Appendix F-3: Waterman Energy, Environment & Design Ltd, Generic Quantitative Environmental Risk Assessment, Interpretative Environmental Report on Ground Investigation at Twickenham Railway Station, February 2011 (REF: EED11251-100/R/1.1.3/GB)

Generic Quantitative Environmental Risk Assessment

Interpretative Environmental Report on Ground Investigation at Twickenham Railway Station

February 2011

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Generic Quantitative Environmental Risk Assessment

Interpretative Environmental Report on Ground Investigation at Twickenham Railway Station

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Quality Assurance – Approval Status

This document has been prepared and checked in accordance with
Waterman Group's IMS (BS EN ISO 9001: 2008 and BS EN ISO 14001: 2004)

Issue	Date	Prepared by	Checked and Approved by
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Generic Quantitative Environmental Risk Assessment for the proposed redevelopment of Twickenham Railway Station for a mixed retail, residential and commercial use as well as continued use as a railway station.

Site Setting

Current Use	Twickenham Railway Station and associated car park.
History	Railway land from the 1870s.
Ground Conditions	The Waterman Generic Assessment Criteria (GAC) was used to assess the soil chemical laboratory data for the site. Elevated contamination (Arsenic, Lead, Mercury, Vanadium, Naphthalene, Benzo(a)anthracene, Chrysene, Benzo(b)flouranthene, Benzo(k)flouranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene and Di-benzo(a,h)anthracene) was identified in soils beneath the site.
Controlled Waters	The Water Supply (Water Quality) Regulations and Environmental Quality Standards (EQS) for freshwater were used to assess the groundwater and surface water chemical laboratory data for the site. Limited marginally elevated contamination (Iron and Chromium) was identified within the shallow groundwater at the site. No elevated contaminants were identified within the surface water samples taken from the River Crane.
Ground Gas Regime	CIRIA C665 was used to assess the site's ground gassing regime. The site was found to conform to a Characteristic Situation 2, whereby precautionary ground gas measures will be required for the new development. Elevated concentrations of PAHs were identified when compared to the Waterman GAC.

Conceptual Model

No significant potential pollutant linkages have been identified for the Site assuming appropriate mitigation measures are incorporated into the proposed development as described in the report.

Conclusions

Given the proposed end use the overall risk rating for the Site is currently low to medium. However, with implementation of appropriate mitigation measures as part of the proposed development, this risk can be reduced to low.

Recommendations

- Appropriate gas protection measures should be incorporated into the proposed building design;
- Further risk assessment/remedial works to manage the source of the elevated hydrocarbons will be required and/or vapour protection measures incorporated into the building design;
- Excavated materials should be assessed for their potential for reuse or classified for waste disposal purposes;
- Areas of landscaping and gardens will require the importation of clean soils to ensure a suitability for use to both occupants and plants;
- Consideration should be given to the use of contaminant resistant pipe work and clean service corridors for the proposed redevelopment;
- Where appropriate all works should be agreed, prior to being undertaken, with the statutory authorities;
- Ground workers should wear appropriate personal protective equipment (PPE) and adopt appropriate hygiene practices;
- The River Crane (engineered structure) and any drainage runs/sewers beneath the site should be safeguarded during the redevelopment works;
- A Foundation Works Risk Assessment should be completed prior to redevelopment;
- The potential for Asbestos Containing Materials (ACMs) should be investigated and any surveys or reports reviewed by a specialist consultant; and
- A copy of this report should be forwarded to the relevant statutory authorities.
- Consideration should be given to the implementation of an Environmental Management Plan (EMP);
- Reference should be made to the Explosive Ordnance Threat Assessment produced for the site by BACTEC (Ref: 9732TA), dated 12 December 2008 prior to redevelopment works commencing at the site; and
- Japanese Knotweed identified at the site during the investigation should be appropriately managed and a programme of treatment and disposal undertaken by a specialist contractor.

1. Introduction

1.1 Objectives

Waterman Energy, Environment & Design Limited ("Waterman") was instructed by Solum Regeneration to undertake a Generic Quantitative Environmental Risk Assessment for the proposed redevelopment of Twickenham Railway Station (hereafter termed "the Site").

This assessment follows on from the Phase 1 Ground Contamination Desk Study Report prepared by Capita Symonds in October 2007 (report ref. Version 1.0, October 2007).

RSK Group plc were appointed by Solum Regeneration to undertake a ground investigation on the Site the results of which are reported in their Geotechnical Report (ref. 241458-01(00), dated August 2010). The purpose of the environmental aspects of the ground investigation was to provide information on the environmental ground, groundwater and surface water conditions and the ground gas regime for the proposed Development. The investigation was also designed to provide information on the initial waste classification assessment of the soils to be excavated as part of the proposed redevelopment. Waterman has undertaken a review of the environmental information provided in this report with respect to the proposed redevelopment.

1.2 Regulatory Context

The Site currently comprises Twickenham Railway Station (including the surface car park). This use is to continue with construction of residential apartments above the station on a raised deck as well as to the rear of „Block A' in the east of the site (at podium level), retail units to the front of Block A, residential homes with private gardens to the northwest of the site and provision of a new ticket office and station entrance. Block A will form an undercroft on the western boundary of the site. The surface car park is to be reconfigured and will be provided with car parking, a turning area for vehicles, taxi rank and limited soft landscaping. The site boundary with the River Crane is to be enhanced by provision of new soft landscaping. This assessment is based upon planning submission Scheme 7, dated December 2010.

In order to assess the contamination status of the Site, with respect to the proposed end use, it is necessary to assess whether the Site could potentially be classified as "Contaminated Land", as defined in Part IIA of the Environmental Protection Act 1990 and the Contaminated Land Regulations 2006. This is assessed by the identification and assessment of potential pollutant linkages. The linkage between the potential sources and potential receptors identified needs to be established and evaluated.

To fall within this definition, it is necessary that, as a result of the condition of the land, substances may be present on or under the land such that:

a) significant harm is being caused or there is a significant possibility of such harm being caused; or

b) pollution of controlled waters is being, or is likely to be, caused.

It should be noted that DEFRA has advised (Ref. Part 4, Chapter A, Annex 3, DEFRA Circular 01/2006) Local Authorities that land should not be designated as contaminated where:

a) a substance is already present in controlled waters;

c) entry into controlled waters of that substance from land has ceased; and

d) it is not likely that that further entry will take place.

The local authority should regard something as being "likely" when they judge it "more likely than not to occur".

These exclusions do not necessarily preclude regulatory action under the Water Resources Act 1991, which makes it a criminal offence to cause, or knowingly permit, any poisonous, noxious or polluting matter to enter controlled waters. In England and Wales, under the Anti-Pollution Works Regulations 1999, an anti-pollution notice may be served by the regulator requiring appropriate investigation and clean-up.

1.3 Constraints

The assessment was undertaken in accordance with the scope agreed between Waterman and Solum Regeneration, as documented in Waterman's fee letter (EED F/001CWS, dated 4 February 2010), and with Waterman's standard Terms of Appointment.

The benefit of this report is made to Solum Regeneration.

The information contained in this report is based on the findings of the Phase 1 Ground Contamination Desk Study Report prepared by Capita Symonds in October 2007 (report ref. Version 1.0, October 2007), observations made on site, and the exploratory hole records, laboratory test results, groundwater monitoring and ground gas monitoring results contained in the RSK Group plc Geotechnical Report (Ref. 241458-01(00), dated August 2010).

Waterman was not present full time during the ground investigation works. However, part time monitoring was undertaken which identified that the works were being carried out in a satisfactory manner, in line with the Environmental Ground Investigation Specification produced by Waterman in March 2010 (Ref: 11251-100/S/1.1.1/CWS).

Due to access restrictions and uneven surface ground conditions within the „trackside' area, the proposed borehole in this area of the site was replaced with 4no drive-in window sampler positions to between 1.2m and 6.9m depth.

The ground conditions reported relate only to the point of excavation and do not necessarily guarantee a continuation of the ground conditions throughout the non-inspected area of the site. Whilst such exploratory holes would usually provide a reasonable indication as to the general ground conditions, these cannot be determined with complete certainty.

Waterman has endeavoured to assess all information provided to them during this investigation, but makes no guarantees or warranties as to the accuracy or completeness of this information.

The scope of this investigation does not include an assessment for the presence of asbestos containing materials within or beneath buildings at the site. Should there be a requirement under Regulation 4 of the Control of Asbestos Regulations 2006 for any part of the site to be deemed „non-domestic premises' (including, inter alia, outbuildings, external pipework, under-floor service ducts, bridges, fixed and mobile plant), the dutyholder(s) should prepare an asbestos risk management plan and this may require technical survey works as described in the relevant HSE Guidance Note HSG 264 (text to be updated depending on whether we are undertaking testing of soil samples for asbestos containing materials).

The conclusions resulting from this study are not necessarily indicative of future conditions or operating practices at or adjacent to the site.

2. Procedures

This Generic Quantitative Environmental Risk Assessment has been undertaken in general accordance with the Model Procedures for Management of Land Contamination (Contaminated Land Report 11 – Environment Agency, September 2004).

The report includes the following:

- outline Conceptual Model for the Site;
- results of Intrusive Ground Investigation;
- confirmation of Generic Assessment Criteria used to assess risks;
- assessment of results against Generic Assessment Criteria;
- formulation of a new Conceptual Model for the Site;
- identification of potentially unacceptable risks; and
- recommendations for further action.

This report forms a decision record for the pollutant linkages identified, the generic assessment criteria used to assess risks, the unacceptable risks identified and the proposed next steps in relation to the site. The report also provides an explanation of the refinement of the outline conceptual model following the ground investigation, the selection of criteria and assumptions, the evaluation of potential risks and the basis for the decision on what happens next.

3. Outline Conceptual Model

The outline conceptual model of the site developed in the Phase 1 Ground Contamination Desk Study Report (prepared by Capita Symonds) is summarised in the following sections:

3.1 Ground Conditions

The anticipated ground conditions comprise Kempton Park Gravels over the London Clay Formation. A cover of Made Ground is expected given the history of the Site.

Groundwater is anticipated in the Kempton Park Gravels, which is classified by the Environment Agency (EA) as a Principal Aquifer.

The River Crane flows (from west to east) alongside the northern boundary of the Site and is classified as "River Quality C" which indicates that it is of fairly good quality (under the EA General Quality Assessment (GQA) classification scheme).

The Site has been in use as railway land since the 1870s, principally Twickenham Railway Station, railway tracks, associated car parking and railway buildings. There is potential for foundations from previous buildings on the Site to be present.

3.2 Potentially Significant Pollution Linkages

Potentially significant linkages identified between contamination hazard sources and relevant receptors are summarised in Table 1.

Table 1: Potentially significant pollutant linkages

Receptor	Potential sources	Pathways	Risk	Justification
Human Health				
Current and future commercial site users	Contaminated soil	Direct contact, ingestion, particulate inhalation	Low	The majority of the site is proposed hardstanding, thereby limiting dermal and ingestion pathways between potential contaminants and the end user.
	Contaminated soil and groundwater	Vapour inhalation	Low	The level of risk is dependent on the presence of volatile vapours in the shallow ground beneath the site. However, this is expected to be low given the usage of the site.
Future residential users (without gardens)	Contaminated soil	Direct contact, ingestion, particulate inhalation	Low	The majority of the site is proposed hardstanding, thereby limiting dermal and ingestion pathways between potential contaminants and the end user.
	Contaminated soil and groundwater	Vapour inhalation	Low to Medium	In areas of built structures there may be a potential inhalation pathway. The level of risk is dependent on the presence of volatile vapours in the shallow ground beneath the site.
Future residential users (with gardens)	Contaminated soil	Direct contact, ingestion, particulate inhalation	Low to Medium	The site has historically been used as railway land / a station. There is the potential for users to come into contact with contamination (where present) in any areas of soft landscaping.
	Contaminated soil and	Vapour inhalation	Low to Medium	The site has historically been used as railway land / a station. There is the

Receptor	Potential sources	Pathways	Risk	Justification
	groundwater			potential for generation of soil vapours in the shallow ground beneath the site.
Construction workers	Contaminated soil and groundwater	Direct contact, ingestion, particulate inhalation, vapour inhalation	Low	Construction workers are likely to come into direct contact with shallow soils. The use of appropriate PPE, RPE and the provision of hygiene facilities should be adopted.
Off-Site residents	Contaminated soil and groundwater	Dust, vapour inhalation	Low	Good working practices include the damping down on construction sites, thus reducing the potential for dust generation. There is also a low risk to offsite residents from the inhalation of vapours in shallow groundwater migrating offsite.
Property				
Built structures	Contaminated soil and ground gas	Direct contact, migration and vapour intrusion	Low to Medium	If necessary mitigation measures such as the use of sulphate resistant cement and metallic water pipes should be used. As a result of the historical development of the site as a railway station, there is made ground present at the site. Therefore, the risk of ground gas accumulation/intrusion cannot be ruled out.
Ecological				
Vegetation and landscaping	Contaminated soil	Root uptake	Low	An appropriate thickness of inert material should be placed in all areas of new soft landscaping (where necessary) to provide a healthy growth medium. Imported landscaping materials should be adequately tested prior to placing to ensure they are suitable for use.
Controlled Waters				
Kempton Park Gravel Aquifer (Principal Aquifer)	Contaminated soil and groundwater	Leaching from soil	Low to Medium	The site is classified as a Principal Aquifer. However, the site does not lie within a SPZ. There are no groundwater abstractions within 1km of the site, with the closest being located approximately 1050m to the northeast. The majority of the proposed development comprises hardstanding, thereby reducing the potential mobilisation of contaminants.
River Crane (adjacent to the site) and River Thames (approximately 500m to the southeast)	Contaminated soil and groundwater	Leaching from soil and migration via drainage pipes	Low	The River Crane is understood to be an engineered structure with concrete walls in the section adjacent to the site, which will minimise the migration pathway of any potential contamination. The River Thames is considered to be present at a great enough distance down-gradient from the site not to be affected by the off-site migration of potential contaminants.

4. Rationale and Specific Objectives

The Site currently comprises Twickenham Railway Station (including the surface car park). This use is to continue with construction of residential apartments above the station on a raised deck as well as to the rear of „Block A' in the east of the site (at podium level), retail units to the front of Block A, residential homes with private gardens to the northwest of the site and provision of a new ticket office and station entrance. Block A will form an undercroft on the western boundary of the site. The surface car park is to be reconfigured and will be provided with car parking, a turning area for vehicles, taxi rank and limited soft landscaping. The site boundary with the River Crane is to be enhanced by provision of new soft landscaping. This assessment is based upon planning submission Scheme 6, dated 13 August 2010.

The objective of this investigation is to and characterise the ground conditions, the hazard sources, pathways and receptors and to reduce uncertainties.

Specific objectives include:

- Assessing the chemical quality of soils beneath the Site in particular with respect to contaminants associated with the current and former use of the Site as railway land
- Monitoring of groundwater levels and quality in the Kempton Park Gravels
- Monitoring of surface water quality in the River Crane
- Monitoring of the ground gas regime beneath the Site

5. Methodology

The methodology adopted was to investigate the potential for contamination in the ground with respect to the proposed end use of the Site and to consider the likely waste classification of soils to be excavated during the redevelopment. Groundwater in the Kempton Park Gravel aquifer was sampled and tested to assess groundwater quality with respect to current guidelines. Ground gas monitoring was undertaken to determine the ground gas regime beneath the Site utilising monitoring wells and ground gas monitoring equipment.

The intrusive investigation work was undertaken in general accordance with the Code of Practice for Site Investigation BS 5930 (1999) and the Code of Practice for the Investigation of Potentially Contaminated Sites and its Investigation BS 10175 (2001).

5.1 Design of Investigation

The design of the investigation was as follows:

- Drilling of 7no light cable percussion boreholes through the full thickness of the Made Ground and the Kempton Park Gravel and to at least 1m into the London Clay;
- Drilling of 4no drive-in sampler probeholes through the full thickness of the Made Ground and into the Kempton Park Gravel;
- Appropriate in situ testing and sampling including headspace analysis using a PID;
- Installation of 3no dual purpose ground gas/groundwater monitoring standpipes in the Kempton Park Gravel;
- Monitoring of groundwater levels and quality;
- Groundwater sampling;
- Surface water sampling;
- Ground gas monitoring;
- Chemical laboratory testing of soils, groundwater and surface waters;
- Surveying in to National Grid and levelling to mOD of each borehole;

Strategy for Selection of Exploratory Hole Locations

Sampling locations were carefully selected in order to target, as far as possible, potentially contaminated areas identified in preliminary investigation. A summary of the investigation locations and features investigated is presented in Table 2.

Table 2: Ground Investigation strategy

Layer / Anomalous feature	Exploratory Holes	Groundwater Wells	Gas Wells	Comments
Made Ground	All exploratory holes			Ground gas monitoring undertaken on six occasions over a 3-month period.
Kempton Park Gravel	All exploratory holes	BHA, BHD, BHF	BHA, BHD, BHF	Ground gas monitoring undertaken on six occasions over a 3-month period. Groundwater samples taken on two occasions
London Clay Formation	All exploratory holes, with the exception of WS3	-	-	Groundwater and ground gas wells were not installed within the London Clay Formation
River Crane	Surface water samples			Surface water samples taken upstream, midstream and downstream of the Site on two occasions

5.2 Quality Control

The samples were then despatched in batches on a daily basis under a chain of custody procedure to Chemtest who are a UKAS accredited laboratory, for subsequent chemical analysis. Where appropriate, samples were stored within cool boxes containing ice packs.

All contractors, including laboratories, used during this project have been approved by Waterman as a part of in-house Integrated Management System (BS ISO 9001, BS ISO 14001) procedure. This requires all third parties to demonstrate competence and a high standard of work during a regular audit scheme.

5.3 Health and Safety

No incidents occurred during the ground investigation.

Mitigation measures with respect to the potential for unexploded ordnance (UXO's) were undertaken as part of the ground investigation and no UXO's were encountered.

6. Site Activities

The work was carried out in four stages, comprising service survey and UXO surveying, ground investigation, monitoring well installation and surface water, groundwater and ground gas sampling and monitoring. The works were procured by Solum Regeneration to RSK Group plc, which, along with the main activities and monitoring, are shown in chronological order of the works undertaken in Table 3.

Table 3: Summary of fieldwork activities

Phase of Work	Activity	Contractor	Date	Monitoring
Service survey	Scanning for services	RSK Group plc	1 to 18 June 2010 and 6 to 8 July 2010	-
UXO surveying	Down hole magnetometry for UXO	RSK Group plc	1 to 18 June 2010 and 6 to 8 July 2010	Waterman 7 and 14 June 2010
Ground investigation	7No. cable percussion boreholes to 35.0m bgl max. depth	RSK Group plc	1 to 18 June 2010	Waterman 7 and 14 June 2010
	4No. drive-in sampler probeholes to 6.9m bgl max. depth	RSK Group plc	6 to 8 July 2010	
Monitoring well installation	3No. monitoring wells to a maximum depth of 7m bgl	RSK Group plc	1 to 18 June 2010	-
Groundwater sampling	Sampling from three wells on two occasions (one round is still to be carried out)	RSK Group plc	1 July 2010 19 August 2010	Waterman 19 August 2010
Surface water sampling	Sampling from three locations along the River Crane, above, at and below the site	RSK Group plc	1 July 2010 19 August 2010	Waterman 19 August 2010
Ground gas and groundwater level monitoring	Monitoring of three wells on six occasions (three rounds are still to be carried out)	RSK Group plc	1 and 15 July 2010 5 and 19 August 2010 2 and 16 September 2010 (proposed)	Waterman 19 August 2010

Note: m bgl = metres below ground level

6.1 Ground Investigation

The seven deep boreholes were drilled to between 13.5m and 35m bgl using light cable percussive methods. In addition, four shallow boreholes were completed using a windowless sampler with follow on dynamic probing to depths of between 1.2m and 6.9m bgl. Upon completion, the boreholes were either installed with a monitoring well and lockable flush cover or backfilled as far as possible with arisings. The surface of the excavation was reinstated to the original conditions.

Representative soil samples were obtained from the exposed strata and sealed in one litre plastic tubs with airtight lids, phials and glass jars containing preservatives, as appropriate. The soil samples taken were subject to screening by a photo ionisation detector (PID).

All the exploratory holes were logged and sampled for contamination purposes by RSK Group plc.

During the ground investigation, access to window sample borehole WS4 could not be achieved safely and the hole was terminated at a depth of 1.2m bgl (i.e. the base of the hand dug pit).

The locations of the exploratory holes are shown in Appendix A.

6.2 Monitoring Wells

The drilling of the seven cable percussive boreholes and four drive-in window sampler boreholes was carried out in such manner as to minimise the potential for cross-contamination between individual strata. On completion of drilling, a 50mm diameter slotted HDPE standpipe with gas tap and bung was installed in three of the cable percussion boreholes to enable future ground gas and groundwater monitoring and sampling. The response zone of the wells was within the Kempton Park Gravel strata. The intake section comprised a slotted pipe with a geotextile sock. The boreholes are kept sealed by a lockable secure cap at ground level.

6.3 Groundwater Monitoring and Sampling

Groundwater monitoring and sampling was carried out by RSK Group plc on 1 July 2010. A second round of monitoring and sampling is due to take place on 19 August 2010, the results of which will be reported under separate cover.

The standing level of the groundwater in each monitoring well was monitored using a dip meter. The presence of hydrocarbon free product on the groundwater was also investigated using a free phase dip-meter, which did not show evidence of a hydrocarbon sheen on the surface.

Groundwater samples were obtained from the monitoring wells following purging of three well volumes using bailing. On-site testing of groundwater for temperature, dissolved soilds, pH, conductivity and dissolved oxygen was undertaken. The collected water samples were then sealed into bottles with pre-measured fixatives where necessary, as supplied by the specialist laboratory, and transported in cool boxes or refrigerated for 24hrs prior to despatch to the testing laboratory.

A full set of groundwater monitoring results, including the equipment used for the fieldwork is presented in Appendix D.

6.4 Ground Gas Monitoring

Ground gas monitoring was carried out during three monitoring visits over a period of one month between 1 July and 5 August 2010. A further three monitoring visits are due to be carried out over the next month, the results of which will be reported under separate cover.

On each of the monitoring visits, the steady concentration readings of methane, carbon dioxide and oxygen were recorded at each installed monitoring standpipe, together with borehole gas flow readings and atmospheric pressure. This was undertaken using an infrared gas analyser and gas flow data monitor. Groundwater levels were also measured on each visit.

A full set of ground gas monitoring results is presented in Appendix E.

7. Results

Detailed logs of the strata encountered, together with records of the samples taken during borehole installation and PID readings, are provided in Appendix C. A summary of the geological strata and manmade underground structures encountered is presented below.

7.1 Geological Strata

The exploratory holes revealed that the site is underlain by Made Ground over Kempton Park Gravel over the London Clay Formation. This confirms the anticipated geology, as shown on the British Geological Survey map for the area. A summary of the geological strata encountered is shown in Table 4.

Table 4: Geological strata encountered

Soil Type	Depth of Top of Stratum (m OD)	Thickness (m)	Typical Description
Made Ground	6.69 to 12.10	0.8 to 4.8	Dark brown, silty sandy gravel of flint with fragments of brick, stone and concrete with occasional ash and clinker
Kempton Park Gravel	4.40 to 7.30	2.1 to 7.1	Orange brown, silty and clayey, sandy gravel
London Clay Formation	0.00 to 3.95	up to 31.9 (proven to -31.9mOD)	Dark grey, silty sandy clay

Made Ground

The Made Ground typically comprised dark brown, silty sandy gravel of flint with fragments of brick, stone and concrete with occasional ash and clinker.

The only evidence of visual or olfactory contamination was local ash and clinker and a slight hydrocarbon odour in borehole BHB between 3.0m and 4.8m depth.

PID screening results for the Made Ground ranged from <0.1 to 7.5ppm.

Kempton Park Gravel

The Kempton Park Gravel typically comprised orange brown, silty and clayey, sandy gravel. Locally, pockets and partings of clayey sand were encountered. Thin layers (0.4m to 0.9m thickness) of orange brown silty and gravelly clay were encountered at the top of the Kempton Park Gravel in boreholes BHE and BHF, located close to the River Crane.

There was no evidence of visual or olfactory contamination.

PID screening results for the Made Ground ranged from <0.1 to 6.5ppm.

London Clay Formation

The London Clay Formation typically comprised dark grey, silty sandy clay with occasional partings of grey silt, pyrite veins and gleying. Claystone and siltstone layers were encountered at depth.

There was no evidence of visual or olfactory contamination.

7.2 Underground Structures and Obstructions

There was no evidence of underground structures or obstructions encountered apart from the laystone and siltstone layers described above (within the London Clay Formation). However, the potential for foundations or other infrastructure cannot be ruled out.

7.3 Chemical Analysis

The laboratory test results are presented in Appendix F.

7.4 Controlled Waters

Groundwater levels in the Kempton Park Gravel aquifer were monitored on three occasions, the results of which are included in Appendix D. Groundwater monitoring indicates water levels between 3.11m AOD and 4.50m AOD. A further three monitoring rounds are proposed in August 2010.

The Kempton Park Gravel aquifer was sampled from the three monitoring wells (BHA, BHD and BHF) on 1 July 2010. A further sampling event is proposed on 19 August 2010. No evidence of visual or olfactory contamination was observed in the samples taken.

The River Crane, which flows from west to east, was sampled up, mid and downstream of the Site on 1 July 2010. A further sampling event is proposed on 19 August 2010. No evidence of visual or olfactory contamination was observed in the samples taken.

7.5 Ground Gas

As part of the ground investigation, the three monitoring wells were monitored on three occasions over a period of one month between 1 July and 5 August 2010. A further three monitoring visits are due to be carried out over the next month, the results of which will be reported under separate cover.

The design of the monitoring wells resulted in gas concentrations being recorded from the Kempton Park Gravel.

A complete set of ground gas results is included within Appendix E. Table 5 summarises the peak carbon dioxide and methane gas results that were recorded on all visits over the monitoring undertaken to date.

Table 5: Ground gas monitoring summary

Monitoring Point	Steady Gas Concentration (%)		
	CH_4	CO_2	O_2
BHA	<0.1	3.5 to 6.8	10.2 to 15.8
BHD	<0.1	6.0 to 10.5	6.7 to 12.0
BHF	<0.1	6.8 to 14.3	4.0 to 11.2

Gas flows in the same monitoring wells ranged between <0.1 to 0.2 litres per hour.

8. Generic Assessment Criteria

The information requirements for generic quantitative risk assessment will depend on:

- The substance being assessed
- The receptors being considered
- The pathways being considered
- The complexity of the site

The outline conceptual model developed for the site has identified several potential pollutant linkages. These potential pollutant linkages have been investigated and the results assessed against generic assessment criteria. The generic assessment criteria selected for each potential pollutant linkage are summarised in Table 6:

Table 6: Generic Assessment Criteria

Source	Pathway	Receptor	Generic Assessment Criteria
Contaminated Soils	Direct contact, inhalation	Future users of the proposed Development	Waterman Generic Assessment Criteria
Leaching from Contaminated Soils	Direct contact with groundwater	Principal Aquifer (Kempton Park Gravel)	Water Supply (Water Quality) Regulations
Leaching from Contaminated Soils	Direct contact with surface water	River Crane	EQS standards (freshwater)
Contaminated Soils	Root uptake	Vegetation and landscaped areas	British Standard BS3882:2007 Specification for topsoil and requirements for use
Ground Gas	Migration through soil matrix	Future users of the proposed Development	Gas Screening Value determination and assessment in accordance with CIRIA C665
Contaminated Soils	Direct Contact	New water supply pipes	Water Regulations Advisory Scheme Information and Guidance Note

The generic assessment criteria used in this report are included in Appendix I.

