



LON1 Phase B Environmental Permit Variation Application

Environmental Risk Assessment, LON1 Phase B

NTT Global Data Centers EMEA Limited

3 Centro Boundary Way, Hemel Hempstead, Herts, HP2 7SU

Prepared by:

SLR Consulting Limited

Floor 3, 86 Princess Street, Manchester, M1 6NG

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1.0 Introduction

SLR Consulting Limited (SLR) has been instructed by NTT Global Data Centers EMEA Limited (NTT) (via RED Engineering Design Limited) to prepare an Environmental Risk Assessment (ERA) in support of an application to vary the Environmental Permit (EP) (EP reference EPR/CP3902LV) for the NTT Global Data Centers EMEA Limited owned data centre facility (LON1), which is operated by NTT Global Data Centers EMEA UK Limited (NTT). LON1 is located on Yewtree Avenue, Dagenham, UK, RM10 7FZ.

The LON1 site has been developed with the LON1A data centre (which is subject to EP reference EPR/CP3902LV); the site is now being expanded to include a new data centre building known as LON1B. This ERA, in support of the EP variation application, relates to both LON1A and LON1B i.e. the Installation.

1.1 Methodology

This ERA is an assessment of the risks to the environment and to human health that may be associated with the proposed operations at the Installation.

This ERA has been undertaken in accordance with the Environment Agency (EA) guidance '*Risk Assessments for your Environmental Permit*¹' dated August 2022. The aim of the ERA is to identify any potential significant risks and demonstrate that the risk of pollution or harm will be acceptable by taking the appropriate measures to manage these risks.

This ERA uses the following approach for identifying and assessing the risks from the Installation:

Step 1 Identify risks and sources of risk from your activity.

Step 2 Where risks are identified from Step 1 then identify the receptors that could be affected.

Step 3 Identify potential pathways between the sources of risk and receptors.

Step 4 Assess the risks and check that they are acceptable. Justify appropriate measures to control your risks, if necessary.

Step 5 Submit your assessment.

Section 2.0 of this document is a screening step to identify the risks requiring consideration as part of this assessment.

Section 3.0 identifies people or parts of the environment that could be harmed (at potentially significant risk) by the activity. The ERA for an EP variation requires all receptors that are near a site and could reasonably be affected by the activities to be identified and considered as part of the assessment.

For the purposes of this ERA the following distances (from the EP boundary) have been used to identify potentially sensitive receptors for the data centre site:

- A 10km radius has been adopted in reviewing potentially sensitive receptors of international ecological importance;
- A 2km radius has been adopted in reviewing potentially sensitive receptors of national cultural and ecological importance; and

¹ <https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit>



- A radius of 500m has been adopted for all other potentially sensitive receptors (for example residential, commercial, industrial, agricultural and surface water receptors).

Section 4.0 of this document presents the environmental risk assessment and demonstrates that any risks of pollution or harm will be mitigated to manage the risk.

2.0 Identifying The Risks

Step 2 of the ERA is a screening step to identify the potential risks to the environment from the Installation (LON1A and LON1B). The EA's guidance requires the following to be considered as 'Risks from your site':

- Any discharge, for example sewage or trade effluent to surface or groundwater;
- Accidents;
- Odour;
- Noise and vibration;
- Uncontrolled or unintended ('fugitive') emissions, including dust, litter, pests and pollutants that should not be in the discharge;
- Visible emissions, for example smoke or visible plumes;
- Release of bioaerosols.
- Further, for Installation and waste EP applications the EA guidance states that assessment of the following additional aspects is required, where applicable:
 - Risks from air emissions;
 - Risks to groundwater;
 - Global Warming Impact;
 - Risk to groundwater from landfill leachate;
 - Risks to surface water from hazardous pollutants;
 - Risks to surface water from sanitary and other pollutants; and
 - Installations and waste operations must also decide how to treat, recycle or dispose of waste.

The Installation will not produce any process effluent or release bioaerosols, and there will be no point source emissions to groundwater, surface water or land from the application activities.

There will be several point source emissions to air (via stacks) associated with the combustion of fuel by each emergency stand-by generator (SBG); LON1A SBGs are currently fuelled by diesel and the LON1B SBGs will in the main be fuelled by hydrogenated vegetable oil (HVO) but may revert to diesel if HVO is not available. There is the potential for visible emissions from these stacks.

Therefore, only the following potential impacts are considered further in this risk assessment:

- Point source emissions to air;
- Accidents;
- Noise & vibration;
- Visible emissions, for example smoke or visible plumes;
- Fugitive emissions; and



- Global warming potential.

3.0 The Site

The Site, centred at NGR TQ 50944 85355, is located at Yewtree Avenue, Dagenham, RM10 7FZ. The Site location, local receptors and environmental site setting are shown in drawings 001, 002, 003, 04A and 04B as submitted with the EP variation application.

