This Report has been cleared for submission to the Director by Senior Inspector

Signed: David Matthews ***Date:*** 12th May 2023

OFFICE OF ENVIRONMENTAL SUSTAINABILITY

INSPECTOR'S REPORT ON AN INDUSTRIAL EMISSIONS LICENCE APPLICATION, LICENCE REGISTER NUMBER P1182-01

TO: DIRECTORS

FROM: GREG BEECHINOR	**DATE: 12TH MAY 2023**

Applicant:	Amazon Data Services Ireland Limited
CRO number:	390566
Location/address:	Cruiserath Road, Dublin 15.
Application date:	19 April 2022
Classes of Activity (under EPA Act 1992 as amended):	2.1 Combustion of fuels in installations with a total rated thermal input of 50 MW or more.
Category/ies of activity under IED (2010/75/EU):	1.1 Combustion of fuels in installations with a total rated thermal input of 50 MW or more
All relevant CIDs, BREF documents and National BAT notes are listed in Section 5 of this report.	
Activity description/background: The licence is for the operation of 68 no. generators as part of a data storage campus. The campus consists of three data storage buildings containing data halls. The data halls house IT hardware, which host, manage and distribute electronic data.	
Additional information received:	Yes (14th February 2023, 17th February 2023; 29th March 2023)
No of submissions received:	2

Environmental Impact Assessment required: Yes	Stage 2 Appropriate Assessment required: No
Environmental Impact Assessment Report submitted (EIAR): Yes (19-Apr-2022)	
Site visit: N/A	Site notice check: 7th May 2022

1. Introduction

Amazon Data Services Ireland Ltd., hereafter referred to as the applicant, currently operate a data storage installation on a 26.5 hectares site at Cruiserath Road, Dublin 15. The Installation comprises of three two-storey data storage buildings (Buildings A, B, and C). Up to 50 full-time employees are present on site during the day in each building, including external staff, maintenance contractors and visitors, as required. Staff are present on a shift basis, so numbers will vary throughout the day. Up to 7 no. staff are required for night shifts per building. Operational hours are 24-hours a day, 7-days a week.

The data storage installation serves as a centralised computer server system. It consists of data halls, which contain hundreds, if not thousands, of server units, which host, manage and distribute electronic data.

Under normal operating conditions, the installation is supplied electricity from the National Grid. However, outside of the normal operating conditions the site is first supplied electricity by the onsite battery storage (uninterruptable power supplies (UPSs)) and then by some or all of the onsite generators depending on the energy demand of the data storage installation. Typically, the generators will be brought online in the event of: a loss, reduction or instability of grid power supply; critical maintenance of power systems; or a request from the grid operator to reduce grid electricity load.

There is a total of 70 no. potential emission points at the installation. There are 66 no. 6.49 MW_{th} diesel-powered generators, 2 no. 2.19 MW_{th} diesel-powered generators and 2 no. 0.52 MW_{th} diesel-powered fire sprinkler pumps. Given that the combined thermal input of the combustion plants (> 1 MW) at the installation is 432.72 MW_{th}, this exceeds the 50 MW_{th} threshold of Class 2.1 First Schedule of the EPA ACT 1992, as amended and therefore the applicant has applied to the Agency for an Industrial Emissions Licence.

The site is bound to the west by the Cruiserath Road R121 (dual-carriageway) and residential developments, and to the north by undeveloped land. Immediately north of this undeveloped land is Cruiserath Drive and the Carlton Hotel. Blanchardstown village is located c. 2.5 km to the south. To the east there are industrial sites. The closest residential properties are located c. 50 m west of the proposed site boundary (across the R121).

2. Description of activity

The site is occupied by three no. data storage buildings, with ancillary elements, including loading bays, maintenance and storage spaces, associated water tanks, sprinkler tanks, pump house and electrical rooms, security and utility spaces, underground foul and storm water drainage network, on site attenuation systems, internal road network, and site landscaping.

Figure 2.1: Location of the applicant's site relative to the closest sensitive receptors and other industrial sites. Buildings identified by yellow icons are residential.

The main emissions from the installation include emissions to air and noise from the generators (routine testing & outside normal operating conditions), storm water discharges (including some evaporative cooling water) and emissions to sewer.

3. Planning Status

A number of planning applications have been made by the applicant for the area within the installation boundary (FW17A/0025 / PL06F.248544, FW19A/0087 and ABP-306834-20). The applicant has submitted an Environmental Impact Assessment Report (EIAR) dated March 2020, an EIAR dated May 2019 and an EIS dated March 2017 (with addendum dated September 2017) associated with the planning permissions referenced above. The Agency has had regard to the reasoned conclusions reached by Fingal County Council and An Bord Pleanála in undertaking its environmental impact assessment of the activity.

It should be noted that the activity to which the application for a licence relates is restricted to activities associated with the developments as permitted by planning permissions FW17A/0025 / PL06F.248544, FW19A/0087 and ABP-306834-20). There is currently another planning application still under consideration by Fingal County Council (planning application FW22A/0308). Planning application FW22A/0308 pertains to three data centre buildings, generators, diesel tank and filling areas,

ancillary structures, access arrangements and internal road network. It is important to note that the proposed development in planning application FW22A/0308, and any emissions associated with that development, is **not** the subject of the RD as drafted. Should a licence be granted by the Agency as proposed, and should Fingal County Council grant planning permission for FW22A/0308, the applicant may be required to submit a licence review application if they propose to commence any emissions from that proposed development. Any EIAR that may be associated with planning application FW22A/0308 would be considered by the Agency at that time.

4. EIA Screening

In accordance with Section 83(2A) of the Environmental Protection Agency Act 1992, as amended (hereafter referred to as the EPA Act), the Agency must ensure that before a licence or revised licence is granted, that the application is made subject to an environmental impact assessment (EIA), where the activity meets the criteria outlined in Section 83(2A)(b) and 83(2A)(c).

In accordance with the EIA Screening Determination, the Agency has determined that the activity is likely to have a significant effect on the environment and accordingly is carrying out an assessment for the purposes of EIA.

The activity exceeds the following threshold in Part 2 of Schedule 5 of the Planning and Development Regulations 2001 as amended.

10 (a) Industrial estate development projects, where the area would exceed 15 hectares.

An EIAR dated March 2020, an EIAR dated May 2019 and an EIS dated March 2017 (with addendum dated September 2017) was submitted to the Agency as part of the application on 19 April 2022 and 17 February 2023. This is dealt with in the 'EIA' Section later in this report.

5. Best Available Techniques

A detailed BAT assessment was carried out by the applicant and is included in attachment 4-7 of the application form.

The individual generators are less than 15 MW_{th} and so are outside the scope of the Best Available Techniques (BAT) Reference Document for Large Combustion Plants (LCP). Instead, the requirements as set out in the Medium Combustion Plant Regulations 2017 (S.I. No. 595 of 2017), which can be considered BAT at plant level, for combustion plant between 1 and 50 MW_{th} have been applied.

BAT for the installation was assessed against the following horizontal BREF documents:

- BREF document for Emissions from Storage (July 2006);
- BREF document for Energy Efficiency (February 2009);
- BREF Document for Industrial Cooling Systems (December 2001).

The applicant submitted an assessment of the installation's activity against the relevant BAT requirements set out under each of the above listed horizontal BREFs.

The assessment has demonstrated that the installation will comply with all the MCP Regulations, and will be in line with the guidance specified in the relevant horizontal BREF Documents as listed above.

I consider that the applicable BAT Conclusion requirements are addressed through the technologies and techniques as described in the application, as well as the conditions and limits specified in the RD.

6. Emissions

6.1 Emissions to Air

This section addresses emissions to air from the installation and the environmental impact of those emissions. It should be noted that there will be no significant dust or odour emissions from the installation.

6.1.1 Channelled Emissions to Air

There are a number of main channelled emission points (A3-01 to A3-22 and A3-25 to A3-70) at the installation, arising from 68 no. generators (66 no. 6.49 MW_{th} and 2 no. 2.19 MW_{th}). Building A, B, and C have 22 no. 6.49 MW_{th} generators each. Building B and Building C also have one 2.19 MWth generator.

There are other emission points at the installation including 2 no. 0.52 MW_{th} diesel powered fire sprinkler pumps which, due to their emission characteristics, are not considered environmentally significant and are therefore regarded as minor emissions. These minor emissions are not considered as part of this impact assessment.

Each of the generators is a Medium Combustion Plant (MCP). The diesel generators are operated for a limited number of hours. Under Reg. 13 of the MCP Regulations, plant which operate for not more than 500 hours per year are not required to comply with the emission limit values set out in the Regulations. The applicant has requested this exemption for the diesel generators on the basis that their limited use meets this criteria.

As part of the application, air dispersion modelling was carried out by the applicant to predict the ambient pollutant concentrations resulting from the operation of the 68 no. generators at the installation. The modelling was carried out in accordance with published Agency guidance (AG4[1]) and was considered sufficiently detailed and conservative to assess the impact of the emissions to air. The modelling used five years of meteorological data (2017 – 2021 inclusive) from the Dublin Airport meteorological station, which is located approximately 2 km north-west of the site. With regard to the NO_x background concentration, EPA data from Zone A was used. Terrain data has been incorporated into the modelling assessment. Building and stack downwash has also been taken into consideration.

Modelling of nitrogen oxides as NO_2 was undertaken in detail. However, no detailed modelling for the other pollutants including CO, PM_{10} and $PM_{2.5}$ was undertaken, given that emissions of these pollutants are significantly lower than those of NO_x from the generators relative to the respective ambient air quality standard. Therefore, ensuring compliance with the NO_2 air quality standard will ensure compliance for all other pollutants.

[1] Air Dispersion Modelling from Industrial Installations Guidance Note (AG4), 2019.

The scenario modelled using the US EPA Methodology included:

I. Simultaneous operation of 62 of the 68 no. generators (60 no. 6.49 MW_{th} and 2 no. 2.19 MW_{th} generators) at 90% load for up to 72 hours per annum. The remaining 6 no. 6.49 MW_{th} generators serve as "catcher" generators in order to provide redundancy for the other generators;
II. Each generator is tested once per week at 25% load for a maximum of 30 minutes each. All 68 no. generators are tested one at a time in sequence; and
III. Each generator is tested once a quarter (assumed to be January, April, June and October) at 90% load for a maximum of one hour. All 68 no. generators are tested one at a time in sequence.

All testing of the generators was assumed to occur from 8 am to 5 pm, Monday to Friday only.

The nitrogen oxides as NO_2 modelling results at the worst-case locations at and beyond the installation boundary for the above scenario have been summarised in Table 6.1.

Table 6.1 Predicted impact of the channelled emissions to air.

Potential channelled emissions impact						
Parameter	Averaging Period	Background concentration (µg/m³)	Process contribution (µg/m³)	Predicted Environmental Concentration (PEC) (µg/m³)	PEC as % of Air Quality Standard	Air Quality Standards/ Guidelines (µg/m³) Note 1
Nitrogen Oxides (as NO_2) - 2017	99.8%ile hourly	30 Note 2	88.6	118.6	59	200
	Annual	15	16.9	31.9	80	40
Nitrogen Oxides (as NO_2) – 2018	99.8%ile hourly	30 Note 2	81.6	111.6	56	200
	Annual	15	14.7	29.7	74	40
Nitrogen Oxides (as NO_2) - 2019	99.8%ile hourly	30 Note 2	87.7	117.7	59	200
	Annual	15	15.7	30.7	77	40
Nitrogen Oxides (as NO_2) - 2020	99.8%ile hourly	30 Note 2	87.2	117.2	59	200
	Annual	15	15.4	30.4	76	40
Nitrogen Oxides (as NO_2) - 2021	99.8%ile hourly	30 Note 2	89.1	119.1	60	200
	Annual	15	14.9	29.9	75	40

Note 1: Air Quality Standards Regulations, SI 58/2009, 180/2011 and 739/2022, unless otherwise stated.
Note 2: Twice the annual mean background concentration.

As can be seen from Table 6.1 above, all the predicted ground level concentrations are within the relevant air quality standards based on the operation of 62 of the 68 no. generators for 72 hours per year, as well as considering the scheduled weekly testing and quarterly maintenance testing of all 68 no. generators at the installation. For the worst-case year modelled (2021), emissions from the installation lead to an

ambient NO_2 concentration (predicted environmental concentration) which is 60% of the maximum ambient 1-hour limit value (99.8%ile) at the worst offsite location. In terms of the annual standard, for the worst-case year modelled (2017), the predicted environmental concentration is 80% of the annual standard at the worst off-site location. The modelling is considered sufficiently conservative, as 72 hours of operation per annum would require a prolonged fault or outage of the National Grid, a problem with the substation or an instruction from the Transmission System Operator (TSO) requiring the applicant to reduce its demand on the National Grid.