8.1 Site Specific Information used to Support the Generic Risk Assessment

The site specific information used to support the generic risk assessment undertaken as part of this investigation are described in the sections below:

Human Health Risk

An assessment of the data obtained during the ground investigation has been compared to the Waterman Generic Assessment Criteria (GAC) for a residential end use and Soil Organic Matter (SOM) of 1%. This generic scenario assumes a typical residential property consisting of a two-storey house built on a ground–bearing slab with a private garden consisting of lawn, flowerbeds and a small fruit and vegetable patch. The occupants are assumed to be parents with young children, who make regular use of the garden area. The exposure duration is six years and the exposure pathways include direct soil and indoor dust ingestion, consumption of home-grown produce, consumption of soil adhering to home-grown produce, skin contact with soils and indoor dust and inhalation of indoor and outdoor dust and vapours.

Therefore, given that the majority of the site is proposed hardstanding with a limited number of residential gardens and landscaping and the majority of residential apartments are elevated above ground level, this is considered to be a conservative assessment.

Controlled Waters

The Kempton Park Gravel Principal Aquifer is considered to be the main receptor at the site, with the potential for contamination (if present) to migrate both vertically and laterally off-site. Therefore, the chemical results have been compared to the Water Supply Regulations (WSR). However, this is considered to be a conservative assessment due to the site not being located within a Source Protection Zone and the aquifer not being abstracted from for potable water supplies locally (the nearest abstraction is over 1km from the site).

An assessment of the data has also been compared to the Environmental Quality Standards (EQS) for freshwater, given the close proximity of the River Crane adjacent to the site. However, it is understood that the river is an engineered structure with concrete walls in the section adjacent to the site, therefore, lateral migration of contamination (if present) into the river is likely to be minimal. In addition, it is understood that there are no weep holes or current discharge points from the site into the River Crane.

Ground Gas

Derivation of a gas screening value for the site has been undertaken in accordance with CIRIA C665 following monitoring of ground gas concentrations over a one month period. Further monitoring is due to be carried out, which will be reported under separate cover.

9. Quantitative Environmental Risk Assessment

The potential pollutant linkages identified in Section 3.2 have been evaluated using the Generic Assessment Criteria described in Section 8 and Appendix I. The results of this evaluation are reported below:

9.1 Risk to Human Health

An assessment of the data obtained from the investigation has been compared to the Waterman GAC assuming a residential end use and Soil Organic Matter of 1% for the site.

Elevated concentrations of Arsenic, Lead, Mercury, Vanadium and PAHs (Naphthalene, Benzo(a)anthracene, Chrysene, Benzo(b)flouranthene, Benzo(k)flouranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Di-benzo(a,h)anthracene) were found to be above the respective generic assessment criteria for soils across the site. A summary of the elevated contaminants and their locations is provided in Table 7.

Table 7: Summary of Generic Quantitative Risk Assessment for Human Health

Contaminant	Location	Concentration (mg/kg)	Number of Exceedances	Generic Assessment Criteria (mg/kg)
Arsenic	BHG (1m)	75	1	32
Lead	BHB (2m), BHB (4.5m), BHE (1m), BHG (1m), WS2 (0.5m, 1m), WS3 (0.25m)	480 – 1,500	7	450
Mercury	BHA (0.5m, 1m), BHB (3m, 4.5m), BHF (0.5m, 1.5m), BHG (1m, 1.5m), WS1 (1m), WS2 (0.5m, 1m)	1.0 – 3.3	11	1
Vanadium	BHG (1m)	94	1	75
Naphthalene	BHB (4.5m), BHG (1m, 1.5m), WS2 (1m)	1.6 – 4.2	4	1.5
Benzo (a) anthracene	BHB (2m, 4.5m), BHC (0.5m), BHG (0.5m, 1m, 1.5m), WS1 (0.25m, 1m), WS2 (0.5m, 1m), WS3 (0.25m)	4.6 - 30	11	3.1
Chrysene	BHB (2m, 4.5m), BHC (0.5m), BHG (0.5m, 1m, 1.5m), WS1 (0.25m), WS2 (0.5m, 1m)	7.1 - 32	9	6
Benzo (b) flouranthene	BHB (2m, 4.5m), BHC (0.5m), BHG (0.5m, 1m, 1.5m), WS1 (0.25m, 1m), WS2 (0.5m, 1m), WS3 (0.25m)	5.8 - 27	11	5.6
Benzo (k) flouranthene	BHB (2m), BHG (1m), WS2 (0.5m, 1m)	8.9 - 18	4	8.5
Benzo (a) pyrene	BHA (0.5m, 1.5m), BHB (2m, 3m, 4.5m), BHC (0.5m, 1m), BHD (0.5m), BHF (0.5m, 1.5m), BHG (0.5m, 1m, 1.5m), WS1 (0.25m, 1m), WS2 (0.5m, 1m), WS3 (0.25m), WS4 (0.75m)	1.4 - 36	18	0.83
Indeno (1,2,3-cd) pyrene	BHB (2m, 4.5m), BHC (0.5m), BHG (0.5m, 1m, 1.5m), WS1 (0.25m, 1m), WS2 (0.5m, 1m), WS3 (0.25m)	3.8 - 20	11	3.2
Di-benzo (a,h) anthracene	BHB (2m, 4.5m), BHC (0.5m), BHG (0.5m, 1m, 1.5m), WS1 (0.25m), WS2 (0.5m, 1m), WS3 (0.25m)	1.1 – 5.3	10	0.76

9.2 Risk to Controlled Waters

An assessment of the data obtained from the investigation and subsequent monitoring and sampling has been compared to the WSR and EQS for freshwater.

Elevated concentrations of iron and chromium were found to be above the respective generic assessment criteria within groundwater at the site. It should be noted that no elevated contaminant concentrations were encountered within the surface water samples taken from the adjacent River Crane. A summary of the elevated contaminants against the WSR and EQS (freshwater) and their locations is provided in Table 8.

Table 8: Summary of Generic Quantitative Risk Assessment for Controlled Waters

Contaminant	Location	Concentration (µg/l)	Number of Exceedances	Generic Assessment Criteria (µg/l)
Iron	BHA, BHD, BHF	260 – 1,400	3	WSR – 200
Chromium	BHD	38	1	EQS – 20 (based on hardness)

Whilst elevated concentrations of Iron and Chromium have been identified within groundwater samples taken at the site, it should be noted that elevated concentrations of these contaminants has not been identified within the chemically tested soil samples. Furthermore, the results of the leachate analysis undertaken as part of the WAC testing have indicated that the metals tested are generally not leachable within these samples.

9.3 Risks to Ecological Systems/Vegetation

An assessment of the soil data obtained from the investigation has been compared to the British Standard BS3882:2007.

Elevated concentrations of zinc and copper were found to be above the respective generic assessment criteria for soils at the site. A summary of the elevated contaminants against BS3882:2007 and their locations is provided in Table 9.

Table 9: Summary of Generic Quantitative Risk Assessment for Landscaped Areas

Contaminant	Location	Concentration (mg/kg)	Number of Exceedances	Generic Assessment Criteria (mg/kg)
Copper	BHG (1m), WS2 (0.5m)	250 - 270	2	200 (>pH7)
Zinc	BHG (1m), WS1 (0.25m), WS2 (0.5m), WS3 (0.25m)	430 – 1,600	4	200 (pH6-7) 300 (pH>7)

9.4 Risk to Structures (Ground Gas and Vapour Intrusion)

The results from the ground gas monitoring undertaken at the site to date indicate the presence of carbon dioxide and marginally elevated flow readings. A full set of gas results obtained from the site are provided in Appendix E.

To assess the likely risk ground gases may have on a building a Gas Screening Value (GSV) is calculated using the peak recorded gas flow (l/hr) multiplied by the maximum gas concentration (%). GSVs are calculated for both Carbon Dioxide and Methane and then compared against the Wilson and Card model for all buildings except low-rise housing in accordance with CIRIA C665.

As described above, GSVs of 0.0002l/hr and 0.0286l/hr have been calculated for methane and carbon dioxide respectively. In view of the elevated concentrations of carbon dioxide recorded to date, it is appropriate to classify the site as a Characteristic Situation 2 (low risk) in accordance with CIRIA C665.

In view of this classification, precautionary measures are normally considered necessary. Any buildings constructed at ground level will typically require the following protection measures, as stated in CIRIA C665:

a) Reinforced concrete cast in situ floor slab (suspended, non-suspended or raft) with at least 1200g DPM and under floor venting;

b) Beam and block or pre-cast concrete 2000g DPM/ reinforced gas membrane and underfloor venting; and

c) All joints and penetrations sealed.

There is the potential for vapour ingress into the buildings through the presence of elevated concentrations of a limited number of PAHs (Naphthalene, Benzo(a)anthracene, Chrysene, Benzo(b)flouranthene, Benzo(k)flouranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene and Di-benzo(a,h)anthracene). However the contribution to total exposure via indoor vapour inhalation for the majority of these contaminants (with the exception of Naphthalene) within the CLEA model is considered to be less than 0.1%. The collective contribution to total exposure for the remaining pathways (ingestion, inhalation of dust, consumption and dermal contact) is greater than 99%, which, given the proposed importation of clean landscaping material and the presence of significant hardstanding, exposure via these pathways is not considered plausible.

The main exposure pathway for Naphthalene within the CLEA model is via the inhalation of indoor vapour (27%). Therefore, appropriate protection measures will need to be considered further and incorporated into the building design.

9.5 Risk to Water Supply Pipes

An assessment of the soil data obtained from the investigation has been compared to the generic assessment criteria from the Water Regulations Advisory Scheme (WRAS) Information and Guidance Note.

Elevated concentrations of pH, Antimony, Arsenic, Lead, Mercury, Total PAHs and Petroleum Hydrocarbons (total) were found to be above the respective generic assessment criteria for soils at the site. A summary of the elevated contaminants against the WRAS guidance and their locations is provided in Table 10.

Table 10: Summary of Generic Quantitative Risk Assessment for Water Supply Pipes

Contaminant	Location	Concentration (mg/kg)	Number of Exceedances	Generic Assessment Criteria (mg/kg)
pH	BHA (0.5m), BHB (1m, 2m, 3m, 4.5), BHC (0.5m, 2m), BHD (2m), BHE (1m), BHG (0.5m, 1.5m, 2.5m, 4m)	8.1 - 10.1	13	Less than pH5 greater than pH8
Antimony	BHG (1m), WS2 (0.5m), WS3 (0.25m)	10 - 16	3	10
Arsenic	BHA (0.5m, 1.5m), BHB (2m, 3m, 4.5m), BHC (0.5m, 1m), BHD (0.5m, 1.5m), BHE (1m), BHF (1.5m), BHG (0.5m, 1m, 1.5m, 2.5m), WS1 (0.25m, 1m), WS2 (0.5m, 1m), WS3 (0.25m, 0.75m), WS4 (0.75m)	11 - 75	21	10
Lead	BHB (2m), BHE (1m), BHG (1m), WS2 (0.5m), WS3 (0.25m)	540 -1,500	5	500
Mercury	BHA (0.5m, 1m), BHB (3m, 4.5m), BHF (0.5m, 1.5m), BHG (1m, 1.5m), WS1 (1m), WS2 (0.5m, 1m)	1 – 3.3	11	1
Total PAHs	BHB (2m, 4.5m), BHC (0.5m), BHG (0.5m, 1m, 1.5m), WS1 (0.25m, 1m), WS2 (0.5m, 1m), WS3 (0.25m)	55 - 374	11	50
Petroleum Hydrocarbons (total)	BHA (0.5m), BHB (2m, 3m, 4.5m), BHC (0.5m), BHG (0.5m, 1m, 1.5m), WS1 (0.25m, 1m), WS2 (0.5m, 1m), WS3 (0.25m)			50

9.6 Risk to Construction Workers

A qualitative assessment of the risk to construction workers has been undertaken as part of this assessment, given that there are no specific threshold criteria currently available for contamination risks to this receptor.

Several elevated contaminants have been identified within soils when compared to a residential end use. In addition, marginally elevated groundwater contaminants have been identified beneath the site to date.

In view of the above results, it is considered that site construction and maintenance workers should wear appropriate Personal Protective Equipment (PPE) and clothing during any below ground works in order to reduce direct contact, dermal absorption, ingestion and inhalation of any potential contaminants.

Given the depth to groundwater across the majority of the site (~3m to 5m bgl), routine ground works may also come into contact with groundwater.

Elevated concentrations of ground gas (carbon dioxide) have been identified, with the site conforming to a GSV 2, as well as elevated concentrations of vapours (PAHs). All ground works should be carried out in line with the Confined Space Regulations.

10. Waste Disposal

The available dry soil data has been entered into the Waterman Hazardous Waste Tool (HWT). All samples with the exception of borehole BHG and window samples WS2 and WS3 have been confirmed to not contain hazardous properties and, as such, pending further WAC analysis can be disposed to either a Non-Hazardous or Inert landfill.

Soil samples BHG at 1m depth, WS2 at 0.5m and WS3 at 0.25m were confirmed to be hazardous in view of their elevated lead and zinc content.

5No. Waste Acceptance Criteria (WAC) tests were completed by the laboratory for BHA at 0.5m to 2m, BHB at 0.5m to 3m, BHC at 2m to 3.5m, BHE at 0.5m to 1.5m and BHF at 0.5m to 1m. The results of this testing indicates that the samples taken from BHB and BHF would be accepted at a Non-Hazardous landfill. The three results from BHA, BHC and BHE indicate that these samples would be able to be disposed of at an Inert landfill. Further waste assessment will be required at a later stage to delineate the site in terms of waste classification and seek to reduce the amount of material being taken off-site.

A summary of the results entered into the Waterman HWT and the respective WAC tests is shown in Table 11.

Table 11: Waste classification

Location	Depth of sample (m)	EWC 2002 Catalogue Entry Code	Description	Hazardous*	Waste Acceptance Criteria Classification
BHA	0.5	17 05 04	Soil and stones	No	Inert waste
BHA	1.5	17 05 04	Soil and stones	No	Inert waste
BHA	3.5	17 05 04	Soil and stones	No	Not tested
BHB	1.0	17 05 04	Soil and stones	No	Non-Hazardous waste
BHB	2.0	17 05 04	Soil and stones	No	Non-Hazardous waste
BHB	3.0	17 05 04	Soil and stones	No	Non-Hazardous waste
BHB	4.5	17 05 04	Soil and stones	No	Not tested
BHC	0.5	17 05 04	Soil and stones	No	Not tested
BHC	1.0	17 05 04	Soil and stones	No	Not tested
BHC	2.0	17 05 04	Soil and stones	No	Inert waste
BHD	0.5	17 05 04	Soil and stones	No	Not tested
BHD	1.5	17 05 04	Soil and stones	No	Not tested
BHD	2.0	17 05 04	Soil and stones	No	Not tested
BHE	1.0	17 05 04	Soil and stones	No	Inert waste
BHE	2.0	17 05 04	Soil and stones	No	Not tested
BHE	3.0	17 05 04	Soil and stones	No	Not tested
BHF	0.5	17 05 04	Soil and stones	No	Non-Hazardous waste
BHF	1.5	17 05 04	Soil and stones	No	Not tested
BHF	3.0	17 05 04	Soil and stones	No	Not tested

Location	Depth of sample (m)	EWC 2002 Catalogue Entry Code	Description	Hazardous*	Waste Acceptance Criteria Classification
BHG	0.5	17 05 04	Soil and stones	No	Not tested
BHG	1.0	17 05 03	Soils and stones containing dangerous substances	Yes	Not tested
BHG	1.5	17 05 04	Soil and stones	No	Not tested
BHG	2.5	17 05 04	Soil and stones	No	Not tested
BHG	4.0	17 05 04	Soil and stones	No	Not tested
WS1	0.25	17 05 04	Soil and stones	No	Not tested
WS1	1.0	17 05 04	Soil and stones	No	Not tested
WS2	0.5	17 05 03	Soils and stones containing dangerous substances	Yes	Not tested
WS2	1.0	17 05 04	Soil and stones	No	Not tested
WS3	0.25	17 05 03	Soils and stones containing dangerous substances	Yes	Not tested
WS3	0.75	17 05 04	Soil and stones	No	Not tested
WS4	0.75	17 05 04	Soil and stones	No	Not tested

*Determined using the Waterman Hazardous Waste Tool.

On the basis of the above, the Made Ground will be classified as Inert, Non-Hazardous or Hazardous. Further investigation and testing will be required in order to determine the appropriate waste classification of any material excavated during the development. Furthermore, the requirement for pre-treatment of Hazardous material will also need to be assessed.

It is likely that the Kempton Park Gravel and London Clay Formation would be able to be reused on site as part of the development. However, should disposal of these strata be required, it is likely that they will be able to be disposed of to an Inert landfill.

11. Conclusions

Following the implementation of the ground investigation, the pollutant linkages identified during the Preliminary Environmental Risk Assessment have been re-evaluated and reclassified in relation to the additional information obtained. The results of the reassessment are summarised in Table 12.

Table 12: Estimation of environmental risks associated with the subject site

Receptor	Potential sources	Pathways	Risk	Mitigation	Residual Risk
Human Health					
Future site users, maintenance staff	Contaminated soils and groundwater	Direct contact, ingestion, dermal absorption	Low to medium	Elevated contaminants have been identified above the GAC for a residential end use. However, the majority of the proposed development will be hardstanding with limited residential gardens and areas of landscaping. Residential gardens and landscaped areas should be capped with a suitable thickness of material suitable for the proposed use.	Low
	Ground gas and vapour	Inhalation	Low to medium	The site conforms to a CSV2, whereby precautionary ground gas measures are likely to be required in the new development. In addition, elevated concentrations of PAHs (vapour) have been identified. Whilst the majority of PAHs are not considered to pose a risk (given the importation of clean landscaping material and the presence of significant hardstanding), marginally elevated concentrations of naphthalene are likely to require protection measures in the proposed building design.	Low
Construction and maintenance workers	Contaminated soils and groundwater, ground gas and vapour	Direct contact, ingestion, dermal absorption, inhalation	Low	Elevated contaminants have been identified above the GAC for a residential end use. Construction workers are likely to come into direct contact with shallow soils. The use of appropriate PPE, RPE and the provision of hygiene facilities should be adopted.	Low
Property					
Site structures	Contaminated soils and groundwater	Direct contact	Low to medium	Elevated contaminants have been identified above the GAC for a residential end use and in line with the WRAS water supply pipe guidance. If necessary mitigation measures, such as the use of sulphate resistant cement and metallic water pipes should be used.	Low
Plants /Landscaping	Contaminated soils and groundwater	Root uptake	Low to medium	Elevated concentrations of contaminants have been identified above the BS3882:2007 guidance. However, limited residential gardens and landscaping is proposed. An appropriate thickness of inert material should be placed in all areas of new soft landscaping and residential gardens (where necessary) to provide a healthy growth medium. Imported landscaping materials should be adequately tested prior to placing to ensure they are suitable for use.	Low

Receptor	Potential sources	Pathways	Risk	Mitigation	Residual Risk
Adjacent Property					
Adjacent residential properties	Contaminated soil and groundwater	Dust and vapour	Low	Elevated contaminants have been encountered above the GAC for a residential end use. Dusts should be minimised during construction given the proximity of sensitive receptors.	Low
Controlled Waters					
Kempton Park Gravel	Contaminated soils		Low to medium	Limited marginally elevated contaminant concentrations have been identified within groundwater at the site. A Foundation Works Risk Assessment should be completed prior to development, which will incorporate any remediation of contamination sources as necessary. The site is classified as a Principal Aquifer. However, the site does not lie within a SPZ. There are no groundwater abstractions within 1km of the site, with the closest being located approximately 1050m to the northeast. The majority of the proposed development comprises hardstanding, thereby reducing the potential mobilisation of contaminants. It is understood that the proposed drainage for the development includes reuse of foul and surface water connections to sewer, provision of an additional foul water connection to the Thames Water network and direct connection to the public sewer. A direct surface water connection to discharge to the River Crane is also being considered.	Low
River Crane	Contaminated soils		Low	Elevated contaminant concentrations have not been identified within the surface water samples taken from upstream, adjacent to the site and downstream of the River Crane. The River Crane is understood to be an engineered structure with concrete walls in the section adjacent to the site, which will minimise the migration pathway of any potential contamination. The River Thames is considered to be present at a great enough distance down-gradient from the site not to be affected by the off-site migration of potential contaminants.	Low

The potential pollutant linkages described above can be managed by design of appropriate mitigation measures during the redevelopment of the site.

12. Recommendations

The following actions are recommended to address the potentially unacceptable risks that remain:

- Elevated concentrations of ground gas (carbon dioxide) have resulted in the site being classified as a GCS2. Appropriate gas protection measures should be incorporated into the proposed building design;
- The conceptual model has indicated the presence of a potential hydrocarbon vapour pathway to the proposed residential/commercial properties. Further risk assessment/remedial works to manage the source of the elevated hydrocarbons will be required and/ or vapour protection measures incorporated into the building design;
- Excavated materials should be assessed for their potential for reuse or classified for waste disposal purposes;
- Areas of landscaping and gardens will require the importation of clean soils to ensure a suitability for use to both occupants and plants;
- Consideration should be given to the use of contaminant resistant pipe work and clean service corridors for the proposed redevelopment;
- Where appropriate all works should be agreed, prior to being undertaken, with the statutory authorities;
- Ground workers should wear appropriate personal protective equipment (PPE) and adopt appropriate hygiene practices;
- The River Crane (engineered structure) and any drainage runs/sewers beneath the site should be safeguarded during the redevelopment works;
- A Foundation Works Risk Assessment should be completed prior to redevelopment;
- The potential for Asbestos Containing Materials (ACMs) should be investigated and any surveys or reports reviewed by a specialist consultant; and
- A copy of this report should be forwarded to the relevant statutory authorities.

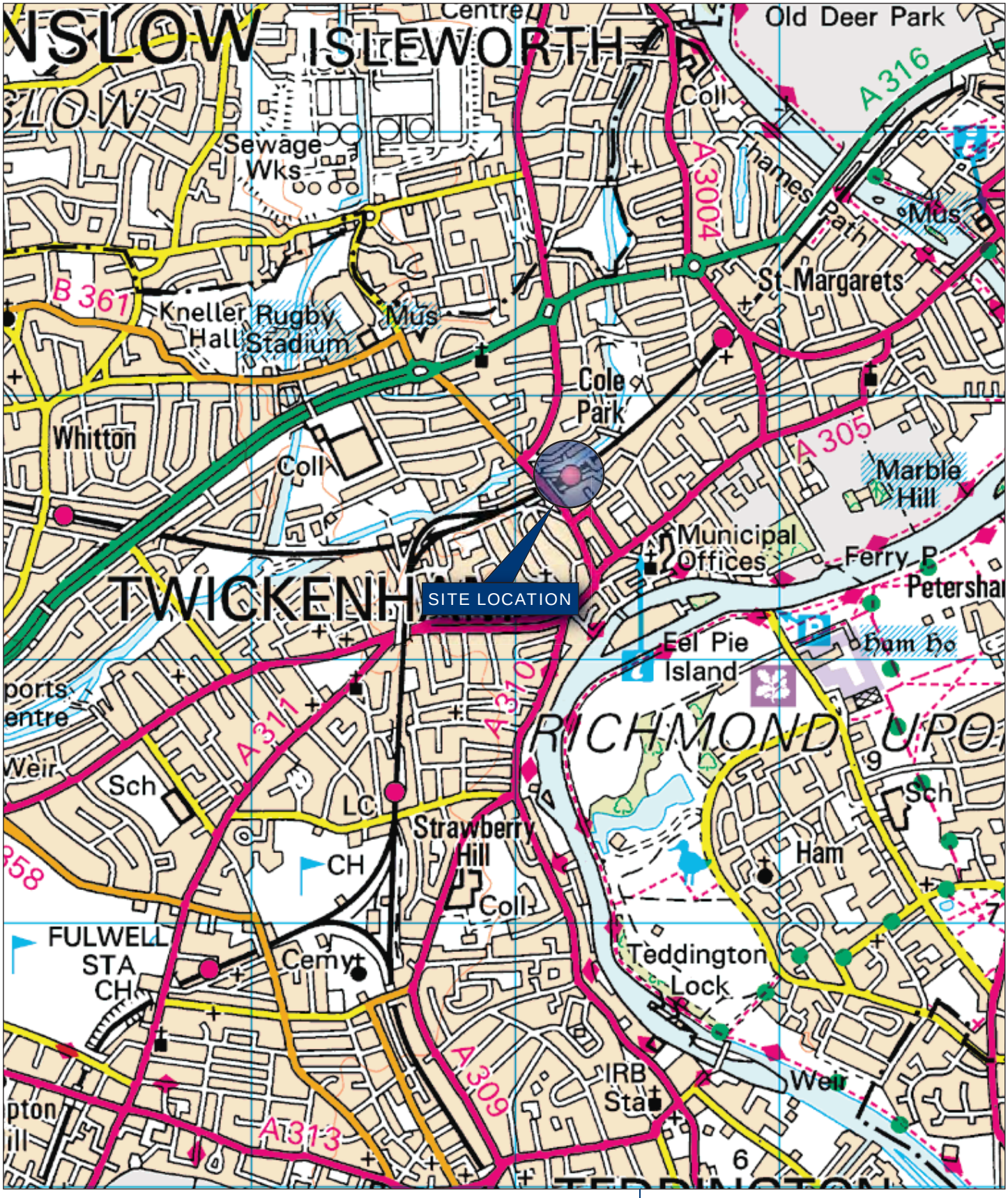
12.1 Other Issues

- Consideration should be given to the implementation of an Environmental Management Plan (EMP) covering the demolition and construction of the site, given the proximity of the residential receptors in the locality;
- Reference should be made to the Explosive Ordnance Threat Assessment produced for the site by BACTEC (Ref: 9732TA), dated 12 December 2008 prior to redevelopment works commencing at the site; and
- Japanese Knotweed identified at the site during the investigation should be appropriately managed and a programme of treatment and disposal undertaken by a specialist contractor.

