

Appendix C – Land Quality Statement



TOWN AND COUNTRY PLANNING ACT 1990 (AS AMENDED)

APPROVAL OF DETAILS

Mr Paul Wahba
Michael Sparks Associates
Unit 11 Plato Place
St Dionis Road
London
SW64TU

Ref: 18399/APP/2015/4257

The Council of the London Borough of Hillingdon as the Local Planning Authority within the meaning of the above-mentioned Act and Orders made thereunder hereby **GRANT APPROVAL** of the following received on 18 November 2015:-

Details pursuant to condition 6(iii) (remediation scheme verification report) of Planning Permission Ref: 18399/APP/2013/1019 (Erection of distribution warehouse units (use class B8) with ancillary offices, associated car parking, access and associated landscape works within the existing Prologis Park development)

Drawing/Plan Nos: See Attached Schedule of Plans

At: PROLOGIS PARK, STOCKLEY ROAD, WEST DRAYTON,

Head of Planning and Enforcement

Date: 13 January 2016

NOTE: This notice does NOT relate to any approvals, which may be required under any conditions of the notice of planning permission except the condition(s) referred to herein.

**INFORMATIVES
END OF SCHEDULE**

Address:

Residents Services
London Borough of Hillingdon
3 North Civic Centre, High Street, Uxbridge UB8 1UW
Tel: 01895 250230
www.hillingdon.gov.uk

SCHEDULE OF PLANS

Remediation Completion Report (Ref: BGCL-C14023/001/V1) - received 18 Nov 2015

RIGHTS OF APPLICANTS AGGRIEVED BY DECISION OF LOCAL PLANNING AUTHORITY TOWN & COUNTRY PLANNING ACT 1990

Appeals to the Secretary of State.

If you are aggrieved by the decision of your Local Planning Authority to refuse permission for the proposed development or to grant it subject to conditions, then you can appeal to the Secretary of State for Transport, Local Government and The Regions under Section 78 of the Town and Country Planning Act 1990.

If you want to appeal, then you must do so within six months of the date of this notice, using a form which you can get from The Planning Inspectorate, 3/02 Kite Wing, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6PN (Tel. 0117 372 8428). Appeal forms can be downloaded from the Planning Inspectorate's website at <http://www.planning-inspectorate.gov.uk>.

The Secretary of State can allow a longer period for giving notice of an appeal, but he will not normally be prepared to use this power unless there are special circumstances which excuse the delay in giving notice of appeal.

The Secretary of State need not consider an appeal if it seems to him that the Local Planning Authority could not have granted planning permission for the proposed development or could not have granted it without the conditions they imposed, having regard to the statutory requirements, to the provisions of any development order and to any directions given under a development order.

In practice, the Secretary of State does not refuse to consider appeals solely because the Local Planning Authority based their decision on a direction given by him.

Purchase Notices.

If either the Local Planning Authority or the Secretary of State refuses permission to develop land or grants it subject to conditions, the owner may claim that he can neither put the land to a reasonably beneficial use in its existing state nor render the land capable of a reasonably beneficial use by carrying out of any development which has been or would be permitted.

In these circumstances, the owner may serve a purchase notice on the Council (District Council, London Borough Council or Common Council of the City of London) in whose area the land is situated. This notice will require the Council to purchase his interest in the land in accordance with the provisions of Part VI of the Town and Country Planning Act 1990.

Address:
Residents Services
London Borough of Hillingdon
3 North Civic Centre, High Street, Uxbridge UB8 1UW
Tel: 01895 250400 / 250401
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DIFFERENCE






LAND QUALITY STATEMENT: PHASE 3 PROLOGIS PARK, HAYES PROLOGIS DEVELOPMENTS LIMITED

17/04/2013

Confidentiality: Confidential

Quality Management

Issue/revision	Issue 1	Revision 1	Revision 2	Revision 3
Remarks	FINAL			
Date	17 April 2013			
Prepared by	Elizabeth Beers			
Signature				
Checked by	Richard Clayton			
Signature				
Authorised by	Richard Clayton			
Signature				
Project number	00038063-R01			
File reference	G:\#Soil and Groundwater\DELTEK Projects\00038063 - Prologis Park, Hayes Planning Support\001 Land Quality Statement			

LAND QUALITY STATEMENT: PHASE 3 PROLOGIS PARK, HAYES

17/04/2013

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1152332

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Executive Summary

KEY FINDINGS

A significant amount of assessment has previously been undertaken on the Phase 3 area of Prologis Park, Hayes for general investigation of ground conditions and more recently for delineation and validation of potentially contaminated soils.

Ground conditions underlying the Site have been encountered as Made Ground overlying Langley Silt, Lynch Hill Gravels and the London Clay formation. Groundwater has been recorded within the Lynch Hill Gravels superficial stratum and is considered to flow generally towards the south.

Previous investigation has indicated an area of potential concern comprising a former backfilled pond in the east of the Site which recorded localised asbestos, hydrocarbon and metal contamination. The wider Prologis Park Site was remediated and subsequently validated by 2006 (by Fitzpatrick Contractors and Crossfield Consulting respectively).

Assessment and validation undertaken by WSP in 2010 indicated that residual levels of hydrocarbon contamination in soils were at levels suitable for a commercial/industrial end use. Asbestos impacted materials were considered suitable for placement beneath hard standing and the adoption of robust health and safety procedures advocated.

Previous assessment undertaken by WSP in 2003 indicated that ground gas protection measures are not required for the Site.

CONTAMINATED LAND LIABILITY

The Site is not considered to constitute contaminated land under Part 2a of the Environmental Protection Act, 1990.

RECOMMENDATIONS

No further ground investigation works are considered necessary for the redevelopment of the Site for a commercial/industrial end use and sufficient mitigation of any residual contamination will be provided by the presence of hard standing and floor slabs.

WSP would recommend adoption of the following measures during construction:

- Completion of a watching brief with method statement to address contamination, in the event that it is encountered during excavations;
- Robust health and safety assessment to ensure that residual contamination risks are mitigated or managed, especially with regards to asbestos;
- Installation of capping layer in soft landscaped areas to break the direct contact and inhalation pathways of any residual contamination; and,
- Sign off of the Site by the regulating authorities which should be kept on file.

Please Note: This summary forms part of WSP Environmental Land Quality Statement (ref.: 00038063-R01). Under no circumstances is it to be used as an independent document.

WSP Environmental

1. Introduction

Table 1.1: Introduction

Title	Description		
Instruction	WSP Environmental (WSP) was instructed by Turley Associates (Turley) on behalf of Prologis Developments Limited (Prologis) to undertake a review of historical information for Prologis Park, Hayes and produce a Land Quality Statement (LQS) for the Phase 3 area of the Site. The report highlights environmental considerations, predominantly with respect to ground conditions and is required to support a Planning Application for the Site. A Site location plan is presented as Figure 1 .		
Aims and Objectives	The overall aim of this review and LQS is to provide an assessment of the Site and advise Prologis whether there are any potential risks from contaminated land which may impact the Site and affect proposals for redevelopment. Geotechnical advice is not included as part of this assessment. The 'Site' refers to the Phase 3 area only (formerly called Phase 3b by WSP).		
Confidentiality Statement	<p>This report is addressed to and may be relied upon by the following parties:</p> <table data-bbox="427 813 1481 936"> <tr> <td data-bbox="427 813 906 936"> Turley Associates 25 Savile Row London W1S 2ES </td> <td data-bbox="906 813 1481 936"> Prologis Developments Ltd Bond Street House, 14 Clifford Street London W1S 4JU </td> </tr> </table> <p>This assessment has been prepared for the sole use and reliance of the above named parties. This report shall not be relied upon or transferred to any other parties without the express written authorisation of WSP and under the terms agreed with the Appointment agreed between WSP and Prologis. No responsibility will be accepted where this report is used, either in its entirety or in part, by any other party without the agreed reliance as stated above.</p>	Turley Associates 25 Savile Row London W1S 2ES	Prologis Developments Ltd Bond Street House, 14 Clifford Street London W1S 4JU
Turley Associates 25 Savile Row London W1S 2ES	Prologis Developments Ltd Bond Street House, 14 Clifford Street London W1S 4JU		
Scope of Works	<p>The agreed scope of works includes the following:</p> <ul data-bbox="427 1216 1481 1328" style="list-style-type: none"> ■ Compile historic information relating to the Site, including recent works completed in the last 12 months; and, ■ Prepare a Land Quality Statement summarising Site conditions and works undertaken. <p>WSP understand that a planning submission is required to support the development of Phase 3 at the Site and a Land Quality Statement to confirm that conditions remain appropriate for the proposed redevelopment and if required, recommend supplementary mitigation or verification works that may be required as part of the development works.</p> <p>Please refer to Appendix A for WSP's Methodology and Report Limitations.</p>		

2. Site Information

2.1 Site Details

The following Table 2.1 provides a summary of the Site setting and historical land use from current data sources and including information from historical reports.

Table 2.1: Site Setting

Site Address	Phase 3, Prologis Park, off Stockley Road, Hayes UB7 9BN
National Coordinates Grid	508029, 179601 (from approximate centre of site)
Approximate Size	3.5 hectares
Site Location	The Site is located in the north of Prologis Park, Hayes approximately 1.6 miles north of Heathrow Airport, 0.5 miles north of the M4 motorway (junction 4), 2.5 miles east of the M25 motorway (junction 15) and 1.6 miles south of Hayes. A Site location plan is presented as Figure 1 and a Site layout plan as Figure 2 .
Current Site Use	The Site is currently open land in the northeast of the wider Prologis Park which supports commercial properties currently leased to City Sprint, Gate Gourmet and HAL and an untenanted unit in the southeast corner.
Surrounding Area	Phase 3 is bounded to the south by the Prologis Park units noted above, with Bourne Farm recreation ground beyond; to the north by railway lines (Hayes and Harlington line) with commercial and light industrial properties beyond and to the west by a car park within Prologis Park (former WSP Phase 3a area) with railway lines and commercial/industrial properties beyond. Residential properties are present to the east.
Site History	The Site comprised agricultural land until the Second World War when the Site was part of as a Royal Ordnance Factory for the production of armaments. In the 1950s the Site was taken over by the Public Records Office and used as an MOD archive store. The Site was demolished to ground level circa 2006 and is part of the wider Prologis Park for commercial/industrial use. A backfilled pond was located in the east of the Site; this was excavated and replaced with clean fill materials during remediation circa 2006.
Geology and Hydrogeology	<p>British Geological Survey (BGS) map Sheet 269, Windsor, scale 1:50,000, Solid and Drift edition and third party investigation data detailed in Section 3 and Appendix B show the following on-site geological sequence:</p> <ul style="list-style-type: none"> ■ Made Ground (no aquifer designation); ■ Langley Silt – clay and silt (Unproductive Strata); ■ Lynch Hill Gravel Member – (worked) sands and gravels of the fourth terrace (Principal Aquifer); and, ■ London Clay – clay, silt and sand (Unproductive Strata). <p>Aquifer designations are shown in brackets and are taken from information on the Environment Agency (EA) website, accessed on 4th April 2013 (refer to Appendix C for EA aquifer classification system). The approximate extents of the underlying geol-</p>

	<p>ogy have been obtained from the BGS geological map, with a generalised description obtained from the BGS website, accessed on 4th April 2013.</p> <p>Areas to the west and south of the Site are shown as in-filled which coincide with areas of historic landfilling, shown on the EA website.</p> <p>The Coal Authority website, accessed on 4th April 2013 indicates that the Site is not located within an area affected by coal mining or brine extraction activities.</p> <p>The EA website indicates that the Site is not located in a Source Protection Zone and that current groundwater quality (under the River Basin Management Plan scheme) has been quantitatively assessed as good with poor chemical quality (Lower Thames Gravels).</p>
Hydrology	<p>The EA website indicates that the Site has not been assessed for risk of flooding by rivers and the sea however no at-risk areas, extents of extreme flooding, water storage areas or flood defences are shown in the vicinity of the Site.</p> <p>Surface water features in the vicinity of the Site include Stockley Road Lake approximately 50m to the west and southwest, the Grand Union Canal 165m to the north and a number of ornamental ponds on a commercial/industrial estate beyond the railway lines to the north. All of the noted surface water features are likely to be lined and therefore not in hydraulic continuity with underlying aquifers at the Site. Frays River is located approximately 2km west of the Site.</p>
Environmental Sensitivity	<p>Residential properties are located adjacent to the east of the Site.</p> <p>The Multi-Agency Geographical Information for the Countryside (MAGIC) website is a web-based interactive mapping service that displays ecological and archaeological information from a wide variety of sources. No designated ecologically sensitive features were identified within 1km of the Site on the MAGIC website (http://magic.defra.gov.uk, accessed on 4th April 2013) with the exception of a Nitrate Vulnerable Zone adjacent to the north and west of the Site.</p>
Planning Portal	<p>The Planning Portal for the London Borough of Hillingdon Council was accessed on 12th April 2013; no planning applications pertaining to the subject Site were noted.</p>

3. Previous Works

3.1 Introduction

Assessment of the Prologis Park Site has been undertaken in various stages since circa 1997 by both third parties and WSP. A full review of previously issued reports has been undertaken where possible and is presented in **Appendix B**.

3.2 Timeline of Previous Works

The wider Prologis Park has been subject to both preliminary risk assessment via desk top study and intrusive investigation to evaluate land quality and geoenvironmental conditions between 1997 and 2004 by WSP and various third parties.

A subsequent demolition and remediation strategy was produced for the Site was produced by Burks Green and implemented by Fitzpatrick Contractors.

The Site was then validated by Crossfield Consulting in 2006 with the exception of previously identified areas of potential concern comprising a former backfilled pond within the current Phase 3 area and former heating tank farm located in the off-site Phase 3a area to the west (now a car park).

More recent assessment and validation works undertaken by WSP between 2010 and 2012 have focussed on the Phase 3 area, dividing the original boundary into Phase 3a in the west (including the former heating tanks) and Phase 3b in the east (including the former backfilled pond). Phase 3b now constitutes the current Phase 3 boundary.

A timeline of works is provided below in **Table 3.1**.

Table 3.1: Timeline of Previous Works

Item	Date	Work	Author	Comment
1	July 1997	Clearance of Unexploded Explosive Ordnance	33 Engineer Regiment (Explosive Ordnance Disposal)	Reviewed; appended to Item 6
2	September 1997	Radiological Assessment	DERA Radiation Protection Services	Reviewed; appended to Item 6
3	2007	Land Quality Assessment Phase I	Gibb Environmental	Findings referred to within Item 6
4	October 1998	Land Quality Assessment, Phase II: Desk Study Interpretive Report	Gibb Environmental	Findings referred to within Items 6 and 8
5	October 1998	Land Quality Statement Phase II: Intrusive Survey at Records Office	Gibb Environmental	Findings referred to within Items 6, 8 and 13
6	December 2000	Phase I Environmental Audit: MOD Record Office	WSP	Reviewed
7	Unknown	Desk Study	WS Atkins	Findings referred to within Item 13

Item	Date	Work	Author	Comment
8	December 2003	Phase II Geo-Environmental Assessment: MOD Records Office	WSP	Reviewed
9	2004	Environmental Statement: Geology, Geotechnics and Contamination Chapter	WSP	Reviewed
10	Unknown	Demolition and Remediation Strategy	Burks Green	Reviewed (no date or reference on available copy)
11	October 2006	Site Validation Report	Crossfield Consulting	Reviewed
12	November 2010	Validation Report Phase 3b Prologis Park	WSP	Reviewed
Off-site				
13	February 2001	Report on a Ground Investigation at TNT Archive Store	Norwest Holst	Reviewed
14	March 2005	Geo-Environmental Assessment: Prologis Roundabout	WSP	Reviewed
15	November 2010	Validation Report Phase 3a Prologis Park,	WSP	Reviewed
16	February 2012	Phase II Geotechnical Report: Unit DC2 Prologis Park, Hayes	WSP	Reviewed
17	March 2012	Environmental Assessment: Phase 3a Prologis Park	WSP	Reviewed
18	March 2012	Noise Assessment Report: Infinity Data Centre, Prologis Park	WSP Acoustics	Not reviewed – does not relate to land quality
19	June 2012	Contamination Watching Brief: Prologis Site	WSP	Reviewed
20	December 2012	Phases 1 and 2 Noise Assessment Report: Fox West Data Centre, Prologis Park	WSP Acoustics	Not reviewed – does not relate to land quality

3.3 Summary of Ground Conditions

A summary of encountered soil and groundwater conditions is presented in **Table 3.2** below.

Table 3.2: Summary of Ground Conditions from Previous Site Works

Category	Findings
Geology	<p>Previous on-site investigation has encountered the following ground conditions:</p> <ul style="list-style-type: none"> ■ Made Ground: ground level to maximum 1.6m metres below ground level (m bgl); ■ Langley Silt: minimum 0.1m bgl to maximum 3.3m bgl; ■ Lynch Hill Gravels: minimum 0.1m bgl to maximum 7.5m bgl; and, ■ London Clay: minimum 2.4m bgl to unproven depths.
Groundwater	<p>Groundwater has previously been encountered as strikes during excavation between depths of 1.8m and 3.7m bgl within the Lynch Hill Gravels stratum and as rest levels during monitoring between depths of 1.53m and 1.86m bgl.</p>
Contamination	<p>An area of potential concern within the Phase 3 Site has been identified as a former backfilled pond in the east of the Site which recorded elevated concentrations of metals, hydrocarbons and asbestos.</p> <p>Recent assessment of this area post remediation concluded that residual concentrations were low and that the Site was suitable for commercial/industrial use with implementation of appropriate mitigation measures. Recorded concentrations in soil and groundwater above adopted Generic Assessment Criteria (GAC) remediation criteria were as follows:</p> <p><u>Soils</u></p> <ul style="list-style-type: none"> ■ Total Polycyclic Aromatic Hydrocarbons (PAH): 610mg/kg (TP3 at 0.3m bgl, Item 12 – 2010; remediation criteria of 500mg/kg); and, ■ Asbestos: present (TP9 at 0.3m bgl and TP10 at 1.4m bgl - Item 12). <p><u>Groundwater</u></p> <p>No groundwater testing has been completed since December 2003 which recorded one very minor exceedence of the applied GAC, which is not considered to pose a risk to controlled waters.</p> <ul style="list-style-type: none"> ■ Arsenic: 11µg/l (BH4 – Item 8); GAC 11µg/l. <p><u>Ground Gas</u></p> <p>Ground gas assessment undertaken by WSP in December 2003 (Item 8) determined that ground gas protection measures were not required for the Site (assessment was undertaken for commercial and for residential development including some now off-site areas).</p> <p><u>Conclusion</u></p> <p>WSP consider that following implementation of mitigation measures, the Site will pose a low risk to human health and that the Site also currently poses a low risk to groundwater. Mitigation recommendations are presented in Section 4.</p> <p><u>Contaminated Land Liability, Third Party Risk</u></p> <p>The Site is considered to have low contaminated land liability and low risk of off-site migration to third party land.</p>

3.4 Site Redevelopment

A development masterplan has been provided to WSP as Drawing 30587-PL101, dated 10th March 2013 (**Figure 4**). The proposed layout includes three commercial/industrial units (Units C, D and G) with two blocks of two storey offices blocks, external car parking and service yards, some soft landscaping and a proposed acoustic fence in the southeast between Unit G and the existing adjacent residential area.

4. Conclusions & Recommendations

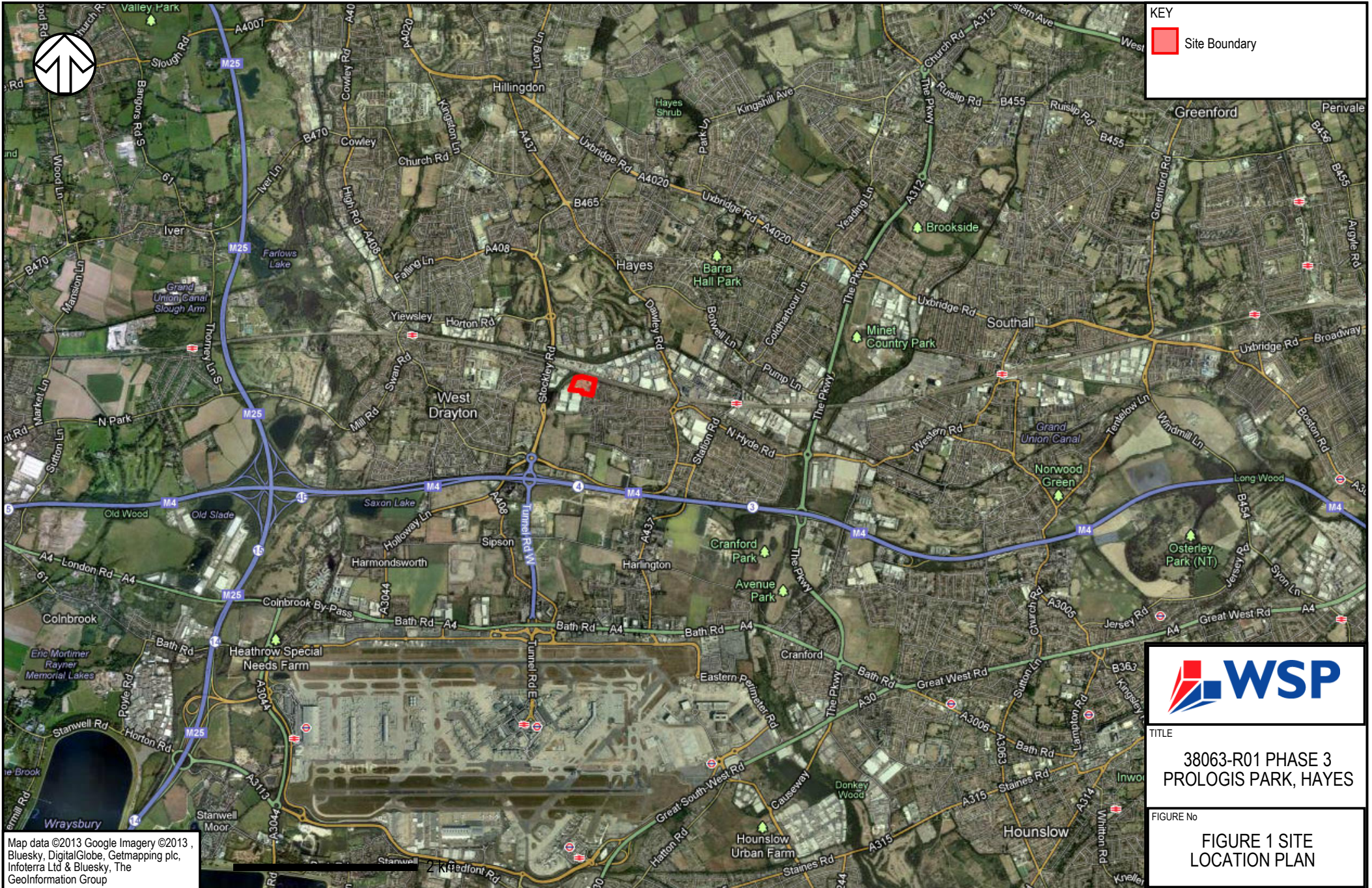
Conclusions	<p>WSP were requested to produce a Land Quality Statement for Phase 3 of Prologis Park, Hayes in order to assess previous works undertaken on the Site and provide conclusions regarding the suitability of the site for commercial development.</p> <p>The Site was historically used for agriculture followed by development of the wider area into an armaments factory during the Second World War followed by use as an MOD records archive. The Site was demolished to ground level in circa 2006.</p> <p>Site assessment has been undertaken for Phase 3 and the wider Prologis Park since 1997 by various third parties and WSP. Post demolition and remediation assessment was recently undertaken by WSP in 2010 and identified localised elevated concentrations of hydrocarbon and asbestos contamination.</p> <p>Recent assessment by WSP has indicated that on-site localised asbestos contaminated soils should be reused beneath hard standing only during redevelopment provided appropriately robust safety management procedures are adopted. Hydrocarbon impacted soils were deemed low risk and of concentrations suitable for a commercial/industrial end use with a hard surface cover.</p> <p>The adoption of appropriate health and safety mitigation measures during future ground works were recommended. Assessment of the Site has determined that risks to human health and controlled waters are low and that ground gas protection measures are not required for the Site.</p> <p>WSP consider that contamination land liability is low.</p>
Recommendations	<p>Further contaminated land assessment work is not considered necessary for the redevelopment of the Site into a commercial/industrial end use, in keeping with the wider Prologis Park area. The installation of hard standing and concrete floor slab is considered to provide sufficient mitigation from any residual contamination.</p> <p>Recommendations for development phases on the Site are considered to include:</p> <ul style="list-style-type: none">■ Completion of a watching brief with method statement to address contamination in the event that it is encountered during excavations;■ Adoption of robust health and safety assessment to ensure that residual contamination risks are mitigated or managed, especially with regards to asbestos;■ Installation of capping layer in soft landscaped areas to break the direct contact and inhalation pathways of any residual contamination. Depths should be agreed with the regulating authorities; and,■ Agreements made with the regulators should be kept on file.

Please note: this summary forms part of WSP Environmental Land Quality Statement (ref.: 38063-R01). Under no circumstances is it to be used as an independent document.