The geographical variations in the ground level NO_2 concentrations (maximum 1-hour) beyond the installation boundary for the worst-case year modelled (2021) are illustrated in the concentration contours in Figure 6.1. It can be seen in Figure 6.1 that the maximum ground level concentrations for NO_2 occurs close to the installation boundary and within the industrial area to the east of the installation. The maximum ground level concentrations for NO_2 decreases with distance from the installation boundary.

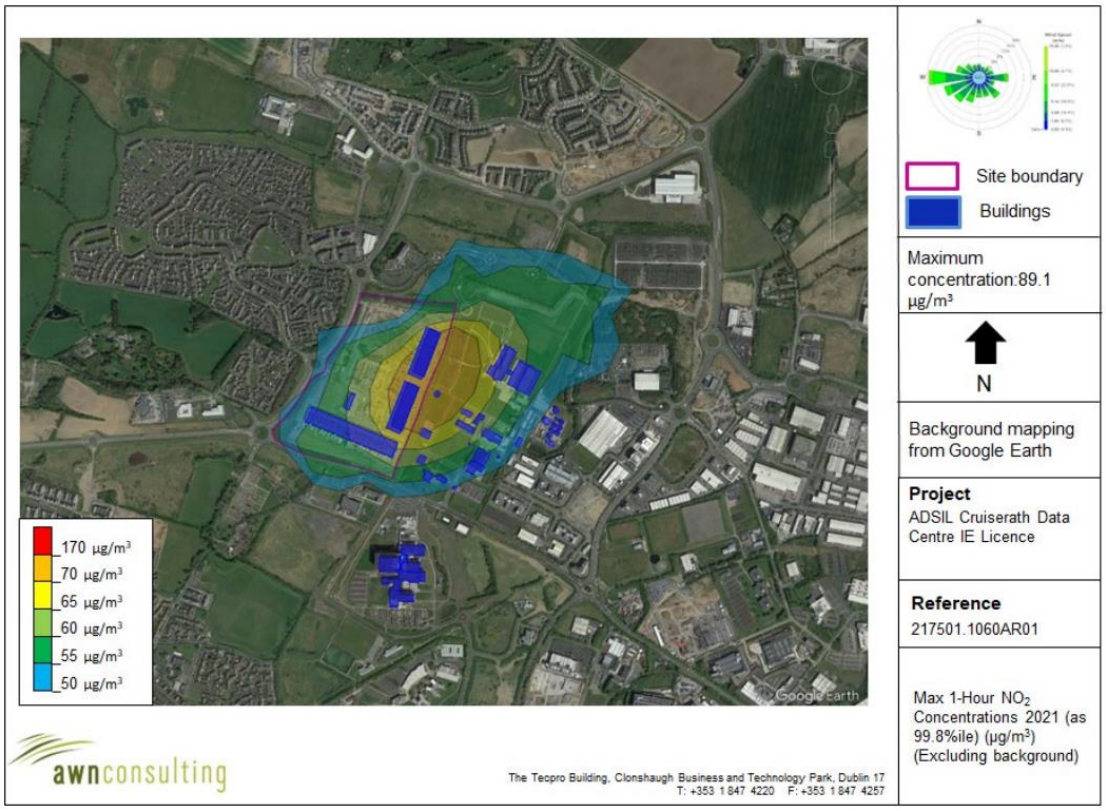


Figure 6.1: Maximum 1-hour NO_2 concentration (process contribution for the worst-case year (2021) (From Attachment-7-1-3-2-Air Emissions Impact 10, February 2023).

<u>Cumulative Assessment</u>

The applicant identified two EPA licensed sites to be within a 1 km radius of the installation, these are Alexion Pharma International Operations Unlimited Company (Licence Reg. No. P1030-01), which is located to the south of the applicant's site, and Swords Laboratories Unlimited Company trading as Bristol Myers Squibb Cruiserath (Licence Reg. No. P0552-03), which is located to the east of the applicant's site. Both of these EPA licenced sites have significant NO_x emissions and therefore these sites were included in the cumulative impact assessment. The cumulative NO_2 ground level

concentrations at the worst-case locations at and beyond the site boundary are detailed in Table 6.2.

Table 6.2: Predicted cumulative impact of the channelled emissions to air.

Potential cumulative emissions impact						
Parameter	Averaging Period	Background concentration ($\mu g/m^3$)	Process contribution to PEC ($\mu g/m^3$)	Predicted Environmental Concentration (PEC) ($\mu g/m^3$)	PEC as % of Air Quality Standard	Air Quality Standards/ Guidelines ($\mu g/m^3$) Note 1
Nitrogen Oxides (as NO_2) - 2017	99.8%ile hourly	30 Note 2	88.6	118.6	59	200
	Annual	15	18.1	33.1	83	40
Nitrogen Oxides (as NO_2) – 2018	99.8%ile hourly	30 Note 2	81.6	111.6	56	200
	Annual	15	15.9	30.9	77	40
Nitrogen Oxides (as NO_2) - 2019	99.8%ile hourly	30 Note 2	87.7	117.7	60	200
	Annual	15	17	32	80	40
Nitrogen Oxides (as NO_2) - 2020	99.8%ile hourly	30 Note 2	87.2	117.2	59	200
	Annual	15	16.4	31.4	79	40
Nitrogen Oxides (as NO_2) - 2021	99.8%ile hourly	30 Note 2	89.1	119.1	60	200
	Annual	15	16.7	31.7	79	40

Note 1: Air Quality Standards Regulations, SI 58/2009, 180/2011 and 739/2022, unless otherwise stated.
Note 2: Twice the annual mean background concentration.

Based on Table 6.2 above, for the worst-case year modelled (2021), the cumulative maximum ground level concentration is 60% of the maximum 1-hour value (99.8%ile) at the worst offsite location. In terms of the annual standard, for the worst-case year modelled (2017), the cumulative maximum ground level concentration is 83% of the annual standard at the worst off-site location.

The geographical variations in the cumulative ground level NO_2 concentrations (maximum 1-hour) beyond the installation boundary for the worst-case year modelled (2021) are illustrated in the concentration contours in Figure 6.2. It can be seen in Figure 6.2 that the maximum ground level concentrations for NO_2 occurs close to the installation boundary and within the industrial area to the east of the installation.

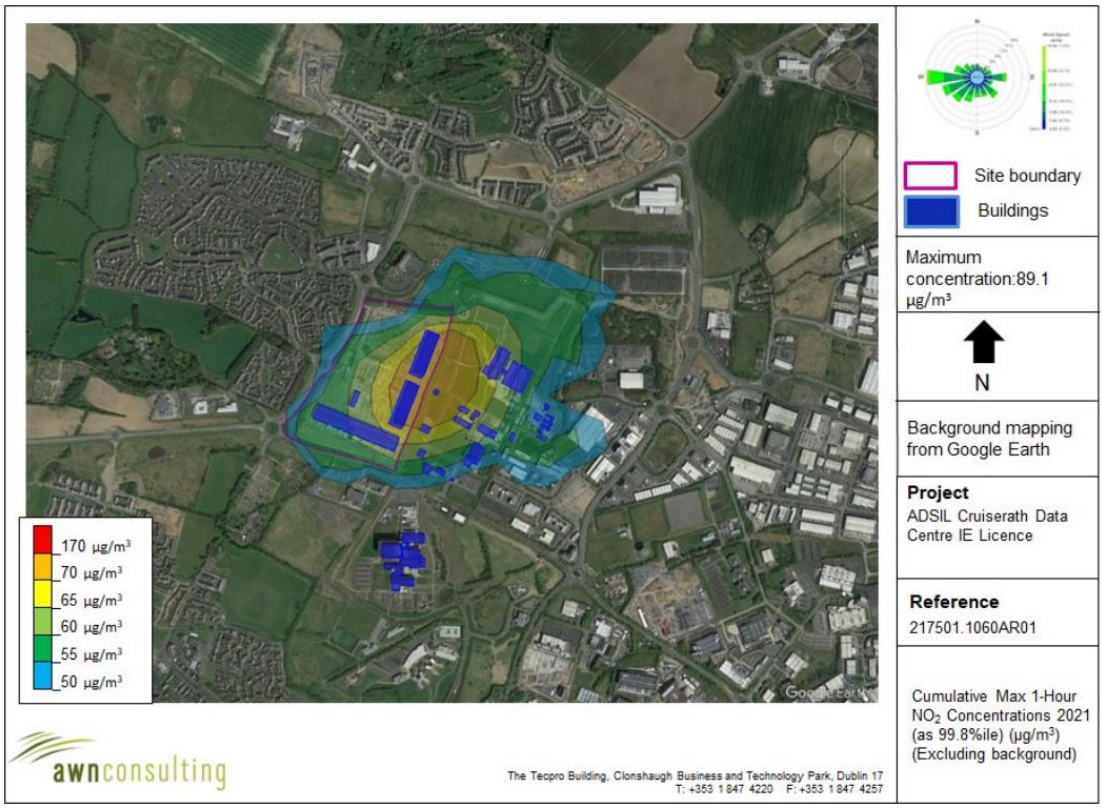


Figure 6.2: Maximum cumulative 1-hour NO_2 concentration (process contributions) for the worst-case year (2021) (From Attachment-7-1-3-2-Air Emissions Impact 10, February 2023).

Notwithstanding the above, it is noted that the applicant omitted the EPA licences sites Mallinckrodt Pharmaceuticals Ireland Limited (P1060-02) and Corduff FlexGen (P1138 from its cumulative assessment, both of which are located within 1 km of the applicant's site. Therefore, there is the potential for an exceedance of both the short- and long-term air quality standards if all 62 of the 68 no. generators at the installation are operated simultaneously with the adjacent EPA licensed sites.

Assessment of impacts on ecosystems

In the context of ecological receptors, an annual limit value of 30 µg/m3 for NOx (NO+NO2) is specified within EU Directive 2008/50/EC for the protection of ecosystems. As detailed above, air dispersion modelling was also used to predict ground level pollutant concentrations at the site. As can be seen in Tables 6.1 and 6.2 above, all the predicted ground level concentrations are within this air quality standard. The nearest ecological sensitive receptor (Royal Canal Proposed Natural Heritage Area (pNHA)) is located approximately 3 km south of the installation. The nearest European Site (Rye Water Valley/Carton SAC [001398]) is over 9 km away. A Screening for Appropriate Assessment was carried out, refer to the Appropriate Assessement section of this report (Section 14). As it can be seen in Figures 6.1 and 6.2 highest concentrations of the pollutant occur close to the installation boundary and decrease rapidly with distance from the installation. Given the distance to the nearest sensitive ecological receptors, significant impacts to vegetation as a result of emissions from the installation are unlikely.

Recommendation

In order to address the potential for an exceedance of both the short- and long-term NO_2 emissions the Recommended Determination (RD) includes a number of conditions in order to reduce and mitigate the potential impact of channelled emissions to air:

- The operation of each generator is restricted to 72 hours per year at 90% load, with no more than 393.78 MW_{th} (60 no. 6.49 MW_{th} and 2 no. 2.19 MW_{th} generators) operating simultaneously. In event that one or more of the 'catcher' generators are unavailable due to maintenance, the applicant may operate mobile generator(s) in lieu of the 'catcher' generator(s) provided that the combined thermal input of the generators in operation does not exceed 393.78 MW_{th}. The RD also restricts the testing of the generators to no more than 25% load for a maximum of 30-minutes each per week, sequentially, and to no more than 90% load for a maximum of 1-hour, four times per year sequentially (Schedule A). These operating limitations are in line with the modelling completed by the applicant;
- Alternative generator operating restrictions (hours and load) may be approved by the Agency subject to the applicant demonstrating that the alternative does cause an increase in the mass emissions to that permitted under Schedule A of the RD (Condition 6);
- The applicant is required to examine ways to reduce its emissions and improve the dispersion of emissions from the generators during maintenance testing and operation (Condition 2);
- The applicant is required to establish an Ambient Air Quality Monitoring Programme, as part of an integrated ambient monitoring programme or otherwise. As part of the ambient monitoring programme, the applicant is required to establish air quality trigger levels and an associated response programme to ensure compliance with Air Quality Standards at off-site receptors (Condition 3);
- Schedule C requires the licensee to carry out monitoring of emissions in line with the Medium Combustion Plant Regulations (Schedule C);
- The applicant is required to maintain a record of generator run times, type & quantity of fuel used, and loading under both testing/maintenance and generator operating scenarios (Condition 11).

6.1.2 **Fugitive Emissions**

No significant fugitive emissions are expected to arise from the proposed activity. Fluorinated gases are used at the installation which are subject to the F Gas Regulation (EU) No 517/2014.

6.2 Emissions to Water/Sewer

6.2.1 **Emissions to Surface Waters**

There are no process emissions to surface waters from the installation, other than the evaporative cooling water (from Buildings A - C) which is discharged to the storm water drainage network.

