



DIGITAL REALTY

Redhill Data Centre – Non-Technical Report

Digital Realty (UK) Limited
(EPR/MP3834JU/A001)/(EPR/JP3929SJ/A001)



ecoact

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Site Overview

The Redhill site consists of three adjacent data centres, Units 1, 2 and 3 which are all owned by Digital Realty. Unit 1 is occupied and managed by a tenant and Digital Realty has no management control over this site, hence the Environmental Agency (EA) have confirmed that Unit 1 should be excluded from the Redhill data centre permit. Units 2 and 3 are owned and managed by Digital Realty (UK) Limited known as 'Digital Realty' and will form a combined permit application known as 'Redhill data centre'.

The site is a data hosting facility located in an area approximately 2.41ha in size. The site was a former industrial site, which was developed by Digital Realty between 2008-2011. Digital Realty has been operating the site and maintaining the plant for Unit 2 and 3 ever since.

Both Units 2 and 3 are operational 24 hours/day, 7 days/week and each unit is powered by two HV electrical incomers. Both incomers (A and B feeds) supply each unit with electricity, but each unit can also be supported by either supply in isolation. The A and B HV feeds are supplied by different electrical substations, which provides a layer of power resilience to both units.

Diesel standby generators provide electricity generation capacity to power the data centre in the event of a mains power failure. Currently, at Unit 2, there are five standby generators all located on the north side of the building. Unit 3 has 16 standby generators of which seven generators are located on the west side and nine generators are located on the east side of the building.

Digital Realty currently holds a company-wide ISO 140001 Environmental Management System which includes this site and is summarised in the management summary document.

Site Qualification

In total there are 21 generators located on site. For Unit 3, 16 generators have a total rated thermal input of 54.3 MW_{th} - nine generators are 3.74 MW_{th}, six generators are 3.34 MW_{th} and one landlord generator is 0.59 MW_{th} each. For Unit 2, five generators have a total rated thermal input of 18.1 MW_{th}, four generators are 4.40 MW_{th} and one landlord generator is 0.51 MW_{th} each. The aggregated total combustion capacity for Unit 2 and 3 is 72.4 MW_{th}, which exceeds the 50 MW_{th} threshold, therefore the site is subject to the

Environmental Permitting (England and Wales) (Amendment) Regulation 2018. Figure 1 below shows an example of a generator on-site.



Figure 1: Redhill data centre diesel standby generator

Site Location

The site is a data centre operated by Digital Realty located at Foxboro Business Park, to the north side of St Anne's Boulevard, just minutes from Junction 8 of the M25 and within walking distance of Redhill railway station. The site comprises Unit 2 (LGW11) and Unit 3 (LGW10).

Addresses:

LGW11: Unit 2, Foxboro Business Park, St Anne's Boulevard, Redhill RH1 1AX

LGW10: Unit 3, Foxboro Business Park, St Anne's Boulevard, Redhill RH1 1AX

The National Grid Reference for the site is:

Unit 2 - TQ 28612 51443

Unit 3 - TQ 28707 51482

The site has an area of 2.4105 hectares.



Figure 2: Site Location

The surrounding land use in the area is mix of industrial, commercial, and residential. Residential housing is located within 25m of the site to the south and west. While there is dense woodland is located within 25m of the site to the east.

For further information on the site setting and history please see the Site Condition Report.

Environmental Setting

The area is underlain by River Terrace Deposits (Clay and Silt) overlying Sandstone bedrock (Folkestone Formation). There is a linear fault approximately 210m northwest of the site. The nearest watercourse is an inland river located approximately 150m east of the site boundary.

The site is not located within an Environment Agency designated Flood Zone 2 or 3; however, a Flood Zone 2 area is located from 103m southeast of the site and a Flood Zone 3 area from 159m southeast of the site.

Within 2km of the site, there is one Site of Specific Scientific Interest (SSSI) (Mole Gap to Reigate Escarpment), 15 Ancient Woodlands, two Areas of Outstanding Natural Beauty (AONB) (Surrey Hills) and 11 Green Belt land areas. The site is also located in a Nitrate Vulnerable Zone.

For full details on the environmental setting of the site please see Section 3 of the Site Condition Report.

Designations that are present within 2000m of the site are shown below in Figure 3.