WSP Environmental

Figures

Figure 1 Site Location Plan



KEY

Site Boundary



TITLE

**38063-R01 PHASE 3
PROLOGIS PARK, HAYES**

FIGURE No


**FIGURE 1 SITE
LOCATION PLAN**


Map data ©2013 Google Imagery ©2013, Bluesky, DigitalGlobe, Getmapping plc, Infoterra Ltd & Bluesky, The GeoInformation Group

Figure 2 Site Layout Plan

DO NOT SCALE

KEY

 PHASE 3 BOUNDARY
(FORMERLY CALLED PHASE 3B)

 PHASE 3A BOUNDARY
(OFF-SITE)

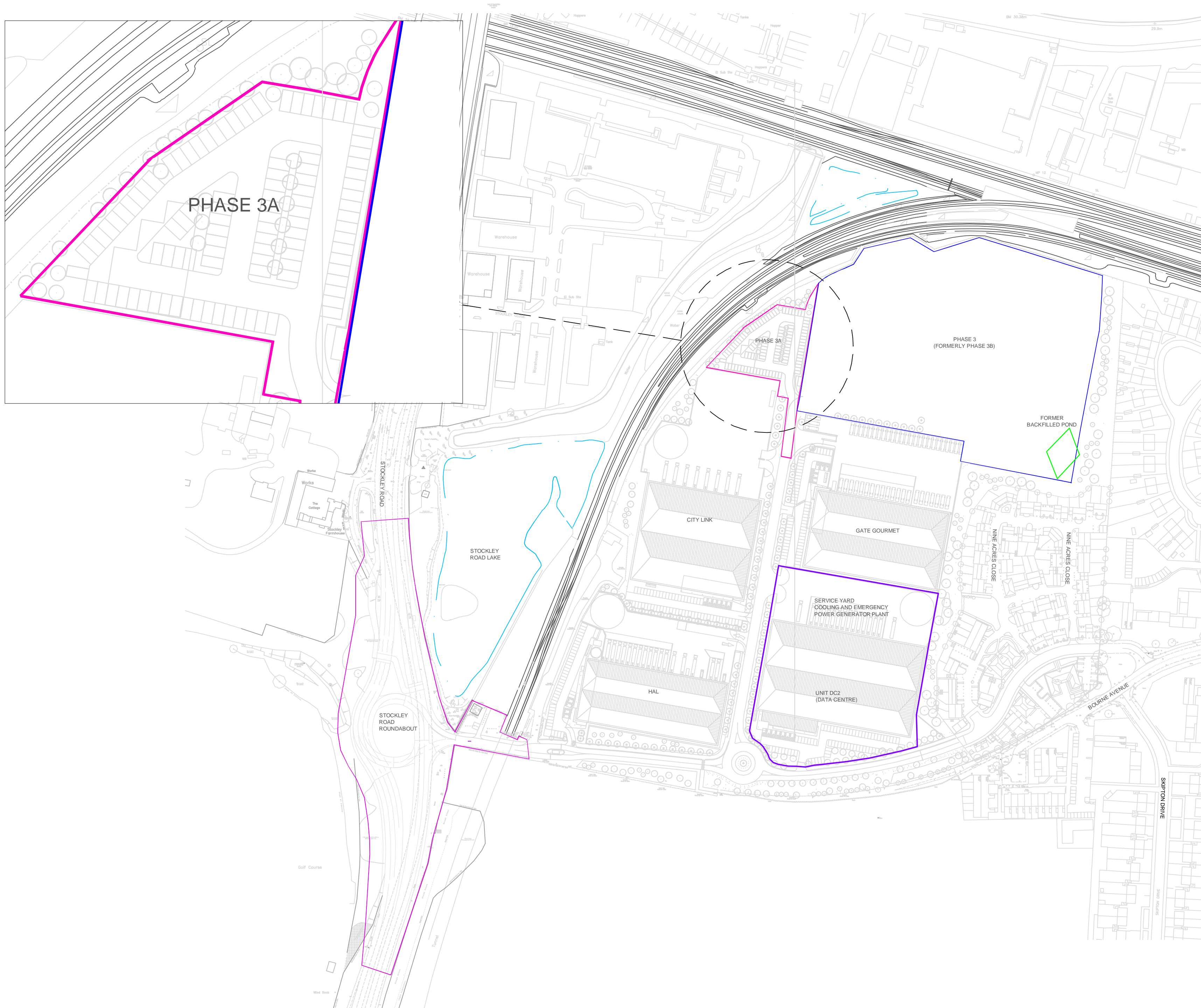
 UNIT DC2 (DATA CENTRE)
BOUNDARY (OFF-SITE)

 PHASE A BOUNDARY (OFF-SITE)

 FORMER ON-SITE AREA OF
CONCERN (APPROXIMATE LOCATION)

 WATER FEATURE

 RAILWAY LINES



REV	DATE	BY	DESCRIPTION	CHK	APD

DRAWING STATUS: **FINAL**



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<http://www.wspgroup.com>

CLIENT: **PROLOGIS DEVELOPMENTS LTD**

ARCHITECT: -

PROJECT: **PHASE 3 PROLOGIS PARK, HAYES
LAND QUALITY STATEMENT**








TITLE: **SITE LAYOUT PLAN**

SCALE@SIZE: 1:2,000@A2	CHECKED: EAB	APPROVED: RC
CAD FILE: -	DESIGN/DRAWN: JKC	DATE: APRIL 2013

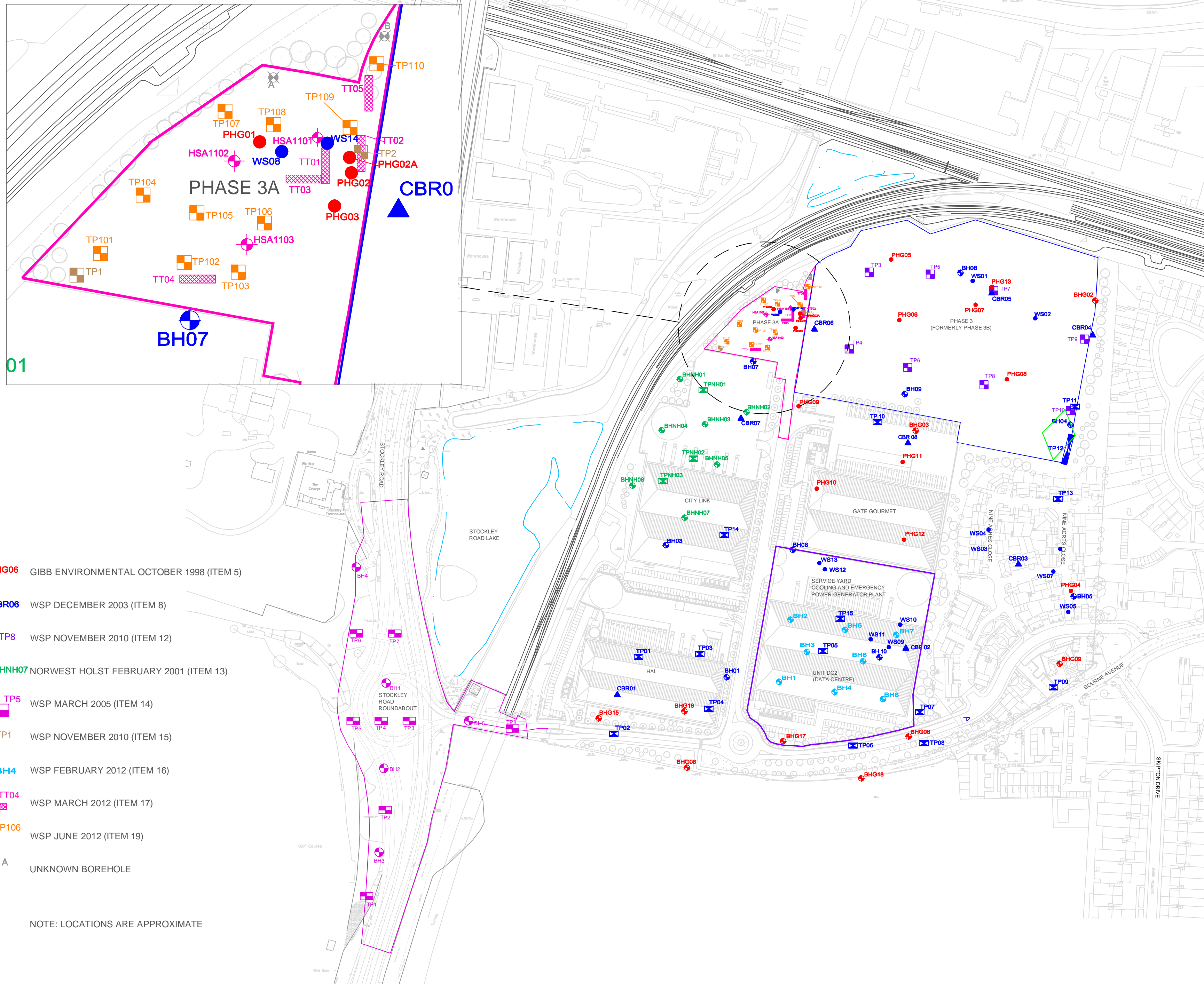
PROJECT No: 38063-001	DRAWING No: FIGURE 2	REV: -
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Figure 3 Exploratory Hole Plan

DO NOT SCALE

- KEY**
-  PHASE 3 BOUNDARY (FORMERLY PHASE 3B)
 -  PHASE 3A BOUNDARY (OFF-SITE)
 -  UNIT DC2 (DATA CENTRE) BOUNDARY (OFF-SITE)
 -  PHASE A BOUNDARY (OFF-SITE)
 -  FORMER AREA OF CONCERN
 -  WATER FEATURE
 -  RAILWAY LINES

NOTE: LOCATIONS ARE APPROXIMATE



-  PHG06 GIBB ENVIRONMENTAL OCTOBER 1998 (ITEM 5)
-  CBR06 WSP DECEMBER 2003 (ITEM 8)
-  TP8 WSP NOVEMBER 2010 (ITEM 12)
-  BHNH07 NORWEST HOLST FEBRUARY 2001 (ITEM 13)
-  TP5 WSP MARCH 2005 (ITEM 14)
-  TP1 WSP NOVEMBER 2010 (ITEM 15)
-  BH4 WSP FEBRUARY 2012 (ITEM 16)
-  TT04 WSP MARCH 2012 (ITEM 17)
-  TP106 WSP JUNE 2012 (ITEM 19)
-  A UNKNOWN BOREHOLE

NOTE: LOCATIONS ARE APPROXIMATE

REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS: **FINAL**



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CLIENT: **PROLOGIS DEVELOPMENTS LTD**

ARCHITECT: -

PROJECT: **PHASE 3 PROLOGIS PARK, HAYES
 LAND QUALITY STATEMENT**

TITLE: **EXPLORATORY HOLE LOCATION PLAN**

SCALE@SIZE: 1:2,000@ A2	CHECKED: EAB	APPROVED: RC
CAD FILE: -	DESIGN/DRAWN: JKC	DATE: APRIL 2013

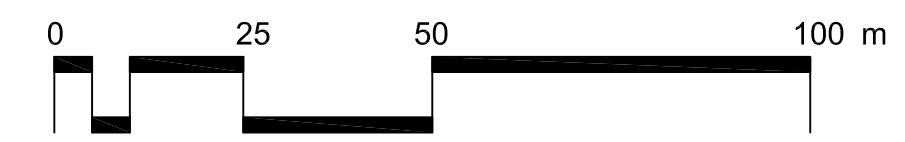
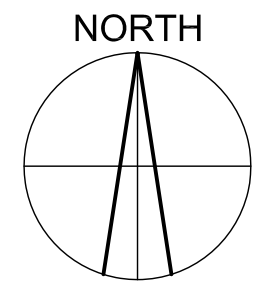
PROJECT No: 38063-001	DRAWING No: FIGURE 3	REV: -
--------------------------	-------------------------	-----------

Figure 4 Drawing 30587-PL101



NOTES:

SUBJECT TO STATUTORY CONSENTS
 BASED ON GREENHATCH SURVEY NO. 7159ENT_1 & 14285_OGL
 BASED ON OS MAP REPRODUCED BY PERMISSION OF CONTROLLER OF HM STATIONARY OFFICE (c) CROWN COPYRIGHT
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 ADOPTED HIGHWAY BOUNDARY BASED ON INFORMATION RECEIVED FROM LONDON BOROUGH OF HILLINGDON



19.03.2013	FIRST ISSUE	VCN	PW
REV	DATE	COMMENT	DRAW CHCK



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 TELEPHONE 020 7736 6162
 FAX 020 7736 3896
 info@msa-architects.co.uk



TITLE
PHASE 3 - PROLOGIS PARK, HEATHROW
 DRAWING
SITE LAYOUT PLAN

CLIENT
PROLOGIS UK LTD.

DATE	SCALE	DRAWN
MARCH 2013	1:1000 @ A1	PW
	STATUS	CHECKED
	FOR PLANNING	PW

DRAWING NUMBER
30587-PL101

Appendices

Appendix A Methodology & Report Limitations

Methodology

This Environmental Assessment has been designed to provide information relating to:

- the current and former land uses on and surrounding the site;
- the environmental sensitivity of the site location as determined by factors including geology, hydrogeology, surface watercourses and neighbouring land uses; and,
- relevant records held by the environmental regulators.

Any relevant information provided by the Client has been reviewed, with action taken to ensure this information is taken into account and/or verified where necessary. All information is then assessed to define the potential for the site to give rise to environmental liabilities for the freehold/leasehold owner (as appropriate). Recommendations are made for additional work where this is necessary to fully define the site's environmental liabilities, and cost estimates of the financial implications of the findings can be provided under separate cover, where appropriate.

Risk Classification

This assessment has been undertaken with due regard to Contaminated Land Guidance documents issued by the Department for Environment, Food and Rural Affairs (and its Predecessors), the British Standards Institute (the BSI), the Royal Institution of Chartered Surveyors (RICS) and the American Society for Testing and Materials (ASTM) Standard E 1527-05. The methods used follow a risk-based approach, with the potential environmental risk assessed qualitatively using the 'source-pathway-target pollutant linkage' concept introduced in the Environmental Protection Act 1990.

Specific comment is made regarding the site's status under the Contaminated Land Regime implemented on the 1st April 2000 as Part IIA of the Environmental Protection Act 1990, and the actual or potential designation of the site as 'Contaminated Land' as defined in Section 78A(2). Unless specifically stated as relating to this definition, references to 'contamination' and 'contaminants' relate in general terms to the presence of potentially hazardous substances in, on or under the site.

In addition, consideration has been given to a wide range of related topics including (where appropriate): environmental processes; current and foreseeable environmental legislation; the practices and duties of environmental regulators; the health and safety of occupiers and neighbours as affected by contamination; effects on the structure of buildings; and financial implications. References to risk classifications are made according to the following definitions:

Low Risk

It is unlikely that the issue will arise as a liability/cost for the freehold/leasehold owner (as appropriate) of the site.

Medium Risk

It is possible that the issue could arise as a liability/cost for the freehold/leasehold owner (as appropriate) of the site. Further work is usually required to clarify the risk.

High Risk

It is likely that the issue will arise as a liability/cost for the site freehold/leasehold (as appropriate) owner of the site.

Environmental Risk Assessment

The presence of contaminated materials on a site is generally only of concern if an actual or potentially unacceptable risk exists. Within the context of current UK Legislation, the interpretation of a "significant risk" is termed to be one where:

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- Significant harm is being caused or there is a significant possibility of such harm being caused, (where harm is defined as harm to health of living organisms or other interference with the ecological systems of which they form a part and, in the case of man, includes harm to his property); and / or, pollution of Controlled Waters is being caused.

The potential for harm to occur requires three conditions to be satisfied:

- Presence of substances (potential contaminants/pollutants) that may cause harm (Source of Pollution).
- The presence of a receptor which may be harmed, e.g. the water environment or humans, buildings, fauna and flora (The Receptor).
- The existence of a linkage between the source and the receptor (The Migration Pathway).

Therefore, the presence of measurable concentrations of contaminants within the ground and subsurface environment does not automatically imply that a contamination problem exists, since contamination must be defined in terms of pollutant linkages and unacceptable risk of harm.

The nature and importance of both pathways and receptors, which are relevant to a particular site, will vary according to the intended use of the site, its characteristics and its surroundings.

In order to assess the contamination risk at the subject site the above rational has been applied and is discussed within Section 6 in the context of Contamination Sources and Potential Pollutant Linkages.

Energy Performance Certificates

The Energy Performance of Building within the UK is derived from The Energy Performance of Buildings (Certificates and Inspections) (England and Wales) Regulations 2007 SI 2007/991 and SI 2007/1669 and stems from the European Directive 2002/91/EC on the Energy Performance of Buildings ("the Directive"). Part 2 of these Regulations implements articles 7(1) and (2) of the Directive, and requires the production of energy performance certificates when buildings are constructed, sold or rented out.

Regulation 11 sets out the minimum requirements for energy performance certificates. In particular, certificates must be no more than 10 years old, except in circumstances where the Housing Act 2004 requires a home information pack, in which case a certificate is only valid if it is less than three months old at the first point of marketing, as that term is defined in the Home Information Pack Regulations 2007.

Part 7 deals with enforcement and makes provision for enforcement by way of civil penalties. Regulation 38 imposes a duty on local weights and measures authorities to enforce the duties relating to certificates and air-conditioning inspections. Regulation 40 empowers enforcement authorities to issue penalty charge notices for any breach.

Limitations

WSP Environment and Energy has prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from WSP Environment and Energy; a charge may be levied against such approval.

WSP Environment and Energy accepts no responsibility or liability for:

- a) the consequences of this document being used for any purpose or project other than for which it was commissioned, and
- b) this document to any third party with whom an agreement has not been executed.

The work undertaken to provide the basis of this report comprised a study of available documented information from a variety of sources (including the Client) and discussions with relevant authorities and other interested parties. The opinions given in this report have been dictated by the finite data on which they are based and are relevant only to the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions

expressed in this report, WSP Environment and Energy reserves the right to review such information and, if warranted, to modify the opinions accordingly.

Where no site inspection is undertaken (for example a Desk Study Assessment or due to restricted site access), WSP cannot comment on the potential for environmental concerns associated with the current use or structure including the presence of asbestos.

It should be noted that any risks identified in this report are perceived risks based on the information reviewed; actual risks can only be assessed following a physical investigation of the site.

WSP are unaware of any proposed redevelopment plans and any reference made to actions that might be required in the event of redevelopment are made for information only.

Appendix B Review of Previous Reports

Item	Year	Site Area	Report Summary
On-site			
1	1997	Prologis Park and area now developed into housing	<p>Clearance of Unexploded Explosive Ordnance, MOD Bourne Avenue, Hayes, Middlesex by 33 Engineer Regiment (Explosive Ordnance Disposal), dated 31st July 1997, reference 48/Middlesex/14</p> <ul style="list-style-type: none"> This report was appended to Item 6 and the following pertinent points were noted: <ul style="list-style-type: none"> Visual clearance of Unexploded Explosive Ordnance was undertaken on 10th July 1997. An instrument search of the Site was considered impractical due to buildings and areas of hard standing. It was known that explosives had been used and/or stored on parts of the Site but no explosives or other dangerous substances (including special wastes) were recovered during the clearance. It was noted that the current or previous users of the site were responsible for certifying the buildings to be free of explosives.
2	1997	Prologis Park and area now developed into housing	<p>Radiological Assessment-Bourne Lane, Hayes by DERA Radiation Protection Services for Gibb Environmental, dated 9th September 1997, reference 490/0001/8707/DRPS</p> <ul style="list-style-type: none"> This correspondence was appended to Item 6. Following a request for information by Gibb Environmental, a letter confirming that no information about the Site was held by DRPS however the following pertinent points were noted: <ul style="list-style-type: none"> The Site was used as an engineering workshop during WWII and DRPS recommended that a preliminary radiological survey was undertaken unless documentation could prove that a survey was not required. A drawing was not included and the subject Site area was not noted.
3	1997	Assumed Prologis Park due to spread of subsequent exploratory hole locations (Item 4)	<p>Land Quality Statement Phase I by Gibb Environmental, dated 1997</p> <ul style="list-style-type: none"> This report was referred to within Item 6. The date and reference of the report and full details including the subject Site were not noted.
4	1998	Prologis Park and area now developed into housing	<p>Land Quality Assessment, Phase II: Desk Study Interpretive Report at Records Office, Bourne Avenue by Gibb Environmental, dated October 1998 (no reference)</p> <ul style="list-style-type: none"> This report was referred to within Items 6 and 13 but full details were not noted. Approximate exploratory hole locations are shown on Figure 3.
5	1998	Prologis Park and area now developed into housing	<p>Land Quality Statement Phase II: Intrusive Survey at Records Office, Bourne Avenue by Gibb Environmental, dated October 1998 (no reference)</p> <ul style="list-style-type: none"> A concise review of this report was completed within Items 6, 13 and 19 with appended exploratory hole records, laboratory testing data and ground gas monitoring results, however the report has not been reviewed in full. Approximate exploratory hole locations are shown on Figure 3. Fourteen probe holes and chemical assessment of soils was undertaken as part of these works (PHG1 to PHG13 and PHG2a). All probe holes were backfilled with arisings upon completion. Encountered ground conditions comprised variable thicknesses of localised hard standing (tarmac and concrete between ground level and 0.15m bgl) Made Ground (between ground level and 1.35m bgl) overlying orange brown silty clays and sands and gravels (from 0.45m bgl to unproven depths). Contamination observations included slight to strong hydrocarbon odours and grey discoloration in patches and streaks with hydrocarbon odours. Volatile vapours were measured with a photo-ionisation detector (PID) which recorded background concentrations between 2.1ppm and 3.8ppm and concentrations between 2.1ppm and 9.0ppm in Made Ground and between 2.1ppm and 130ppm in superficial deposits. Groundwater seepage was noted within two locations at 1.5m bgl within superficial deposits (PH1) and at 2.0m bgl at the interface of Made Ground and underlying superficial deposits (PH2a). Relatively low concentrations of organic and inorganic contamination was recorded across the site with hotspots of total petroleum hydrocarbons (TPH) recorded in probe holes PH1 (1,111mg/kg – adjacent to heating oil ASTs) and PH13 (3,078mg/kg – oily materials encountered in services). No significantly elevated concentrations of explosive chemicals were identified in areas of ordnance production; all analytical test results were recorded below laboratory limits of detection. Two water samples were laboratory tested as a rinseate sample and wash water and did not relate to groundwater on-site. Thirteen borehole locations were monitored for ground gases on one occasion, during a period of falling pressure; methane as not recorded above the limit of detection of the equipment (0.1%v/v) and carbon dioxide was recorded at concentrations between 0.2%v/v and 5.5%v/v. Flammable gases were recorded at concentrations below 1ppm.

Item	Year	Site Area	Report Summary
6	2000	Prologis Park and area now developed into housing	<p>Phase I Environmental Audit: MOD Record Office, Hayes, Middlesex by WSP Environmental Limited for ProLogis Developments Limited, dated 21st December 2000, reference 201201/B/01</p> <ul style="list-style-type: none"> ■ The purpose of the assessment was to complete an environmental audit to identify risks, potential liabilities and development constraints for the MOD records office which was proposed to be redeveloped for a commercial end use. ■ The Site was roughly rectangular in shape and approximately 12.7 hectares (Ha) in size, supporting two main buildings (building A and W orientated parallel to each other east-southeast and west-northwest), storage and office buildings, roadways and some open ground in the southwest located approximately 2km to the southwest of Hayes town centre and 5km northwest of Heathrow airport. ■ The Site was bounded by the Heathrow Express rail link to the north and west (former landfill) with industrial development and the Grand Junction Canal, A408 and golf course respectively beyond. Residential developments were located adjacent to the east and a former BAA landfill to the south. General environs comprised residential and industrial/commercial. ■ The Site was historically agricultural land until WWII when the development of a Royal Ordnance factory was completed for the production of armaments. The Site was taken over by the Public Records Office in the 1950s and at the time of writing was used as an archive store for the MOD and other governmental departments and organisations. A pond and stream were historically located in the east between 1894 and 1938 and railway sidings in the west from circa 1965 to 1974. ■ Potentially contaminative surrounding land uses within 500m of the Site included agricultural land, railway land, brick fields, gravel pits, chemical works and a cemetery. ■ Anticipated ground conditions comprised Made Ground, Langley Silt (brickearth – Non-Aquifer) (except southwestern corner), River Terrace Gravels (worked Lynch Hill Gravel (fourth terrace – southwestern corner – Minor Aquifer), London Clay (Non-Aquifer), Eocene Claygate Member (0-10m – Minor Aquifer) and Upper Cretaceous Chalk (Major Aquifer). ■ A groundwater abstraction was located 750m northeast of the Site for spray irrigation from chalk geology for 720m³/day. ■ Surface water features on or adjacent to the Site were noted as follows: overgrown pond in the east of the site, Grand Union Canal (adjacent north and west) and lakes (adjacent west). A surface water abstraction was noted approximately 500m northwest of the Site for dust suppression (160m³/day) from a non-tidal source, thought to be the canal. ■ Three discharge consents to the canal were noted 500m north and northwest of the Site for drainage, underground water and an unknown purpose. Seven pollution incidents were noted within 550m of the Site; one unsubstantiated incident was located on-site (category 4) and all incidents pertained to the Grand Union Canal. ■ Five previously licensed landfill sites were noted within 800m of the Site; the two closest records were for a site approximately 100m south of the subject and accepted asbestos, commercial, domestic and industrial wastes. ■ The Site was observed to lie within an area not affected by coal mining. Radon protection measures were not required. ■ Liaison with the Local Authority indicated that ground conditions were anticipated to be variable clays and gravels with foundation solutions generally comprising pad and beam or trench fill but not piled. Geotechnical investigation was recommended by Building Control. ■ Areas of Potential Concern (APCs) were previously identified by Gibb (Items 3 and 4) as asbestos, above ground heating oil storage tanks, underground diesel storage tank, substations on site (PCBs), previous ordnance engineering workshops, on-site migration of off-site landfill gases, area of oily materials encountered during services. WSP identified the following additional APCs: locomotive shed and sidings, former oil store/bunker, fuelling post, a garage area, overgrown and possibly in-filled pond, locomotive shed and crusher plant, pump house, compressor house, weighbridge, workshops and boiler, spirit store, uneven ground and worked ground. ■ Visual Site inspection and an asbestos survey undertaken by Symonds Travers Morgan Ltd (unknown date or reference) noted the presence of significant quantities of asbestos containing materials within buildings, such as asbestos cement board roofing. ■ WSP assessed environmental liability risks for the Site as high based on limited ground investigation data and unresolved APCs. Recommendations included intrusive ground investigation specifically with groundwater monitoring and testing, following asbestos assessment recommendations or removal of materials and Environmental Impact Assessment.
7	Unknown	Unknown	<p>Desk Study by WS Atkins</p> <ul style="list-style-type: none"> ■ This report was referred to within Item 19 however no further details were provided. It is unknown if this report relates solely to the subject Site (Phase 3).

Item	Year	Site Area	Report Summary
8	2003	Prologis Park and area now developed into housing and off-site Stockley Road Roundabout	<p>Phase II Geo-Environmental Assessment: MOD Records Office, Hayes, Middlesex by WSP Environmental for ProLogis Developments Limited, dated December 2003, reference 12170423-002</p> <ul style="list-style-type: none"> The purpose of the assessment was to identify potential geotechnical and environmental constraints to the redevelopment of the Site for a mixed residential (six housing blocks with communal landscaping, thirteen terraced houses with private gardens, access roads and car parking) and commercial end use (five distribution units with two and three storey offices, service yards, car parking and landscaped areas) and a new roundabout (to the west of the main subject site). The subject Site was 14Ha in size and comprised two main storage units with several ancillary buildings including offices, garages, workshops, a fire station, compressor house and locomotive shed. The Site was bounded by the Heathrow Express rail link to the north and west with industrial developments and the Grand Junction Canal beyond (further beyond are the A408 and a golf course), a residential development to the east and a former BAA landfill to the south. A summary of the previous Phase I report (Item 6) was included within the report, pertinent additional points included that the Site was situated on a gentle slope at a topographic level of approximately 32.0m AOD with terraces of the post diversionary River Thames (sloping south west). Regional topography indicated that groundwater was likely to flow towards the southwest. Review of British Geological Survey (BGS) mapping indicated that underlying geology was likely to comprise Langley Silt over Lynch Hill (fourth terrace) Gravels over London Clay. An area of worked ground was noted in the southwestern corner of the Site where the Langley Silt (or Brickearth) had been excavated to expose the underlying Lynch Hill Gravels likely associated with previous brick production. The area of the new proposed roundabout was anticipated to have a layer of topsoil at surface, following review of BGS logs. The closest noted disused landfill was recorded 20m south of the Site. Ground investigation comprised six cable percussive boreholes to a maximum depth of 10.0m bgl and installed with monitoring wells, four hollow stem auger boreholes to a maximum depth of 8.0m bgl and installed with monitoring wells, fourteen large diameter probe holes to a maximum depth of 4.0m bgl (backfilled upon completion), fifteen trial pits to a maximum depth of 3.8m bgl (backfilled upon completion) with eight shallow in-situ CBR tests at 0.5m bgl. Ground conditions were encountered as Made Ground between depths of 0.1m and 2.7m bgl, Langley Silt between 0.6m and 2.9m bgl (in localised areas), Lynch Hill Gravels between 1.3m and 7.5m bgl site-wide) and London Clay from 2.0m bgl to unproven depths. An area of Made Ground thought to be an in-filled pond was delineated by trial pit TP12 in the east of the Site. Groundwater sampling was undertaken on one occasion and gas and groundwater monitoring was undertaken on two separate occasions (including one historical borehole (BH15)). Groundwater strikes were encountered at depths of between 1.7m bgl and 4.4m bgl in the Lynch Hill Gravels and at 2.5m bgl in the London Clay formation. Groundwater rest levels were recorded between 1.64m and 1.96m bgl within the Langley Silt formation, between 1.32m and 2.55m bgl within the Lynch Hill Gravel formation. Following chemical laboratory analysis of soil samples, statistical analysis was undertaken comprising use of the CLEA model mean and maximum value tests and consideration of the Site as two averaging areas: proposed residential area (Zone 1) and proposed commercial area (Zone 2) for the upper 1m soil profile and soils below 1m bgl were screened against relevant guideline values. Averaging Zone 1 – results indicate that failures of the mean value test included lead, nickel, zinc and TPH and elevated PAH comprising a hotspot (TP12 at 0.5m bgl – backfilled pond). Chrysotile asbestos cement was recorded in borehole BH5 at 0.5m bgl. With the exception of the hotspots, the area was considered suitable for residential end use. Averaging Zone 2 – results indicated that there were no failures of the mean value test for shallow soils and the areas was considered suitable for a commercial end use. No exceedences of GAC within soils below 1m bgl were recorded. One contamination observation was recorded within borehole WS08 at 2.4-2.6mbgl in the northwest of the Site comprising a slight hydrocarbon odour and staining. Elevated concentrations of TPH and VOCs within WS08 (northwest of the site) and PAH within WS11 and WS13 in the southeast and centre of the area respectively. Laboratory analysis indicated slightly elevated concentrations of leachable TPH and PAH which were not considered to be significant in the context of risk to groundwater. Marginal exceedences of Drinking Water Quality Standards for arsenic (maximum 17µg/l; GAC 10µg/l), selenium (BH1 - 1µg/l; GAC 10µg/l) and TPH (BH7 - diesel range) were recorded in groundwater samples. No obvious source for elevated TPH was identified and the concentration was considered unlikely to represent a significant issue. Preliminary gas assessment indicated that the site represented a low risk and that gas protection measures were not necessary. Potential geotechnical hazards on-site were identified as variable Made Ground, superficial deposits susceptible to settlement, shallow groundwater, swelling/shrinkage of high plasticity soils and the presence of remnant foundations and obstructions. A foundation assessment was completed and recommendations were identified to be dependent on economic and loading requirements. Contamination mitigation and remediation recommendations included removal of asbestos containing materials from buildings, decommissioning and subsequent validation of fuel storage tanks, excavation and off-site disposal of the in-filled pond area (TP12) and contingency for planning any additional contaminated soils encountered during demolition or construction phases, ground investigation in the vicinity of the proposed roundabout and materials characterisation of waste materials.
9	2004	Prologis Park and off-site Stockley Road roundabout	<p>Environmental Statement: Geology, Geotechnics and Contamination Chapter</p> <ul style="list-style-type: none"> An Environmental Impact Assessment was completed for the Prologis Site and Stockley Road roundabout located to the west; the Chapter incorporated information from Items 4, 5, 6 and 16 and identified the following impacts during construction and operational phases. Construction phase: contaminated run-off, contaminated dusts, asbestos risks and fuel storage and electrical substations. Operational phase: end user exposure to contaminated soils and suture site activities. Mitigation was recommended to include appropriate storage of chemicals and fuel, excavation and off-site disposal of in-filled pond materials and contaminated materials with validation, a type 3 asbestos survey, dust suppression measures, decommissioning of fuel storage areas and subsequent validation, appropriate environmental management procedures with reference to guidance and legislation.
10	Unknown	Assumed Prologis Park site (no site plan provided)	<p>Demolition and Remediation Strategy for Prologis Park, Hayes, by Burks Green for Prologis Developments Ltd (no date or reference given on report review copy)</p> <ul style="list-style-type: none"> A demolition and remediation strategy was produced for the Site which comprised approximately 15.9 hectares and supported two units for record storage and several smaller ancillary buildings (offices, garages, workshops, a fire station, compressor house and locomotive shed). The Site was historically part of an armaments factory, Public Records Office and MOD archive store. Area of concern had previously been identified as a former pond to the north of a proposed residential area backfilled with contaminated wastes (elevated metals and hydrocarbons) and elevated hydrocarbons in the vicinity of the former bulk fuel storage tank in the northwest of the Site. Slightly elevated metals concentrations were noted site-wide which were considered to require limited mitigation. No significant groundwater contamination had been identified. The remediation scope of works was suggested to include delineation, excavation and off-site disposal of contaminated soils (including backfilled pond and heating tanks areas) in excess of provided remediation criteria (using a cellular grid manner of excavation), completion of validation investigations across the Site to eliminate the presence of contamination hotspots (and subsequent treatment if appropriate) and provision of completion reports by the remediation contractor. Other proposed works included demolition of buildings and above ground structures, disconnection of services, removal of slabs, foundations and hard standing, backfill of excavations, removal of tanks and site re-profiling.