APPENDICES

Appendix A. Site Plans

- Site Location Plan (Fig. A1)
- Site Plan (Fig. A2)
- Ground Investigation Plans (Drawing No. 241458/001)
- Conceptual Site Model (Fig. A3)



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Project Details	E11251-100: Twickenham Railway Station
Figure Title	Figure A1: Site Location Plan
Figure Ref	E11251-100_GR_DS_A1A
Date	August 2010
File Location	\\nt-lnpg2\weedl\projects\e11251\100\graphics\ds\issued figures

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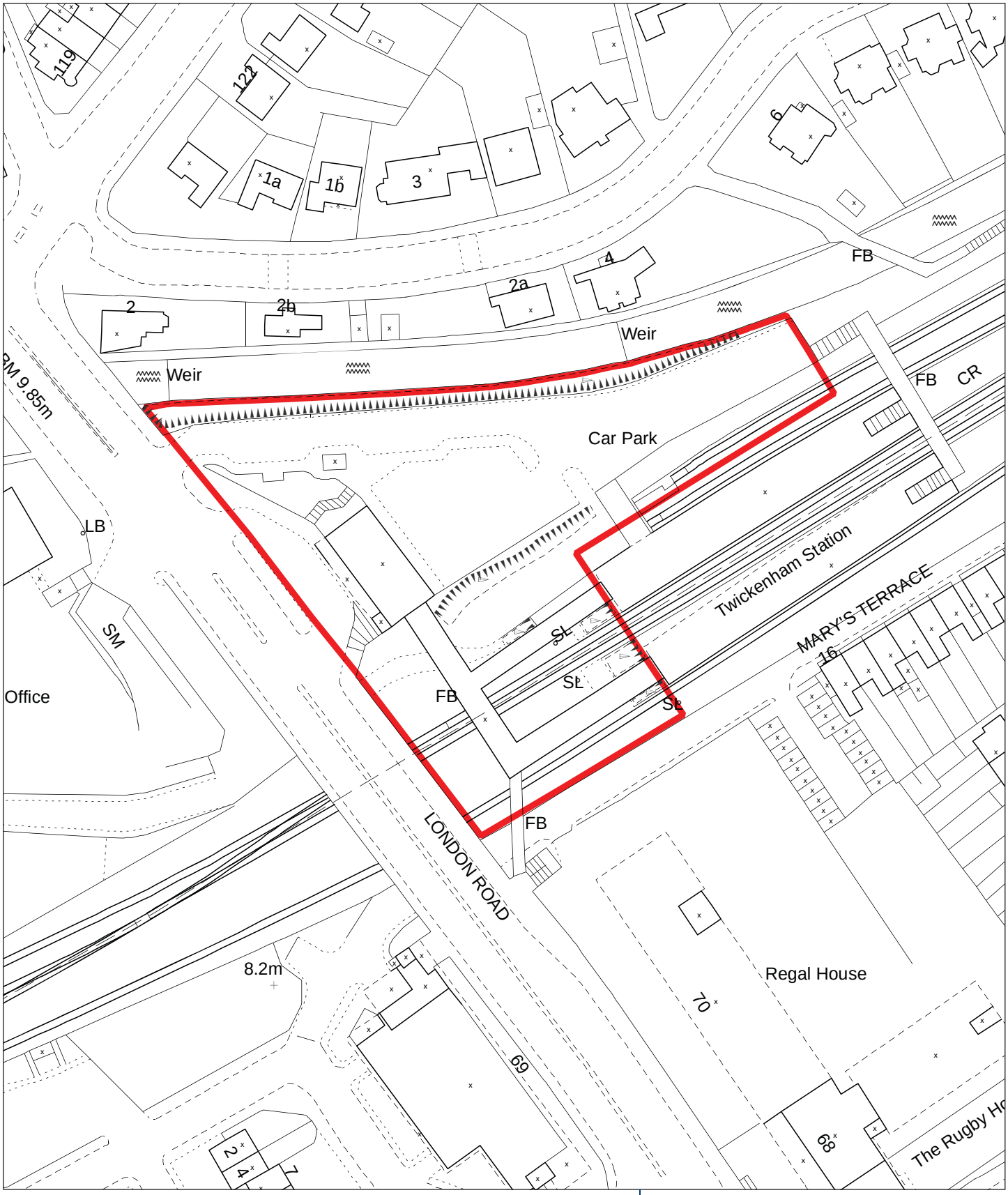

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Site Boundary

Project Details	E11251-100: Twickenham Railway Station
Figure Title	Figure A2: Site Plan
Figure Ref	E11251-100_GR_DS_A2A
Date	August 2010
File Location	\\nt-lnpg2\weedl\projects\e11251\100\graphics\ds\issued figures

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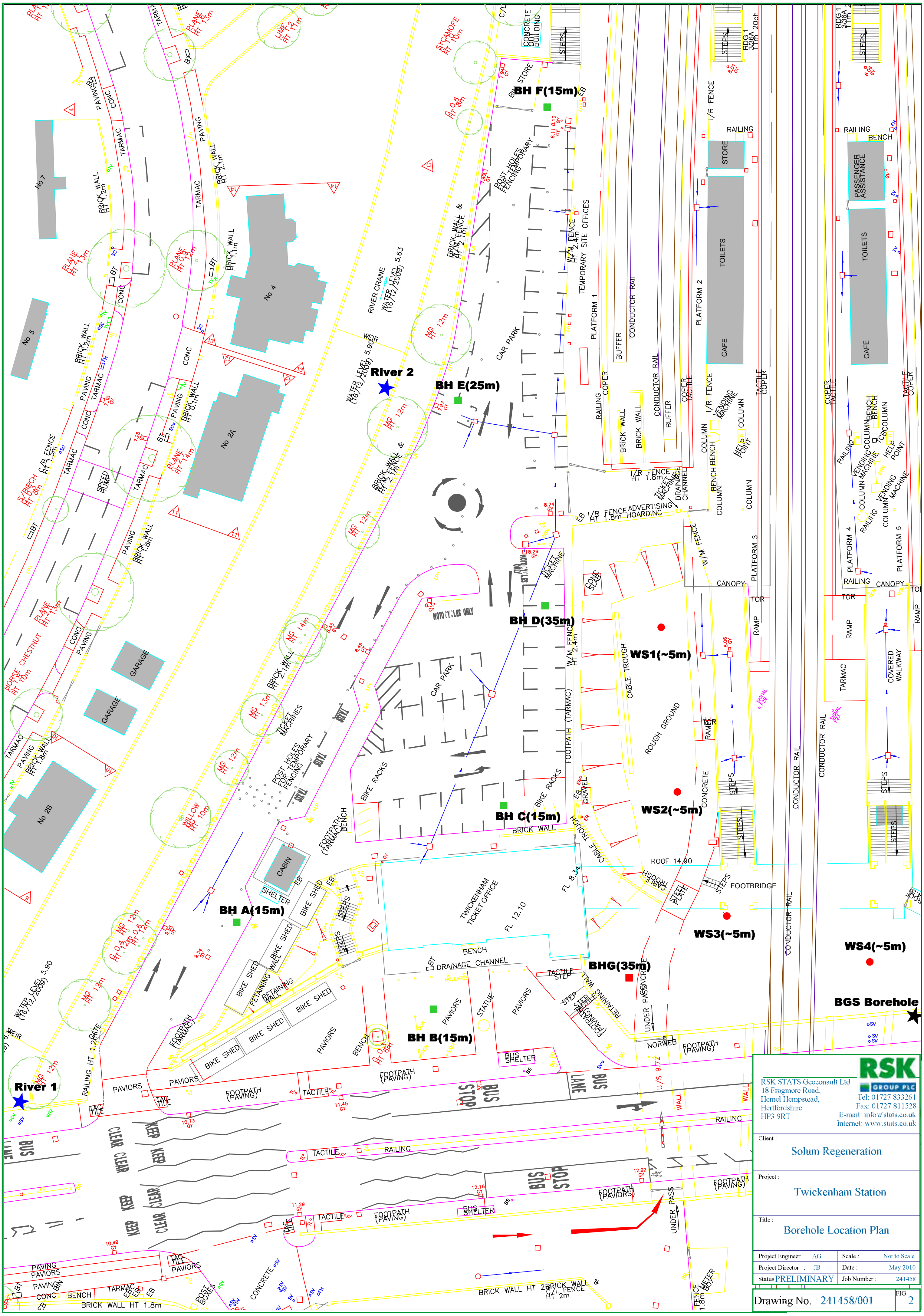

RSK STATS Geoconsult Ltd
18 Frogmore Road,
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RSK GROUP PLC

Tel: 01727 833261
Fax: 01727 811528
E-mail: info@stats.co.uk
Internet: www.stats.co.uk

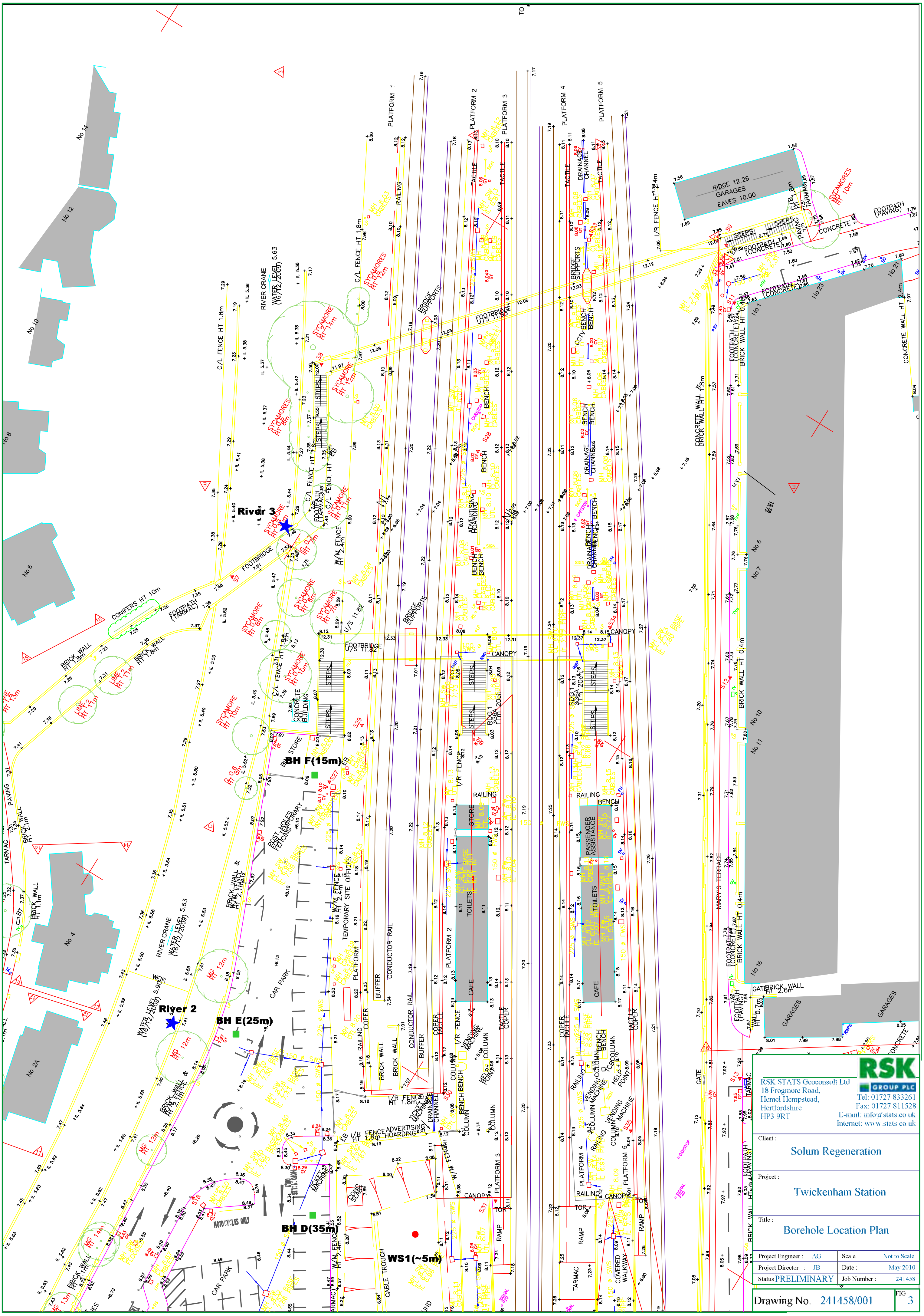
Client : Solum Regeneration

Project : Twickenham Station

Title : Borehole Location Plan

Project Engineer :	AG	Scale :	Not to Scale
Project Director :	JB	Date :	May 2010
Status	PRELIMINARY	Job Number :	241458

Drawing No. 241458/001 FIG 2



RSK STATS Geoconsult Ltd
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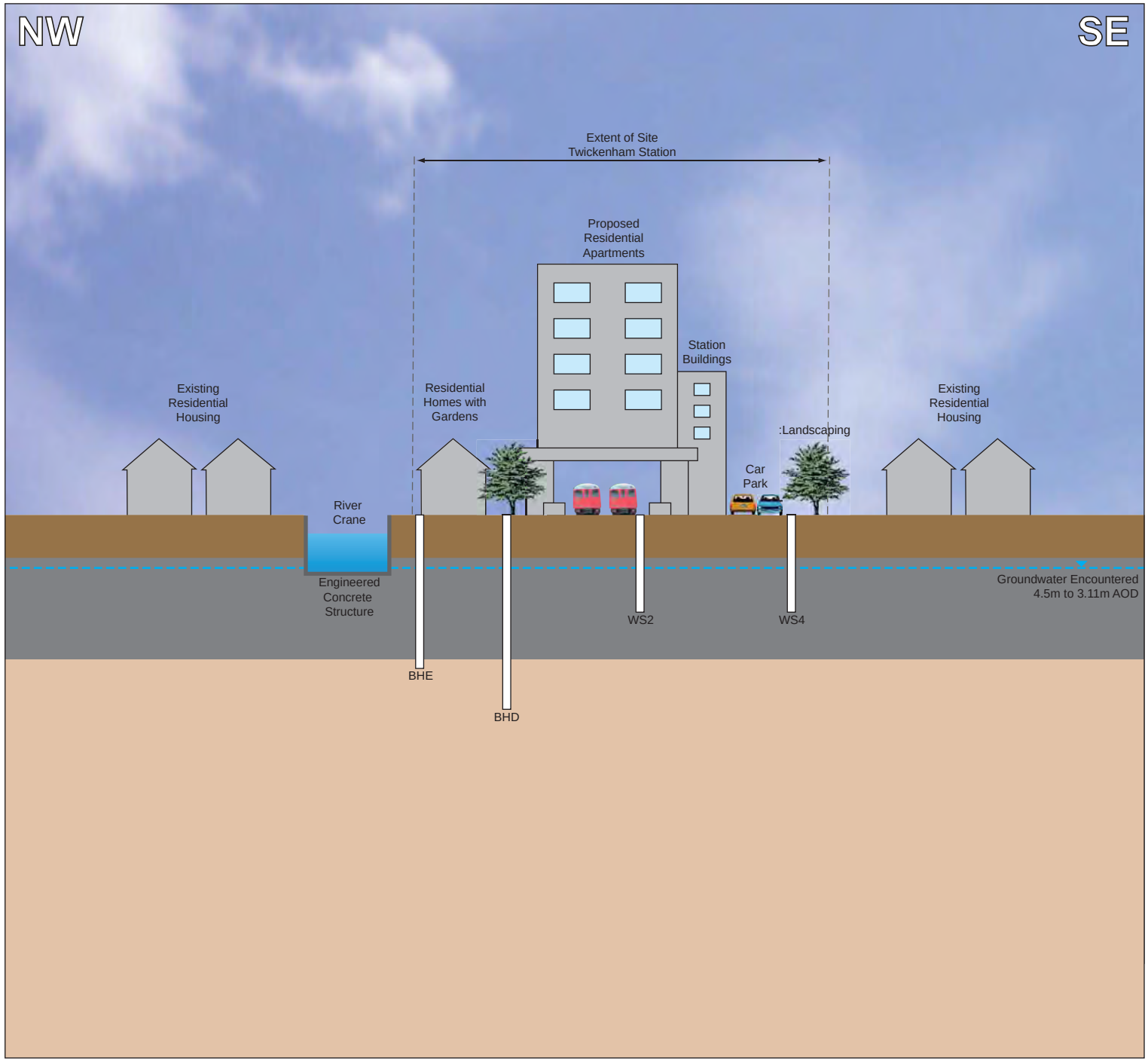
Client : Solum Regeneration

Project : Twickenham Station

Title : Borehole Location Plan

Project Engineer : AG	Scale : Not to Scale
Project Director : JB	Date : May 2010
Status PRELIMINARY	Job Number : 241458

Drawing No. 241458/001 FIG 3



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- Made Ground (approximately 1-5m thick)
- Kempton Park Gravel Formation (approximately 2-7m thick)
- London Clay Formation (proven to 40m bgl)

Project Details	E11251-100: Twickenham Railway Station
Figure Title	Figure A3: Conceptual Site Model
Figure Ref	E11251-100_GR_DS_A3A
Date	August 2010
File Location	\\nt-lnpg2\weedl\projects\e11251\100\graphics\ds\issued figures

Appendix B. Site Photographs

- Plates 1-6 (3 pages)

Plate 1: Cable percussion drilling of Borehole BHD.

Plate 2: View of River Crane adjacent to the site. Note concrete lined structure.

Project Details	E11251-100: Twickenham Railway Station
Figure Title	Figure B1: Site Photographs
Figure Ref	E11251-100_GR_DS_B1A
Date	August 2010
File Location	\\nt-lnpg2\weedl\projects\e11251\100\graphics\ds\issued figures

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Plate 3: Cover of finished cable percussion borehole BHF.

Plate 4: View of Japanese Knotweed growth on western boundary of the site adjacent to the River Crane.

Project Details	E11251-100: Twickenham Railway Station
Figure Title	Figure B2: Site Photographs
Figure Ref	E11251-100_GR_DS_B2A
Date	August 2010
File Location	\\nt-lnpg2\weedl\projects\e11251\100\graphics\ds\issued figures

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Plate 5: Area of Japanese Knotweed at Twickenham Station 'trackside'.

Plate 6: Location of open cable percussion borehole BHD with drilling spoil.

Project Details	E11251-100: Twickenham Railway Station
Figure Title	Figure B3: Site Photographs
Figure Ref	E11251-100_GR_DS_B3A
Date	August 2010
File Location	\\nt-lnpg2\weedl\projects\e11251\100\graphics\ds\issued figures

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Appendix C. Exploratory Hole Records

- Boreholes BHA to BHG (19 pages)
- Window Sample Boreholes WS1 to WS4 (7 pages)

RSK GROUP PLC | STATS

BOREHOLE RECORD (Percussive)

Borehole Number: BHA

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 9.55mAOD

Date: 11 Jun 10

Job No: 241458

GROUND WATER | SAMPLES/TESTS | STRATA RECORD

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)		Key	Description
					0.08	9.47	0.08		MADE GROUND: Black bituminous paving.
					0.20	9.35	0.12		MADE GROUND: Concrete
			0.50 J 1 0.60 TB 1 D 1						MADE GROUND: Dark brown slightly silty sandy GRAVEL. Sand is fine to coarse. Gravel is sub-rounded to angular fine to coarse with occasional cobbles of flint. Contains frequent red brick, crushed stone and concrete and occasional ash and clinker.
	1		1.00 D 2 J 2 TB 2				1.80		… from 1.60m depth, becoming clayey and loose.
			1.40 D 3 1.50-1.95 B 1 S 1.50 J 3 1.50-1.95 TB 3 D 4	N=3 [1,0](1,1,1,0)					
	2		2.00 J 4 TB 4		2.00	7.55			MADE GROUND: Soft, dark brown slightly silty sandy gravelly CLAY. Sand is fine to coarse. Gravel is sub-rounded to angular fine to coarse with rare cobbles of flint and frequent concrete, crushed stone and red brick and occasional ash.
			2.40 D 5 2.50-2.95 B 2 S 2.50 J 5 2.50-2.95 TB 5 D 6	N=9 [1,2](2,2,3,2)			1.00		
	3		3.00 J 6 TB 6		3.00	6.55	0.50		MADE GROUND: Soft to firm, brown/orange mottled slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is sub-rounded to angular fine to coarse flint with occasional fine red brick fragments and ash.
			3.40 D 7 3.50-3.95 B 3 S 3.50 J 7 3.50-3.95 TB 7 D 8	N=18 [3,4](5,5,4,4)	3.50	6.05			
	4						1.10		Medium dense brown clayey sandy GRAVEL. Sand is fine to coarse. Gravel is sub-rounded to angular fine to coarse with rare cobbles of flint. (KEMPTON PARK GRAVEL).
			4.40 D 9 4.50-4.95 D 10 S 4.50 B 4 J 8 TB 8	N=26 [4,4](5,7,7,7)	4.60	4.95			… between 4.0m to 4.60m depth, gravelly sand.
	5						1.00		
			5.50 J 9 5.60 TB 9 D 11		5.60	3.95			Medium dense orange/brown sandy GRAVEL. Sand is fine to coarse. Gravel is sub-rounded to angular fine to coarse flint with occasional partings and lenses of clayey sand. (KEMPTON PARK GRAVEL).
			5.90 D 12 6.00-6.45 D 13 S B 5	N=21 [4,5](5,6,5,5)					Stiff thinly laminated dark grey/orange mottled slightly silty fine sandy CLAY. Contains occasional sub-angular to angular fine flint gravel within the upper surface of the stratum. (LONDON CLAY FORMATION).
	6								
	7						3.40		
			7.40 D 14 7.50-7.95 UT 1	U37					
	8		7.95-8.05 D 15						
			8.90 D 16 9.00-9.45 D 17 S B 6	N=34 [7,8](8,8,10,8)	9.00	0.55			Stiff fissured thinly laminated dark grey fine slightly sandy CLAY. Contains occasional thin partings of grey silt and gleying. (LONDON CLAY FORMATION).
	9								***Continued next sheet***

Remarks and Water Observations

Hand pit excuvated to 1.20mbgl prior to commencement of drilling. CBR determinations were carried out in the hand pit at depths of 0.25m, 0.50m, 0.75m and 1.0mbgl. Casing from ground level to 5.80mbgl. Upon completion the borehole was installed with a ground gas and ground water monitoring standpipe to a depth of 6.0mbgl.

Scale: 1:50

Logged by: AG

Figure: B

RSK GROUP PLC STATS

BOREHOLE RECORD (Percussive)

Borehole Number: BHA

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 9.55mAOD

Date: 11 Jun 10

Job No: 241458

GROUND WATER | **SAMPLES/TESTS** | **STRATA RECORD**

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)		Key	Description
			10.40 D 18 10.50-10.95 UT 2	U53					
		11	10.95-11.05 D 19				4.00		
		12	11.90 D 20 12.00-12.45 D 21 B 7	S N=42 [8,8](10,10,11,11)					…from 12.00m depth, very stiff.
		13			13.00	-3.45			Very stiff fissured thinly laminated dark grey CLAY. Contains occasional thin partings of grey silt. (LONDON CLAY FORMATION).
			13.40 D 22 13.50-13.95 UT 3	U59					
		14	13.95-14.05 D 23				2.00		… from 14.0m depth, silt partings becoming frequent.
		15	14.90 D 24	S N=46 [11,10](12,12,11,11)	15.00	-5.45			***End of Borehole at 15.00 m***
		16							
		17							
		18							
		19							

Remarks and Water Observations

Hand pit excuvated to 1.20mbgl prior to commencement of drilling. CBR determinations were carried out in the hand pit at depths of 0.25m, 0.50m, 0.75m and 1.0mbgl. Casing from ground level to 5.80mbgl. Upon completion the borehole was installed with a ground gas and ground water monitoring standpipe to a depth of 6.0mbgl.

Scale: 1:50

Logged by: AG

Figure: B

RSK GROUP PLC STATS

BOREHOLE RECORD (Percussive)

Borehole Number: BHB

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 12.10mAOD

Date: 10 Jun 10

Job No: 241458

GROUND WATER | **SAMPLES/TESTS** | **STRATA RECORD** | Sheet 1 of 2

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)		Key	Description
					0.08	12.02	0.08		MADE GROUND: Brick paving
			0.50 J 1 0.60 TB 1 D 1				0.92		MADE GROUND: Brown slightly silty sandy GRAVEL. Sand is fine to coarse. Gravel is sub-rounded to angular fine to coarse flint , crushed stone, red brick and concrete with occasional ash and clinker and rare broken tile and crockery. Localised pockets of clayey fine to medium sand.
		1	1.00 D 2 J 2 TB 2		1.00	11.10	0.40		
			1.40 D 3 1.50-1.95 B 1 1.50 J 3 1.50-1.95 TB 3 D 4	S N=10 [1,2](3,3,2,2)	1.40	10.70			MADE GROUND: Orange/brown slightly silty sandy GRAVEL. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to medium occasionally coarse flint with rare red brick fragments.
		2	2.00 J 4 TB 4				1.60		
			2.40 D 5 2.50 J 5 2.50-2.95 TB 5 D 6	S N=5 [2,2](1,1,2,1)					MADE GROUND: Medium dense becoming loose, dark brown slightly silty slightly clayey fine to coarse sandy GRAVEL. Gravel is sub-rounded to sub-angular fine to coarse flint, brick and crushed stone with rare ash and concrete. Localised small pockets of sandy clay. … from 2.0m depth, occasional sub-angular fine to medium chalk gravel.
		3	3.00 J 6 TB 6		3.00	9.10			
			3.40 D 7 3.50 J 7 3.50-3.95 TB 7 D 8	S N=9 [1,2](3,2,2,2)			1.80		
		4	4.00 J 8 TB 8						MADE GROUND: Loose dark brown/black slightly silty slightly clayey sandy GRAVEL. Sand is fine to coarse. Gravel is sub-rounded to angular fine to medium flint, red brick, crushed stone and occasional concrete, ash and clinker. Rare chalk gravel. Slight hydrocarbon odour.
			4.40 D 9 4.50-4.95 D 10 4.50 J 9 TB 9	S N=21 [3,3](4,6,6,5)	4.80	7.30			
		5	5.00 D 11						Dense orange/brown very sandy GRAVEL. Sand is fine to coarse. Gravel is sub-rounded to angular fine to coarse with occasional cobbles flint. (KEMPTON PARK GRAVEL).
			5.50 J 10 TB 10						
			5.90 D 12 6.00-6.45 D 13 B 2				2.70		
		6	6.50 J 11 TB 11	C N=44 [8,10](11,12,10,11)					
		7							
			7.40 D 14 7.50 J 12 7.50-7.95 TB 12 D 15 B 3	C N=33 [6,6](10,11,6,6)	7.50	4.60			Dense orange/brown silty very sandy GRAVEL. Sand is fine to coarse. Gravel is sub-rounded to angular fine to medium occasionally coarse flint. Localised pockets and partings of clayey fine to medium sand. (KEMPTON PARK GRAVEL).
		8					1.00		
			8.50 D 16		8.50	3.60			Stiff, dark grey fine slightly sandy slightly silty CLAY. Contains thin laminations of silt and rare partings of fine to medium sand. (LONDON CLAY FORMATION).
			8.90 D 17						
		9	9.00-9.45 UT 1	U32			1.90		
									Continued next sheet

Remarks and Water Observations

Hand pit excuvated to 1.20mbgl prior to commencement of drilling.Casing from ground level to 8.80mbgl. Upon completion the borehole was backfilled with arisings to 2.0mbgl, and bentonite to groundlevel.

Scale:	1:50
Logged by:	AG
Figure:	B

RSK GROUP PLC STATS

BOREHOLE RECORD (Percussive)

Borehole Number: BHB

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 12.10mAOD

Date: 10 Jun 10

Job No: 241458

GROUND WATER | **SAMPLES/TESTS** | **STRATA RECORD**

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
			10.40 D 18 10.50-10.95 D 19 S B 4	N=34 [5,5](7,9,9,9)	10.40	1.70		Stiff thinly laminated fissured dark grey slightly silty slightly sandy CLAY. Contains rare partings of grey silt. (LONDON CLAY FORMATION).
		11			11.00	1.10		Stiff thinly laminated fissured dark grey slightly silty CLAY. Contains rare partings of grey silt. (LONDON CLAY FORMATION).
			11.90 D 20 12.00-12.45 UT 2	U37				
		12	12.45-12.55 D 21					
		13						… from 13.00m depth, occasional sub-angular to angular fine to medium claystone nodules.
			13.40 D 22 13.50-13.95 D 23 S B 5	N=37 [7,8](8,10,10,9)				
		14						
			14.90 D 24 15.00-15.45 UT 3	U41				
		15	15.45-15.55 D 25		15.50	-3.40		***End of Borehole at 15.50 m***
		16						
		17						
		18						
		19						

0.60

4.50

Remarks and Water Observations

Hand pit excuvated to 1.20mbgl prior to commencement of drilling.Casing from ground level to 8.80mbgl. Upon completion the borehole was backfilled with arisings to 2.0mbgl, and bentonite to groundlevel.

