. Secondly, when requested by the grid operator, the plant will have the capability to start up and reach full load quickly, so assisting in providing electricity, during periods of high demand.

Gas fired power plant technology allows the delivery of an efficient, safe and secure electricity system by helping to manage fluctuating electricity demands and compensate for shortages occurring from wind or solar power. The provision of these capabilities will mean that Ireland can continue to invest in renewable sources of power.

Electricity demand is increasing rapidly in the greater Dublin region primarily due to the growth of data centres which require large amounts of power. However, as large consumers of electricity, data centres also pose particular challenges to the future planning and operation of a sustainable power system. The reinforcement of Ireland's renewable energy distribution network will subsequently facilitate planned growth and energy provision across major demand centres. Therefore, in addition to facilitating additional renewable energy on to the national transmission grid systems, the location of the proposed power plant at Profile Park may also enable additional data centre development in the Dublin area.

1.5 SCOPING AND CONSULTATION

As part of the EIA process, scoping correspondence was submitted to relevant statutory and non-statutory bodies in February 2020 (by email) for review and comment. These bodies include South Dublin County Council, National Parks and Wildlife Services, Inland Fisheries Ireland, Department of Defence and others. Follow up meetings, as required, were offered and held with relevant consultees who had expressed an interest in the project. All comments, observations or concerns raised by consultees on the project design and impact assessment are addressed in the EIAR, with specific responses directed onto the relevant specialist for consideration.

2.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1 The Proposed Site

The site of the proposed power plant is located in Profile Park, Dublin 22. This is a 100 acre (40.5 Ha) fully enclosed, private business park which has been developed to the highest of standards. It is easily accessible from the major arterial roads in the city including the M50, M7 and M4, and is served by excellent public transport links.

Within Profile Park the proposed power plant will be located on greenfield lands immediately adjacent to the existing Digital Realty data centre. The site of the proposed power plant has been identified by South Dublin County Council in its County Development Plan 2016-2022 as Zoning Objective 'EE' which is 'To provide for enterprise and employment related uses'. The siting of a power plant in Profile Park would bring additional opportunity to further accommodate data centre development. In this context it should be noted that Profile Park is connected directly onto the Dublin metropolitan fibre network called the T50. The T50 is a multi-duct fibre carrying system which extends over 44 km and provides connectivity to 24 business parks and from these into the global networks through.

Existing tenants within Profile Park and the surrounding business and enterprise parks include Google, Microsoft, Digital Realty Trust, Telecity and others. Immediately adjacent to Profile Park is the Castlebaggot 110 / 220 kV substation which provides electrical transmission connectivity to the national electricity transmission grid system.

The nearest residential properties are located some 400m to the south of the site and some 450 m to the northeast. Grange Castle Golf Course is located approximately 120m east of the site and Baldonnel Aerodrome 450m south of the site.

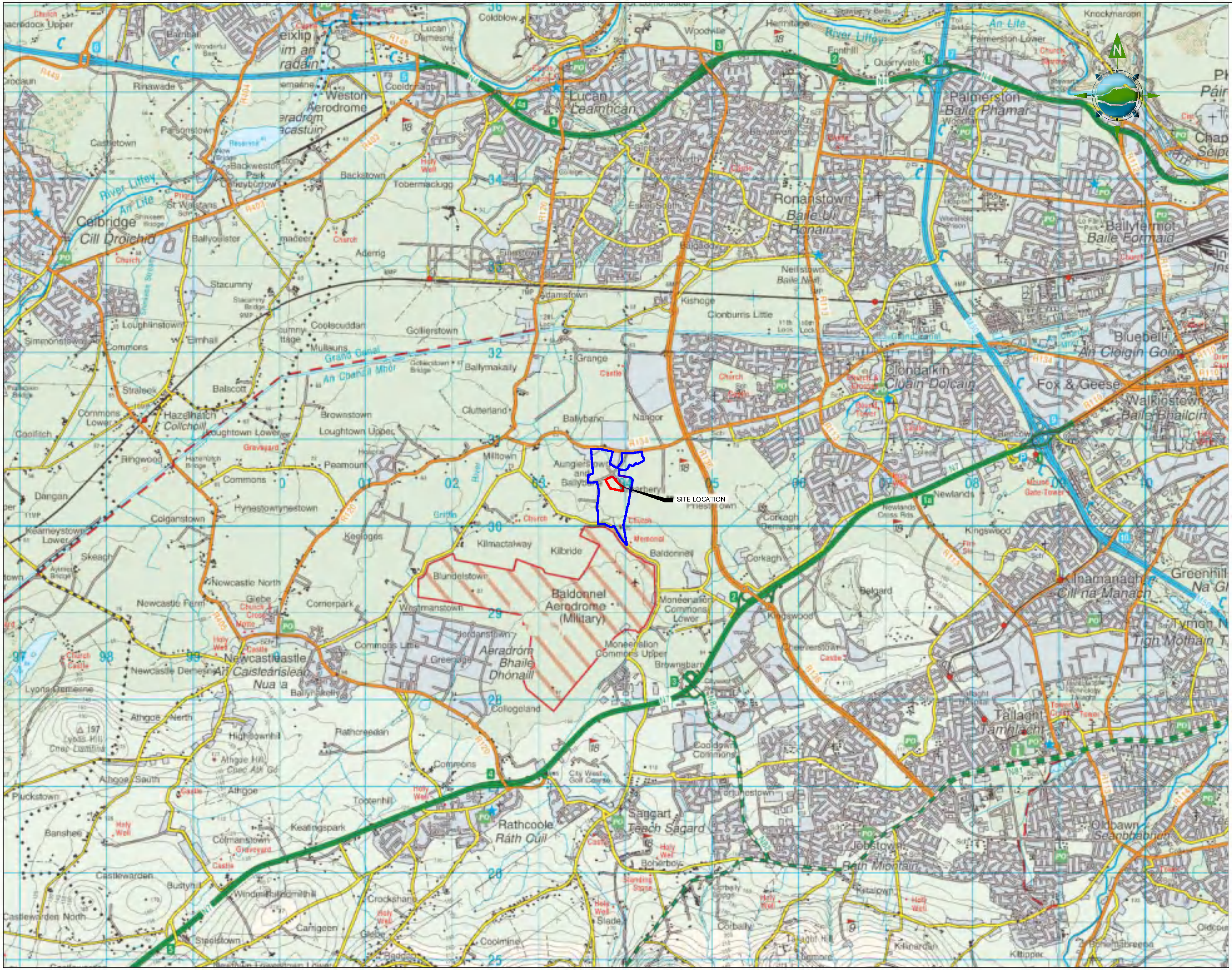
The proximity of both the transmission grid and local data centre development are key drivers for the siting of the proposed power plant. The location of the proposed power plant is indicated on Figure 1-1 and Site Layout on Figure 1-2.

2.2 Operational Overview

The Profile Park power plant will operate when electricity demand is higher than average. The plant will regularise energy provision in the electricity grid especially in the context of an increase in use of renewable energy technologies, such as solar and wind power. This will accommodate and support Irelands transition to a low-carbon economy and ensure that Ireland can continue to invest in renewable sources of power in order to meet future national and EU targets. The Power Plant may also be utilised to facilitate the electricity needs of data centre development in Profile Park and its surrounding areas. The power plant will be minimally manned and will have a dedicated team with responsibility for carrying out routine maintenance, attending meetings, accepting deliveries and security services.

Natural gas, supplied from the Gas Networks Ireland national grid, will be the primary fuel source for the plant. In order to comply with Commission for Regulation for Utilities (CRU) requirements to ensure security of energy supply[1], low sulphur diesel oil will be stored as a

[1] Ensuring Security of Supply of the electricity system is a key legal function of the CRU. The Secondary Fuel Obligation is a policy designed to maintain security of electricity supply to consumers in the event of



THE INFORMATION ON THIS DRAWING IS TO THE ORDNANCE SURVEY IRELAND ITM COORDINATE SYSTEM

GENERAL LEGEND

PLANNING APPLICATION BOUNDARY

APPLICANT'S LANDHOLDING

As agreed with South Dublin County Council in the pre-application consultation meeting the final finishes, including cladding materials and colour codes, will be agreed with the Council post planning through planning condition. Greener Ideas Limited will ensure only Council approved finished are applied on site.

NOTES:

1. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
2. ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE
3. ENGINEER/EMPLOYERS REPRESENTATIVE, AS APPROPRIATE, TO BE INFORMED BY THE CONTRACTOR OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES
4. THE CONTRACTOR SHALL UNDERTAKE A THOROUGH CHECK FOR THE ACTUAL LOCATION OF ALL SERVICES/UTILITIES, ABOVE AND BELOW GROUND, BEFORE ANY WORK COMMENCES
5. ALL LEVELS SHOWN RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD

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OSI 1:2,500 Sheet No's: 3325-B, 3325-D, 3326-A & 3326-C.

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400m 0 400m 800m 1200m

Rev	Date	Description	By	Chkd.
A	18.06.21	PLANNING ISSUE	MN	MMcC

Client: Greener Ideas

Project: PROFILE PARK POWER PLANT

Title: FIGURE 1.1 SITE LOCATION IN REGIONAL CONTEXT

Scale @ A1: 1:20,000

Prepared by: M. Nolan | Checked: M. McCarthy | Date: June 2021

Project Director: S. Tinnelly

Drawing Status: Planning

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Drawing No.: 11069-2000

Revision: A

BUILDING & PLANT ID KEY	
Item ID	Item Name
1	Gas Engine Hall
2	Electrical Annex
3	Radiator Coolers
4	Gas AGI
5	Workshop
6	Exhaust Stack
7	Tank Farm Bund
8	Diesel Oil Storage Tank - 1,250m³
9	Diesel Oil Storage Tank - 1,250m³
10	Pilot Oil Storage Tank - 26m³
11	Urea Storage Tank - 26m³
12	Lube Oil Storage Tank - 26m³
13	Lube Oil Maintenance Tank - 26m³
14	Effluent Collecting Tank - 26m³
15	Sludge Discharge Pump Module
16	Urea Container
17	Tank Farm Building
18	Fire Water Tank
19	Fire Pump Station
20	Water Treatment Unit Shelter
21	Treated Water Tank
22	Gas Pressure Reduction Skid
23	Heater Withdrawal Area
24	Gas Outlet Valve
25	Gas Inlet Valve
26	Temporary Pig Trap
27	Blackstart Unit
28	FM200?
29	Emergency Exit / Escape
30	Transformer
31	Gas Engine Hall Ventilation Inlet
32	Gas Engine Hall Exhaust Gas Silencer
33	Pipe Way to Cooler Area
34	Pipe Rack
35	Pipe Bridge
36	Grasscrete Parking Area
37	Entrance 1 Gate
38	Entrance 2 Gate
39	Security Fence
40	Platform / Gantry
41	Platform Access
42	Security Hut
43	Electrical Cable Duct

THE INFORMATION ON THIS DRAWING IS TO THE ORDNANCE SURVEY IRELAND ITM COORDINATE SYSTEM

GENERAL LEGEND

- PLANNING APPLICATION BOUNDARY
- TARMAC SURFACED ACCESS ROADS
- GRAVEL SURFACED ACCESS ROADS
- CRUSHED ROCK HARDSTAND AREA
- CONCRETE HARDSTAND AREA
- GRASSCRETE PARKING AREA
- AREA RESERVED FOR LANDSCAPING
- OPEN LAND DRAIN
- EXISTING BALDONNEL STREAM CULVERT
- EXISTING GROUND LVL. EGL: 00.00 AOD
- FINISHED FLOOR LVL. FFL: 00.00 AOD
- BUILDING ID TAG

As agreed with South Dublin County Council in the pre-application consultation meeting the final finishes, including cladding materials and colour codes, will be agreed with the Council post planning through planning condition. Greener Ideas Limited will ensure only Council approved finished are applied on site.