Item	Year	Site Area	Report Summary
11	2006	Prologis Park site excluding former heating tank area in Phase 3a and backfilled pond in Phase 3	<p>Site Validation Report: Prologis Park, Hayes by Crossfield Consulting Ltd for Fitzpatrick Contractors Ltd, dated October 2006, reference CCL01410.BA29</p> <ul style="list-style-type: none"> A report was compiled by Crossfield Consulting to confirm that soils remaining on the Site met the compliance criteria set out in the report detailed as Item 10, with contractual works undertaken by Fitzpatrick Contractors Ltd (Fitzpatrick). The report does not cover the identified areas of concern comprising a backfilled pond in the northeast and former above ground storage tank in the northwest of the Site (in Phases 3a and 3b). A total of forty eight soil samples were retrieved from beneath MOD buildings following demolition, within 600mm of final development levels and on a 50m grid for intended commercial end use areas and on a 25m grid in intended residential end use areas. Laboratory results indicate that the concentrations recorded in the commercial area comply with remediation criteria presented in Item 10. Some elevated concentrations of arsenic, nickel and chromium were recorded however statistical analysis indicated that the concentrations were not significant and they were deemed suitable to remain on site.
12	2010	Phase 3 (formerly Phase 3b)	<p>Validation Report Phase 3B Prologis Park, Hayes by WSP Environmental for Prologis Developments Limited, dated November 2010, reference 12171314-001 R02</p> <ul style="list-style-type: none"> This report comprised a Site investigation and validation report completed for the Phase 3b area of Prologis Park in accordance with a third party remediation strategy, prior to redevelopment into industrial units with associated loading bays and car parking. The scope of works comprised soil sampling on a 50m grid and collection of soil samples in representative strata within 600mm of final development levels. At the time of writing, buildings on Site had been demolished and two stockpiles were present. The Site was bounded by a railway line with commercial properties beyond to the north, residential properties to the east, Prologis Park (undergoing redevelopment) to the south and the Phase 3a car park to the west. The Site was previously agricultural land, an armaments factory and records office prior to demolition. Previous investigation had noted a backfilled pond in the southeast with soil samples containing asbestos cement and elevated concentrations of TPH and PAH. Previous recommendations including excavation of the pond area and off-site disposal of materials had been for a previously proposed residential end-use. Eight trial pits were excavated to a maximum 3.3m bgl for good Site coverage (TP3 to TP9) and in the vicinity of the former pond (TP10). Made Ground was encountered to a maximum 1.6m bgl underlain by Langley Silt (unproven depths) and Lynch Hill Gravel (unproven depths). Groundwater strikes were noted between 0.9m and 2.55m bgl. One exceedence of remediation compliance criteria was recorded in TP3 at 0.3m bgl for PAH (610mg/kg compared to a criterion of 500mg/kg). Individual PAH compounds fall below specified criteria. Two soil samples recorded the presence of chrysotile asbestos (TP9 at 0.3m bgl and TP10 at 1.4m bgl). The Site was considered to pose a low environmental risk and hard standing installed as part of the development layout was considered sufficient to would break the direct contact and inhalation pathways identified for recorded contaminants. The report recommended the agreement of a cover soil layer with the Local Authority, robust health and safety assessment and potential removal of asbestos impacted soils.
Off-site (out of Phase 3 Area)			
13	2001	In east of Prologis Park	<p>Report on a Ground Investigation at TNT Archive Store, Hayes by Norwest Holst Soil Engineering Limited for Norwest Holst Construction Limited, dated 12th February 2001, reference MJB/TW/F11815</p> <ul style="list-style-type: none"> The purpose of the works was to determine the ground conditions for the proposed development of an archive warehouse. A finalised development plan was not available at the time of investigation, however it was understood that the development was to include a heavily reinforced concrete frame in the north with column loads of 3,500kN to 5,800kN on suspended ground slabs and a lighter high bay racking building in the south with loads of 105kN on a 2.6m x 0.875m grid and unspecified settlement loads. Access restrictions limited the number and depth of exploratory hole locations. A desk study was not undertaken by Norwest Holst (NHSEL) as a report had previously been completed by WS Atkins (Item 7). The subject area was located in the area of the previous LC and IWM stores to the west of the Site at approximately 31.0metres Above Ordnance Datum (m AOD). At the time of writing the Site supported two buildings with surrounding areas of vegetation (grass, shrubs and small trees) and hard covered car parking. The Site was originally developed as a factory for the production of field guns. Geological mapping for the Site indicated underlying Made Ground, Brick Earth, Terrace Gravels and London Clay (tertiary age). Previous intrusive investigation undertaken in September 1998 (Gibb, Item 5) comprised thirteen window sample boreholes and fifty geoprobe holes to a maximum 3.0m bgl (metres below ground level). The NHSEL investigation comprised two cable percussive boreholes (BH2 and BH6) to a maximum depth of 16.0m bgl with in-situ and laboratory geotechnical testing. Encountered geology comprised Made Ground to a typical depth of 1.2m bgl (clays, sands and gravels), Terrace Gravels to a maximum depth of 5.8m bgl (medium dense to dense flint) and London Clay from 4.8m bgl to unproven depths (maximum 16m bgl) (stiff to very stiff fissured grey clay). Groundwater strikes were not recorded (water was added during drilling). Foundations recommendations based on encountered ground conditions and geotechnical testing included a piled solution for the main building and shallow spread solutions for lighter structures and ancillary buildings using Class 1 concrete. Supplementary borehole investigation was also recommended. Contamination assessment was not undertaken as part of the works.
14	2005	Off-site Stockley Road roundabout	<p>Geo-Environmental Assessment: Prologis Roundabout, Hayes by WSP Environmental for Prologis (UK) Developments Limited, dated March 2005, reference 12170423-002</p> <ul style="list-style-type: none"> A report was commissioned by Prologis to investigate a parcel of land (0.48 hectares) directly to the west of the former Records Office off Bourne Avenue, Hayes for environmental and geotechnical issues that may have posed constraints to the development of a roundabout. At the time of writing the Site was a parcel of undeveloped rough grassland with Japanese Knotweed bounded to the north and west by a golf course, to the south by commercial properties and to the east by the A408 road. The Site had previously been a brick field then Stockley Brick Works. Surrounding features were noted as the Great Western Railway (350m north) and previous gravel and clay pits (adjacent west and 300m south). The Site was thought to be part of a landfill which was active at the time of reporting and accepted domestic and refuse wastes. Ground investigation comprised five cable percussive boreholes to a maximum 15.45m bgl backfilled with monitoring well standpipes and eight trial pits to a maximum 3.3m bgl. Four subsequent rounds of grass and groundwater monitoring and one round of groundwater sampling were undertaken. Encountered ground conditions comprised Made Ground to a maximum 7.3m bgl, Lynch Hill Gravel to a maximum 8.3m bgl and London Clay to unproven depths. Langley Silt was encountered in BH4 and BH5 in the north and east of the site. Groundwater strikes were encountered between 5.0 and 7.3m bgl within the Lynch Hill Gravel stratum and above the impermeable London Clay. The Site was not divided into averaging areas and localised exceedences of adopted GAC for a commercial/industrial end use were noted for zinc, lead, TPH and PAH. One sample of Made Ground tested positive for chrysotile asbestos fibres. Two olfactory observations of hydrocarbon odours were noted, one of which corresponded to an elevated TPH result. No significant exceedences of GAC applied to leachate or groundwater samples were noted. Ground gas assessment indicated that gases were being generated by Made Ground strata (including domestic refuse) and Lynch Hill Gravels, however low flow rates determined that gas protection measure were not required but design of the roundabout should account for the potential that ground gases could accumulate within void spaces. An assessment of foundation and ground improvement solutions was undertaken but was dependent on final designs for the development.

Item	Year	Site Area	Report Summary
15	2010	Western part of Phase 3 (Phase 3a)	<p>Validation Report Phase 3a Prologis Park, Hayes by WSP Environmental for Prologis Developments Limited, dated November 2010, reference 12171314-001 R01</p> <ul style="list-style-type: none"> This report comprised a Site investigation and validation report completed for the Phase 3a area of Prologis Park in accordance with a third party remediation strategy, prior to redevelopment into a car park. The scope of works comprised soil sampling on a 50m grid and collection of soil samples in representative strata within 600mm of final development levels. At the time of writing buildings on the Site had been demolished and stockpiled materials was present across the Site. A railway line with commercial properties beyond was located to the north and west, Phase 2B to the east and Prologis Park undergoing redevelopment to the south. The Site was previously agricultural land, an armaments factory and records office prior to demolition. Previous investigations had identified three heating oil tanks with observations of hydrocarbon odours and staining in the vicinity and elevated concentrations of TPH and VOC in tested soil samples. The remediation strategy recommended further investigation. Two trial pits were excavated to a maximum depth of 3.1m bgl, in the vicinity of the heating oil tanks (TP2) and for general Site coverage (TP1) (some access was limited due to the presence of stockpiles). Made Ground was encountered to a maximum 1.3m bgl underlain by Langley Silt to a maximum 2.2m bgl and Lynch Hill Gravel to unproven depths. Groundwater ingress was noted between 2.5m and 3.1m bgl. An oily sheen and hydrocarbon odour were observed in TP2 (2.8 to 3.1m bgl). No exceedences of remediation compliance criteria were noted, however one sample recorded the presence of chrysotile asbestos within Made Ground (TP1 at 0.4m bgl). The Site was considered to pose a low environmental risk and hard standing installed as part of the development layout was considered sufficient to break the direct contact and inhalation pathways identified for recorded contaminants. The report recommended the removal of the site stockpile to enable investigation below, health and safety assessment, agreement of cover soil specification and validation with the Local Authority and possible removal of asbestos.
16	2012	Off-site unit in south of Prologis Park	<p>Phase II Geotechnical Report: Unit DC2 Prologis Park, Hayes by WSP Environmental for Mace, dated 20th February 2012, reference 28183-001</p> <ul style="list-style-type: none"> A Preliminary Phase II Geotechnical Assessment was undertaken on the Site to assess ground conditions and support pile design prior to refurbishment of Unit DC2 into a data centre. Approximately 150 piles were required due to increased loadings associated with the proposed end use. The building comprised a commercial warehouse unit approximately 8,951m² with an internal height of 12m and a potential floor loading of 50kN/m². Two storey offices, car parking and a service yard were also part of the Site boundary. The scope of works was determined by Mace and comprised eight cable percussive boreholes to a maximum depth of 7.0m bgl, the approximate locations of which are shown on Figure 3. A concrete slab of 0.17 to 0.18m thick was present at surface in all exploratory hole locations underlain by Made Ground between 0.17 and 2.0m bgl, Langley Silt between 0.3 and 2.10m bgl (not encountered within boreholes in the east of the site), Lynch Hill Gravels between 1.2m and 5.5m bgl and London Clay from 5.2m bgl to unproven depths. Groundwater strikes were not observed due to water added during drilling. Recommendations included reference to the report detailed above as Item 8, allowance for the instability of the pile bore through the Lynch Hill Gravels formation and the potential presence of groundwater at circa 4m bgl in the method of construction and support to prevent collapse of the pile bore, where appropriate.
17	2012	Western part of Phase 3 (Phase 3a)	<p>Environmental Assessment: Phase 3a Prologis Park, Hayes by WSP Environmental for Prologis Developments Ltd, dated March 2012, reference 27672-0001</p> <ul style="list-style-type: none"> Site investigation was required in response to correspondence from the Environment Agency (EA) regarding additional information to discharge Planning Condition 16 relating to disposal of surface water runoff for the Site. Concerns raised by the EA included whether the depth of the proposed soakaway was at the same level as the groundwater table, assessment of the extent of previously noted hydrocarbon contamination and assessment of contamination concentrations to confirm risk to the underlying Principle Aquifer. The subject Site was approximately 0.3Ha and roughly triangular in shape and at the time of writing was undeveloped open unsurfaced land on a gentle southwestern facing slope at approximately 31.6m AOD. Ground investigation comprised the advancement of three hollow stem auger boreholes (HS1101 to HSA1103) and five trial pits (TT01 to TT05). Ground conditions were encountered as Made Ground to a maximum of 2.6m bgl (reworked materials in the northwest of the Site in the vicinity of former storage tanks). River Terrace Gravels (Lynch Hill Gravels and Maidenhead Formation) were encountered at surface in the east and centre of the Site to proven depths of 5.2m bgl, underlain by London Clay between 3.6m bgl to unproven depths. Langley Silt was recorded in two trial pits from 2010 located in the northeast and southwest of the Site between depths of 0.75 and 2.2m bgl. Encountered geology was generally consistent with previous investigations. Groundwater strikes were recorded between depths of 2.5 and 2.6m bgl within the Lynch Hill Gravel stratum. Rest levels were monitored at levels between 1.43 and 1.96m bgl also within River Terrace Gravels strata. Groundwater flow direction was thought to be to the south or southwest. No measureable thickness of free phase product was recorded. Contamination observations were all associated with hydrocarbons (sheen, odour and staining) and were localised within the vicinity of the former heating oil tanks and to the south. Elevated PID concentrations were recorded between 1 and 19ppm. Twenty one samples from both the investigation and previous assessment were screened using WSP generic assessment criteria (GAC) for a commercial/industrial end use and no exceedences were recorded. Three locations have recorded the presence of asbestos (TP01 at 0.4m bgl from 2010, TT01 at 0.1m bgl and TT02 at 0.2m bgl). Elevated concentrations of petroleum hydrocarbons and PAH were recorded within dissolved phase groundwater above the conservative screening criteria, however, no measurable thicknesses of non-aqueous phase liquids were recorded. Groundwater samples were collected as part of the WSP 2003 (Item 9) ground investigations at locations between Phase 3a and Frays River (the primary surface water receptor). Groundwater was collected from twelve monitoring wells on two occasions and recorded concentrations of TPH at less than the detection limit of the tests. The closest borehole to the Phase 3a area was BH7; the sample from BH7 was tested for a range of determinands including TPH. None of the individual contaminant concentrations exceeded the GAC and no visual evidence of contamination was noted. The petroleum hydrocarbons recorded in groundwater was concentrated within the C16 to C21 range, which is considered to be of low solubility and therefore less mobile than the lighter petroleum hydrocarbons fractions. No elevated hydrocarbon concentrations were recorded in down gradient boreholes during the previous monitoring periods, and there is no evidence to suggest that the elevated concentrations in groundwater are widespread or that off-site migration is occurring. The contamination was detected locally within the groundwater and wider previous monitoring did not record the presence of hydrocarbons within the down-gradient wells. No evidence of non-aqueous phase liquids has been recorded; however, some petroleum hydrocarbons fractions have been recorded above their respective limits of solubility. As the tanks had been removed, and the Site will be hard surfaced following development, the localised elevated dissolved phase concentrations detected within the groundwater in the vicinity of HSA1103 were not considered to pose an on-going risk to off-site receptors. In addition, given that Prologis had decided to move the soakaway to a downstream location, therefore the risks of further mobilising the contamination by increased groundwater recharge through the area were considered reduced. The report concluded that groundwater levels were lower than the base of the proposed soakaway drainage system.
18	2012	Off-site unit in south of Prologis Park	<p>Noise Assessment Report: Infinity Data Centre, Prologis Park by WSP Acoustics for Mace (Science, Technology and Waste) on behalf of Infinity SDC Limited, dated 2nd March 2012, reference 29037</p> <ul style="list-style-type: none"> This report does not relate to land quality and therefore has not been reviewed as part of this assessment.

Item	Year	Site Area	Report Summary
19	2012	Western part of Phase 3 (Phase 3a)	<p><u>Contamination Watching Brief: Prologis Site, Hayes, by WSP Environmental for Prologis UK Limited dated 28th June 2012, reference 30405-00001-L01</u></p> <ul style="list-style-type: none"> WSP were instructed by Prologis to provide a watching brief during installation of soakaways and an interceptor tank at the Site following completion of (Item 14). WSP Risk Management Services (WSP RMS) completed a walkover to provide advice to Volker Fitzpatrick regarding on-site asbestos containing materials (ACM) prior to works commencing. Friable amosite insulation board was noted at surface and recommendations included damping down prior to and during construction. Ten trial pits (TP101 to TP110) were advanced to a maximum 0.6m bgl to characterise ACM within hardcore deposits. Excavated materials were stockpiled prior to off-site disposal. One composite environmental sample was collected from each trial pit from surface to a maximum 0.3m bgl and tested for asbestos identification and quantification only. Chrysotile asbestos was identified within seven of ten samples with quantifications between 0.001%v/v and 0.0065%v/v. Health and safety control measures were implemented during construction works including air monitoring, working upwind of asbestos, Respiratory Protective Equipment for personnel working in the vicinity of open excavations, damping down of excavations and arisings, restriction of Site traffic to minimise dust, segregation and stockpiling of suspected ACM containing soils. No evidence of asbestos was recorded during air monitoring by WSP. Excavation works for the installation of an interceptor were undertaken separately and observations comprised groundwater ingress at 2m bgl (base of excavation), no evidence of hydrocarbon contamination was noted. An excavation for a soakaway (to 1.8m bgl) was undertaken as a separate item and encountered Made Ground to 1.6m bgl; no contamination observations or groundwater strikes were encountered. WSP considered that the soakaway, interceptor and associated drainage runs were placed within material that is not significantly impacted by hydrocarbon contamination and groundwater levels were considered to be below the base of the soakaways. Therefore, the risk posed to controlled waters was considered to be low and no further works necessary. Provided that any on-going excavation works took into account the potential for asbestos and adopt the appropriate control measures, no significant risks relating to human health were identified. It was anticipated that encountered materials could be suitable for re-use beneath buildings and hard standing with confirmation of the approach by the regulatory authorities and suitable documentation.
20	2012	Off-site unit in south of Prologis Park	<p><u>Phases 1 and 2 Noise Assessment Report: Fox West Data Centre, Prologis Park by WSP Acoustics for Mace (Science, Technology and Waste) on behalf of Infinity SDC Limited, dated 5th December 2012, reference 34906</u></p> <ul style="list-style-type: none"> This report does not relate to land quality and therefore has not been reviewed as part of this assessment.

Appendix C Report References

Environment Agency Aquifer Classifications

The Environment Agency (EA) divide the underlying strata in England and Wales into Principal Aquifer, Secondary Aquifer and Unproductive Strata in line with the updated Groundwater Protection Policy (GP3) and the Water Framework Directive (WFD). This replaces the former designation of Major, Minor and Non Aquifers. The following is derived from the main policy document.

Principal Aquifers

These are geological strata that exhibit high intergranular and/or fracture permeability. They usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. Principal Aquifers equate in most cases to aquifers previously designated as Major Aquifer.

Secondary Aquifers

These include a wide range of geological strata with a correspondingly wide range of permeability and storage. Secondary aquifers are subdivided into two types:

Secondary A - permeable strata capable of supporting water supplies at a local rather than strategic scale and in some cases forming an important source of base flow to rivers. These generally equate to aquifers formerly classified as 'Minor Aquifers'

Secondary B - predominantly lower permeability strata which may in part have the ability to store and yield limited amounts of groundwater by virtue of localised features such as fissures, thin permeable horizons and weathering. These are generally the water bearing parts of the former 'Non-Aquifers'

In cases where it has not been possible to attribute either category A or B to a rock type, a designation of Secondary Undifferentiated has been assigned. In most cases, this means that the stratum in question has previously been designated as both Minor and Non-Aquifer in different locations due to the variable characteristics of the rock type.

Unproductive Strata

These are geological strata with low permeability that have negligible significance for water supply or river base flow.

Regulatory Information Sources

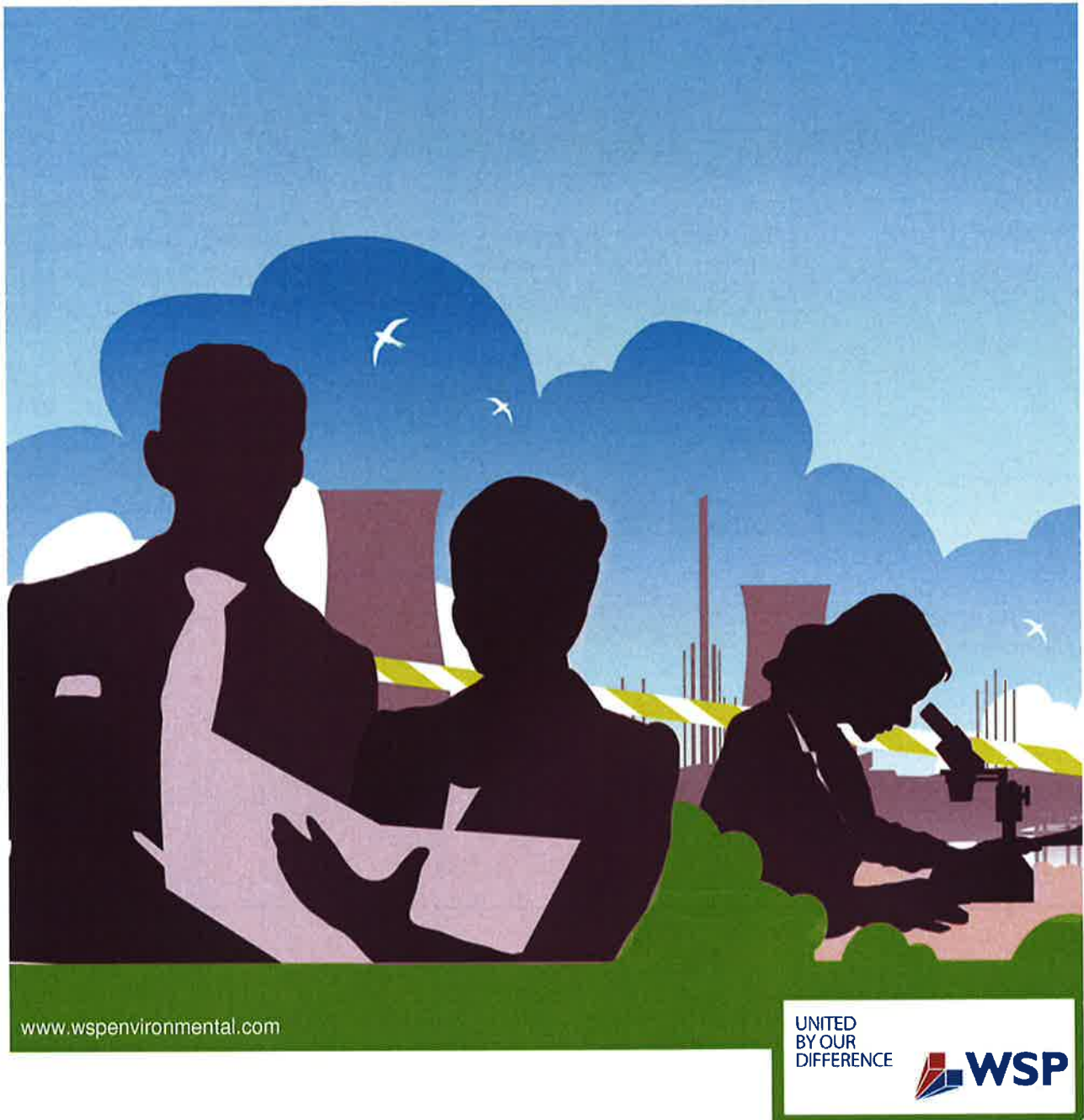
Reference has been made to the Landmark Information Group data provision service. This includes information and data collated from several organisations, including the Environment Agency (EA), Department for Environment, Food & Rural Affairs (DEFRA), Health & Safety Executive (HSE), the Health Protection Agency (HPA), and the Coal Authority

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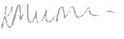




Validation Report Phase 3B ProLogis Park, Hayes

ProLogis

November 2010

CONTRACT DOCUMENT	
	Signed on behalf of Client
	Signed on behalf of Contractor
	Signed on behalf of the Sarl

QUALITY MANAGEMENT

Issue/revision	Issue 1	Issue 1
Remarks	Version 1	Version 2
Date	9 November 2010	10 November 2010
Prepared by	K Murray	K Murray
Signature		
Checked by	N Foster	N Foster
Signature		
Authorised by	N Foster	N Foster
Signature		
Project number	12171314-001	12171314-001
File reference	RO2	RO2

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CONTENTS

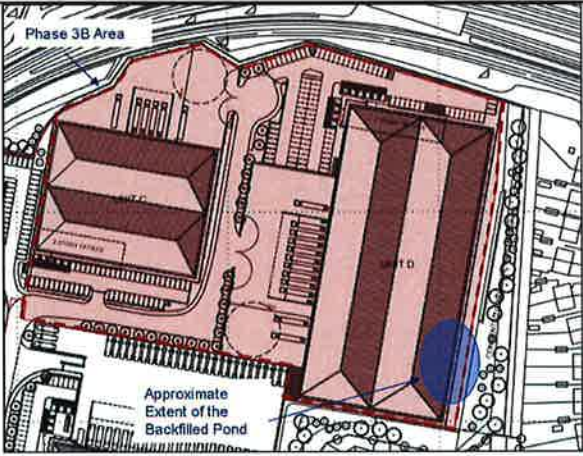
1	INTRODUCTION	3
2	GENERAL INFORMATION	5
3	WSPE 2010 VALIDATION WORKS	7
4	CONCLUSIONS AND RECOMMENDATIONS	8

Figure 1	Site Location Plan
Figure 2	Exploratory Hole Location Plan

Appendix A	Remediation Compliance Criteria
Appendix B	Exploratory Hole Logs
Appendix C	Chemical and Asbestos Testing Certificates
Appendix D	Notes On Limitations

1 INTRODUCTION

Instruction	On the instruction of ProLogis Developments Limited (ProLogis), WSP Environmental Ltd (WSPE) has completed a Site Investigation and Validation Report for Phase 3B of the site located at ProLogis Park, Stockley Road, Hayes, Middlesex, UB3 1QF. (Figure 1).
Aims & Objectives	<p>The main objective of this assessment is to provide validation information for the Phase 3B site in advance of the redevelopment of the site into industrial units.</p> <p>The works have been carried out in accordance with a third party remediation strategy and the WSPE Notes on limitations are provided in Appendix D. Geotechnical assessment has not undertaken as part of this scope of works.</p>
Confidentiality Statement	<p>This report is addressed to and may be relied upon by the following party:-</p> <p>ProLogis Developments Limited ProLogis House 1 Monkspath Hall Road Solihull West Midlands B90 4FY</p> <p>This assessment has been prepared for the sole use and reliance of the above named parties. This report shall not be relied upon or transferred to any other parties without the express written authorisation of WSP Environmental Limited. No responsibility will be accepted where this report is used, either in its entirety or in part, by any other party.</p>
Background	<p>WSPE carried out a Phase I Environmental Audit in December 2000 (Reference 201201/B/01) and a Phase II Geo-Environmental Assessment of the site in December 2003 (Reference 12170423).</p> <p>These reports related to the wider site area and concluded that with the exception of potential contamination associated with the former pond in Phase 3B which has been backfilled (Figure 2), the levels of contamination are unlikely to pose significant risks to human health or the controlled waters.</p> <p>Asbestos cement was noted within the backfilled pond area and the WSPE Phase II report recommended further sampling and analysis of the soils used to backfill the pond.</p> <p>A Demolition and Remediation Strategy prepared by Burks Green has been provided by ProLogis. The main buildings occupying the majority of Phase 3B have been demolished and we understand that no specific remediation works have been carried out to date.</p> <p>A Site Validation report (October 2006), prepared by Crossfield Consulting Limited has been provided and this related to validation works completed on development areas to the south of Phases 3B. This report represents the validation report for the Phase 3B area only.</p>
Proposed Development	It is proposed that the Phase 3B area of the site is redeveloped for two industrial units with associated car parking and loading areas. An annotated proposed layout along with the approximate position of the backfilled pond is provided in the extract below, which is taken from ProLogis Drawing (Reference: 30226-PL-101).

