



Equinix LD14 Data Centre

Environmental Permit Application: H5
Site Condition Report

PREPARED FOR



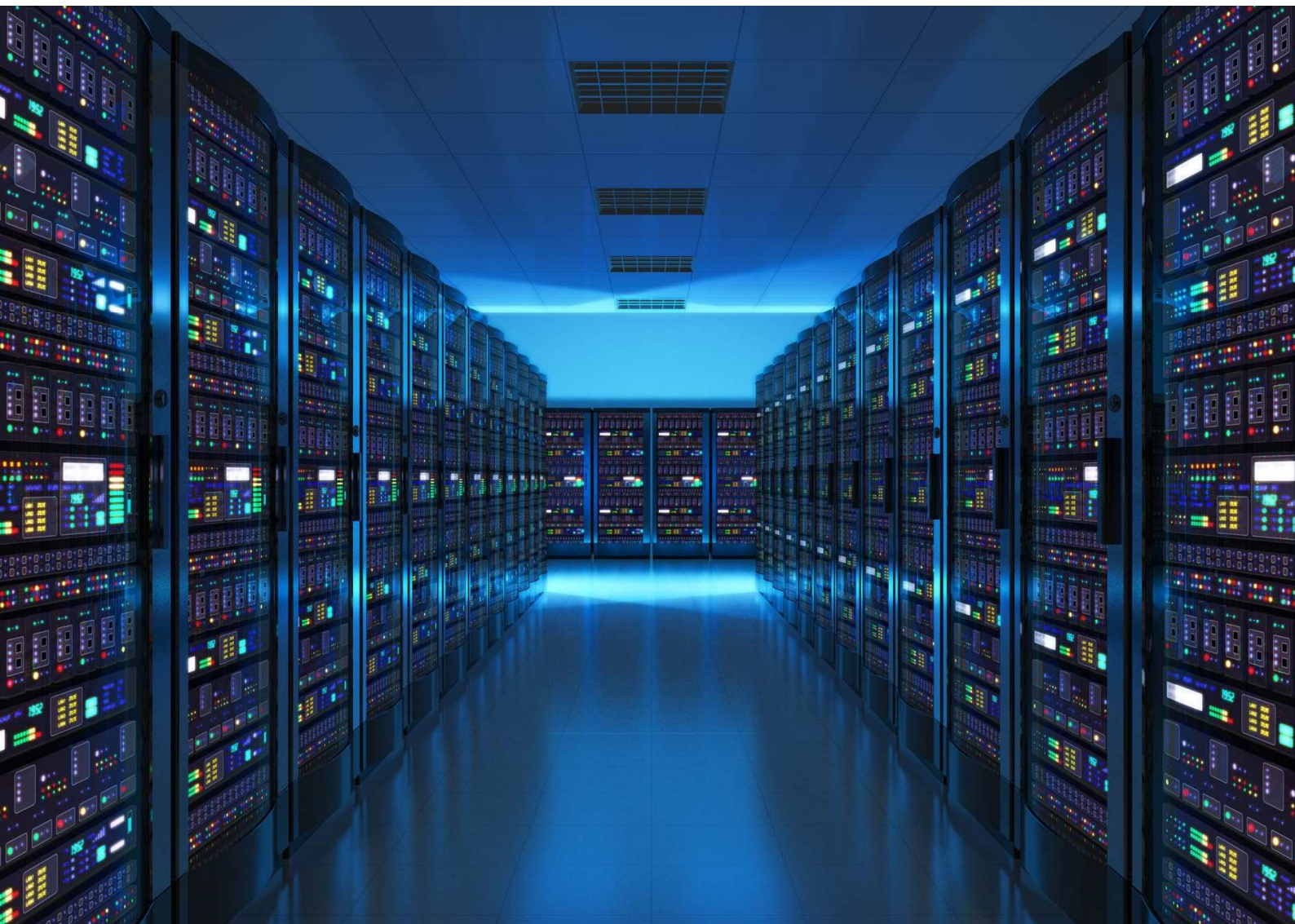
EQUINIX
Equinix (UK) Limited

DATE

14th March 2024

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14th March 2024

Equinix LD14 Data Centre

Environmental Permit Application: H5 Site Condition Report

0664507



David Pollok
Partner

Environmental Resources Management Ltd
2nd Floor Exchequer Court
33 St Mary Axe
London
EC3A 8AA
United Kingdom