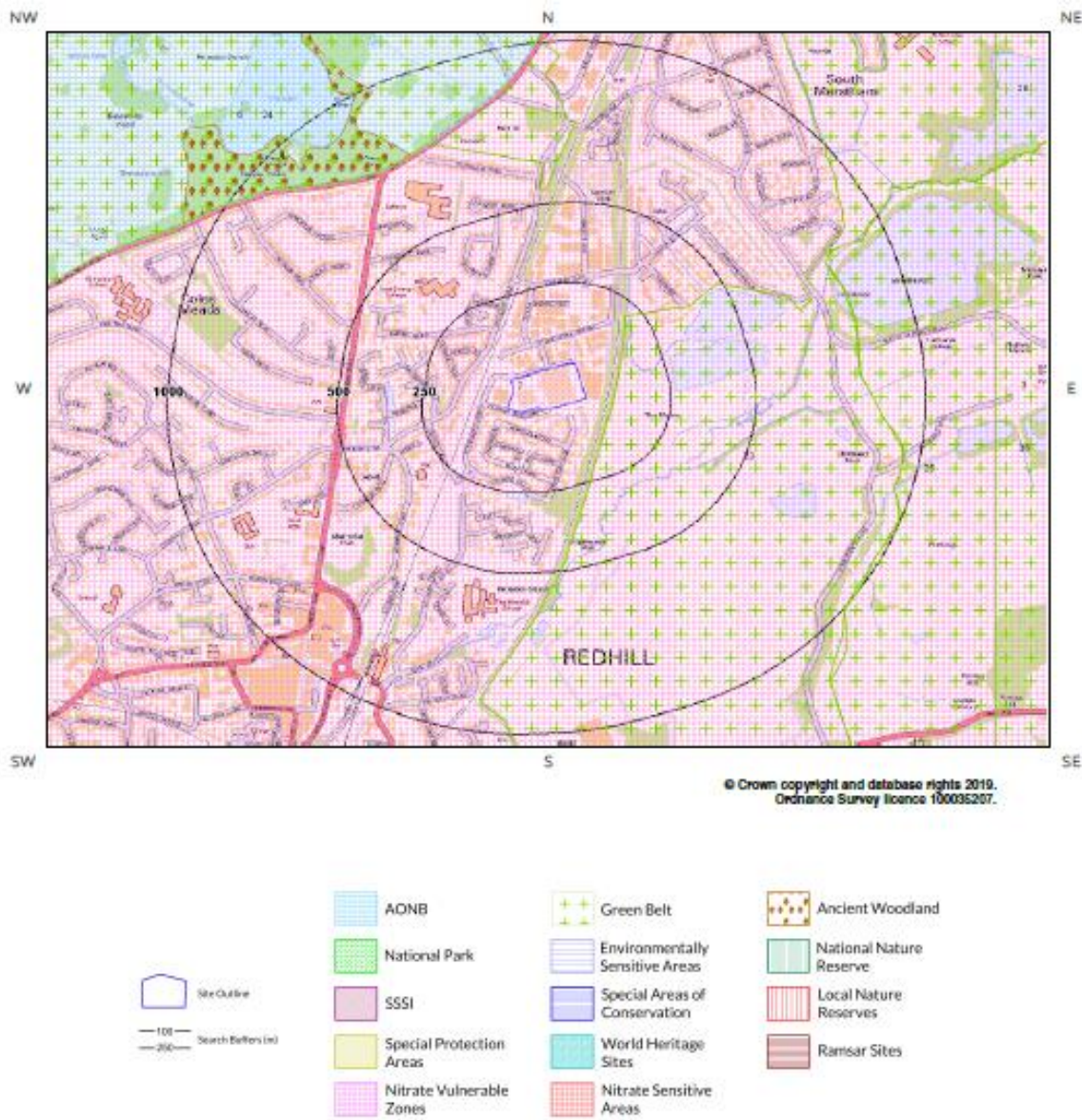


Figure 3: Environmentally Sensitive Site Designations Map

Emissions to Air, Land and Water

Emissions to Air

The standby generators are powered using diesel and fed from diesel stored in integrally banded day tanks.

Unit 2 has four generators (1600kW output each) and one smaller landlord generator (200kW output). The four generators are fed from individual

aboveground bulk tanks, each with a maximum capacity of 10,000 litres. The smaller landlord generator is fed from a 2,000-litre aboveground tank.

In Unit 3, nine generators (1600kW output each) on the east side are fed from individual aboveground 10,000-litre bulk tanks. Six generators (1280kW output each) on the west side are fed from individual aboveground 8,000-litre day tanks. Three of the west side day tanks are fed from an aboveground 50,000-litre bulk fuel tank. There is also a small landlord generator (220kW output), fed from a 2,000 aboveground tank.

Each generator has an exhaust which is the emission point into the atmosphere. Figure 4 below shows the example view of the Unit 3 generator and the emission point. In Unit 2, generator emission points are 8.5m above ground and in Unit 3, main generator emission points are between 8 – 8.5m above ground. There are no gas-fired boilers located on site for space heating and hot water requirements, this is done via electric.

The tanks are filled via fill points located in secure fill point cabinets with integral drip trays. Fill point overflow alarms are also located in the cabinets as shown in Figures 4 and 5.