	 <p>The diagram is a site plan for the Phase 3B Area. It shows several large, rectangular building footprints in a reddish-brown color. A blue oval is located in the lower right portion of the plan, labeled 'Approximate Extent of the Backfilled Pond'. The plan also shows surrounding roads, parking areas, and other site features. The text 'Phase 3B Area' is at the top left, and 'Approximate Extent of the Backfilled Pond' is at the bottom center.</p>
<p>Scope of Works</p>	<p>The works have been designed in accordance with section 8.0 of the Demolition and Remediation Strategy and include:</p> <ol style="list-style-type: none"> 1. Sampling of soils on 50m spacing to assess the presence of further previously unidentified hotspots and confirm the absence of contamination in the footprint of the former building. 2. Collection of samples from representative strata within 600mm of final development levels (which are assumed to be the current site levels). 3. Soil samples recovered from the validation investigations will be submitted for the following chemical testing suite: <ul style="list-style-type: none"> ▪ pH ▪ Metals (Arsenic, cadmium, copper, selenium, chromium, nickel, mercury, lead, zinc) ▪ Total Petroleum Hydrocarbons (TPH) ▪ Speciated Polyaromatic Hydrocarbons (PAH) ▪ Phenols ▪ Water Soluble Sulphate ▪ Asbestos ▪ Provision of a Validation Report <p>In addition to the above work, two stockpiles are present on site, a sample from each stockpile was collected and tested for asbestos and particle size distribution (PSD). These results have been provided to ProLogis under a separate cover.</p>

2 GENERAL INFORMATION

Site name	Phase 3B, ProLogis Park	Location	ProLogis Park, Stockley Road, Hayes, Middlesex, UB3 1QF.
NGR	507851 179581	Approximate Site Area	
Site Description	<p>The site is approximately triangular and is currently accessed via the ProLogis Park Gate house to the south. The previous buildings have been demolished and two stockpiles have been identified (namely Stockpile 3B1 and 3B2). No evidence of deleterious or contaminated materials was evident within these stockpiles. However, a full inspection was not possible given the limited access available.</p> <p>The site is situated on a gentle slope to the southwest and the site is generally positioned at approximately 31 and 32.0m AOD.</p>		
Surrounding Area	<p>The surrounding land uses are as follows:</p> <ul style="list-style-type: none"> ▪ North: Railway Line with existing commercial / Industrial properties beyond. ▪ East: Residential Properties ▪ South: ProLogis Park undergoing redevelopment ▪ West: Phase 3A ProLogis car park beyond which lies a railway line 		
Geology	<p>British Geological Society geological mapping at 1: 50,000 scale, Sheet 269 (Solid and Drift), published 1999, shows the following geological sequence:</p> <ul style="list-style-type: none"> ▪ Langley Silt (Brickearth) ▪ River Terrace Gravels ▪ London Clay ▪ Eocene Claygate Member ▪ Upper Cretaceous Chalk 		
Hydrogeology	<p>The underlying drift and solid strata are defined as Unproductive Strata on the Environment Agency (EA) Website. These are defined as '<i>Rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.</i>' Groundwater flow is anticipated to be towards to the southwest.</p> <p>The EA Website identifies that the site is not located within a Source Protection Zone (SPZ) for groundwater abstraction.</p>		
Hydrology	<p>The Grand Union canal is located adjacent to the north and east of the site beyond the railway line. A lake is present to the west of the site beyond the railway line. Frays River is located 2km to the west of the site.</p> <p>The site does not lie within a flood zone as currently defined by the EA.</p>		
Site History	<p>The site comprised agricultural land until the Second World War when the site was used as a Royal Ordnance Factory for the production of armaments. In the 1950's, the site was taken over by the Public Records Office and was an archive store used by the MOD and various other government departments and organisations. The site has since been demolished to ground level.</p>		
Landfills	<p>Four disused landfills exist within 1km of the site, the closest of which is located is some 20m to the south of the site. One current landfill license is held for Heathrow Express Rail Link, Stockley Park located 250m to the south, this landfill is currently dormant.</p>		
Previous Works	<p>The previous reports for the site identified the presence of a backfilled pond in the south eastern corner of the Phase 3B area. A trial trench (TP12) was excavated within the former pond by WSP. The Made Ground in TP12 was recorded to 1.5m below ground level (bgl) and the extents of the pond were assessed as approximately 28m by 31m.</p>		

	<p>Asbestos cement sheeting was noted within the Made Ground deposits.</p> <p>The chemical testing results recorded slightly elevated TPH and PAH in TP12.</p> <p>At the time of writing the WSP Phase II Report, the Phase 3B area of the site was earmarked for a residential use and the report recommended that the pond was excavation and disposal of the pond deposits containing asbestos. The Phase 3B area is now designated as commercial land and the discussions held within this report will be based upon the commercial end use and associated exposure pathways.</p> <p>The previously agreed remediation compliance criteria adopted by the Remediation Strategy are given in Appendix A.</p>
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3 WSPE 2010 VALIDATION WORKS

<p>Scope of Investigation</p>	<p>The investigation was completed on 6 October 2010 and was fully supervised by an appropriately experienced WSPE engineer. The scope of investigation is summarised below:</p> <ul style="list-style-type: none"> ▪ Service clearance of all exploratory holes prior to excavation. ▪ The excavation of eight trial pits (TP3 to TP10), TP10 is located as close to the area of the backfilled pond. The remainder of the trials pits were positioned to provide coverage in the Phase 3B area. It should be borne in mind that access was limited due to the presence of two stockpiles on site. ▪ Representative sampling and chemical analysis of soils within the top 600mm. ▪ Laboratory chemical analysis at a UKAS accredited laboratory. <p>An Exploratory Hole Location plan is included as Figure 2 and exploratory hole logs are presented in Appendix B. Chemical and asbestos test results are presented in Appendix C.</p>
<p>General Ground Conditions Encountered</p>	<p>Made Ground was encountered in all exploratory holes to depth typically ranging from 0.4m bgl (TP7) to 1.2m bgl (TP3) and generally comprised gravelly clay with localised discrete layers of sand and silt noted. During the excavation of TP3, a localised observation of hydrocarbon odour was noted at 0 to 0.35m bgl.</p> <p>Deeper deposits of Made Ground to a maximum depth of 1.6m bgl were encountered in TP10. This trial pit was positioned in the vicinity of the backfilled pond. The Made Ground deposits within the pond were described as gravelly clay underlain by soft dark grey sandy silt. In addition, suspected asbestos cement was observed at 1.4m bgl.</p> <p>The Made Ground was underlain by Langley Silt (sandy clay) to depths between 1.2m bgl and in excess of 3.3m bgl. Which in turn is underlain by Lynch Hill Gravel (gravelly sand), which was proven to a maximum depth of 3.3m bgl, the full thickness of Lynch Hill Gravel stratum was not proven during the investigation.</p> <p>Groundwater ingress was recorded at depths between 0.9m bgl (TP5) and 2.55m bgl (TP7). No groundwater ingress was recorded within TP4, TP6 or TP10. Several collapses of the trial pit walls were noted during excavation.</p> <p>No significant obstructions were encountered.</p>
<p>Chemical and Asbestos Testing Results</p>	<p>Nine samples were submitted to the laboratory for the suite of tests listed in the remediation strategy. The results have been compared directly to the previously agreed remediation compliance criteria or Generic Assessment Criteria (GACs) for a commercial end use, these are presented in Appendix A.</p> <p>With the exception of total PAH in TP3 at 0.3m bgl, none of the individual contaminant concentrations were determined to exceed relevant remedial screening criteria or GACs for a commercial / industrial end use.</p> <p>The total PAH concentration of 610 mg/kg in TP3 exceeds the adopted remediation screening value of 500 mg/kg. Upon comparison of the individual PAH concentration with the WSP GACs with the exception of Benzo (a) Pyrene (48 mg/kg) the individual PAHs fall below the WSP GACs for a commercial / industrial end use. The presence of PAH in this sample could be associated with the hydrocarbon odour noted at 0.3m in TP3. Based on the above, is considered that the presence of PAH</p>

is relatively localised to a discrete soil horizon in TP3.

Nine samples were tested for the presence of asbestos; two samples (TP9 and TP10) recorded the presence of chrysotile asbestos at 0.3m and 1.4 m bgl respectively. Suspected asbestos cement was noted in TP10 which was positioned in the position of the former pond. No visual evidence of asbestos was noted during the excavation of TP9, however, possible demolition materials (concrete and brick) were noted during the excavation, which may contain asbestos.

4 CONCLUSIONS AND RECOMMENDATIONS

<p>Conclusions</p>	<p>Based on the validation works undertaken, localised PAH contamination has been recorded in TP3 and asbestos within TP9 and TP10.</p> <p>Given that the site will be used for a commercial end use, the associated hard surfacing should serve to prevent direct contact with potentially contaminated materials asbestos identified on site.</p> <p>Bearing the above in mind, it is considered that the site poses a Low Risk in relation to environmental liabilities. However, in terms of the ongoing management of the redevelopment activities, WSPE has provided some recommendations below.</p>
<p>Recommendations</p>	<ul style="list-style-type: none"> ▪ Based on the information contained within this report, the following recommendation are summarised below: <ul style="list-style-type: none"> ▪ Ensure the potential pathway (via direct contact / inhalation) between the potential residual contamination in TP3 and localised asbestos in TP9 and TP10 is broken by the incorporation of hardstanding / buildings in these locations. ▪ Incorporation of an appropriate depth of cover soils in any soft landscaping areas, the specification to be agreed with the local authority. ▪ Ensure a thorough health & safety assessment is undertaken prior to commencing any excavations on site to manage the potential inhalation risk posed by asbestos within the Made Ground to ground workers or maintenance workers. The risks associated with asbestos should be addressed in accordance with the Control of Asbestos at Work Regulations, 2006. ▪ Completion of appropriate construction phase health and safety plan to ensure the risks to construction workers, maintenance worker and third parties are managed / mitigated. ▪ Measures to manage future 'authorised developments' (i.e. outside the planning system), to ensure long-term integrity of capping layers and consideration of asbestos related risks are appropriately managed. ▪ Whilst not required technically, it may be prudent to remove the identified asbestos containing materials, in order to avoid issues being raised by prospective purchasers or tenants of the completed development. However, from a technical perspective and based on the information to date, the soils are considered unlikely to pose a significant risk provided the above recommendations are taken into account.

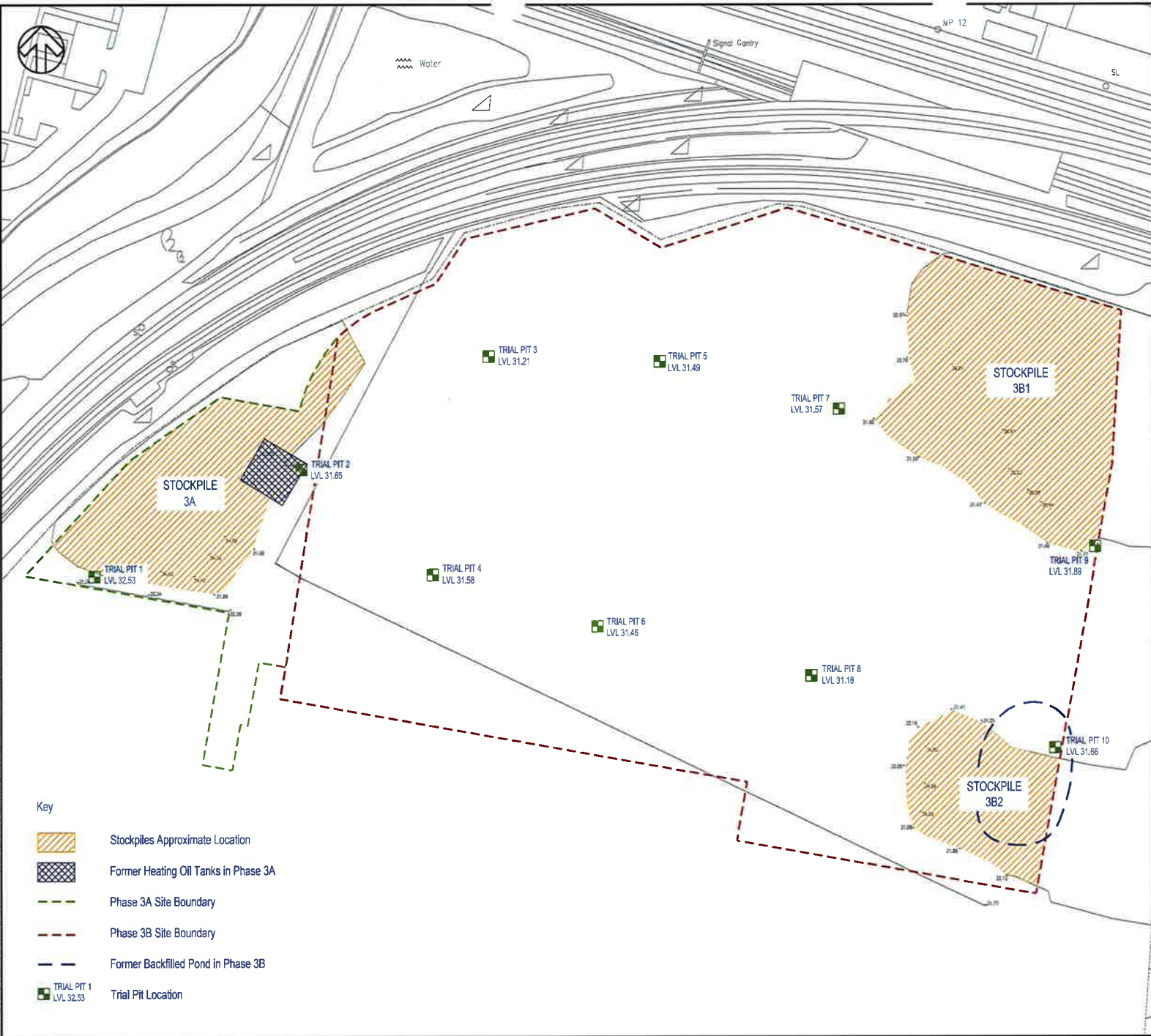
Figures



TITLE
**PHASE 3B, PROLOGIS
 PARK, HAYES**

FIGURE NO.
FIGURE 1

Z:\Projects\Misc Projects\Other Offices Dwg Work\Kerry Murray\Prologis\Fig 2 Exploratory Hole.dwg



DO NOT SCALE

Notes

1. All site levels are in metres derived from GPS.
2. Coordinate grid is derived from GPS.
3. All locations are approximate.
4. Site boundary taken from Prologis Drawing 30226-PL-101

A	NOT ISSUED	xxx	ISSUED		
REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS:

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<http://www.wspgroup.com>

CLIENT:

ProLogis
 The Global Distribution Solution

PROJECT:
 PROLOGIS PARK STOCKLEY ROAD, HAYES

TITLE:
 EXPLORATORY HOLE LOCATION PLAN

SCALE @A3: 1:1000	CHECKED: KM	APPROVED: NF
CAD FILE: Fig 2 Exploratory Hole.dwg	DESIGN-DRAWN: AJA	DATE: November 2010
PROJECT No: 12171314-001	DRAWING No: Figure 2	REV: A

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Appendix A Remediation Compliance Criteria


Contaminant	TTV (mg/kg)		Basis
	Commercial	Residential	
TPH	5000 (fully speciated for all TPH fractions)	1000 (fully speciated for all TPH fractions)	WSP Tier 1 Screening value
Naphthalene	-	50.0	Toxic Equivalency to BaP
Acenaphthylene	-	1300.0	Toxic Equivalency to BaP
Acenaphthene	-	1300.0	Toxic Equivalency to BaP
Fluorene	-	1300.0	Toxic Equivalency to BaP
Phenanthrene	-	1300.0	Toxic Equivalency to BaP
Anthracene	-	1300.0	Toxic Equivalency to BaP
Fluoranthene	-	1300.0	Toxic Equivalency to BaP
Pyrene	-	1300.0	Toxic Equivalency to BaP
Benzo(a)anthracene	-	13.0	Toxic Equivalency to BaP
Chrysene	-	13.0	Toxic Equivalency to BaP
Benzo(k)fluoranthene	-	13.0	Toxic Equivalency to BaP
Benzo(b)fluoranthene	-	13.0	Toxic Equivalency to BaP
Benzo(a)pyrene	-	1.3	Toxic Equivalency to BaP
Indeno(1,2,3-cd)pyrene	-	13.0	Toxic Equivalency to BaP
Dibenzo(a,h)anthracene	-	1.3	Toxic Equivalency to BaP
Benzo(g,h,i)perylene	-	13.0	Toxic Equivalency to BaP
PAH Sum (Commercial only)	500	NA	Calculated TTV using BP RISC 4
PCBs	12.0	0.32	Calculated TTV using BP RISC 4
Asbestos – Commercial	0.01%	Not detected	Special Waste
Arsenic	500	20	CLEA
Cadmium	1400	2.0 (pH dependant)	CLEA
Chromium	5000	130	CLEA
Lead	750	450	CLEA
Nickel	5000	50	CLEA
Selenium	8000	35	CLEA
Mercury	480	8.0	CLEA
Copper	2600	2600	WSP Calculated TTV using BP RISC 4
Zinc	1200	1200	WSP Calculated TTV using BP RISC 4





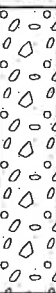
Determination	Units	TP3	TP3	TP4	TP5	TP6	TP7	TP8	TP9	TP10
		0.3	1.5	0.1	0.5	0.5	0.2	0.4	0.3	0.5
Molalure	%	10	8	11	12	15	6.5	13	14	14
pH	pH units	8.8	---	8.6	9.4	7.9	8.1	5.4	11	9.7
Selenium, total, as Se	mg/kg	0.3	---	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Mercury, total, as Hg	mg/kg	0.1	---	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Arsenic, total, as As	mg/kg	2.5	---	4.1	3.5	2.5	4.2	2.5	3.3	5.1
Cadmium, total, as Cd	mg/kg	0.46	---	0.25	0.25	0.25	0.25	0.25	0.32	0.34
Chromium, total, as Cr	mg/kg	63	---	56	26	19	23	50	59	43
Copper, total, as Cu	mg/kg	16	---	17	14	20	6.5	9	27	45
Nickel, total, as Ni	mg/kg	14	---	35	28	40	17	21	33	44
Lead, total, as Pb	mg/kg	86	---	2.5	3.8	2.5	2.6	2.5	29	71
Zinc, total, as Zn	mg/kg	220	---	72	58	81	35	46	120	150
Naphthalene	mg/kg	1.1	---	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Acenaphthylene	mg/kg	1.1	---	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Acenaphthene	mg/kg	7	---	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Fluorene	mg/kg	8.5	---	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Phenanthrene	mg/kg	77	---	0.3	0.2	0.1	0.1	0.1	0.8	0.9
Anthracene	mg/kg	21	---	0.1	0.1	0.1	0.1	0.1	0.2	0.3
Fluoranthene	mg/kg	130	---	0.1	0.1	0.1	0.2	0.1	0.1	2.3
Pyrene	mg/kg	97	---	0.6	0.3	0.1	0.2	0.1	1.5	2
Benzo(a)anthracene	mg/kg	49	---	0.4	0.1	0.1	0.1	0.1	0.6	1
Chrysene	mg/kg	49	---	0.3	0.1	0.1	0.1	0.1	0.7	1.1
Benzo(k)fluoranthene	mg/kg	22	---	0.2	0.1	0.1	0.1	0.1	0.3	0.5
Benzo(b)fluoranthene	mg/kg	42	---	0.3	0.1	0.1	0.1	0.1	0.5	0.9
Benzo(a)pyrene	mg/kg	48	---	0.4	0.1	0.1	0.1	0.1	0.6	1.1
Indeno(1,2,3-c,d)pyrene	mg/kg	23	---	0.3	0.1	0.1	0.1	0.1	0.4	0.7
Dibenz(a,h)anthracene	mg/kg	8.4	---	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Benzo(g,h)perylene	mg/kg	26	---	0.2	0.1	0.1	0.1	0.1	0.5	0.8
PAH Total (EPA 16)	mg/kg	610	---	3	1	1	1	1	6	12
Catechol	mg/kg	---	---	---	---	---	---	---	---	---
Naphthol	mg/kg	---	---	---	---	---	---	---	---	---
Phenol	mg/kg	---	---	---	---	---	---	---	---	---
Resorcinol	mg/kg	---	---	---	---	---	---	---	---	---
Total Cresols	mg/kg	---	---	---	---	---	---	---	---	---
Total Phenols	mg/kg	---	---	---	---	---	---	---	---	---
Total Xylenols	mg/kg	---	---	---	---	---	---	---	---	---
Trimethylphenol	mg/kg	---	---	---	---	---	---	---	---	---
Benzene	mg/kg	0.01	---	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Ethylbenzene	mg/kg	0.01	---	0.01	0.01	0.01	0.01	0.01	0.01	0.01
m-Xylene	mg/kg	0.01	---	0.01	0.01	0.01	0.01	0.01	0.01	0.01
p-Xylene	mg/kg	0.01	---	0.01	0.01	0.01	0.01	0.01	0.01	0.01
MTBE	mg/kg	0.01	---	0.01	0.01	0.01	0.01	0.01	0.01	0.01
m+p-Xylene	mg/kg	0.01	---	0.01	0.01	0.01	0.01	0.01	0.01	0.01
TAME	mg/kg	0.01	---	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Toluene	mg/kg	0.01	---	0.01	0.01	0.01	0.01	0.01	0.01	0.01
PRO (c-C5-C6)	mg/kg	10	---	10	10	10	10	10	10	10
PRO (c-C6-C8)	mg/kg	10	---	10	10	10	10	10	10	10
PRO (c-C8-C10)	mg/kg	10	---	10	10	10	10	10	10	10
PRO (c-C5-C10)	mg/kg	30	---	30	30	30	30	30	30	30
PRO (c-C6-C10)	mg/kg	20	---	20	20	20	20	20	20	20
EPH (c-C6-C8)	mg/kg	---	2	---	---	---	---	---	---	---
EPH (c-C8-C12)	mg/kg	---	4	---	---	---	---	---	---	---
EPH (c-C12-C16)	mg/kg	---	2	---	---	---	---	---	---	---
EPH (c-C16-C21)	mg/kg	---	2.8	---	---	---	---	---	---	---
EPH (c-C21-C40)	mg/kg	---	15	---	---	---	---	---	---	---
Total EPH (c-C6-C40)	mg/kg	---	20	---	---	---	---	---	---	---
Aliphatic (c-C5-C6)	mg/kg	0.2	---	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Aliphatic (c-C6-C8)	mg/kg	0.2	---	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Aliphatic (c-C8-C10)	mg/kg	0.2	---	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Aliphatic (c-C10-C12)	mg/kg	2	---	2	2	2	2	2	2	2
Aliphatic (c-C12-C16)	mg/kg	2	---	2	3.7	2	2	2	3.3	2.7
Aliphatic (c-C16-C21)	mg/kg	5	---	5	18	5	5	5	16	14
Aliphatic (c-C21-C35)	mg/kg	29	---	7	68	5	6.2	5	59	71
Aliphatic (c-C35-C40)	mg/kg	9.5	---	2	22	2	2	2	15	16
Aliphatic (c-C40-C44)	mg/kg	9.8	---	2	26	2	2	2	14	14
Total Aliphatics (c-C6-C44)	mg/kg	58	---	20	140	20	20	20	119	120
Aromatic (c-C6-C7)	mg/kg	0.01	---	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatic (c-C7-C8)	mg/kg	0.01	---	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatic (c-C8-C10)	mg/kg	0.01	---	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatic (c-C10-C12)	mg/kg	2.7	---	2.6	2	2.9	2	2.7	2.3	2
Aromatic (c-C12-C16)	mg/kg	5	---	2.8	2.7	3.6	3.2	3.1	5.2	3.9
Aromatic (c-C16-C21)	mg/kg	37	---	8.3	11	6	5.7	5	34	18
Aromatic (c-C21-C35)	mg/kg	160	---	9.4	53	11	8.9	6	84	119
Aromatic (c-C35-C40)	mg/kg	60	---	2	34	2	2	2	34	44
Aromatic (c-C40-C44)	mg/kg	42	---	2	35	2	2	2	27	34
Total Aromatics (c-C6-C44)	mg/kg	310	---	26	140	27	22	20	190	210
Total TPH (c-C6-C44)	mg/kg	370	---	40	270	40	40	40	290	330

Number of Tests	Concentration MIN (mg/kg)	Concentration MAX (mg/kg)	Compliance Criteria Commercial (mg/kg)
0	6.5	15.0	N/A
0	5.4	11.0	N/A
0	0.3	0.3	8000
0	0.1	0.2	480
0	2.5	5.1	500
0	0.3	0.5	1400
0	13.0	63.0	5000
0	8.5	45.0	2600
0	14.0	44.0	5000
0	2.5	86.0	750
0	35.0	220.0	1200
0	0.1	1	200
0	0.1	1	84000
0	0.1	7	85000
0	0.1	9	84000
0	0.1	77	22000
0	0.1	21	520000
0	0.1	130	23000
0	0.1	97	54000
0	0.1	49	89
0	0.1	49	140
0	0.1	22	140
0	0.1	42	100
0	0.1	48	14
0	0.1	23	60
0	0.1	6	13
0	0.1	26	650
0	1.0	610	500
0	0.0	0.0	N/A
0	0.0	0.0	N/A
0	0.0	0.0	3200
0	0.0	0.0	N/A
0	0.0	0.0	160900
0	0.0	0.0	3200
0	0.0	0.0	N/A
0	0.0	0.0	N/A
0	0.0	0.0	0.08
0	0.0	0.0	1700
0	0.0	0.0	8900
0	0.0	0.0	7900
0	0.0	0.0	6200
0	0.0	0.0	N/A
0	0.0	0.0	59000
0	10.0	10.0	N/A
0	10.0	10.0	N/A
0	10.0	10.0	N/A
0	30.0	30.0	N/A
0	20.0	20.0	N/A
1	2.0	2.0	N/A
1	4.0	4.0	N/A
1	2.0	2.0	N/A
1	2.8	2.8	N/A
1	15.0	15.0	N/A
1	20.0	20.0	N/A
0	0.2	0.2	N/A
0	0.2	0.2	N/A
0	0.2	0.2	N/A
0	2.0	2.0	N/A
0	2.0	3.7	N/A
0	5.0	18.0	N/A
0	5.0	71.0	N/A
0	2.0	22.0	N/A
0	2.0	26.0	N/A
0	20.0	140.0	N/A
0	0.0	0.0	N/A
0	0.0	0.0	N/A
0	0.0	0.0	N/A
0	2.0	2.9	N/A
0	2.7	5.2	N/A
0	5.0	37.0	N/A
0	6.0	160.0	N/A
0	2.0	60.0	N/A
0	2.0	42.0	N/A
0	20.0	310.0	N/A
0	40.0	370.0	5000

Notes:
 Red Writing Adopted Remedial Compliance Criteria
 Black Writing WSP GAC for a commercial / Industrial End Use


Appendix B Exploratory Hole Logs


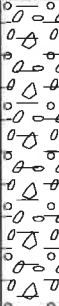
 WSP Environmental Ltd 1 Queens Drive Birmingham, B5 4PJ Telephone: 0121 352 4700 Fax: 0121 352 4701	WINDOW SAMPLE LOG			Hole No. TP03
	Project Prologis Park, Hayes			Sheet 1 of 1
Job No 12171314.001	Client Prologis			Date 06-10-10 06-10-10
Contractor / Driller Donnan Plant	Method/Plant Used JCB Excavator	Logged By A. Linnell	Co-Ordinates (NGR) E 0.000 N 0.000	Ground Level (m AOD)

SAMPLES & TESTS							STRATA					Install / Backfill
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m ²)	P.Pen (kN/m ²)	Water	Elev. (m AOD)	Depth (Thickness)	Description	Legend	Geology	Dia. mm
0.30	ES							0.35	MADE GROUND: Black, gravel of tarmac, ...slight hydrocarbon odour.		MG	
								0.55	Firm, green grey, CLAY. (Langley Silt)		MNHD	
1.00	ES							1.20	Firm, orange brown mottled mid brown, slightly sandy CLAY, with occasional fine, subangular gravel of flint. (Langley Silt)		MNHD	
1.50	ES							1.50	Loose, mid brown and dark brown, sandy GRAVEL. Gravel of fine to coarse, subangular to rounded, flint. Sand is coarse. (Lynch Hill Gravel)		MNHD	
								2.70	Trial pit terminated at 2.7m due to groundwater ingress and collapse.			

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing
						06-10-10		1.60			
General Remarks Soil strength based on engineers observations. Trial pit backfilled upon completion. No significant visual or olfactory evidence of contamination noted.											
Scale 1:37.5		Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.									