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CONTENTS

1.	SITE DETAILS	1
1.1	INTRODUCTION	1
1.2	SITE CONDITION REPORT AT PERMIT APPLICATION	2
1.3	SITE LAYOUT	2
1.4	SURROUNDING LAND USE	3
2.	CONDITION OF THE LAND AT PERMIT ISSUE	6
2.1	ENVIRONMENTAL SETTING	6
2.2	HISTORICAL LAND-USES AND ASSOCIATED CONTAMINANTS	7
2.3	PREVIOUS INTRUSIVE SITE INVESTIGATIONS	8
2.4	BASELINE SOIL AND GROUNDWATER DATA	10
3.	PERMITTED ACTIVITIES	12

APPENDIX A AVAILABLE DESK STUDIES AND SITE INVESTIGATION REPORTS

ACRONYMS AND ABBREVIATIONS

Acronyms	Description
BGS	British Geological Survey
EA	Environment Agency
EP	Environmental Permit
EPR	Environmental Permit Regulations
LNR	Local Nature Reserve
M bgl	Meters below ground level
NNR	National Nature Reserve
PID	Photoionisation detector
SAC	Special Area of Conservation
SCR	Site Condition Report
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest

1. SITE DETAILS

1.1 INTRODUCTION

Equinix UK Limited (Equinix) is proposing to develop a new data centre, LD14 (the site), located on the Slough Trading Estate, Slough. The LD14 data centre is subject to Environmental Permit (EP) requirements, due to 12 new diesel generators and the addition of one diesel powered generator from the existing LD7 data centre, for the provision of back-up power in the event of a grid outage.

The installed thermal input capacity of the proposed generators at LD14 exceeds 50 MW and will therefore need to be included in the current Slough Campus EP under Schedule 1, Part 2 of The Environmental Permitting (England and Wales) Regulations 2016 (as amended) (EP Regulations). The current EP for the Slough Campus is EPR/LP3303PR and was last varied in November 2021.

This Site Condition Report (SCR) accompanies the environmental permit application for LD14.

The SCR has been prepared by Environmental Resources Management Ltd (ERM) on behalf of Equinix with reference to the guidance provided by the Environment Agency (EA) in the May 2013 document Site Condition Report – Guidance and Templates Version 3. The layout of this report is consistent with that suggested in the SCR template in the guidance.

The layout of this report is as follows:

- Section 1 – Site details
- Section 2 – Condition of the land at permit issue
- Section 3 - Permitted Activities

This report is based upon a review of information from the following sources:

- Third party reports provided to ERM by Equinix:
 - LD14 Slough Ground Contamination Desk Study and Preliminary Risk Assessment, Reference: 276024-ARP-REP-LQCDSRA, Arup, 30th September 2022 (included within this report was Groundsure database, reference GS-9036375, dated 7th September 2022)
 - Factual Ground investigation Report, LD14 Slough Estate, Reference 88585.549391, Delata-Simons, February 2024
- All data on expected future operations has been provided by Equinix.

1.2 SITE CONDITION REPORT AT PERMIT APPLICATION

This document acts as the Application SCR which has been prepared at the time of permit application in 2024. This Application SCR will be submitted to the Environment Agency with the environmental permit application.

When the time of permit surrender arises, a follow up SCR will be produced and submitted for review.

1.0 Site Details	
Name of the applicant	Equinix (UK) Limited
Activity address	1 Dundee Road, Slough Trading Estate, Slough, SL1 4LH
National grid reference	<ul style="list-style-type: none"> X (Easting), Y (Northing) 494927, 181594 (approximate centre)
Document reference and dates for Site Condition Report at permit application and surrender	<ul style="list-style-type: none"> Equinix (UK) Limited, LD14 Data Centre, Environmental Permit Application: H5 Site Condition Report, ERM, 14th March 2024 Equinix (UK) Limited, Environmental Permit Variation Application – LD14 Data Centre: Supporting Document, ERM, March 2024 Equinix, Factual Ground investigation Report, LD14 Slough Estate, Delata-Simons, February 2024 Equinix (UK) Limited, LD14 Slough, Ground Contamination Desk Study and Preliminary Risk Assessment, Arup, September 2022
Document references for site plans (including location and boundaries)	<p>Supporting Information Document:</p> <ul style="list-style-type: none"> Figure 1.1: Site Location Plan Figure 1.2: Site Layout Plan <p>See details in Section 1.3 below. Further details are provided in the permit application Supporting Information Document</p>

1.3 SITE LAYOUT

The site covers an area of approximately 1 hectare and is broadly flat. It currently comprises an undeveloped plot associated with a recently demolished row of two-storey industrial units. The site is predominantly covered in concrete hardstanding, floor slabs of the demolished units and tarmac from the former car park. Small areas of vegetation are present in the northeast and southeast corners. There is an electricity substation present in the northeast of the site.