3.1 Land Uses

The immediate surrounding area is predominantly open land to the north, east and south, with mixed industrial and commercial developments to the west. A summary of the immediate environmental site setting is provided in Table 3-1.

Table 3-1 Surrounding Land Uses

Boundary	Closest Distance (m)	Description
North	50	Sports fields, open land and Eastbrookend Country Park, and lakes.
East	Adjacent	A lake, The Chase Nature Reserve, Beam River and residential properties.
South	100	Railway line, Beam Valley Country Park, lake and residential properties.
West	Adjacent	Mixed industrial and commercial properties and residential properties.

The immediate surrounding land uses are described in detail below.

3.1.1 Industrial and Commercial

The site is adjacent to Londoneast-UK Business & Technical Park on its western edge. Commercial and industrial buildings adjacent to the site include BD Group to the west, Arcus Academy to the northwest and Phoenix ME Project Hollywood to the south.

3.1.2 Local Transport Network

Various roads are located beyond the site to the north, east, south and west. On the site's western edge is Garden Wharf Road and Baytree Way which provides access to the site. Further to the west of the site is the closest 'A' road, Rainham Road South, approximately 625m.

A railway line is adjacent to the south of the site.

3.1.3 Woodland and Open Land

The closest area of woodland and open areas of land are adjacent to the north and northeast of the site associated with The Chase Local Nature Reserve, and to the south, beyond the railway line, associated with Beam Valley Country Park (approximately 72m away from the site).



3.1.4 Residential

Residential properties are located to the south and west of the site, and further afield to the east beyond The Chase Nature Reserve. The nearest residential properties to the site are located approximately 335m to the south and 450m to the west.

3.1.5 Recreational

There are numerous recreational areas within 500m of the site, the nearest being playing fields and Eastbrookend Country Park approximately 10m to the north of the site and The Chase Nature Reserve is adjacent to the north and east of the site. Goresbrook Cricket Club is located approximately 330m northwest of the site.

To the south is Beam Valley Country Park, which lies beyond the railway, approximately 160m from the site.

3.1.6 Educational

The closest educational facilities are Arcus Academy training centre approximately 40m west. Northwest of the site is the Person-Environment-Activity Research Laboratory (PEARL), a part of University College London, approximately 335m away. Further afield, approximately 480m south of the site is John Perry Nursery School.

3.1.7 Surface Water Features

A search of the Multi-Agency Geographical Information for the Countryside (MAGIC) map revealed that drains are adjacent to the site's northern border. The nearest surface water feature is a pond 15m east, Tom Thumb Lake 200m north, Bardag Lake 230m north-east and Beam Valley Country Park Lake approximately 160m south.

3.2 Geology, Hydrogeology and Flooding

3.2.1 Geology

British Geological Survey (BGS) data indicates that the site is underlain by a bedrock of London Clay Formation Clay, Silt and Sand, formed in the Palaeogene period approximately 48-59 million years ago in a marine environment. Underlying this is the Lambeth Group (sand, silt and clay) and then the Thanet Formation (sand).

The BGS also records superficial deposits overlying the bedrock comprising Hackney Gravel Member Sand and Gravel, formed in the quaternary period up to 2 million years ago in a fluvial environment.

3.2.2 Hydrogeology

MAGIC revealed that the bedrock (London Clay) beneath the site is classified as unproductive strata, defined as 'having low permeability and negligible significance for water supply or river base flow'.

The superficial deposits are classified as a Secondary A aquifer, which is defined as 'permeable layers capable of supporting water supplies at a local rather than a strategic scale'².

The closest Source Protection Zone is approximately 200m southwest of the site, classified as a Zone II – Outer Protection Zone.

² <http://apps.environment-agency.gov.uk/wiyby/117020.aspx>.



3.2.3 Hydrology

According to MAGIC, the groundwater vulnerability at the site is classified as Medium-Low risk. This means that there is a medium-low risk of a pollutant reaching the groundwater below the site.

3.2.4 Flooding

The Flood Map for Planning³ identifies the site as lying within a Flood Zone 1, defined by the website as having a less than 1 in 1,000 annual probabilities of river or sea flooding.

The Long-Term Flood Risk⁴ assessment identifies the Site as being 'low risk' from flooding from rivers and surface water.

3.3 Ecology and Cultural Heritage

3.3.1 European/International Sites

A review of MAGIC confirmed that there are none of the following within a 10km radius of the site:

- Ramsar Sites;
- Special Areas of Conservation; and
- Special Protection Areas.

3.3.2 National Ecological Sites

There are numerous national sites of ecological importance located within 2km of the site boundary. These sites are shown on drawings 004A Local Receptors and Natural and Cultural Heritage and include:

Local Nature Reserves (LNR):

- Beam Valley LNR, approximately 30m south;
- The Chase LNR, approximately 200m east;
- Eastbrookend Country Park LNR, approximately 200m north;
- Dagenham Village Churchyard LNR, approximately 1,115m southwest; and
- Ingrebourne Valley LNR, approximately 1,930m southeast.