08 WSP WINDOW SAMPLE LOG 12171314.001 PROLOGIS PARK, HAYES.GPJ WSPTEMPLATE1.03.GDT 14/3/12


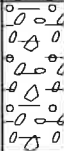
 WSP Environmental Ltd 1 Queens Drive Birmingham, B5 4PJ Telephone: 0121 352 4700 Fax: 0121 352 4701	WINDOW SAMPLE LOG			Hole No. TP04
	Project Prologis Park, Hayes		Sheet 1 of 1	
Job No 12171314.001	Client Prologis		Date 06-10-10 06-10-10	
Contractor / Driller Donnan Plant	Method/Plant Used JCB Excavator	Logged By A. Linnell	Co-Ordinates (NGR) E 0.000 N 0.000	Ground Level (m AOD)

SAMPLES & TESTS							STRATA					Install / Backfill Dia. mm
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (m AOD)	Depth (Thickness)	Description	Legend	Geology	
0.10	ES							0.67	MADE GROUND, Soft, orange and mid brown, gravelly CLAY. Gravel of fine to coarse, subangular to rounded, flint and tarmac.		MG	
1.50	ES							2.30	Loose, mid brown, clayey GRAVEL. Gravel of fine to coarse, subangular to rounded, flint.		MNHD	
									Trial pit terminated at 2.3m due to ingress and collapse.			

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing
General Remarks Soil strength based on engineers observations. Trial pit backfilled upon completion. No significant visual or olfactory evidence of contamination noted.											
Scale 1:37.5		Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.									


08 WSP WINDOW SAMPLE LOG 12171314.001 PROLOGIS PARK, HAYES.GPJ WSPTEMPLATE1.03.GDT 14/3/12




 WSP Environmental Ltd 1 Queens Drive Birmingham, B5 4PJ Telephone: 0121 352 4700 Fax: 0121 352 4701	WINDOW SAMPLE LOG			Hole No. TP05
	Project Prologis Park, Hayes		Sheet 1 of 1	
Job No 12171314.001	Client Prologis		Date 06-10-10 06-10-10	
Contractor / Driller Donnan Plant	Method/Plant Used JCB Excavator	Logged By A. Linnell	Co-Ordinates (NGR) E 0.000 N 0.000	Ground Level (m AOD)

SAMPLES & TESTS							STRATA					Install / Backfill
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pan (kN/m2)	Water	Elev. (m AOD)	Depth (Thickness)	Description	Legend	Geology	Dia. mm
0.50	ES							(0.60)	MADE GROUND: soft orange brown mottled mid brown, gravelly CLAY. Gravel of fine to medium, angular to subangular tarmacadam and flint.		MG	
								(0.80)	Loose, Orange brown, clayey GRAVEL. Gravel of fine to coarse, subangular to rounded of flint. (Lynch Hill Gravel)		MNHD	
								1.40	Trial pit terminated at 1.4m due to ingress and flooding of the trial pit to 0.3m			

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing
						06-10-10		0.90			
General Remarks Soil strength based on engineers observations. Trial pit backfilled upon completion. No significant visual or olfactory evidence of contamination noted.											
Scale 1:37.5		Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.									


08 WSP WINDOW SAMPLE LOG 12171314.001 PROLOGIS PARK, HAYES.GPJ WSPTEMPLATE1.03.GDT 14/3/12



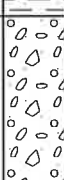
 WSP Environmental Ltd 1 Queens Drive Birmingham, B5 4PJ Telephone: 0121 352 4700 Fax: 0121 352 4701	WINDOW SAMPLE LOG			Hole No. TP06
	Project Prologis Park, Hayes		Sheet 1 of 1	
Job No 12171314.001	Client Prologis		Date 06-10-10 06-10-10	
Contractor / Driller Donnan Plant	Method/Plant Used JCB Excavator	Logged By A. Linnell	Co-Ordinates (NGR) E 0.000 N 0.000	Ground Level (m AOD)

SAMPLES & TESTS							STRATA					Install / Backfill Dia. mm
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m ²)	P.P.en (kN/m ²)	Water	Elev. (m AOD)	Depth (Thickness)	Description	Legend	Geology	
0.50	ES						0.20		MADE GROUND: Soft, dark brown, silty TOPSOIL		MG	
							(0.80)		MADE GROUND: Firm, orange brown mottled mid brown, CLAY, with occasional, fine subangular red brick and flint.		MG	
1.70	ES						1.00		Firm, orange brown mottled mid brown, CLAY, with occasional, fine subangular gravel of flint. (Langley Silt)		MNHD	
							(2.30)					
							3.30		Trial pit terminated at 3.3m due to stiffness of the clay and the excavator not being able to penetrate deeper.			

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing
General Remarks Soil strength based on engineers observations. Trial pit backfilled upon completion. No significant visual or olfactory evidence of contamination noted.											
Scale 1:37.5		Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.									


08 WSP WINDOW SAMPLE LOG 12171314.001 PROLOGIS PARK, HAYES.GPJ WSPTEMPLATE1.03.GDT 14/3/12




 WSP Environmental Ltd 1 Queens Drive Birmingham, B5 4PJ Telephone: 0121 352 4700 Fax: 0121 352 4701	WINDOW SAMPLE LOG			Hole No. TP07
	Project Prologis Park, Hayes		Sheet 1 of 1	
Job No 12171314.001	Client Prologis		Date 06-10-10 06-10-10	
Contractor / Driller Donnan Plant	Method/Plant Used JCB Excavator	Logged By A. Linnell	Co-Ordinates (NGR) E 0.000 N 0.000	Ground Level (m AOD)

SAMPLES & TESTS							STRATA					Install / Backfill Dia. mm
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (m AOD)	Depth (Thickness)	Description	Legend	Geology	
0.20	ES							0.34	MADE GROUND: loose dark brown, silty GRAVEL of fine to coarse, subangular to rounded, flint, red brick, concrete and tarmac. With occasional copper wire, wood and plastic fragments.		MG	
								1.86	Firm, orange brown mottled mid brown, slightly sandy CLAY, with occasional patches of orange brown sandy gravel. Gravel of fine to medium, subangular to rounded, flint. (Langley Silt)		MNHD	
1.80	ES							2.20				
								0.90	Loose orange brown, sandy GRAVEL. Gravel of fine to coarse, subangular to rounded, flint. (Lynch Hill Gravel)		MNHD	
								3.10	Trial pit terminated at 3.1m due to ingress and collapse.			

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing
						06-10-10		2.55			
General Remarks Soil strength based on engineers observations. Trial pit backfilled upon completion. No significant visual or olfactory evidence of contamination noted.											
Scale 1:37.5		Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.									


08.WSP WINDOW SAMPLE LOG 12171314.001 PROLOGIS PARK, HAYES.GPJ WSPTEMPLATE1.03.GDT 14/3/12






 WSP Environmental Ltd 1 Queens Drive Birmingham, B5 4PJ Telephone: 0121 352 4700 Fax: 0121 352 4701	WINDOW SAMPLE LOG			Hole No. TP08
	Project Prologis Park, Hayes		Sheet 1 of 1	
Job No 12171314.001	Client Prologis		Date 06-10-10 06-10-10	
Contractor / Driller Donnan Plant	Method/Plant Used JCB Excavator	Logged By A. Linnell	Co-Ordinates (NGR) E 0.000 N 0.000	Ground Level (m AOD)

SAMPLES & TESTS							STRATA					Install / Backfill Dia. mm
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m ²)	P.Pen (kN/m ²)	Water	Elev. (m AOD)	Depth (Thickness)	Description	Legend	Geology	
0.40	ES							0.41	MADE GROUND: Soft, mid brown, sandy CLAY, with occasional fine, subangular gravel of red brick and concrete.		MG	
								0.69	Firm orange brown mottled mid brown, slightly sandy CLAY. (Langley Silt)		MNHD	
1.30	ES							1.10	Loose, orange brown, sandy GRAVEL. Gravel of fine to coarse, subangular to rounded, flint. Sand is coarse. (Lynch Hill Gravel)		MNHD	
							1.90					
								3.00	Trial pit terminated at 3.0m due to collapse.			

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing
						06-10-10		2.20			
General Remarks Soil strength based on engineers observations. Trial pit backfilled upon completion. No significant visual or olfactory evidence of contamination noted.											
Scale 1:37.5		Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.									





08 WSP WINDOW SAMPLE LOG 12171314.001 PROLOGIS PARK, HAYES.GPJ WSPTEMPLATE.103.GDT 14/3/12

 WSP Environmental Ltd 1 Queens Drive Birmingham, B5 4PJ Telephone: 0121 352 4700 Fax: 0121 352 4701	WINDOW SAMPLE LOG			Hole No. TP09
	Project Prologis Park, Hayes		Sheet 1 of 1	
Job No 12171314.001	Client Prologis		Date 06-10-10 06-10-10	
Contractor / Driller Donnan Plant	Method/Plant Used JCB Excavator	Logged By A. Linnell	Co-Ordinates (NGR) E 0.000 N 0.000	Ground Level (m AOD)

SAMPLES & TESTS							STRATA					Install / Backfill Dia. mm
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (m AOD)	Depth (Thickness)	Description	Legend	Geology	
0.30	ES							0.54	MADE GROUND: Soft mid brown, gravelly CLAY. Gravel of angular to subangular, fine to coarse, flint, red brick and concrete, with occasional plastic tape, copper wire, tarmac and roof sealant.		MG	
							0.90	MADE GROUND: Soft, dark grey, sandy SILT, with occasional Subangular, fine to coarse gravel of red brick and concrete.		MG		
1.20	ES						1.30	Firm, orange brown mottled mid brown, slightly sandy, CLAY. Sand is fine. (Langley Silt)		MNHD		
							2.20	Loose, light grey, gravelly SAND. Gravel of fine to coarse, subangular to rounded, flint. (Lynch Hill Gravel)		MNHD		
							2.25					
							1.05	Loose, mid brown, sandy GRAVEL. Gravel of fine to coarse, subangular to rounded, flint. (Lynch Hill Gravel)		MNHD		
							3.30	Trial pit terminated at 3.3m due to collapse.				

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing
						06-10-10		2.50			
General Remarks Soil strength based on engineers observations. Trial pit backfilled upon completion. No significant visual or olfactory evidence of contamination noted.											
Scale 1:37.5		Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.									

08 WSP WINDOW SAMPLE LOG 12171314.001 PROLOGIS PARK, HAYES.GPJ WSPTEMPLATE1.03.GDT 14/3/12

 WSP Environmental Ltd 1 Queens Drive Birmingham, B5 4PJ Telephone: 0121 352 4700 Fax: 0121 352 4701		<h1 style="margin: 0;">WINDOW SAMPLE LOG</h1>				Hole No. <h2 style="margin: 0;">TP10</h2>						
Project <h3 style="margin: 0;">Prologis Park, Hayes</h3>		Sheet <h3 style="margin: 0;">1 of 1</h3>										
Job No <h3 style="margin: 0;">12171314.001</h3>		Client <h3 style="margin: 0;">Prologis</h3>		Date <h3 style="margin: 0;">06-10-10 06-10-10</h3>								
Contractor / Driller <h3 style="margin: 0;">Donnan Plant</h3>		Method/Plant Used <h3 style="margin: 0;">JCB Excavator</h3>		Logged By <h3 style="margin: 0;">A. Linnell</h3>		Co-Ordinates (NGR) <h3 style="margin: 0;">E 0.000 N 0.000</h3>		Ground Level (m AOD)				
SAMPLES & TESTS							STRATA					Install / Backfill
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (m AOD)	Depth (Thickness)	Description	Legend	Geology	Dia. mm
0.50	ES						(0.60)	0.60	MADE GROUND: Soft, mid brown, gravelly CLAY. Gravel of fine to coarse, subangular gravel of red brick, flint and concrete.		MG	
1.40	ES						(1.00)	1.40	MADE GROUND: Soft, dark grey, sandy SILT, with occasional fine gravel of red brick and concrete. ...Suspected medium sized piece of cement bound asbestos present at 1.4m.		MG	
							1.60	1.70	Mid/orange brown, sandy GRAVEL. Gravel of fine to coarse, subangular to rounded, flint. Sand is coarse (Lynch Hill Gravel) Trial pit terminated at 1.7m due the presence of possible asbestos.		MNHD	
Hole Diameter			Recovery			Water Strikes						
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing	
General Remarks Soil strength based on engineers observations. Trial pit backfilled upon completion. Presence of small fragments of suspected asbestos observed in the trial pit at 1.4m bgl, trial pit backfilled at 1.7 m bgl replacing materials with no visual evidence of asbestos at the surface.												
Scale 1:37.5		Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.										

08.WSP.WINDOW SAMPLE LOG - 12171314.001 PROLOGIS PARK, HAYES.GPJ WSPTEMPLATE1.03.GDT 14/3/12

Appendix C Chemical and Asbestos Testing Certificates

WSP Environmental Birmingham
One Queens Drive
Birmingham
West Midlands
UK
B5 4PJ



Certificate of Analysis

Job Number 10-17929

Report Date	25 October 2010
Project Number	12171311 001
Customer	Prologis
Site Address	Prologis Park, Hayes, Stockley Road, Middlesex, UB3 1QF
Date of Sampling	06/10/2010
Date of Analysis	12 October 2010 - 25 October 2010

Dear Kerry Murray

Please find attached your results for the above project.

This report includes the samples we received at WSP Environmental Laboratories on 12 October 2010.

Your feedback is critical to the evolution and improvement of our business, so please feel free to email us your comments to: ideas_lab@wspgroup.com.

Results authorised by

A handwritten signature in black ink, appearing to read 'Piers Taverner', is written over a white background.

Piers Taverner
Extractions Manager



Chemical Analysis is undertaken in accordance with in-house technical procedures and is subject to quality control procedures. Results are expressed on a dry weight basis (dried at below 30°C) for all soil analyses. Any opinions or interpretations indicated are outside the scope of our UKAS accreditation.

WSP Environmental Laboratories
The Laboratory, 4/5 Lakeview, Lakeview Drive, Sherwood Park, Nottingham, NG15 0ED, UK.

Solid Samples

Job No. 10-17929

Site: Prologis Park, Hayes, Stockley Road, Middlesex, UB3 1QF

Report Date: 25/10/2010



Determination	LOD	Units	Lab No.															
			197845	197846	197847	197849	197850	197852	197853	197855	197856	197858						
Sample Date	Sample Id	Other ID	Depth (m)	Method	197845	197846	197847	197849	197850	197852	197853	197855	197856	197858				
					06/10/2010	06/10/2010	06/10/2010	06/10/2010	06/10/2010	06/10/2010	06/10/2010	06/10/2010	06/10/2010	06/10/2010	06/10/2010	06/10/2010	06/10/2010	06/10/2010
Solid Description					Clay with Stone	Sandy Clay	Loam	Sandy Clay	Clay and Granular	---	Clay and stone	Clay and stone	Clay	Sand with stones				
Moisture	0.1	%		101	13	9.8	12	11	10	8.0	11	12	15	6.5				
pH		pH units		206*	8.4	---	8.6	---	8.8	---	8.6	9.4	7.9	8.1				
Selenium, total, as Se	0.3	mg/kg		412*	<0.3	---	0.5	---	<0.3	---	<0.3	<0.3	<0.3	<0.3				
Mercury, total, as Hg	0.1	mg/kg		405*	0.1	---	0.1	---	<0.1	---	<0.1	<0.1	<0.1	<0.1				
Arsenic, total, as As	2.5	mg/kg		406*	<2.5	---	7.5	---	<2.5	---	4.1	3.5	<2.5	4.2				
Cadmium, total, as Cd	0.25	mg/kg		406*	0.31	---	0.52	---	0.46	---	<0.25	<0.25	<0.25	<0.25				
Chromium, total, as Cr	1	mg/kg		406*	47	---	53	---	63	---	56	28	13	23				
Copper, total, as Cu	2.5	mg/kg		406*	36	---	41	---	16	---	17	14	20	6.5				
Nickel, total, as Ni	2.5	mg/kg		406 M*	43	---	100	---	14	---	35	28	40	17				
Lead, total, as Pb	2.5	mg/kg		406 M*	49	---	61	---	86	---	<2.5	3.8	<2.5	2.6				
Zinc, total, as Zn	5	mg/kg		406	170	---	200	---	220	---	72	58	81	35				
Naphthalene	0.1	mg/kg		408 M*	<0.1	<0.1	---	0.2	1.1	---	<0.1	<0.1	<0.1	<0.1				
Acenaphthylene	0.1	mg/kg		408*	<0.1	<0.1	---	0.9	1.1	---	0.1	<0.1	<0.1	<0.1				
Acenaphthene	0.1	mg/kg		408 M*	<0.1	<0.1	---	1.6	7.0	---	<0.1	<0.1	<0.1	<0.1				
Fluorene	0.1	mg/kg		408 M*	<0.1	<0.1	---	1.1	8.5	---	<0.1	<0.1	<0.1	<0.1				
Phenanthrene	0.1	mg/kg		408 M*	0.4	0.2	---	3.9	77	---	0.3	0.2	<0.1	0.1				
Anthracene	0.1	mg/kg		408 M*	0.1	<0.1	---	0.3	21	---	<0.1	<0.1	<0.1	<0.1				
Fluoranthene	0.1	mg/kg		408 M*	0.8	<0.1	---	0.7	130	---	<0.1	<0.1	0.1	0.2				
Pyrene	0.1	mg/kg		408 M*	0.7	0.3	---	0.5	97	---	0.6	0.3	0.1	0.2				
Benzo(a)anthracene	0.1	mg/kg		408 M*	0.4	0.2	---	0.1	49	---	0.4	0.1	<0.1	<0.1				
Chrysene	0.1	mg/kg		408 M*	0.4	0.2	---	0.2	49	---	0.3	0.1	<0.1	<0.1				
Benzo(k)fluoranthene	0.1	mg/kg		408 M*	0.2	<0.1	---	<0.1	22	---	0.2	<0.1	<0.1	<0.1				
Benzo(b)fluoranthene	0.1	mg/kg		408 M*	0.3	0.2	---	<0.1	42	---	0.3	0.1	<0.1	<0.1				
Benzo(a)pyrene	0.1	mg/kg		408 M*	0.4	0.2	---	<0.1	48	---	0.4	0.1	<0.1	<0.1				

Solid Samples

Job No. 10-17929

Site: Prologis Park, Hayes, Stockley Road,
Middlesex, UB3 1QF

Report Date: 25/10/2010



Determination	LOD	Units	197845		197846		197847		197849		197850		197852		197853		197855		197856		197858		
			06/10/2010	TP1	06/10/2010	TP1	06/10/2010	TP2	06/10/2010	TP2	06/10/2010	TP2	06/10/2010	TP3	06/10/2010	TP3	06/10/2010	TP4	06/10/2010	TP5	06/10/2010	TP6	06/10/2010
Lab No.	Sample Date	Sample Id	Other ID	Depth (m)	Method	Lab No.	Sample Date	Sample Id	Other ID	Depth (m)	Method	Lab No.	Sample Date	Sample Id	Other ID	Depth (m)	Method	Lab No.	Sample Date	Sample Id	Other ID	Depth (m)	Method
Indeno(1,2,3-c,d)pyrene	0.1	mg/kg		0.3	408 M*																		
Dibenzo(a,h)anthracene	0.1	mg/kg		<0.1	408 M*																		
Benzo(g,h,i)perylene	0.1	mg/kg		0.3	408 M*																		
PAH Total (EPA 16)	1	mg/kg		4.4	408*																		
Catechol	0.1	mg/kg		<0.1	410 M*																		
Naphthol	0.1	mg/kg		<0.1	410 M*																		
Phenol	0.1	mg/kg		<0.1	410 M*																		
Resorcinol	0.1	mg/kg		<0.1	410 M*																		
Total Cresols	0.1	mg/kg		<0.1	410 M*																		
Total Phenols	0.8	mg/kg		<0.8	410 M*																		
Total Xylenols	0.1	mg/kg		<0.1	410 M*																		
Trimethylphenol	0.1	mg/kg		<0.1	410 M*																		
Benzene	0.01	mg/kg		<0.01	401																		
Ethylbenzene	0.01	mg/kg		<0.01	401																		
o-Xylene	0.01	mg/kg		<0.01	401																		
MTBE	0.01	mg/kg		<0.01	401																		
m+p-Xylene	0.01	mg/kg		<0.01	401																		
TAME	0.01	mg/kg		<0.01	401																		
Toluene	0.01	mg/kg		<0.01	401																		
PRO (>C5-C6)	10	mg/kg		<10.0	401																		
PRO (>C6-C8)	10	mg/kg		<10.0	401																		
PRO (>C8-C10)	10	mg/kg		<10.0	401																		
PRO (>C5-C10)	30	mg/kg		<30	401																		
PRO (>C6-C10)	20	mg/kg		<20	401																		
EPH (>C6-C8)	2	mg/kg		---	420 M*																		

Solid Samples

Job No. 10-17929

Site: Prologis Park, Hayes, Stockley Road,
Middlesex, UB3 1QF

Report Date: 25/10/2010



Determination	LOD	Units	197845		197846		197847		197849		197850		197852		197853		197855		197856		197858		
			06/10/2010	TP1	06/10/2010	TP1	06/10/2010	TP2	06/10/2010	TP2	06/10/2010	TP2	06/10/2010	TP3	06/10/2010	TP3	06/10/2010	TP4	06/10/2010	TP5	06/10/2010	TP6	06/10/2010
EPH (>C8-C12)	4	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
EPH (>C12-C16)	2	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
EPH (>C16-C21)	2	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
EPH (>C21-C40)	15	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total EPH (>C6-C40)	20	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Aliphatic (>C5-C6)	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	
Aliphatic (>C6-C8)	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	
Aliphatic (>C8-C10)	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	
Aliphatic (>C10-C12)	2	mg/kg	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	
Aliphatic (>C12-C16)	2	mg/kg	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	
Aliphatic (>C16-C21)	5	mg/kg	9.8	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	690	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	18	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	
Aliphatic (>C21-C35)	5	mg/kg	49	17	17	17	17	17	190	29	29	29	29	29	29	29	68	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	
Aliphatic (>C35-C40)	2	mg/kg	11	5.9	5.9	5.9	5.9	5.9	< 2.0	9.5	9.5	9.5	9.5	9.5	9.5	22	22	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	
Aliphatic (>C40-C44)	2	mg/kg	9.4	5.7	5.7	5.7	5.7	5.7	< 2.0	9.8	9.8	9.8	9.8	9.8	26	26	26	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	
Total Aliphatics (>C6-C44)	20	mg/kg	80	33	33	33	33	33	1600	56	56	56	56	56	140	140	140	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	
Aromatic (>C6-C7)	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
Aromatic (>C7-C8)	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
Aromatic (>C8-C10)	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
Aromatic (>C10-C12)	2	mg/kg	3.2	3.2	3.2	3.2	3.2	3.2	100	2.7	2.7	2.7	2.7	2.7	2.6	2.6	2.6	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	
Aromatic (>C12-C16)	2	mg/kg	3.6	4.3	4.3	4.3	4.3	4.3	400	5.0	5.0	5.0	5.0	5.0	2.8	2.8	2.7	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	
Aromatic (>C16-C21)	5	mg/kg	7.8	9.7	9.7	9.7	9.7	9.7	460	37	37	37	37	37	8.3	8.3	11	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	
Aromatic (>C21-C35)	5	mg/kg	57	23	23	23	23	23	150	160	160	160	160	160	9.4	9.4	53	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	
Aromatic (>C35-C40)	2	mg/kg	28	15	15	15	15	15	< 2.0	60	60	60	60	60	< 2.0	< 2.0	34	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	
Aromatic (>C40-C44)	2	mg/kg	23	13	13	13	13	13	< 2.0	42	42	42	42	42	< 2.0	< 2.0	35	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	
Total Aromatics (>C6-C44)	20	mg/kg	120	68	68	68	68	68	1100	310	310	310	310	310	26	26	140	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	

Solid Samples

Job No. 10-17929
 Site: Prologis Park, Hayes, Stockley Road,
 Middlesex, UB3 1QF

Report Date: 25/10/2010



Determination	LOD	Units	Lab No.		197845		197846		197847		197849		197850		197852		197853		197855		197856		197858	
			Sample Date	06/10/2010	TP1	06/10/2010	TP1	06/10/2010	TP2	06/10/2010	TP2	06/10/2010	TP2	06/10/2010	TP3	06/10/2010	TP3	06/10/2010	TP4	06/10/2010	TP5	06/10/2010	TP6	06/10/2010
			Sample Id																					
			Other ID																					
			Depth (m)		0.4	2.2	0.1	1.5	0.1	1.5	0.3	1.5	0.3	1.5	0.1	1.5	0.1	0.1	0.5	0.5	0.5	0.5	0.2	
			Method		200	100	---	2700	---	370	---	---	---	---	---	---	---	---	---	---	---	---	---	
Total TPH (>C6-C44)	40	mg/kg																						

Solid Samples

Job No. 10-17929

Site: Prologis Park, Hayes, Stockley Road,
Middlesex, UB3 1QF

Report Date: 25/10/2010

Determination	LOD	Units	Lab No.			
			197860	197862	197864	
Solid Description			Sample Date	06/10/2010	06/10/2010	06/10/2010
Moisture	0.1	%	Sample Id	TP8	TP9	TP10
pH		pH units	Other ID			
Selenium, total, as Se	0.3	mg/kg	Depth (m)	0.4	0.3	0.5
Mercury, total, as Hg	0.1	mg/kg	Method			
Arsenic, total, as As	2.5	mg/kg	101	Clay	Clay	Clay with Loam
Cadmium, total, as Cd	0.25	mg/kg	101	13	14	14
Chromium, total, as Cr	1	mg/kg	206*	5.4	11	9.7
Copper, total, as Cu	2.5	mg/kg	412*	< 0.3	< 0.3	< 0.3
Nickel, total, as Ni	2.5	mg/kg	405*	< 0.1	< 0.1	0.2
Lead, total, as Pb	2.5	mg/kg	406*	< 2.5	3.3	5.1
Zinc, total, as Zn	5	mg/kg	406*	< 0.25	0.32	0.34
Naphthalene	0.1	mg/kg	406*	50	59	43
Acenaphthylene	0.1	mg/kg	406*	9.0	27	45
Acenaphthene	0.1	mg/kg	406 M*	21	33	44
Fluorene	0.1	mg/kg	406 M*	< 2.5	29	71
Phenanthrene	0.1	mg/kg	406	48	120	150
Anthracene	0.1	mg/kg	408 M*	< 0.1	< 0.1	< 0.1
Fluoranthene	0.1	mg/kg	408*	< 0.1	< 0.1	< 0.1
Pyrene	0.1	mg/kg	408 M*	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	0.1	mg/kg	408 M*	< 0.1	0.8	0.9
Chrysene	0.1	mg/kg	408 M*	< 0.1	0.2	0.3
Benzo(k)fluoranthene	0.1	mg/kg	408 M*	0.1	< 0.1	2.3
Benzo(b)fluoranthene	0.1	mg/kg	408 M*	0.1	1.5	2.0
Benzo(a)pyrene	0.1	mg/kg	408 M*	< 0.1	0.6	1.0
			408 M*	< 0.1	0.7	1.1
			408 M*	< 0.1	0.3	0.5
			408 M*	< 0.1	0.5	0.9
			408 M*	< 0.1	0.6	1.1

Solid Samples

Job No. 10-17929

Site: Prologis Park, Hayes, Stockley Road,
Middlesex, UB3 1QF

Report Date: 25/10/2010

Determination	LOD	Units	Lab No.		
			197860	197862	197864
			06/10/2010	06/10/2010	06/10/2010
			TP8	TP9	TP10
			Other ID		
			Depth (m)	0.4	0.3
			Method		
Indeno(1,2,3-c,d)pyrene	0.1	mg/kg	408 M*	< 0.1	0.4
Dibenzo(a,h)anthracene	0.1	mg/kg	408 M*	< 0.1	0.1
Benzo(g,h,i)perylene	0.1	mg/kg	408 M*	< 0.1	0.5
PAH Total (EPA 16)	1	mg/kg	408*	< 1.0	6.0
Catechol	0.1	mg/kg	410 M*	---	---
Naphthol	0.1	mg/kg	410 M*	---	---
Phenol	0.1	mg/kg	410 M*	---	---
Resorcinol	0.1	mg/kg	410 M*	---	---
Total Cresols	0.1	mg/kg	410 M*	---	---
Total Phenols	0.8	mg/kg	410 M*	---	---
Total Xylenols	0.1	mg/kg	410 M*	---	---
Trimethylphenol	0.1	mg/kg	410 M*	---	---
Benzene	0.01	mg/kg	401	< 0.01	< 0.01
Ethylbenzene	0.01	mg/kg	401	< 0.01	< 0.01
o-Xylene	0.01	mg/kg	401	< 0.01	< 0.01
m+o-Xylene	0.01	mg/kg	401	< 0.01	< 0.01
p-Xylene	0.01	mg/kg	401	< 0.01	< 0.01
TAME	0.01	mg/kg	401	< 0.01	< 0.01
Toluene	0.01	mg/kg	401	< 0.01	< 0.01
PRO (>C5-C6)	10	mg/kg	401	< 10.0	< 10.0
PRO (>C6-C8)	10	mg/kg	401	< 10.0	< 10.0
PRO (>C8-C10)	10	mg/kg	401	< 10.0	< 10.0
PRO (>C5-C10)	30	mg/kg	401	< 30	< 30
PRO (>C6-C10)	20	mg/kg	401	< 20	< 20
EPH (>C6-C8)	2	mg/kg	420 M*	---	---