Scale:	1:50
Logged by:	AG
Figure:	B

RSK GROUP PLC STATS

BOREHOLE RECORD (Percussive)

Borehole Number: BHC

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 8.70mAOD

Date: 14 Jun 10

Job No: 241458

GROUND WATER | SAMPLES/TESTS | STRATA RECORD | Sheet 1 of 2

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)		Key	Description
					0.08	8.62	0.08		MADE GROUND: Bituminous paving at the surface.
							0.32		
			0.50 J 1 0.60 TB 1 D 1		0.40	8.30			MADE GROUND: Brown slightly silty sandy GRAVEL. Sand is fine to coarse. Gravel is sub-rounded to sub-angular fine to coarse flint with frequent red brick, concrete and crushed stone and occasional ash and clinker. Rare pockets of clayey sand.
	1		1.00 D 2 J 2 TB 2				1.00		
			1.40 D 3 1.50-1.95 B 1 1.50 J 3 TB 3	S N=31 [3,4](4,7,10,10)	1.40	7.30	0.40		MADE GROUND: Dark brown/grey silty fine to medium SAND. Contains frequent sub-angular to angular medium to coarse flint gravel and occasional fragments of red brick and concrete.
	2		2.00 J 4 TB 4		1.80	6.90			MADE GROUND: Dense brown slightly clayey sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded to angular fine to coarse to frequent cobbles of flint with occasional red brick fragments and occasional concrete. Rare ash present.
			2.40 D 4 2.50-2.95 B 2 2.50 J 5 TB 5	S N=30 [4,5](7,7,9,7)					
	3								Dense orange/brown sandy GRAVEL. Sand is medium to coarse. Gravel is sub-angular to angular fine to predominantly coarse flint with occasional sub-angular cobbles of flint. Rare pockets of clayey sand. (KEMPTON PARK GRAVEL).
			3.40 D 5 3.50-3.95 B 3 3.50 J 6 TB 6	S N=41 [9,10](10,11,10,10)					…from 2.50m depth, mostly coarse flint and frequent cobbles.
	4								…from 4.0m depth, medium dense.
			4.40 D 6 4.50-4.95 B 4	S N=17 [4,4](4,5,4,4)			5.20		
	5								
			5.90 D 7 6.00-6.45 B 5	S N=28 [4,5](5,6,8,9)					…from 6.00m depth, very sandy.
	6								
	7		7.00 D 8		7.00	1.70			Stiff dark grey slightly silty fine sandy CLAY. Contains occasional thin partings of fine to medium sand. (LONDON CLAY FORMATION).
			7.40 D 9 7.50-7.95 UT 1	U37					
	8		7.95-8.05 D 10						
							3.50		
	9		8.90 D 11 9.00-9.45 B 6						
				S N=39 [7,7](10,10,10,9)					

Continued next sheet

Remarks and Water Observations

Hand pit excuvated to 1.20mbgl prior to commencement of drilling.CBR determinations were carried out in the hand pit at depths of 0.25m, 0.50m, 0.75m and 1.0mbgl. Casing from ground level to 7.20mbgl. Upon completion the borehole was backfilled with arisings to 2.0mbgl, and bentonite to groundlevel.

Scale: 1:50

Logged by: AG

Figure: B

RSK GROUP PLC STATS

BOREHOLE RECORD (Percussive)

Borehole Number: BHC

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 8.70mAOD

Date: 14 Jun 10

Job No: 241458

GROUND WATER | **SAMPLES/TESTS** | **STRATA RECORD**

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
			10.40 D 12 10.50-10.95 UT 2	U51	10.50	-1.80		…from 10.00m depth, thinly laminated only slightly sandy.
		11	10.95-11.05 D 13					Stiff fissured thinly laminated dark grey slightly silty CLAY. Contains occasional thin laminations of light grey silt. (LONDON CLAY FORMATION).
		12	11.90 D 14 12.00-12.45 B 7	S N=36 [6,8](8,8,10,10)		4.50		…from 12.00m depth, occasional to rare root marking visible.
		13						
			13.40 D 15 13.50-13.95 UT 3	U56				
		14	13.95-14.05 D 16					
		15	14.90 D 17	S N=44 [8,10](10,10,12,12)	15.00	-6.30		***End of Borehole at 15.00 m***
		16						
		17						
		18						
		19						

Remarks and Water Observations

Hand pit excuvated to 1.20mbgl prior to commencement of drilling.CBR determinations were carried out in the hand pit at depths of 0.25m, 0.50m, 0.75m and 1.0mbgl. Casing from ground level to 7.20mbgl. Upon completion the borehole was backfilled with arisings to 2.0mbgl, and bentonite to groundlevel.

Scale:	1:50
Logged by:	AG
Figure:	B

RSK GROUP PLC | STATS

BOREHOLE RECORD (Percussive)

Borehole Number: BHD

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 8.40mAOD

Date: 7 Jun 10

Job No: 241458

GROUND WATER | SAMPLES/TESTS | STRATA RECORD

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)		Key	Description
					0.15	8.25	0.15		MADE GROUND: Black bituminous paving.
					0.30	8.10	0.15		MADE GROUND: Dark brown/red sandy GRAVEL. Sand is medium to coarse. Gravel is rounded to sub-rounded angular fine to predominately coarse flint with frequent fragments of red brick, concrete, crushed stone and occasional ash, bitumen and rare clinker.
			0.50 J 1 0.60 TB 1 D 1						
	1		1.00 D 2 J 2 TB 2				1.10		
			1.40 D 3 1.50-1.95 B 1 S 1.50 J 3 TB 3	N=42 [3,5](10,12,10,10)	1.40 1.70	7.00 6.70	0.30		MADE GROUND: Dark brown slightly gravelly slightly clayey silty CLAY. Sand is medium. Gravel is sub-rounded to angular fine to coarse to occasional cobbles of flint. Occasional red brick fragments and rare clinker. Localised pockets of orange clayey fine sand.
	2		2.00 J 4 TB 4				0.80		
			2.40 D 4 2.50-2.95 B 2 C 2.50 J 5 TB 5	N=48 [8,8](10,11,15,12)	2.50	5.90			MADE GROUND: Dense brown sandy GRAVEL. Sand is fine to medium. Gravel is sub-rounded to sub-angular fine to medium occasionally coarse flint with fragments of red brick and rare ash and clinker. Localised lenses of clayey sand.
	3								
			3.40 D 5 3.50-3.95 B 3 C 3.50 J 6 TB 6	N=28 [5,5](6,5,9,8)			2.00		Dense orange slightly silty sandy GRAVEL. Gravel is sub-rounded to angular fine to medium occasionally coarse flint. Rare lenses of clayey sand. (KEMPTON PARK GRAVEL).
	4								
			4.40 D 6 4.50-4.95 B 4 C 4.50 J 7 TB 7	N=13 [3,3](2,3,4,4)	4.50	3.90			Dense to medium dense orange silty sandy GRAVEL. Gravel is rounded to sub-rounded fine to coarse flint. Occasional lenses of silty coarse sand. (KEMPTON PARK GRAVEL). … from 3.50m depth, medium dense, becoming sandy gravel.
	5						1.30		
			5.90 D 7 6.00-6.45 B 5 C	N=21 [5,5](5,6,5,5)	5.80	2.60			Medium dense orange gravelly SAND. Sand is fine to medium. Gravel is sub-rounded to angular fine to medium flint. (KEMPTON PARK GRAVEL).
	6						1.00		Medium dense orange / brown silty sandy GRAVEL with occasional pockets/lenses of clayey fine sand. Sand is generally fine to medium. Gravel is sub-rounded to angular predominantly fine to medium flint. (KEMPTON PARK GRAVEL).
					6.80	1.60			
	7		7.00 D 8				0.60		Stiff laminated brown/grey silty CLAY. Contains thin laminations of fine to medium sand. (LONDON CLAY FORMATION).
			7.40 D 9 7.50-7.95 UT 1	U37	7.40	1.00	0.40		Stiff fissured brown/grey slightly sandy silty CLAY with thin laminations of fine sand and silt. (LONDON CLAY FORMATION).
					7.80	0.60			
	8		7.95-8.05 D 10				0.70		Stiff brown/grey CLAY with rare sand and silt laminations. (LONDON CLAY FORMATION).
					8.50	-0.10			Stiff fissured grey slightly silty CLAY with gleying. (LONDON CLAY FORMATION).
			8.90 D 11 9.00-9.45 B 6 S	N=31 [8,8](7,8,8,8)					
	9								

Continued next sheet

Remarks and Water Observations

Hand pit excuvated to 1.20mbgl prior to commencement of drilling.CBR determinations were carried out in the hand pit at depths of 0.25m, 0.50m, 0.75m and 1.0mbgl. Casing from ground level to 7.30mbgl. Upon completion the borehole was installed with a ground gas and ground water monitoring standpipe to 7.0mbgl.

Scale: 1:50

Logged by: AG

Figure: B

RSK GROUP PLC STATS

BOREHOLE RECORD (Percussive)

Borehole Number: BHD

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 8.40mAOD

Date: 7 Jun 10

Job No: 241458

GROUND WATER | **SAMPLES/TESTS** | **STRATA RECORD**

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
			10.40 D 12 10.50-10.95 UT 2	U40				
		11	10.95-11.05 D 13					
		12	11.90 D 14 12.00-12.45 B 7	S N=31 [6,6](8,8,7,8)				
		13	13.40 D 15 13.50-13.95 UT 3	U36				
		14	13.95-14.05 D 16					
		15	14.90 D 17 15.00-15.45 B 8	S N=35 [7,8](8,9,8,10)		14.00		… from 15.50m depth, sub rounded fine to medium claystone nodules.
		16	16.40 D 18 16.50-16.95 UT 4	U43				
		17	16.95-17.05 D 19					
		18	17.90 D 20 18.00-18.45 B 9	S N=40 [7,8](8,11,10,11)				…from 18.00m depth, very stiff.
		19	19.40 D 21 19.50-19.95 UT 5	U56				
			19.95-20.05 D 22					

Continued next sheet

Remarks and Water Observations

Hand pit excuvated to 1.20mbgl prior to commencement of drilling.CBR determinations were carried out in the hand pit at depths of 0.25m, 0.50m, 0.75m and 1.0mbgl. Casing from ground level to 7.30mbgl. Upon completion the borehole was installed with a ground gas and ground water monitoring standpipe to 7.0mbgl.

Scale:	1:50
Logged by:	AG
Figure:	B

RSK GROUP PLC STATS

BOREHOLE RECORD (Percussive)

Borehole Number: BHD

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 8.40mAOD

Date: 7 Jun 10

Job No: 241458

GROUND WATER | **SAMPLES/TESTS** | **STRATA RECORD**

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
		21	20.90 D 23 21.00-21.45 B 10 S	N=46 [9,12](12,10,12,12)				
		22	22.40 D 24 22.50-22.95 UT 6	U73	22.50	-14.1		Very stiff fissured grey silty CLAY with gleying. (LONDON CLAY FORMATION).
		23	22.95-23.05 D 25					
		24	23.90 D 26 24.00-24.45 B 11 S	50/270mm (54) [26/150](50/270)				
		25	25.40 D 27 25.50-25.95 UT 7	U100				
		26	25.95-26.05 D 28					… from 26.0m depth, rare thin laminations of light grey silt.
		27	26.90 D 29 27.00-27.45 B 12 S					
		28	28.40 D 30 28.50-28.95 UT 8	U100		11.50		
		29	28.95-29.05 D 31					
			29.90 D 32					***Continued next sheet***

Remarks and Water Observations

Hand pit excuvated to 1.20mbgl prior to commencement of drilling.CBR determinations were carried out in the hand pit at depths of 0.25m, 0.50m, 0.75m and 1.0mbgl. Casing from ground level to 7.30mbgl. Upon completion the borehole was installed with a ground gas and ground water monitoring standpipe to 7.0mbgl.

Scale:	1:50
Logged by:	AG
Figure:	B

RSK GROUP PLC STATS

BOREHOLE RECORD (Percussive)

Borehole Number: BHD

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 8.40mAOD

Date: 7 Jun 10

Job No: 241458

GROUND WATER | **SAMPLES/TESTS** | **STRATA RECORD**

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
		31	30.00-30.45 B 13	S 50/220mm (60) [24/150][50/220]				
			31.40 D 33					
			31.50-31.95 UT 9	U100				
		32	31.95-32.05 D 34					
		33	32.90 D 35	S 50/200mm (66) [25/140][50/200]				
		34			34.00	-25.6		*End of Borehole at 34.00 m*
		35						
		36						
		37						
		38						
		39						

Remarks and Water Observations

Hand pit excuvated to 1.20mbgl prior to commencement of drilling.CBR determinations were carried out in the hand pit at depths of 0.25m, 0.50m, 0.75m and 1.0mbgl. Casing from ground level to 7.30mbgl. Upon completion the borehole was installed with a ground gas and ground water monitoring standpipe to 7.0mbgl.

Scale: 1:50

Logged by: AG

Figure: B

RSK GROUP PLC STATS

BOREHOLE RECORD (Percussive)

Borehole Number: BHE

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 8.00mAOD

Date: 2 Jun 10

Job No: 241458

GROUND WATER | SAMPLES/TESTS | STRATA RECORD | Sheet 1 of 3

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
					0.20	7.80		MADE GROUND: Black bituminous paving.
			0.50 J 1 0.60 TB 1 D 1					MADE GROUND: Brown / grey gravelly SAND. Gravel comprises broken brick, mortar and concrete, ash, clinker, bituminous gravels and flint.
		1	1.00 D 2 J 2 TB 2		1.20	6.80		MADE GROUND: Firm orange / brown slightly sandy gravelly CLAY. Gravel comprises broken brick and concrete and occasional flint, ash, clinker and slag.
			1.40 D 3 1.50-1.95 B 1 S 1.50 J 3 TB 3	N=14 [3,4](3,3,4,4)				
		2	2.00 D 4 J 4 TB 4		1.90	6.10		Firm, orange / brown slightly sandy slightly gravelly CLAY. Gravel comprises rounded to sub-angular fine to medium flint. (KEMPTON PARK GRAVEL).
			2.40 D 5 2.50-2.95 B 2 C	N=8 [2,2](1,2,2,3)	2.30	5.70		Initially loose, becoming medium dense, orange / brown very sandy GRAVEL, locally gravelly SAND. Gravel is rounded to sub-angular fine to medium occasionally coarse flint. (KEMPTON PARK GRAVEL).
		3	3.00 J 5 TB 5					
			3.40 D 6 3.50-3.95 B 3 C	N=20 [2,2](3,4,7,6)				
		4	4.00 J 6 TB 6		3.90	4.10		Dense brown / grey slightly sandy GRAVEL, locally gravelly SAND. Gravel is rounded to sub-angular fine to medium occasionally coarse flint. (KEMPTON PARK GRAVEL).
			4.40 D 7 4.50-4.95 B 4 C	N=39 [7,10](10,10,9,10)				
		5						
		6	5.90 D 8 6.00-6.45 B 5 C	N=48 [10,14](15,9,12,12)				
					6.50	1.50		Stiff slightly fissured grey / brown silty CLAY. Contains discrete pyrite veins. (LONDON CLAY FORMATION).
		7						
			7.30 D 9 7.40 D 10 7.50-7.95 B 6					
		8						
		9	8.90 D 11 9.00-9.45 B 7 S	N=37 [7,10](8,10,10,9)				

Continued next sheet

Remarks and Water Observations

Hand pit excuvated to 1.20mbgl prior to commencement of drilling.Casing from ground level to 10.50mbgl. Casing failed to seal off groundwater entering the borehole and therefore 200m casing was used from groundlevel to 7.50. Upon completion the borehole was backfilled with arisings to 2.0mbgl, and bentonite to groundlevel.

Scale: 1:50

Logged by: AK

Figure: B

BOREHOLE RECORD (Percussive)

RSK GROUP PLC — STATS

Borehole Number: BHE

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 8.00mAOD

Date: 2 Jun 10

Job No: 241458

Sheet 2 of 3

GROUND WATER			SAMPLES/TESTS				STRATA RECORD	
Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
		11	10.40 D 12 10.50-10.95 U 1	U39				
			10.95 D 13					
		12	11.90 D 14 12.00-12.45 B 8	S N=41 [7,6](8,11,11,11)				
		13	13.40 D 15 13.50-13.95 U 2	U51				
		14	13.95-14.05 D 16					
		15	14.90 D 17 15.00-15.45 B 9	S N=36 [6,7](7,10,10,9)				
						18.50		
		16	16.40 D 18 16.50-16.95 U 3	U57				
		17	16.95 D 19 17.05 D 20					
		18	17.90 D 21 18.00-18.45 B 10	S N=43 [10,10](9,10,12,12)				
		19	19.40 D 22 19.50-19.95 U 4	U74				

Continued next sheet

Remarks and Water Observations

Hand pit excuvated to 1.20mbgl prior to commencement of drilling.Casing from ground level to 10.50mbgl. Casing failed to seal off groundwater entering the borehole and therefore 200m casing was used from groundlevel to 7.50. Upon completion the borehole was backfilled with arisings to 2.0mbgl, and bentonite to groundlevel.

Scale:	1:50
Logged by:	AK
Figure:	B

RSK GROUP PLC STATS

BOREHOLE RECORD (Percussive)

Borehole Number: BHE

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 8.00mAOD

Date: 2 Jun 10

Job No: 241458

GROUND WATER | **SAMPLES/TESTS** | **STRATA RECORD**

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
		21	20.90 D 23 21.00-21.45 B 11 S	N=50 [12,12](12,12,12,14)				
		22	22.40 D 24 22.50-22.95 U 5	U100				
		23	22.95-23.05 D 25					
		24	23.90 D 26 24.00-24.42 B 12 S	50/270mm (50) [21/150](50/270)				…at 24.00m depth, possible claystone nodules.
		25			25.00	-17.0		*End of Borehole at 25.00 m*
		26						
		27						
		28						
		29						

Remarks and Water Observations

Hand pit excuvated to 1.20mbgl prior to commencement of drilling.Casing from ground level to 10.50mbgl. Casing failed to seal off groundwater entering the borehole and therefore 200m casing was used from groundlevel to 7.50. Upon completion the borehole was backfilled with arisings to 2.0mbgl, and bentonite to groundlevel.

Scale:	1:50
Logged by:	AK
Figure:	B

RSK GROUP PLC | STATS

BOREHOLE RECORD (Percussive)

Borehole Number: BHF

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 8.05mAOD

Date: 1 Jun 10

Job No: 241458

GROUND WATER | SAMPLES/TESTS | STRATA RECORD

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
					0.20	7.85	0.20	MADE GROUND: Black bituminous paving.
			0.50 J 1 0.60 TB 1 D 1		0.70	7.35	0.50	MADE GROUND: Brown locally slightly orange gravelly SAND. Gravel is rounded to sub-angular fine to coarse flint with frequent inclusions of broken brick and concrete, ash, clinker and crushed stone.
1			1.00 D 2 J 2 TB 2				0.70	MADE GROUND: Brown slightly gravelly clayey SAND. Gravel comprises rounded to sub-angular fine to medium flint and rare broken brick and concrete.
			1.40 D 3 1.50-1.95 B 1 S 1.50 J 3 TB 3	N=7 [1,2](2,1,2,2)	1.40	6.65	0.90	Firm range / brown mottled silty CLAY. Contains rare gravels rounded to sub-angular fine to medium flint and localised sandy clay lenses. (KEMPTON PARK GRAVEL).
2			2.00 D 4 J 4 TB 4				0.20	
			2.40 D 5 2.50-2.95 B 2 S	N=29 [7,6](6,7,8,8)	2.30 2.50	5.75 5.55	0.60	Orange / yellow gravelly fine to medium SAND. Gravel comprises rounded to sub-angular fine to medium flint and localised clayey sand lenses. (KEMPTON PARK GRAVEL).
3			3.00 J 5 TB 5		3.10	4.95		
			3.40 D 6 3.50-3.95 B 3 S	N=25 [10,12](7,7,5,6)			1.20	Medium dense orange / yellow sandy GRAVEL. Gravel comprises rounded to sub-angular fine to medium flint. (KEMPTON PARK GRAVEL).
4					4.30	3.75		Medium dense orange / brown slightly sandy GRAVEL, locally gravelly SAND. Gravel is rounded to sub-angular fine to medium occasionally coarse flint. (KEMPTON PARK GRAVEL).
			4.40 D 7 4.50-4.95 B 4 S	N=26 [7,10](10,6,5,5)			0.80	
5					5.10	2.95		Medium dense brown slightly clayey slightly sandy GRAVEL. Gravel comprises rounded to sub-rounded fine to medium flint. (KEMPTON PARK GRAVEL).
			5.90 D 8 6.00-6.45 B 5 C	N=28 [6,6](5,6,9,8)			1.80	Medium dense orange brown slightly sandy GRAVEL, locally gravelly SAND. Gravel is rounded to sub-angular fine to medium occasionally coarse flint. (KEMPTON PARK GRAVEL).
6					6.90	1.15		
7			7.00 D 9					stiff slightly fissured grey / brown silty CLAY. Contains discrete pyrite veins. (LONDON CLAY FORMATION).
			7.40 D 11 7.50-7.95 UT 1	U37				
8			7.95 D 12					
			8.90 D 13 9.00-9.45 B 6 S	N=37 [6,6](8,10,10,9)				
9								

Continued next sheet

Remarks and Water Observations

Hand pit excuvated to 1.20mbgl prior to commencement of drilling.CBR determinations were carried out in the hand pit at depths of 0.25m, 0.50m, 0.75m and 1.0mbgl. Casing from ground level to 7.40mbgl.Upon completion the borehole was installed with a ground gas and ground water monitoring standpipe to 6.20mbgl.

Scale: 1:50

Logged by: AK

Figure: B

RSK GROUP PLC STATS

BOREHOLE RECORD (Percussive)

Borehole Number: BHF

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 8.05mAOD

Date: 1 Jun 10

Job No: 241458

GROUND WATER | **SAMPLES/TESTS** | **STRATA RECORD**

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
			10.40 D 14 10.50-10.95 UT 2	U49				
		11						
			11.90 D 15 12.00-12.45 B 7	S N=41 [7,10](10,11,10,10)				…from 12.0m depth, very stiff.
		12						
		13						
			13.40 D 16		13.50	-5.45		*End of Borehole at 13.50 m*
		14						
		15						
		16						
		17						
		18						
		19						

6.60

Remarks and Water Observations

Hand pit excuvated to 1.20mbgl prior to commencement of drilling.CBR determinations were carried out in the hand pit at depths of 0.25m, 0.50m, 0.75m and 1.0mbgl. Casing from ground level to 7.40mbgl.Upon completion the borehole was installed with a ground gas and ground water monitoring standpipe to 6.20mbgl.

Scale: 1:50

Logged by: AK

Figure: B

RSK GROUP PLC STATS

BOREHOLE RECORD (Percussive)

Borehole Number: BHG

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 7.40mAOD

Date: 14 Jun 10

Job No: 241458

GROUND WATER | **SAMPLES/TESTS** | **STRATA RECORD**

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)		Key	Description
			0.30 D 1				0.80		MADE GROUND: Vegetation at surface, including Japanese Knotweed, overlying brown fine to medium sandy GRAVEL. Gravel is subangular to angular fine to coarse flint, concrete and red brick. Occasional ash and clinker present.
		1	1.00 D 2		0.80	6.60			MADE GROUND: Medium dense black to dark brown silty sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded to angular fine to coarse PFA, crushed stone, red brick, flint, clinker and ash. Occasional concrete.
			1.40 D 3 1.50 D 4	S N=11 [2,2](3,2,3,3)			1.80		
		2							
			2.50-2.95 B 1	S N=20 [4,5](5,5,4,6)	2.60	4.80	0.40		MADE GROUND: Medium dense brown slightly clayey sandy GRAVEL. Sand is fine to coarse. Gravel is sub-rounded to angular fine to coarse flint with occasional red brick and ash present. Rare cobbles of flint.
		3			3.00	4.40	1.00		Dense orange brown slightly silty fine to coarse very sandy GRAVEL. Gravel is subangular to angular fine to coarse to occasional cobbles of flint with rare pockets/partings of clayey sand.(KEMPTON PARK GRAVEL).
			3.40 D 5 3.50-3.95 B 2	S N=34 [5,5](8,8,8,10)					
		4			4.00	3.40	0.50		Orange brown slightly silty gravelly fine to coarse SAND. Gravel is subrounded to angular fine to coarse to cobbles of flint. (KEMPTON PARK GRAVEL).
			4.40 D 6 4.50-4.95 B 3	S N=31 [7,7](7,9,7,8)	4.50	2.90	0.60		Dense orange brown slightly silty fine to coarse sandy GRAVEL. Gravel is subangular to angular fine to predominately coarse to frequent cobbles of flint.(KEMPTON PARK GRAVEL).
		5	5.10 D 7		5.10	2.30			
			5.90 D 8 6.00-6.45 UT 1	U23					Stiff dark grey brown slightly silty fine sandy CLAY with occasional thin partings of fine sand. (LONDON CLAY FORMATION).
		6	6.45 D 9						
		7					3.90		
			7.40 D 10 7.50-7.95 B 4	S N=22 [5,5](4,5,6,7)					
		8							
			8.90 D 11 9.00-9.45 UT 2	U57	9.00	-1.60			Stiff fissured thinly laminated dark grey slightly silty slightly fine sandy CLAY with with gleying and thin laminations of grey silt. (LONDON CLAY FORMATION).
		9							***Continued next sheet***

Remarks and Water Observations

Hand pit excuvated to 1.20mbgl prior to commencement of drilling.Casing from ground level to 5.60mbgl. Upon completion the borehole was backfilled with arisings to 2.0mbgl, and bentonite to groundlevel.

Scale: 1:50

Logged by: AS

Figure: B

RSK GROUP PLC STATS

BOREHOLE RECORD (Percussive)

Borehole Number: BHG

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 7.40mAOD

Date: 14 Jun 10

Job No: 241458

GROUND WATER | SAMPLES/TESTS | STRATA RECORD

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
		11	10.40 D 12 10.50-10.95 B 5	S N=27 [4,6](6,7,7,7)				
		12	11.90 D 13 12.00-12.45 UT 3	U39				
			12.45 D 14					
		13						
			13.40 D 15 13.50-13.95 B 6	S N=31 [5,5](6,7,9,9)		9.00		
		14	13.90 D 25					
			14.90 D 16 15.00-15.45 UT 4	U48				
		15	15.45 D 17					
		16						
			16.40 D 18 16.50-16.95 B 7	S N=44 [7,8](10,10,12,12)				…from 16.50m depth, Very stiff.
		17						
		18	17.90 D 19 18.00-18.45 UT 5	U72	18.00	-10.6		Very stiff fissured thinly laminated dark grey slightly silty CLAY with gleying and thin laminations of grey silt. Occasional subrounded to subangular fine to medium claystone nodules present. (LONDON CLAY FORMATION).
		19	18.96 D 20					
			19.40 D 21 19.50-19.95 B 8	S N=41 [6,9](9,11,10,11)				

Continued next sheet

Remarks and Water Observations

Hand pit excuvated to 1.20mbgl prior to commencement of drilling.Casing from ground level to 5.60mbgl. Upon completion the borehole was backfilled with arisings to 2.0mbgl, and bentonite to groundlevel.

Scale:	1:50
Logged by:	AS
Figure:	B

RSK GROUP PLC STATS

BOREHOLE RECORD (Percussive)

Borehole Number: BHG

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 7.40mAOD

Date: 14 Jun 10

Job No: 241458

GROUND WATER | **SAMPLES/TESTS** | **STRATA RECORD**

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
		21	20.90 D 22 21.00-21.45 UT 6	U69				…from 20.50m depth, regular thin bands of subrounded to angular fine to coarse gravel and occasional cobbles of moderately strong grey claystone gravel.
			21.45 D 23					
		22	22.40 D 24 22.50-22.95 B 9	S 50/270mm (50) [21/150](50/270)				
		23						
		24	24.00-24.45 UT 7	U100				
			24.46 D 26					
		25	25.40 D 27 25.50-25.89 B 10	S 35/250mm (50) [25/140](35/250)				
		26				17.00		
		27	26.90 D 28 27.00-27.45 UT 8	U100				
			27.45 D 29					
		28	28.40 D 30 28.50-28.91 B 11	S 50/280mm (54) [25/130](50/280)				
		29						
			29.90 D 31					*Continued next sheet*

Remarks and Water Observations

Hand pit excuvated to 1.20mbgl prior to commencement of drilling.Casing from ground level to 5.60mbgl. Upon completion the borehole was backfilled with arisings to 2.0mbgl, and bentonite to groundlevel.