NOTES:

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OSI 1:2,500 Sheet No's: 3325-B, 3325-D, 3326-A & 3326-C.

10m 0 10m 20m 30m

Rev	Date	Description	By	Chkd.
A	18.06.21	PLANNING ISSUE	MN	MMcC

Client: Greener Ideas

Project: PROFILE PARK POWER PLANT

Title: FIGURE 1.2 SITE LAYOUT PLAN

Scale @ A1: NTS

Prepared by: M. Nolan | Checked: M. McCarthy | Date: June 2021

Project Director: S. Tinnelly

Drawing Status: Planning

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Drawing No.: 11069-2003 Revision: A

backup fuel. Up to 120 hours (5 days) maximum running capacity of diesel oil is required to be stored in two bunded tanks on site (each tank with a volume of 1250m^3). It should be noted that normal operations on the backup fuel is anticipated to occur for up to 18 hours per annum for testing purposes in accordance with EirGrid's (the Transmission System Operator) Grid Code which establishes the rules governing the electricity transmission system and the procedures for governing the actions of all transmission system users. Outside of these hours, it is expected that operation on diesel oil would only occur in very rare circumstances such as an interruption to gas supplies or other electricity grid system emergencies.

Electrical power will be exported from the power plant's main transformers to the existing Castlebaggot 220 / 110 kV Substation which is operated by EirGrid or to a new proposed 110 kV substation in Profile Park. No confirmed details of this potential new substation were available for consideration as part of this EIAR.

2.3 Power Plant Infrastructure

The power plant will comprise the following main components:

- Site Entrance;
- Engine Hall comprising up to 6 no. gas engines and 1 no. exhaust stack cluster;
- Electrical Annex Building;
- Workshop Building;
- Security Hut;
- Radiator Coolers;
- 110 kV Electrical Transformer(s);
- Gas AGI;
- Tank Farm comprising:
  - 2 x Fuel Oil Storage Tank;
  - SCR reagent Tank;
  - Lube Oil Storage Tank;
  - Lube Oil Maintenance Tank;
  - Pilot Oil Tank;
  - Fire Water Storage Tank;
  - Cooling Water Run-Down Tank;
  - Surface Water Attenuation Tank;
- Fencing;
- Car Park;
- Landscape planting around perimeter of site.

a gas shortage by requiring gas fired power generators to have the ability to generate electricity from a secondary fuel source should the supply of gas not be available. It should be noted that the CRU is currently reviewing these requirements.

2.4 Gas and grid connections

The proposed electrical connection considered in this EIAR is an underground 110 kV cable. Electrical power will be exported from the power plant's main transformers to the existing Castlebaggot 220 / 110 kV Substation which is operated by EirGrid or to a new proposed 110 kV substation in Profile Park. No confirmed details of this potential new substation were available for consideration as part of this EIAR.

Natural gas will be delivered to the power plant via a new below ground pipeline from the existing gas network. It is envisaged following on from consultations with Gas Networks Ireland (GNI) Gas Networks Ireland that this connection will be via a new spur from the existing national gas transmission network which has an existing Above Ground Installation (AGI) AGI compound close to the Nangor Road approximately 1km to the north of the proposed power plant.

It should be noted that planning permission is not sought for these connections as part of the power plant application to South Dublin County Council. Notwithstanding, these are considered in this EIA Report as part of the 'project'.

2.5 PROJECT CONSTRUCTION

2.5.1 Construction Schedule

It is expected that construction will commence in 2022 with design, construction, and commissioning activities lasting for approximately 20 months. The plant is expected to be fully operational in 2024/25 subject to timely receipt of the necessary statutory consents.

The total number of construction staff on-site will vary during the construction phase of the works but are expected to peak at approximately 50 persons.

Normal working hours during the construction period are expected to be Monday to Friday 08.00 to 20.00 hours. During certain stages of the construction phase, it is expected that some work will have to be carried out outside of normal working hours however this will be kept to a minimum.

Construction activities will gradually phase out from pre-construction to predominantly civil activities followed by installation, commissioning and testing of the proposed power plant and equipment.

2.5.2 Construction Methodologies

2.5.2.1 Pre-Construction

The pre-construction phase of development includes preparatory works (i.e., post planning surveys and reporting) and consultation with statutory bodies and the public. Following this process, site clearance activities will commence. Typical activities will include preparation of the construction working area and topsoil stripping. Preliminary volume calculations provide an approximate estimation of stone fill required for all of the hardstanding foundations of 8,500m^3.

Prior to the commencement of construction activities, the area for development will be fenced off. The footprint of the proposed power plant will require clearing and levelling. The site will be levelled to 74.8 AOD. A method statement for soils and soil stripping will be included in the CEMP. This will set out:

- The intended soil stripping depth;
- Options for separating and keeping different soils apart;
- Methods for handling soil;
- The location and height of soil storage mounds and how long they will be present; and
- Proposals for reinstating or disposing of soils.

Mobilisation will include the putting in place of staff, temporary facilities, plant and equipment, materials, and systems for construction.

A temporary contractor's compound will be erected on site for the duration of the construction works and will include temporary site offices (portacabins), staff welfare facilities, car parking, and equipment laydown areas.

Training in health and safety will be provided for all staff during the mobilisation period, and all staff will be required to hold SAFEPASS or equivalent certification.

2.5.2.2 Civil and Plant Construction Works

Concrete pouring and filling will be fully controlled to ensure that cement bound materials do not present any pollution risk. All concrete pouring and filing will be supervised and monitored.

Trucks, mixers, and concrete pumps that have contained concrete will be washed out in a designated impermeable area to prevent pollution. Where possible, washout water will be stored and re-used.

A Construction Traffic Management Plan (CTMP) will be prepared in consultation with South Dublin County Council in advance of the construction phase of development in order to ensure safe movements and interactions between vehicles and pedestrians, both on and adjacent to the site. The CTMP will cover all expected work activities, delivery and storage areas, and shall be expanded and / or amended to cover new or altered activities as they arise. The main components of the CTMP will be:

- Description and scope;
- Staging of the works;
- Traffic control during construction;
- Trucks movements to the site;
- Road signs for full and partial road closure;
- Parking for workers and subcontractors;
- Pedestrian safety;
- Site traffic management supervisor; and
- Abnormal load (i.e. for substation transformer) and associated permit applications applied for and secured from/by South Dublin County Council in advance of abnormal load delivery to site.

2.5.3 Construction Environmental Management Plan

The primary objective of the Construction Environmental Management Plan (CEMP) is to safeguard the environment, site personnel, and nearby sensitive receptors, i.e., occupiers of

residential and commercial properties, from site activity which may cause harm or nuisance. It is therefore intended to provide a framework to ensure transparent and effective monitoring, prevention, minimisation, management, and compensation measures to address the environmental effects associated with the proposed power plant.

During construction, an EPC Contractor(s) will be appointed with responsibility for constructing the proposed power plant. Performance of the EPC contractor(s) will be monitored on a regular basis. The following activities will be undertaken throughout the duration of the construction period:

- Review contractor documents against the requirements of the CEMP;
- Undertake regular audits;
- Continuously check records;
- Set up a contractor reporting structure; and
- Conduct regular meetings where EHS is an agenda item.

It will be the responsibility of the EPC contractor(s) to implement the construction phase management and monitoring measures outlined in the CEMP. The CEMP will be finalised in consultation with South Dublin County Council. The EPC contractor(s) will be required to undertake regular monitoring and inspections, keep up to date records as prescribed in the CEMP, and report regularly to Greener Ideas Limited.

2.5.4 Waste Management Plan

An Outline Waste Management Plan (OWMP) has been prepared in accordance with waste management guidance and principles as outlined in Design Out Waste: A design team guide to waste reduction in construction and demolition projects (EPA, 2015) and Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects, Department of the Environment, Heritage and Local Government (DoEHLG), June 2006.

The aim of the OWMP is to provide a framework for the development of a detailed Construction Waste Management Plan and to ensure that optimum levels of waste reduction, re-use, recycling, and recovery are achieved throughout the duration of the project. It is preliminary in nature as it has been prepared at a stage when exact quantities and volumes of waste material cannot be determined. Any quantities and/or volumes presented in this report should be considered indicative only.

The requirement to develop, maintain and operate this OCMP to a detailed Construction Waste Management Plan will form part of the contract documents for the project.

On commencement of the project, the Contractor appointed to undertake the works will be responsible for the development of this OCMP and the implementation of all necessary protocols and measures to ensure regulatory compliance, including the provision of data to Greener Ideas Limited to enable fulfilment of reporting obligations.

2.6 OPERATION AND MAINTENANCE

2.6.1 Hours of Operation

This power plant may operate in more than one operational profile. For example, the plant may connect to the national electrical grid in which case its actual operating hours would be determined by EirGrid, who are the Transmission System Operator (TSO). Alternatively, the plant may connect to a data centre and provide a direct power feed to that data centre. In this case the operating hours would be subject to agreement between Greener Ideas Limited and that data centre. Notwithstanding, these operating profile scenarios, the environmental modelling undertaken as part of this EIA Report has predicted no significant environmental effects based on a worst-case operating scenario (i.e., operating 24 hours a day, 365 days per year unless otherwise stated). Any future connections will be subject to separate consents processes.

2.6.2 Operational Staff

The power plant will be minimally manned with a dedicated team with responsibility for carrying out routine maintenance, attending meetings, accepting deliveries and security services.

Site specific management systems and operating procedures will be developed in accordance with industry procedures and policies. The Plant Manager will be directly responsible for the implementation of the Health and Safety, Environmental and Quality systems, policies and procedures.

The Plant Manager will be assisted by an Operations Engineer and the Environmental, Health, and Safety (EHS) Manager who will have varying degrees of responsibility for health and safety implementation. Operations will be carried out in accordance with legislative requirements and the conditions of the planning permission.

Out of hours security services will be arranged to ensure the site is secure.

2.7 DECOMMISSIONING

The power plant is expected to be operational for at least 25 years. On cessation of activities, the plant will either be redeveloped as a power related facility, or the site will be redeveloped in an alternative form.

In the event that the facility is decommissioned, the following programme will be implemented:

- All plant equipment and machinery will be emptied, dismantled, and stored under appropriate conditions until it can be sold. If a buyer cannot be found, the material will be recycled or disposed of through licensed waste contractors and hauliers. If plant and machinery is required to be cleaned on site prior to removal, all necessary measures will be implemented to prevent the release of contaminants;
- All waste will be removed from the facility; and
- The site and all associated buildings will be secured.
- Waste will be recycled wherever possible. All waste movement, recycling, and disposal operations will be controlled by licensed waste contractors.