6.2.2 **Emissions to Sewer**

Foul (sanitary) effluent arising from occupation of the site is discharged to the public foul sewer.

The foul sewer network ultimately discharges into a regional pumping station, before final treatment and disposal at the Ringsend Wastewater Treatment Plant (WWTP)(D0034-01). Drainage of rainwater from the top up tank bund to the southwest of Building A is directed to foul sewer and connects to the foul main at emission point.

There is no process effluent discharged to the foul water network on site. Therefore, no monitoring of the overall sewer discharge is proposed.

6.3 Storm water discharges

Storm water discharges includes storm water from roofs and hardstanding areas. The residual cooling water associated with the evaporative cooling process is also currently being discharged from the cooling system to the storm water network when the ambient air temperature is above a setpoint.

The air handling units at the installation provide conditioned air to the data centre buildings in order to maintain temperature, relative humidity and pressurisation in the data halls. The evaporative cooling system for the data halls operates in two modes; free cooling and evaporative cooling. Under the free cooling mode, conditioned air, at ambient air temperature is passed across the IT servers located in the data halls, and this air is either recirculated or exhausted to atmosphere. Under the evaporative cooling mode, which typically occurs for approximately 5-days per year, when ambient air temperature is >30˚C, public water is used as the cooling media to cool the ambient air that is introduced into the data halls. The majority of the public water is evaporated in the process. Prior to the cooling process, water is sanitised using ultraviolet disinfection. When water is used for cooling it is recirculated in a closed loop system. When a conductivity set of point of 1,500µS/cm is reached, the cooling water (107m^3/day) is discharged to the onsite storm water drainage network at ambient temperature.

Under the evaporative cooling mode, the residual evaporative cooling water associated (from Buildings A - C) is currently being discharged from the cooling systems to the storm water network when the ambient air temperature is above a setpoint (>30°C). Due to the chemical properties of the evaporative cooling water at peak weather conditions (>30˚C ambient air temperature), it is considered that the concentrations of salts in the storm water discharge from the site is insignificant.

It is noted that hydrogen peroxide dosing of the cooling system (AHUs and pipelines) only occurs when a positive legionella sample has been detected in a unit. Given the unstable nature of hydrogen peroxide, it will oxidise quickly in the environment thereby minimising any potential residual impacts. For the purpose of legionella management, the RD restricts the use of chemicals to hydrogen peroxide, unless otherwise approved by the Agency (Condition 2). The RD requires the application to complete a feasibility study to divert the residual evaporative cooling water to sewer and submit a report to the Agency within 12 months of the date of grant of the licence (Condition 3).

The site storm water network conveys the storm water to three no. Storm water attenuation basins constructed on the site. The attenuated storm water discharges offsite to the public storm water network at one no. Emission Point (SW1) at a greenfield runoff rate (126.3 litres/second). Prior to the site storm water entering the respective attenuation basins, the storm water passes through Class I by-pass hydrocarbon interceptors. Prior to discharge from the site, the storm water passes through hydrodynamic solid separators (cyclonic separation), and a storm water flow control device to ensure the removal of debris and to control to the maximum permissible discharge flow rate off site.

The public storm water drain in the R121 Regional Road (Cruiserath Road) flows to the southeast, draining into the Ballycoolen Stream (IE_EA_09T011000), which flows in a southerly direction and confluences with the River Tolka located to the south of the site. The River Tolka flows 11.6 km east, to the River Liffey Estuary transitional water body, and ultimately Dublin Bay.

The Table 6.3 below gives details on the installation's storm water discharges to waters; the sources of potential contamination of these discharges, the type of on-site abatement, as well as details of the receiving water.

Table 6.3 Storm water Discharge Details

Emission Reference	Monitored parameters (monitoring frequency)	Abatement	Drainage areas	Discharging to	Trigger levels to be established
SW1 (with monitoring locations at SW1-1 and SW1-2)	*Visual (daily); pH, TOC, conductivity, temperature (weekly)*	*Class I full retention separators on the internal storm water from the fuel tank farm(s), generator yards, refuelling areas and transformer compound.* *Class I By-pass separators on the storm water drains from internal hard standing areas.*	*Buildings, site roads and walkways, car parks*	*Ballycoolen River*	*Required by RD*

The RD requires the applicant to maintain the storm water drainage system. The RD also requires that the storm water discharge is visually inspected daily and monitored for temperature, conductivity, total organic carbon (TOC) and pH weekly, and any other parameters as required by the Agency, in accordance with Schedule *C.2.3 Monitoring of Storm Water Discharges.* The RD also requires the applicant to establish trigger levels (Condition 6). The RD specifies that the applicant shall complete a feasibility study to divert the evaporative cooling water to sewer (Condition 3).

The RD contains standard conditions in relation to the storage and management of materials and wastes. The RD also requires that accident and emergency response procedures are put in place. The controls pertaining to accidents and emergencies are addressed in the Prevention of Accidents section later in this report.

6.4 Noise

The installation is located within an industrial park and the lands surrounding the installation to the east and south are mainly in commercial and industrial uses. The closest residential properties are located 50 m west of the site boundary in a large residential development. A hotel is located c. 110 m north of the site boundary. The primary source of noise is expected to arise from the installation's building service plant (i.e. the air handling unit (AHU) air intake and the AHU air exhaust) as well as the operation of the generators during testing and non-normal operating scenarios (i.e. generator air intake, generator air exhaust and generator engine exhaust).

In support of its licence application, the applicant has submitted a noise assessment in accordance with Agency's NG4[2] Guidance. A baseline noise survey was conducted at four locations to the north and west of the installation, representative of nearby residential areas and the adjacent hotel. The predominant source of noise at the locations monitored was road traffic.

Noise impacts from noise sources at the installation were assessed under two scenarios:

A. Normal operations representative of the day-to-day operations whereby the energy demand of the data centre is provided from the national grid.
B. Representative of a non-normal operating scenario whereby generators are operated due to either a loss, reduction or instability of grid power supply, critical maintenance to power systems or a request from the grid operator to reduce demand on the grid.

Proprietary noise calculation software (DGMR iNoise) was used to quantify the noise level associated with the proposed installation. Based on the noise assessment, it is evident under Scenario A, normal operating conditions, that the installation will be compliant with the standard daytime, evening time and night-time limits at the noise sensitive locations (NSLs).

However, under Scenario B (all generators operating), it is evident that the installation would not be able to comply with the standard evening time (50 dB) and night-time (45 dB) limits (see Figure 6.3). In the application, the applicant has proposed that a higher evening time and night-time limit of 55 dB L_{Aeq} should be applicable in a scenario when the generators are in operation. Agency guidance (NG4) states that where licensed sites which have certain equipment which only operate in urgent events such as grid power failure (e.g. standby diesel generators), this equipment may be permitted to exceed standard noise limit values during such events. However, given that the generators could be operated for an extended period (up to 72 hours per annum) it is considered that the standard noise limit values should apply at the NSLs to protect the sensitive receptors given their proximity (c. 50 m) to the installation boundary.

[2] Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4) 2016

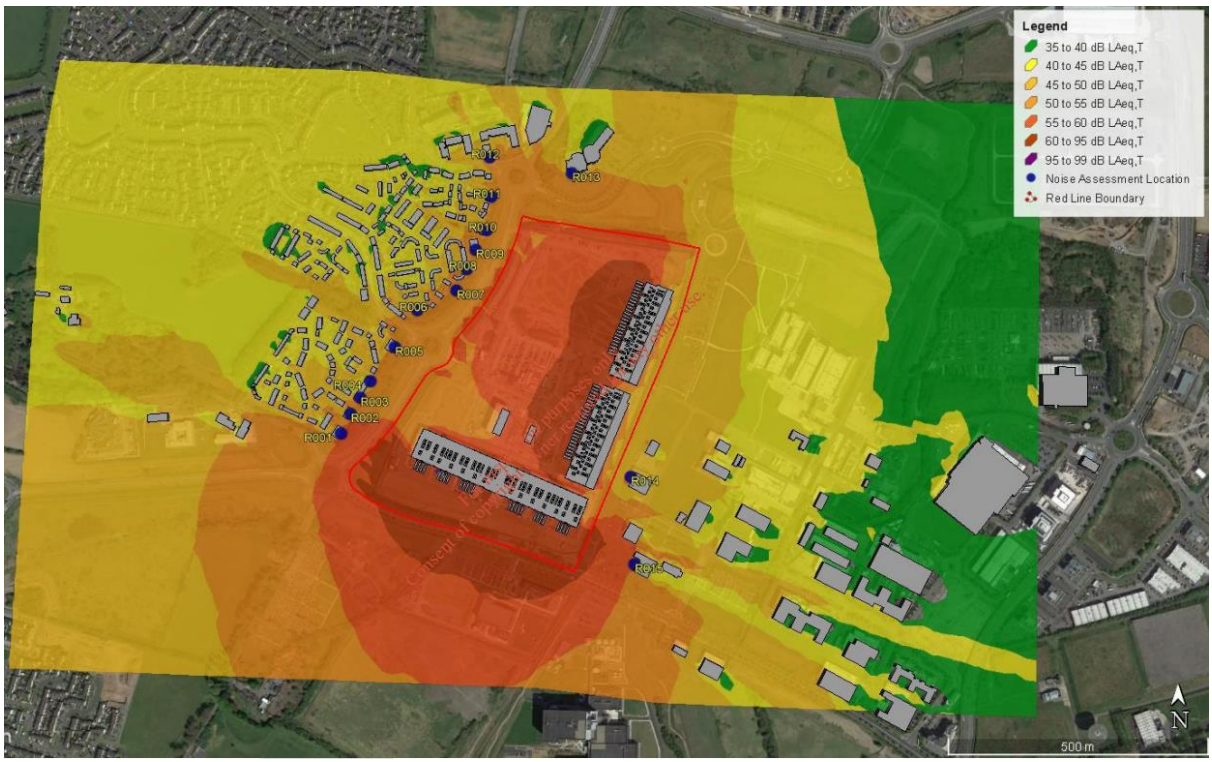


Figure 6.3: Predicted noise levels when generators are in operation (Scenario B) (From Attachment-7-1-3-2-Noise Emissions Impact 7).

Furthermore, as the noise levels under Scenario B (the worst-case scenario of all generators in operation) are predicted to lead to an exceedance of the standard noise limits at the NSLs, the RD includes a requirement on the applicant to prepare a Noise Management Plan (Condition 6). The RD requires that the Noise Management Plan be implemented within six months of date of grant of licence.

7. Waste generation

Certain wastes are generated on site as part of the licensable activity, but given the nature of the activity, it is expected that waste generation will be minimal.

The categories of waste that will be generated from the proposed activity will include dry mixed recyclables (c. 78.4 tonnes/annum), food/organic waste (c. 4 tonnes/annum), waste arising from maintenance activities, including filter materials, absorbents, wiping cloths (c. 1.2 tonnes/annum), waste from minor spills (e.g. oil) (1.4 tonnes/annum), used oil (17.1 tonnes/annum), oily water from separators (18 tonnes/annum) and e-waste including miscellaneous parts and equipment (e.g. fans, hard drives, cables, etc.) (33 tonnes per annum). A full list of waste streams that will be generated at the installation, and conditions under which such waste streams will arise, has been provided in Attachment 8.1 of the application form.

The applicant will apply measures at the installation for the prevention and/or minimisation of waste. Hazardous waste, such as waste oil from the maintenance of the generators shall be stored in drums as and when required, and these will be kept in a self-bunded area until they are disposed of off-site by a licenced/permitted contractor. The most significant waste stream generated at the installation is dry mixed recyclables.

As outlined in Attachment 8-1-2 of the application form, and in accordance with the hierarchy specified in the IED, waste generated at the site will, in order of priority, be minimised, be prepared for re-use, recycling, recovery or disposal.

8. Energy Efficiency and Resource Use

The operation of the installation involves the consumption of fuel (primarily gas oil), electricity and water. Table 8.1 below provides the applicant's estimated maximum quantities of energy and resources that will be used.

Table 8.1: Energy and resource use at the installation

Resource	Quantity per annum
Electricity	727,080 MWh
Gas oil (diesel)	987 tonnes
Public Water	22,377 m^3

The applicant employs a variety of technology to maximise the efficient use of energy within the installation, including a load management system, preventative maintenance on equipment, and efficient lighting systems.

It should further be noted that the cooling systems at the installation can accommodate the future installation of heat recovery coils and an underground waste heat primary circuit, to allow waste heat to be distributed to a district heating system, should one be built locally. The heat recovery coils would recover heat from the air after it passes through the data halls to a hydraulic (water) pump, prior to the air being either recirculated to the data halls or vented to atmosphere.