Scale:	1:50
Logged by:	AS
Figure:	B

RSK GROUP PLC STATS

BOREHOLE RECORD (Percussive)

Borehole Number: BHG

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 7.40mAOD

Date: 14 Jun 10

Job No: 241458

GROUND WATER | SAMPLES/TESTS | STRATA RECORD

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
			30.00-30.45 UT 9	U100				
			30.45 D 32					
		31						
			31.50-31.92 B 12	S N=50 [11,14](14,13,14,9)				
		32						
			32.90 D 33					
		33	33.00-33.45 UT 10	U100				
		34						
			34.40 D 34					
			34.50-34.88 B 13	S N=69 [12,13](16,16,16,21)				
		35			35.00	-27.6		*End of Borehole at 35.00 m*
		36						
		37						
		38						
		39						

Remarks and Water Observations

Hand pit excuvated to 1.20mbgl prior to commencement of drilling.Casing from ground level to 5.60mbgl. Upon completion the borehole was backfilled with arisings to 2.0mbgl, and bentonite to groundlevel.

Scale:	1:50
Logged by:	AS
Figure:	B

RSK GROUP PLC STATS

BOREHOLE RECORD (Percussive)

Borehole Number: BH1

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 8.50mAOD

Date: 21 Apr 10

Job No: 241458

GROUND WATER | **SAMPLES/TESTS** | **STRATA RECORD**

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)		Key	Description
		1					1.90		MADE GROUND
		2			1.90	6.60			KEMPTON PARK GRAVEL
		3							
		4							
		5					6.60		
		6							
		7							
		8							
					8.50	0.00			LONDON CLAY FORMATION
		9	9.00-9.45 U 1						

Continued next sheet

Remarks and Water Observations
Drilled by GIP

Scale:	1:50
Logged by:	GIP
Figure:	B

RSK GROUP PLC STATS

BOREHOLE RECORD (Percussive)

Borehole Number: BH1

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 8.50mAOD

Date: 21 Apr 10

Job No: 241458

GROUND WATER | **SAMPLES/TESTS** | **STRATA RECORD**

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
		11						
		12	12.00-12.45 U 2					
		13						
		14						
		15						
		16						
		17						
		18						
		19						

11.55

Continued next sheet

Remarks and Water Observations
Drilled by GIP

Scale:	1:50
Logged by:	GIP
Figure:	B

RSK GROUP PLC STATS

BOREHOLE RECORD (Percussive)

Borehole Number: BH1

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 8.50mAOD

Date: 21 Apr 10

Job No: 241458

GROUND WATER | SAMPLES/TESTS | STRATA RECORD

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
					20.05	-11.6		

21
22
23
24
25
26
27
28
29

Continued next sheet

Remarks and Water Observations
Drilled by GIP

Scale:	1:50
Logged by:	GIP
Figure:	B

RSK GROUP PLC STATS

BOREHOLE RECORD (Percussive)

Borehole Number: BH1

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 8.50mAOD

Date: 21 Apr 10

Job No: 241458

GROUND WATER		SAMPLES/TESTS			STRATA RECORD			
Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
		31						
		32						
		33						
		34						
		35						
		36						
		37						
		38						
		39						

Continued next sheet

Remarks and Water Observations
Drilled by GIP

Scale:	1:50
Logged by:	GIP
Figure:	B

RSK GROUP PLC STATS

BOREHOLE RECORD (Percussive)

Borehole Number: BH1

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 8.50mAOD

Date: 21 Apr 10

Job No: 241458

GROUND WATER			SAMPLES/TESTS				STRATA RECORD	
Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
		41						*End of Borehole at 40.40 m*
		42						
		43						
		44						
		45						
		46						
		47						
		48						
		49						

Remarks and Water Observations
Drilled by GIP

Scale:	1:50
Logged by:	GIP
Figure:	B

RSK GROUP PLC STATS

BOREHOLE RECORD (Percussive)

Borehole Number: BH2

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 8.50mAOD

Date: 21 Apr 11

Job No: 241458

GROUND WATER | **SAMPLES/TESTS** | **STRATA RECORD**

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)		Key	Description
							1.00		MADE GROUND
		1			1.00	7.50			KEMPTON PARK GRAVEL
		2							
		3							
		4					7.20		
		5							
		6							
		7							
		8			8.20	0.30			LONDON CLAY FORMATION
		9							

Continued next sheet

Remarks and Water Observations
Drilled by GIP

Scale:	1:50
Logged by:	GIP
Figure:	B

RSK GROUP PLC STATS

BOREHOLE RECORD (Percussive)

Borehole Number: BH2

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 8.50mAOD

Date: 21 Apr 11

Job No: 241458

GROUND WATER | **SAMPLES/TESTS** | **STRATA RECORD**

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
		11						
		12						
		13						
		14	14.00-14.45 U 1					
		15						
		16						
		17						
		18						
		19						

Continued next sheet

Remarks and Water Observations
Drilled by GIP

Scale:	1:50
Logged by:	GIP
Figure:	B

RSK GROUP PLC STATS

BOREHOLE RECORD (Percussive)

Borehole Number: BH2

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 8.50mAOD

Date: 21 Apr 11

Job No: 241458

GROUND WATER | **SAMPLES/TESTS** | **STRATA RECORD**

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
		21						
		22						
		23						
		24				32.20		
		25						
		26						
		27						
		28						
		29						

End of Borehole at 20.05 m

Remarks and Water Observations
Drilled by GIP

Scale:	1:50
Logged by:	GIP
Figure:	B

RSK GROUP PLC STATS

BOREHOLE RECORD (Windowless Sampler)

Borehole Number: WS1

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 6.95mAOD

Dates: 16 Jun 10

Job No.: 241458

GROUND WATER | **SAMPLES/TESTS** | **STRATA RECORD** | Sheet 1 of 2

Strike	Well	Depth (m)	Type/Depth (m)	In-situ Tests	Depth (m)	Level (mAOD)	Key	Description
			ES1 0.25					MADE GROUND: Vegetation at surface over dark brown silty gravelly SAND. Sand is fine to medium. Gravel is subrounded to subangular fine to medium to occasionally coarse flint with frequent concrete, red brick and crushed stone.
			ES2 0.50					
			ES3 0.75					…from 0.75m depth, rare brick and concrete present.
		1	TB1 1.00-1.20 ES4 1.00		1.10	5.85		
			ES5 1.20	S N=32 [4,10](9,8,8,7)				Dense orange brown slightly silty sandy GRAVEL. Sand is fine to coarse. Gravel is subangular to angular fine to coarse to occasional cobbles of flint. (KEMPTON PARK GRAVEL).
		2	TB2 2.00-2.20	S N=68 [9,18](19,18,16,15)				…between 1.80m to 2.00m depth, clayey.
			TB3 2.50					…from 2.50m depth, hole continued by dynamic probing.
		3						
		4						

Continued next sheet

Remarks and Water Observations

Hand pit excuvated to 1.20mbgl prior to commencement of drilling.Window sampling commenced in the base of the hand pit and terminated at 2.5mbgl due to density of the gravels. Dynamic Probing continued from the base of the window sampler borehole to terminated depth, once interface between Kempton Park Gravel Deposits and London Clay Formation had been identified.

Key for Insitu tests
HV-Hand Vane (kN/m2)
PP-Pocket Penotometer (kN/m2)
MP-Mackintosh Probe (N150)

Scale: 1:25

Logged by: AS

Figure: B

RSK GROUP PLC STATS

BOREHOLE RECORD (Windowless Sampler)

Borehole Number: WS1

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 6.95mAOD

Dates: 16 Jun 10

Job No.: 241458

GROUND WATER | SAMPLES/TESTS | STRATA RECORD | Sheet 2 of 2

Strike	Well	Depth (m)	Type/Depth (m)	In-situ Tests	Depth (m)	Level (mAOD)		Key	Description
					5.20	1.75	4.10		LONDON CLAY: inferred from dynamic probing.
		6			5.90	1.05	0.70		***End of Borehole at 5.90 m***
		7							
		8							
		9							

Remarks and Water Observations

Hand pit excuvated to 1.20mbgl prior to commencement of drilling.Window sampling commenced in the base of the hand pit and terminated at 2.5mbgl due to density of the gravels. Dynamic Probing continued from the base of the window sampler borehole to terminated depth, once interface between Kempton Park Gravel Deposits and London Clay Formation had been identified.

Key for Insitu tests
HV-Hand Vane (kN/m2)
PP-Pocket Penotometer (kN/m2)
MP-Mackintosh Probe (N150)

Scale: 1:25

Logged by: AS

Figure: B

RSK GROUP PLC STATS

BOREHOLE RECORD (Windowless Sampler)

Borehole Number: WS2

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 7.25mAOD

Dates: 16 Jun 10

Job No.: 241458

GROUND WATER | **SAMPLES/TESTS** | **STRATA RECORD** | Sheet 1 of 2

Strike	Well	Depth (m)	Type/Depth (m)	In-situ Tests	Depth (m)	Level (mAOD)		Key	Description
			ES1 0.25 J1						MADE GROUND: Vegetation at the surface covering dark brown slightly gravelly silty SAND. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse gravel and occasional cobbles of flint, brick and concrete. Occasional cobbles of concrete and red brick. Rare fragments of glass. Occasional ash and clinker.
			ES2 0.50 J2						
			ES3 0.75 J3						
		1	ES4 1.00 J4	S					
					1.40	5.85	1.40		Dense orange brown slightly silty sandy GRAVEL. Sand is fine to coarse. Gravel is subangular to angular fine to coarse to occasional cobbles of flint. (KEMPTON PARK GRAVEL).
			TB1 1.50-1.70 ES5 1.50 J5	N=40 [1,4](8,9,12,11)					…between 1.80m and 2.00m depth, clayey.
		2			2.00	5.25	0.60		Orange brown slightly silty slightly gravelly fine to medium SAND. Gravel is subangular to angular fine to medium flint. (KEMPTON PARK GRAVEL).
			TB2 2.20-2.50	S	2.20	5.05	0.20		Medium dense orange brown slightly silty fine to medium SAND.(KEMPTON PARK GRAVEL).
				N=22 [2,5](5,6,6,5)					
		3							…@ 3.00m depth, water strike.
				S					
			TB3 3.50-4.00		3.50	3.75	1.30		…between 3.40m and 3.50m depth, band of clayey silty fine sand.
				N=16 [0,0](2,2,6,6)					Dense orange brown slightly silty fine to coarse sandy GRAVEL. Gravel is subangular to angular fine to medium to frequent coarse flint with rare localised clayey sand pockets.(KEMPTON PARK GRAVEL).
		4		S					
				N=35 [2,9](11,11,9,4)					

Continued next sheet

Remarks and Water Observations

Hand pit excuvated to 1.20mbgl prior to commencement of drilling. Window sampling commenced in the base of the hand pit and terminated at 5.0mbgl due to density of the gravels. Dynamic Probing continued from the base of the window sampler borehole to terminated depth, once interface between Kempton Park Gravel Deposits and London Clay Formation had been identified. Groundwater was encountered at 3.0mbgl.

Key for Insitu tests
HV-Hand Vane (kN/m2)
PP-Pocket Penotometer (kN/m2)
MP-Mackintosh Probe (N150)

Scale: 1:25

Logged by: AS

Figure: B

RSK GROUP PLC STATS

BOREHOLE RECORD (Windowless Sampler)

Borehole Number: WS2

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 7.25mAOD

Dates: 16 Jun 10

Job No.: 241458

GROUND WATER | **SAMPLES/TESTS** | **STRATA RECORD**

Strike	Well	Depth (m)	Type/Depth (m)	In-situ Tests	Depth (m)	Level (mAOD)		Key	Description
		6							…from 5.0m, hole continued by dynamic probing.
					6.40	0.85	2.90		LONDON CLAY: inferred from dynamic probing
		7			6.90	0.35	0.50		***End of Borehole at 6.90 m***
		8							
		9							

Remarks and Water Observations

Hand pit excuvated to 1.20mbgl prior to commencement of drilling. Window sampling commenced in the base of the hand pit and terminated at 5.0mbgl due to density of the gravels. Dynamic Probing continued from the base of the window sampler borehole to terminated depth, once interface between Kempton Park Gravel Deposits and London Clay Formation had been identified. Groundwater was encountered at 3.0mbgl.

Key for Insitu tests
HV-Hand Vane (kN/m2)
PP-Pocket Penotometer (kN/m2)
MP-Mackintosh Probe (N150)

Scale: 1:25

Logged by: AS

Figure: B

RSK GROUP PLC | STATS

BOREHOLE RECORD (Windowless Sampler)

Borehole Number: WS3

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 6.70mAOD

Dates: 16 Jun 10

Job No.: 241458

GROUND WATER | SAMPLES/TESTS | STRATA RECORD | Sheet 1 of 1

Strike	Well	Depth (m)	Type/Depth (m)	In-situ Tests	Depth (m)	Level (mAOD)	Key	Description
			ES1 0.25					MADE GROUND: Vegetation and brick rubble at the surface over dark brown gravelly silty fine to medium SAND. Gravel is subrounded to angular fine to coarse gravel and occasional cobbles of flint, red brick and concrete with frequent glass and metal fragments. Occasional ash, clinker and rare possible asbestos fragments present.
			ES2 0.50					
			ES3 0.75		0.80	5.90		
		1	ES4 1.00					Orange and brown slightly silty sandy GRAVEL. Sand is fine to coarse. Gravel is subangular to angular fine to coarse flint with rare localised pockets of fine clay. (KEMPTON PARK GRAVEL).
					1.20	5.50		***End of Borehole at 1.20 m***
		2						
		3						
		4						

Remarks and Water Observations

Hand pit excuvated to 1.20mbgl prior to commencement of drilling. Window sampling was not continued past the depth of the hand pit, due to not being able to get the rig on location.

Key for Insitu tests
HV-Hand Vane (kN/m2)
PP-Pocket Penotometer (kN/m2)
MP-Mackintosh Probe (N150)

Scale: 1:25

Logged by: AS

Figure: B

RSK GROUP PLC STATS

BOREHOLE RECORD (Windowless Sampler)

Borehole Number: WS4

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 6.69mAOD

Dates: 7 Jun 10

Job No.: 241458

GROUND WATER | **SAMPLES/TESTS** | **STRATA RECORD** | Sheet 1 of 2

Strike	Well	Depth (m)	Type/Depth (m)	In-situ Tests	Depth (m)	Level (mAOD)		Key	Description
			J1 0.25 TB1						MADE GROUND: Vegetation and crushed stone at surface over brown, silty, fine sand GRAVEL. Gravel is subrounded to angular, fine to predominately coarse gravel and frequent cobbles of flint, with occasional red brick and rare wood, tile, glass and concrete.
			J2 0.50 TB2						
			J3 0.75 TB3		0.80	5.89	0.80		
		1	D1 1.00 J4 TB4	c					Orange brown very gravelly fine to medium SAND. Gravel is subrounded to subangular flint, with occasional subrounded cobbles of flint and pockets of silty fine sand. (KEMPTON PARK GRAVEL).
			D3 1.50-2.00	N=40 [0,0](9,13,10,8)					… at 1.20m depth, water seepage into pit, presumably from unknown pipe struck 1m to the southeast.
		2	D2 2.00 J5 TB5 D4 2.20 TB6	c N=64 [3,10](14,17,17,16)					…from 2.2m, hole continued by dynamic probing.
		3							
		4							

Continued next sheet

Remarks and Water Observations

Hand pit excuvated to 1.20mbgl prior to commencement of drilling. Original hand pit located an unknown service (waste water pipe) at 0.80mbgl. Location of the WS hole was moved northwest by 1.0m. Window sampling commenced in the base of the hand pit and terminated at 2.20mbgl due to density of the gravels. Dynamic Probing continued from the base of the window sampler borehole to terminated depth, once interface between Kempton Park Gravel Deposits and

Key for Insitu tests
HV-Hand Vane (kN/m2)
PP-Pocket Penotometer (kN/m2)
MP-Mackintosh Probe (N150)

Scale: 1:25

Logged by: AS

Figure: B

RSK GROUP PLC STATS

BOREHOLE RECORD (Windowless Sampler)

Borehole Number: WS4

Site: Twickenham Railway Station

Location: Twickenham Railway Station

Client: Solum Regeneration

Ground Level: 6.69mAOD

Dates: 7 Jun 10

Job No.: 241458

GROUND WATER | **SAMPLES/TESTS** | **STRATA RECORD** | Sheet 2 of 2

Strike	Well	Depth (m)	Type/Depth (m)	In-situ Tests	Depth (m)	Level (mAOD)		Key	Description
					5.20	1.49	4.40		LONDON CLAY inferred by dynamic probing.
		6							
					6.90	-0.21	1.70		***End of Borehole at 6.90 m***
		7							
		8							
		9							

Remarks and Water Observations

Hand pit excuvated to 1.20mbgl prior to commencement of drilling. Original hand pit located an unknown service (waste water pipe) at 0.80mbgl. Location of the WS hole was moved northwest by 1.0m. Window sampling commenced in the base of the hand pit and terminated at 2.20mbgl due to density of the gravels. Dynamic Probing continued from the base of the window sampler borehole to terminated depth, once interface between Kempton Park Gravel Deposits and

Key for Insitu tests
HV-Hand Vane (kN/m2)
PP-Pocket Penotometer (kN/m2)
MP-Mackintosh Probe (N150)

Scale: 1:25

Logged by: AS

Figure: B

Appendix D. Groundwater Monitoring Results

Twickenham Railway Station, London Road

Water Monitoring Record

Location	Date *(am/pm)*	Conductivity uS/cm *(at 25 degrees)*	Total Dissolved Soilds *(ppm)*	Dissolved Oxygen *(ppm)*	pH	Temperature *(deg C)*	Sampling Method	Water Level (m.bgl)	Base of Borehole (m.bgl)	Comments
BHA	1st JULY10 (pm)	950	665	17.19	6.29	15.23	Bailer	5.100	5.60	light brown, cloudy-medium solid content, no odour, no sheen, no floating product
	19th AUGUST 10									
BHD	1st JULY10 (pm)	354	248	45.74	5.22	15.96	Bailer	4.180	7.00	light brown, cloudy-medium solid content, no odour, no sheen, no floating product
	19th AUGUST 10									
BHF	1st JULY10 (pm)	610	428	24.34	6.27	14.96	Bailer	3.880	6.12	light brown/orange, cloudy-medium solid content, no odour, no sheen, no floating product
	19th AUGUST 10									
River 1	1st JULY10 (pm)	616	431	14.84	7.74	22.1	Bucket	n/a	n/a	Clear, no odour, no sheen
	19th AUGUST 10							n/a	n/a	
River 2	1st JULY10 (pm)	659	463	8.15	7.95	24.1	Bucket	n/a	n/a	Clear, no odour, no sheen
	19th AUGUST 10							n/a	n/a	
River 3	1st JULY10 (pm)	631	442	8.59	8.11	23.2	Bucket	n/a	n/a	Clear, no odour, no sheen
	19th AUGUST 10							n/a	n/a	

Appendix E. Ground Gas Monitoring Results

Gas Summary Sheet

Location	Date	Baro Pressure (m.bar)	Rel Pressure (m.bar)	Flow Rate (l/hr)	CH4 (% vol)		CO2 (% vol)		O2 (% vol)		Water Level (m.bgl)	Base of Borehole (m.bgl)	Comments
					peak	steady	peak	steady	peak	steady			
BHA	1st JULY10	1009	0.84	0.2		<0.1		6.8		10.2	5.100	5.60	
	15th JULY 10	1006	0.08	0.1		<0.1		3.5		15.8	5.060	5.57	
	5th AUG 10	1010	-0.12	0		<0.1		6.2		12.9	5.100	5.57	
	19th AUG 10												
	2nd SEPT 10												
	16th SEPT 10												
BHD	1st JULY10	1009	0.57	0.2		<0.1		6		12	4.180	7.00	
	15th JULY 10	1006	0.08	0.1		<0.1		10.5		6.7	3.900	6.11	
	5th AUG 10	1010	-0.12	0		<0.1		7.3		9.9	4.230	6.94	
	19th AUG 10												
	2nd SEPT 10												
	16th SEPT 10												
BHF	1st JULY10	1009	0.57	0.2		<0.1		10.7		5	3.880	6.12	
	15th JULY 10	1006	0.08	0.1		<0.1		6.8		11.2	4.190	6.93	
	5th AUG 10	1010	-0.12	0.1		<0.1		14.3		4	4.940	6.09	
	19th AUG 10												
	2nd SEPT 10												
	16th SEPT 10												

Appendix F. Results of Laboratory Analysis (Chemtest)

- Waste Acceptance Criteria (WAC) testing (10 pages)
- Soil (28 pages)
- Water (7 pages)

LABORATORY TEST REPORT

Waste Acceptance Criteria Waste Parameters

RSK STATS Geoconsult Ltd
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT
FAO Andrea Grossey

Results of analysis of 5 samples
received 21 July 2010
Twickenham Railway Station - 241458

Report Date
28 July 2010

Login Batch No								113013
Chemtest LIMS ID					Limit values			AF14408
Sample ID					Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill	BHA
Sample No								
Depth								0.5m - 2m
Matrix								*SOIL*
Determinand↓	SOP↓	*	CAS No↓	Units↓				
Total Organic Carbon	2625	M		%	3	5	6	1.1
Loss on ignition	2610	N		%			10	2.74
Benzene	2760	M	71432	µg kg-¹				< 1
Toluene	2760	M	108883	µg kg-¹				< 1
Ethyl benzene	2760	M	100414	µg kg-¹				< 1
m- & p-Xylene	2760	M	1330207	µg kg-¹				< 1
o-Xylene	2760	M	95476	µg kg-¹				< 1
Total BTEX	2761	M		mg kg-¹	6			<0.005
PCB 28	2810	N	7012375	mg kg-¹				<0.1
PCB 52	2810	N	35693993	mg kg-¹				<0.1
PCB 101	2810	N	37680732	mg kg-¹				<0.1
PCB 118	2810	N	31508006	mg kg-¹				<0.1
PCB 138	2810	N	35065282	mg kg-¹				<0.1
PCB 153	2810	N	35065271	mg kg-¹				<0.1
PCB 180	2810	N	35065293	mg kg-¹				<0.1
Total PCBs (7 congeners)	2811	N		mg kg-¹	1			<1
Naphthalene	2700	M	91203	mg kg-¹				<0.1
Acenaphthylene	2700	M	208968	mg kg-¹				<0.1
Acenaphthene	2700	M	83329	mg kg-¹				<0.1
Fluorene	2700	M	86737	mg kg-¹				<0.1
Phenanthrene	2700	M	85018	mg kg-¹				1.4
Anthracene	2700	M	120127	mg kg-¹				0.4
Fluoranthene	2700	M	206440	mg kg-¹				3.3
Pyrene	2700	M	129000	mg kg-¹				2.9
Benzo[a]anthracene	2700	M	56553	mg kg-¹				1.6
Chrysene	2700	M	218019	mg kg-¹				1.8
Benzo[b]fluoranthene	2700	M	205992	mg kg-¹				2.4
Benzo[k]fluoranthene	2700	M	207089	mg kg-¹				1.3
Benzo[a]pyrene	2700	M	50328	mg kg-¹				2.4
Dibenzo[a,h]anthracene	2700	M	53703	mg kg-¹				1.6
Indeno[1,2,3-cd]pyrene	2700	M	193395	mg kg-¹				0.4
Benzo[g,h,i]perylene	2700	M	191242	mg kg-¹				1.3
Coronene	2700	N	191071	mg kg-¹				<0.1
Total (of 17) PAHs	2700	N		mg kg-¹	100			21
pH	2010	M		-		>6		9.4
Acid Neutralisation Capacity	2015	N	ANC	mol kg-¹		To evaluate	To evaluate	0.017
TPH Total WAC	2670	N		mg kg-¹	500			23

All tests undertaken between 21-Jul-2010 and 28-Jul-2010

Column page 1

* Accreditation status

Report sample ID range AF14408 to AF15181

This report should be interpreted in conjunction with the notes on the accompanying cover page

LABORATORY TEST REPORT

Waste Acceptance Criteria Waste Parameters

RSK STATS Geoconsult Ltd
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT
FAO Andrea Grossey

Results of analysis of 5 samples
received 21 July 2010
Twickenham Railway Station - 241458

Report Date
28 July 2010

Login Batch No								113013
Chemtest LIMS ID								AF14409
Sample ID								BHB
Sample No								
Depth								0.5m - 3m
Matrix								*SOIL*
Determinand↓	SOP↓		CAS No↓	Units↓				
Total Organic Carbon	2625	M		%	3	5	6	0.91
Loss on ignition	2610	N		%			10	2.37
Benzene	2760	M	71432	µg kg-¹				< 1
Toluene	2760	M	108883	µg kg-¹				< 1
Ethyl benzene	2760	M	100414	µg kg-¹				< 1
m- & p-Xylene	2760	M	1330207	µg kg-¹				< 1
o-Xylene	2760	M	95476	µg kg-¹				< 1
Total BTEX	2761	M		mg kg-¹	6			<0.005
PCB 28	2810	N	7012375	mg kg-¹				<0.1
PCB 52	2810	N	35693993	mg kg-¹				<0.1
PCB 101	2810	N	37680732	mg kg-¹				<0.1
PCB 118	2810	N	31508006	mg kg-¹				<0.1
PCB 138	2810	N	35065282	mg kg-¹				<0.1
PCB 153	2810	N	35065271	mg kg-¹				<0.1
PCB 180	2810	N	35065293	mg kg-¹				<0.1
Total PCBs (7 congeners)	2811	N		mg kg-¹	1			<1
Naphthalene	2700	M	91203	mg kg-¹				<0.1
Acenaphthylene	2700	M	208968	mg kg-¹				0.4
Acenaphthene	2700	M	83329	mg kg-¹				0.7
Fluorene	2700	M	86737	mg kg-¹				0.3
Phenanthrene	2700	M	85018	mg kg-¹				6.9
Anthracene	2700	M	120127	mg kg-¹				1.3
Fluoranthene	2700	M	206440	mg kg-¹				9.8
Pyrene	2700	M	129000	mg kg-¹				8.8
Benzo[a]anthracene	2700	M	56553	mg kg-¹				3.7
Chrysene	2700	M	218019	mg kg-¹				3.4
Benzo[b]fluoranthene	2700	M	205992	mg kg-¹				3.9
Benzo[k]fluoranthene	2700	M	207089	mg kg-¹				2.3
Benzo[a]pyrene	2700	M	50328	mg kg-¹				4
Dibenzo[a,h]anthracene	2700	M	53703	mg kg-¹				2.5
Indeno[1,2,3-cd]pyrene	2700	M	193395	mg kg-¹				0.7
Benzo[g,h,i]perylene	2700	M	191242	mg kg-¹				2.2
Coronene	2700	N	191071	mg kg-¹				<0.1
Total (of 17) PAHs	2700	N		mg kg-¹	100			51
pH	2010	M		-		>6		9.0
Acid Neutralisation Capacity	2015	N	ANC	mol kg-¹		To evaluate	To evaluate	0.029
TPH Total WAC	2670	N		mg kg-¹	500			150

All tests undertaken between 21-Jul-2010 and 28-Jul-2010

Report sample ID range AF14408 to AF15181

This report should be interpreted in conjunction with the notes on the accompanying cover page

LABORATORY TEST REPORT

Waste Acceptance Criteria Waste Parameters

RSK STATS Geoconsult Ltd
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT
FAO Andrea Grossey

Results of analysis of 5 samples
received 21 July 2010
Twickenham Railway Station - 241458