Details of provisions to decommission and render safe or remove all materials, waste, ground, plant, or equipment contained on or in the site that may result in environmental pollution will be agreed with the Environmental Protection Agency as part of the Industrial Emissions Licensing process.

2.8 HEALTH AND SAFETY

The proposed Profile Park Power Plant will be constructed, operated and decommissioned in accordance with all relevant Health and Safety Legislation as described in the CEMP.

A Health and Safety Plan covering all aspects of the construction process will address the Health and Safety requirements in detail. This will be prepared prior to the construction stage. Further details are provided in the CEMP.

An operational phase Health and Safety Plan will be developed to fully address identified Health and Safety issues associated with the operation of the site and providing access for emergency services at all times.

3.0 CONSIDERATION OF ALTERNATIVES

3.1 INTRODUCTION

To find the most suitable site for the proposed development, Greener Ideas Limited considered a number of factors, as recommended in the Draft EPA Guidelines (EPA, 2017).

Alternatives to the proposed development, in terms of layout and design, were considered under the following headings:

- Do Nothing' Scenario';
- Alternative Technologies;
- Alternative Locations;
- Alternative Process;
- Alternative Layouts; and
- Alternative Mitigations.

3.2 DO NOTHING SCENARIO

An alternative to developing a power plant at the proposed development site would be to leave the site as it is. In implementing the "Do Nothing Scenario" Greener Ideas Limited would not develop this power plant in Profile Park, the absence of which would result in the following:

- Less integration of renewable technologies onto the Irish Grid which is a key strategic European and national objective to transition Ireland to a low carbon economy
- Increased risk that older, less efficient and more polluting power plants would continue to operate and proposals to decarbonise Ireland's power generation portfolio would be negatively impacted;
- A reduced portfolio of dispatchable gas fired power plants available to manage fluctuating electricity demands and compensate for shortages occurring from wind or solar power, resulting in increased grid instability.
- No fixed electrical connection for data centre customers within the context of EirGrid's Data Centre Connection Policy. There is a possibility that data centres will not develop on Profile Park or they will seek to build their own power generating plant. The ability to centralise power generation services within Profile Park brings opportunities to better manage noise and emissions locally and provide a potential diversity effect of the data centre sites potentially enabling lower built capacity, and less operating hours.
- The site being developed by another developer with a development consistent with the 'Enterprise and employment' zoning of the South Dublin County Development Plan 2016-2022.

3.3 ALTERNATIVE TECHNOLOGIES

Greener Ideas Limited considered a wide range of power generation technologies as part of a screening exercise to identify the most suitable technology to develop. These technologies included:

- Combined Cycle Gas Turbine (CCGT) plant;

- Open Cycle Gas Turbine (OCGT) plant; and
- Dual-fuel engine plants.

Each of the above technologies were considered in the context of Greener Ideas Limited preferred operating parameters. In addition, performance metrics were considered. This analysis identified several power plant technologies which would meet Greener Idea Limited's key operating parameters and technical performance metrics.

Each of the technology options were considered in terms of key environmental effects, spatial requirements, atmospheric emissions, noise emissions, water supply and wastewater emissions. These parameters were selected on the basis that any significant risk issue identified could present a significant design, consenting or operational constraint.

Other environmental effects, i.e., relating to land, landscape, traffic, biodiversity etc were considered to be comparative to each technology type at this location in Profile Park and, as such, were not considered further.

3.4 ALTERNATIVE LOCATIONS

The following technical and commercial drivers were considered by Greener Ideas Limited when identifying a suitable site for the development of a power plant:

1. Location close to data centre developments on appropriately zoned lands.
2. Location close to electrical and gas network systems;

EirGrid's Data Centre Connection Policy (2020) has identified the greater Dublin region as a capacity constrained area, especially with regard to satisfying the power needs of new data centres. EirGrid will provide firm capacity to a data centre where it provides new on-site dispatchable generation. This can also be facilitated through the installation of generation plant in close proximity to the data centre, for example through projects such as this one. The location and importance of the proposed power plant at Profile Park will enable additional development on the Profile Park industrial estate, especially with regards to new data centres, that otherwise would need to build individual on site power generating infrastructure.

In addition to power supply to data centres, this type of power plant is necessary in order to achieve Ireland's binding 2030 emission targets. These power plants will enable the delivery of an efficient, safe and secure electricity system by helping to manage fluctuating electricity demands and compensate for shortages occurring from renewables such as wind or solar power.

Another critical location consideration is proximity to electricity grid and gas transmission networks.

These factors influenced Greener Ideas Limited to contact Moffash Limited, the owners of Profile Park, to discuss the possibility of developing a power plant site on its lands.

3.5 ALTERNATIVE GAS ENGINE PROCESSES

The gas engine process, which is described in more detail in Section 3.2.2 of the main EIAR, is the standard for this type of power plant and as such no alternative gas engine processes were considered as part of this EIA Report.

3.6 ALTERNATIVE LAYOUTS

Greener Ideas Limited considered an alternative layout configuration which would have resulted in a need to install a bridge or culvert over the stream adjacent to the site and in addition, the sound power levels associated with the alternative layout would have resulted in a more significant noise impact.

3.7 ALTERNATIVE MITIGATIONS

The mitigation measures proposed in relation to the various aspects of the project are detailed in the relevant chapters in the main EIAR and are also summarised in Appendix 2.1 Schedule of Mitigation Measures. The mitigation measures proposed are considered to be proven and best practice. The level of mitigation proposed is determined to be proportionate to the potential impact. On this basis, the chosen mitigation measures are those that are considered to have the least environmental effects.

3.8 ALTERNATIVE CONSTRUCTION AND DECOMMISSIONING PRACTICES

Construction practices for gas fired power plant are well understood and there are several thousand such plants in operation across the globe. Standard construction practices will be employed in the construction of this plant. Similarly, decommissioning practices will follow standard practices and will be carried out in accordance with EPA requirements as set out in the Industrial Emissions (IE) Licence. No alternative construction or decommissioning practices are considered in this EIAR as best practice or other regulatory requirements will be followed in all instances.

4.0 POLICY, PLANNING AND DEVELOPMENT CONTEXT

Relevant policy has been reviewed at an international (UN and EU), national, regional and local level. The proposed power plant is consistent with the current energy and planning policy context, which seeks to increase the share of electricity generation from renewable sources and locate wind energy developments in suitable locations, thereby minimising any environmental impacts. The proposal will contribute to national and international efforts to reduce carbon emissions to the atmosphere and thereby help to address concerns regarding climate change.

The proposed power plant will be located within the functional area of South Dublin County Council and is therefore subject to the South Dublin County Council Development Plan 2016 - 2022 hereafter referred to as the CDP.

The CDP seeks to promote policy to ameliorate the effects of climate change and introduce resilience to its effects to support the implementation of the National Climate Change Strategy 2007-2012, DEHLG (2007) and the National Climate Change Adaptation Framework Building Resilience to Climate Change, DECLG (2012). The CDP recognises that continued growth will require energy and states that the County *"should aspire to becoming as carbon neutral as possible and make every effort to increase energy efficiency and unlock renewable energy potential."*

Specific to Profile Park, the CDP recognises the geographic location of South Dublin County on the edge of the Dublin Region as an economic opportunity to provide large, serviced sites with the ability to attract large-scale investment to the area. South Dublin County seeks to protect and enhance this economic strength by ensuring the region remains competitive through provision of suitable locations for development.

At a site level, the proposed power plant would be sited within land designated as "Employment and Enterprise" by the CDP's Land Use Zoning Map. Land Use Classes identified as 'Permitted in Principle' within EE zones include under the definition of Public Services.

The proposed power plant is consistent with EE zoning objectives and furthermore, sympathetic to the overall development strategy of the surrounding environment as envisioned in the CDP. The precedence for the siting of the proposed power plant within this zoning is well established given the history of similar approvals within Profile Park.

As such, the proposed power plant is considered to be in compliance with land use and energy policies and objectives at international, national, regional and local level.

5.0 POPULATION AND HUMAN HEALTH

5.1 INTRODUCTION

Chapter 7 of the main EIAR examines the existing environment and addresses the potential impacts on population and human health arising from the proposed power plant in Profile Park.

The assessment on population considers the current land use of the proposed power plant site, the current activities occurring within and in the vicinity of the site, local population information, employment profiles and tourism. The study area for population and human health includes review of relevant information on a county and national scale but is mainly concentrated on the Electoral Districts (ED) within which the project is located.

5.2 POPULATION

5.2.1 Land use

The site of the proposed power plant is located in Profile Park, Dublin 22 which is approximately 3.15km west of Clondalkin town centre. Profile Park is a 100 acre (40.5 Ha) fully enclosed, private business park. Immediately adjacent to Profile Park is the Castlebaggot 110 / 220 kV substation which provides electrical transmission connectivity to the national electricity transmission grid system.

The site of the proposed power plant is greenfield and there are no land use/activities on the existing site. The north-western and eastern boundaries of the site are defined by the internal road network within Profile Park. The existing Digital Realty Trust is located immediately to the south of the site. The immediate area is predominantly commercial / industrial in nature.

Grange Castle Golf Course is located approximately 120m east of the site and Baldonnel Aerodrome 450m south of the site. The nearest residential properties are located some 400m to the south of the site and some 450 m to the northeast. A number of community facilities and amenities are available in the wider geographical area, which are listed in more detail in Section 7.3.1.1 of Chapter 7 in the main EIAR.

Population Trends

An examination of the existing population in the study area has been carried out to identify population trends, density and to define the properties/receptors surrounding the proposed site. The proposed power plant would be located in the local authority area of South Dublin County Council and within the Electoral Division (ED) Clondalkin Village.

During the period of 2006 to 2016, the population increased nationally by approximately 12.3% with the population of South Dublin County increasing by 12.09%. During this time, the population of Clondalkin Village ED increased by 5%, which represents an increase of 434 persons for the area. This illustrates that the population of the local area is increasing at a slower rate than rates at county, regional and national level. In addition, the population density for the study area is generally sparse compared with the overall county.

Property/Receptors

All receptors within 1km of the site boundary have been identified and verified by means of the above desktop reviews and site surveys. This information is used to inform assessments within

this EIAR. A 1km buffer from the proposed power plant site boundary was used to ensure that those properties within reasonable proximity of the proposed infrastructure are defined.

In addition, a search of planning applications within 1km of the proposed power plant site boundary was carried out (most recently in March 2021) to identify proposed developments and consented, but as yet not built, developments. A total of 146 no. receptors were identified.

5.2.2 Potential Effects (Population)

5.2.2.1 Potential Effects - Construction

Land Use

It is expected that construction will commence in 2023 with design, construction, and commissioning activities lasting for approximately 20 months. The total number of construction staff on-site will vary during the construction phase of the works but are expected to peak at approximately 50 persons. This will result in a negative, short-term and moderate effect on land use.

Population Trends/ Employment and Economy

It is anticipated that there would be a positive direct effect on local population trends as a result of the construction of the proposed power plant. Employment generation is considered to involve 50 persons during peak activities on site and this short-term increase in employment may also result in a short-term increased need for accommodation locally. This short-term positive effect will add value to the local economy.