In the application of BAT, Condition 7 of the RD provides for the efficient use of resources and energy in all site operations. It requires an energy audit to be carried out and repeated at intervals as required by the Agency and the recommendations of the audit to be incorporated into the Schedule of Environmental Objectives and Targets as outlined in Condition 2 of the RD.

The Climate Action Plan[3] sets out a proposed pathway to meet the emission reduction target for the energy sector through a more rapid build out of renewables (wind and solar power), increased storage and the deployment of zero-emissions gas. In the case of the electricity generation sector, the Climate Action Plan sets a target to reduce CO_2-eq. emissions from the sector by between 2 to 4 Mt CO_2-eq. by 2030, which is to be largely facilitated by increasing the share of renewable energy generation up to 80% by 2030.

While the applicant has provided some detail in its application form in relation to its plans to be powered entirely by renewable energy, Condition 7 of the RD requires the applicant to carry out a study on how to decarbonise the activity by identifying opportunities to increase the use of solar, sustainable biofuels, and alternative renewable energy sources and submit a report to the Agency within six months of the date of grant of the licence.

[3] Climate Action Plan 2023, Changing Ireland for the Better.

As regards Ireland's commitments at EU and International level, this installation is covered by the EU Emissions Trading System (EU ETS) and operates under a GHG permit for its own direct emissions of CO_2 from the generators.

9. Prevention of Accidents

A certain amount of accident risk is associated with the licensable activity. The table specifies the risks and associated safety measures relevant to this installation.

Table 9.1 Potential accidents and measures for prevention/limitation of consequences.

Potential for an accident or hazardous/ emergency situation to arise from activities at the installation.	• Potential for fire due to large quantities of diesel stored at the installation, leading to potential for emissions to air, water and/or soil and ground water. • Spillages/leaks due to accidents on-site. • Spills/leaks of oil or gas oil during storage, use or delivery. • Malfunction of the plant including generators, AHUs, etc., leading to the potential for fuel spills, or exceedances of the noise limits. • Failure of the hydrocarbon interceptors leading to discharges of contaminated storm water.
Preventative/Mitigation measures to reduce the likelihood of accidents and mitigate the effects of the consequences of an accident at the installation.	• Provision and maintenance of adequate bunding. Inspection system to detect leaks in over ground pipes carrying materials other than water. Testing of the integrity and water tightness of all tanks, bunding structures and containers every three years. • All diesel storage tanks are fitted with high/low level alarms which alarm to a central alarm system. • The bulk tank storage bunds have diesel probes, connected to an alarm, within the concrete bund to detect diesel spillages inside of the bulk tank storage bunds. • Fuel delivery will take place within the designated unloading areas under a Standard Operating Procedure (SOP). The refuelling process SOP has been submitted in support of the application. • Operation and maintenance of plant and equipment carried out in line with manufacturer's recommendations. • Provision of spill kits and firefighting equipment. • The drainage sumps at the fuel unloading bays and in the bulk tank concrete bunds contain hydrocarbon detectors which automatically shutoff drainage from these sumps, if diesel is detected in the sump. • Drainage from the diesel tank farm and transformer areas are equipped with a full retention hydrocarbon interceptor.

	• All interceptors at the installation are equipped with an oil warning system which is connected to a central critical alarm system.
Additional measures provided for in the RD	• Accident prevention and emergency response requirements (Condition 9). • Integrity of tanks to be assessed every 3 years and maintenance carried out as required (Condition 6). • Storm water discharge points to be visually monitored (Schedule C). • Firewater retention risk assessment (Condition 3).

The risk of accidents and their consequences, and the preventative and control measures listed in the table above, have been considered in full in the assessments carried out throughout this report.

Condition 9 of the RD requires procedures to be put in place to prevent accidents with a possible impact on the environment and to respond to emergencies so as to minimise the impact on the environment.

The installation is not a COMAH site as the only substance which would be controlled under the COMAH Regulations (S.I. No. 209 of 2015) is diesel. The total amount of diesel that is stored at the installation is 2,498 tonnes, although annual usage is predicted to be 880 tonnes. Under the COMAH Regulations the quantity of diesel which qualifies a given site for the application of lower-tier and upper-tier requirements is 2,500 tonnes and 25,000 tonnes respectively. Therefore, the quantity of diesel stored at the site does not exceed the thresholds of the COMAH Regulations.

10. Cessation of Activity

A certain amount of environmental risk is associated with the cessation of any licensable activity (site closure). For this installation the risks relate to the potential for soil, groundwater and surface water contamination.

The applicant has provided a list of measures to be taken in the event of site closure/cessation of activity. These measures are listed in Attachment 9-2-3 of the application form. Condition 10 of the RD requires the proper closure of the activity with the aim of protecting the environment.

Baseline Report

Where an activity involves the use, production or release of relevant hazardous substances, and having regard to the possibility of soil and groundwater contamination at the site of the installation, the IED requires operators to prepare a baseline report.

A baseline report was submitted with the application (Attachment 4-8-3). The report states that the site has previously been used for agriculture only, with no evidence of other past uses, prior to the construction of this development.

Although not addressed in the baseline report, the site on which this installation is built was previously in the ownership of Swords Laboratories (T/A Bristol Myers Squibb Cruiserath Biologics), a pharmaceutical company, which operates an IE licensed installation (Reg. No. P0552-03) adjacent to this site. Swords Laboratories never

developed the land and as such, it was never used for their licensable activities. The applicant acquired the land from Swords Laboratories and obtained planning permission to begin constructing part of the existing installation in 2018. The EPA conducted an exit audit for this site in 2020, and at that time noted that no outstanding environmental concerns were identified and that the construction of the datacentre had already commenced. The land was removed from within the licensed site boundary by technical amendment.

A site investigation was undertaken on behalf of the applicant as part of an initial due diligence assessment. Soil and groundwater samples were taken and analysed for, *inter alia*, metals, VOCs, and hydrocarbons. The results for all soil samples were within the relevant standards, with the exception of nitrates in two boreholes, which exceeded the groundwater threshold value for nitrate specified in the European Communities Environmental Objectives (Groundwater) Regulations (S.I. 9/2010) as amended. This was attributed to the historical agricultural use of the site.

There are no surface water bodies running through the site or along its boundaries. Storm water from the installation will discharge to the Ballycoolen River (IE_EA_09T011000) via a public storm water drain. The current WFD status for the Ballycoolen River is 'poor'. The site is located above the Dublin Groundwater Body (IE_EA_G_008), at the boundary between a locally important, moderately productive bedrock aquifer and a poorly productive aquifer. For the purposes of the WFD, the groundwater body is classified as 'good', with a risk status of 'under review'.

The activity will have one relevant hazardous substance, diesel, which will be stored and managed within a bunded area which will be subject to routine integrity testing and fitted with a high-level alarm. Considering the quantity of hazardous substance, and the measures to be taken to prevent accidents and incidents, the possibility of soil and groundwater contamination from the activity is considered to be low.

In order to reduce the risk, the RD includes the following requirements:

- Appropriate bunding for tanks and drum storage areas, with routine integrity testing.
- Waste and hazardous materials are to be stored in designated areas and protected as may be appropriate against spillage and runoff.

The RD requires that soil and groundwater monitoring for relevant hazardous substances is carried out every five years (groundwater) and ten years (soil) at locations approved by the Agency, in accordance with IED requirements.

11. Fit & Proper Person

Technical Ability

The applicant has provided details of the qualifications, technical knowledge and experience of key personnel. The licence application also includes information on the on-site management structure. It is considered that the applicant has demonstrated the technical knowledge required.

Legal Standing

Neither the applicant nor any relevant person has relevant convictions under the EPA Act, or under any other relevant environmental legislation.

ELRA, CRAMP and Financial Provision

The proposed installation was assessed for the requirements of Environmental Liabilities Risk Assessment (ELRA), Closure, Restoration and Aftercare Management Plan (CRAMP) and Financial Provision (FP), in accordance with Agency guidance. Under this assessment it has been determined that ELRA, CRAMP and FP were not required.

Fit & Proper Conclusion
It is my view, that the applicant can be deemed a Fit & Proper Person for the purpose of this application.

12. Submissions

While the main points raised in the submissions are briefly summarised in the Table 12.1 below, the original submissions should be referred to all times for greater detail and expansion of particular points.

The issued raised in the submissions are noted and addressed in this Inspector's Report and the submissions were taken into consideration during the preparation of the Recommended Determination (RD).

Table 12.1 Valid Submissions

Submissions			
1.	**Name**	**Organisation:**	**Date received:**
	Ms Trish Smullen	Geological Survey Ireland	30 May 2022
	Issues raised: In its submission GSI has not raised any specific issues, but rather states "*Geological Survey Ireland has no specific comment or observations to make on this matter at this time*". **Agency response:** The Agency notes that no specific concerns have been raised in the submission.		
2.	**Name**	**Organisation:**	**Date received:**
	Ms Angela Deegan	Not Here Not Anywhere	17th April 2023
	Issues raised: The main issued raised in the submission relates to the granting of a licence for the operation of fossil fuel power infrastructure giving rise to greenhouse gas emission which is not in line with the Irish Government's Climate targets and international agreements regarding the use of fossil fuels and for this reason the application should be rejected. Addition specific points raised in the submission are as follows: 1. A discrepancy is noted in the Section 4.6.1 of the application. In the Electricity Usage table of the said section of the application form, it states that no non-renewable electricity is generated and used at the site, despite there being onsite generators. 2. Given the climatic impacts of greenhouse gas emissions, permitting *any new fossil fuel infrastructure is unconscionable*. The diesel generators in this application have a		

Submissions	
	total rating of 459.72 MW_{th}. If licensed, the generators could be run for up to 500 hours annually. 3. Transparency about what is being stored and for whom should be a requirement. It would enable society and the Government to rank different types of data storage services by importance to society and be able to order data centres to turn off certain categories of services in different circumstances – such as in the event of a warning that the national grid may be unable to meet power demand – rather than allow data centres to switch to fossil-fuelled generation. 4. Fossil fuel infrastructure is not a viable solution. While *the small fraction of energy usage at this data centre complex will be provided by renewables (PV panels)* the applicant should be required to ensure its data centre is powered entirely by either onsite or off-site renewable energy and storage. **Agency response:** 1. During normal operations, the installation will be supplied electricity from the national grid. Non-renewable power generation from the generators will only occur onsite in the event of an interruption in the power supply to the installation from the national grid. 2. The installation is required to operate under a Greenhouse Gas Emissions Permit in accordance with the European Communities (Greenhouse Gas Emissions Trading) Regulations 2012, (S.I. 490 of 2012 and amendments). A GHG permit, requires the operator to report each year all the CO_2 emitted from the activity listed in the permit and surrender sufficient emissions trading allowances to cover the emissions of the previous calendar year. The quantity of allowances made available on the market is controlled at an EU level, and is reducing each year in order to ensure that the overall emissions from the Emissions Trading System (ETS) sector meet the EU targets on reducing greenhouse gas emissions. Furthermore, the Recommended Determination requires the applicant to examine the use of renewable forms of energy and to decrease or offset the use of fossil-fuel based energy both directly through the operation of the generators and indirectly through the national grid (Condition 7). It should further be noted that the RD restricts the operation of the generations to no more than 72 hours annually, with no more than 393.78 MWth operating simultaneously. 3. Transparency around the data being stored at the installation is outside the scope of the licence. 4. Condition 7 of the RD requires the applicant to examine the use of renewable forms of energy and to decrease or offset the use of fossil-fuel based energy at the installation. Climate impacts are discussed further in the Energy Efficiency and Resource Use and the Climate sections of this report.

13. Consultations

13.1 Cross Office Consultation

I consulted with Office of Environmental Enforcement in relation to the financial charges.

13.2 Transboundary Consultations

There were no transboundary consultations undertaken as there were no transboundary impacts identified.

14. Appropriate Assessment

Appendix 2 lists the European Sites assessed, their associated qualifying interests and conservation objectives.

A screening for Appropriate Assessment was undertaken to assess, in view of best scientific knowledge and the conservation objectives of the site, if the activity, individually or in combination with other plans or projects is likely to have a significant effect on any European Site. In this context, particular attention was paid to the European Sites at Rye Water Valley/Carton SAC (Site Code:001398), Malahide Estuary SAC (Site Code: 000205), South Dublin Bay SAC (Site Code: 000210), North Dublin Bay SAC (Site Code: 000206), South Dublin Bay and River Tolka Estuary SPA (Site Code: 004024), Malahide Estuary SPA (Site Code: 004025) and North Bull Island SPA (Site Code: 004006).

The activity is not directly connected with or necessary to the management of any European Site and the Agency considered, for the reasons set out below, that it can be excluded, on the basis of objective information, that the activity, individually or in combination with other plans or projects, will have a significant effect on any European Site and accordingly determined that an Appropriate Assessment of the activity was not required.