Solid Samples

Job No. 10-17929

Site: Prologis Park, Hayes, Stockley Road,
Middlesex, UB3 1QF

Report Date: 25/10/2010

Determination	LOD	Units	Lab No.		Sample Date		Sample Id		Other ID		Depth (m)	Method	
			197860	197862	06/10/2010	06/10/2010	TP8	TP9	TP10				
EPH (>C8-C12)	4	mg/kg	420 M*	---	---	---	---	---	---	---	0.4	0.3	0.5
EPH (>C12-C16)	2	mg/kg	420 M*	---	---	---	---	---	---	---	---	---	---
EPH (>C16-C21)	2	mg/kg	420 M*	---	---	---	---	---	---	---	---	---	---
EPH (>C21-C40)	15	mg/kg	420 M*	---	---	---	---	---	---	---	---	---	---
Total EPH (>C6-C40)	20	mg/kg	420 M*	---	---	---	---	---	---	---	---	---	---
Aliphatic (>C5-C6)	0.2	mg/kg	401	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Aliphatic (>C6-C8)	0.2	mg/kg	401	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Aliphatic (>C8-C10)	0.2	mg/kg	401	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Aliphatic (>C10-C12)	2	mg/kg	419	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Aliphatic (>C12-C16)	2	mg/kg	419	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Aliphatic (>C16-C21)	5	mg/kg	419	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aliphatic (>C21-C35)	5	mg/kg	419	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aliphatic (>C35-C40)	2	mg/kg	419	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Aliphatic (>C40-C44)	2	mg/kg	419	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Total Aliphatics (>C6-C44)	20	mg/kg	419	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Aromatic (>C6-C7)	0.01	mg/kg	401	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic (>C7-C8)	0.01	mg/kg	401	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic (>C8-C10)	0.01	mg/kg	401	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic (>C10-C12)	2	mg/kg	419	2.7	2.3	2.7	2.3	2.7	2.3	2.7	2.3	2.3	< 2.0
Aromatic (>C12-C16)	2	mg/kg	419	3.1	5.2	3.1	5.2	3.1	5.2	3.1	3.1	5.2	3.9
Aromatic (>C16-C21)	5	mg/kg	419	< 5.0	34	< 5.0	34	< 5.0	34	< 5.0	< 5.0	34	18
Aromatic (>C21-C35)	5	mg/kg	419	6.0	84	6.0	84	6.0	84	6.0	6.0	84	110
Aromatic (>C35-C40)	2	mg/kg	419	< 2.0	34	< 2.0	34	< 2.0	34	< 2.0	< 2.0	34	44
Aromatic (>C40-C44)	2	mg/kg	419	< 2.0	27	< 2.0	27	< 2.0	27	< 2.0	< 2.0	27	34
Total Aromatics (>C6-C44)	20	mg/kg	419	< 20	190	< 20	190	< 20	190	< 20	< 20	190	210

Solid Samples

Job No. 10-17929
 Site: Prologis Park, Hayes, Stockley Road,
 Middlesex, UB3 1QF

Report Date: 25/10/2010



Determination	LOD	Units	Lab No.		Sample Date		Sample Id		Other ID		Depth (m)		Method					
			197860	197862	197864	06/10/2010	06/10/2010	06/10/2010	TP8	TP9	TP10	0.4	0.3	0.5	419	< 40	290	330
Total TPH (>C6-C44)	40	mg/kg																

Certificate of Bulk Sample Asbestos Identification



WSP
The Laboratory
Lakeview Drive
Sherwood
Nottingham NG15 0ED
t: +44 (0)1623 886 800

Project No. 12171311/001
Job No. 10-17929
Location Prologis Park, Hayes, Stockley Road, Middlesex, UB3 1QF
Customer Prologis
Contact Kerry Murray
Date sampled 06/10/2010
Date of receipt 12/10/2010
Date of analysis 18/10/2010 - 21/10/2010

Lab Reference	Sample Location	Sample Description	Asbestos Identification	Comments
197845	TP1 0.4	Soil	Chrysotile	Insulation
197847	TP2 0.1	Soil	No Asbestos Detected	None
197850	TP3 0.3	Soil	No Asbestos Detected	None
197853	TP4 0.1	Soil	No Asbestos Detected	None
197855	TP5 0.5	Soil	No Asbestos Detected	None
197856	TP6 0.5	Soil	No Asbestos Detected	None
197858	TP7 0.2	Soil	No Asbestos Detected	None
197860	TP8 0.4	Soil	No Asbestos Detected	None
197862	TP9 0.3	Soil	Chrysotile	Bituminous
197864	TP10 0.5	Soil	No Asbestos Detected	None



**WSP Environmental
Risk Management Services
Division**

Registered Office:
WSP House
70 Chancery Lane
London
WC2A 1AF

Registered Number
1152332 England

Authorised by Joanne O'Sullivan
Signature

Analyst Adam Taylor
Signature

Nina Harriman

Position Analysis Manager
Date of issue 21 October 2010

The above samples were submitted by WSP Environmental.

Analysis is in accordance with in-house technical procedures - AID, based upon HSE guidance note HSG 248 "Asbestos: The Analysts' Guide For Sampling, Analysis and Clearance Procedures". Sampling by WSP RMS is in accordance with in-house technical procedures - SSA. Where the sample was not taken by WSP RMS, the information above is that which is supplied by the client. WSP are not responsible for sampling errors where the sample is taken by others. Sample/material descriptions, opinions, comments and interpretation expressed herein are outside the scope of UKAS accreditation. Information supplied by e-mail may be subject to error during transfer.


Certificate of Bulk Sample Asbestos Identification





WSP
The Laboratory
Lakeview Drive
Sherwood
Nottingham NG15 0ED
t: +44 (0)1623 886 800

Project No. 12171311/001
Job No. 10-17929
Location Prologis Park, Hayes, Stockley Road, Middlesex, UB3 1QF
Customer Prologis
Contact Kerry Murray
Date sampled 06/10/2010
Date of receipt 12/10/2010
Date of analysis 18/10/2010 - 21/10/2010

Lab Reference	Sample Location	Sample Description	Asbestos Identification	Comments
197865	TP10 1.4	Cement	Chrysotile	None
197866	SH3A 0.1-0	Soil	No Asbestos Detected	None
197867	SH3B1 0.1-0	Soil	No Asbestos Detected	None
197868	SH3B2 0.1-0	Soil	No Asbestos Detected	None

Authorised by Joanne O'Sullivan
Signature 
Position Analysis Manager
Date of issue 21 October 2010

Analyst Adam Taylor
Signature 
Analyst Nina Harriman
Signature 



WSP Environmental Risk Management Services Division
Registered Office:
WSP House
70 Chancery Lane
London
WC2A 1AF
Registered Number
1152332 England

The above samples were submitted by WSP Environmental.
Analysis is in accordance with in-house technical procedures - AID, based upon HSE guidance note HSG 248 "Asbestos: The Analysts' Guide For Sampling, Analysis and Clearance Procedures". Sampling by WSP RMS is in accordance with in-house technical procedures - SSA. Where the sample was not taken by WSP RMS, the information above is that which is supplied by the client. WSP are not responsible for sampling errors where the sample is taken by others. Sample/material descriptions, opinions, comments and interpretation expressed herein are outside the scope of UKAS accreditation. Information supplied by e-mail may be subject to error during transfer.

Appendix D Notes on Limitations

GENERAL

WSP Environmental Limited has prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from WSP Environmental Limited; a charge may be levied against such approval.

WSP Environmental Limited accepts no responsibility or liability for:

- a) the consequences of this document being used for any purpose or project other than for which it was commissioned, and
- b) this document to any third party with whom an agreement has not been executed.

PHASE I ENVIRONMENTAL AUDITS

The work undertaken to provide the basis of this report comprised a study of available documented information from a variety of sources (including the Client), together with (where appropriate) a brief walk over inspection of the site and meetings and discussions with relevant authorities and other interested parties. The opinions given in this report have been dictated by the finite data on which they are based and are relevant only to the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, WSP Environmental Limited reserves the right to review such information and, if warranted, to modify the opinions accordingly.

It should be noted that any risks identified in this report are perceived risks based on the information reviewed; actual risks can only be assessed following a physical investigation of the site.

PHASE II ENVIRONMENTAL AUDITS

The investigation of the site has been carried out to provide sufficient information concerning the type and degree of contamination, and ground and groundwater conditions to allow a reasonable risk assessment to be made. The objectives of the investigation have been limited to establishing the risks associated with potential human targets, building materials, the environment (including adjacent land), and to surface and groundwater.

The amount of exploratory work and chemical testing undertaken has necessarily been restricted by the short timescale available, and the locations of exploratory holes have been restricted to the areas unoccupied by the building(s) on the site and by buried services. A more comprehensive investigation may be required if the site is to be redeveloped as, in addition to risk assessment, a number of important engineering and environmental issues may need to be resolved.

For these reasons if costs have been included in relation to site remediation these must be considered as tentative only and must, in any event, be confirmed by a qualified quantity surveyor.

The exploratory holes undertaken, which investigate only a small volume of the ground in relation to the size of the site, can only provide a general indication of site conditions. The number of sampling points and the methods of sampling and testing do not preclude the existence of localised "hotspots" of contamination where concentrations may be significantly higher than those actually encountered.

The risk assessment and opinions provided, inter alia, take in to consideration currently available guidance values relating to acceptable contamination concentrations; no liability can be accepted for the retrospective effects of any future changes or amendments to these values.

GEO-ENVIRONMENTAL INVESTIGATIONS

The investigation of the site has been carried out to provide sufficient information concerning the type and degree of contamination, geotechnical characteristics, and ground and groundwater conditions to provide a reasonable assessment of the environmental risks together with engineering and development implications.

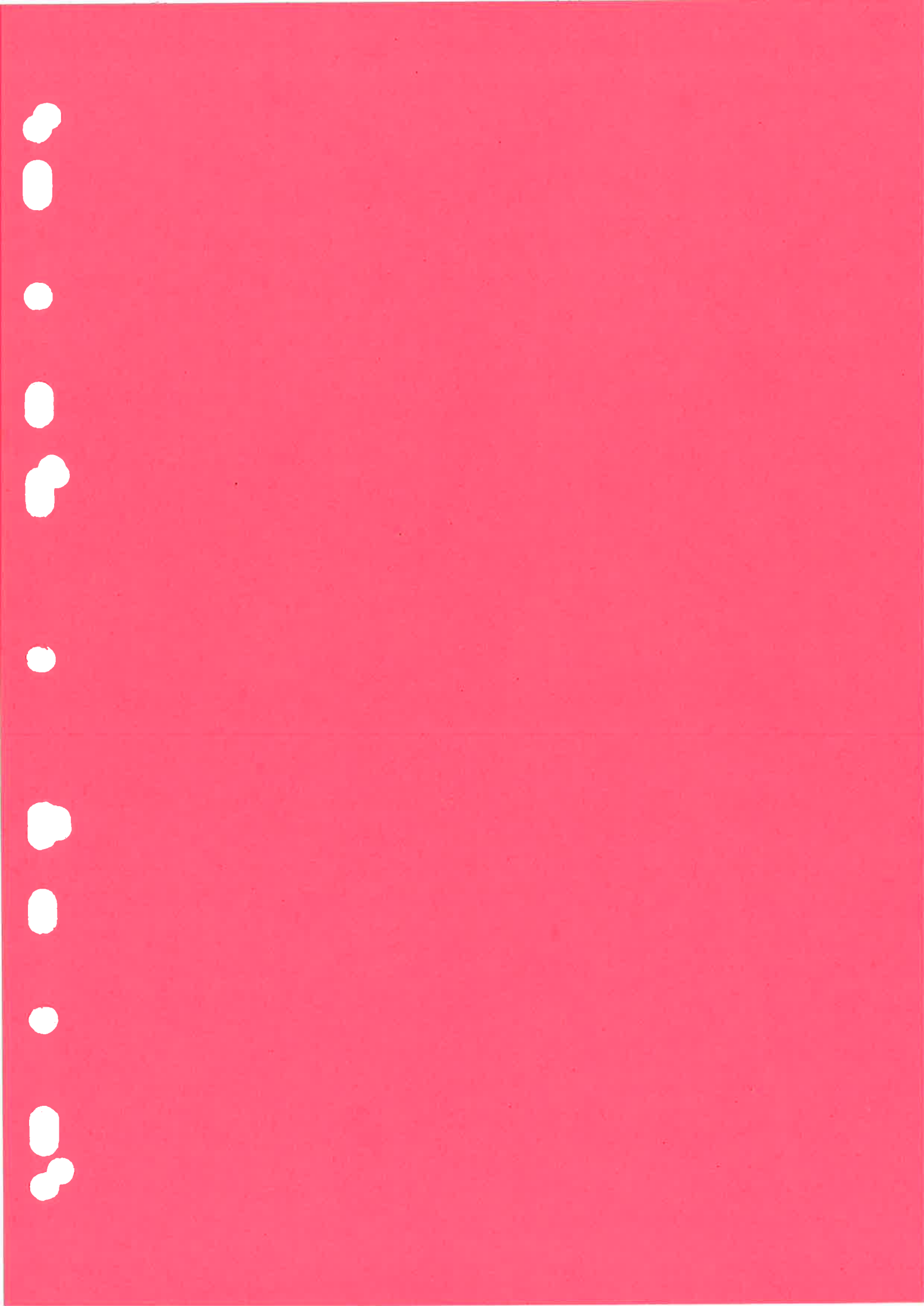
If costs have been included in relation to site remediation these must be confirmed by a qualified quantity surveyor.

The exploratory holes undertaken, which investigate only a small volume of the ground in relation to the size of the site, can only provide a general indication of site conditions. The opinions provided and recommendations given in this report are based on the ground conditions apparent at the site of each of the exploratory holes. There may be exceptional ground conditions elsewhere on the site which have not been disclosed by this investigation and which have therefore not been taken into account in this report.

The comments made on groundwater conditions are based on observations made at the time that site work was carried out. It should be noted that groundwater levels will vary owing to seasonal, tidal and weather related effects.

The scope of the investigation was selected on the basis of the specific development proposed by the Client and may be inappropriate to another form of development or scheme.

The risk assessment and opinions provided, inter alia, take in to consideration currently available guidance values relating to acceptable contamination concentrations; no liability can be accepted for the retrospective effects of any future changes or amendments to these values.



Appendix D – Remediation Method Statement



HILLINGDON
LONDON

TOWN AND COUNTRY PLANNING ACT 1990 (AS AMENDED)

APPROVAL OF DETAILS

Miss Helen Rodger
25 Savile Row
London
W1S 2ES

Ref: 18399/APP/2013/3449

The Council of the London Borough of Hillingdon as the Local Planning Authority within the meaning of the above-mentioned Act and Orders made thereunder hereby **GRANT APPROVAL** of the following received on 21 November 2013:-

Details pursuant to conditions 5 (suds), 6 (contamination), 7 (air quality), 10 (Travel Plan), 12 (energy), 13 (Cross rail), 15 (surface water drainage) of permission 18399/APP/2013/1019 (Erection of distribution warehouse units (Use Class B8) with ancillary offices, associated car parking, access and associated landscape works within the existing Prologis Park development)

Drawing/Plan Nos: See Attached Schedule of Plans

At: FORMER MOD DOCUMENT RECORD OFFICE, BOURNE AVENUE, HAYES,

Head of Planning & Enforcement

Date: 1 August 2014

NOTE: This notice does NOT relate to any approvals, which may be required under any conditions of the notice of planning permission except the condition(s) referred to herein.

**INFORMATIVES
END OF SCHEDULE**

Address:

Residents Services
London Borough of Hillingdon
3 North Civic Centre, High Street, Uxbridge UB8 1UW
Tel: 01895 250230
www.hillingdon.gov.uk

SCHEDULE OF PLANS

2607-C-02 - received 21 Nov 2013

2607-C-03 - received 21 Nov 2013

2607-D-02 - received 21 Nov 2013

2607-D-03 - received 21 Nov 2013

2607-DG-01 - received 21 Nov 2013

Strategic Travel Plan - received 21 Nov 2013

Energy and Carbon Reduction Strategy - received 21 Nov 2013

Surface Water Calculations - received 21 Nov 2013

2607-30 - received 21 Nov 2013

2607-51 - received 21 Nov 2013

2607-C-01 - received 21 Nov 2013

2607-52 - received 21 Nov 2013

2607-53 - received 21 Nov 2013

Remediation Method Statement - received 21 Nov 2013

Air Quality Assessment - received 21 Nov 2013

Agent's Covering letter dated 21/11/13 - received 21 Nov 2013

Letter from WSP Acoustics dated 7/1/13 - received 21 Nov 2013

RIGHTS OF APPLICANTS AGGRIEVED BY DECISION OF LOCAL PLANNING AUTHORITY TOWN & COUNTRY PLANNING ACT 1990

Appeals to the Secretary of State.

If you are aggrieved by the decision of your Local Planning Authority to refuse permission for the proposed development or to grant it subject to conditions, then you can appeal to the Secretary of State for Transport, Local Government and The Regions under Section 78 of the Town and Country Planning Act 1990.

If you want to appeal, then you must do so within six months of the date of this notice, using a form which you can get from The Planning Inspectorate, 3/02 Kite Wing, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6PN (Tel. 0117 372 8428). Appeal forms can be downloaded from the Planning Inspectorate's website at <http://www.planning-inspectorate.gov.uk>.

The Secretary of State can allow a longer period for giving notice of an appeal, but he will not normally be prepared to use this power unless there are special circumstances which excuse the delay in giving notice of appeal.

The Secretary of State need not consider an appeal if it seems to him that the Local Planning Authority could not have granted planning permission for the proposed development or could not have granted it without the conditions they imposed, having regard to the statutory requirements, to the provisions of any development order and to any directions given under a development order.

In practice, the Secretary of State does not refuse to consider appeals solely because the Local Planning Authority based their decision on a direction given by him.

Purchase Notices.

If either the Local Planning Authority or the Secretary of State refuses permission to develop land or grants it subject to conditions, the owner may claim that he can neither put the land to a reasonably beneficial use in its existing state nor render the land capable of a reasonably beneficial use by carrying out of any development which has been or would be permitted.

In these circumstances, the owner may serve a purchase notice on the Council (District Council, London Borough Council or Common Council of the City of London) in whose area the land is situated. This notice will require the Council to purchase his interest in the land in accordance with the provisions of Part VI of the Town and Country Planning Act 1990.

Address:
Residents Services
London Borough of Hillingdon
3 North Civic Centre, High Street, Uxbridge UB8 1UW
Tel: 01895 250400 / 250401
www.hillingdon.gov.uk



UNITED
BY OUR
DIFFERENCE






REMEDIATION METHOD STATEMENT

PHASE 3, PROLOGIS PARK, HAYES

29 October 2013

Quality Management

Issue/revision	Issue 1	Revision 1	Revision 2	Revision 3
Remarks				
Date	October 2013			
Prepared by	Richard Clayton			
Signature				
Checked by	Elizabeth Beers			
Signature				
Authorised by	Richard Clayton			
Signature				
Project number	00038063-005			
File reference	G:\#Soil and Groundwater\DELTEK - Projects\00038063 - Prologis Park, Hayes Planning Support\005 Contamination Planning Conditions\10) Reporting			

REMEDIATION METHOD STATEMENT

29 October 2013

Clients

Turley Associates
25 Savile Row
London
W1S 2ES

Prologis Developments
Bond Street House,
14 Clifford Street
London W1S 4JU

Consultant

WSP Environment and Energy
One Queens Drive
Birmingham
B5 4PJ
Tel: 0121 352 4776

www.wspenvironmental.com

Registered Address

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WSP House, 70 Chancery Lane, London, WC2A 1AF
1152332

WSP Contacts

Richard Clayton
Elizabeth Beers

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1 Introduction

1.1 Instruction

WSP Environmental (WSP) was instructed by Turley Associates (Turley) on behalf of Prologis Developments Limited (Prologis) to provide a remediation method statement (RMS) to support the proposed redevelopment of the Phase 3 area of the Site for commercial warehousing.

1.2 Planning Permission & Discharge of Planning Conditions

The report has been prepared in consultation with the Environment Agency and Hillingdon Borough Council and is designed to meet the pre-commencement requirements of Condition 6 of the planning permission reference 18399/APP/2013/1019.

Condition 6, states the following:

- 6 (i) The development hereby permitted shall not commence until a scheme to deal with contamination has been submitted in accordance with the Supplementary Planning Guidance on Land Contamination and approved by the Local Planning Authority (LPA). The scheme shall include all of the following measures unless the LPA dispenses with any such requirement specifically and in writing:
- (a) A desk-top study carried out by a competent person to characterise the site and provide information on the history of the site/surrounding area and to identify and evaluate all potential sources of contamination and impacts on land and water and all other identified receptors relevant to the site;
 - (b) A site investigation, including where relevant soil, soil gas, surface and groundwater sampling, together with the results of analysis and risk assessment shall be carried out by a suitably qualified and accredited consultant/contractor. The report should also clearly identify all risks, limitations and recommendations for remedial measures to make the site suitable for the proposed use.
 - (c) A written method statement providing details of the remediation scheme and how the completion of the remedial works will be verified shall be agreed in writing with the LPA prior to commencement.
- (ii) If during development or works contamination not addressed in the submitted remediation scheme is identified, an addendum to the remediation scheme must be agreed with the LPA prior to implementation; and
- (iii) All works which form part of the remediation scheme shall be completed and a verification report submitted to the Council's Environmental Protection Unit before any part of the development is occupied or brought into use unless the LPA dispenses with any such requirement specifically and in writing.

REASON

To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems and the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors in accordance with policy OE11 Hillingdon Local Plan: Part Two Saved UDP Policies (November 2012).

A significant amount of assessment has previously been undertaken on the Phase 3 area of Prologis Park, Hayes for general investigation of ground conditions and more recently for delineation and validation of potentially contaminated soils.

As part of the planning submission WSP prepared a Land Quality Statement for Phase 3 (reference 38063-R01, dated April 2013). This document summarised the previous desk studies, investigations, risk assessments and remediation works that have been carried out on the wider Prologis Park Site together with Site specific information relating to Phase 3. This document is considered sufficient to meet the requirements of Pre-Commencement Condition 6ia and 6ib.

During regulatory consultation, the Environment Agency raised an objection to the proposed development of the grounds of on-site contamination and the proposed use of soakaway drainage on the Site and the potential risks this may cause to groundwater quality. Following consultation with the Environment Agency, WSP prepared a further detailed assessment of ground conditions on the Site and the proposed soakaway locations and reported this to the Environment Agency within a letter report dated 04 July 2013 (reference 38036-004 L01, dated July 2013). Following consideration of the information provided within this document, the objection was withdrawn by the Environment Agency. This letter report and the Environment Agency correspondence are included in **Appendix A**.

1.3 Report Aims

The aim of this report is to satisfy the requirements of Pre-Commencement Condition 6ic and present a methodology for satisfying the requirements of Condition 6ii and 6iii. It should be noted that this report is also designed to address the requirements of Condition 17, which duplicates the requirements of Condition 6ii.

1.4 Scope

The scope of this document includes:

- A proposed methodology for advance investigation of proposed soakaway locations including a scope of testing;
- A proposed methodology for completion of a watching brief during the construction process;
- Proposals for the management and reporting of unexpected contamination during the development works; and,
- Recommendations for management of contamination impacts during and post construction.

1.5 Reliance

This report is addressed to and may be relied upon by the following parties:

Turley Associates
25 Savile Row
London
W1S 2ES

Prologis Developments
Ltd
Bond Street House,
14 Clifford Street
London W1S 4JU

This assessment has been prepared for the sole use and reliance of the above named parties. This report shall not be relied upon or transferred to any other parties without the express written authorisation of WSP and under the terms agreed with the Appointment agreed between WSP and Prologis. No responsibility will be accepted where this report is used, either in its entirety or in part, by any other party without the agreed reliance as stated above.

2 Site Information

2.1 Site Details

The following Table 2.1 provides a summary of the Site setting and historical land use from current data sources and including information from historical reports.

Table 2.1: Site Setting

Site Address	Phase 3, Prologis Park, off Stockley Road, Hayes UB7 9BN
National Grid Coordinates	508022, 179596 (from approximate centre of Site)
Approximate Size of Site	3.5 hectares
Site Location	The Site is located in the north of Prologis Park, Hayes approximately 1.6 miles north of Heathrow Airport, 0.5 miles north of the M4 motorway (junction 4), 2.5 miles east of the M25 motorway (junction 15) and 1.6 miles south of Hayes. A Site location plan is presented as Figure 1 .
Current Site Use	The Site is currently open land in the north of the wider Prologis Park which supports commercial properties currently leased to City Sprint, Gate Gourmet and HAL and an untenanted unit in the southeast corner.
Surrounding Area	Phase 3 is bounded to the south by the Prologis Park units noted above, with Bourne Farm recreation ground beyond, to the north by railway lines (Hayes and Harlington line) with commercial and light industrial properties beyond and to the west by Stockley Road Lake and Stockley Road beyond. Residential properties are present to the east.
Site History	The Site comprised agricultural land until the Second World War when the Site was used as a Royal Ordnance Factory for the production of armaments. In the 1950s the Site was taken over by the Public Records Office and used as an MOD archive store. The Site has been progressively developed for commercial storage and distribution warehouses since c. 2006 and Phase 3 is the last remaining development phase.
Geology and Hydrogeology	<p>British Geological Survey (BGS) map Sheet 269, Windsor, scale 1:50,000, Solid and Drift edition and third party investigation data show the following underlying geological sequence:</p> <ul style="list-style-type: none"> ■ Made Ground (no aquifer designation); ■ Langley Silt – clay and silt (Unproductive Strata); ■ Lynch Hill Gravels - medium to coarse gravelly sand; and, ■ London Clay – clay, silt and sand (Unproductive Strata). <p>Areas to the west and south of the Site are shown as in-filled which coincide with areas of historic landfilling, shown on the EA website.</p> <p>The EA website indicates that the Site is not located in a Source Protection Zone and that current groundwater quality (under the River Basin Management Plan scheme) has been quantitatively assessed as good with poor chemical quality (Lower Thames Gravels).</p>
Hydrology	The EA website indicates that the Site has not been assessed for risk of flooding by rivers and

	<p>the sea however no at-risk areas, extents of extreme flooding, water storage areas or flood defences are shown in the vicinity of the Site.</p> <p>Surface water features in the vicinity of the Site include Stockley Road Lake approximately 70m to the west, the Grand Union Canal 175m to the north and a number of ornamental ponds on a commercial/industrial estate beyond the railway lines to the north. All of the noted surface water features are likely to be lined and therefore not in hydraulic continuity with underlying aquifers at the Site.</p>
<p>Environmental Sensitivity</p>	<p>Residential properties are located adjacent to the east of the Site.</p> <p>The Multi-Agency Geographical Information for the Countryside (MAGIC) website is a web-based interactive mapping service that displays ecological and archaeological information from a wide variety of sources. No designated ecologically sensitive features were identified within 1km of the Site on the MAGIC website (http://magic.defra.gov.uk, accessed on 29 October 2013) with the exception of a Nitrate Vulnerable Zone adjacent to the north and west of the Site.</p> <p>WSP consider that the environmental sensitivity of the Site setting is low to moderate due to residential properties adjacent.</p>

3 Remediation Method Statement

3.1 Current Status

The Site characterisation works summarised in the Land Quality Statement have not identified any material land contamination risks provided adequate Site procedures are in place during construction.

Previous works on the Site and experience of development works on the surrounding Prologis Park site indicate there is a potential risk of localised hydrocarbon contamination within shallow soil deposits together with a potential for asbestos cement fragments within the sub-base of existing concrete slabs.

3.2 Proposed Methodology for Soil Management

Subject to any unexpected contamination encountered during the works, it is considered that the soils on the Site can be retained within the development footprint, provided that soils are retained under buildings and hard standing and capping is provided for landscaped areas.

This proposal meets with the principles of materials management in line with guidance provided within; '*The Definition of Waste: Development Industry Code of Practice*', CL:AIRE (2008). However, prior to commencement on-site, the main contractor should prepare an independently verified materials management plan in line with this method statement.

3.3 Advanced Characterisation

3.3.1 Trial Pit Investigation

To ensure that Site construction works are not impeded by unexpected contamination, it is proposed the advanced trial pitting is carried out at the locations of the proposed soakaways (see **Figure 2**). A minimum of 2 no. trial pits should be excavated at each location and be extended to at least 1m into the natural stratum beneath the Site.

The trial pits should be carried out under the supervision and/or presence of an experienced environmental engineer. Where evidence of contamination is noted, the trial pits should be extended to define, where practicable, the extent of any contamination impacts and further chemical verification tests should be carried out.

During investigation, representative testing of field samples should be carried out using a photo-ionisation detector for evidence of volatile hydrocarbon vapours.

3.3.2 Chemical Verification Testing

As part of the advanced trial pitting works, a minimum of 2 samples from the Made Ground and the underlying natural ground should be submitted for chemical verification testing at a suitably accredited chemical laboratory. Testing should be in accordance with the verification suite presented in Section 3.8.

3.4 Watching Brief

3.4.1 Soakaway Construction

During the construction of the soakaways, a suitably qualified environmental consultant should attend Site to inspect the proposed formation level/base of the excavation and recover verification samples from the base and sides of the soakaway excavations.

During the inspection, the excavated materials should be inspected and subject to confirmatory testing in line with the requirements of Section 3.8.