Local Wildlife Sites (LWS):

- Beam Valley LWS, approximately 30m south;
- The Chase and Eastbrookend Country Park LWS, approximately 100m north;
- Mid Beam in Havering LWS, approximately 450m southeast;
- Mid Beam Valley in Dagenham and Dagenham East LWS, approximately 550m southeast.
- District Line in Havering, approximately 800m east;

³ <https://flood-map-for-planning.service.gov.uk/>

⁴ [Check the long term flood risk for an area in England - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/checklists/check-the-long-term-flood-risk-for-an-area-in-england)



- Pondfield Park and adjacent rail side LWS, approximately 1,000m west;
- Beam Valley South in Havering, approximately 1,200m south;
- Harrow Lodge Park, approximately 1,200m north-east;
- St Peter's and St Paul's Churchyard, Dagenham approximately 1,200m south-west;
- Beam Valley South in Dagenham and the Wantz Stream LWS, approximately 1,600m south-west; and
- Hornchurch Country Park, approximately 2,000m south-east.

Searches on the MAGIC map confirmed none of the following are present within a 2km radius of the site:

- National Nature Reserves;
- Areas of Outstanding Natural Beauty;
- Sites of Special Scientific Interest;
- Biosphere Reserves; and
- Ancient Woodland.

3.3.3 Priority Habitats (England only)

Priority habitats are 'habitats of principle importance for the conservation of wildlife in England' and include:

- protected or priority species;
- nationally and internationally protected species; and
- species of principle importance for conservation of wildlife in England.

No priority habitats or priority/protected species within 2km of the site have been identified.

3.4 Cultural and Heritage

3.4.1 Listed Buildings

There are several listed buildings (Grade II or II*) within a 2km radius of the site to the north, east, south and west. A grade II listed building called Canteen at Head Office of Rhone Poulenc Limited is the nearest located 230m to the west. The closest Grade II* listed building is 710m south-east of the site known as Bretons. All listed buildings within 2km of the site are illustrated on Drawing 004A Local Receptors.

Searches on the MAGIC map confirmed that none of the following are present within a 2km radius of the site:

- Registered Parks and Gardens;
- Registered Battlefields;
- World Heritage Sites; and
- Scheduled Monuments.

A summary of the identified receptors is provided in table 3-2 below.



Table 3-2: Identified Receptors

Receptor Name	Receptor Type	Direction	Approximate Distance at Closest Point (m)
Local Receptors within 500m, as illustrated on Drawing 004A Local Receptors			
Drains	Surface Water Features	North	Adjacent
Woodland	Open Land and Woodland	North, North-east, South	Adjacent (to the North)
Londoneast-UK Business & Technical Park	Industrial and Commercial	West	Adjacent
Railway	Local Transport Network	South	Adjacent
Various Roads	Local Transport Network	North, East, South, West	Adjacent (to the West)
Playing Fields	Recreational	North	10
Beam Valley Country Park Lane	Recreational and Surface Water	South	30
Ponds	Surface Water	East	15
Arcus Academy	Educational	West	40
Open Land	Open Land and Woodland	North, East	50
J. Go Consultants Limited	Commercial	West	80
Eastbrookend Country Park	Recreational	North	200
The Chase	Recreational	East	200
Tom Thumb Lake	Surface Water	North	200
Bardag Lake	Surface Water	North-west	230
Goresbrook Cricket Club	Recreational	North-west	330
PEARL, UCL	Educational	North-west	335
Residential Properties	Residential	South	335
Wheelers Lake	Surface Water	North	400
Residential Properties	Residential	West	450



Receptor Name	Receptor Type	Direction	Approximate Distance at Closest Point (m)
Beam River	Surface Water	South-east	500
Ecological and Cultural Heritage Receptors within 2km. Also illustrated on Drawings 004A Local Receptors & 004B Natural & Cultural Heritage			
Beam Valley LNR & LWS	Local Nature Reserve & Local Wildlife Site	South	30
The Chase and Eastbrookend Country Park LWS	Local Wildlife Site	North	100
Eastbrookend Country Park LNR	Local Nature Reserve	North	200
The Chase LNR	Local Nature Reserve	East	200
Listed Buildings	Listed Buildings	North, East, South and West	230 (to the West)
Mid Beam in Havering LWS	Local Wildlife Site	South-east	450
Mid Beam Valley in Dagenham and Dagenham East LWS	Local Wildlife Site	South-east	550
District line in Havering	Local Wildlife Site	East	800
Pondfield Park and adjacent rail side LWS	Local Wildlife Site	West	1,000
Dagenham Village Churchyard LNR	Local Nature Reserve	South-west	1,115
St Peter's and St Paul's Churchyard, Dagenham LWS	Local Wildlife Site	North-east	1,200
Harrow Lodge Park	Local Wildlife Site	North-east	1,200
Beam Valley South in Havering	Local Wildlife Site	South	1,200
Beam Valley South in Dagenham and the Wantz Stream LWS	Local Wildlife Site	South-west	1,600
Ingrebourne Valley LNR	Local Nature Reserve	South-east	1,928