Once built, LD14 will comprise a warehouse style building containing data halls, offices, support facilities and plant rooms. **Figure 1.1** shows the location and extent of the site boundary in relation to other Equinix operated data centres in the Slough Trading Estate, including those within the Slough Campus EP. There will be 13 diesel-powered generators on site with associated fuel storage, located to the west of the data centre building. A diesel fueled fire pump will be installed. The external area will also include a new substation, water storage silos and a water treatment plant. **Figure 1.2** shows the proposed site layout.

The fuel storage on site will consist of diesel fuel day tanks (belly tanks) that will be located below each of the generators. There are no bulk storage tanks being installed as part of the LD14 development. Further details are provided in the ERM Environmental Permit Application Supporting Document (referenced in Section 1.2).

1.4 SURROUNDING LAND USE

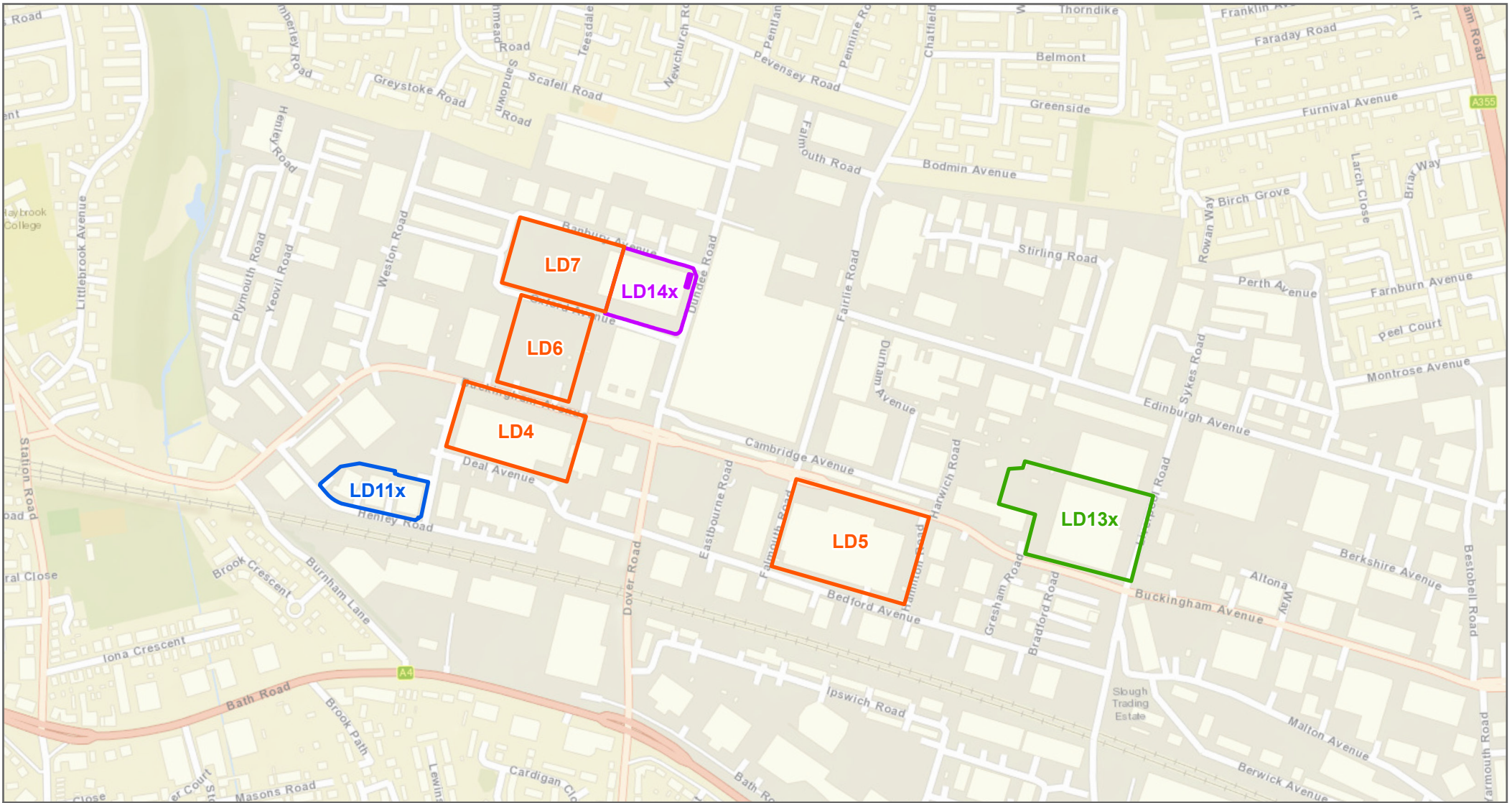
LD14 is located on land to the west of Dundee Road within the Slough Trading Estate, which surrounds the site on all sides. The proposed LD14 data center is located immediately east of the existing Equinix LD7 data center.