Property/Receptors

Access to the proposed site will be via a new site entrance from an existing industrial estate roadway with access to the industrial estate provided north of the site via the R134. The potential traffic effects are discussed in detail in Chapter 15 (Traffic and Transportation).

Negative effects on the local population as well as residential properties as a result of construction work, including construction related traffic movements, could impact on noise and air quality. In addition, there is potential for works to impact local residential amenity, i.e., a resident's enjoyment of their home.

There will be a short-term increase in traffic related effects during the construction phase. These effects are assessed in detail in the Chapter 10 (Air Quality and Climate) and Chapter 11 (Noise and Vibration). It is considered that any negative effects arising during construction will be slight and short term in nature.

Property Value

It is not anticipated that the construction works for the proposed development will have any significant impact on the local property values.

Employment/Economy

The proposed power plant will lead to the support and creation of direct and indirect employment during construction. At a local level, employment will rise on site and at a national

level, employment will be created through specialised construction services as well as through the supply of building equipment and materials. As a result, the construction phase of the proposed power plant will have a short-term, slight positive effect on employment and economy in the local area.

Tourism

There are a number of tourism attractions and public amenities within the study area including the Grange Castle Golf Course, Corkage Park, Clondalkin Round Tower and the Dublin Mountains Park. It is not considered that construction work will have any direct or negative impact on tourist amenities. In addition, there are no anticipated negative effects arising from construction for local recreational users. Effects are predicted to be neutral.

5.2.2.2 Potential Effects – Operation

Land use

The site of the proposed power plant will change from a greenfield site zoned for 'Enterprise and Employment' development to a power plant. This will result in a long-term and significant effect on land use which is consistent with the land use zoning of the site and its environs.

Population Trends

The power plant will be minimally manned with a dedicated team with responsibility for carrying out routine maintenance, attending meetings, accepting deliveries and security services. Out of hours security services will be arranged to ensure the site is secure. There will be an imperceptible effect on population.

Property/Receptors

It is not anticipated that the proposed power plant whilst in operation will have any significant or long-term impact on sensitive local receptors (dwellings) within the area. The nearest residential dwellings are located 412m south and 442m northeast of the proposed power plant.

Property Value

The proposed power plant is not predicted to have any impact on the local property values. Profile Park and its surrounding business parks are zoned for 'Employment and Industry' and there is significant development of similar commercial and industrial infrastructure in this area with no evidence of a reduction in house prices. The effect on property value will be neutral.

Tourism

As noted previously, there are a number of relevant tourism attractions and public amenities within the study area including the Dublin Mountains Park, as well as the adjacent Grange Castle Golf Course and Corkagh Park. It is not anticipated that the operation of the proposed power plant will have any direct or negative impact on tourist amenities or local recreational amenities. Effects are predicted to be neutral.

5.3 HUMAN HEALTH

5.3.1 Existing Environment

A community profile has been identified to establish the baseline health profile of the area and compare this profile to the rest of the country. The most recent County Health Profiles published are from 2015 (Lenus, 2015) and have been used to establish a community health profile for South Dublin County Council, where the proposed power plant will be located.

The key facts in the 2015 Health Profile relating to South Dublin County Council are:

- The proportion of the population for the area are aged over 65 years is 8.7%, which is considered low when compared with the national rate of 11.7%
- The area has the highest rate of lone parent households (2.9% higher than the national rate) and an above average number of households which are local authority rented.
- Average births for the area is 18.8%, whilst for the nation is 15.8 %. In addition, breastfeeding rates are above average with a rate of 53.7%, whereas the national rate is 46.6%.
- Cancer rates and mortality rates are above the national average.

The map of deprivation included in the County Health Profile shows that South Dublin County Council experiences higher levels of Disadvantage when compared with levels of the nation overall.

5.3.2 Potential Effects (Human Health)

5.3.2.1 Potential Effects – Construction

<u>Air Quality and Dust Emissions</u>

The greatest potential effect on air quality during the construction phase of the proposed power plant is from construction dust emissions as a result of excavation works, infilling and landscaping activities and storage of soil in stockpiles. The construction of the proposed power plant will take place away from residential properties (receptors) with the nearest receptor located over 400m from the plant., dust and particulate matter effects from the site will be negative, short-term and imperceptible in nature, posing no nuisance at nearby receptors.

<u>Noise and Vibration</u>

During the construction phase of the proposed power plant there will be some effect on nearby noise sensitive properties due to noise emissions from site traffic and other construction activities. However, given the distances between the main construction works and nearby noise sensitive properties and the fact that the construction phase of the development is temporary in nature, it is expected that the various noise sources will not be excessively intrusive. Furthermore, the application of binding noise limits and hours of operation, along with implementation of appropriate noise and vibration control measures, will ensure that noise and vibration effect is kept to a minimum. Noise effects are predicted to be slight and short term. Vibration effects are predicted to be not significant and momentary.

Health and Safety

All activities carried out by the appointed Contractor on the proposed development will be in accordance with the requirements of the *Safety, Health and Welfare at Work Act 2005* as amended and Regulations made under this Act.

5.3.2.2 Potential Effects - Operation

Air Quality

Air dispersion modelling was undertaken to assess the impact of the proposed power plant with reference to EU ambient air quality standards which are based on the protection of human health. Dispersion modelling results demonstrate that emissions from the site are compliant with all National and EU ambient air quality limit values and, therefore, will not result in a significant effect on human health. In relation to the spatial extent of air quality effects from the site, ambient concentrations will decrease significantly with distance from the site boundary.

Noise and Vibration

With respect to the operational phase of the proposal, the predicted noise and vibration levels are expected to be within best practice noise limits. Noise effects are predicted to be slight and long term. Vibration effects are predicted to be not significant and long term.

Health Benefits

Aside from the potential socio-economic benefits previously discussed, there are environmental benefits to the proposed power plant. The contribution of the proposed development to a decrease in reliance on fossil fuel combustion will have a moderate to significant positive long-term effect on the health and well-being of the general population.

Residential Amenity

Residential amenity relates to the human experience of a person's home, derived from the general environment and atmosphere associated with the residence. The quality of residential amenity is influenced by a combination of factors, including site setting and local character, land-use activities in the area and the relative degree of peace and tranquillity experienced at the residence. The nearest dwellings to the proposed development are located approximately 400m south and 450m northeast of the site. Access to the proposed site will be via an existing access to Profile Park via the R134 and therefore these properties will be unaffected by the proposed power plant. There will therefore be a neutral effect on amenity.

5.4 MITIGATION AND MONITORING MEASURES (POPULATION AND HUMAN HEALTH)

The proposed power plant is not anticipated to have a significant effect on the local or regional population, therefore no mitigation measures in respect of population trend effects are required.

5.5 RESIDUAL EFFECTS (POPULATION AND HUMAN HEALTH)

The proposed power plant will have a slight positive residual impact on the local economy through construction worker spending and during operation will support the balancing of the

grid to enable greater renewable development on a national scale and help to achieve targets in national energy and climate change policies as well as provide the possibility for the future connection of data centre development to a direct energy supply. This is a direct positive long-term residual effect at a national level.

6.0 LAND, SOILS AND GEOLOGY

6.1 INTRODUCTION

Chapter 8 of Volume II of the EIAR provides a summary of the existing soil and geological environment (i.e., baseline for the site) and potential effects of the proposed development. An outline of recommended mitigation measures and any residual effects are also presented.

The topography of the proposed power plant site can be described as mostly flat with elevations from c. 73 mAOD to 76 mAOD. The site measures 1.9 ha and is predominantly covered by rough grassland, surrounded by industrial, commercial and transport units. Agricultural areas exist within 1km to the west and 0.5km south of the proposed site, with artificial surfaces less than 100m to the east defined as artificial non-agricultural vegetated areas, used primarily for the Grange Castle Club. Artificial surfaces associated with Casement Aerodrome, Baldonnel is located approximately 400 south of the proposed site.

The regional soils in this area, including the grid and gas connection, indicate that the site consists of 2 no. types of soil, namely basic deep poorly drained mineral and basic deep well drained mineral. The development area within the red line boundary is underlain mostly by basic deep poorly drained material. The dominant subsoil occurring in the region is classified as till. The site is underlain by till derived from limestone (TLS) and the bedrock geology on the GSI 1:100 000 map indicate that this site is underlain by Lucan Formation limestone. No active mineral or aggregate sources have been identified by GSI data within 2km of the site boundary. Furthermore, no geological heritage sites have been identified within 2km of the site boundary.

6.2 ASSESSMENT OF SIGNIFICANT EFFECTS

Construction phase activities of the proposed development will require earthworks resulting in the removal of vegetation cover and excavation of mineral subsoil. Incorrect site management of earthworks and excavations could, therefore, lead to loss of suspended solids to surface waters as a consequence of soil stripping, if necessary, Run-off and erosion from soil stockpiles or dewatering of excavations. The result of increased sediment loading to watercourses is to degrade water quality of the receiving waters and change the substrate character.

The construction of the development has the potential (with no mitigation) to negatively affect the soil and geology mainly due to the management and movements of soils and stone materials.

6.3 MITIGATION AND MONITORING MEASURES

Many of the mitigation measures detailed in Volume II Environmental Impact Assessment Report (EIAR) come from CIRIA (Construction Industry Research and Information Association, UK) technical guidance on water pollution control and on current accepted best practice, (CIRIA, 2001). All works will be managed and carried out in accordance with the Construction and Environmental Management Plan and a Soil Management Plan. Together, these will include for measures such as correct handling, storage and re-use of all excavated materials and dust control. Good site practice during project construction, operation and decommissioning will be applied to ensure no fuels, oils, wastes or any other substances are stored or handled in a manner on site in which they may spill and enter the ground.

All temporary excavations on site will be assessed by a competent designer. Mitigation measures will be put in place to ensure these excavations remain stable during construction.

Excavation works will be monitored by a suitably qualified and experienced geotechnical engineer or engineering geologist. The earthworks will not be scheduled to be carried out during severe weather conditions. The long-term stability of the area around the wind turbine foundations will be achieved by filling the area back up to existing ground level.

The effect on natural geological resources will be mitigated by management and reuse of geological materials onsite and efficient design of any borrow pits within the site boundaries.

6.4 RESIDUAL EFFECTS

The replacement of topsoil, subsoils and rock, with gravels, concrete and impermeable surfaces for the construction of the infrastructure (temporary and permanent) will result in a change in ground conditions within the proposed development site. Overall, this residual effect is permanent but not significant.

All potential effects on the soil and geological environment will be mitigated through good site practice on vehicular movements, management of fuels, sustainable use of soils etc. Overall, the residual effects from these aspects will be not significant to imperceptible, temporary and negative.

7.0 HYDROLOGY AND HYDROGEOLOGY

7.1 INTRODUCTION

Chapter 9 of Volume II of the EIAR describes the existing hydrological, hydrogeological and water quality characteristics at the site of the proposed power plant in Profile Park. The potential effects on the water environment arising from the power plant and associated infrastructure including the grid connection are assessed. The drainage of the plant is considered which includes proposed mitigation measures to reduce any potential negative effects associated with its construction, operation and decommissioning. Any residual effects are also assessed.