Before the aboveground storage tanks are refuelled, the volume of fuel required is determined by the site team. For Unit 3, the tanker will park in the service yard and fuel pipelines run to the respective tanks for refuelling. A site engineer is always present at the refuelling along with the third-party tanker representative. Each fill point has its own overfill alarm and spill kits are available. For Unit 2, the tanker parks on the road behind the site and accesses the tank fill points through the fence which has access points.

For fuel polishing, the 50,000-litre bulk tank in Unit 3 has a fixed fuel polishing system. For the remaining Unit 3 tanks and Unit 2 tanks, a portable fuel polishing system is used. Fuel is polished yearly, when the tanks are drained, cleaned, the fuel is polished and refilled into the tanks.



Figure 4: Unit 2 aboveground tank fill points and alarms within fill point cabinet



Figure 5: Unit 3 bulk tank fill points and alarms within fill point cabinet



Figure 6: Elevation view of Generator

The sulphur content of the diesel in Unit 3 generators ranges from 3433mg/kg to 6424mg/kg. In 2022, the generators were run for a combined total of 134.6 hours with a consumed volume of 45,077.80 litres.

The standby generators are designed and configured so that in the event of mains failure all the generators will fire up, then they will ramp down to 2 generators in Unit 2 and 12 generators in Unit 3. All the generators are on a testing schedule. The summary the testing schedule is as follow:

Unit 2:

- Monthly off load testing, two generators tested at time (10mins) and landlord tested on its own (10mins).
- Quarterly - On load testing - all 2 generators tested at a time for (20mins) and landlord tested on its own (20mins).
- Annual loadbank testing - 2 generators at a time are tested to (100-110% of load) for 1 hour. Landlord tested on its own (1 hour).

Unit 3:

- Monthly off load testing, individual generator tested at time (10mins).

- Quarterly - On load testing - each suite tested at a time, maximum 3 generators running at a time. One can be running and then another one is brought on (15-20mins). Generators loaded to around 50%.
- Annual loadbank testing - each generator is run at (100-110% of load) for 1 hour. Each generator is run individually.

A detailed operational air quality dispersion model has been undertaken modelling each testing scenario, On Load Testing, Load Bank Testing and the Emergency Scenarios. Emissions of the following pollutants were considered:

- Sulphur dioxide (SO₂),
- Nitrogen oxides (NO_x),
- Carbon monoxide (CO),
- Particulate matter (PM₁₀ and PM₂₅)

Emissions to Land

Diesel

Both Units 2 and 3 are covered in good quality hardstanding and surface water gullies drain which drain into an oil interceptor prior to discharge from the site. There are spill kits located around the site. In Unit 3 there is a short run of underground pipe between the 50,000-litre bulk tank and generator compound. Diesel from the bulk tank is pumped on demand triggered by levels in the day tanks.

A third-party provider The Generator Company (TGC) maintains and services the generators. As part of their six monthly and annual checks, they check for any fuel leakage from the generators/fuel tanks. There are fill point high level and leakage alarms in the bulk tanks and these are linked to the site's Building Management System (BMS). If any of these alarms are activated on the BMS, the site team carry out an initial investigation then call the TGC to interrogate the issue.

Waste

The site generates a number of waste streams from its operations. This includes hazardous waste (waste oil and lighting tubes) and non-hazardous waste (paper, cardboard and general waste). Hazardous waste is removed by a third-party provider Envirocraft Waste Solutions Limited and waste from the oil interceptor is removed by Technical Drains Solutions.

Emissions to Water

The car parks have oil interceptors installed which are inspected on a regular basis, are believed to run onwards to a combined sewer managed by Southern and East Surrey Water. Slot drains observed in yards marked with blue “surface water” indicators which drain to the surface water drainage network. A network of foul drainage systems is shown in Figures 7 and 8.