The nearest residential area is located on Newchurch Road approximately 200m to the north of the site. The residential area to the north extends approximately 1.5km, beyond which the land use becomes rural in nature. There are areas of parkland approximately 500m north.

To the south, the trading estate extends approximately 500m beyond the site, where it meets residential properties. There are areas of parkland and allotments approximately 1.2km to the south of the site. The M4 motorway runs east-west approximately 1.9km south.

To the east, the trading estate extends for another 1.2km beyond the site, before the land use becomes residential, interspersed with recreational spaces.

There are no identified sensitive environmental land uses such as Sites of Special Scientific Interest (SSSI), Ramsar sites, Special Areas of Conservation (SAC), Special Protection Areas (SPA), National Nature Reserves (NNR) or Local Nature Reserves (LNR) within 500m of the site.



- Slough Campus Site Installation Boundary
- LD11x Permit (EPR/CP3409BH/A001)
- LD13x Site Installation Boundary
- LD14x Site Installation Boundary

Note:
 All site installation boundaries and site feature locations are indicative only unless otherwise stated

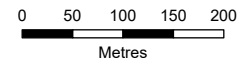


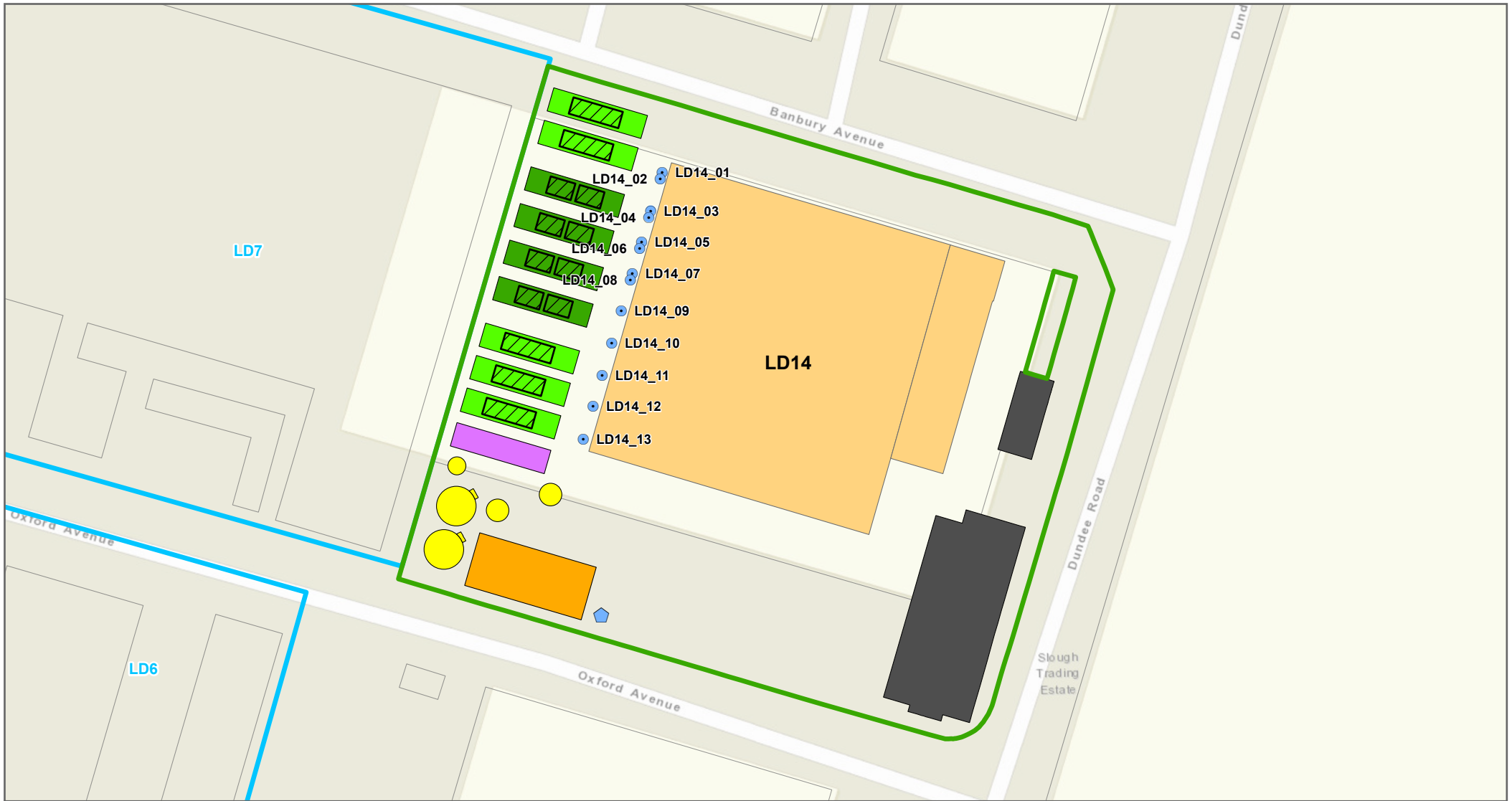
Figure 1.1 - Overview of Equinix Operated Data Centres in Slough Slough Trading Estate