On a regional scale, the site at Profile Park and its environs is located within the Liffey and Dublin Bay Hydrometric Area and Catchment.

The site of the proposed power plant is located within the National River Basin District of the 2nd cycle river basin management plan, formerly the Eastern River Basin District (ERBD) within the 1st cycle river basin management plan.

At a local scale, the Bal Donnell Stream flows through the site from in a north-south direction. The Baldonnel stream continues to flow northwards, discharging into the Griffeen River which then discharges into the River Liffey at Lucan. Minor surface water ponding occurs on the site. The surface water ponding is considered to be seasonal and mainly associated with periods of heavy, prolonged and intense rainfall.

The Planning System and Flood Risk Management Guidelines (OPW/DoEHLG, 2009) classify electricity generating stations as “essential infrastructure” considered appropriate in Flood Zone C. The proposed development has therefore been assessed against a 0.1% AEP MRFS flood (i.e., a 1000-year flood in a likely climate change scenario).

A Stage 2 initial flood risk assessment was carried out in accordance with the Planning System and Flood Risk Management (PSFRM) Guidelines. Based on existing site topography, water arising at the site naturally flows away from the site towards lands at lower elevations. A review of potential sources of flood risk found that the proposed power plant is not at risk of flooding and will not contribute to flood risk elsewhere.

In respect of the water quality of water courses in the vicinity of the proposed power plant, the majority of EPA monitoring points indicate that the overall water quality in this area is moderately polluted. The overall status of surface water/rivers in the vicinity of the proposed site is poor status.

With regards to existing ground water quality, the Water Framework Directive for the period 2013-2018 describes the groundwater quality status of the study area as ‘Good’ for Dublin GWB.

7.2 ASSESSMENT OF SIGNIFICANT EFFECTS

During construction, there will be a risk of pollution from site traffic through the accidental release of oils, fuels and other contaminants from vehicles. Concrete (specifically, the cement component) is highly alkaline and any spillage to a local watercourse would be detrimental to water quality and fauna and flora. The presence of workers at the proposed development will

lead to the generation of foul sewage from toilets and washing facilities which will discharge ti public sewer.

7.3 MITIGATION AND MONITORING MEASURES

In identifying and avoiding sensitive surface waters the proposed development has implemented 'avoidance of impact' measures.

In order to mitigate potential effects during the construction phase, best practice construction methods will be implemented in order to prevent water (surface and groundwater) pollution. A drainage system has been designed for the site including a number of features such as check dams and settlement ponds. These are designed to maintain discharge rates at existing levels and remove any sedimentation arising from excavation works. A Construction and Environmental Management Plan (CEMP) was developed for the project to ensure adequate protection of the water environment. All personnel working on the project will be responsible for the environmental control of their work and will perform their duties in accordance with the requirements and procedures of the CEMP.

During the ground clearance of the proposed power plant, water control measures will be implemented by the contractor to limit the volume of water that requires treatment.

The operational team will carry out maintenance works such as servicing of the power plant infrastructure, upkeep of access, any hardstand and sealed areas (i.e., foundations for power plant buildings, car park, bunded structures), ensuring drainage system remains functional throughout the operation of the power plant.

Mitigation for the operational maintenance works include regular scheduled maintenance works, regular inspections of all project elements with any unscheduled repairs or maintenance arising to be undertaken.

The potential impact of hydrocarbon or oil spills during the operational phase of the power plant are limited by the size of the fuel tank of vehicles used on the site. Mitigation measures for the potential release of hydrocarbons or oil spills include:

- The plant and vehicles to attend site should be regularly inspected or at least prior to the scheduled site visit to be free from leaks and is fit for purpose;
- Fuels stored on site will be minimised, any storage areas will be bunded appropriately for the fuel storage volume for the time period of the operation;
- Operational team to be competent and trained in an emergency plan for the operation phase to deal with accidental spillages; and
- Spill kits will be available to deal with accidental spillages.

As part of the surface water drainage design strategy, the following items have been included in order to effectively manage surface water at the site:

- Surface Water Pumps in Duty/Standby Arrangement
- Petrol Interceptor
- Down Pipes/Gullies
- Flow Control Device
- Attenuation Tank

- Swale
- Permeable Paving
- Infiltration Basin

Regarding wastewater effluent, wastewater will be pumped to the existing foul sewer in Profile Park which is directly adjacent to the site.

Operators will receive specific training on the handling, containment, use, and disposal requirements for all potentially polluting products on site. All chemicals stored on site will be subject to a Control of Substances Hazardous to Health assessment and compliance.

The fire-fighting protection system philosophy is based on widely recognized National Fire Protection Association (NFPA) standards.

7.4 RESIDUAL EFFECTS

The potential residual effects on the surrounding water quality, hydrology and existing drainage regime at the site are considered to be slight and temporary/short term in nature.

The construction timescale of activities within the site will be short-term in duration and, thereafter, the only activities occurring within the site will be associated with maintenance, such as maintaining the hardstanding and existing drains, ongoing maintenance, replacement of infrastructure and onsite infrastructure and monitoring during the operational phase. There are no significant long-term effects.

The design of the proposed power plant has taken account of the potential effects of the development and the risks to the surface water and groundwater environment. Measures have been developed to mitigate the potential effects on the water environment. These measures seek to avoid or minimise potential effects in the main through the implementation of best practice construction methods and adherence to all relevant legislation.

8.0 AIR QUALITY AND CLIMATE

8.1 INTRODUCTION

Chapter 10 of Volume II of the EIAR provides an air quality and climate assessment of the proposed power plant at Profile Park. The purpose of the assessment, undertaken by AWN Consulting Ltd., was to determine the air quality and climatic impact, in line with the Industrial Emissions Directive (2010/75/EU) and Best Available Techniques (BAT) Reference Document for Large Combustion Plants (2017), from the proposed plant in isolation and cumulatively with the existing licensed facilities at Profile Park.

<u>Climate</u>

As atmospheric levels of CO_2 are widely recognised as being one of the primary causes of climate change, the impact assessment below is based on the potential effects that the proposed project would have in relation to changes in emissions of CO_2.

The impact assessment consisted of the following components:

- Review of emission data and other relevant information needed for the modelling study;
- Summary of background NO_2 levels;
- Dispersion modelling of released substances under the following scenarios:
  - A scenario with six individual exhaust flues at the proposed plant;
  - An alternative scenario with one pseudo stack at the proposed power plant, where physical and emission characteristics of the six individual stacks were combined to produce one pseudo stack emission source;
  - The individual stacks scenario was found to be the more conservative scenario and as such the results are presented in this chapter. The alternative pseudo stack results are provided in Appendix 10.3.
- Cumulative assessment of the Profile Park Power plant and all existing IE Licenced emission points in the region for each scenario;
- Presentation of predicted ground level concentrations of released substances;
- Evaluation of the significance of these predicted concentrations, including consideration of whether these ground level concentrations are likely to exceed the relevant ambient air quality limit values;
- Assessment of the potential greenhouse gas (GHG) emissions associated with the proposed development; and
- Assessment of the potential impact of the plumes associated with the operational phase of the proposed station on aircraft, for both scenarios.

- **Air Quality**

The Environmental Protection Agency (EPA) is the competent authority responsible for the implementation of all Irish and EU ambient air quality legislation. The main air pollutants monitored by the EPA are ozone, carbon monoxide, nitrogen dioxide and oxides, sulphur dioxide, particulate matter, benzene, lead, Poly Aromatic Hydrocarbons, Arsenic, Nickel, Cadmium and Mercury[2]. Apart from ozone, all of these pollutants result from the burning of fossil fuels, either from transport, domestic heating, electricity generating stations or industry. High ozone levels are formed from the reaction of two key pollutants, nitrogen oxides and volatile organic compounds in the presence of sunlight.

Air quality monitoring programs have been undertaken in recent years by the EPA and Local Authorities (EPA, 2020, 2021). The most recent annual report on air quality "Air Quality in Ireland 2019" (EPA, 2020), details the range and scope of monitoring undertaken throughout Ireland. As part of the implementation of the Framework Directive on Air Quality (1996/62/EC), four air quality zones have been defined in Ireland for air quality management and assessment purposes (EPA, 2020). Dublin is defined as Zone A.

8.2 ASSESSMENT OF SIGNIFICANT EFFECTS

Climate

Construction traffic is be expected to be the dominant source of greenhouse gas emissions as a result of the proposed power plant. Construction vehicles and machinery will give rise to CO_2 and N_2O emissions during construction of the Proposed Development. The Institute of Air Quality Management document 'Guidance on the Assessment of Dust from Demolition and Construction' (IAQM, 2014) states that site traffic and plant is unlikely to make a significant impact on climate.

The potential impact to climate during the operational phase of the proposed power plant is an increase in GHG emissions associated with the generation of electricity.

Air Quality

The greatest potential impact on air quality during the construction phase of the proposed power plant is from construction dust emissions as a result of excavation works, infilling and landscaping activities and storage of soil in stockpiles. This leads to the potential for nuisance dust. While construction dust tends to be deposited within 350 m of a construction site, the majority of the deposition occurs within the first 50 m (IAQM, 2014). The extent of any dust generation depends on the nature of the dust (soils, peat, sands, gravels, silts etc.) and the nature of the construction activity. In addition, the potential for dust dispersion and deposition depends on local meteorological factors such as rainfall, wind speed and wind direction.

The potential impact to air quality during the operational phase of the proposed power plant is a breach of the ambient air quality standards as a result of air emissions from the power plant engines. An iterative stack height determination was undertaken as part of the air dispersion modelling study to ensure that an adequate release height was selected for all emission points to aid dispersion of the plume and ensure compliance with the ambient air quality limit values beyond the site boundary.

[2] http://www.epa.ie/air/quality/monitor/

8.3 MITIGATION AND MONITORING MEASURES

Climate

During the construction and decommissioning phase of the proposed development, all contractors will ensure that machinery used on site is properly maintained and is switched off when not in use to avoid unnecessary exhaust emissions from construction traffic. For the operational scenarios associated with the proposed power plant (either operating on natural gas or oil backup), no mitigation measures in addition to those already inherent to the design of the proposed plant are required.

Air Quality

Potential effects arising from dust and exhaust emissions will be minimised through the provision of mitigation measures that are detailed below and also incorporated into the Construction and Environmental Management Plan (CEMP). These are as follows:

- Minimisation of extent of working areas;
- Stockpiling of excavated materials will be limited to the volumes required to practically meet the construction schedule;
- Drop heights of excavated materials into haulage vehicles will be minimised to a practicable level;
- Daily inspections by site personnel to identify potential sources of dust generation along with implementation measures to remove causes where found;
- Provision of dust suppression measures (e.g., sweeps/covers/water bowsers) will be used on stockpiles and the road surface during periods of extended dry weather.
- Traffic coming to site will only use the specified haul routes.;
- Best practice (including industry recognised dust suppression techniques/equipment) will be used to minimise the potential for dust production during the extraction of rock from the borrow pits and excavations elsewhere;
- Vehicles and plant will be routinely serviced to minimise the exhaust emissions during construction;
- Vehicles will not be left running unnecessarily and low emission fuels will be used where possible; and
- The use of a wheel wash near the site entrance will prevent the transfer of dust from the construction works on to public roads.