Report Date
28 July 2010

Login Batch No								113013
Chemtest LIMS ID								AF14410
Sample ID								BHC
Sample No								
Depth								2m - 3.5m
Matrix								*SOIL*
Determinand↓	SOP↓		CAS No↓	Units↓				
Total Organic Carbon	2625	M		%	3	5	6	1.8
Loss on ignition	2610	N		%			10	3.41
Benzene	2760	M	71432	µg kg-¹				< 1
Toluene	2760	M	108883	µg kg-¹				< 1
Ethyl benzene	2760	M	100414	µg kg-¹				< 1
m- & p-Xylene	2760	M	1330207	µg kg-¹				< 1
o-Xylene	2760	M	95476	µg kg-¹				< 1
Total BTEX	2761	M		mg kg-¹	6			<0.005
PCB 28	2810	N	7012375	mg kg-¹				<0.1
PCB 52	2810	N	35693993	mg kg-¹				<0.1
PCB 101	2810	N	37680732	mg kg-¹				<0.1
PCB 118	2810	N	31508006	mg kg-¹				<0.1
PCB 138	2810	N	35065282	mg kg-¹				<0.1
PCB 153	2810	N	35065271	mg kg-¹				<0.1
PCB 180	2810	N	35065293	mg kg-¹				<0.1
Total PCBs (7 congeners)	2811	N		mg kg-¹	1			<1
Naphthalene	2700	M	91203	mg kg-¹				0.2
Acenaphthylene	2700	M	208968	mg kg-¹				<0.1
Acenaphthene	2700	M	83329	mg kg-¹				<0.1
Fluorene	2700	M	86737	mg kg-¹				<0.1
Phenanthrene	2700	M	85018	mg kg-¹				1.5
Anthracene	2700	M	120127	mg kg-¹				<0.1
Fluoranthene	2700	M	206440	mg kg-¹				2.5
Pyrene	2700	M	129000	mg kg-¹				2.3
Benzo[a]anthracene	2700	M	56553	mg kg-¹				1
Chrysene	2700	M	218019	mg kg-¹				1
Benzo[b]fluoranthene	2700	M	205992	mg kg-¹				1.6
Benzo[k]fluoranthene	2700	M	207089	mg kg-¹				0.7
Benzo[a]pyrene	2700	M	50328	mg kg-¹				3.2
Dibenzo[a,h]anthracene	2700	M	53703	mg kg-¹				0.7
Indeno[1,2,3-cd]pyrene	2700	M	193395	mg kg-¹				0.2
Benzo[g,h,i]perylene	2700	M	191242	mg kg-¹				0.8
Coronene	2700	N	191071	mg kg-¹				<0.1
Total (of 17) PAHs	2700	N		mg kg-¹	100			16
pH	2010	M		-		>6		7.7
Acid Neutralisation Capacity	2015	N	ANC	mol kg-¹		To evaluate	To evaluate	0.005
TPH Total WAC	2670	N		mg kg-¹	500			22

All tests undertaken between 21-Jul-2010 and 28-Jul-2010

Column page 3

Report sample ID range AF14408 to AF15181

This report should be interpreted in conjunction with the notes on the accompanying cover page

LABORATORY TEST REPORT

Waste Acceptance Criteria Waste Parameters

RSK STATS Geoconsult Ltd
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT
FAO Andrea Grossey

Results of analysis of 5 samples
received 21 July 2010
Twickenham Railway Station - 241458

Report Date
28 July 2010

Login Batch No								113013
Chemtest LIMS ID								AF15178
Sample ID								BHE
Sample No								
Depth								0.5m - 1.5m
Matrix								*SOIL*
Determinand↓	SOP↓		CAS No↓	Units↓				
Total Organic Carbon	2625	M		%	3	5	6	3.4
Loss on ignition	2610	N		%			10	4.91
Benzene	2760	M	71432	µg kg-¹				< 1
Toluene	2760	M	108883	µg kg-¹				< 1
Ethyl benzene	2760	M	100414	µg kg-¹				< 1
m- & p-Xylene	2760	M	1330207	µg kg-¹				< 1
o-Xylene	2760	M	95476	µg kg-¹				< 1
Total BTEX	2761	M		mg kg-¹	6			<0.005
PCB 28	2810	N	7012375	mg kg-¹				<0.1
PCB 52	2810	N	35693993	mg kg-¹				<0.1
PCB 101	2810	N	37680732	mg kg-¹				<0.1
PCB 118	2810	N	31508006	mg kg-¹				<0.1
PCB 138	2810	N	35065282	mg kg-¹				<0.1
PCB 153	2810	N	35065271	mg kg-¹				<0.1
PCB 180	2810	N	35065293	mg kg-¹				<0.1
Total PCBs (7 congeners)	2811	N		mg kg-¹	1			<1
Naphthalene	2700	M	91203	mg kg-¹				<0.1
Acenaphthylene	2700	M	208968	mg kg-¹				<0.1
Acenaphthene	2700	M	83329	mg kg-¹				<0.1
Fluorene	2700	M	86737	mg kg-¹				<0.1
Phenanthrene	2700	M	85018	mg kg-¹				1
Anthracene	2700	M	120127	mg kg-¹				0.2
Fluoranthene	2700	M	206440	mg kg-¹				2
Pyrene	2700	M	129000	mg kg-¹				1.9
Benzo[a]anthracene	2700	M	56553	mg kg-¹				1
Chrysene	2700	M	218019	mg kg-¹				1.2
Benzo[b]fluoranthene	2700	M	205992	mg kg-¹				1.5
Benzo[k]fluoranthene	2700	M	207089	mg kg-¹				1.1
Benzo[a]pyrene	2700	M	50328	mg kg-¹				1.3
Dibenzo[a,h]anthracene	2700	M	53703	mg kg-¹				0.9
Indeno[1,2,3-cd]pyrene	2700	M	193395	mg kg-¹				0.4
Benzo[g,h,i]perylene	2700	M	191242	mg kg-¹				0.7
Coronene	2700	N	191071	mg kg-¹				<0.1
Total (of 17) PAHs	2700	N		mg kg-¹	100			13
pH	2010	M		-		>6		9.6
Acid Neutralisation Capacity	2015	N	ANC	mol kg-¹		To evaluate	To evaluate	0.034
TPH Total WAC	2670	N		mg kg-¹	500			25

All tests undertaken between 21-Jul-2010 and 28-Jul-2010

Column page 4

Report sample ID range AF14408 to AF15181

This report should be interpreted in conjunction with the notes on the accompanying cover page

LABORATORY TEST REPORT

Waste Acceptance Criteria Waste Parameters

RSK STATS Geoconsult Ltd
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT
FAO Andrea Grossey

Results of analysis of 5 samples
received 21 July 2010
Twickenham Railway Station - 241458

Report Date
28 July 2010

Login Batch No								113013
Chemtest LIMS ID								AF15179
Sample ID								BHF
Sample No								
Depth								0.5m - 1m
Matrix								*SOIL*
Determinand↓	SOP↓		CAS No↓	Units↓				
Total Organic Carbon	2625	M		%	3	5	6	3.2
Loss on ignition	2610	N		%			10	2.88
Benzene	2760	M	71432	µg kg-¹				< 1
Toluene	2760	M	108883	µg kg-¹				< 1
Ethyl benzene	2760	M	100414	µg kg-¹				< 1
m- & p-Xylene	2760	M	1330207	µg kg-¹				< 1
o-Xylene	2760	M	95476	µg kg-¹				< 1
Total BTEX	2761	M		mg kg-¹	6			<0.005
PCB 28	2810	N	7012375	mg kg-¹				<0.1
PCB 52	2810	N	35693993	mg kg-¹				<0.1
PCB 101	2810	N	37680732	mg kg-¹				<0.1
PCB 118	2810	N	31508006	mg kg-¹				<0.1
PCB 138	2810	N	35065282	mg kg-¹				<0.1
PCB 153	2810	N	35065271	mg kg-¹				<0.1
PCB 180	2810	N	35065293	mg kg-¹				<0.1
Total PCBs (7 congeners)	2811	N		mg kg-¹	1			<1
Naphthalene	2700	M	91203	mg kg-¹				<0.1
Acenaphthylene	2700	M	208968	mg kg-¹				0.3
Acenaphthene	2700	M	83329	mg kg-¹				<0.1
Fluorene	2700	M	86737	mg kg-¹				0.2
Phenanthrene	2700	M	85018	mg kg-¹				4.6
Anthracene	2700	M	120127	mg kg-¹				1
Fluoranthene	2700	M	206440	mg kg-¹				8.8
Pyrene	2700	M	129000	mg kg-¹				7.3
Benzo[a]anthracene	2700	M	56553	mg kg-¹				4
Chrysene	2700	M	218019	mg kg-¹				4.4
Benzo[b]fluoranthene	2700	M	205992	mg kg-¹				3.8
Benzo[k]fluoranthene	2700	M	207089	mg kg-¹				4.3
Benzo[a]pyrene	2700	M	50328	mg kg-¹				4.8
Dibenzo[a,h]anthracene	2700	M	53703	mg kg-¹				3
Indeno[1,2,3-cd]pyrene	2700	M	193395	mg kg-¹				0.8
Benzo[g,h,i]perylene	2700	M	191242	mg kg-¹				3.1
Coronene	2700	N	191071	mg kg-¹				<0.1
Total (of 17) PAHs	2700	N		mg kg-¹	100			50
pH	2010	M		-		>6		9.6
Acid Neutralisation Capacity	2015	N	ANC	mol kg-¹		To evaluate	To evaluate	0.022
TPH Total WAC	2670	N		mg kg-¹	500			160

All tests undertaken between 21-Jul-2010 and 28-Jul-2010

Column page 5

Report sample ID range AF14408 to AF15181

LABORATORY TEST REPORT

Waste Acceptance Criteria BS EN 12457 Part 3 2 Stage

RSK STATS Geoconsult Ltd
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT
FAO Andrea Grossey

Results of analysis of 5 samples
received 21 July 2010
Twickenham Railway Station - 241458

Report Date
28 July 2010

Login Batch No								113013
Chemtest LIMS ID					Limit values			AF14413
Sample ID					Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill	BHA
Sample No								
Depth								0.5m - 2m
Matrix								*LEACHATE*
Determinand↓	SOP↓	*	CAS No↓	Units↓				
As (arsenic) L/S=2	1450	N	7440382	mg kg-1				<0.05
Ba (barium) L/S=2	1450	N	7440393	mg kg-1				<0.5
Cd (cadmium) L/S=2	1450	N	7440439	mg kg-1				<0.01
Cr (chromium) L/S=2	1450	N	7440473	mg kg-1				<0.05
Cu (copper) L/S=2	1450	N	7440508	mg kg-1				0.07
Hg (mercury) L/S=2	1450	N	7439976	mg kg-1				<0.005
Mo (molybdenum) L/S=2	1450	N	7439987	mg kg-1				0.15
Ni (nickel) L/S=2	1450	N	7440020	mg kg-1				<0.05
Pb (lead) L/S=2	1450	N	7439921	mg kg-1				<0.05
Sb (antimony) L/S=2	1450	N	7440360	mg kg-1				0.01
Se (selenium) L/S=2	1450	N	7782492	mg kg-1				0.01
Zn (zinc) L/S=2	1450	N	7440666	mg kg-1				<0.5
Cl (chloride) L/S=2	1220	N	16887006	mg kg-1				50
F (fluoride) L/S=2	1220	N	16984488	mg kg-1				2.4
SO4 (sulfate) L/S=2	1220	N	14808798	mg kg-1				148
Total Dissolved Solids L/S=2	1610	N	TDS	mg kg-1				540
Phenol index L/S=2	1920	N	108952	mg kg-1				<0.5
Dissolved Organic Carbon L/S=2	1610	N	DOC	mg kg-1				74.1
As (arsenic) L/S=10	1450	N	7440382	mg kg-1	0.5	2	25	<0.05
Ba (barium) L/S=10	1450	N	7440393	mg kg-1	20	100	300	<0.5
Cd (cadmium) L/S=10	1450	N	7440439	mg kg-1	0.04	1	5	<0.01
Cr (chromium) L/S=10	1450	N	7440473	mg kg-1	0.5	10	70	<0.05
Cu (copper) L/S=10	1450	N	7440508	mg kg-1	2	50	100	0.12
Hg (mercury) L/S=10	1450	N	7439976	mg kg-1	0.01	0.2	2	<0.005
Mo (molybdenum) L/S=10	1450	N	7439987	mg kg-1	0.5	10	30	0.17
Ni (nickel) L/S=10	1450	N	7440020	mg kg-1	0.4	10	40	<0.05
Pb (lead) L/S=10	1450	N	7439921	mg kg-1	0.5	10	50	<0.05
Sb (antimony) L/S=10	1450	N	7440360	mg kg-1	0.06	0.7	5	<0.01
Se (selenium) L/S=10	1450	N	7782492	mg kg-1	0.1	0.5	7	0.01
Zn (zinc) L/S=10	1450	N	7440666	mg kg-1	4	50	200	<0.5
Cl (chloride) L/S=10	1220	N	16887006	mg kg-1	800	15000	25000	81
F (fluoride) L/S=10	1220	N	16984488	mg kg-1	10	150	500	6.31
SO4 (sulfate) L/S=10	1220	N	14808798	mg kg-1	1000	20000	50000	262
Total Dissolved Solids L/S=10	1610	N	TDS	mg kg-1	4000	60000	100000	1320
Phenol index L/S=10	1920	N	108952	mg kg-1	1			<0.5
Dissolved Organic Carbon L/S=10	1610	N	DOC	mg kg-1	500	800	1000	278

All tests undertaken between 21-Jul-2010 and 28-Jul-2010

* Accreditation status

Report sample ID range AF14408 to AF15181

LABORATORY TEST REPORT

Waste Acceptance Criteria BS EN 12457 Part 3 2 Stage

RSK STATS Geoconsult Ltd
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT
FAO Andrea Grossey

Results of analysis of 5 samples
received 21 July 2010
Twickenham Railway Station - 241458

Report Date
28 July 2010

Login Batch No								113013
Chemtest LIMS ID								AF14414
Sample ID								BHB
Sample No								
Depth								0.5m - 3m
Matrix								*LEACHATE*
Determinand↓	SOP↓		CAS No↓	Units↓				
As (arsenic) L/S=2	1450	N	7440382	mg kg-¹				<0.05
Ba (barium) L/S=2	1450	N	7440393	mg kg-¹				<0.5
Cd (cadmium) L/S=2	1450	N	7440439	mg kg-¹				<0.01
Cr (chromium) L/S=2	1450	N	7440473	mg kg-¹				0.08
Cu (copper) L/S=2	1450	N	7440508	mg kg-¹				<0.05
Hg (mercury) L/S=2	1450	N	7439976	mg kg-¹				<0.005
Mo (molybdenum) L/S=2	1450	N	7439987	mg kg-¹				0.1
Ni (nickel) L/S=2	1450	N	7440020	mg kg-¹				<0.05
Pb (lead) L/S=2	1450	N	7439921	mg kg-¹				<0.05
Sb (antimony) L/S=2	1450	N	7440360	mg kg-¹				0.01
Se (selenium) L/S=2	1450	N	7782492	mg kg-¹				0.01
Zn (zinc) L/S=2	1450	N	7440666	mg kg-¹				<0.5
Cl (chloride) L/S=2	1220	N	16887006	mg kg-¹				66
F (fluoride) L/S=2	1220	N	16984488	mg kg-¹				<1
SO4 (sulfate) L/S=2	1220	N	14808798	mg kg-¹				941
Total Dissolved Solids L/S=2	1610	N	TDS	mg kg-¹				1560
Phenol index L/S=2	1920	N	108952	mg kg-¹				<0.5
Dissolved Organic Carbon L/S=2	1610	N	DOC	mg kg-¹				<50
As (arsenic) L/S=10	1450	N	7440382	mg kg-¹	0.5	2	25	<0.05
Ba (barium) L/S=10	1450	N	7440393	mg kg-¹	20	100	300	<0.5
Cd (cadmium) L/S=10	1450	N	7440439	mg kg-¹	0.04	1	5	<0.01
Cr (chromium) L/S=10	1450	N	7440473	mg kg-¹	0.5	10	70	0.11
Cu (copper) L/S=10	1450	N	7440508	mg kg-¹	2	50	100	<0.05
Hg (mercury) L/S=10	1450	N	7439976	mg kg-¹	0.01	0.2	2	<0.005
Mo (molybdenum) L/S=10	1450	N	7439987	mg kg-¹	0.5	10	30	0.11
Ni (nickel) L/S=10	1450	N	7440020	mg kg-¹	0.4	10	40	<0.05
Pb (lead) L/S=10	1450	N	7439921	mg kg-¹	0.5	10	50	<0.05
Sb (antimony) L/S=10	1450	N	7440360	mg kg-¹	0.06	0.7	5	0.01
Se (selenium) L/S=10	1450	N	7782492	mg kg-¹	0.1	0.5	7	0.01
Zn (zinc) L/S=10	1450	N	7440666	mg kg-¹	4	50	200	<0.5
Cl (chloride) L/S=10	1220	N	16887006	mg kg-¹	800	15000	25000	82.4
F (fluoride) L/S=10	1220	N	16984488	mg kg-¹	10	150	500	2.52
SO4 (sulfate) L/S=10	1220	N	14808798	mg kg-¹	1000	20000	50000	1090
Total Dissolved Solids L/S=10	1610	N	TDS	mg kg-¹	4000	60000	100000	2510
Phenol index L/S=10	1920	N	108952	mg kg-¹	1			<0.5
Dissolved Organic Carbon L/S=10	1610	N	DOC	mg kg-¹	500	800	1000	159

All tests undertaken between 21-Jul-2010 and 28-Jul-2010

Report sample ID range AF14408 to AF15181

This report should be interpreted in conjunction with the notes on the accompanying cover page

LABORATORY TEST REPORT

Waste Acceptance Criteria BS EN 12457 Part 3 2 Stage

RSK STATS Geoconsult Ltd
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT
FAO Andrea Grossey

Results of analysis of 5 samples
received 21 July 2010
Twickenham Railway Station - 241458

Report Date
28 July 2010

Login Batch No								113013
Chemtest LIMS ID								AF14415
Sample ID								BHC
Sample No								
Depth								2m - 3.5m
Matrix								*LEACHATE*
Determinand↓	SOP↓		CAS No↓	Units↓				
As (arsenic) L/S=2	1450	N	7440382	mg kg-¹				<0.05
Ba (barium) L/S=2	1450	N	7440393	mg kg-¹				<0.5
Cd (cadmium) L/S=2	1450	N	7440439	mg kg-¹				<0.01
Cr (chromium) L/S=2	1450	N	7440473	mg kg-¹				<0.05
Cu (copper) L/S=2	1450	N	7440508	mg kg-¹				<0.05
Hg (mercury) L/S=2	1450	N	7439976	mg kg-¹				<0.005
Mo (molybdenum) L/S=2	1450	N	7439987	mg kg-¹				<0.05
Ni (nickel) L/S=2	1450	N	7440020	mg kg-¹				<0.05
Pb (lead) L/S=2	1450	N	7439921	mg kg-¹				<0.05
Sb (antimony) L/S=2	1450	N	7440360	mg kg-¹				<0.01
Se (selenium) L/S=2	1450	N	7782492	mg kg-¹				0.01
Zn (zinc) L/S=2	1450	N	7440666	mg kg-¹				<0.5
Cl (chloride) L/S=2	1220	N	16887006	mg kg-¹				36
F (fluoride) L/S=2	1220	N	16984488	mg kg-¹				1.28
SO4 (sulfate) L/S=2	1220	N	14808798	mg kg-¹				122
Total Dissolved Solids L/S=2	1610	N	TDS	mg kg-¹				561
Phenol index L/S=2	1920	N	108952	mg kg-¹				<0.5
Dissolved Organic Carbon L/S=2	1610	N	DOC	mg kg-¹				82.1
As (arsenic) L/S=10	1450	N	7440382	mg kg-¹	0.5	2	25	<0.05
Ba (barium) L/S=10	1450	N	7440393	mg kg-¹	20	100	300	<0.5
Cd (cadmium) L/S=10	1450	N	7440439	mg kg-¹	0.04	1	5	<0.01
Cr (chromium) L/S=10	1450	N	7440473	mg kg-¹	0.5	10	70	<0.05
Cu (copper) L/S=10	1450	N	7440508	mg kg-¹	2	50	100	<0.05
Hg (mercury) L/S=10	1450	N	7439976	mg kg-¹	0.01	0.2	2	<0.005
Mo (molybdenum) L/S=10	1450	N	7439987	mg kg-¹	0.5	10	30	<0.05
Ni (nickel) L/S=10	1450	N	7440020	mg kg-¹	0.4	10	40	<0.05
Pb (lead) L/S=10	1450	N	7439921	mg kg-¹	0.5	10	50	<0.05
Sb (antimony) L/S=10	1450	N	7440360	mg kg-¹	0.06	0.7	5	<0.01
Se (selenium) L/S=10	1450	N	7782492	mg kg-¹	0.1	0.5	7	<0.01
Zn (zinc) L/S=10	1450	N	7440666	mg kg-¹	4	50	200	<0.5
Cl (chloride) L/S=10	1220	N	16887006	mg kg-¹	800	15000	25000	104
F (fluoride) L/S=10	1220	N	16984488	mg kg-¹	10	150	500	5.83
SO4 (sulfate) L/S=10	1220	N	14808798	mg kg-¹	1000	20000	50000	191
Total Dissolved Solids L/S=10	1610	N	TDS	mg kg-¹	4000	60000	100000	1280
Phenol index L/S=10	1920	N	108952	mg kg-¹	1			<0.5
Dissolved Organic Carbon L/S=10	1610	N	DOC	mg kg-¹	500	800	1000	239

All tests undertaken between 21-Jul-2010 and 28-Jul-2010

Column page 3

Report sample ID range AF14408 to AF15181

This report should be interpreted in conjunction with the notes on the accompanying cover page

LABORATORY TEST REPORT

Waste Acceptance Criteria BS EN 12457 Part 3 2 Stage

RSK STATS Geoconsult Ltd
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT
FAO Andrea Grossey

Results of analysis of 5 samples
received 21 July 2010
Twickenham Railway Station - 241458

Report Date
28 July 2010

Login Batch No								113013
Chemtest LIMS ID								AF15180
Sample ID								BHE
Sample No								
Depth								0.5m - 1.5m
Matrix								*LEACHATE*
Determinand↓	SOP↓		CAS No↓	Units↓				
As (arsenic) L/S=2	1450	N	7440382	mg kg-¹				<0.05
Ba (barium) L/S=2	1450	N	7440393	mg kg-¹				<0.5
Cd (cadmium) L/S=2	1450	N	7440439	mg kg-¹				<0.01
Cr (chromium) L/S=2	1450	N	7440473	mg kg-¹				<0.05
Cu (copper) L/S=2	1450	N	7440508	mg kg-¹				<0.05
Hg (mercury) L/S=2	1450	N	7439976	mg kg-¹				<0.005
Mo (molybdenum) L/S=2	1450	N	7439987	mg kg-¹				0.06
Ni (nickel) L/S=2	1450	N	7440020	mg kg-¹				<0.05
Pb (lead) L/S=2	1450	N	7439921	mg kg-¹				<0.05
Sb (antimony) L/S=2	1450	N	7440360	mg kg-¹				0.01
Se (selenium) L/S=2	1450	N	7782492	mg kg-¹				0.02
Zn (zinc) L/S=2	1450	N	7440666	mg kg-¹				<0.5
Cl (chloride) L/S=2	1220	N	16887006	mg kg-¹				84.1
F (fluoride) L/S=2	1220	N	16984488	mg kg-¹				1.34
SO4 (sulfate) L/S=2	1220	N	14808798	mg kg-¹				240
Total Dissolved Solids L/S=2	1610	N	TDS	mg kg-¹				741
Phenol index L/S=2	1920	N	108952	mg kg-¹				<0.5
Dissolved Organic Carbon L/S=2	1610	N	DOC	mg kg-¹				<50
As (arsenic) L/S=10	1450	N	7440382	mg kg-¹	0.5	2	25	0.14
Ba (barium) L/S=10	1450	N	7440393	mg kg-¹	20	100	300	<0.5
Cd (cadmium) L/S=10	1450	N	7440439	mg kg-¹	0.04	1	5	<0.01
Cr (chromium) L/S=10	1450	N	7440473	mg kg-¹	0.5	10	70	0.12
Cu (copper) L/S=10	1450	N	7440508	mg kg-¹	2	50	100	0.06
Hg (mercury) L/S=10	1450	N	7439976	mg kg-¹	0.01	0.2	2	<0.005
Mo (molybdenum) L/S=10	1450	N	7439987	mg kg-¹	0.5	10	30	0.12
Ni (nickel) L/S=10	1450	N	7440020	mg kg-¹	0.4	10	40	<0.05
Pb (lead) L/S=10	1450	N	7439921	mg kg-¹	0.5	10	50	0.14
Sb (antimony) L/S=10	1450	N	7440360	mg kg-¹	0.06	0.7	5	0.05
Se (selenium) L/S=10	1450	N	7782492	mg kg-¹	0.1	0.5	7	0.04
Zn (zinc) L/S=10	1450	N	7440666	mg kg-¹	4	50	200	<0.5
Cl (chloride) L/S=10	1220	N	16887006	mg kg-¹	800	15000	25000	149
F (fluoride) L/S=10	1220	N	16984488	mg kg-¹	10	150	500	4.78
SO4 (sulfate) L/S=10	1220	N	14808798	mg kg-¹	1000	20000	50000	475
Total Dissolved Solids L/S=10	1610	N	TDS	mg kg-¹	4000	60000	100000	1430
Phenol index L/S=10	1920	N	108952	mg kg-¹	1			<0.5
Dissolved Organic Carbon L/S=10	1610	N	DOC	mg kg-¹	500	800	1000	290

All tests undertaken between 21-Jul-2010 and 28-Jul-2010

Column page 4

Report sample ID range AF14408 to AF15181

LABORATORY TEST REPORT

Waste Acceptance Criteria BS EN 12457 Part 3 2 Stage

RSK STATS Geoconsult Ltd
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT
FAO Andrea Grossey

Results of analysis of 5 samples
received 21 July 2010
Twickenham Railway Station - 241458