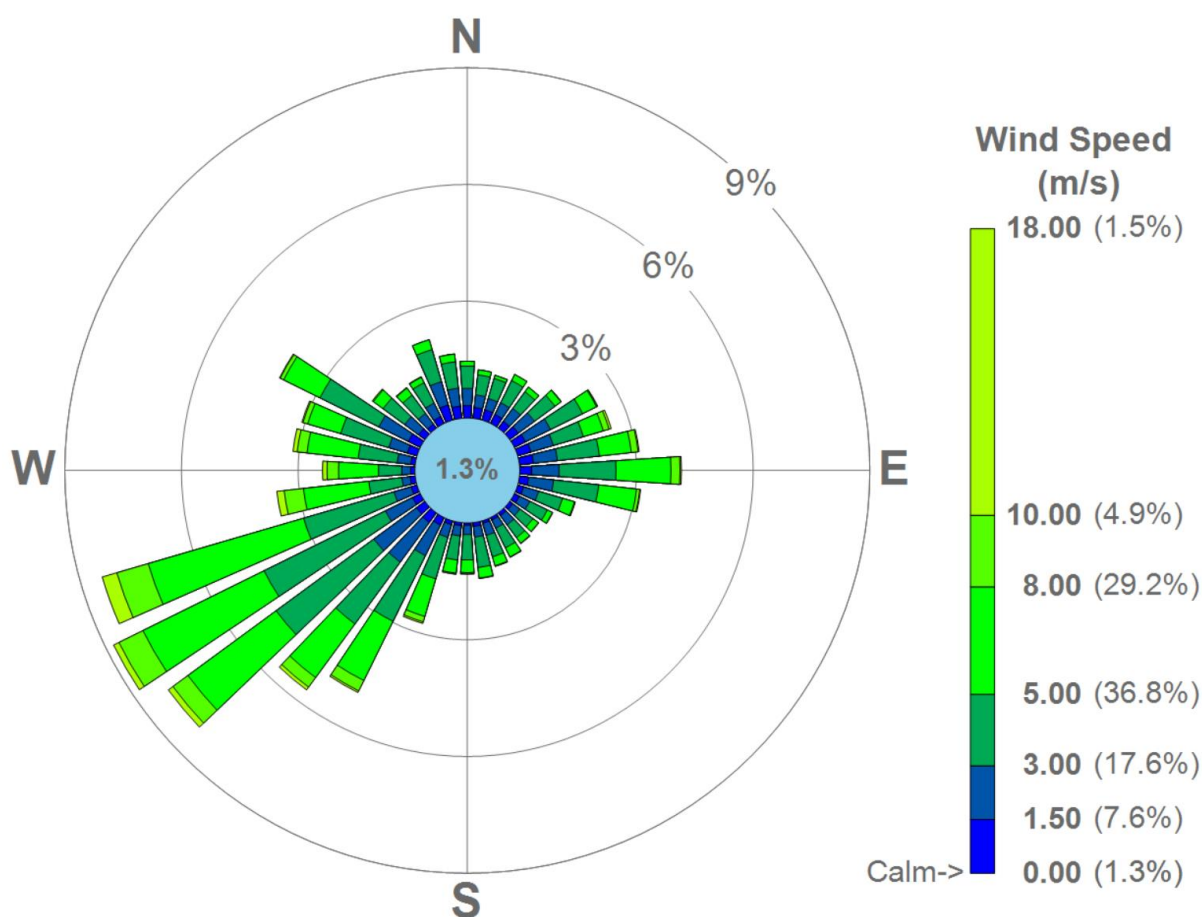


Receptor Name	Receptor Type	Direction	Approximate Distance at Closest Point (m)
Hornchurch Country Park LWS	Local Wildlife Site	South-east	2,000
Wantz Lake and Crowlands Golf Course LWS	Local Wildlife Site	North-west	2,000

3.4.2 Wind Rose

A Wind Rose for London City Airport meteorological station for the 5-year period (2015 to 2019), providing the frequency of wind speed and direction, is presented in Figure 3-3. The Wind Rose shows winds from the south-west are most frequent with winds from the north and south-east least frequent.