For the operational scenarios associated with the proposed power plant (either operating on natural gas or oil backup), no mitigation measures in addition to those already inherent to the design of the proposed plant are required.

8.4 RESIDUAL EFFECTS

Once the mitigation measures are implemented, the residual effect on air quality from the construction of the proposed power plant will be short-term and imperceptible and for the operational phases of the proposed power plant will be long-term, negative and slight.

The residual impact on climate from the construction of the proposed power plant will be short-term and imperceptible and for the operational phases of the plant will be long-term, negative and slight.

9.0 NOISE AND VIBRATION

9.1 INTRODUCTION

Chapter 11 of Volume II of the EIAR describes the assessment undertaken of the potential noise and vibration impact from the proposed power plant on local residential amenity and commercial properties, undertaken by AWN Consulting Limited.

Some 16 no. noise assessment locations have been identified that are representative of the nearest residential, commercial and amenity locations. The nearest occupied noise sensitive locations (NSL) are located some 400 m to the south of the site (i.e., R001) and some 450 m to the northeast (i.e., R014). The closest amenity to the development is Grangecastle Golf Course (i.e., R015) which is located to the east of the development lands.

Noise and vibration impact assessments for the nearest NSLs have been prepared for the construction and operational phase of the proposed development. To inform this assessment baseline noise levels have been measured in the vicinity of a number of NSLs surrounding the proposed development. Noise predictions to the nearest NSLs have been prepared for both the construction and operational phases. Other developments in the area (operational or permitted) with the potential for cumulative effects were identified and assessed as part of this assessment.

9.2 ASSESSMENT OF SIGNIFICANT EFFECTS

The assessment of construction noise and vibration and has been conducted in accordance with best practice guidance contained in *BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Noise* and *BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Vibration.* Subject to good working practice as recommended in the EIAR Chapter, it is not expected that there will be any significant noise and vibration effects associated with the construction phase and the likely noise from construction activity at the nearest Noise Sensitive Locations (NSLs) is expected to be well below recommended significance threshold values. In the majority of cases, the construction noise impact is Not Significant; in a small number of cases, a Slight impact is predicted.

Due to the distance of the proposed works from sensitive locations significant vibration effects are not expected.

With respect to operational noise, a review of the predicted increases in noise level at the nearest residential noise sensitive locations conclude that the associated impact is 'Not Significant' at all locations for daytime and evening periods. During night-time periods the predicted impact is Not Significant at all locations with the exception of two locations, where a Slight impact is predicted.

9.3 MITIGATION AND MONITORING MEASURES

Regarding construction/decommissioning activities, reference shall be made to BS 5228-1:2009+A1:2014 *Code of practice for noise and vibration control on construction and open sites – Noise*, which offers detailed guidance on the control of noise and vibration from

construction activities. It is proposed that various practices be adopted during construction as required, including the following:

- limiting the hours during which site activities likely to create high levels of noise or vibration are permitted;
- establishing channels of communication between the contractor/developer, Local Authority and residents;
- appointing a site representative responsible for matters relating to noise and vibration;
- monitoring typical levels of noise and vibration during critical periods and at sensitive locations; and
- keeping the surface of the site access roads even to mitigate the potential for vibration from lorries.

Furthermore, a variety of practicable noise control measures will be employed. These include:

- selection of plant with low inherent potential for generation of noise and/ or vibration;
- placing of noisy / vibratory plant as far away from sensitive properties as permitted by site constraints, and
- regular maintenance and servicing of plant items.

Noise and vibration monitoring is proposed in accordance with the guidance contained in *British Standard BS5528* during the construction phase.

During operation, noise from external plant will be minimised by the following measures:

- Purchasing low noise generating equipment, and;
- Incorporating appropriately specified in line attenuators for stacks and exhausts where necessary.

As part of the EPA IE license that will be applicable to the site annual noise monitoring will be required to ensure noise emissions comply with relevant criteria.

9.4 RESIDUAL EFFECTS

During the construction phase of the project there will be some effect on nearby noise sensitive properties due to noise emissions from site traffic and other construction activities. However, given the distances between the main construction works and nearby noise sensitive properties and the fact that the construction phase of the development is temporary in nature, it is expected that the various noise sources will not be excessively intrusive. Furthermore, the application of binding noise limits and hours of operation, along with implementation of appropriate noise and vibration control measures, will ensure that noise and vibration effect is kept to a minimum.

10.0 BIODIVERSITY

10.1 INTRODUCTION

Chapter 12 of Volume II of the EIAR presents a Biodiversity Impact Assessment of the proposed power plant. Extensive field and desk surveys were carried out to evaluate the biodiversity value of habitats, flora, fauna, including bats, and aquatic ecology in and downstream of the proposed power plant site and along the grid connection route.

Nine European sites occur within 15km of the proposed development site. The European sites; North Dublin Bay SAC, South Dublin Bay SAC and South Dublin Bay and River Tolka Estuary SPA are hydrologically connected to the proposed development site via the Baldonnel Stream, Grifeen River and River Liffey (hydrological route ca. 25km). North Bull Island SPA occurs 18km from the proposed power plant but is also hydrologically connected to the proposed development site via the Baldonnel Stream, Grifeen River and River Liffey.

There are no Natural Heritage Areas located within 15km of the proposed power plant. Sixteen proposed Natural Heritage Areas occur within 15km of the proposed development site, three of which are hydrologically connected to the proposed site via the Baldonnel Stream, Grifeen River and River Liffey.

10.2 ASSESSMENT OF SIGNIFICANT EFFECTS

The proposed power plant will result in the permanent loss of habitat of a similar footprint. Habitat within the site comprises wet grassland. The loss of the habitat/vegetation within the site during the construction phase would result in a permanent, slight, negative effect on Biodiversity at a local geographical scale.

The construction works have the potential to result in the runoff of sediment and/or construction pollution and the generation of dust during the works.

No invasive, non-native plant species listed were recorded within the proposed development site during the field surveys. There is potential, however, for the construction works to result in the introduction of invasive non-native species if not appropriately managed.

No evidence of otter, including otter holts or layups/couches, were recorded along the Baldonnel Stream within the survey area. However, there is potential however that water quality effects within the Baldonnel Stream may negatively impact otter which forage further downstream. Indirect effects on otter, due to water quality effects, would result in a short-term, negative effect on the downstream otter population, at a County geographic scale.

Considering the small area of habitat which will be lost, the lack of recordings of badger within the site and the availability of alternative foraging sites within the surrounding lands, the loss of the habitat is likely to have only a slight, negative effect on the local badger population, at a local geographical scale. The disturbance of foraging badgers during the construction works could result in a short-term, slight, negative effect on the local badger population, at a local geographic scale.

There is potential that the site of the proposed power plant may support other small, protected mammal species such as hedgehog, pygmy shrew or Irish hare. However, similarly considering the availability of higher valuable habitat within the surrounding environment and the lack of

evidence of such species within the site it is considered that the proposed development site is unlikely to support significant numbers of protected small mammals.

There will be no loss of habitat effects to the local bat population due to the proposed development.

A small number of bats were recorded commuting along the hedgerow located along the outer, southern boundary of the proposed development site. It is likely that temporary construction lighting will be required during the construction works. The construction lighting has the potential to result in the illumination of the surrounding linear features which may displace commuting/foraging bats from the habitat.

The proposed construction works will result in the loss of wet grassland habitat. A lapwing nest was found in the wet grassland habitat just outside the western boundary of the proposed development site. There is also potential that snipe may be breeding within the wet grassland as well. If the removal of the wet grassland occurs within the breeding bird nesting season (1st March – 31st August inclusive), there is potential that nests and eggs will be lost.

Construction related noise and the physical presence of machinery and construction personnel could result in the disturbance of breeding birds from habitats located in close proximity to the proposed development site.

The proposed construction works have the potential to result in a degradation of water quality and aquatic vegetation, in the absence of mitigation measures.

Disturbance during the operational phase will be limited and will not result in significant effects on the receiving environment.

During the operation of the proposed power plant, chemicals such as urea, lubricating oil and low sulphur oil will be stored on site. All material will be stored in tanks within designated, bunded areas.

Domestic type wastewater effluent will be generated on site. Wastewater will be pumped to the existing foul sewer network in Profile Park. There will be no process wastewater generated from the proposed power plant. There is therefore no potential for process or domestic wastewater to negatively impact the receiving environment.

Ambient levels of nitrogen oxides (as NO_2, including background) from the proposed development are in compliance with the air quality limit values for the protection of human health and it is predicted that air emissions from the proposed power plant will not result in any significant effects on Designated sites.

10.3 MITIGATION AND MONITORING MEASURES

In accordance with Section 40 of the Wildlife Acts, the vegetation (wet grassland) which is proposed to be removed, which may be used as nesting sites by breeding birds, will be cleared outside of the birds nesting season unless otherwise agreed with the NPWS.

The construction work areas will be demarcated prior to the construction works commencing. No clearance of vegetation will be undertaken outside of the demarcated areas. Disturbed areas of ground will be fully reinstated flowing completion of the works.

Measures to prevent accidental spillage/leakage of chemicals and pollutants and uncontrolled runoff of contaminated surface water and sediment are outlined in Chapter 8 (Land, Soils and Geology) and Chapter 9 (Hydrology and Hydrogeology).

With respect to bats, all temporary lighting associated with the construction works will be placed strategically by the Contractor following consultation with a suitably qualified ecologist. This will ensure that illumination beyond the works area is controlled. During operation All new external lighting proposed within the development site will be designed in consultation with a suitably qualified ecologist and in accordance with the Bat Conservation Ireland guidelines.

In the event that any lapwing or snipe nests are identified within the ZoI during the nest survey appropriate mitigation measures in consultation with Bird Watch Ireland will be implemented. Hoarding will be erected between the nest and the proposed development site to limit both noise and visual disturbance.

Biosecurity measures will be employed during the construction works. The biosecurity measures will have regard to IFI Biosecurity Protocols including: *'IFI Biosecurity Protocol for Field Survey Work (December 2010)'.*

10.4 RESIDUAL EFFECTS

With the implementation of mitigation measures (as detailed above), the construction, operational and decommissioning phases of the proposed power plant will not result in significant residual effects on any of the key ecological receptors at any geographic scale..

11.0 CULTURAL HERITAGE

11.1 INTRODUCTION

Chapter 13 of Volume II of the EIAR, assesses the impact, if any, on the archaeological and cultural heritage resource of the proposed power plant in Profile Park. The assessment, prepared by IAC Archaeology, determines, as far as reasonably possible from existing records, the nature of the archaeological and cultural heritage resource in and within the vicinity of the proposed power plant using appropriate methods of study. An impact assessment was undertaken to identify potential adverse effects that the proposed power plant may have on the cultural heritage resource, while the mitigation strategy is designed to avoid, reduce, or offset such adverse effects.

11.2 ASSESSMENT OF SIGNIFICANT EFFECTS

Whilst the site of the proposed power plant has been subject to disturbances, it is unclear how this disturbance may have affected the potential archaeological resource. It remains possible that ground disturbances associated with the development may have a direct negative impact on archaeological remains that may survive within the site. Effects have the potential to range from moderate to significant in scale, prior to the application of mitigation.