Report Date
28 July 2010

Login Batch No								113013
Chemtest LIMS ID								AF15181
Sample ID								BHF
Sample No								
Depth								0.5m - 1m
Matrix								*LEACHATE*
Determinand↓	SOP↓		CAS No↓	Units↓				
As (arsenic) L/S=2	1450	N	7440382	mg kg-¹				<0.05
Ba (barium) L/S=2	1450	N	7440393	mg kg-¹				<0.5
Cd (cadmium) L/S=2	1450	N	7440439	mg kg-¹				<0.01
Cr (chromium) L/S=2	1450	N	7440473	mg kg-¹				<0.05
Cu (copper) L/S=2	1450	N	7440508	mg kg-¹				<0.05
Hg (mercury) L/S=2	1450	N	7439976	mg kg-¹				<0.005
Mo (molybdenum) L/S=2	1450	N	7439987	mg kg-¹				0.11
Ni (nickel) L/S=2	1450	N	7440020	mg kg-¹				<0.05
Pb (lead) L/S=2	1450	N	7439921	mg kg-¹				<0.05
Sb (antimony) L/S=2	1450	N	7440360	mg kg-¹				0.02
Se (selenium) L/S=2	1450	N	7782492	mg kg-¹				0.01
Zn (zinc) L/S=2	1450	N	7440666	mg kg-¹				<0.5
Cl (chloride) L/S=2	1220	N	16887006	mg kg-¹				126
F (fluoride) L/S=2	1220	N	16984488	mg kg-¹				1.38
SO4 (sulfate) L/S=2	1220	N	14808798	mg kg-¹				320
Total Dissolved Solids L/S=2	1610	N	TDS	mg kg-¹				859
Phenol index L/S=2	1920	N	108952	mg kg-¹				<0.5
Dissolved Organic Carbon L/S=2	1610	N	DOC	mg kg-¹				67.9
As (arsenic) L/S=10	1450	N	7440382	mg kg-¹	0.5	2	25	0.13
Ba (barium) L/S=10	1450	N	7440393	mg kg-¹	20	100	300	<0.5
Cd (cadmium) L/S=10	1450	N	7440439	mg kg-¹	0.04	1	5	<0.01
Cr (chromium) L/S=10	1450	N	7440473	mg kg-¹	0.5	10	70	<0.05
Cu (copper) L/S=10	1450	N	7440508	mg kg-¹	2	50	100	0.1
Hg (mercury) L/S=10	1450	N	7439976	mg kg-¹	0.01	0.2	2	<0.005
Mo (molybdenum) L/S=10	1450	N	7439987	mg kg-¹	0.5	10	30	0.22
Ni (nickel) L/S=10	1450	N	7440020	mg kg-¹	0.4	10	40	<0.05
Pb (lead) L/S=10	1450	N	7439921	mg kg-¹	0.5	10	50	0.21
Sb (antimony) L/S=10	1450	N	7440360	mg kg-¹	0.06	0.7	5	0.07
Se (selenium) L/S=10	1450	N	7782492	mg kg-¹	0.1	0.5	7	0.03
Zn (zinc) L/S=10	1450	N	7440666	mg kg-¹	4	50	200	<0.5
Cl (chloride) L/S=10	1220	N	16887006	mg kg-¹	800	15000	25000	144
F (fluoride) L/S=10	1220	N	16984488	mg kg-¹	10	150	500	6.63
SO4 (sulfate) L/S=10	1220	N	14808798	mg kg-¹	1000	20000	50000	638
Total Dissolved Solids L/S=10	1610	N	TDS	mg kg-¹	4000	60000	100000	1650
Phenol index L/S=10	1920	N	108952	mg kg-¹	1			<0.5
Dissolved Organic Carbon L/S=10	1610	N	DOC	mg kg-¹	500	800	1000	349

All tests undertaken between 21-Jul-2010 and 28-Jul-2010

Column page 5

Report sample ID range AF14408 to AF15181

RSK STATS Geoconsult Ltd
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

FAO Andrea Grossey

LABORATORY TEST REPORT

Results of analysis of 30 samples
received 02 July 2010

241458 - Twickenham Railway Station

Chemtest
The right chemistry to deliver results

Report Date
09 July 2010

Login Batch No					**89511**								
Chemtest LIMS ID					AF09639	AF09640	AF09641	AF09642	AF09643	AF09644	AF09645	AF09646
Sample ID					BHA	BHA	BHA	BHB	BHB	BHB	BHB	BHC
Sample No												
Sampling Date					14/06/2010	14/06/2010	14/06/2010	10/06/2010	10/06/2010	10/06/2010	10/06/2010	14/06/2010
Depth					0.5m	1.5m	3.5m	1m	2m	3m	4.5m	0.5m
Matrix					*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
SOP↓	Determinand↓	CAS No↓	Units↓	*								
2180	Sulfur (elemental)	7704349	mg kg⁻¹	M	24	9.4	10	<1.0	42	16	36	25
2300	Cyanide (free)	57125	mg kg⁻¹	M	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Cyanide (total)	57125	mg kg⁻¹	M	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Thiocyanate	302045	mg kg⁻¹	M	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2325	Sulfide	18496258	mg kg⁻¹	M	2.7	0.99	1.1	1.6	1.3	3.1	1.6	1.3
2625	Total Organic Carbon		%	M	4.6	3.7	0.55	0.32	1.2	6.8	4.7	1.0
2220	Nitrate (extractable)	14797558	g l⁻¹	N	0.019	0.047	0.034	<0.010	0.097	0.14	0.18	0.011
2120	Boron (hot water soluble)	7440428	mg kg⁻¹	M	0.8	1.4	0.8	0.9	1.0	2.2	2.7	1.0
	Sulfate (2:1 water soluble) as SO4	14808798	g l⁻¹	M	0.19	0.08	0.12	0.55	0.99	1.2	0.71	0.05
2425	Ammonium (extractable)	7664417	mg kg⁻¹	M	< 0.5	2.4	2.8	< 0.5	2.3	< 0.5	< 0.5	< 0.5
2450	Arsenic	7440382	mg kg⁻¹	M	30	19	6.8	7.9	13	18	18	12
	Barium	7440393	mg kg⁻¹	M	270	160	47	35	140	210	200	84
	Beryllium	7440417	mg kg⁻¹	U	1.3	1.2	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	Cadmium	7440439	mg kg⁻¹	M	0.44	0.16	<0.10	<0.10	0.15	0.32	0.26	0.13
	Chromium	7440473	mg kg⁻¹	M	38	21	15	8.0	12	34	23	13
	Copper	7440508	mg kg⁻¹	M	93	93	12	6.3	26	67	73	18
	Mercury	7439976	mg kg⁻¹	M	1.8	1.1	0.18	0.12	0.57	2.4	1.9	0.34
	Nickel	7440020	mg kg⁻¹	M	35	25	12	9.7	14	22	24	16
	Lead	7439921	mg kg⁻¹	M	380	410	33	29	570	360	490	160
	Antimony	7440364	mg kg⁻¹	N	3.7	3.9	<2.0	<2.0	<2.0	3.1	4.9	<2.0
	Selenium	7782492	mg kg⁻¹	M	<0.20	0.23	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
	Vanadium	7440622	mg kg⁻¹	M	51	42	22	18	28	31	33	28
	Zinc	7440666	mg kg⁻¹	M	180	120	35	25	110	180	190	69
2670	TPH >C6-C10		mg kg⁻¹	N	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	TPH >C10-C25		mg kg⁻¹	N	43	22	< 1	4	190	52	190	200
	TPH >C25-C40		mg kg⁻¹	N	33	21	< 1	1	59	22	120	92
	Total Petroleum Hydrocarbons		mg kg⁻¹	M	76	43	< 10	< 10	250	74	310	300
2675	TPH aliphatic >C5-C6		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C6-C8		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

All tests undertaken between 01-Jul-2010 and 9-Jul-2010

* Accreditation status

This report should be interpreted in conjunction with the notes on the accompanying cover page

RSK STATS Geoconsult Ltd
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

FAO Andrea Grossey

LABORATORY TEST REPORT

Results of analysis of 30 samples
received 02 July 2010

241458 - Twickenham Railway Station

Chemtest
The right chemistry to deliver results

Report Date
09 July 2010

Login Batch No					**89511**								
Chemtest LIMS ID					AF09647	AF09648	AF09649	AF09650	AF09651	AF09652	AF09653	AF09654
Sample ID					BHC	BHC	BHD	BHD	BHD	BHE	BHE	BHE
Sample No												
Sampling Date					14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010
Depth					1m	2m	0.5m	1.5m	2m	1m	2m	3m
Matrix					*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
SOP↓	Determinand↓	CAS No↓	Units↓	*								
2180	Sulfur (elemental)	7704349	mg kg-¹	M	4.2	<1.0	9.0	<1.0	<1.0	9.5	2.0	2.1
2300	Cyanide (free)	57125	mg kg-¹	M	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Cyanide (total)	57125	mg kg-¹	M	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Thiocyanate	302045	mg kg-¹	M	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2325	Sulfide	18496258	mg kg-¹	M	1.1	1.5	1.3	1.4	1.2	2.5	1.0	1.6
2625	Total Organic Carbon		%	M	2.0	< 0.20	1.4	0.78	< 0.20	1.9	0.47	0.32
2220	Nitrate (extractable)	14797558	g l-¹	N	0.013	<0.010	0.012	0.018	<0.010	0.018	<0.010	<0.010
2120	Boron (hot water soluble)	7440428	mg kg-¹	M	2.3	<0.4	0.7	0.5	<0.4	0.9	0.5	<0.4
	Sulfate (2:1 water soluble) as SO4	14808798	g l-¹	M	0.03	0.07	0.08	0.23	0.14	0.12	0.08	0.29
2425	Ammonium (extractable)	7664417	mg kg-¹	M	2.7	< 0.5	2.3	4.7	< 0.5	< 0.5	3.5	< 0.5
2450	Arsenic	7440382	mg kg-¹	M	13	7.2	12	17	5.3	19	4.2	7.3
	Barium	7440393	mg kg-¹	M	100	14	65	61	<10	170	66	13
	Beryllium	7440417	mg kg-¹	U	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	Cadmium	7440439	mg kg-¹	M	0.18	<0.10	0.32	0.20	<0.10	0.24	<0.10	0.16
	Chromium	7440473	mg kg-¹	M	13	16	17	51	24	15	12	24
	Copper	7440508	mg kg-¹	M	46	6.7	31	35	<5.0	30	8.7	38
	Mercury	7439976	mg kg-¹	M	0.76	<0.10	0.36	0.22	<0.10	0.74	0.12	<0.10
	Nickel	7440020	mg kg-¹	M	18	17	22	51	20	21	8.2	27
	Lead	7439921	mg kg-¹	M	310	18	98	65	<5.0	540	26	13
	Antimony	7440364	mg kg-¹	N	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
	Selenium	7782492	mg kg-¹	M	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
	Vanadium	7440622	mg kg-¹	M	31	16	28	44	15	36	21	16
	Zinc	7440666	mg kg-¹	M	94	18	200	68	<10	230	35	29
2670	TPH >C6-C10		mg kg-¹	N	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	TPH >C10-C25		mg kg-¹	N	11	< 1	11	< 1	< 1	30	< 1	< 1
	TPH >C25-C40		mg kg-¹	N	11	< 1	7	< 1	< 1	18	< 1	< 1
	Total Petroleum Hydrocarbons		mg kg-¹	M	22	< 10	19	< 10	< 10	48	< 10	< 10
2675	TPH aliphatic >C5-C6		mg kg-¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C6-C8		mg kg-¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

All tests undertaken between 01-Jul-2010 and 9-Jul-2010

* Accreditation status

This report should be interpreted in conjunction with the notes on the accompanying cover page

RSK STATS Geoconsult Ltd
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

FAO Andrea Grossey

LABORATORY TEST REPORT

Results of analysis of 30 samples
received 02 July 2010

241458 - Twickenham Railway Station

Chemtest
The right chemistry to deliver results

Report Date
09 July 2010

Login Batch No					**89511**									
Chemtest LIMS ID					AF09655	AF09656	AF09657	AF09658	AF09659	AF09660	AF09661	AF09662
Sample ID					BHF	BHF	BHF	BHG	BHG	BHG	BHG	BHG
Sample No												
Sampling Date					14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010
Depth					0.5m	1.5m	3m	0.5m	1m	1.5m	2.5m	4m
Matrix					*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
SOP↓	Determinand↓	CAS No↓	Units↓	*								
2180	Sulfur (elemental)	7704349	mg kg-¹	M	37	7.8	4.1	56	66	55	1.4	<1.0
2300	Cyanide (free)	57125	mg kg-¹	M	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Cyanide (total)	57125	mg kg-¹	M	<0.50	<0.50	<0.50	<0.50	0.70	<0.50	<0.50	<0.50
	Thiocyanate	302045	mg kg-¹	M	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2325	Sulfide	18496258	mg kg-¹	M	1.8	3.1	1.5	36	3.4	15	2.3	1.4
2625	Total Organic Carbon		%	M	2.2	1.0	0.55	0.75	14	4.5	0.68	< 0.20
2220	Nitrate (extractable)	14797558	g l-¹	N	<0.010	0.037	0.041	<0.010	0.024	0.014	<0.010	<0.010
2120	Boron (hot water soluble)	7440428	mg kg-¹	M	1.5	1.8	0.9	0.9	3.3	1.9	1.3	<0.4
	Sulfate (2:1 water soluble) as SO4	14808798	g l-¹	M	0.29	0.19	0.22	0.19	0.17	0.17	0.17	0.07
2425	Ammonium (extractable)	7664417	mg kg-¹	M	2.7	2.7	2.6	4.4	3.7	< 0.5	< 0.5	< 0.5
2450	Arsenic	7440382	mg kg-¹	M	9.3	15	4.4	16	75	24	11	9.7
	Barium	7440393	mg kg-¹	M	100	99	43	160	680	140	31	<10
	Beryllium	7440417	mg kg-¹	U	<1.00	1.1	<1.00	1.1	5.2	1.6	<1.00	<1.00
	Cadmium	7440439	mg kg-¹	M	0.19	0.24	<0.10	0.11	<0.10	0.20	<0.10	<0.10
	Chromium	7440473	mg kg-¹	M	12	26	13	14	26	20	17	19
	Copper	7440508	mg kg-¹	M	35	37	9.2	18	250	70	17	<5.0
	Mercury	7439976	mg kg-¹	M	3.3	1.1	0.25	0.20	1.6	1.00	0.20	<0.10
	Nickel	7440020	mg kg-¹	M	14	27	9.0	11	72	31	19	19
	Lead	7439921	mg kg-¹	M	260	130	47	200	1500	370	31	<5.0
	Antimony	7440364	mg kg-¹	N	2.1	<2.0	<2.0	4.5	16	3.0	<2.0	<2.0
	Selenium	7782492	mg kg-¹	M	<0.20	0.46	<0.20	<0.20	1.00	<0.20	<0.20	<0.20
	Vanadium	7440622	mg kg-¹	M	24	45	17	31	94	41	22	20
	Zinc	7440666	mg kg-¹	M	88	69	26	120	1600	210	35	15
2670	TPH >C6-C10		mg kg-¹	N	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	TPH >C10-C25		mg kg-¹	N	22	3	7	68	320	110	9	< 1
	TPH >C25-C40		mg kg-¹	N	18	3	4	40	230	77	10	< 1
	Total Petroleum Hydrocarbons		mg kg-¹	M	40	< 10	11	110	560	190	19	< 10
2675	TPH aliphatic >C5-C6		mg kg-¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C6-C8		mg kg-¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

All tests undertaken between 01-Jul-2010 and 9-Jul-2010

* Accreditation status

This report should be interpreted in conjunction with the notes on the accompanying cover page

RSK STATS Geoconsult Ltd
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FAO Andrea Grossey

LABORATORY TEST REPORT

Results of analysis of 30 samples
received 02 July 2010

241458 - Twickenham Railway Station

Chemtest
The right chemistry to deliver results

Report Date
09 July 2010

Login Batch No					**89511**						
Chemtest LIMS ID					AF09663	AF09664	AF09665	AF09666	AF09667	AF09668
Sample ID					WS1	WS1	WS2	WS2	WS3	WS3
Sample No										
Sampling Date					14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010
Depth					0.25m	1m	0.5m	1m	0.25m	0.75m
Matrix					*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
SOP↓	Determinand↓	CAS No↓	Units↓	*						
2180	Sulfur (elemental)	7704349	mg kg⁻¹	M	32	24	44	85	42	2.6
2300	Cyanide (free)	57125	mg kg⁻¹	M	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Cyanide (total)	57125	mg kg⁻¹	M	<0.50	<0.50	1.6	0.70	3.0	<0.50
	Thiocyanate	302045	mg kg⁻¹	M	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2325	Sulfide	18496258	mg kg⁻¹	M	10	2.4	13	3.2	14	3.4
2625	Total Organic Carbon		%	M	3.8	7.4	8.5	7.9	6.9	0.51
2220	Nitrate (extractable)	14797558	g l⁻¹	N	<0.010	<0.010	0.063	0.042	0.41	0.062
2120	Boron (hot water soluble)	7440428	mg kg⁻¹	M	2.3	1.8	1.7	1.3	1.9	<0.4
	Sulfate (2:1 water soluble) as SO4	14808798	g l⁻¹	M	0.06	0.05	0.03	0.03	0.17	0.04
2425	Ammonium (extractable)	7664417	mg kg⁻¹	M	18	2.7	4.7	4.2	120	3.8
2450	Arsenic	7440382	mg kg⁻¹	M	16	25	26	20	26	13
	Barium	7440393	mg kg⁻¹	M	110	200	370	210	310	160
	Beryllium	7440417	mg kg⁻¹	U	<1.00	1.6	1.3	<1.00	<1.00	<1.00
	Cadmium	7440439	mg kg⁻¹	M	0.53	0.42	0.58	0.26	<0.10	0.15
	Chromium	7440473	mg kg⁻¹	M	23	48	24	21	45	16
	Copper	7440508	mg kg⁻¹	M	31	88	270	170	100	17
	Mercury	7439976	mg kg⁻¹	M	0.49	2.3	2.3	2.2	0.58	0.10
	Nickel	7440020	mg kg⁻¹	M	20	37	32	22	43	19
	Lead	7439921	mg kg⁻¹	M	170	340	890	480	640	110
	Antimony	7440364	mg kg⁻¹	N	2.4	6.2	10	6.5	14	<2.0
	Selenium	7782492	mg kg⁻¹	M	<0.20	0.37	0.51	0.22	0.37	<0.20
	Vanadium	7440622	mg kg⁻¹	M	36	51	44	31	50	28
	Zinc	7440666	mg kg⁻¹	M	350	280	480	270	430	70
2670	TPH >C6-C10		mg kg⁻¹	N	< 1	< 1	< 1	< 1	< 1	< 1
	TPH >C10-C25		mg kg⁻¹	N	71	68	260	400	150	28
	TPH >C25-C40		mg kg⁻¹	N	48	32	180	250	110	17
	Total Petroleum Hydrocarbons		mg kg⁻¹	M	120	100	440	650	260	46
2675	TPH aliphatic >C5-C6		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C6-C8		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

All tests undertaken between 01-Jul-2010 and 9-Jul-2010

* Accreditation status

This report should be interpreted in conjunction with the notes on the accompanying cover page

RSK STATS Geoconsult Ltd
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

FAO Andrea Grossey

LABORATORY TEST REPORT

Results of analysis of 30 samples
received 02 July 2010

241458 - Twickenham Railway Station

Chemtest
The right chemistry to deliver results

Report Date
09 July 2010

					89511							
					AF09639	AF09640	AF09641	AF09642	AF09643	AF09644	AF09645	AF09646
					BHA	BHA	BHA	BHB	BHB	BHB	BHB	BHC
					14/06/2010	14/06/2010	14/06/2010	10/06/2010	10/06/2010	10/06/2010	10/06/2010	14/06/2010
					0.5m	1.5m	3.5m	1m	2m	3m	4.5m	0.5m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2675	TPH aliphatic >C8-C10		mg kg-1	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C10-C12		mg kg-1	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C12-C16		mg kg-1	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C16-C21		mg kg-1	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C21-C35		mg kg-1	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C35-C44		mg kg-1	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aromatic >C5-C7		mg kg-1	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aromatic >C7-C8		mg kg-1	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aromatic >C8-C10		mg kg-1	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aromatic >C10-C12		mg kg-1	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.5
	TPH aromatic >C12-C16		mg kg-1	N	2.7	1.8	< 0.1	< 0.1	9.3	3.2	8.6	16
	TPH aromatic >C16-C21		mg kg-1	N	21	9.8	< 0.1	1.7	99	31	85	76
	TPH aromatic >C21-C35		mg kg-1	N	60	31	< 0.1	5.4	140	45	190	120
	TPH aromatic >C35-C44		mg kg-1	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Total Petroleum Hydrocarbons		mg kg-1	N	83	43	< 2	7	250	80	290	210
2700	Naphthalene	91203	mg kg-1	M	0.2	<0.1	<0.1	<0.1	0.6	0.2	1.6	0.6
	Acenaphthylene	208968	mg kg-1	M	0.2	0.1	<0.1	<0.1	2.6	<0.1	1.4	0.9
	Acenaphthene	83329	mg kg-1	M	0.7	0.2	<0.1	<0.1	1.8	0.2	1	0.3
	Fluorene	86737	mg kg-1	M	0.7	0.2	<0.1	<0.1	3	0.2	1	0.6
	Phenanthrene	85018	mg kg-1	M	4.4	2.3	0.1	0.7	46	5.7	13	8.7
	Anthracene	120127	mg kg-1	M	1.3	0.4	<0.1	0.1	11	1.3	3.4	2.5
	Fluoranthene	206440	mg kg-1	M	5.2	3.6	0.2	0.7	46	8.1	22	15
	Pyrene	129000	mg kg-1	M	4.5	3.3	0.3	0.7	37	7	18	13
	Benzo[a]anthracene	56553	mg kg-1	M	2.4	1.6	<0.1	0.3	15	3.1	9.3	6.5
	Chrysene	218019	mg kg-1	M	2.7	2.1	0.1	0.3	16	3.2	11	7.1
	Benzo[b]fluoranthene	205992	mg kg-1	M	2.7	2	0.1	0.3	16	3.2	10	7.8
	Benzo[k]fluoranthene	207089	mg kg-1	M	1.9	1.5	0.1	0.2	8.9	2.5	7.5	3.9
	Benzo[a]pyrene	50328	mg kg-1	M	3.1	2.2	0.2	0.2	16	3.6	13	9.3
	Dibenzo[a,h]anthracene	53703	mg kg-1	M	1.9	1.4	0.2	0.3	10	2.3	7.6	5.6
	Indeno[1,2,3-cd]pyrene	193395	mg kg-1	M	0.4	0.2	<0.1	<0.1	2.4	0.3	1.5	1.2

All tests undertaken between 01-Jul-2010 and 9-Jul-2010

* Accreditation status

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FAO Andrea Grossey

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					89511							
					AF09647	AF09648	AF09649	AF09650	AF09651	AF09652	AF09653	AF09654
					BHC	BHC	BHD	BHD	BHD	BHE	BHE	BHE
					14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010
					1m	2m	0.5m	1.5m	2m	1m	2m	3m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2675	TPH aliphatic >C8-C10		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C10-C12		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C12-C16		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C16-C21		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C21-C35		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C35-C44		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aromatic >C5-C7		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aromatic >C7-C8		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aromatic >C8-C10		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aromatic >C10-C12		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aromatic >C12-C16		mg kg⁻¹	N	1.5	< 0.1	0.9	< 0.1	< 0.1	3.0	0.5	< 0.1
	TPH aromatic >C16-C21		mg kg⁻¹	N	4.0	< 0.1	6.0	< 0.1	< 0.1	12	1.7	< 0.1
	TPH aromatic >C21-C35		mg kg⁻¹	N	17	< 0.1	13	< 0.1	< 0.1	26	2.8	< 0.1
	TPH aromatic >C35-C44		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Total Petroleum Hydrocarbons		mg kg⁻¹	N	23	< 2	20	< 2	< 2	41	5	< 2
2700	Naphthalene	91203	mg kg⁻¹	M	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	<0.1
	Acenaphthylene	208968	mg kg⁻¹	M	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1
	Acenaphthene	83329	mg kg⁻¹	M	0.1	<0.1	0.1	<0.1	<0.1	0.2	<0.1	<0.1
	Fluorene	86737	mg kg⁻¹	M	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Phenanthrene	85018	mg kg⁻¹	M	1.1	<0.1	0.8	0.2	<0.1	1.9	0.2	<0.1
	Anthracene	120127	mg kg⁻¹	M	0.3	<0.1	0.3	<0.1	<0.1	0.4	<0.1	<0.1
	Fluoranthene	206440	mg kg⁻¹	M	1.9	0.2	2.5	0.2	<0.1	3.4	0.6	0.4
	Pyrene	129000	mg kg⁻¹	M	1.6	0.2	2.3	0.3	0.1	2.8	0.5	0.3
	Benzo[a]anthracene	56553	mg kg⁻¹	M	0.9	0.1	1.2	0.2	<0.1	1.5	0.3	0.2
	Chrysene	218019	mg kg⁻¹	M	1.2	<0.1	1.5	0.2	<0.1	1.7	0.4	0.2
	Benzo[b]fluoranthene	205992	mg kg⁻¹	M	1.3	0.2	1.9	0.2	<0.1	1.8	0.5	0.3
	Benzo[k]fluoranthene	207089	mg kg⁻¹	M	0.8	0.2	1	0.2	<0.1	1.4	0.3	0.3
	Benzo[a]pyrene	50328	mg kg⁻¹	M	1.4	0.3	1.7	<0.1	<0.1	0.7	0.3	<0.1
	Dibenzo[a,h]anthracene	53703	mg kg⁻¹	M	0.9	0.2	1.1	0.3	<0.1	1.4	0.4	0.4
	Indeno[1,2,3-cd]pyrene	193395	mg kg⁻¹	M	0.5	0.2	0.2	0.3	<0.1	0.3	<0.1	<0.1

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Hertfordshire
HP3 9RT

FAO Andrea Grossey

LABORATORY TEST REPORT

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09 July 2010

					89511							
					AF09655	AF09656	AF09657	AF09658	AF09659	AF09660	AF09661	AF09662
					BHF	BHF	BHF	BHG	BHG	BHG	BHG	BHG
					14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010
					0.5m	1.5m	3m	0.5m	1m	1.5m	2.5m	4m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2675	TPH aliphatic >C8-C10		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C10-C12		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C12-C16		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C16-C21		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C21-C35		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C35-C44		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aromatic >C5-C7		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aromatic >C7-C8		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aromatic >C8-C10		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aromatic >C10-C12		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.1	< 0.1
	TPH aromatic >C12-C16		mg kg⁻¹	N	1.1	0.4	0.3	2.4	7.9	4.4	1.0	< 0.1
	TPH aromatic >C16-C21		mg kg⁻¹	N	8.9	1.1	2.3	25	140	52	3.2	< 0.1
	TPH aromatic >C21-C35		mg kg⁻¹	N	30	4.3	5.5	74	450	140	9.5	< 0.1
	TPH aromatic >C35-C44		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Total Petroleum Hydrocarbons		mg kg⁻¹	N	40	6	8	100	600	200	14	< 2
2700	Naphthalene	91203	mg kg⁻¹	M	0.2	<0.1	<0.1	<0.1	3.1	1.6	<0.1	<0.1
	Acenaphthylene	208968	mg kg⁻¹	M	0.2	<0.1	<0.1	0.3	0.7	0.3	<0.1	<0.1
	Acenaphthene	83329	mg kg⁻¹	M	0.2	<0.1	<0.1	0.4	0.9	0.6	<0.1	<0.1
	Fluorene	86737	mg kg⁻¹	M	0.3	<0.1	<0.1	0.5	1.1	0.6	<0.1	<0.1
	Phenanthrene	85018	mg kg⁻¹	M	3	0.7	0.8	5.1	19	9.2	0.4	<0.1
	Anthracene	120127	mg kg⁻¹	M	0.7	0.2	0.2	2.1	4.9	2.1	<0.1	<0.1
	Fluoranthene	206440	mg kg⁻¹	M	4.7	1.4	1.2	14	40	18	0.9	<0.1
	Pyrene	129000	mg kg⁻¹	M	4.1	1.3	1.1	13	35	15	0.8	<0.1
	Benzo[a]anthracene	56553	mg kg⁻¹	M	2.2	0.6	0.8	7.1	20	9	0.7	<0.1
	Chrysene	218019	mg kg⁻¹	M	2.4	0.7	0.6	7.8	23	11	0.5	<0.1
	Benzo[b]fluoranthene	205992	mg kg⁻¹	M	2	0.9	0.5	8.1	27	11	0.7	<0.1
	Benzo[k]fluoranthene	207089	mg kg⁻¹	M	1.2	0.4	0.3	4.1	14	6.2	0.3	<0.1
	Benzo[a]pyrene	50328	mg kg⁻¹	M	2.3	2.1	0.6	8.1	26	11	0.8	<0.1
	Dibenzo[a,h]anthracene	53703	mg kg⁻¹	M	0.7	0.4	0.2	4.2	17	6.5	0.5	<0.1
	Indeno[1,2,3-cd]pyrene	193395	mg kg⁻¹	M	0.1	<0.1	<0.1	1.3	4.7	1.7	<0.1	<0.1