This determination has been made in light of the following reasons:

- The installation is located in an industrial estate and is not within a European site.
- European Sites and their qualifying interests are considered to be outside of the zone of influence of air and noise emissions arising at the installation with the closest European Site being approximately 9kms away (Rye Water Valley/Carton SAC). Emissions to air consist of emissions from the 70 diesel-powered back-up generators, diesel-powered fire sprinkler pumps and diesel tank emergency relief vents.
- There will be no process emissions to sewer from the installation.
- In addition to stormwater runoff from building roofs, yards and the road network, there is an emission to surface water of residual cooling water (recirculated mains water) associated with the evaporative cooling process in the Air Handling Units. There is an indirect hydrological connection to the European sites at Dublin Bay. The existing storm water outfall flows into Ballycoolen (Water Framework Directive Code: IE_EA_09T011000) which ultimately connects to the River Tolka and Dublin Bay approximately 14kms downstream of the installation. Taking into account the nature of these emissions and the distance downstream it is considered that these emissions will not have a significant effect on European Sites at Dublin Bay.
- There are no direct process emissions to ground or groundwater from the installation.
- Given the nature and scale of emissions, it is considered that the activity in

combination with other plans or projects will not have a significant effect on European Sites.

15. Environmental Impact Assessment

15.1 EIA Introduction

This assessment is being undertaken in accordance with the requirements of *Directive 2014/52/EU amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment*. The application was accompanied by an Environmental Impact Assessment Report (EIAR) dated March 2020, an EIAR dated May 2019 and an EIS dated March 2017 (with addendum dated September 2017). For the purposes of this 'Environmental Impact Assessment" section of this report, any reference to 'the EIA documentation received from the applicant' shall include all of the EIA documents, i.e. EIARs and EIS (including addendum EIS).

As part of this environmental impact assessment, I have carried out an examination, analysis and evaluation of all the information provided by the applicant (including the EIARs, EIS and addendum EIS), any information received through consultation, the documents associated with the assessments carried out by Fingal County Council and An Bord Pleanála and their reasoned conclusions, and the issues that interact with the matters that were considered by those authorities and which relate to the activity, written submissions, as well as considering any supplementary information, where appropriate. All of the documentation received was examined and I consider that the EIA documentation complies with the provisions of Article 5 of the 2014 EIA Directive when considered in conjunction with the additional material submitted with the application.

I am satisfied that the information contained in the EIA documentation has been prepared by competent experts and that the environmental effects arising as a consequence of the activity have been satisfactorily identified, described and assessed.

Having specific regard to EIA, this Inspector's report as a whole is intended to identify, describe and assess for the Agency the likely significant direct and indirect effects of the activity on the environment, as respects the matters that come within the functions of the Agency, for each of the following environmental factors: population and human health, biodiversity, land, soil, water, air and climate, the landscape, material assets and cultural heritage.

This Inspector's report addresses the interaction between those effects. The cumulative effects, with other developments in the vicinity of the activities have also been considered, as regards the combined effects of emissions. In addition, the vulnerability of the activity to risks of major accidents and/or disasters has been considered. The mitigation measures proposed to address the range of predicted significant effects arising from the activity have been outlined. This Inspector's report provides conclusions to the Agency in relation to such effects.

A summary of the submissions made by third parties has been set out above in the 'Submissions' Section of this report.

I am satisfied that the public have been given early and effective opportunity to participate in the environmental decision-making process.

15.2 Consultation with Planning Authorities in relation to EIA

The Agency consulted Fingal County Council and An Bord Pleanála under the relevant section of the EPA Act on 25 April 2022. A reminder was sent on 21 June 2022. Fingal County Council and An Bord Pleanála did not provide any observations to the Agency on the licence application and EIAR.

15.3 Alternatives

The matter of alternatives is addressed in the EIA documentation received from the applicant, addressing a 'do nothing' scenario, as well as alternative locations, site layouts, designs, processes/technologies and mitigation.

The EIA documentation received from the applicant detailed the applicant's rational for selecting Ireland as the preferred location for the data centre, which includes the climatic conditions. Data centres in Ireland require far less air conditioning and temperature control systems in contrast to countries with a warmer climate. Therefore, data centres in Ireland have a lower demand on water and power, thereby reducing the environmental effects of the development, including reduced noise and air emissions, when compared with other countries.

The documentation also details the applicant's consideration of site design and layout to minimise potential effects on the environment including stack heights and location of the installation's infrastructure. In relation to alternative processes/technologies and mitigation, the applicant has provided a rational for their decision making and the alternatives considered.

In this regard I consider that the matter of the examination of alternatives has been satisfactorily addressed.

15.4 Likely Significant Direct and Indirect Effects

The likely significant direct and indirect effects of the activities on the following factors as set out in Article 3 of the EIA Directive are considered in this section:

(a) population and human health;
(b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;
(c) land, soil, water, air and climate;
(d) material assets, cultural heritage and the landscape;
(e) the interaction between the factors referred to in points (a) to (d).

15.4.1 Population & Human Health

Identification, Description and Assessment of Effects

Population and human health are addressed in the EIA documentation and application documents received from the applicant. The installation is located within an industrial area with the closest residential properties located c. 50m west of the site boundary (across the R121) in a large residential development. The main emissions from the installation are emissions to air from the generators, noise emissions, and storm water discharges. There are emissions to air (NO_2, CO, SO_2 and particulate matter) from the generator stacks when operational. The primary sources of noise include the installation's building service plant and operation of the generators. Storm water runoff including residual cooling water associated with the evaporative cooling process are directed to the storm water system and discharged to the Ballycoolen Stream.

The potential direct and indirect effects on population and human health are associated with emissions to air, noise emissions, storm water discharges to water and accidental emissions. Should emissions cause an exceedance of environmental quality standards this could have implications for population and human health. Air dispersion modelling submitted by the applicant assessed potential effects on air quality arising from the installation alone and as part of a cumulative assessment. It is considered that there is a potential for a significant cumulative effect in relation to air from the activity and other activities/developments. The applicant has also carried out noise modelling to predict impacts of noise sources from the installation. There is potential for significant effects in relation to noise when all generators are in operation. The effects identified and described above have been assessed in the following section of this report:

- Emissions to Air;
- Storm water discharges;
- Noise; and
- Prevention of Accidents

There is also the potential for accidental emissions to the environment, due to fire, leaks or spillages. Accidental emissions to air, water or ground could occur in the event of a spill of chemicals, fuels, oils/lubricants, or due to a fire causing air pollution or soil, groundwater or surface water contamination. These aspects are addressed in the 'Prevention of Accidents' section of this report.

Cumulative effects of the activity in relation to population and human health have been assessed. It is considered that there is a potential for a significant cumulative effect in relation to air from the activity and other activities/developments. See the 'Emissions to Air' section of this report. In addition to imposing operating restrictions on the generators; the RD requires an Ambient Air Quality Monitoring Programme, establishing ambient air quality trigger levels and an associated response programme to ensure there is no exceedance of Air Quality Standards. There is also a potential for a significant cumulative effect in relation to noise emissions from the activity and other activities/developments. In addition to imposing operating restrictions on the onsite generators; the RD includes a requirement to produce a Noise Management Plan. Therefore, it is considered that there is a potential for a significant cumulative effect from the activity and other activities/developments.

Mitigation and Monitoring

Mitigation measures and monitoring in relation to population and human health are detailed in the following sections of this report:

- Emissions to Air;
- Storm water discharges;
- Noise; and
- Prevention of Accidents.

Conclusions

I have examined all the information on population and human health, provided by the applicant, any information received through consultations, written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended

Determination. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects in terms of population and human health.

15.4.2 **Biodiversity**

Identification, Description and Assessment of Effects
Biodiversity is addressed in the EIA documentation received from the applicant. This documentation describes the habitats and species at and in the vicinity of the installation. It includes habitat surveys, information on designated conservation areas, non-designated habitats (grassland, scrub and drainage ditches), and fauna (badgers, otters, bats, birds and other mammals). The applicant also submitted an Appropriate Assessment Screening Report (refer to the 'Appropriate Assessment' section of this report).

The installation is already operating as a data centre on a 26.5 hectares site in Cruiserath Road, Dublin 15. The site is bound to the west by the Cruiserath Road R121 (dual-carriageway) and residential developments, and to the north by undeveloped land. Immediately west of this undeveloped land is Cruiserath Drive and the Carlton Hotel. The nearest site designated for nature conservation is the proposed Natural Heritage Area (pNHA) the Royal Canal, located approximately 3 km south from the site. The closest European site (Rye Water Valley/Carton SAC) is approximately 9kms to the south-west.

The EIA documentation received from the applicant states that the site is located in an area of low ecological value. In relation to fauna, a single badger sett was recorded within the installation boundary, located under the footprint of the previously permitted development (Building A) under planning ref. PL06F.248544. The applicant states that an artificial sett was constructed in the northwest corner of the overall landholding, and the existing sett was excavated, and the badger excluded under licence from the National Parks & Wildlife Service (NPWS).

The potential direct and indirect effects on biodiversity are related to effects on aquatic flora and fauna and their habitats due to effects on water quality (water chemistry, temperature), disturbance to fauna (mammals and birds) due to noise emissions, and effects on habitats due to air emissions (NO_x and nitrogen deposition). The effects identified and described above have been assessed in the following sections of this report:

- Emissions to air;
- Storm water discharges;
- Noise;
- Prevention of accidents; and
- Appropriate Assessment

There are no natural watercourses within the installation boundary, with the closest watercourse being the Ballycoolen Stream (Water Framework Directive Code: IE_EA_09T011000) c. 1km south of the installation. The storm water discharge to water is a combination of stormwater runoff from hardstanding areas, roofs, and other impermeable surfaces and cooling water (refer to the 'Storm water discharges' sections of this report).

The 'emissions to air' section of this report addresses air emissions and includes air dispersion modelling, including potential impacts on vegetation. The effects on biodiversity relating to NO_X emissions from the operation of the generators are identified, described and assessed. Given the distance to the nearest ecological sensitive receptor(3kms), there is no potential for significant impacts to vegetation as a result of emissions to air from the installation. Noise emissions from the operation of the activity are assessed in the 'noise' section of this report. There is no potential for significant effects on biodiversity due to air or noise emissions.

There is also the potential for accidental emissions to the environment, due to fire, leaks or spillages. Accidental emissions to air, water or ground could occur in the event of a spill of chemicals, fuels, oils/lubricants, or due to a fire causing air pollution or soil, groundwater or surface water contamination. These aspects are addressed in 'Prevention of Accidents' section of this report.

Cumulative effects of the activity in relation to biodiversity have been assessed and it is considered that there is not likely to be a significant cumulative effect from the activity and other activities/developments. There are no likely significant direct, indirect or cumulative effects identified.

Mitigation and Monitoring
Mitigation measures and monitoring in relation to biodiversity are detailed in the following sections of this report:

- Emissions to air;
- Storm water discharges;
- Noise;
- Prevention of accidents; and
- Appropriate Assessment.

Conclusions
I have examined all the information on biodiversity, provided by the applicant, any information received through consultations, written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects in terms of biodiversity.

15.4.3 Land and Soil

Identification, Description and Assessment of Effects
Land and soil are addressed in the EIA documentation received from the applicant. A description of the location, area and land use, including details of the soil type and bedrock geology are provided.

Prior to the development of the site it was previously used for arable crops which had been left fallow for a number of years before development. Much of the surrounding land has been developed mainly for industrial, commercial and retail use (to the east and south) and residential (to the west).

The soil type covering the site is classified as BminDW – Basic Deep Well Drained Mineral (grey brown podzolics, brown earths) and BminPD - Basic Deep Poorly Drained Mineral (Surface water Gleys, Ground water Gleys) according to EPA Maps. The topography is relatively consistent and flat across the site (approximately +85 mAOD) with the land surface gently sloping from south to north.

A site investigation was undertaken on behalf of the applicant as part of an initial due diligence assessment. Details are provided in 'Cessation of Activity' section of this report. Samples from two boreholes exceeded the groundwater threshold value for nitrate specified in the European Communities Environmental Objectives (Groundwater) Regulations (S.I. 9/2010) as amended. This was attributed to the historical agricultural use of the site. There was no evidence of any historical industrial contamination at the installation.

The potential direct and indirect effects on land and soil are associated with emissions to air, emissions to water and accidental emissions. Should emissions cause an exceedance of environmental quality standards this could have implications for land and soil. The effects identified and described above have been assessed in the following sections of this report:

- Storm water discharges;
- Prevention of accidents; and
- Cessation of activity.