Figure 3-3: Wind Rose (London City Airport 2015-2019)



4.0 Environmental Risk Assessment

The following tables in this section assess the potential risk to receptors from the following hazards, taking into account the measures proposed to reduce those risks:

- Point source emissions to air;
- Accidents;
- Noise & vibration;
- Fugitive emissions; and
- Global warming potential.

The probability of exposure is the likelihood of the receptors being exposed to the hazard, and is defined as low, medium or high. These terms are qualified as follows:

- Low: exposure is unlikely, barriers in place to mitigate against exposure;
- Medium: exposure is fairly probable, barriers to exposure less controllable; and
- High: exposure is probable, direct exposure likely with few barriers.

The methodology outline in Section 1.0 of this report is the basis on which it is determined whether the proposed operations will lead to significant impacts on the surrounding environment. Where a conclusion of 'not significant' has been reached, it is proposed that the mitigation and management measures that will be in place at the Installation will be sufficient to ensure that there will be no impact at the surrounding environment.



Table 4-1 Air Risk Assessment and Management Plan

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk
<i>What has the potential to cause harm?</i>	<i>What is at risk, what do I wish to protect?</i>	<i>How can the hazard get to the receptor?</i>	<i>What measures will you take to reduce the risk? Who is responsible for what?</i>	<i>How likely is this contact?</i>	<i>What is the harm that can be caused?</i>	<i>What is the risk that still remains? The balance of probability and consequence.</i>
Emissions from SBG stacks (LON1A and LON1B)	All receptors identified in drawings 004A and 004B	Air	<p>A detailed risk assessment of the impact on air quality of emissions of combustion products from the LON1 data centre is presented in Section 6 of this EP application (410.V61547.00001_AERA). The findings of the assessment for routine testing and maintenance operations are that for planned maintenance and testing significant impacts are considered unlikely.</p> <p>In the highly unlikely event of a 72 hour 'electrical grid outage' there is potential for impacts on certain receptors. For the commissioning of the generators there is potential for impacts on certain receptors, however the commissioning will be a one-off event.</p> <p>NTT has developed an Air Quality Emergency Action Plan (AQEAP) for LON1A which details the management actions to be taken in the event of an emergency electricity outage that could result in the prolonged usage of the SBGs which could potentially result in adverse impacts on local air quality. The AQEAP will be updated to include LON1B. NTT will liaise with the Local Authority and</p>	Low due to management measures and limited operational hours	Pollution, harm to environment and human health	Low



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			<p>the Environment Agency to agree actions to be taken in the event of a prolonged outage situation.</p> <p>Planned preventative maintenance (PPM) will be in place for the maintenance and testing of the generators at LON1A and LON1B; maintenance of the SBGs will be conducted in accordance with the manufacturer requirements.</p> <p>The Site Manager will be responsible for implementing risk management measures in conjunction with the operating techniques document (Ref: 410.V61547.00001_BATOT).</p>			
Potential visible emissions from the SBG stacks typically on start-up of the SBGs.	All receptors identified in drawings 004A and 004B	Air	<p>PPM will be in place for the maintenance and testing of the SBGs; maintenance will be conducted in accordance with manufacturer requirements.</p> <p>NTT will implement visual checks for visible emissions from the SBGs during start up.</p>	Low due to maintenance measures and limited operational hours	Pollution, harm to environment and human health	Low



Table 4-2: Noise Risk Assessment and Management Plan

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk
<i>What has the potential to cause harm?</i>	<i>What is at risk, what do I wish to protect?</i>	<i>How can the hazard get to the receptor?</i>	<i>What measures will you take to reduce the risk? Who is responsible for what?</i>	<i>How likely is this contact?</i>	<i>What is the harm that can be caused?</i>	<i>What is the risk that still remains? The balance of probability and consequence.</i>
Noise from vehicular movements (fuel deliveries)	Industrial, commercial, residential and ecological receptors identified in drawings 004A and 004B	Air (propagation)	<p>The site will be operational on a 24 hour a day, seven days a week basis. On-site vehicles will be required to adhere to a considerate speed limit.</p> <p>Fuel oil (diesel and HVO) deliveries will only be carried out during daytime hours except in the case of emergency outage situations where more frequent deliveries may be required.</p> <p>Due to the distance of residential receptors, it is not expected that noise from vehicles will impact the local vicinity in a detrimental way.</p> <p>Any noise complaint received will be logged. An appropriately designated person will investigate the complaint and will take action to identify the source of the noise and remedial measures implemented where appropriate.</p> <p>Site access and operational areas will be maintained and repaired to minimise</p>	Low	Nuisance	Low