No potential negative effects upon the cultural heritage resource are predicted as a result of the construction of the proposed power plant.

No negative effects during operation are predicted upon the archaeological and cultural heritage resource.

11.3 MITIGATION AND MONITORING EFFECTS

All topsoil/overburden stripping associated with the proposed power plant will be monitored by a suitably qualified archaeologist. If any features of archaeological potential are discovered during the course of the works further archaeological mitigation may be required, such as preservation in-situ or by record. Any further mitigation will require approval from the National Monuments Service of the Department of Housing, Local Government and Heritage (DoHLGH).

The mitigation measure identified above would also function as a monitoring system during construction to allow the further assessment of the scale of the predicted effects and the effectiveness of the recommended mitigation measures.

As there are no potential effects on the cultural heritage resource, no mitigation is deemed necessary.

No mitigation relating to the operational phase and the archaeological and cultural heritage resource is required.

11.4 RESIDUAL EFFECTS

There are no predicted residual effects for the operational phase of the proposed power plant upon the archaeological and cultural heritage resource.

12.0 LANDSCAPE / TOWNSCAPE AND VISUAL

12.1 INTRODUCTION

Chapter 14 of the EIAR describes the townscape/visual context of the proposed power plant and assesses the likely impacts of the plant on the receiving environment, in terms of both townscape character and visual amenity.

Landscape/townscape assessment relates to changes in the physical environment, brought about by a proposed development, which may alter its character.

Visual Impact Assessment relates to changes in the composition of views as a result of changes to the landscape/townscape, how these are perceived and the effects on visual amenity. Such impacts are population-based, rather than resource-based, as in the case of landscape impacts.

Production of the Landscape/townscape and Visual Impact Assessment involved:

- A desktop study to establish an appropriate study area and relevant landscape and visual designations in the South County Dublin Development Plan 2016-2022;
- Fieldwork to study the receiving environment;
- Assessment of the significance of the landscape impact of the proposed development as a function of landscape sensitivity weighed against the magnitude of the landscape impact;
- Assessment of the significance of the visual impact of the proposed development as a function of visual receptor sensitivity weighed against the magnitude of the visual impact.

12.2 ASSESSMENT OF SIGNIFICANT EFFECTS

During the construction stage of the proposed power plant, which is estimated to take 20 months, there will be intense construction-related activity within and around the site, including approach roads. This will include, but is not limited to:

- HGVs transporting materials to and from the site;
- Temporary storage of excavated materials and construction materials on-site;
- Gradual emergence of the proposed power plant, and associated works;
- Security hoarding and site lighting.

Whilst the physical impacts to the site's land cover will be permanent, and not readily reversible, the site is already a much-modified, anthropomorphic site zoned for such purposes. Construction stage impacts on landscape/townscape character will be 'short-term' (i.e. lasting 1-7 years), in accordance with the EPA definitions of impact duration. Furthermore, the context of this construction activity is within an industrial area where HGV movements are frequent and the will be no site access through residential streets/estates.

Following the completion of the proposed works, landscape/townscape impacts will relate entirely to the development's impact on the character of the receiving landscape/townscape and whether this is positive or negative.

The most notable landscape/townscape impacts of the proposed development will result from the permanent presence of a power plant, with stacks up to almost 32m in height. However, such a power plant will be set within a dedicated business park designed for compatible purposes,

and will be adjacent to similar large scale industrial looking buildings and structures. Indeed, adjacent to Profile Park is the Castlebaggot 110/220 kV substation, while directly north of Profile Park is the built-up Kilbarry Industrial Park. In terms of impact upon the landscape character of the wider study area, this is a locale characterised by a muscular, peri-urban industrial-commercial imprint. Upon completion of construction, the proposed development will become one of the taller developments in this industrial-commercial locality, marking a modest escalation and intensification of that fabric within the study area. In addition, the prosed development will be replacing a highly modified vacant site that, at present, contributes little to Profile Park or the wider study area.

12.3 MITIGATION AND MONITORING MEASURES

The main mitigation by avoidance measure employed in this instance is the siting of the proposed power plant in a robust, appropriately zoned business park that avails of topographic screening to minimise open visibility from within the study area, as well as availing of existing vegetative screening so that the proposed plant will not be prominent within the surrounding landscape.

From the surrounding community, the proposed power plant may appear to be 'clustered' with the pre-existing Digital Realty data centre, located to the immediate south of the site, so both developments will read as one coherent and legible industrial/commercial complex. This is further reinforced by the choice of high quality cladding evident on the proposed structures (specification to be confirmed by SDCC), similar to the Digital Realty data centre. In that regard, there is a strong tonal and textural relationship with adjacent land use, and, when viewed from outside the business park, will read as a modest increase to the visual envelope of development.

Furthermore, mitigation has been embedded into the colour scheme of the proposed structures. This has been partly informed by the colour scheme of large buildings existing within the business park, but also through a form of horizontal stratification of the proposed colour scheme. By adopting a tonal transition, from darker tones to lighter shades from the ground upwards, it will help diminish the perceived height of taller structures such as these. In summary, the lighter shades on the tallest structures (i.e. from about 7m high upwards) help to 'visually merge' with the sky backdrop; mid-layer tones are designed to merge with building and tree tops, while lower down (e.g. the bottom 2-3m of each structure) the darker tones help assimilate to earthy soil tones and/or vegetation. In addition, the proposed tanks will alternate between two different tones, to help deter perceptions of 'massing.'

A Landscape Mitigation Plan has also been prepared for the proposed power plant, which incorporates a buffer of native woodland thicket on the road-facing sides of the site. Along with a proposed native hedgerow and wild grass seeding elsewhere on the site, it will soften the appearance of buildings and to help integrate the site into the surrounding landscape setting.

Overall, the landscape proposals serve to add a high quality landscape finish to the apron of the facility and help to anchor and establish it within its business park setting. However, the site landscaping is mainly apparent within the immediate visual context of the facility and is not intended as screen planting in respect of receptors within the wider area.

12.4 RESIDUAL EFFECTS

Overall, it is considered that the proposed development is an appropriate contribution to both the existing and likely future built fabric of this peri-urban area and it will not result in any significant residual townscape or visual impacts.

13.0 TRAFFIC AND TRANSPORTATION

13.1 INTRODUCTION

Chapter 15 of Volume II of the EIAR and corresponding Appendix 15.1 assess the impact of the proposed power plant on the existing road network. This report will calculate the expected volume of traffic that will be generated by the proposed power plant and assesses the impact that this traffic will have on the operational capacity of the local road network.

13.2 ASSESSMENT OF SIGNIFICANT EFFECTS

Trip Rates for the various uses within the development have been determined for weekdays, Monday to Friday, to coincide with the maximum levels of existing traffic on the adjacent road network. The volume of traffic expected to be generated by the proposed construction phase of the development during the AM hours is 45 arrivals and 5 departures. During PM hours, it is expected to be 5 arrivals and 45 departures. This is expected to be consistent across the 20-month construction period.

Significant volumes of material will be required to be imported as part of the mass haul element to the value of 8,000m^3 of material to the site over the initial month. For this period, this will increase the HGV Arrivals and Departures during the peak hours.

An analysis of the R134 New Nangor Road / Kilcarbery Park / Profile park Roundabout for the AM and PM peak hours indicates that effects at this junction during construction are predicted to be short term, negative and not significant. Similarly, an analysis of the Internal Profile Park Roundabout for the AM peak and PM peak hours during construction Effects at this junction during construction are predicted to be short term, negative and not significant.

An analysis of the proposed site access – T junction for AM peak and PM peak hours during construction indicates effects at this junction during construction are predicted to be short term, negative and not significant.

Entry to and from the proposed site within Profile Park does not raise any road safety concerns.

Parking requirements are in accordance with the Design Standards for New Apartments 1998 and South Dublin County Council Development Plan 2016-2022. The car parking provisions at the site have been proposed as follows;

- 8 spaces for Staff;
- 2 Un-abled user spaces.
- Provision for 2 no. electrical charging points are also provided as part of the parking design.

As recommended dropped kerbing and tactile paving slabs will be installed at all crossing points, in accordance with “Guidance on the Use of Tactile Paving Slabs”. It is further recommended that disabled parking spaces, in accordance with the South Dublin Development Plan, be provided and located in accordance with the National Disability Authorities “Building for Everyone”. 5% of the proposed parking provisions have been designated for disabled parking as per Building for Everyone.

13.3 MITIGATION AND MONITORING MEASURES

All construction effects will be temporary in nature and will cease on completion of the works. Mitigation measures to reduce or eliminate construction phase effects will be implemented as part of a Construction Traffic Management Plan. An Outline Construction Management Plan has been prepared for planning application purposes and the final Site-Specific Construction Traffic Management Plan will be produced by the appointed Contractor and PSCS in conjunction with the PSDP for the project.

It is not envisaged that there will be mitigation measures required for the operation phase of the proposed power plant due to the minimal impact of traffic during this phase. It is predicted that effects would be long term, neutral and imperceptible.

13.4 RESIDUAL EFFECTS

The junction assessments indicate that none of the junctions assessed are currently exceeding desirable capacity of 0.85. The maximum RFC of 0.52 was shown at the New Nangor Road / R134 Roundabout Junction of those assessed with a maximum RFC of 0.13 on the internal Profile Park Roundabout and 0.02 at the entrance to the proposed development. There will therefore be no significant residual effects associated with the construction, operational or decommissioning phases of the project.

14.0 MATERIAL ASSETS

14.1 INTRODUCTION

Chapter 16 of Volume II of the EIAR describes the methodology used to assess the potential effects from the proposed power plant on the material assets in the study area, to describe baseline environment of the material assets in the study area, assess the likely effects on these material assets and sets out mitigation measures to be put in place in order to reduce the likely effects on the material assets. Material Assets are resources that are valued and that are intrinsic to specific places. These may be economic assets of human or natural origin.

14.2 ASSESSMENT OF SIGNIFICANT EFFECTS

No access will be required to third party properties to allow construction works to be completed for the project. Construction practices will ensure that any effects regarding property accessibility will be minimised.

Where roads are opened for the installation of electrical cables or gas pipelines, moderate negative temporary effects are likely to arise on these roads during construction.

There are no existing material assets on the site of the proposed power plant however there are material assets along the proposed routes associated with the electrical grid and gas connection. However, these assets are development in built up 'made' land. Therefore, an imperceptible negative effect on land-take is predicted.

A detailed aviation safety assessment was conducted and is contained in Appendix 16.1 of Volume II of the EIAR. The main aviation receptor, Casement Aerodrome, is located approximately 400m to the south of the proposed power plant site. Consulted was held with the Department of Defence in relation to potential effects on Casement Aerodrome. The main issue to be addressed at this stage of the project is the use of cranes and to ensure details of same are advised to the Department at least 30 days in advance of usage on site. It should be noted that the Department of Defence has not highlighted any major concerns in relation to this project which cannot be mitigated. It is predicted that there will be a short term, negative and slight impact on aviation during construction.