There is also the potential for accidental emissions to the environment due to fire, leaks or spillages. Accidental emissions to air, water or ground could occur in the event of a spill of chemicals, fuels, oils/lubricants, or due to a fire causing air pollution or soil, groundwater or surface water contamination. These aspects are addressed in the 'Prevention of Accidents' and 'Cessation of Activity' sections of this report

Cumulative effects of the activity in relation to land and soil have been assessed and it is considered that there is not likely to be a significant cumulative effect from the activity and other activities/developments. There are no likely significant direct, indirect or cumulative effects identified.

Mitigation and Monitoring
Mitigation measures and monitoring in relation to land and soil are detailed in the following sections of this report:

- Storm water discharges;
- Prevention of accidents; and
- Cessation of activity.

Conclusion
I have examined all the information on land and soil, provided by the applicant, any information received through consultations, written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects on land and soil.

15.4.4 Water (including Waste Water, Emissions to Sewer, Storm Water, Emissions to Ground)

Identification, Description and Assessment of Effects

Water is addressed in in the EIA documentation received from the applicant. There are no natural watercourses within the installation boundary. The Groundwater Body (GWB) underlying the site is the Dublin GWB (EU Groundwater Body Code: IE_EA_G_008). Currently, the EPA classifies the Dublin GWB as having 'Good Status' (based on quality data for the period 2016-2021).

The potential direct and indirect effects on water relate to cooling water going to the storm water network and accidental emissions. Should the emissions cause an exceedance of water quality standards in the receiving water, this could have potential effects on water quality, aquatic biodiversity and human health. The effects identified and described above have been assessed in the following section of this report:

- Storm water discharges;
- Waste generation;
- Prevention of accidents; and
- Cessation of activity.

All storm water (which includes residual cooling water associated with the evaporative cooling process) will be diverted to the onsite attenuation ponds prior to discharge. The discharge to water is a combination of stormwater runoff from hardstanding areas, roofs, and other impermeable surfaces and cooling water. This will discharge at one location (SW1) to the storm water network via attenuation ponds to the Ballycoolen Stream (Water Framework Directive (WFD) Code: IE_EA_09T011000), which ultimately connects to the River Tolka and Dublin Bay and has a WFD status of poor for the period 2016 - 2021 with urban run-off highlighted as a pressure. It is not considered that this storm water discharge is likely to have a significant effect on the receiving water.

There are no process emissions to sewer and there are no direct emissions to ground or groundwater.

There is the potential for accidental emissions to surface water or groundwater in the event of a fuel or chemical spill as a result of bund failure or fire with the potential to affect surface water/groundwater quality as well as aquatic habitats and species. However, the likelihood of accidental emissions to water is considered low in light of the measures outlined in the 'Prevention of Accidents' section above and in light of the conditions in the RD. This is addressed in 'Prevention of Accidents' section of this report.

Cumulative effects of the activity in relation to water have been assessed and it is considered that there is not likely to be a significant cumulative effect from the activity and other activities/developments. There are no likely significant direct, indirect or cumulative effects identified.

Mitigation and Monitoring

Mitigation measures and monitoring in relation to water are detailed in the following sections of this report:

- Storm water discharges;
- Waste generation;
- Prevention of accidents; and
- Cessation of activity.

Conclusions
I have examined all the information on water (including Waste Water, Emissions to Sewer, Storm Water, Emissions to Ground etc) provided by the applicant, any information received through consultations, written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects on water.

15.4.5 **Noise and Vibration**

Identification, Description and Assessment of Effects
Noise and vibration are addressed in the EIA documentation received from the applicant. The installation is located within an industrial park and the lands surrounding the installation to the east and south are mainly in industrial, commercial and retail use. The closest residential properties are located c. 50 m west of the site boundary in a large residential development. A hotel is located c. 110 m north of the site boundary. The potential direct and indirect effects of noise associated with the operation of the activity are from the operation of plant such as the air handling units and the generators. Noise arising from the installation could have the potential to cause nuisance for those living near the activity or to affect noise sensitive species. The effects have been assessed in the noise section of this report. Vibration due to the operation of the generators and air handling units are considered not likely to have a significant effect on sensitive receptors.

The applicant has carried out noise modelling to predict impacts of noise sources from the installation. Modelling was based on the application of different noise limits dependent on time of day (daytime, evening or night-time limits). Modelling demonstrates compliance with the standard daytime limits, but also demonstrates that the applicant may not be able to comply with the standard evening and night-time limits at times when the generators are operating and therefore there is potential for significant effects in relation to noise when all generators are in operation. The RD requires the applicant to prepare and submit a Noise Management Plan in order to meet the noise limits set out in the RD. The effects have been assessed in the following section of this report:

- Noise.

There is the potential for accidental noise and vibration emissions due to an explosion causing loud noise and vibration. This is addressed in 'Prevention of Accidents' section of this report.

Cumulative effects of the activity in relation to noise and vibration have been assessed and it is considered that there is the potential for significant cumulative effects relating to noise when the generators are in operation, taking into account the location of the nearest residential dwellings.

Mitigation and Monitoring
Mitigation measures and monitoring in relation to noise are detailed in the following section of this report:

- Noise.

Conclusions
I have examined all the information on noise and vibration provided by the applicant, any information received through consultations, written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects in terms of noise and vibration.

15.4.6 Air (including Dust and Odour)

Identification, Description and Assessment of Effects
Air is addressed in the EIA documentation received from the applicant. The potential direct and indirect effects on air are associated with combustion emissions (oxides of Nitrogen (NO_x), oxides of Sulphur (SOx), Carbon Monoxide (CO) and particulate matter) from the generator stacks due to the combustion of diesel. The purpose of the generators is to provide power to the data storage installation in the event of an interruption of the national grid power supply to the installation.

Should emissions cause an exceedance of air quality standards this could have implications for air quality, population and human health and biodiversity within and beyond the installation boundary. General site dust and odour emissions have the potential to impact human health and cause nuisance. However, the activity will not be a significant source of odour or dust. The applicant carried out air dispersion modelling to predict the impact of emissions from the generation plant on ambient air concentrations. The dispersion modelling submitted assessed potential effects on air quality arising from the installation alone and as part of a cumulative assessment. The modelling was considered sufficiently detailed and conservative to assess the impact of the main emissions to air. The results were compared to relevant air quality standards for the protection of human health and for the protection of vegetation/habitats. It is considered that there is a potential for a significant cumulative effect from the activity alone and cumulatively with other activities/developments in relation to human health. In relation to vegetation/habitats, given the distance to the nearest ecological sensitive receptor(3kms), there is no potential for significant impacts to vegetation as a result of emissions to air from the installation.

The effects identified and described above have been assessed in the following section of this report:

- Emissions to Air

There is also the potential for accidental emissions to the environment. Accidental emissions to air could occur in the event of a fire or explosion causing air pollution, including dust and odour. This is addressed in the 'Prevention of Accidents' section of this report.

It is considered that there is a potential for a significant cumulative effect in relation to air from the activity and other activities/developments. See the 'Emissions to Air' section of this report. In addition to imposing operating restrictions on the on-site generators; the RD requires an Ambient Air Quality Monitoring Programme, establishing ambient air quality trigger levels and an associated response programme to ensure there is no exceedance of Air Quality Standards.

Mitigation and Monitoring
Mitigation measures and monitoring in relation to air are detailed in the following section of this report:

- Emissions to air

Conclusions
I have examined all the information on Air (including Dust and Odour) provided by the applicant, any information received through consultations, written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects in terms of Air (including Dust and Odour).

15.4.7 **Climate**

Identification, Description and Assessment of Effects
The EIA documentation received from the applicant addresses Climatic Factors. Climate change is a significant global issue which affects weather and environmental conditions (air, water, land and soil) which consequently affects population and human health, material assets, cultural heritage, the landscape and biodiversity. Climate change is caused by warming of the climate system by enhanced levels of atmospheric greenhouse gases (GHG) due to human activities. GHG's are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), nitrogen trifluoride (NF_3) and sulphur hexafluoride (SF_6).

The Climate Action and Low Carbon Development (Amendment) Act 2021 set legally binding targets of a 51% reduction of greenhouse gas emissions by 2030 compared to 2018 levels, and net-zero emissions by 2050. The Climate Action Plan 2023[4] sets out a proposed pathway to meet the emission reduction target for the energy sector through a more rapid build out of renewables (wind and solar power), increased electricity storage, and the deployment of zero-emissions gas. It states that in the short- and medium-term, new demand growth from large energy users, such as data centres, will have to be moderated to protect security of supply and ensure consistency with the carbon budget programme. Furthermore, The Government Statement on the Role of Data Centres[5] in Ireland's Enterprise Strategy recognises data centres as core digital infrastructure for both Ireland's and Europe's digital economies and for strengthening Ireland's position as a strategic international location for IT services. Government policy seeks to facilitate the 'twin transitions' of digitalisation and

[4] Climate Action Plan 2023, Changing Ireland for the Better. (**Error! Hyperlink reference not valid.**).

[5] Government Statement on the Role of Data Centres in Ireland's Enterprise Strategy, July 2022.

decarbonisation of our economy and society, and the RD has regard to the principles set out in the strategy, in particular in relation to decarbonisation and energy efficiency. Condition 7 of the RD would further support National policy to reduce the emissions from the energy sector by requiring the applicant to carry out a feasibility study of opportunities to increase the use of solar power, sustainable biofuels and other renewable energy options including energy storage. The Energy Efficiency Directive 2018/2002/EU as amended, mandates that large organisations complete energy audits. The SEAI manages and oversees compliance with Ireland's obligations under Article 8 of the EED. However, Condition 7 of the RD requires the applicant to carry out an audit of energy use and the energy efficiency of the site within one year of the date of grant of this licence, and repeat the audit at intervals as required by the Agency.

The potential direct effects on climate from the activity are from emissions from the combustion of diesel in the generators at the installation. Some F-gases are also used on site for refrigeration in the office air-cooling systems (R410A, which is a HFC gas). F-gases are controlled under the F-Gas regulations (F-Gas Regulation (EU) No 517/2014) and are not addressed in the RD. The potential indirect effects on climate are from the emissions associated with the generation of electricity taken from the national grid.

Direct effects on climate from the activity are from emissions from the combustion of diesel in the generators at the installation. The carbon dioxide (CO_2) emissions from the onsite generators are covered by the GHG permit issued by the EPA for the site (IE- GHG197-02), required by the EU Emissions Trading Scheme (ETS). The EU ETS covers emissions of CO_2 from power and heat generation. Verified CO_2 emissions from the installation were 474 tCO_2 and 363 tCO_2 for 2020 and 2021 respectively. Details of historical CO_2 emissions from the installation can be found on the European Union Transaction Log (EUROPA - Environment - Kyoto Protocol - European Union Transaction Log).

The use of the generators for up to 72 hours as proposed in the RD would be a transitional measure when there is a high risk of an outage occurring on the national grid and until such time as there is additional renewables (and flexgen as back-up) on the National Grid. There will be an ongoing requirement for testing of the individual generators, but this has been the case prior to the licence application and monitoring under the GHG Permit has shown that emissions are less than 1,000 tCO_2 per annum. Maximum emissions of CO_2 from the installation, once fully expanded, would be up to approximately 3,137 tCO_2 per annum (calculated based on the applicant's estimated maximum diesel usage of 988 tonnes per annum). To put this in context, greenhouse gas emissions from the entire energy sector in 2021 were just over 10 million tonnes of CO_2 equivalent (EPA, 2022[6]).

Indirect emissions of CO_2 may arise due to the use of electricity from the national grid, if generated from fossil fuels, which will contribute to climate change. The applicant states that the installation will consume approximately 727,080 MW hours of electricity

[6]Ireland's Provisional Greenhouse Gas Emissions 1990-2021 (EPA, 2022). (https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/EPA-Ireland%27s-Provisional-GHG-Emissions-1990-2021_July-2022v3.pdf).

per year. This equates to 252,878 tonnes of CO_2 per annum, based on an emission factor of 347.8g CO_2/kwh (SEAI 2021[7]), which is considered significant.

The 'Energy Efficiency and Resource Use' section of this report and the applicant's application documents provides information on the applicant's proposals in relation to energy efficiency.

The activity will result in a net increase in Ireland's CO_2 emissions and the impact of these direct and indirect emissions from the installation will contribute to climate change and therefore are considered significant. Furthermore, in relation to cumulative effects, it cannot be concluded that the combined greenhouse gas emissions from the installation and other sources will not have significant cumulative effects on climate.

It is considered that the likelihood of accidental emissions occurring which could affect climate is low in light of the measures outlined in the "Prevention of Accidents" section above and the proposed conditions in the RD.