3.4.2 General Inspections

During general construction activities, it is recommended that an independent watching brief is maintained by an experienced environmental consultant until the majority of the construction works are “out of the ground”; primarily removal of slabs and obstructions, excavations of soakaways (see Section 3.4.1), foundation construction and installation of services and infrastructure.

A schedule of Site inspections should be agreed in advance of the works. Inspections should include a visual assessment of formation levels and any open excavations for evidence of contamination, inspection and sampling as required of any excavated materials, and recording of locations where excavated soils are reused.

A record of all inspections and observations made during the inspections should be maintained and included within the verification report.

3.5 Dealing with Site Conditions

Site investigations have established the presence of low level contamination within the made ground on the site. Previous construction phases have encountered localised areas of asbestos contamination within sub-base beneath existing slabs and on this basis it will be necessary to have procedures in place to ensure that general contamination risks are appropriately managed during the construction process. These should include:

- Tool box talks and briefings for construction workers to raise awareness of the potential for contamination on the site and procedures for notifying the finds.
- Use of appropriate levels of PPE during groundworks.
- Management of dust during groundwork.

In the event that asbestos or other contamination impacts are recorded through the watching brief or by construction workers the procedures identified in Section 3.6 should be followed.

3.6 Dealing with Unexpected Finds

During the course of the works, it is unlikely but not discounted that previously unidentified contamination will be encountered.

As a minimum, if any visual or olfactory evidence of contamination is encountered at any stage of the works, any such incidents will be subject to delineation and characterisation testing by the independent environmental consultant and the Planning Authority will be notified, immediately, of the findings of this work along with a proposed course of action.

All actions taken will be recorded and included within the verification report.

3.7 Capping in Landscaped Areas

The Land Quality Statement identifies the requirement for clean cover within landscaped verges to manage future exposure risks. It is possible that Site generated materials may meet the clean cover requirements presented in Section 3.8 and **Appendix B**.

3.8 Imported Soils

In the event that additional materials are required for completion of the works, it will be necessary to ensure that soils are sourced from a verifiable supply. Any such materials should be supported by an appropriate level of verification testing, in accordance with Section 3.8, and a clear record of the former use of the “donor” site to demonstrate that the verification testing is appropriate for given potential sources of contamination that may have impacted soil quality and suitability for use on the project Site.

3.9 Chemical Verification Testing

3.9.1 Testing Frequency

Table 3.1 presents the details of the frequency of chemical testing to be undertaken during the construction works.

Table 3.1: Proposed Validation Testing Strategy

Activity	Testing Frequency	Testing Suite
Soakaway investigation.	At least 2 no. samples will be tested per additional exploratory hole.	Soil testing suite to include TPH, asbestos, metals (plus leachable analysis), Polycyclic Aromatic Hydrocarbons and Volatile Organic Compounds.
Soakaway Dig Validation	One sample every 10m from the base and sides.	Soil testing suite to include TPH, asbestos, metals (plus leachable analysis), Polycyclic Aromatic Hydrocarbons and Volatile Organic Compounds.
Site won soils used to create Site levels and infill voids (including materials dug from soakaways).	One sample will be analysed per 1,000m ³ of material generated.	Suite including TPH, asbestos, metals, PAH and Volatile Organic Compounds.
Site-won demolition material used to create Site levels and infill voids.	One sample will be analysed per 1,000m ³ of material (crushed brick and concrete; limited testing required).	Asbestos, Hydrocarbons
Landscape verge	One sample per 25m of landscaped verge	Suite including TPH, asbestos, metals, PAH and Volatile Organic Compounds.

3.9.2 Verification and Acceptance Criteria

Remediation Criteria were previously agreed for the Site. These have been updated to reflect current legislation and guidance and are presented as **Appendix B**.

3.10 Environmental Management during Construction

The contractor will be responsible for the identification and mitigation of risks from the works to the wider environment. Such risks and procedures should be presented within the construction phase environmental management plan. Industry best guidance should be followed and this can be accessed from the following:

Working at Demolition and Construction Sites: PPG Pollution Prevention Guidelines, 2012 (<http://www.environment-agency.gov.uk/business/sectors/136250.asp>).

3.11 Verification Reporting

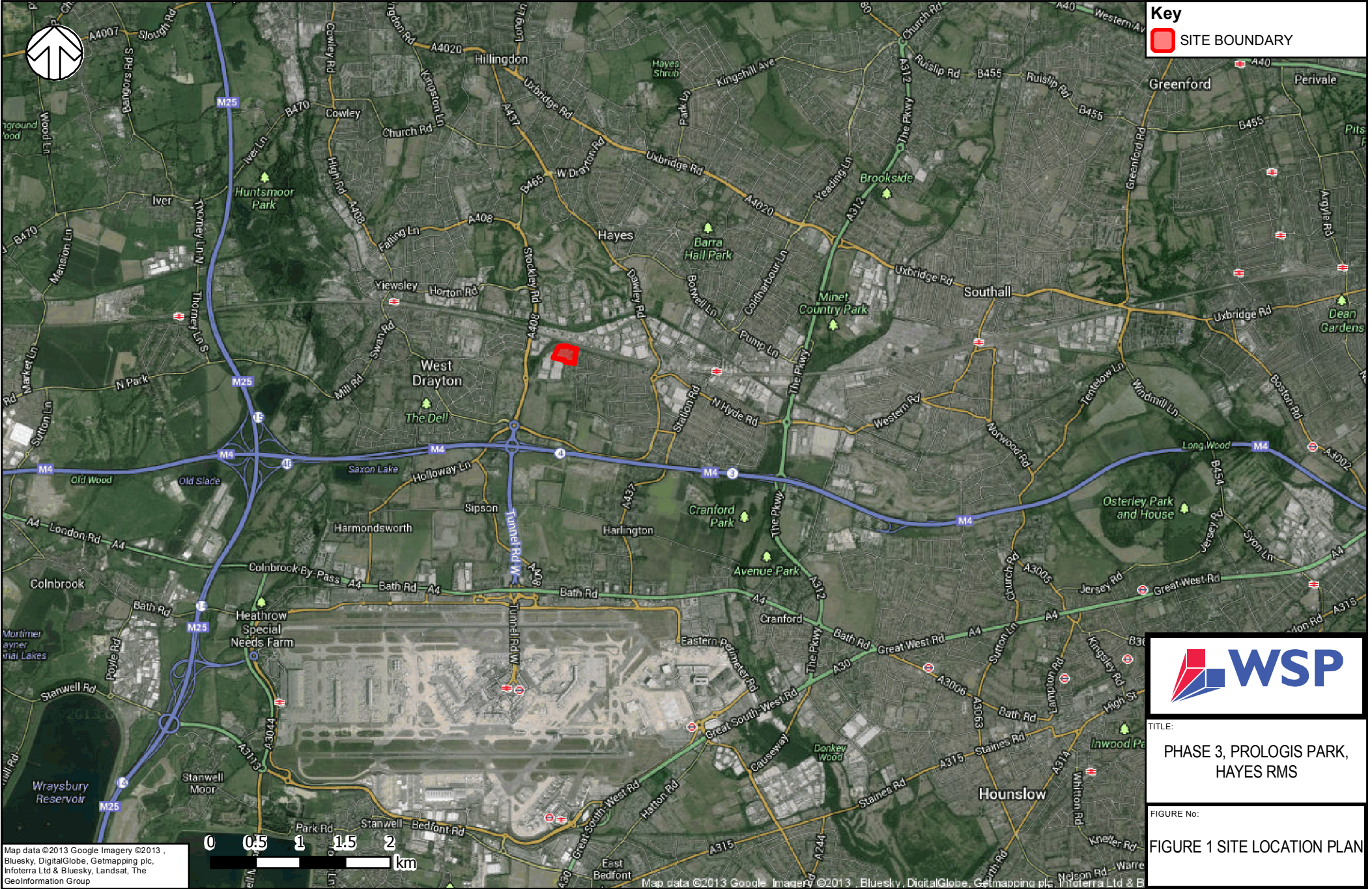
Throughout the works there will be liaison between all parties including the exchange of factual information such as laboratory test data. On completion of the works, a verification report will be produced covering the following:

-
- A co-ordinated drawing showing the final depth, level, location and extent of all excavations of material that has been re-located on-site. The drawing will be annotated or cross-referenced such that the original and final location of relocated material on the Site can be identified;
 - Records of any ground investigations carried out during the works, including trial pit records;
 - Backfill records, including the following, as applicable:
 - Chemical analysis for Site derived fill materials; and,
 - Chemical analysis for imported fill materials (if applicable).
 - A record of the location and depth of all tests carried out on-site and samples taken from the Site. Samples will be described such that the location on-site where a sample was collected can be easily identified;
 - A record of all tests carried out (both laboratory and in-situ) including the range of tests carried out, the test results, and a clear description of the sample tested. Tests will be described such that the sample tested can be easily identified. In- situ tests will be described such that the location of the test can be easily identified;
 - A sample of supplier records from each source of imported fill material used (if material is imported);
 - A photographic record (in digital format) of the works; and,
 - Daily inspection records from the watching brief.

Figures

Figure 1 Site Location Plan

Figure 2 Exploratory Holes and Proposed Soakaway Location Plan



Key
 SITE BOUNDARY



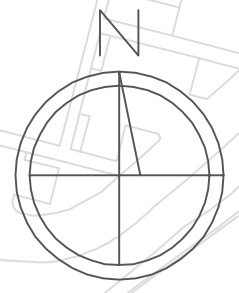
TITLE:
 PHASE 3, PROLOGIS PARK,
 HAYES RMS

FIGURE No:
 FIGURE 1 SITE LOCATION PLAN

Map data ©2013 Google Imagery ©2013, Bluesky, DigitalGlobe, Getmapping plc, Infoterra Ltd & Bluesky, Landsat, The GeoInformation Group

Map data ©2013 Google Imagery ©2013, Bluesky, DigitalGlobe, Getmapping plc, Infoterra Ltd & B

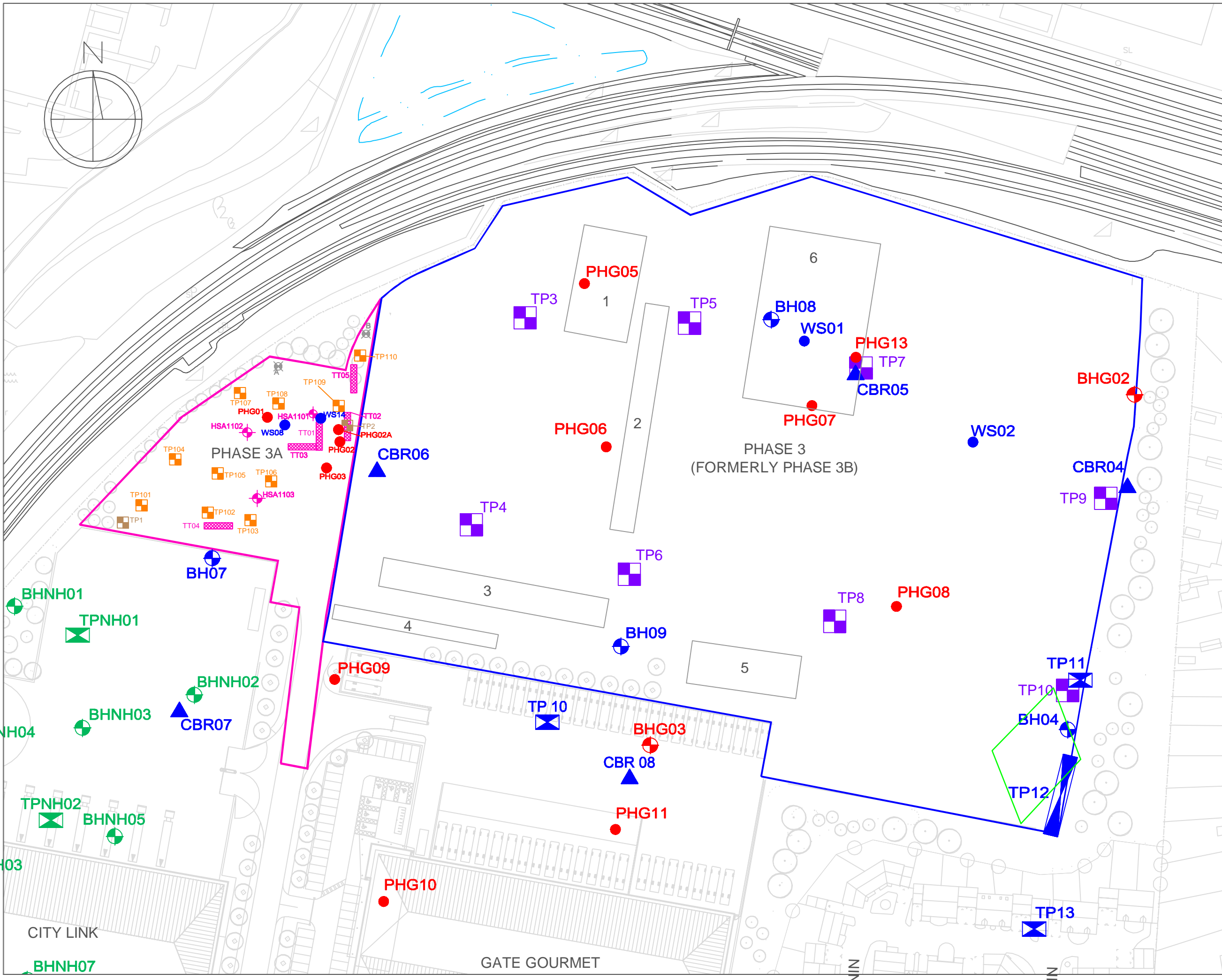
DO NOT SCALE



KEY

- PHASE 3 BOUNDARY (FORMERLY PHASE 3B)
- PHASE 3A BOUNDARY (OFF-SITE)
- FORMER AREA OF CONCERN
- WATER FEATURE
- RAILWAY LINES
- PROPOSED SOAKAWAY LOCATIONS
- PHG06 GIBB ENVIRONMENTAL OCTOBER 1998 (ITEM 8)
- CBR06 WSP DECEMBER 2003 (ITEM 8)
- TP8 WSP NOVEMBER 2010 (ITEM 12)
- BHNH07 NORWEST HOLST FEBRUARY 2001 (ITEM 13)
- TP5 WSP MARCH 2005 (ITEM 14)
- TP1 WSP NOVEMBER 2010 (ITEM 15)
- BH4 WSP FEBRUARY 2012 (ITEM 16)
- TT4 WSP MARCH 2012 (ITEM 17)
- TP106 WSP JUNE 2012 (ITEM 19)
- UNKNOWN BOREHOLE

NOTE: LOCATIONS ARE APPROXIMATE



REV	DATE	BY	DESCRIPTION	CHK	APD

DRAWING STATUS: **FINAL**



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CLIENT: **PROLOGIS DEVELOPMENTS LTD**

ARCHITECT: -

PROJECT: **PHASE 3 PROLOGIS PARK, HAYES**

TITLE: **EXPLORATORY HOLE AND PROPOSED SOAKAWAY LOCATION PLAN**

SCALE: 1:1,000	CHECKED: RC	APPROVED: RC
CAD FILE:	DESIGN/DRAWN: EAB	DATE: OCTOBER 2013

PROJECT No: 00038063-005	DRAWING No: FIGURE 2	REV: -
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Appendices

Appendix A WSP Letter Assessment 04 July 2013 &
Environment Agency Response

Your ref: NE/2013/117668/01-L01
Our ref: 00038063-004 L01

04 July 2013



Jane Wilkin
Environment Agency Planning Liaison Department
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Dear Jane,

Former MOD Document Records Office, Bourne Avenue, Hayes

Erection of distribution warehouse units (use Class B8) with ancillary offices, associated car parking, access and associated landscape works within the existing Prologis Park development.

Further to your letter dated 17th May 2013 (reference NE/2013/117668/01-L01) and a telephone conversation with your colleague Ben Llewellyn on Wednesday 26th June 2013, it is understood that the Environment Agency (EA) are currently objecting to the above planning application submitted for the above site on the grounds that the contamination on the site presents a potential risk to the water environment through the use of soakaway/infiltration based drainage.

This letter aims to address the concerns raised by the EA with regards to the mobilisation of site contamination in to the water environment through the installation of soakaways.

1. Background

WSP Environment and Energy (WSP) recently produced a land quality statement (LQS) to provide a baseline summary assessment of any potential risks from contaminated land which may impact the Site and affect proposals for redevelopment as a commercial distribution site:

- Land Quality Statement: Phase 3 Prologis Park, Hayes by WSP Environmental for Prologis Developments Ltd, reference 00038063-001 R01, dated 17th May 2013.

The LQS comprised a review of previous land quality information relating to the subject site dating from between 1997 and 2010 completed by WSP and third parties.

Ground conditions underlying the Site have previously been encountered as Made Ground overlying Langley Silt, Lynch Hill Gravels and the London Clay Formation. Groundwater has been recorded within the Lynch Hill Gravels superficial stratum and is considered to flow generally towards the south.

Previous investigation indicated an area of potential concern comprising a former backfilled pond in the east of the Site which recorded localised asbestos, hydrocarbon and metal contamination. The wider Prologis Park Site was remediated and subsequently validated by Birse supported by Crossfield Consulting by 2006.

Assessment and validation undertaken by WSP in 2010 indicated that residual levels of hydrocarbon contamination in soils were at concentrations considered appropriate for a commercial/industrial end use.

Asbestos impacted materials were considered appropriate for reuse on-site provided they were placed beneath hard standing and robust health and safety procedures were adopted during construction.

2. Additional Assessment

Further to receiving the abovementioned response to the LQS by the EA via the Prologis planning application, WSP have given further consideration to residual on-site contamination and the proposed drainage strategy for the site, provided as **Figure 1**.

The drainage layout drawing indicates that six soakaways are proposed to be installed on-site (annotated by WSP on **Figure 1**) to the north, east and south of the proposed Unit C in the west of the site.

The anticipated ground conditions at each soakaway location have been assessed through comparison of the proposed soakaway locations and the proximal ground investigation exploratory hole locations. This assessment is provided in **Appendix A** and the approximate locations of the soakaways are shown on an exploratory hole location plan presented as **Figure 2**.

The information provided in **Appendix A** and on **Figure 2** confirms that recorded contaminant concentrations exist in the approximate proposed location of Soakaway 6, albeit at shallow levels. There is limited investigation information in the *close* proximity to the remaining soakaway locations, although there is nothing to suggest from the previous investigations or land use that further significant contamination should be expected.

The base of the proposed soakaways are shown on the drainage strategy (**Figure 1**) at elevations of 29.9 metres Above Ordnance Datum (m AOD) to 30.1m AOD with proposed finished external levels at approximately between 31.8m AOD and 32m AOD. Current ground levels are at approximately 31.5m AOD indicating that the soakaways will extend to approximately 1.5m below current levels.

Typically the site is underlain by 0.3m to 0.6m of Made Ground in turn underlain by natural ground (the Langley Silt or Lynch Hill Gravel Formations). The contamination recorded on site, has been present within the Made Ground only and substantially above the depth of the infiltration drainage.

Based on the levels provided in the drainage strategy (**Figure 1**) excavation of the soakaways should remove the impacted Made Ground (presumably for re-use elsewhere on site away from the areas of infiltration), removing the potential for infiltration through contaminated soils.

WSP conclude that the soakaways should not be affected by low level site contamination previously recorded on the site and any such risks will be mitigated through the construction of the infiltration drainage system.

3. Recommendations

Based on the above assessment, WSP do not consider the site contamination to present a constraint to the adoption of infiltration based drainage. However, recommendations for construction phase on the Site, to ensure that previously unidentified contamination, does not present an unacceptable risk, include (as previously noted in the LQS):

- Completion of a watching brief with method statement to address contamination in the event that it is encountered during excavations, this should include a specific inspection of the formation level for the soakaway structures and confirmatory testing of the formation level;
- Adoption of robust health and safety assessment to ensure that residual contamination risks are mitigated or managed, especially with regards to asbestos;

- Installation of capping layer in soft landscaped areas to break the direct contact and inhalation pathways of any residual contamination. Depths should be agreed with the regulating authorities; and,
- Agreements made with the regulators should be kept on file.

Based on the updated additional assessment completed WSP would also recommend that Made Ground excavated for the installation of the proposed soakaways and intended for re-use on-site should be placed beneath areas of hard standing and subject to confirmatory testing prior to re-use.

4. Closing

WSP trust that the above meets with your requirements and you are able to remove your objection to the adoption of infiltration based drainage on the grounds of contamination.

Should you require any clarification or additional information to that provided, please do not hesitate in contacting me directly.

Yours sincerely

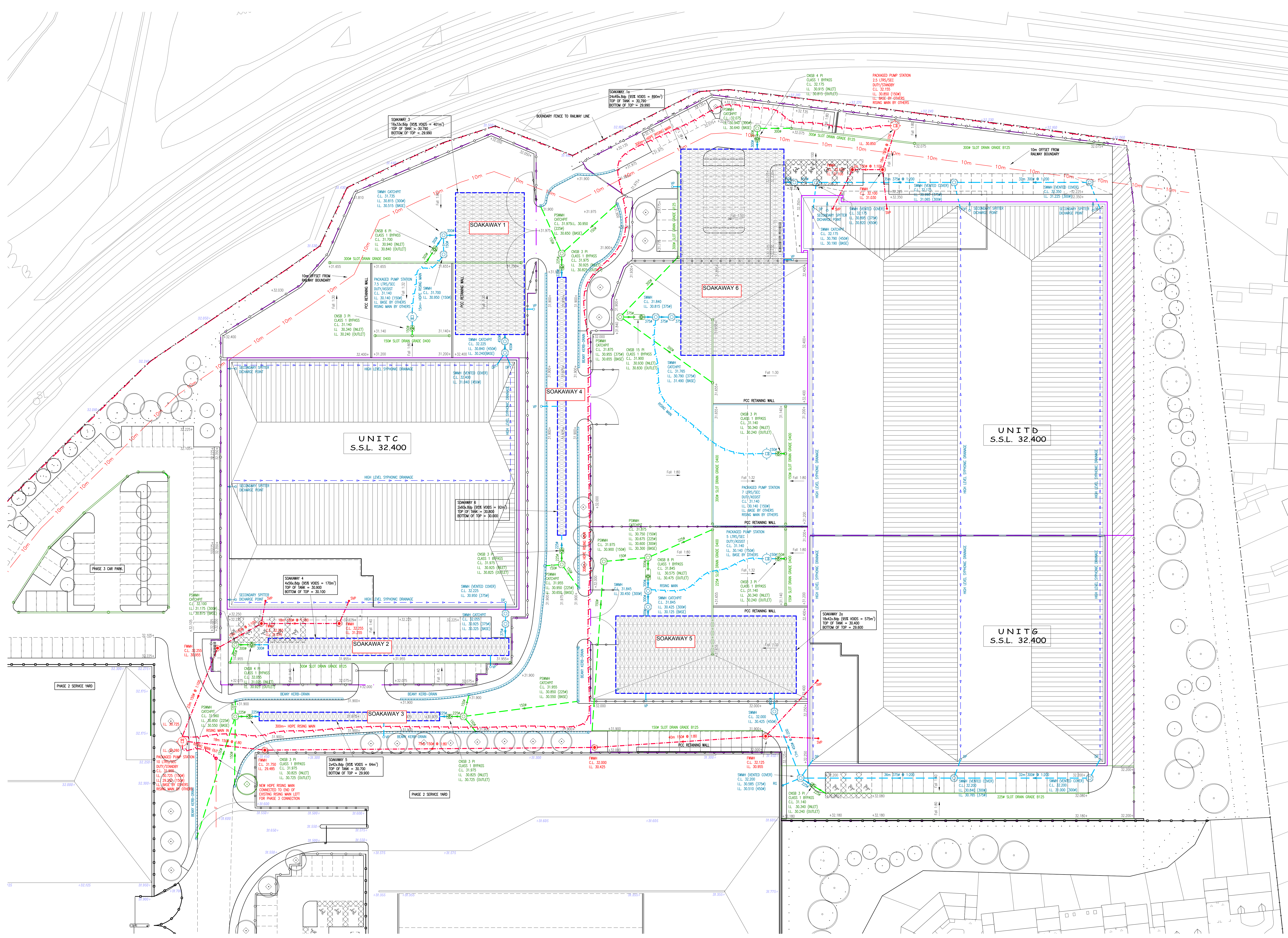


Elizabeth Beers
Senior Consultant, Land Restoration and Ground Engineering
WSP Environmental Limited
DD: 0121 352 4781

CC: File, Prologis, Turley Associates

Encs	Figure 1	Phase 3 (Units C, D & G) Prologis Park, Hayes: Drainage Strategy Drawing by T. R Collier & Associates, reference 2607-51 Rev P1, dated March 2010
	Figure 2	Exploratory Hole Location Plan (reference 38063-004 L01, dated July 2013)
	Appendix A	Comparison of Proposed Soakaway Locations and Approximate Previous Exploratory Hole Locations

Authorised by: Richard Clayton, Director 04/07/2013



DRAINAGE NOTES

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS AND SPECIALISTS DRAWINGS AND SPECIFICATIONS.
2. ALL DRAINAGE WORK TO BE CARRIED OUT IN ACCORDANCE WITH BS 5311, BS 8005 AND THE BUILDING REGULATIONS.
3. ALL PIPES ARE TO HAVE SURROUND IN ACCORDANCE WITH ARCHITECTS DRAWINGS.
4. FOR EXACT LOCATION OF RAIN WATER AND FOUL WATER OUTLETS, REFER TO ARCHITECTS DRAWINGS.
5. SURFACE WATER DRAINS SHALL BE EITHER H.D.P.E. RODRIGAN TWINWALL CARRIER PIPE BY 'POLYPIPE PLC' (OR SIMILAR APPROVED) TO B.S. EN 1401-1 OR P.C.C. PIPES TO B.S. 5911 (PART 100) OR VITRIFIED CLAY TO B.S. 65
6. FOUL WATER DRAINS SHALL BE EITHER P.V.C. PIPEWORK BY 'POLYPIPE PLC' (OR SIMILAR APPROVED) TO B.S. EN 1401-01 OR VITRIFIED CLAY TO B.S. EN 295
7. ALL GRP UNDERGROUND TANKS ARE TO BE BEDDED ON AND ENCASED IN 250mm GEN 3 20mm AGG. CONCRETE STRICTLY IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS.
8. ROAD GULLY OUTLET & KERBORANI PIPE INVERT LEVELS TO BE 600mm BELOW TOP OF GRATING LEVEL.
9. ALL MANHOLE AND INSPECTION CHAMBER COVERS, FRAMES AND SLOT TYPE DRAINS IN TRAFFICKED AREAS SHALL COMPLY TO EITHER B.S. 497 : PART 1 HEAVY DUTY COVERS TO MARO. OR B.S. EN 124 GRADE D400 (11.5 TONNE WHEEL LOADS) SYNCHRONIC DRAINAGE TO HAVE VENTED COVERS
10. FOR DRAINAGE CONSTRUCTION AND PIPE BED DETAILS REFER TO DRAWING No. 11. ALL DRAINAGE BRANCHES TO BE 100mm FOR FOUL WATER & 150mm FOR SURFACE WATER UNLESS MARKED OTHERWISE.
12. ALL SOIL & VENT STACKS TO HAVE ROODABLE ACCESS 150mm ABOVE GROUND FLOOR SLAB LEVEL WITH REMOVABLE ACCESS PLATES.
13. ALL DRAINAGE CHANNELS TO HAVE ACCESS CHAMBER AT ENDS OF RUNS & EVERY 30m THEREAFTER.
14. ALL KERB DRAINAGE TO HAVE SUMP UNITS AT OUTLETS OF RUNS & HAVE ROODING ACCESS POINTS EVERY 30m THEREAFTER.
15. ALL SHALLOW DRAINAGE (<900mm COVER) AND DRAINAGE BELOW SLAB TO BE INCASED IN MIN 150mm CONCRETE SURROUND.
16. ALL CONCRETE SURROUNDS FOR THE DRAINAGE TO BE CLASS DC42 (SULPHATE RESISTING)

LEGEND

- 1200mm MANHOLE & DRAIN RUN FOUL WATER - RED
- CLEAN SURFACE WATER - BLUE
- DRY SURFACE WATER - GREEN
- 1500mm MANHOLE & DRAIN RUN CLEAN SURFACE WATER - BLUE
- DRY SURFACE WATER - GREEN
- 1800mm MANHOLE & DRAIN RUN CLEAN SURFACE WATER - BLUE
- DRY SURFACE WATER - GREEN
- EXISTING FOUL WATER DRAINAGE RUN & MANHOLE
- EXISTING CLEAN SURFACE WATER DRAINAGE RUN & MANHOLE
- HIGH LEVEL SYNCHRONIC DRAINAGE PRIMARY/SECONDARY SYSTEM
- PACKAGED PUMP STATION WITH ROOM
- SLOT DRAIN (200mm CAD CONCRETE SURROUND)
- ACCESS CHAMBER/OUTLET
- BEANY TYPE ACCESS DRAIN (150mm CAD BED & BRANCH)
- ROODABLE TRAPPED FLOOR GULLY
- SOIL & VENT PIPE
- SOIL STACK INCL. INV
- PRESSURISED SYNCHRONIC DOWNPIPE
- GRAVITY RAINWATER DOWNPIPE
- CONCRETE CLASS 1 BY-FAS PETROL RESISTANT
- PROPOSED NEW SURFACE LEVELS
- EXISTING SURFACE LEVELS



REV	DATE	DESCRIPTION	CHK	DRN
P1	18.12.12	PRELIMINARY ISSUE	TC	CE

NOTE: Where a 'P' revision appears, this drawing is NOT to be used for construction.