There are potential surface water quality effects associated with the proposed power plant which could indirectly impact watercourses. These are discussed above and are set in more detail in chapter see Chapter 9 (Hydrology and Hydrogeology) of Volume II of the EIAR.

Raw materials (e.g., wood, steel, stone, sand etc.) required during the construction phase of the proposed power plant will be sourced from local suppliers, where possible. However, some of the equipment parts may not be manufactured in Ireland and these will have to be imported. The plant may also require the use of some non-renewable materials. However, consideration will be given to the sustainable sourcing of all raw materials and materials will be reused where possible. Methodologies will be chosen at design stage to decrease the amount of imported material required. There will be an imperceptible, negative and permanent impact on raw materials as a result of the proposed power plant.

During its operations phase, the proposed power plant will operate in accordance with its Industrial Emissions Licence and an emissions or effects on its nearest receptors will be regulation by the Environmental Protection Agency in accordance with same. There will be imperceptible, brief effects on the road network during the operational phase.

During its operations phase, the traffic generated by the proposed power plant will be related to the planned and periodic maintenance works. There will be imperceptible, brief effects on the road network during the operational phase.

The proposed power plant will have the capacity to provide power both the grid to support renewable energy integration and also to provide a direct power supply to data centres. Therefore the plant would have a positive and long term effect on public utilities.

A summary is provided below of the main key potential effects on aviation during the power plant operations phase.

- The site at Profile Park lies well clear of all Approach Surfaces, Take-Off Climb Surfaces, and Transitional Surfaces at Casement Aerodrome, which are the more important Obstacle Limitation Surfaces [as defined by the International Civil Aviation Organization (ICAO) and by the European Aviation Safety Agency (EASA)]. The site is also clear of all Surfaces for Weston and Dublin Airports.
- The site lies under Casement's Inner Horizontal Surface, but the site is low-lying (at 74.8m OD) so that the highest part of the proposed development (at 106.6m OD) is 25m below Casement's Inner Horizontal Surface and is well clear of it.
- The site is in a location where the 'Inner Zone' (which is not an ICAO surface, but a local military zone) has a building height limit at 106.6m OD, and the highest part of the proposed development does not project above this height limit.
- A Study by AWN indicates that emissions from the power plant will not interfere with aviation, and specifically that any adverse oxygen levels, temperatures, or visual effect will be contained well below Casement Aerodrome's Inner Horizontal Surface.

It is predicted that there will be a long term, negative and slight impact on aviation during construction. It should be noted that the Department of Defence has not highlighted any major concerns in relation to this project which cannot be mitigated as set out in Section 16.5.2.

There will be a long-term impact on land use and a moderate negative effect on the land resource.

14.3 MITIGATION AND MONITORING MEASURES

14.3.1 Construction

There are no mitigation measures relating to existing properties outside of Profile Park. Within Profile Park effects on the neighbouring Digital Realty data centre will be mitigated in accordance with the Construction Environmental Management Plan.

The proposed works will require the crossing of road infrastructure and the opening of some roads to lay underground electrical cables and a gas pipeline. Chapter 15 (Traffic and Transport) details specific mitigation measures to be undertaken during the construction phase to eliminate and reduce any effects on the road network.

During the project detailed design stage, further consultation will be undertaken with all communication utility providers to confirm the current locations of their infrastructure. This information will be considered in the detailed design of the project and the infrastructure avoided where possible.

While it is unlikely that any cranes used during construction will reach the aerodrome's Inner Horizontal Surface, it will be necessary [under S.I. 215 of 2005 – 'Irish Aviation Authority (Obstacles to Aircraft in Flight) Order'] for prior notification of the use of any crane/s to be submitted, at least 30 days in advance, to the Irish Aviation Authority and to Casement Aerodrome (through the Department of Defence)

Mitigation measures for the protection of watercourses are detailed in Chapter 9 (Hydrology & Hydrogeology) and will be adhered to throughout the construction phase.

Consideration will be given to the sustainable sourcing of all materials. Materials will be reused where possible. The methodologies chosen at design stage, will result in a decrease in the amount of imported material, which in turn will reduce the impact of traffic on the surrounding roads and will result in less demand on non-renewable sources such as quarries.

14.3.2 Operation

The only mitigation and monitoring measures required during operations relate to aviation.

The Department of Defence has advised on the following requirements:

- Due the proximity to Casement Aerodrome and site location within EIR23 airspace, should negative effects to Air Corps flight operations occur from flue emissions or otherwise, Greener Ideas Limited will take immediate actions to mitigate such effects to an acceptable level.
- Due to the proximity to Casement Aerodrome, Greener Ideas Limited will implement adequate bird control measures during the construction phase to mitigate the effects of birds on Air Corps flight operations.

14.4 RESIDUAL EFFECTS

The material assets identified in the study area are considered to be typical infrastructure frequently encountered in civil engineering infrastructure projects, in both rural and urban environments. As such, it is considered that the resulting predicted effects on material assets from the proposed power plant will be positive, slight and permanent.

15.0 MAJOR ACCIDENTS AND DISASTERS

15.1 INTRODUCTION

Chapter 17 of Volume II of the EIAR assesses the potential for significant effects on the environment arising from the vulnerability of the proposed power plant to risks of major accidents and/or disasters.

15.2 ASSESSMENT OF SIGNIFICANT EFFECTS

This chapter examines the potential for major accidents and disasters in the context of the proposed power plant at Profile Park, with regards to:

- Extreme heat or cold weather
- Storm events
- Flooding
- Pollution to soils/groundwater/surface water
- Failure of emissions abatement control systems
- Gas engine operations
- Station transformers
- Tanker unloading/delivery/operations
- Low Sulphur diesel oil storage tank
- Chemical storage room
- All buildings

15.3 MITIGATION AND MONITORING MEASURES

The proposed power plant will be designed and constructed in line with good industry practice, and, as such, mitigation against the risk of major accidents and/or disasters will be embedded through the design and in accordance with planning and Industrial Emissions Licence requirements.

15.4 RESIDUAL EFFECTS

The residual risk of a major accident or disaster occurring during either the construction, operation or decommissioning phased of the project is either very low or low.

16.0 INTERACTIONS OF THE FOREGOING

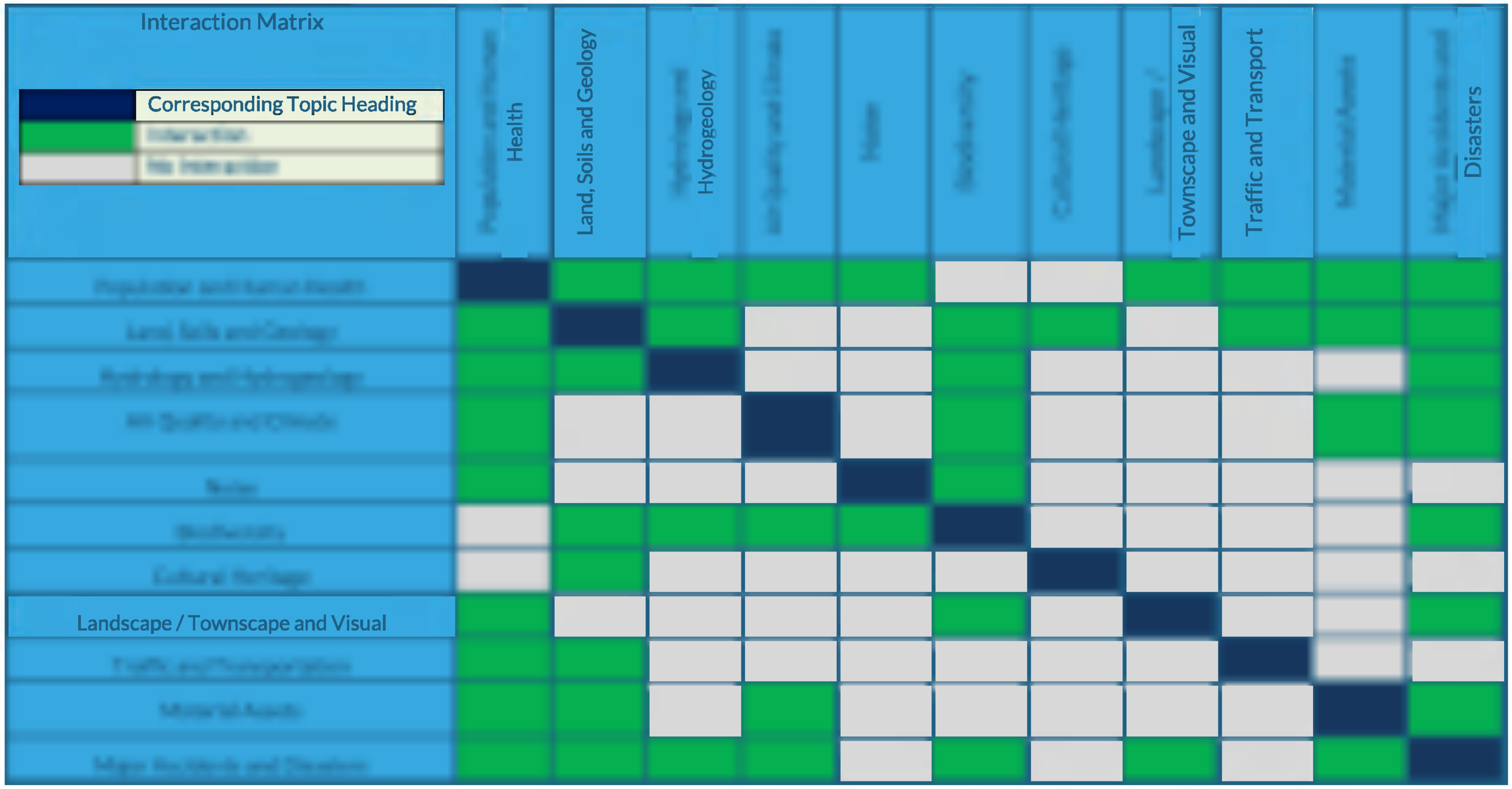
The potential effects of the proposed development and the measures proposed to mitigate these effects have been outlined in the EIAR. However, in any development with the potential for environmental effect there is also the potential for interaction between effects of the different environmental aspects.

The result of these interactions may either exacerbate the magnitude of the effect or may in fact ameliorate it. As part of the requirements of an EIAR, the interaction of the effects on the surrounding environment needs to be addressed.

Table 16-1 below outlines the different environmental aspects which have potential to interact as a result of the proposed development. Interactions have been clearly identified in the early stages of the project and where the potential exists for interaction between environmental effects, the EIAR specialists have taken the interactions into account when making their assessment. Potential interactions (both positive and negative) have been considered for the construction, operation and decommissioning phases of each of the different environmental aspects.

All environmental factors are interrelated to some extent. However, the most common interactions are between Population and Human Health and visual perception, noise, air quality and biodiversity. Having studied the interaction of potential effects during the construction, operational and decommissioning phases it has been determined that no amplification effect is anticipated. The proposed power plant will have some positive effects on an international, national, regional and local level, particularly in terms of helping to achieve renewable energy targets. It is important to note that many of the physical, environmental and landscape and visual effects are reversible upon decommissioning of the power plant.

Table 16-1 Interactions Matrix



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