The effects of emissions from the activity on climate will be mitigated as follows:

- The activity is required to operate under a greenhouse gas permit under the EU Emissions Trading System (EU ETS) Directive in accordance with the European Communities (Greenhouse Gas Emissions Trading) Regulations 2012, (S.I. 490 of 2012 and amendments). The installation operates under a GHG Emissions Permit (IE- GHG197-02). The GHG permit does not cover emissions of gases other than carbon dioxide. The GHG permit does not set a limit on the quantity of CO_2 emitted by the installation. The operator must report each year all CO_2 emitted from the activity listed in the permit and surrender sufficient emissions trading allowances to cover the emissions of the previous calendar year. The quantity of allowances made available on the market or by free allocation is controlled at EU level and is reducing each year in order to ensure that overall emissions from the ETS sector meet the EU targets on reducing greenhouse gas emissions. As this site is part of the EU ETS, the impact of carbon dioxide emissions is addressed in that market-based scheme. A local impact on air quality from CO_2 is not expected and there is therefore no CO_2 limit in the Recommended Determination.
- The RD limits the number of generators that can operate at any one time, limits the operation hours of generators and includes restrictions on testing of the generators.
- Whilst the activity requires a GHG permit, specific conditions on energy efficiency and a requirement for an energy audit within one year of the date of grant of the licence and periodically thereafter are included in Condition 7 of the RD.
- Any leakage of F-gases will be monitored and controlled under the F-Gas regulations (F-Gas Regulation (EU) No 517/2014).
- Indirect emissions arising from the use of electricity from the national grid in the installation are also covered under the EU ETS Directive. These emissions are covered under the EU ETS at the electricity generating plant, but the

[7] Conversion Factors | SEAI Statistics | SEAI (SEAI, 2022).

applicant is also required to address electricity usage as part of energy efficiency management and report on the quantity of electricity used annually.

- The RD requires the applicant to address electricity usage as part of energy efficiency management under the Schedule of Environmental Objectives and Targets (Condition 2).
- Condition 7 further requires the applicant to carry out a feasibility study of opportunities to increase the use of solar power, sustainable biofuels and other renewable energy options including energy storage, and to submit a report to the Agency within six months of the date of grant of the licence.

At a national level the direct and indirect effects of the activity on climate must be considered in the context of the wider electricity supply system. The generators are being put in place to provide capacity only in the event of a shortfall when renewable or other conventional generation is not available, or during testing. While there are national targets (as discussed above) and sectoral targets for the electricity sector it is up to the electricity market to achieve these through the use of renewables and decarbonisation of the sector in accordance with the Climate Action Plan.

Mitigation and Monitoring
As listed in bullet points above, the main mitigation measures and monitoring in relation to the effect of direct emissions on climate will be covered in the GHG permit for this installation. In addition, mitigation measures set out in the following sections of this report will also have a mitigating effect on both direct and indirect emissions:

- Emissions to Air;
- Prevention of Accidents; and
- Energy Efficiency and Resource Use.

Conclusions
I have examined all the information on climatic factors provided by the applicant, any information received through consultations, written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination/Decision. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable effects in terms of climatic factors.

15.4.8 Material Assets, Cultural Heritage and the Landscape

15.4.8.1 Material Assets (including resource use and waste generation)

Identification, Description and Assessment of Effects
The EIA documentation received from the applicant addresses material assets, and includes information on traffic, transport, infrastructure and resources (both natural and others), such as energy and water and waste generation. The potential direct and indirect effects on material assets are the consumption of natural resources, in particular diesel and water. The estimated quantities of diesel and water to be used are provided in the 'Energy Efficiency and Resource Use' section of this report. The generators will operate solely on diesel and only during the circumstances outlined earlier in this report (i.e. loss of power supply/temporary grid blackout or testing

scenarios), and the diesel is stored onsite. Usage will be dictated by the frequency of occurrence of these scenarios. The activity will also generate a certain amount of waste material and the potential amounts generated are listed in the licence application.

The use of natural resources by the activity and the generation of wastes will not have significant effects in terms of material assets.

The effects identified and described above have been assessed in the following sections of this report:

- Waste Generation;
- Energy Efficiency and Resource Use; and
- Prevention of Accidents.

No significant cumulative effects on material assets have been identified.

Material assets such as roads and traffic and built services are dealt with in the decision of the Planning Authority (Fingal County Council) and An Bord Pleanála to grant permission for the development. The Planning Authority and An Bord Pleanála have considered the effects to be acceptable.

Therefore, there are no likely significant direct, indirect or cumulative effects identified.

Mitigation and Monitoring
Mitigation measures and monitoring in relation to material assets are detailed in the following sections of the licence assessment part of this report:

- Waste Generation;
- Energy Efficiency and Resource Use; and
- Prevention of Accidents.

Material Assets Conclusions
I have examined all the information on Material Assets provided by the applicant, any information received through consultations, written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects in terms of Material Assets.

An Bord Pleanála (PL06F.248544) has also identified, described and assessed the likely significant direct and indirect effects of the development on material assets concluding that '*I am satisfied that the proposed development, alone or taken cumulatively with the grid and fibre connections, would not have any unacceptable direct or indirect significant impacts in terms of material assets comprising electricity infrastructure.*'.

Fingal County Council (FW19A/0087) has also identified, described and assessed the likely significant direct and indirect effects of the development on material assets concluding that '*In terms of residual impacts the proposed development entails significant power and water usage however the existing service providers have confirmed the availability of supply and there will therefore be no significant impact on material assets to the wider economy. The findings are considered to be acceptable.*'.

15.4.8.2 Cultural Heritage

Identification, Description and Assessment of Effects

The potential direct and indirect effects on cultural heritage are addressed in the EIA documentation received from the applicant. Any loss of archaeological or architectural heritage could impact negatively on human beings. These matters are dealt with in the decision of the planning authority (Fingal County Council) and An Bord Pleanála to grant planning permission for the developments on site and has considered the effects to be acceptable.

There is no evidence that the site is of any archaeological or cultural significance and there are no recorded monuments or buildings or sites of cultural heritage on site. The nearest is Buzzardstown Graveyard c.430m to the south.

It is very difficult to envisage any pathway by which emissions from the operation of the activity could impact any feature which might be present.

No significant cumulative effects on the cultural heritage have been identified. Therefore, there are no likely significant direct, indirect or cumulative effects identified.

Mitigation and Monitoring
There are no specific mitigation measures or monitoring proposed in the RD.

Cultural Heritage Conclusions
An Bord Pleanála (PL06F.248544) has identified, described and assessed the likely significant direct and indirect effects of the development on cultural heritage concluding that *'I am satisfied that the proposed development, alone and taken cumulatively with the grid and fibre connections, would not have any unacceptable direct or indirect impacts in terms of cultural heritage, subject to the mitigation measures which form part of the proposed scheme.'*

Fingal County Council (FW19A/0087) has also identified, described and assessed the likely significant direct and indirect effects of the development on cultural heritage concluding that `*Predicted Impacts during the construction Phase include a threat to unrecorded, buried archaeological sites or features during ground disturbance works (provision of access roads and service trenches), and that features of significance will be uncovered during excavations. No potential impacts are identified at this moment during the operational phase as it is anticipated that issues of archaeological, architectural and cultural heritage interest will have been resolved prior to or during the construction phase.*

Mitigation measures proposed include pre-development assessment undertaken by licenced qualified practitioner; with test-trench assessment will be undertaken by a suitable qualified archaeologist; and the monitoring of ground disturbance works.

In terms of residual impacts it is not anticipated that there will be any residual impacts on archaeological features or sites encountered. `

The Recommended Determination does not propose to include any additional mitigation measures in relation to cultural heritage.

15.4.8.3 The Landscape

Identification, Description and Assessment of Effects
The potential direct and indirect effects on the landscape are addressed in the EIA documentation received from the applicant. The potential direct and indirect effects on the landscape are visual impacts, including the data centre buildings, the office block, generators including stacks, as well as associated infrastructure (roads, fencing, lighting, fuel stores and landscaping). Any disturbance of the landscape has the potential to impact on human beings and their enjoyment of the surrounding area due to visual impacts. These matters are dealt with in the decision of the planning authority (Fingal County Council) and An Bord Pleanála to grant planning permission for the developments on site and it has considered the effects to be acceptable.

The installation is located within an industrial area zoned for development and the lands surrounding the installation to the east and south are mainly in commercial, industrial and retail uses. The closest residential properties are located c. 50m west of the site boundary (across the R121) in a large residential development. Emissions from the operation of the activity will not affect the landscape of the area.

No significant cumulative effects on the landscape have been identified

Therefore, there are no likely significant direct, indirect or cumulative effects identified.

Mitigation and Monitoring
There are no specific mitigation measures or monitoring proposed in the RD.

The Landscape Conclusions
An Bord Pleanála (PL06F.248544) has identified, described and assessed the likely significant direct and indirect effects of the development on the landscape concluding that '*I am satisfied that the proposed development, alone or taken cumulatively with the grid and fibre connections, would not have any unacceptable direct or indirect impacts in terms of landscape, subject to the mitigation measures which form part of the proposed scheme.*'

Fingal County Council (FW19A/0087) has also identified, described and assessed the likely significant direct and indirect effects of the development on the landscape concluding that '*No residual landscape and visual impacts will arise. The lands are zoned for development as proposed and the scheme provides for an appropriate response to the permitted land use.*'

The Recommended Determination does not propose to include any additional mitigation measures in relation to landscape.

Overall Conclusions for Material Assets, Cultural Heritage and the Landscape
I have examined all the information on material assets, cultural heritage and the landscape provided by the applicant, any information received through consultations, written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects in terms of Material Assets, Cultural Heritage and the Landscape.

15.4.9 **Interactions Between Environmental Factors**

Interactions of effects are considered in the EIA documentation received from the applicant. The most significant interactions between the factors as a result of the activity are summarised below:

Interaction between Population and Human Health, Biodiversity, Air Quality, Water, Land, Soil, Material Assets and Climate: the activity will generate air pollutants that could have an effect on human health, biodiversity including habitats and vegetation and all interrelated factors.

Interaction between Population and Human Health, Biodiversity and Noise: the activity has the potential to generate noise that could disturb fauna and have adverse impacts on human health.

Interaction between Climate and all the other environmental factors: the activity will generate GHGs, as discussed in the 'climate' section of this report. The cumulative effects of GHG emissions from the installation will contribute to climate change, which in turn will have significant effects on all interrelated environmental factors. Such effects are addressed in the 'climate' section of this report.

As demonstrated such effects are not considered to be unacceptable.

Conclusions
I have considered the interaction between population and human health, biodiversity, land, soil, water, air, climate, landscape, material assets, cultural heritage and the interaction of the likely effects identified throughout this report. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects in terms of the interaction between the foregoing environmental factors.

15.4.10 **Vulnerability of the Project to Risks of Major Accidents and or Disasters**

The EIA documentation received from the applicant describes the expected effects deriving from the vulnerability of the activity to risks of major accidents and/or disasters that are relevant to the activity. Major accidents and/or disasters assessed by the applicant include: external natural disasters such as landslides, seismic activity, volcanic activity and sea level rise / flood risk. The potential for major accidents to occur at the data storage installation has also been considered with reference to Seveso Directive (2012/18/EU) and the Chemical Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015 (S.I. 209 of 2015) (COMAH Regulations). Fire and fuel spills have also been addressed in the documentation.

External natural disasters such as those listed above are not likely to occur at the installation due to the topography and location. The applicant states that a Stage 1 Flood Risk Assessment was carried out and it was concluded that the development is not at risk of flooding, nor is it expected that the installation would adversely impact on flood risk for other neighbouring properties.

Under the COMAH Regulations the quantity of diesel which qualifies a given site for the application of lower-tier and upper-tier requirements is 2,500 tonnes and 25,000 tonnes respectively. Therefore, the quantity of diesel stored (880 tonnes) at the site does not exceed these thresholds.

It is further noted, under the COMAH Regulations, that the installation is not located within the consultation distance of any COMAH site that is notified to the HSA.

The Inspector's assessment is dealt with in the 'Prevention of Accidents' section of this report.

Mitigation and Monitoring
The mitigation and monitoring measures in relation to the vulnerability of the project to risks of major accidents and disasters specified in the RD are outlined in the 'Prevention of accidents' section of this report.

Conclusions
I have examined all the information on major accidents and/or disasters provided by the applicant, any information received through consultations, written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects as a result of major accidents and/or disasters.

15.5 Reasoned Conclusion on the significant effects

Having regard to the examination of environmental information contained above, and in particular to the content of the EIA documentation and supplementary information provided by the applicant, and the submissions from third parties in the course of the application, it is considered that the potential significant direct and indirect effects of the activity on the environment are as follows:

- Effects on air quality due to emissions to air from generators through combustion of diesel;
- Noise emissions associated with operation of the installation;
- Accidental emissions to air, surface water, ground or groundwater from fire, explosion, leaks or spillages;
- Storm water discharges (including evaporative cooling water) to the Ballycoolen Stream; and
- Effects on climate due to the release of CO_2 emissions to air.