SCALE: See Scale Bar
 SIZE: A4
 PROJECT: 0664507
 DATE: 14/09/2023

VERSION: A01
 DRAWN: JG
 CHECKED: BC
 APPROVED: DP

Site layout data provided by Equinix





- | | |
|------------------------------------|--|
| LD14 Site Installation Boundary | Proposed Indicative Diesel Day Tank Location |
| LD6/LD7 Site Installation Boundary | Proposed Electrical Plant MV |
| Data Centre | Proposed Water Storage and Sprinkler Tank |
| Proposed Stack | Proposed Water Treatment Plant |
| Proposed Operational Filling Point | Proposed Car Park |
| Proposed Single Storey Generator | |
| Proposed Double Storey Generator | |

Note:
All site installation boundaries and site feature locations are indicative only unless otherwise stated

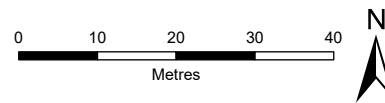


Figure 1.2
Site Layout - LD14
Slough Trading Estate

SCALE: See Scale Bar
SIZE: A4
PROJECT: 0664507
DATE: 05/12/2023

VERSION: A02
DRAWN: JG
CHECKED: RP
APPROVED: DP

Site layout data provided by Equinix



2. CONDITION OF THE LAND AT PERMIT ISSUE

2.0 Condition of the land at permit issue

Environmental setting including: <ul style="list-style-type: none"> • Geology • Hydrogeology • Surface waters 	Details are summarised in Section 2.1 .
Pollution history including: <ol style="list-style-type: none"> 1. Pollution incidents that may have affected land 2. Historical land-uses and associated contaminants 3. Any visual/olfactory evidence of existing contamination 4. Evidence of damage to pollution prevention measures 	Details are summarised in Section 2.2, Section 2.3 and Section 2.4 .
Evidence of historic contamination, for example, historical site investigation, assessment, remediation and verification reports (where available)	Details are summarised in Section 2.3 and Section 2.4 .
Baseline soil and groundwater reference data	Details are summarised in Section 2.4 below.

2.1 ENVIRONMENTAL SETTING

2.1.1 REGIONAL GEOLOGY, HYDROGEOLOGY AND HYDROLOGY

Published geological mapping from the British Geological Survey¹ indicates that the site is underlain by:

- Made Ground;
- Superficial deposits comprising the Langley Silt Member overlying the Taplow Gravel Member;
- Bedrock (solid) geology comprising the Lambeth Group with the Seaford and Newhaven Chalk Formation below.

The above published geology is consistent with the Delta-Simons site investigation findings². Delta-Simons undertook a ground investigation at the site on behalf of Equinix, which was completed between August and September 2023. The investigation recorded the following ground conditions and geological sequence:

- The surface is predominantly hardstanding comprising of concrete and tarmac. Hardstanding was recorded to a depth of between 0.03m bgl (metres below ground level) and 0.35m bgl;

¹ <https://www.bgs.ac.uk/map-viewers/bgs-geology-viewer/> accessed 14th December 2023

• ² Equinix, Factual Ground investigation Report, LD14 Slough Estate, Delata-Simons, February 2024

- Made Ground comprises brown sandy slightly silty gravel and was recorded between ground level and 1.4m bgl depth;
- Superficial Langley Silt Member deposits were recorded to a maximum depth of 3.1m bgl with a thickness of between 0.7m and 2.7m. The encountered materials were described as orangish brown slightly gravelly silt with sand and gravel;
- Superficial Taplow Gravel Member deposits were recorded to a maximum depth of 11.6m bgl with a thickness of between 2.0m and 9.6m. The encountered materials were variable in nature and described as brown, very sandy, slightly clayey, gravel of flint. The deposits were also encountered as brown, mottled orangish brown, slightly sandy, gravelly clay/silt;
- The Lambeth Group was recorded in the south of the site to a maximum depth of 7.9m bgl with a thickness of between 0.9m and 2.3m. The encountered materials were described as greenish grey, mottled reddish brown, slightly sandy, slightly gravelly clay;
- The Seaford and Newhaven Chalk Formation was encountered at three depth ranges:
 - Structureless chalk composed of creamish white, slightly sandy, gravelly silt. Recorded to a maximum depth of 20.2m bgl with a thickness of between 6.0m and 13.2m;
 - Structureless chalk in a creamish white matrix, composed of slightly sandy, slightly silty gravel. Recorded to a maximum depth of 24.5m bgl with a thickness of between 1.75m and 10.0m;
 - White chalk with frequent black specks. Recorded to an unproven maximum depth of 35.0m bgl with a thickness of at least 18.0m.