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			<p>emissions of noise due to uneven and poor surfacing.</p> <p>The Site Manager will be responsible for implementing risk management measures in conjunction with the operating techniques document (Ref: 410.V61547.00001_BATOT).</p>			
<p>Noise from operation of the SBGs and SCR abatement systems.</p>	<p>Industrial, commercial, residential and ecological receptors identified in drawings 004A and 004B</p>	<p>Air (propagation)</p>	<p>A Noise Assessment has been undertaken for the data centre (410.V61547.00001_Noise Assessment). The assessment concluded that operation of the SBGs and SCR abatement systems is unlikely to cause an adverse impact on the nearby noise-sensitive receptors.</p> <p>LON1A: The SBGs will be housed within bespoke container units fitted with noise attenuation. The LON1A Phase 2 and 3 SBGs (16 in total) will each have an SCR abatement system which will have primary and secondary silencers capable of meeting noise levels of 65dBa at 1m.</p> <p>LON1B: The SBGs will be located inside the LON1B data centre building inside generator rooms; the SBGs will not be containerised. Noise attenuation will be provided in the generator rooms to minimise the risk of noise breakout.</p> <p>All equipment will be maintained and operated in accordance with manufacturer requirements and maintained in good working order.</p> <p>Any noise complaint received will be logged. An appropriately designated person will</p>	<p>Low due to mitigation measures in place</p>	<p>Nuisance</p>	<p>Low</p>



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			<p>investigate the complaint and will take action to identify the source of the noise and remedial measures will be implemented where appropriate.</p> <p>The Site Manager will be responsible for implementing risk management measures in conjunction with the operating techniques document (Ref: 410.V61547.00001_ BATOT).</p>			

Table 4-3: Fugitive Emissions Risk Assessment and Management Plan

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk
<i>What has the potential to cause harm?</i>	<i>What is at risk, what do I wish to protect?</i>	<i>How can the hazard get to the receptor?</i>	<i>What measures will you take to reduce the risk? Who is responsible for what?</i>	<i>How likely is this contact?</i>	<i>What is the harm that can be caused?</i>	<i>What is the risk that still remains? The balance of probability and consequence.</i>
To Air						
Emissions during the transfer of substances in and out of	Industrial, commercial, and residential receptors	Air	Best practices will be adhered to for all fuel loading/unloading activities. Such measures will not remove potential for emissions but will limit the duration of such releases.			



What do you do that can harm and what could be harmed?		Managing the Risk	Assessing the Risk		
storage (filling and emptying). Emissions during tank breathing (LON1A and LON1B)	identified in drawings 004A and 004B	<p>Deliveries of diesel and HVO will be from operator approved suppliers and will be undertaken in accordance with delivery procedures which will be developed as part of the Environmental Management System.</p> <p>The bunds of the generator fuel tanks, and in the case of LON1B the generator room bunds, will have a monitoring system to detect any leaks, this will alarm to the building management system (BMS).</p> <p>LON1A: each SCR system enclosed unit will be accompanied with an external 2,000 litre (L) urea (AdBlue) bulk tank and 8 litre AdBlue buffer tank.</p> <p>Each 2,000L tank will be contained with a mild steel painted outer casing with a stainless-steel inner bund providing 110% containment, which will be fitted with level sensors, tank gauge and high/low level alarms. Leak detection alarms will be connected to the Electronic Control Unit (ECU) of each SCR system. The bulk tank will also be located on a bund tray which will have a 2,500L capacity. Each AdBlue bulk tank will be filled directly via the tank fill point which will be located within the bund tray; a drip tray (which will be within the bund tray) will also be provided below this fill point.</p> <p>An 8 litre AdBlue buffer tank will be located on the generator container roof. This will be in an open topped bund tray which will provide 110% containment. There will be a bund sensor in the AdBlue bund tray which will alarm on the detection of liquid in the bund tray.</p>			



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			<p>The feed and return pipework from the AdBlue bulk tank to the AdBlue buffer tank will run inside flexible plastic conduit; any leaks within this pipe-in-pipe arrangement would run back to the AdBlue bulk tank bund tray.</p> <p>LON1B: the SCR AdBlue storage tank arrangements will be located within the bunded generator rooms. Further details on the AdBlue storage arrangements will be provided by NTT once details are known.</p> <p>Deliveries of AdBlue will be from operator approved suppliers and will be undertaken in accordance with delivery procedures which will be developed as part of the Environmental Management System.</p> <p>Spill kits will be available for use in the event of an unplanned releases during delivery.</p> <p>A spill procedure will be developed for the site as part of the Environmental Management System.</p> <p>Areas where fuel is to be stored will be subject to daily visual inspections as part of daily operational activities.</p> <p>The Site Manager will be responsible for implementing risk management measures in conjunction with the operating techniques document (Ref: 410.V61547.00001_BATOT).</p>			
To Water						
Runoff from potentially contaminated	Land, groundwater	Overland	LON1A: The SBGs, SCR abatement systems and associated diesel belly tanks are housed	Low	Pollution, Harm to Environment	Low