Having assessed those potential effects, I have concluded as follows:

- Emissions to air will be mitigated by imposing operating restrictions on the generators; through the requirement to establish an Ambient Air Quality Monitoring Programme, which includes establishing ambient air quality trigger levels and an associated response programme to ensure compliance with air quality standards, and implementing other monitoring, maintenance and control measures;
- Noise emissions will be mitigated by imposing daytime, evening and night-time noise limits at noise-sensitive locations, the requirement to prepare and

implement a Noise Management Plan, and monitoring, maintenance and control measures;

- Accidental emissions to air, surface water, ground or groundwater from fire, explosion, leaks or spillages will be prevented and mitigated through accident and emergency requirements, tank, container and drum storage requirements and inspection and integrity testing of pipes, tanks and bunds;
- Storm water discharges (including evaporative cooling water) to the Ballycoolen Stream will be mitigated through the requirement for silt traps and oil separators, establishment and maintenance of trigger levels and a response programme to address exceedances and visual inspection of storm water drains; and
- Effects on climate due to release of CO_2 emissions will be mitigated through the limitations on the generators, which includes an operating hour restriction, through conditions relating to energy efficiency and alternative energy sources, and through the requirement to participate in the EU Emissions Trading System (ETS).

Having regard to the effects (and interactions) identified, described and assessed throughout this report, I consider that the monitoring, mitigation and preventative measures proposed will enable the activity to operate without causing environmental pollution, subject to compliance with the Recommended Determination. The conditions of the RD and the mitigation measures proposed will significantly reduce the likelihood of accidental emissions occurring and limit the environmental consequences of an accidental emission should one occur.

16. EPA Charges

The annual enforcement charge recommended in the RD is €5,446 which reflects the anticipated enforcement effort required and the cost of monitoring.

17. Recommendation

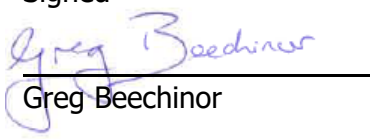
The Agency, in considering an application for a licence or the review of a licence, shall have regard to Section 83 of the EPA Act. The Agency shall not grant a licence or revised licence unless it is satisfied that emissions comply with relevant emission limit values and standards prescribed under regulation. In setting such limits and standards, the Agency must ensure they are established based on the stricter of both the limits and controls required under BAT, and those required to comply with any relevant environmental quality standard. The Agency shall perform its functions in a manner consistent with Section 15 of the Climate Action and Low Carbon Development Act 2015 as amended.

The RD specifies the necessary measures to provide that the installation shall be operated in accordance with the requirements of Section 83(5) of the EPA Act, and has regard to the AA Screening and EIA. The assessment is consistent with Section 15 of the Climate Action and Low Carbon Development Act 2015 as amended. The RD gives effect to the requirements of the EPA Act, and has regard for the submissions made.

This report was prepared by Greg Beechinor, Rachel Neeson, Niamh Connolly and Philip Stack.

I recommend that a Proposed Determination be issued subject to the conditions and for the reasons as drafted in the RD.

Signed



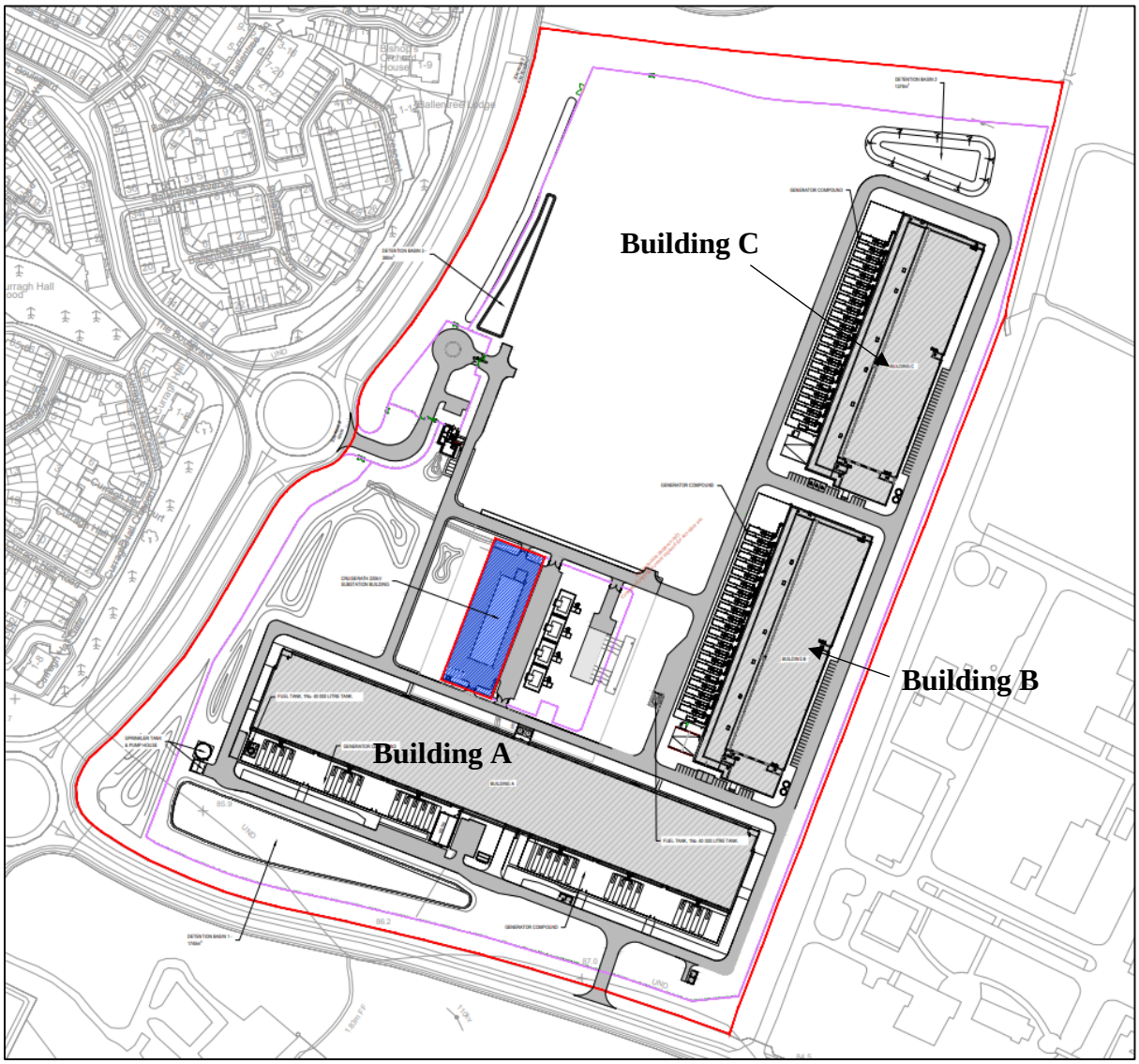
Greg Beechinor

Procedural Note

In the event that no objections are received to the Proposed Determination on the application, a licence will be granted in accordance with Section 87(4) of the EPA Act, as soon as may be after the expiration of the appropriate period.

Appendices

Appendix 1: Site Layout



Detail from the drawing titled 'Site Layout Plan', Reference 21_123H-CSE-00-XX-DR-C-0002, submitted as part of the licence application on 14 February 2023.

Appendix 2: Appropriate Assessment

List of European Sites assessed, their associated qualifying interests and conservation objectives.

Site Code	Site Name	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives
001398	Rye Water Valley/Carton SAC	**Habitats** 7220 Petrifying springs with tufa formation (*Cratoneurion*)* **Species** 1014 Narrow-mouthed Whorl Snail *(Vertigo angustior)* 1016 Desmoulin's Whorl Snail *(Vertigo moulinsiana)*	NPWS (2021) Conservation Objectives: Rye Water Valley/Carton SAC 001398. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
000205	Malahide Estuary SAC	**Habitats** 1140 Mudflats and sandflats not covered by seawater at low tide 1310 Salicornia and other annuals colonising mud and sand 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) 1410 Mediterranean salt meadows (*Juncetalia maritimi*) 2120 Shifting dunes along the shoreline with Ammophila arenaria (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)*	NPWS (2013) Conservation Objectives: Malahide Estuary SAC 000205. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
000210	South Dublin Bay SAC	**Habitats** 1140 Mudflats and sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines 1310 Salicornia and other annuals colonising mud and	NPWS (2013) Conservation Objectives: South Dublin Bay SAC 000210. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

Site Code	Site Name	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives
		sand 2110 Embryonic shifting dunes	
000206	North Dublin Bay SAC	**Habitats** 1140 Mudflats and sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines 1310 Salicornia and other annuals colonising mud and sand 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) 1410 Mediterranean salt meadows (*Juncetalia maritimi*) 2110 Embryonic shifting dunes 2120 Shifting dunes along the shoreline with Ammophila arenaria (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)* 2190 Humid dune slacks **Species** 1395 Petalwort *(Petalophyllum ralfsii)*	NPWS (2013) Conservation Objectives: North Dublin Bay SAC 000206. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
004024	South Dublin Bay and River Tolka Estuary SPA	**Birds** A162 Redshank *(Tringa totanus)* A193 Common Tern *(Sterna hirundo)* A157 Bar-tailed Godwit *(Limosa lapponica)* A130 Oystercatcher *(Haematopus ostralegus)*	NPWS (2015) Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

Site Code	Site Name	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives
		A141 Grey Plover *(Pluvialis squatarola)* A149 Dunlin *(Calidris alpina)* A137 Ringed Plover *(Charadrius hiaticula)* A194 Arctic Tern *(Sterna paradisaea)* A192 Roseate Tern *(Sterna dougallii)* A143 Knot *(Calidris canutus)* A179 Black-headed Gull *(Chroicocephalus ridibundus)* A144 Sanderling *(Calidris alba)* A046 Light-bellied Brent Goose *(Branta bernicla hrota)* **Habitats** Wetlands	
004025	Malahide Estuary SPA	**Birds** A130 Oystercatcher *(Haematopus ostralegus)* A005 Great Crested Grebe *(Podiceps cristatus)* A162 Redshank *(Tringa totanus)* A067 Goldeneye *(Bucephala clangula)* A141 Grey Plover *(Pluvialis squatarola)* A149 Dunlin *(Calidris alpina)* A046 Light-bellied Brent Goose *(Branta bernicla*	NPWS (2013) Conservation Objectives: Malahide Estuary SPA 004025. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

Site Code	Site Name	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives
		hrota) A054 Pintail *(Anas acuta)* A048 Shelduck *(Tadorna tadorna)* A069 Red-breasted Merganser *(Mergus serrator)* A143 Knot *(Calidris canutus)* A156 Black-tailed Godwit *(Limosa limosa)* A140 Golden Plover *(Pluvialis apricaria)* A157 Bar-tailed Godwit *(Limosa lapponica)* **Habitats** Wetlands	
004006	North Bull Island SPA	**Birds** A179 Black-headed Gull *(Chroicocephalus ridibundus)* A048 Shelduck *(Tadorna tadorna)* A054 Pintail *(Anas acuta)* A160 Curlew *(Numenius arquata)* A157 Bar-tailed Godwit *(Limosa lapponica)* A046 Light-bellied Brent Goose *(Branta bernicla hrota)* A056 Shoveler *(Anas clypeata)* A169 Turnstone *(Arenaria interpres)* A141 Grey Plover *(Pluvialis squatarola)* A052 Teal *(Anas crecca)* A144 Sanderling *(Calidris alba)* A130	NPWS (2015) Conservation Objectives: North Bull Island SPA 004006. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

Site Code	Site Name	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives
		Oystercatcher *(Haematopus ostralegus)* A140 Golden Plover *(Pluvialis apricaria)* A149 Dunlin *(Calidris alpina)* A156 Black-tailed Godwit *(Limosa limosa)* A162 Redshank *(Tringa totanus)* A143 Knot *(Calidris canutus)* **Habitats** Wetlands	

Appendix 3: Relevant Legislation

The following European instruments are regarded as relevant to this application assessment and have been considered in the drafting of the Recommended Determination.
Industrial Emissions Directive (IED) (2010/75/EU)
Environmental Impact Assessment (EIA) Directive (2011/92/EU as amended by 2014/52/EU)
Habitats Directive (92/43/EEC) & Birds Directive (79/409/EC)
Water Framework Directive (2000/60/EC)
Waste Framework Directive (2008/98/EC)
Dangerous Substances Directive (2006/11/EC)
Medium Combustion Plant Directive (EU) 2015/2193
Air Quality Directives (2008/50/EC and 2004/107/EC)
Seveso Directive (2012/18/EU)
Energy Efficiency Directive (2018/2002/EU)
Environmental Liability Directive (2004/35/CE)
EU Directive 199/32/EC (Relating to a reduction in the sulphur content of certain liquid fuels and amending Directive 93/12/EEC)