The EA classifies the superficial Taplow Gravel Member as a Principal Aquifer and the Langley Silt Member as Unproductive Strata. The Lambeth Group is classified as a Secondary A Aquifer and the Seaford and Newhaven Chalk as a Principal Aquifer.

The southern area of the site is located within a Source Protection Zone 3 and the north of the site is located within a Source Protection Zone 2.

Standing groundwater levels were recorded by Delta-Simons between 0.8m and 5.58m bgl across the site (based on nine reported monitoring rounds between 10th October 2023 and 29th January 2024). The groundwater flow direction has been inferred to be from the northeast to southwest³.

There are no identified surface water features within 500m of the site.

2.2 HISTORICAL LAND-USES AND ASSOCIATED CONTAMINANTS

The Arup Ground Contamination Desk Study and Preliminary Risk Assessment report included a summary of historical land uses both on site and in the immediate surrounding area. This was based on a review of historical maps. The findings of the Arup review included:

- Pre-1882 to 1924: The site and immediate surrounding area is shown as agricultural land. The Great Western Railway line is located approximately 350m south;

³ Ground Contamination Desk Study and Preliminary Risk Assessment, Ove Arup & Partners, September 2022

- 1924-1932: The site is developed with an industrial building covering majority of the site, understood to have been operated by Citroen Cars Ltd. A railway track is present at this time in the northern area of the site. Off-site, Slough Trading Estate is developed and extends to the east and west. The estate comprises various factories, a fire station, railway lines and sidings. Oil tanks are present approximately 150m to the west;
- 1932-1954: There are no significant on-site changes. Off-site, Slough Trading Estate is expanded. Land uses within 250m include soap works, electric lamp works, engineering works, motor works, printing ink works, chewing gum works and a biscuit factory. Slough Power Station is located approximately 400m east;
- 1954-1981: The site at this time houses four industrial units. On-site operations recorded within the units include a wire fabric works, engineering works, die-casting and metal works, steel heat treatment works, automatic plating works and reinforced concrete works. By the mid-1970s, residential properties are present approximately 400m northwest;
- 1981-2012: the on-site units are reconfigured to reduce the building area and provide greater external space to the south. At this time, the on-site operations are labelled as 'works'. The trading estate continues to expand, with most buildings labelled as unspecified works, warehouses or factories. In the later years, some surrounding buildings are potentially commercial / office space;
- 2012-present day: The site is divided into five bays instead of the previous four, prior to their demolition in preparation of the proposed development of the site. Buildings to the southwest and west of the site have been demolished and data centres (LD6 and LD7) have been constructed in their place.

Based on the above historic land uses on and off-site, there is the potential for Made Ground to include elevated levels of contaminants (such as hydrocarbons, volatile and semi-volatile organic compounds, metals and polycyclic aromatic hydrocarbons), asbestos and demolition rubble associated with previous phases of redevelopment of the site and former industrial uses. There is also the potential for contamination to be present associated with the historic on-site railway and sidings.

In addition to the former industrial uses noted above, the Arup Ground Contamination Desk Study noted signage at the former site for paint spraying and paint storage areas. It also referred to drainage plans showing above ground and underground storage tanks (contents not stated).

The Arup Ground Contamination Desk Study noted no substantial pollution incidents within 250m of the site at the time of the report.

2.3 PREVIOUS INTRUSIVE SITE INVESTIGATIONS

Details of three site investigations are provided in the Arup Contamination Desk Study (2022)⁴ presented in **Appendix A**. These were conducted to the immediate east of the site (at Equinix site LD7) and the wider industrial estate, including the LD14 parcel of land. Details are summarised below.

⁴ Ground Contamination Desk Study and Preliminary Risk Assessment, Ove Arup & Partners, September 2022

Concept, 2017

Concept conducted a ground investigation of LD7.1 and LD7.2 in 2017 which comprised four cable percussive boreholes and seventeen dynamic sampling boreholes. In mid-2017, Erith undertook the enabling works which included breaking out concrete slabs and digging out contamination and obstructions to 3m bgl.