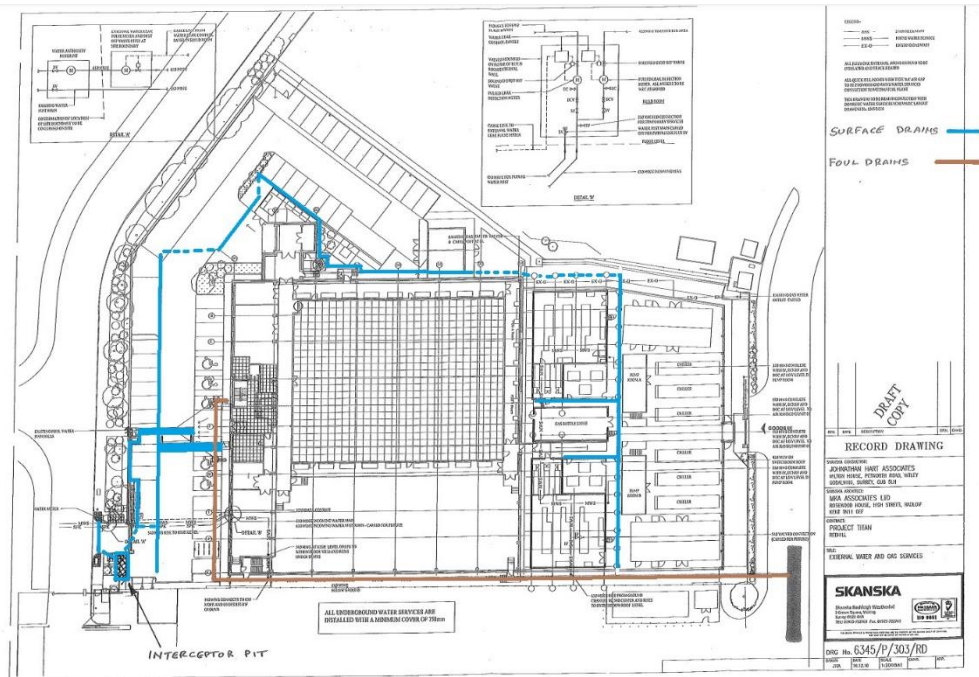


Figure 7: Unit 2 Drainage Plan

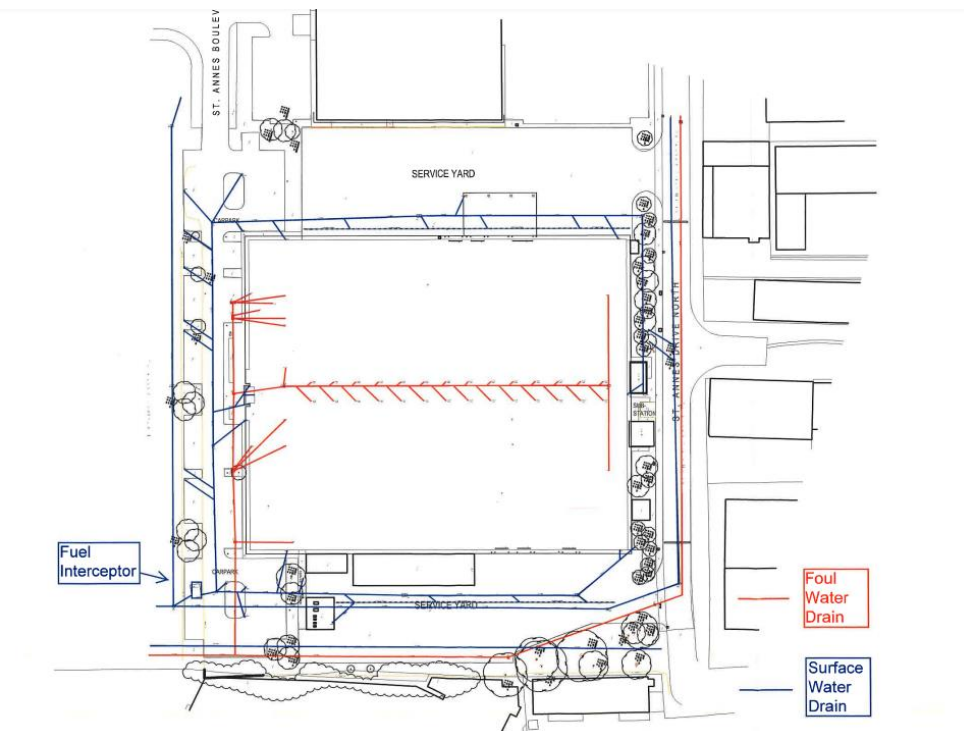


Figure 8: Unit 3 Drainage Plan

About EcoAct

Together with our clients, we act to put climate and nature centre stage to drive sustainable corporate transformation within planetary boundaries.

EcoAct is an international sustainability consultancy and project developer with 18+ years of industry experience and 360+ climate experts globally. Founded in France in 2005, the company now spans three continents with offices in Paris, London, Barcelona, New York, Montreal, Munich, Milan and Kenya.

EcoAct's core purpose is to lead the way in developing sustainable business solutions that deliver true value for both climate and client. Data is the cornerstone of our consulting practice, supported by our dedicated Climate Data Analytics and Research & Innovation teams.

At EcoAct we are driven by a shared purpose to make a difference. To help businesses implement positive change in response to climate and environmental sustainability challenges, whilst also driving commercial performance.

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The EcoAct logo is positioned in the bottom right corner of the page. It features the word "ecoact" in a bold, lowercase, blue sans-serif font. The background of the page includes a large, light blue circular graphic that partially overlaps the logo and contains a white silhouette of a wind turbine.