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
areas (i.e. external areas).	See drawings 004A and 004B	percolation through the ground	<p>externally within propriety container units provided with containment.</p> <p>There is no bulk storage of fuel on site, rather each SBG is located within a dedicated propriety steel contained unit. Beneath the floor of the container units for each SBG is a belly tank, which is integral to the generator container unit, which will automatically supply diesel to the SBG. The belly tanks are provided with secondary containment (110% capacity).</p> <p>Leak/spill protection measures for the SBG unit include fill points located in lockable cabinets provided with a drip trays, tank level gauges, level alarms, pressure delivery over-fill prevention valves and leak detection alarms connected to the building management system (BMS).</p> <p>The belly tanks will be fitted with level sensors, tank gauge, high/low level alarms and leak detection alarms.</p> <p>The AdBlue bulk tank will also be located on a bund tray which will have a 2,500L capacity. The tank fill point will be located within the bund tray; a drip tray (which will be within the bund tray) will also be provided below this fill point.</p> <p>An 8 litre AdBlue buffer tank will be in an open topped bund tray which will provide 110% containment. There will be a bund sensor in the AdBlue bund tray which will alarm on the detection of liquid in the bund tray.</p> <p>Feed and return pipework from the AdBlue bulk tank to the buffer tank will run inside flexible plastic conduit; any leaks within this pipe-in-pipe</p>			



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			<p>arrangement would run back to the AdBlue bulk tank bund tray.</p> <p>LON1B: SBGs, SCR abatement systems and their associated belly tanks will be located on the ground floor of the LON1B data centre building in dedicated generator rooms. The generator rooms will be contained (110%).</p> <p>Both LON1A and LON1B will both benefit from impermeable surfacing.</p> <p>There are no bulk storage fuel tanks on site, apart from the individual SBG belly tanks.</p> <p>Leak/spill protection measures include fill points located in lockable cabinets provided with a drip trays, tank level gauges, level alarms, pressure delivery over-fill prevention valves and leak detection alarms connected to the building management system (BMS).</p> <p>The integrity of the diesel (or HVO for LON1B) and AdBlue tanks will be subject to daily visual inspection by site personnel as part of routine operations. Any defects or weaknesses spotted in a tank or containment measures will be repaired as soon as practicable.</p> <p>Surface water runoff from the area where the SBGs are to be located will be directed to the on-site surface water drainage system via a suitably sized oil interceptor which will ultimately discharge to the municipal combined sewer (this final point of discharge being located off site, specifically on the central southern boundary of the site).</p>			



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			The interceptors will be subject to regular emptying and maintenance by an appointed specialist contractor. All interceptor oil/sludge will be removed by suitably licensed contractors. No oily water will be permitted to leave the site under normal operating conditions.			

Table 4-4: Accident Risk Assessment and Management Plan

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk
<i>What has the potential to cause harm?</i>	<i>What is at risk, what do I wish to protect?</i>	<i>How can the hazard get to the receptor?</i>	<i>What measures will you take to reduce the risk? Who is responsible for what?</i>	<i>How likely is this contact?</i>	<i>What is the harm that can be caused?</i>	<i>What is the risk that still remains? The balance of probability and consequence.</i>
Leak from on-site fuel, oil and AdBlue storage	Land, groundwater See drawings 004A and 004B	Over land, Water	LON1A: SBGs and the abatement systems are housed external to the data centre building; this area benefits from concrete surfacing. The SBGs have the benefit of being containerised. The SBG belly tanks will be located within the container units and provided with suitable secondary containment. Leak/spill protection	Low	Pollution, Harm to Environment and Human Health	Low



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			<p>measures will include fill points located in lockable cabinets provided with a drip trays, tank level gauges, level alarms, pressure delivery over-fill prevention valves, leak detection alarms connected to the BMS.</p> <p>Each SCR system will have a 2,000 litre AdBlue bulk tank and 8 litre AdBlue buffer tank. The tanks will be provided with overflow and leak protection measures, and suitable containment/bunding as detailed previously.</p> <p>LON1B: SBGs and abatement systems will be located inside the LON1B data centre building in dedicated rooms; each of these rooms will be bunded (110%) and the bunds will be provided with leak detection alarms.</p> <p>The integrity of diesel (or HVO for LON1B) and AdBlue tanks will be subject to daily visual inspection by site personnel as part of standard daily operations. Any defects or weaknesses spotted in a tank or containment measures will be repaired as soon as practicable.</p> <p>The Site Manager will be responsible for implementing risk management measures in conjunction with the operating techniques document (Ref: 410.V61547.00001_BATOT).</p>			
Discharge of fuel oil or AdBlue outside bunded or kerbed area	Industrial, commercial, residential, surface water, recreational and ecological receptors identified	Over Land, Water	<p>Best practices will be adhered to for fuel and AdBlue loading activities which will limit the duration of potential emission releases.</p> <p>Deliveries of diesel (or HVO for LON1B) and AdBlue will be from operator approved suppliers and will be undertaken in accordance with delivery procedures which will be developed as</p>	Low	Pollution, Harm to Environment and Human Health	Low