The soil contamination levels identified during the investigation and works did not exceed comparative commercial generic assessment criteria. Asbestos fibres were noted in four of the twenty two Made Ground samples, these were predominately in the west of the site and asbestos hand picking was undertaken in August 2017. Evidence of contamination (hydrocarbon odours and black staining) was reported at two locations during the ground investigation, associated with two disused underground tanks adjacent to the northern boundary of the LD7 site. The disused underground tanks and most surrounding impacted soils were reported to have been subsequently removed during the enabling works with validation samples collected from the sides and base of the excavations.

Groundwater samples were collected from the Taplow Gravels at the LD7 site and concentrations were detected above the water quality standards for manganese, mercury, vanadium and ammoniacal nitrogen. Ammoniacal nitrogen was the only contaminant to exceed the water quality standards for the samples from the Chalk. These levels of contaminants were considered to not be of concern.

Elevated hydrocarbon concentrations were recorded in groundwater obtained from both the Taplow Gravels and the Chalk samples at BH5A, which was located approximately 80m west of LD14. They were considered to be associated with the disused underground tanks which were subsequently removed during the enabling works. Five rounds of further groundwater monitoring was undertaken at BH5A and two additional boreholes (BH5B and BH5C downgradient of BH5A) to determine hydrocarbon contamination. No evidence of non-aqueous phase liquid or hydrocarbon contamination was identified in the samples.

Delta-Simons, 2020

Delta-Simons undertook a ground investigation on LD7.2, situated immediately west of LD14. This comprised two cable percussive boreholes, three dynamic sampling boreholes and three trial pits.

The soil concentrations recorded during the investigation were assessed to be low, with no exceedances of the commercial generic assessment criteria. Asbestos was encountered in two of the sixteen samples of Made Ground.

Following the ground investigation, enabling works were undertaken by Laing O' Rourke and Mercury Engineering in 2020, comprising demolition and site clearance works. This included removal of all Made Ground from the site and backfilling with validated imported material. In addition, two previously unidentified storage tanks were excavated and removed.

Groundwater samples were collected from four boreholes on two occasions. Elevated concentrations above the water quality standards were encountered for volatile organic compounds (particularly chlorinated solvents) within both the Taplow Gravels and Chalk. In some instances, concentrations were higher in the Chalk than in the Taplow Gravels.

A Foundation Works Risk Assessment indicated that the chlorinated solvents detected in the Chalk could be indicative of a wider plume within the groundwater, as no shallow on-site source of VOC was identified during the ground investigation or enabling works.

Delta-Simons, 2022

An intrusive investigation was undertaken by Delta-Simons in February 2022 as part of a wider groundwater monitoring network undertaken across the industrial estate. This comprised the drilling of four rotary boreholes. Two were located on the LD14 site (SE110 located in the northwestern corner and SE114 in the southeastern corner) and two were located adjacent to LD14 (SE111 and SE113 were positioned off-site to the northeast and the southwest).

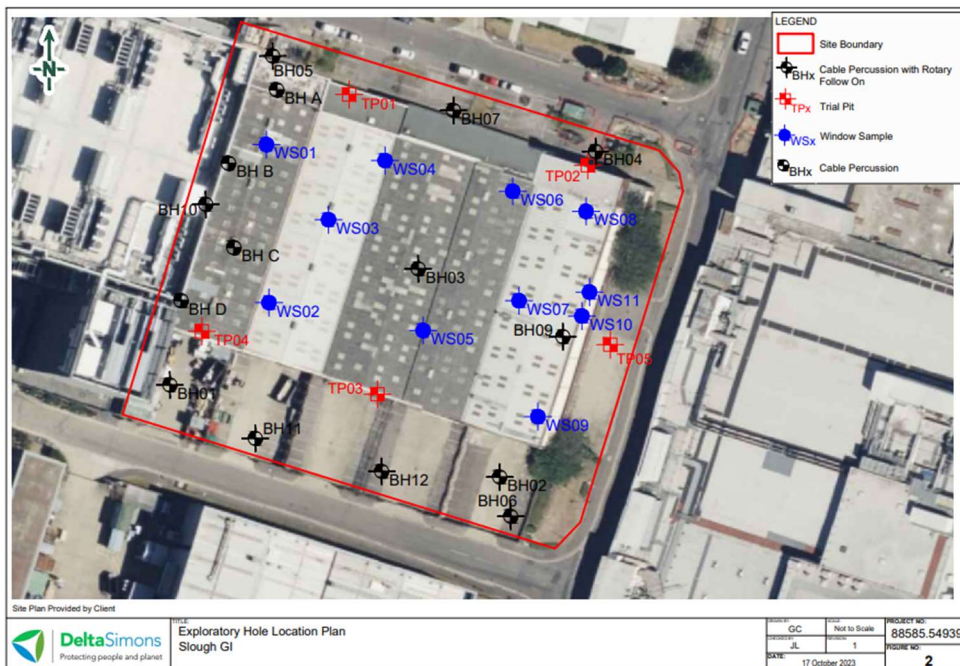
Elevated concentrations of chlorinated solvents were detected in groundwater within the Chalk at SE114. This included concentrations in excess of water quality standards. Chlorinated solvents were also detected in groundwater within the Chalk at SE110 but at lower concentrations than at SE114.