T. R. COLLIER & ASSOCIATES
CONSULTING ENGINEERS

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PROJECT
PHASE 3 (Units C, D & G)
PROLOGIS PARK, HAYES

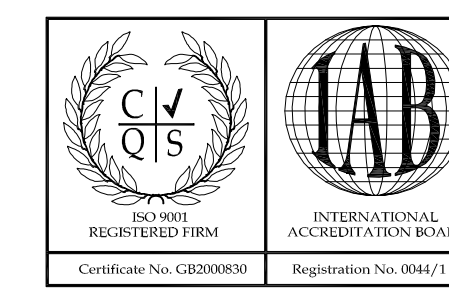
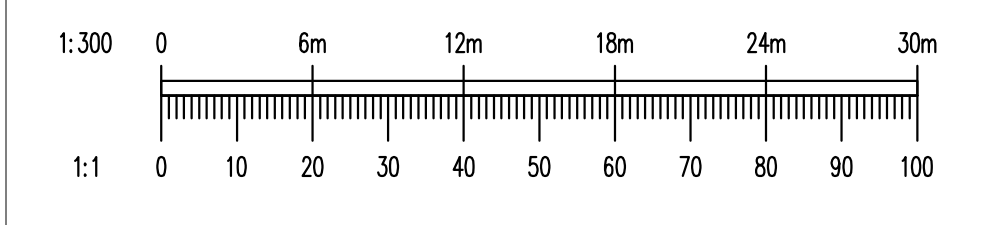
TITLE
DRAINAGE LAYOUT
Ref: Michael Sparks Associates 30587

ARCHITECT
MICHAEL SPARKS Associates

DRAWN	DESIGNED	CHECKED
CE	TC	TC
DATE	SCALE	STATUS
Mar 2010	1:300	Preliminary

2607-51

DRAINAGE LAYOUT
(Ref: 30587)
Scale 1:300



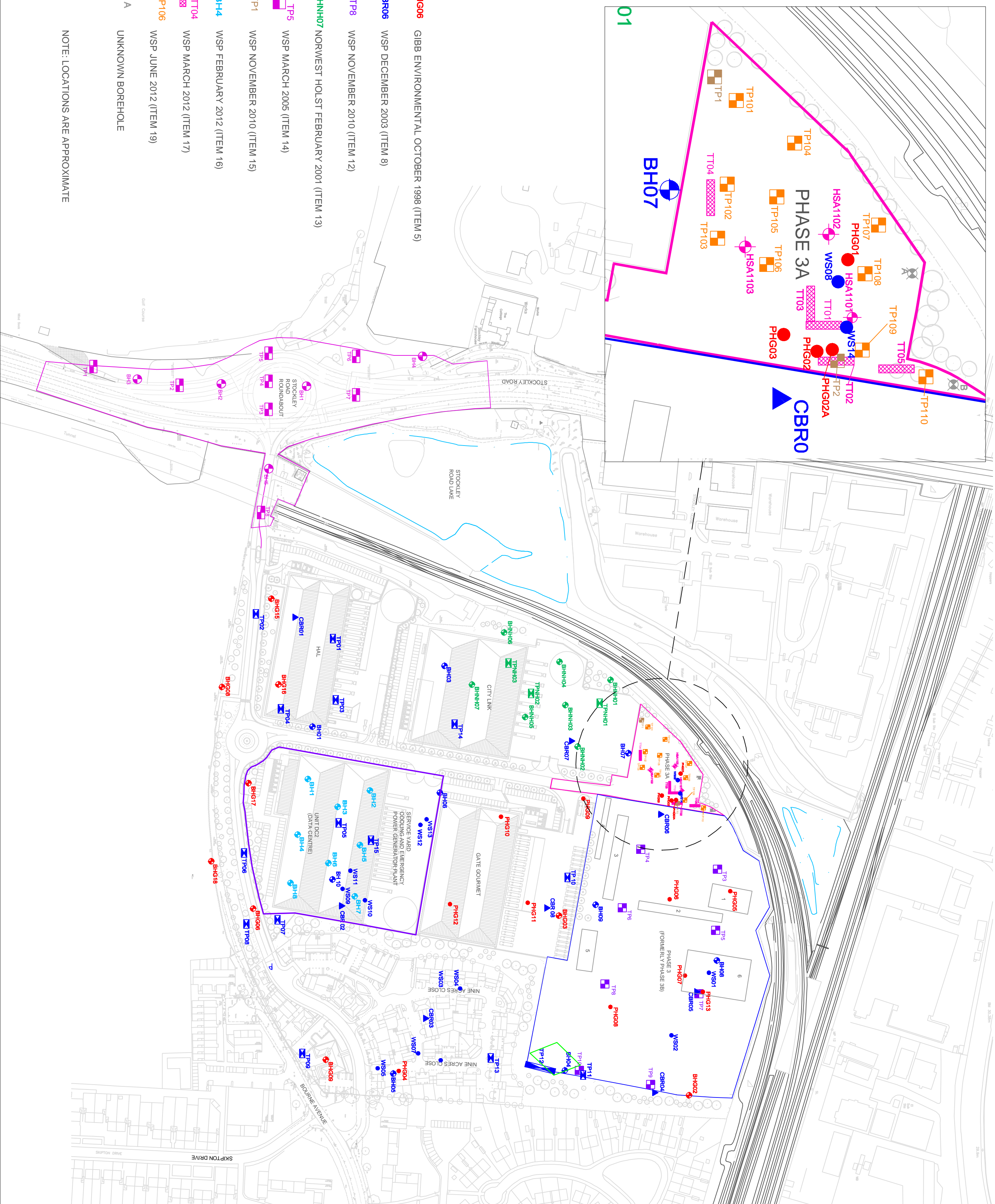
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DO NOT SCALE

KEY

-  PHASE 3 BOUNDARY (FORMERLY PHASE 3B)
-  PHASE 3A BOUNDARY (OFF-SITE)
-  UNIT DC2 (DATA CENTRE) BOUNDARY (OFF-SITE)
-  PHASE A BOUNDARY (OFF-SITE)
-  FORMER AREA OF CONCERN
-  WATER FEATURE
-  RAILWAY LINES
-  PROPOSED SOAKAWAY LOCATIONS

NOTE: LOCATIONS ARE APPROXIMATE



REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS: FINAL



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CLIENT: PROLOGIS DEVELOPMENTS LTD

ARCHITECT: -





PROJECT: PHASE 3 PROLOGIS PARK, HAYES

TITLE: EXPLORATORY HOLE AND PROPOSED SOAKAWAY LOCATION PLAN

SCALE/SIZE	CHECKED	APPROVED
1:2,000@ A2	EAB	RC

DATE/FILE	DESIGN/DRAWN	DATE
EAB	EAB	JULY 2013

PROJECT NO: 38063-004L01 DRAWING NO: FIGURE 2
 © WSP Group plc

-  PHG06 GIBB ENVIRONMENTAL OCTOBER 1998 (ITEM 5)
-  CBR06 WSP DECEMBER 2003 (ITEM 8)
-  TP8 WSP NOVEMBER 2010 (ITEM 12)
-  BHNH07 NORWEST HOLST FEBRUARY 2001 (ITEM 13)
-  TP5 WSP MARCH 2006 (ITEM 14)
-  TP1 WSP NOVEMBER 2010 (ITEM 15)
-  BH4 WSP FEBRUARY 2012 (ITEM 16)
-  TT04 WSP MARCH 2012 (ITEM 17)
-  TP106 WSP JUNE 2012 (ITEM 19)
-  UNKNOWN BOREHOLE

NOTE: LOCATIONS ARE APPROXIMATE

Appendix A: Comparison of Proposed Soakaway Locations and Approximate Previous Exploratory Hole Locations

Soakaway Reference	Exploratory Hole Locations in Proposed Soakaway	Depth of Sample	Contaminant concentrations	Depth to base of Made Ground
Soakaway 1	PHG05	Information not available (third party ground investigation data)		
Soakaway 2	None, closest are PHG06 and TP5	PHG06	Information not available (third party ground investigation data)	
		TP5 at 0.5m	<ul style="list-style-type: none"> ■ Arsenic: 3.5mg/kg ■ Chromium: 28mg/kg ■ Copper: 14mg/kg ■ Nickel: 28mg/kg ■ Lead: 3.8mg/kg ■ Zinc: 58mg/kg ■ Phenanthrene: 0.2mg/kg ■ Pyrene: 0.3mg/kg ■ Total TPH: 270mg/kg ■ All other speciated PAH, selenium, mercury, cadmium, BTEX, PRO (C5-10): at or below LOD 	N/A
Soakaways 3 & 4 & 5	None, closest are BH9, TP4, TP6, TP8	BH9 at 1.0m bgl	<ul style="list-style-type: none"> ■ Arsenic: 10mg/kg ■ Chromium: 40mg/kg ■ Copper: 60mg/kg ■ Nickel: 27mg/kg ■ Lead: 22mg/kg ■ Zinc: 51mg/kg ■ Cadmium, mercury, selenium, monohydric phenols, cyanide, sulphate and speciated PAH in soils: <LOD 	N/A
		BH9 groundwater	<ul style="list-style-type: none"> ■ Metals, monohydric phenols, cyanide, VOC and SVOC: <LOD ■ Ammonia: 0.18mg/l ■ Sulphate: 60mg/l 	

N/A – Not Applicable

<LOD – less than laboratory limit of detection

M bgl – metres below ground level

00038063-004 L01 Appendix A

VOC – Volatile Organic Compound Suite

SVOC – Semi-Volatile Organic Compound Suite

TPH – Total Petroleum Hydrocarbons Suite

PAH – Polycyclic Aromatic Hydrocarbon Suite

PRO – Petrol Range Organics

Appendix A: Comparison of Proposed Soakaway Locations and Approximate Previous Exploratory Hole Locations

Soakaway Reference	Exploratory Hole Locations in Proposed Soakaway	Depth of Sample	Contaminant concentrations	Depth to base of Made Ground
		TP4 at 0.1m bgl	<ul style="list-style-type: none"> ■ Arsenic: 4.1mg/kg ■ Chromium: 56mg/kg ■ Copper: 17mg/kg ■ Nickel: 35mg/kg ■ Zinc: 72mg/kg ■ Total PAH: 3.0mg/kg ■ Total TPH, BTEX, selenium, mercury, cadmium, lead and PRO (C5-10): < LOD 	
		TP6 at 0.5m bgl	<ul style="list-style-type: none"> ■ Chromium: 13mg/kg ■ Copper: 20mg/kg ■ Nickel: 40mg/kg ■ Zinc: 81mg/kg ■ Total TPH, BTEX, PRO (C5-10), Total PAH, selenium, mercury, arsenic, cadmium and lead: <LOD 	
		TP9 at 0.3m bgl	<ul style="list-style-type: none"> ■ Total PAH: 6.0mg/kg ■ Total TPH: 290mg/kg ■ Arsenic: 3.3mg/kg ■ Cadmium: 0.32mg/kg ■ Chromium: 59mg/kg ■ Copper: 27mg/kg ■ Nickel: 33mg/kg ■ Lead: 29mg/kg ■ BTEX, PRO (C5-10), selenium and mercury : <LOD 	
Soakaway 6	BH08 (WSP - December 2003)	1.5m bgl	<ul style="list-style-type: none"> ■ VOC: <LOD 	0.1m bgl
		Groundwater	<ul style="list-style-type: none"> ■ Sulphate: 65mg/l ■ Ammonia: 0.2mg/l 	

N/A – Not Applicable

<LOD – less than laboratory limit of detection

M bgl – metres below ground level

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VOC – Volatile Organic Compound Suite

SVOC – Semi-Volatile Organic Compound Suite

TPH – Total Petroleum Hydrocarbons Suite

PAH – Polycyclic Aromatic Hydrocarbon Suite

PRO – Petrol Range Organics

Appendix A: Comparison of Proposed Soakaway Locations and Approximate Previous Exploratory Hole Locations

Soakaway Reference	Exploratory Hole Locations in Proposed Soakaway	Depth of Sample	Contaminant concentrations	Depth to base of Made Ground
			<ul style="list-style-type: none"> ■ Total cyanide and metals: <LOD ■ VOC: <LOD ■ SVOC: <LOD ■ Petrol Range Organics (C6-10): <LOD 	
	WS01 (WSP – December 2003)	0.4-0.6m bgl	<ul style="list-style-type: none"> ■ Arsenic: 11mg/kg ■ Chromium: 30mg/kg ■ Copper: 57mg/kg ■ Nickel: 20mg/kg ■ Lead: 21mg/kg ■ Zinc: 44mg/kg ■ Cadmium, mercury, selenium, monohydric phenols, cyanide (total) and sulphate: <LOD ■ Speciated PAH: <LOD 	0.9m bgl
		Leachate 0.4-0.6m bgl	<ul style="list-style-type: none"> ■ Monohydric phenol, hydrocarbon oil and selenium: <LOD ■ Speciated PAH: below or at LOD (total PAH: 0.0028mg/l) 	
	PHG07	Information not available (third party ground investigation data)		
	PHG13	0.5m bgl	<ul style="list-style-type: none"> ■ TPH: 3,078mg/kg ■ Dark grey discolouration, hydrocarbon odour and 14ppm 	Information not available
	TP7 (WSP - November 2010)	0.2m bgl	<ul style="list-style-type: none"> ■ Arsenic: 4.2mg/kg ■ Chromium: 23mg/kg ■ Copper: 6.5mg/kg ■ Nickel: 17mg/kg ■ Lead: 2.6mg/kg ■ Zinc: 35mg/kg ■ Phenanthrene: 0.1mg/kg 	0.34m bgl

N/A – Not Applicable

<LOD – less than laboratory limit of detection

M bgl – metres below ground level

00038063-004 L01 Appendix A

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Appendix A: Comparison of Proposed Soakaway Locations and Approximate Previous Exploratory Hole Locations

Soakaway Reference	Exploratory Hole Locations in Proposed Soakaway	Depth of Sample	Contaminant concentrations	Depth to base of Made Ground
			<ul style="list-style-type: none"> ■ Fluoranthene: 0.2mg/kg ■ Pyrene: 0.2mg/kg ■ Aliphatic hydrocarbons C21-35: 6.2mg/kg ■ Aromatic hydrocarbons C12-16: 3.2mg/kg ■ Aromatic hydrocarbons C16-21: 5.7mg/kg ■ Aromatic hydrocarbons C21-35: 8.9mg/kg ■ All other metals, BTEX, speciated PAH and speciated TPH: below or at LOD 	

N/A – Not Applicable

<LOD – less than laboratory limit of detection

M bgl – metres below ground level

00038063-004 L01 Appendix A

VOC – Volatile Organic Compound Suite

SVOC – Semi-Volatile Organic Compound Suite

TPH – Total Petroleum Hydrocarbons Suite

PAH – Polycyclic Aromatic Hydrocarbon Suite

PRO – Petrol Range Organics

Mr Matt Kolaszewski
London Borough of Hillingdon
Development Control

Our ref: NE/2013/117668/02-L01
Your ref: 18399/APP/2013/1019

Date: 16 July 2013

By email:

PlanningConsult@hillingdon.gov.uk

Dear Matt

Former MOD Document Record Office, Bourne Avenue, Hayes

Erection of distribution warehouse units (use class B8) with ancillary offices, associated car parking, access and associated landscape works within the existing Prologis Park development.

Thank you for consulting us on the above application. Further to our formal response dated 17 May 2013, reference NE/2013/117668/01 we have received the following additional information from Elizabeth Beers at WSP:

- Letter dated 4 July 2013 detailing the previous history, additional assessment and recommendations in terms of site contamination.
- Email dated 16 July 2013 with groundwater levels near the soakaway locations

As discussed on the phone on Monday 15 July 2013, we have not previously been consulted under the application made in 2004 (18399/APP/2004/2284) or the subsequent applications made in 2010 (18399/APP/2010/2814 and 18399/APP/2010/545). As such we were not aware of the previous history of the site when consulted on this application. On initial consultation we did not have sufficient evidence for us to be assured that there would be any risk to controlled waters or increased flood risk arising from the proposed development.

The letter from WSP states that the contamination in the made ground will be removed in the six locations for the proposed soakaways, thereby reducing the risk of mobilising contaminants. The groundwater levels show the groundwater to be very shallow and we therefore had concerns that infiltrative techniques for drainage may not be effective.

Having looked at the previous history for other planning applications at this site we found that infiltration testing has been done previously for the whole site (under planning application reference 18399/APP/2009/1552), sent to us by Paul Wahba at MSA Architects on 2 September 2009. These infiltration tests demonstrate that infiltration will be possible, and that the assumptions made within the Flood Risk Assessment by WSP for this application are appropriate. When there is no opportunity for a secondary drainage strategy it is important to ensure that the reliance on infiltration is proven prior to determination to prevent an un-implementable planning permission/risk of flooding.

Cont/d..



We are therefore now satisfied that we have sufficient evidence upon which to remove our objection and request that the following conditions are included in the decision notice. Without the inclusion of these conditions we consider the development to pose an unacceptable risk to the environment.

Condition 1

Development shall not begin until a detailed surface water drainage scheme for the site, based on the agreed Flood Risk Assessment (FRA) dated 10/04/2013, by WSP, reference 11012721, has been submitted to and approved in writing by the Local Planning Authority. The scheme shall subsequently be implemented in accordance with the approved details before the development is completed.

The scheme shall include a restriction in run-off to greenfield rates and surface water storage on site as outlined in the FRA.

Reason

To prevent the increased risk of flooding, to improve and protect water quality, and improve habitat and amenity.

Condition 2

No infiltration of surface water drainage into the ground at this location is permitted other than with the express written consent of the Local Planning Authority, which may be given for those parts of the site where it has been demonstrated that there is no resultant unacceptable risk to controlled waters. The development shall be carried out in accordance with the approval details.

Reasons

The Lynch Hill Gravels underlying the site is classed as a Principal Aquifer. Infiltration of surface water would provide potential pathway for contamination at the surface to migrate into the underlying Principal Aquifer. The design of SuDS and other infiltration systems should include appropriate pollution prevention measures. If contamination is present in areas proposed for infiltration, we will require the removal of all contaminated material and provision of satisfactory evidence of its removal, the point of discharge should be kept as shallow as possible. Deep bored infiltration techniques are not acceptable; only clean, uncontaminated water should be discharged into the ground.

Condition 3

If, during development, contamination not previously identified is found to be present at the site then no further development (unless otherwise agreed in writing with the Local Planning Authority) shall be carried out until the developer has submitted a remediation strategy to the Local Planning Authority detailing how this unsuspected contamination shall be dealt with and obtained written approval from the Local Planning Authority. The remediation strategy shall be implemented as approved.

Reasons

1. To protect and prevent the pollution of controlled waters from potential pollutants associated with current and previous land uses in line with National Planning Policy Framework (NPPF; paragraphs 109, 120, 121), EU Water Framework Directive and Environment Agency Groundwater Protection (GP3:2012) position statements A4 to A6, D1 to D4 and N7.

2. This condition has been recommended as no investigation can completely characterise a site, some areas are less well characterised than others. National Planning Policy Framework (NPPF) paragraph 109 states that the planning

system should contribute to and enhance the natural and local environment by preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of water pollution. Government policy also states that planning policies and decisions should ensure that adequate site investigation information, prepared by a competent person, is presented (NPPF, paragraph 121).

Advice on Surface Water

The applicant has demonstrated that surface water can be dealt with on site by using infiltration and a greenfield run off rate. As part of the surface water strategy, the applicant should demonstrate to the Local Planning Authority that the requirements of any local surface water drainage planning policies have been met and the recommendations of the relevant Strategic Flood Risk Assessment and Surface Water Management Plan have been considered.

We note that there is very shallow perched groundwater on this site which should be taken into consideration to ensure that an appropriate drainage strategy is designed to minimise the risk of flooding.

In order to discharge the surface water condition, the following information must be provided based on the agreed drainage strategy:

- a) A clearly labelled drainage layout plan showing pipe networks and any attenuation ponds, soakaways and drainage storage tanks. This plan should show any pipe 'node numbers' that have been referred to in network calculations and it should also show invert and cover levels of manholes.
- b) Confirmation of the critical storm duration.
- c) Where infiltration forms part of the proposed stormwater system such as infiltration trenches and soakaways, soakage test results and test locations are to be submitted in accordance with BRE digest 365.
- d) Where on site attenuation is achieved through attenuation ponds or tanks, calculations showing the volume of these are also required.
- e) Where an outfall discharge control device is to be used such as a hydrobrake or twin orifice, this should be shown on the plan with the rate of discharge stated.
- f) Calculations should demonstrate how the system operates during a 1 in 100 chance in any year critical duration storm event, including an allowance for climate change in line with the National Planning Policy Framework Technical Guidance. If overland flooding occurs in this event, a plan should also be submitted detailing the location of overland flow paths and the extent and depth of ponding.

Advice on Groundwater and Contaminated Land

The Land Quality Statement with regards to the Phase 3 development at Prologis Park, Hayes gives a summary of previous site investigation and remediation/validation works carried out at this location. We note that although some remediation and validation has been done for this section of the site, remedial targets used generic soil criteria (residential/commercial), which is not tailored to groundwater protection.

I hope the above comments are helpful. Please contact me if you wish to discuss this application further.

Yours sincerely

**Ms Jane Wilkin
Planning Advisor**

Telephone: 020 3263 8052
E-mail: northlondonplanning@environment-agency.gov.uk
Based at: Ergon House, Horseferry Road, London, SW1P 2AL
Postal address: FAO Planning Liaison, London Team, Apollo Court, 2 Bishops Square Business Park, St Albans Road West, Hatfield, AL10 9EX

[Cc Elizabeth Beers, WSP](#)
[Victoria Boorman, LB Hillingdon](#)

Appendix B Proposed Site Screening Criteria

- 1) All testing shall be presented to the independent environmental consultant for approval and additional assessment, remediation removal works and testing scheduled as appropriate.
- 2) Concentrations of contaminants recorded in soils, sediments and demolition material shall be assessed and compared to the Limit Values in Tables 1, 2 and 3.
- 3) Materials containing concentrations of contaminants in excess of the Limit Values in Table 1 and / or 3 shall be removed from Site as Unacceptable Material.
- 4) All contamination testing shall be carried out in a UKAS and MCerts accredited laboratory, in accordance with the standards and procedures defined by MCerts.
- 5) The soil limit values are based on published Soil Guideline Values (SGV) or WSP Generic Assessment Criteria (GAC) for a commercial land use unless stated otherwise.
- 6) The materials will be inspected for visual and olfactory evidence of contamination. No hydrocarbon saturated soils will be reused on-Site.
- 7) The values of <1,000mg/kg and <5,000 mg/kg for total TPH are nominal values to be protective of soil quality and Controlled Waters respectively.
- 8) Full GAC for Volatile Organic Compounds and Semi Volatile Organic Compounds will be applied to analysis results where testing is warranted by historical land use and / or elevated concentrations previously identified, and have not been provided in full here.

Table 1 : Acceptance Criteria for Landscaped Areas (150mm), Imported Soils and Verification of Soakaway Formation Levels

Determinand	Trigger Concentration (mg/kg)	Basis
Asbestos	NFD	No asbestos fibres detected*
Arsenic	51	Public Parks - appropriate for local parks and open areas typically located adjacent to residential housing and more frequently used than in an Open Spaces scenario.
Cadmium	35	As above
Chromium (III)	21500	As above
Chromium (Hexavalent) (VI)	102	As above
Copper	15250	As above
Cyanide (Free)	60	As above
Lead	694	As above
Elemental Mercury	26	As above
Inorganic Mercury	379	As above
Methyl Mercury	24	As above
Nickel	1149	As above
Selenium	869	As above
Zinc	58880	As above
Total PAHs	50	Proposed arbitrary limit to ensure soil quality is maintained and risks to controlled waters are managed.
Benzo[a]anthracene	8.8	Public Parks - appropriate for local parks and open areas typically located adjacent to residential housing and more frequently used

Determinand	Trigger Concentration (mg/kg)	Basis
		than in an Open Spaces scenario.
Benzo[b]fluoranthene	9.9	As above
Benzo[k]fluoranthene	15	As above
Benzo[ghi]perylene	79	As above
Benzo[a]pyrene	1.4	As above
Chrysene	12	As above
Dibenz[ah]anthracene	1.4	As above
Fluoranthene	1480	Concentration limited by 50mg/kg arbitrary limit
Indeno[123-cd]pyrene	5.8	Public Parks - appropriate for local parks and open areas typically located adjacent to residential housing and more frequently used than in an Open Spaces scenario.
Naphthalene	462	Concentration limited by 50mg/kg arbitrary PAH limit
Pyrene	3550	Concentration limited by 50mg/kg arbitrary PAH limit
Fluorene	4670	Concentration limited by 50mg/kg arbitrary PAH limit
Anthracene	35370	Concentration limited by 50mg/kg arbitrary PAH limit
Phenanthrene	1460	Concentration limited by 50mg/kg arbitrary PAH limit
Acenaphthylene	6950	Concentration limited by 50mg/kg arbitrary PAH limit
Acenaphthene	6950	Concentration limited by 50mg/kg arbitrary PAH limit
BTEX (based on 100% benzene)	1	Arbitrary limit on imported soils and shallow soils
Total TPH (Sum)	500	A conservative and qualitative screening value for assessing hydrocarbon impacted soils

Leaching Criteria for Pollution of Controlled Waters (Inorganic Contaminants) (Verification of Soakaway Formation Levels)

1. The Limit Values in Table 2 apply to materials subjected to leaching tests.
2. Any material which exhibits gross visual evidence of hydrocarbon contamination (e.g. visible evidence of hydrocarbons such as free product) shall not be re-used on-Site.
3. The leaching limit values are based on standards stated in the source column. Consideration shall be given to any future legislative changes.
4. Testing requirements as in the main body of the report.

Table 2 Contamination Criteria (Controlled Waters)

Contaminant	Limit Value (µg/l)	Source
Arsenic	10	Drinking Water Standards England & Wales (2000) (amended)
Cadmium	5	Drinking Water Standards England & Wales (2000) (amended)
Chromium	50	Guidelines for Drinking Water Quality, Second Addendum to the Third Edition, Volume 1, World Health Organisation, 2008
Copper	2,000	Drinking Water Standards England & Wales (2000) (amended)

Contaminant	Limit Value (µg/l)	Source
Lead	25	Drinking Water Standards England & Wales (2000) (amended)
Mercury	1	Drinking Water Standards England & Wales (2000) (amended)
Nickel	20	Drinking Water Standards England & Wales (2000) (amended)
Selenium	10	Drinking Water Standards England & Wales (2000) (amended)
Zinc	5,000	Scotland Private Water Supply Regulations 2006
Cyanide	50	Drinking Water Standards England & Wales (2000) (amended)

Table 3: Criteria for Protection of Human Health and the Environment below 150mm in landscaping and below areas of hardstanding etc Outside of Soakaways.

Determinand	Trigger Concentration (mg/kg)	Basis
Asbestos	<0.01% w/w	<0.01% or no visible asbestos containing materials.
Arsenic	640	WSP Generic Acceptance Criteria for Commercial end use
Cadmium	230	As above
Chromium (III)	30,000	As above
Chromium (VI) (Hexavalent)	35	As above
Copper	72,000	As above
Cyanide (free)	60	As above
Lead	6,000	As above
Mercury, inorganic	3,600	As above
Nickel	1,800	As above
Selenium	13,000	As above
Zinc	660,000	As above
Total PAH	500	Arbitrary control on soil quality*
Benzo[a]anthracene	89	WSP Generic Acceptance Criteria for Commercial end use
Benzo[b]fluoranthene	100	As above
Benzo[k]fluoranthene	140	As above
Benzo[ghi]perylene	650	As above
Benzo[a]pyrene	14	As above
Chrysene	140	As above
Dibenz[ah]anthracene	13	As above
Fluoranthene	5	Although modelled concentrations at this SSTL indicate that the maximum possible concentrations at the compliance point exceed the WQS, source areas were modelled as 'non-declining', as such this value is considered conservative and practicably achievable

Determinand	Trigger Concentration (mg/kg)	Basis
		from a remedial perspective
Indeno[123-cd]pyrene	60	WSP Generic Acceptance Criteria for Commercial end use
Naphthalene	40	Site specific based on protection of Controlled Waters
Pyrene	54,000*	WSP Generic Acceptance Criteria for Commercial end use
Fluorene	64,000*	WSP Generic Acceptance Criteria for Commercial end use
Anthracene	520,000*	WSP Generic Acceptance Criteria for Commercial end use
Phenanthrene	22,000*	WSP Generic Acceptance Criteria for Commercial end use
Acenaphthylene	84,000*	WSP Generic Acceptance Criteria for Commercial end use
Acenaphthene	85,000*	Pub WSP Generic Acceptance Criteria for Commercial end use
BTEX (based on 100% benzene)	10	Arbitrary limit on soil quality
Total TPH (Sum)	5,000	Previously accepted threshold concentration

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