What do you do that can harm and what could be harmed?		Managing the Risk	Assessing the Risk			
	in drawings 004A and 004B		<p>part of the Environmental Management System (EMS).</p> <p>Diesel/HVO fuel suppliers will be required to adhere to the current Carriage of Dangerous Goods (ADR) Regulations.</p> <p>Storage areas will be kept secured at all times.</p> <p>Operational areas, roads and external surfacing will benefit from impermeable surfacing to prevent percolation of any spilt/leaked fuel or AdBlue, or potentially contaminated runoff to soil and groundwater.</p> <p>Any spillage that does occur will be cleaned up/contained immediately using absorbent material in the spill kits which will be provided on-site. All spills will be removed from site by a suitably licensed waste contractor.</p> <p>A spill procedure will be developed for the site as part of the Environmental Management System.</p> <p>The Site Manager will be responsible for implementing risk management measures in conjunction with the Operating Techniques (Ref: 410.V61547.00001/BATOT).</p>			
Fire	Industrial, commercial, residential, surface water, recreational and ecological receptors identified in drawings 004A and 004B	Air (smoke)	<p>LON1A: The site will benefit from a fire alarm system and associated fire suppression systems inside the data centre building. The SBG container units themselves will not have fire suppression systems.</p> <p>LON1B: The SBGs and associated belly tanks will be located inside the LON1B data centre building within a dedicated generator room. Each</p>	Low	Pollution, Harm to Environment and Human Health	Low



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			<p>generator room will have a foam based fire suppression system.</p> <p>Emergency Procedures have been developed as part of the EMS; these will be updated to detail the actions to be taken in the event of a fire in LON1B.</p> <p>The Site Manager will be responsible for implementing risk management measures in conjunction with the operating techniques document (Ref: 410.V61547.00001_BATOT).</p>			
Security and Vandalism	Industrial, commercial, residential, surface water, recreational and ecological receptors identified in drawings 004A and 004B	Air/Land	<p>The following security measures are in place at the site:</p> <ul style="list-style-type: none"> • 24/7 security; • Site access control system; • Site perimeter security fencing; and • CCTV monitored by a security firm. <p>A minimum of 30 site personnel (comprising security and facilities management personnel) will be present on site 24/7.</p> <p>All visitors to the site will be required to sign in and out of the site to prevent unauthorised access.</p> <p>The Site Manager will be responsible for implementing risk management measures in conjunction with the Operating Techniques (Ref: 410.V61547.00001_ BATOT).</p>	Low	Pollution, Harm to Environment and Human Health	Low



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
<p>Flooding</p>	<p>Industrial, commercial, residential, surface water, recreational and ecological receptors identified in drawings 004A and 004B.</p>	<p>Land, Water</p>	<p>The data centre site lies within a Flood Zone 1, defined as an area with a low probability of flooding.</p> <p>Operational areas, roads and external surfacing will benefit from impermeable surfacing to prevent the percolation of any potentially contaminated water to soil and groundwater.</p> <p>The site will benefit from a sealed drainage system which discharges to the municipal combined sewer system via an on-site interceptor.</p> <p>Evacuation procedures will be implemented in the event of flooding.</p> <p>The Site Manager will be responsible for implementing risk management measures in conjunction with the operating techniques document (Ref: 410.V61547.00001_BATOT).</p>			



Table 4-5: Global Warming Potential (GWP)

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk
<i>What has the potential to cause harm?</i>	<i>What is at risk, what do I wish to protect?</i>	<i>How can the hazard get to the receptor?</i>	<i>What measures will you take to reduce the risk? Who is responsible for what?</i>	<i>How likely is this contact?</i>	<i>What is the harm that can be caused?</i>	<i>What is the risk that still remains? The balance of probability and consequence.</i>
Generation of CO ₂ _e emissions	National and global air quality and climate change	Air	<p>Operation of the SBGs will involve the combustion of diesel fuel in the case of LON1A, and in the main HVO in the case of LON1B, to generate electricity for use at the data centre in the event of an emergency outage of the National Grid electricity supply.</p> <p>The SBGs will be subject to planned maintenance and testing. The combustion of fuel will result in the generation of CO₂_e emissions.</p> <p>NTT is a participant to a Climate Change Agreement, (CAA) for the data centre sector. Energy management techniques will be implemented to monitor, record and track energy consumption at the data centre.</p> <p>To achieve the reductions that will be required under the CCA energy reduction targets will be established in the Environmental Management System.</p>	Medium	Harm to Environment, Harm to Human Health	Medium



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			Energy consumption has been considered in the BATOT document (ref. 410.V61547.00001_BATOT).			