2.4 BASELINE SOIL AND GROUNDWATER DATA

Delta-Simons undertook an intrusive ground investigation at LD14 to provide environmental and geotechnical information on the underlying ground conditions at the site. The Factual Ground Investigation Report⁵ is presented in **Appendix A**.

The site investigation included advancement of twelve cable percussive boreholes with rotary follow on up to 35m bgl (BH1-BH12), four cable percussive boreholes up to 11.7m bgl (BHA-BHD), eleven dynamic sampler boreholes to depths of up to 4m bgl (WS1-WS11), five trial pits up to 2.6m bgl (TP1-TP5) and environmental sampling of soil and groundwater. **Figure 2.1** below, extracted from the Delta-Simons factual report, shows the investigation locations.

FIGURE 2.1 2023 DELTA-SIMONS GROUND INVESTIGATION LOCATIONS



⁵ Factual Ground Investigation Report LD14 Slough Estate, Delata-Simons (reference 88585.549391), February 2024

The reported investigation findings included:

- Visual and/or olfactory evidence of contamination was noted at:
 - Hydrocarbon odours and black mottled staining were noted at BH5 between 3.0m-7.0m bgl (maximum PID reading of 124ppm at 6.0m bgl). This location is in the northwestern area of the site and is adjacent (located to the north) of a proposed single storey generator and associated diesel fuel belly tank for LD14;
 - Hydrocarbon odours and black staining were noted at TP01 between 0.5m-0.9m bgl (PID reading of 38ppm at 0.6m bgl) and 1.1m bgl (a redundant bitumen wrapped cable was noted at 1.1m bgl). This location is in the northern area of the site and is in moderate proximity (located to the east) of proposed single storey generators and associated diesel fuel belly tanks for LD14;
 - Strong hydrocarbon odours were noted at TP02 between 0.5m-0.7m bgl (PID reading of 243ppm at 0.6m bgl). This location is in the northeastern area of the site and as such is a separate area of the site from the proposed generators and associated diesel fuel belly tanks for LD14; and
 - Hydrocarbon odours and minor black staining were noted at WS10 between 2.20m-3.0m bgl (maximum PID reading of 106.8ppm at 2.2m bgl). This location is in the eastern area of the site and as such is in a separate area of the site from the proposed generators and associated diesel fuel belly tanks for LD14.
- No free phase hydrocarbon was encountered during the monitoring of groundwater levels within the installed monitoring wells;
- Testing was undertaken for a range of analytes including total petroleum hydrocarbons (aliphatic and aromatic split with carbon banding) and speciated volatile and semi-volatile organic compounds. The Delta-Simons report appendices include the laboratory certificates for the environmental sampling of soil and groundwater.

3. PERMITTED ACTIVITIES

3.0 Permitted Activities

<p>Permitted activities</p>	<p>The site will require an Environmental Permit under Schedule 1, Section 1.1 Part A(1) for the 'burning any fuel in an appliance with a rated thermal input of 50 or more megawatts'.</p> <p>Directly associated activities undertaken at the site comprise:</p> <ul style="list-style-type: none"> • Storage and use of diesel for combustion in generators; • Storage and use of AdBlue (urea); and • Discharge of wastewater from the water cooling of data halls to foul sewer. This discharge will be authorised by the appropriate water company
<p>Non-permitted activities undertaken</p>	<p>The main commercial activity of the site is data storage.</p>
<p>Document references for:</p> <ol style="list-style-type: none"> 1. Plan showing activity layout; and 2. Environmental Risk Assessment 	<p>Further details of proposed site activities at LD14 are provided in the Environmental Permit Supporting Information Document (referenced in Section 1.2). This includes a plan showing activity layout, details of emission points and an environmental risk assessment.</p>



APPENDIX A AVAILABLE DESK STUDIES AND SITE
INVESTIGATION REPORTS



ERM HAS OVER 160 OFFICES ACROSS THE FOLLOWING COUNTRIES AND TERRITORIES WORLDWIDE

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ERM's London Office
2nd Floor Exchequer Court
33 St Mary Axe
EC3A 8AA London

T: +44 (0)20 3206 5200
F: +44 (0)30 3206 544

www.erm.com