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					89511					
					AF09663	AF09664	AF09665	AF09666	AF09667	AF09668
					WS1	WS1	WS2	WS2	WS3	WS3
					14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010
					0.25m	1m	0.5m	1m	0.25m	0.75m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2675	TPH aliphatic >C8-C10		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C10-C12		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C12-C16		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C16-C21		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C21-C35		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C35-C44		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aromatic >C5-C7		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aromatic >C7-C8		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aromatic >C8-C10		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aromatic >C10-C12		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	TPH aromatic >C12-C16		mg kg⁻¹	N	3.5	3.0	7.6	17	9.9	1.2
	TPH aromatic >C16-C21		mg kg⁻¹	N	30	27	100	180	64	12
	TPH aromatic >C21-C35		mg kg⁻¹	N	77	62	270	410	210	31
	TPH aromatic >C35-C44		mg kg⁻¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Total Petroleum Hydrocarbons		mg kg⁻¹	N	110	93	380	610	290	44
2700	Naphthalene	91203	mg kg⁻¹	M	0.2	0.8	1	4.2	0.3	<0.1
	Acenaphthylene	208968	mg kg⁻¹	M	0.5	0.3	2.3	5.6	1.1	<0.1
	Acenaphthene	83329	mg kg⁻¹	M	0.4	0.4	0.6	1.3	1.4	<0.1
	Fluorene	86737	mg kg⁻¹	M	0.4	0.2	1.3	4.2	1	<0.1
	Phenanthrene	85018	mg kg⁻¹	M	4.6	4.1	15	46	9.7	0.4
	Anthracene	120127	mg kg⁻¹	M	1.7	0.9	3.8	11	2.5	<0.1
	Fluoranthene	206440	mg kg⁻¹	M	10	8.4	29	67	17	0.9
	Pyrene	129000	mg kg⁻¹	M	9.7	7.4	24	51	14	0.7
	Benzo[a]anthracene	56553	mg kg⁻¹	M	6.6	4.6	14	30	7.1	0.6
	Chrysene	218019	mg kg⁻¹	M	7.3	5.3	16	32	0.9	0.6
	Benzo[b]fluoranthene	205992	mg kg⁻¹	M	6.6	5.8	17	22	9.1	0.6
	Benzo[k]fluoranthene	207089	mg kg⁻¹	M	3.8	3	10	18	3	0.5
	Benzo[a]pyrene	50328	mg kg⁻¹	M	8.7	6.1	19	36	9.6	0.3
	Dibenzo[a,h]anthracene	53703	mg kg⁻¹	M	3.8	3.8	12	20	7.1	0.5
	Indeno[1,2,3-cd]pyrene	193395	mg kg⁻¹	M	1.1	0.3	3.3	5.3	2.1	0.2

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					89511							
					AF09639	AF09640	AF09641	AF09642	AF09643	AF09644	AF09645	AF09646
					BHA	BHA	BHA	BHB	BHB	BHB	BHB	BHC
					14/06/2010	14/06/2010	14/06/2010	10/06/2010	10/06/2010	10/06/2010	10/06/2010	14/06/2010
					0.5m	1.5m	3.5m	1m	2m	3m	4.5m	0.5m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2700	Benzo[g,h,i]perylene	191242	mg kg-1	M	2	1.5	0.1	0.2	9.8	2.1	6.9	5.9
	Coronene	191071	mg kg-1	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Total (of 17) PAHs		mg kg-1	N	34	23	<2	3.9	240	43	130	89
	Benzo[j]fluoranthene by FID	205823	mg kg-1	N	1.53	1.17	0.08	0.18	8.3	1.9	8.8	5.9
2760	Benzene	71432	µg kg-1	M	< 1	< 1	< 1	< 1	1.1	1.5	1.3	< 1
	Toluene	108883	µg kg-1	M	< 1	< 1	< 1	< 1	< 1	1.3	1.4	< 1
	Ethyl benzene	100414	µg kg-1	M	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	m- & p-Xylene	1330207	µg kg-1	M	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	o-Xylene	95476	µg kg-1	M	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	Methyl tert-butyl ether	1634044	µg kg-1	N	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	Dichlorodifluoromethane	75718	µg kg-1	U	<1	<1	<1	<1	<1	<1	<1	<1
	Chloromethane	74873	µg kg-1	M	<1	<1	<1	<1	<1	<1	<1	<1
	Vinyl chloride	75014	µg kg-1	M	<1	<1	<1	<1	<1	<1	<1	<1
	Bromomethane	74839	µg kg-1	U	<20	<20	<20	<20	<20	<20	<20	<20
	Chloroethane	75003	µg kg-1	U	<2	<2	<2	<2	<2	<2	<2	<2
	Trichlorofluoromethane	75694	µg kg-1	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,1-Dichloroethene	75354	µg kg-1	U	<1	<1	<1	<1	<1	<1	<1	<1
	Dichloromethane	75092	µg kg-1	U	ne	ne	ne	ne	ne	ne	ne	ne
	trans-1,2-Dichloroethene	156605	µg kg-1	M	<1	<1	<1	<1	<1	<1	<1	<1
	1,1-Dichloroethane	75343	µg kg-1	M	<1	<1	<1	<1	<1	<1	<1	<1
	cis-1,2-Dichloroethene	156592	µg kg-1	M	<1	<1	<1	<1	<1	<1	<1	<1
	Bromochloromethane	74975	µg kg-1	U	<1	<1	<1	<1	<1	<1	<1	<1
	Trichloromethane	67663	µg kg-1	M	<1	<1	<1	<1	<1	<1	<1	<1
	1,1,1-Trichloroethane	71556	µg kg-1	M	<1	<1	<1	<1	<1	<1	<1	<1
	Tetrachloromethane	56235	µg kg-1	M	<1	<1	<1	<1	<1	<1	<1	<1
	1,1-Dichloropropene	563586	µg kg-1	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,2-Dichloroethane	107062	µg kg-1	M	<2	<2	<2	<2	<2	<2	<2	<2
	Trichloroethene	79016	µg kg-1	M	<1	<1	<1	<1	<1	<1	<1	<1
	1,2-Dichloropropane	78875	µg kg-1	U	<1	<1	<1	<1	<1	<1	<1	<1
	Dibromomethane	74953	µg kg-1	U	<10	<10	<10	<10	<10	<10	<10	<10

All tests undertaken between 01-Jul-2010 and 9-Jul-2010

* Accreditation status

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RSK STATS Geoconsult Ltd
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

FAO Andrea Grossey

LABORATORY TEST REPORT

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received 02 July 2010

241458 - Twickenham Railway Station

Chemtest
The right chemistry to deliver results

Report Date
09 July 2010

					89511							
					AF09647	AF09648	AF09649	AF09650	AF09651	AF09652	AF09653	AF09654
					BHC	BHC	BHD	BHD	BHD	BHE	BHE	BHE
					14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010
					1m	2m	0.5m	1.5m	2m	1m	2m	3m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2700	Benzo[g,h,i]perylene	191242	mg kg-¹	M	0.6	<0.1	0.7	0.1	<0.1	1.2	0.1	0.2
	Coronene	191071	mg kg-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Total (of 17) PAHs		mg kg-¹	N	13	<2	15	2.2	<2	19	3.5	2.2
	Benzo[j]fluoranthene by FID	205823	mg kg-¹	N	1.05	0.19	1.45	0.22	<0.1	1.62	0.37	0.29
2760	Benzene	71432	µg kg-¹	M	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	Toluene	108883	µg kg-¹	M	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	Ethyl benzene	100414	µg kg-¹	M	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	m- & p-Xylene	1330207	µg kg-¹	M	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	o-Xylene	95476	µg kg-¹	M	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	Methyl tert-butyl ether	1634044	µg kg-¹	N	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	Dichlorodifluoromethane	75718	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	Chloromethane	74873	µg kg-¹	M	<1	<1	<1	<1	<1	<1	<1	<1
	Vinyl chloride	75014	µg kg-¹	M	<1	<1	<1	<1	<1	<1	<1	<1
	Bromomethane	74839	µg kg-¹	U	<20	<20	<20	<20	<20	<20	<20	<20
	Chloroethane	75003	µg kg-¹	U	<2	<2	<2	<2	<2	<2	<2	<2
	Trichlorofluoromethane	75694	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,1-Dichloroethene	75354	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	Dichloromethane	75092	µg kg-¹	U	ne	ne	ne	ne	ne	ne	ne	ne
	trans-1,2-Dichloroethene	156605	µg kg-¹	M	<1	<1	<1	<1	<1	<1	<1	<1
	1,1-Dichloroethane	75343	µg kg-¹	M	<1	<1	<1	<1	<1	<1	<1	<1
	cis-1,2-Dichloroethene	156592	µg kg-¹	M	<1	<1	<1	<1	<1	<1	<1	<1
	Bromochloromethane	74975	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	Trichloromethane	67663	µg kg-¹	M	<1	<1	<1	<1	<1	<1	<1	<1
	1,1,1-Trichloroethane	71556	µg kg-¹	M	<1	<1	<1	<1	<1	<1	<1	<1
	Tetrachloromethane	56235	µg kg-¹	M	<1	<1	<1	<1	<1	<1	<1	<1
	1,1-Dichloropropene	563586	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,2-Dichloroethane	107062	µg kg-¹	M	<2	<2	<2	<2	<2	<2	<2	<2
	Trichloroethene	79016	µg kg-¹	M	<1	<1	<1	<1	<1	<1	<1	<1
	1,2-Dichloropropane	78875	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	Dibromomethane	74953	µg kg-¹	U	<10	<10	<10	<10	<10	<10	<10	<10

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					89511							
					AF09655	AF09656	AF09657	AF09658	AF09659	AF09660	AF09661	AF09662
					BHF	BHF	BHF	BHG	BHG	BHG	BHG	BHG
					14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010
					0.5m	1.5m	3m	0.5m	1m	1.5m	2.5m	4m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2700	Benzo[g,h,i]perylene	191242	mg kg-¹	M	0.8	0.4	0.2	3.1	17	7.3	0.6	<0.1
	Coronene	191071	mg kg-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Total (of 17) PAHs		mg kg-¹	N	25	9	6.3	79	250	110	6.4	<2
	Benzo[j]fluoranthene by FID	205823	mg kg-¹	N	1.07	0.42	0.27	4.07	13.6	5.73	0.35	<0.1
2760	Benzene	71432	µg kg-¹	M	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	Toluene	108883	µg kg-¹	M	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	Ethyl benzene	100414	µg kg-¹	M	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	m- & p-Xylene	1330207	µg kg-¹	M	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	o-Xylene	95476	µg kg-¹	M	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	Methyl tert-butyl ether	1634044	µg kg-¹	N	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	Dichlorodifluoromethane	75718	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	Chloromethane	74873	µg kg-¹	M	<1	<1	<1	<1	<1	<1	<1	<1
	Vinyl chloride	75014	µg kg-¹	M	<1	<1	<1	<1	<1	<1	<1	<1
	Bromomethane	74839	µg kg-¹	U	<20	<20	<20	<20	<20	<20	<20	<20
	Chloroethane	75003	µg kg-¹	U	<2	<2	<2	<2	<2	<2	<2	<2
	Trichlorofluoromethane	75694	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,1-Dichloroethene	75354	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	Dichloromethane	75092	µg kg-¹	U	ne	ne	ne	ne	ne	ne	ne	ne
	trans-1,2-Dichloroethene	156605	µg kg-¹	M	<1	<1	<1	<1	<1	<1	<1	<1
	1,1-Dichloroethane	75343	µg kg-¹	M	<1	<1	<1	<1	<1	<1	<1	<1
	cis-1,2-Dichloroethene	156592	µg kg-¹	M	<1	<1	<1	<1	<1	<1	<1	<1
	Bromochloromethane	74975	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	Trichloromethane	67663	µg kg-¹	M	<1	<1	<1	<1	<1	<1	<1	<1
	1,1,1-Trichloroethane	71556	µg kg-¹	M	<1	<1	<1	<1	<1	<1	<1	<1
	Tetrachloromethane	56235	µg kg-¹	M	<1	<1	<1	<1	<1	<1	<1	<1
	1,1-Dichloropropene	563586	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,2-Dichloroethane	107062	µg kg-¹	M	<2	<2	<2	<2	<2	<2	<2	<2
	Trichloroethene	79016	µg kg-¹	M	<1	<1	<1	<1	<1	<1	<1	<1
	1,2-Dichloropropane	78875	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	Dibromomethane	74953	µg kg-¹	U	<10	<10	<10	<10	<10	<10	<10	<10

All tests undertaken between 01-Jul-2010 and 9-Jul-2010

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					89511					
					AF09663	AF09664	AF09665	AF09666	AF09667	AF09668
					WS1	WS1	WS2	WS2	WS3	WS3
					14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010
					0.25m	1m	0.5m	1m	0.25m	0.75m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2700	Benzo[g,h,i]perylene	191242	mg kg-¹	M	3.8	3.3	11	20	6.5	0.5
	Coronene	191071	mg kg-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Total (of 17) PAHs		mg kg-¹	N	69	55	180	370	92	5.8
	Benzo[j]fluoranthene by FID	205823	mg kg-¹	N	3.46	2.93	9.19	13.31	4.04	0.38
2760	Benzene	71432	µg kg-¹	M	< 1	< 1	< 1	1.3	< 1	< 1
	Toluene	108883	µg kg-¹	M	< 1	< 1	< 1	< 1	< 1	< 1
	Ethyl benzene	100414	µg kg-¹	M	< 1	< 1	< 1	< 1	< 1	< 1
	m- & p-Xylene	1330207	µg kg-¹	M	< 1	< 1	< 1	< 1	< 1	< 1
	o-Xylene	95476	µg kg-¹	M	< 1	< 1	< 1	< 1	< 1	< 1
	Methyl tert-butyl ether	1634044	µg kg-¹	N	< 1	< 1	< 1	< 1	< 1	< 1
	Dichlorodifluoromethane	75718	µg kg-¹	U	<1	<1	<1	<1	<1	<1
	Chloromethane	74873	µg kg-¹	M	<1	<1	<1	<1	<1	<1
	Vinyl chloride	75014	µg kg-¹	M	<1	<1	<1	<1	<1	<1
	Bromomethane	74839	µg kg-¹	U	<20	<20	<20	<20	<20	<20
	Chloroethane	75003	µg kg-¹	U	<2	<2	<2	<2	<2	<2
	Trichlorofluoromethane	75694	µg kg-¹	U	<1	<1	<1	<1	<1	<1
	1,1-Dichloroethene	75354	µg kg-¹	U	<1	<1	<1	<1	<1	<1
	Dichloromethane	75092	µg kg-¹	U	ne	ne	ne	ne	ne	ne
	trans-1,2-Dichloroethene	156605	µg kg-¹	M	<1	<1	<1	<1	<1	<1
	1,1-Dichloroethane	75343	µg kg-¹	M	<1	<1	<1	<1	<1	<1
	cis-1,2-Dichloroethene	156592	µg kg-¹	M	<1	<1	<1	<1	<1	<1
	Bromochloromethane	74975	µg kg-¹	U	<1	<1	<1	<1	<1	<1
	Trichloromethane	67663	µg kg-¹	M	<1	<1	<1	<1	7.6	<1
	1,1,1-Trichloroethane	71556	µg kg-¹	M	<1	<1	<1	<1	<1	<1
	Tetrachloromethane	56235	µg kg-¹	M	<1	<1	<1	<1	<1	<1
	1,1-Dichloropropene	563586	µg kg-¹	U	<1	<1	<1	<1	<1	<1
	1,2-Dichloroethane	107062	µg kg-¹	M	<2	<2	<2	<2	<2	<2
	Trichloroethene	79016	µg kg-¹	M	<1	<1	<1	<1	<1	<1
	1,2-Dichloropropane	78875	µg kg-¹	U	<1	<1	<1	<1	<1	<1
	Dibromomethane	74953	µg kg-¹	U	<10	<10	<10	<10	<10	<10

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					89511							
					AF09639	AF09640	AF09641	AF09642	AF09643	AF09644	AF09645	AF09646
					BHA	BHA	BHA	BHB	BHB	BHB	BHB	BHC
					14/06/2010	14/06/2010	14/06/2010	10/06/2010	10/06/2010	10/06/2010	10/06/2010	14/06/2010
					0.5m	1.5m	3.5m	1m	2m	3m	4.5m	0.5m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2760	Bromodichloromethane	75274	µg kg⁻¹	U	<5	<5	<5	<5	<5	<5	<5	<5
	cis-1,3-Dichloropropene	10061015	µg kg⁻¹	U	<10	<10	<10	<10	<10	<10	<10	<10
	trans-1,3-Dichloropropene	10061026	µg kg⁻¹	U	<10	<10	<10	<10	<10	<10	<10	<10
	1,1,2-Trichloroethane	79005	µg kg⁻¹	M	<10	<10	<10	<10	<10	<10	<10	<10
	Tetrachloroethene	127184	µg kg⁻¹	M	<1	<1	<1	<1	<1	<1	<1	<1
	1,3-Dichloropropane	142289	µg kg⁻¹	U	<2	<2	<2	<2	<2	<2	<2	<2
	Dibromochloromethane	124481	µg kg⁻¹	U	<10	<10	<10	<10	<10	<10	<10	<10
	1,2-Dibromoethane	106934	µg kg⁻¹	U	<5	<5	<5	<5	<5	<5	<5	<5
	Chlorobenzene	108907	µg kg⁻¹	M	<1	<1	<1	<1	<1	<1	<1	<1
	1,1,1,2-Tetrachloroethane	630206	µg kg⁻¹	M	<2	<2	<2	<2	<2	<2	<2	<2
	Styrene	100425	µg kg⁻¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	Tribromomethane	75252	µg kg⁻¹	U	<10	<10	<10	<10	<10	<10	<10	<10
	Isopropylbenzene	98828	µg kg⁻¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	Bromobenzene	108861	µg kg⁻¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,1,2,2-Tetrachloroethane	79345	µg kg⁻¹	M	<10	<10	<10	<10	<10	<10	<10	<10
	1,2,3-Trichloropropane	96184	µg kg⁻¹	U	<50	<50	<50	<50	<50	<50	<50	<50
	n-Propylbenzene	103651	µg kg⁻¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	2-Chlorotoluene	95498	µg kg⁻¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,3,5-Trimethylbenzene	108678	µg kg⁻¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	4-Chlorotoluene	106434	µg kg⁻¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	tert-Butylbenzene	98066	µg kg⁻¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,2,4-Trimethylbenzene	95636	µg kg⁻¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	sec-Butylbenzene	135988	µg kg⁻¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,3-Dichlorobenzene	541731	µg kg⁻¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	4-Isopropyltoluene	99876	µg kg⁻¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,4-Dichlorobenzene	106467	µg kg⁻¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	n-Butylbenzene	104518	µg kg⁻¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,2-Dichlorobenzene	95501	µg kg⁻¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,2-Dibromo-3-chloropropane	96128	µg kg⁻¹	U	<50	<50	<50	<50	<50	<50	<50	<50
	1,2,4-Trichlorobenzene	120821	µg kg⁻¹	U	<1	<1	<1	<1	<1	<1	<1	<1

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					89511							
					AF09647	AF09648	AF09649	AF09650	AF09651	AF09652	AF09653	AF09654
					BHC	BHC	BHD	BHD	BHD	BHE	BHE	BHE
					14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010
					1m	2m	0.5m	1.5m	2m	1m	2m	3m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2760	Bromodichloromethane	75274	µg kg-¹	U	<5	<5	<5	<5	<5	<5	<5	<5
	cis-1,3-Dichloropropene	10061015	µg kg-¹	U	<10	<10	<10	<10	<10	<10	<10	<10
	trans-1,3-Dichloropropene	10061026	µg kg-¹	U	<10	<10	<10	<10	<10	<10	<10	<10
	1,1,2-Trichloroethane	79005	µg kg-¹	M	<10	<10	<10	<10	<10	<10	<10	<10
	Tetrachloroethene	127184	µg kg-¹	M	<1	<1	<1	<1	<1	<1	<1	<1
	1,3-Dichloropropane	142289	µg kg-¹	U	<2	<2	<2	<2	<2	<2	<2	<2
	Dibromochloromethane	124481	µg kg-¹	U	<10	<10	<10	<10	<10	<10	<10	<10
	1,2-Dibromoethane	106934	µg kg-¹	U	<5	<5	<5	<5	<5	<5	<5	<5
	Chlorobenzene	108907	µg kg-¹	M	<1	<1	<1	<1	<1	<1	<1	<1
	1,1,1,2-Tetrachloroethane	630206	µg kg-¹	M	<2	<2	<2	<2	<2	<2	<2	<2
	Styrene	100425	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	Tribromomethane	75252	µg kg-¹	U	<10	<10	<10	<10	<10	<10	<10	<10
	Isopropylbenzene	98828	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	Bromobenzene	108861	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,1,2,2-Tetrachloroethane	79345	µg kg-¹	M	<10	<10	<10	<10	<10	<10	<10	<10
	1,2,3-Trichloropropane	96184	µg kg-¹	U	<50	<50	<50	<50	<50	<50	<50	<50
	n-Propylbenzene	103651	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	2-Chlorotoluene	95498	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,3,5-Trimethylbenzene	108678	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	4-Chlorotoluene	106434	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	tert-Butylbenzene	98066	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,2,4-Trimethylbenzene	95636	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	sec-Butylbenzene	135988	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,3-Dichlorobenzene	541731	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	4-Isopropyltoluene	99876	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,4-Dichlorobenzene	106467	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	n-Butylbenzene	104518	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,2-Dichlorobenzene	95501	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,2-Dibromo-3-chloropropane	96128	µg kg-¹	U	<50	<50	<50	<50	<50	<50	<50	<50
	1,2,4-Trichlorobenzene	120821	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1

All tests undertaken between 01-Jul-2010 and 9-Jul-2010

* Accreditation status

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RSK STATS Geoconsult Ltd
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

FAO Andrea Grossey

LABORATORY TEST REPORT

Results of analysis of 30 samples
received 02 July 2010

241458 - Twickenham Railway Station

Chemtest
The right chemistry to deliver results

Report Date
09 July 2010

					89511							
					AF09655	AF09656	AF09657	AF09658	AF09659	AF09660	AF09661	AF09662
					BHF	BHF	BHF	BHG	BHG	BHG	BHG	BHG
					14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010
					0.5m	1.5m	3m	0.5m	1m	1.5m	2.5m	4m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2760	Bromodichloromethane	75274	µg kg-¹	U	<5	<5	<5	<5	<5	<5	<5	<5
	cis-1,3-Dichloropropene	10061015	µg kg-¹	U	<10	<10	<10	<10	<10	<10	<10	<10
	trans-1,3-Dichloropropene	10061026	µg kg-¹	U	<10	<10	<10	<10	<10	<10	<10	<10
	1,1,2-Trichloroethane	79005	µg kg-¹	M	<10	<10	<10	<10	<10	<10	<10	<10
	Tetrachloroethene	127184	µg kg-¹	M	<1	<1	<1	<1	<1	<1	<1	<1
	1,3-Dichloropropane	142289	µg kg-¹	U	<2	<2	<2	<2	<2	<2	<2	<2
	Dibromochloromethane	124481	µg kg-¹	U	<10	<10	<10	<10	<10	<10	<10	<10
	1,2-Dibromoethane	106934	µg kg-¹	U	<5	<5	<5	<5	<5	<5	<5	<5
	Chlorobenzene	108907	µg kg-¹	M	<1	<1	<1	<1	<1	<1	<1	<1
	1,1,1,2-Tetrachloroethane	630206	µg kg-¹	M	<2	<2	<2	<2	<2	<2	<2	<2
	Styrene	100425	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	Tribromomethane	75252	µg kg-¹	U	<10	<10	<10	<10	<10	<10	<10	<10
	Isopropylbenzene	98828	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	Bromobenzene	108861	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,1,2,2-Tetrachloroethane	79345	µg kg-¹	M	<10	<10	<10	<10	<10	<10	<10	<10
	1,2,3-Trichloropropane	96184	µg kg-¹	U	<50	<50	<50	<50	<50	<50	<50	<50
	n-Propylbenzene	103651	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	2-Chlorotoluene	95498	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,3,5-Trimethylbenzene	108678	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	4-Chlorotoluene	106434	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	tert-Butylbenzene	98066	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,2,4-Trimethylbenzene	95636	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	sec-Butylbenzene	135988	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,3-Dichlorobenzene	541731	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	4-Isopropyltoluene	99876	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,4-Dichlorobenzene	106467	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	n-Butylbenzene	104518	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,2-Dichlorobenzene	95501	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,2-Dibromo-3-chloropropane	96128	µg kg-¹	U	<50	<50	<50	<50	<50	<50	<50	<50
	1,2,4-Trichlorobenzene	120821	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1

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					89511					
					AF09663	AF09664	AF09665	AF09666	AF09667	AF09668
					WS1	WS1	WS2	WS2	WS3	WS3
					14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010
					0.25m	1m	0.5m	1m	0.25m	0.75m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2760	Bromodichloromethane	75274	µg kg-¹	U	<5	<5	<5	<5	<5	<5
	cis-1,3-Dichloropropene	10061015	µg kg-¹	U	<10	<10	<10	<10	<10	<10
	trans-1,3-Dichloropropene	10061026	µg kg-¹	U	<10	<10	<10	<10	<10	<10
	1,1,2-Trichloroethane	79005	µg kg-¹	M	<10	<10	<10	<10	<10	<10
	Tetrachloroethene	127184	µg kg-¹	M	<1	<1	<1	<1	<1	<1
	1,3-Dichloropropane	142289	µg kg-¹	U	<2	<2	<2	<2	<2	<2
	Dibromochloromethane	124481	µg kg-¹	U	<10	<10	<10	<10	<10	<10
	1,2-Dibromoethane	106934	µg kg-¹	U	<5	<5	<5	<5	<5	<5
	Chlorobenzene	108907	µg kg-¹	M	<1	<1	<1	<1	<1	<1
	1,1,1,2-Tetrachloroethane	630206	µg kg-¹	M	<2	<2	<2	<2	<2	<2
	Styrene	100425	µg kg-¹	U	<1	<1	<1	<1	<1	<1
	Tribromomethane	75252	µg kg-¹	U	<10	<10	<10	<10	<10	<10
	Isopropylbenzene	98828	µg kg-¹	U	<1	<1	<1	<1	<1	<1
	Bromobenzene	108861	µg kg-¹	U	<1	<1	<1	<1	<1	<1
	1,1,2,2-Tetrachloroethane	79345	µg kg-¹	M	<10	<10	<10	<10	<10	<10
	1,2,3-Trichloropropane	96184	µg kg-¹	U	<50	<50	<50	<50	<50	<50
	n-Propylbenzene	103651	µg kg-¹	U	<1	<1	<1	<1	<1	<1
	2-Chlorotoluene	95498	µg kg-¹	U	<1	<1	<1	<1	<1	<1
	1,3,5-Trimethylbenzene	108678	µg kg-¹	U	<1	<1	<1	<1	<1	<1
	4-Chlorotoluene	106434	µg kg-¹	U	<1	<1	<1	<1	<1	<1
	tert-Butylbenzene	98066	µg kg-¹	U	<1	<1	<1	<1	<1	<1
	1,2,4-Trimethylbenzene	95636	µg kg-¹	U	<1	<1	<1	<1	<1	<1
	sec-Butylbenzene	135988	µg kg-¹	U	<1	<1	<1	<1	<1	<1
	1,3-Dichlorobenzene	541731	µg kg-¹	U	<1	<1	<1	<1	<1	<1
	4-Isopropyltoluene	99876	µg kg-¹	U	<1	<1	<1	<1	<1	<1
	1,4-Dichlorobenzene	106467	µg kg-¹	U	<1	<1	<1	<1	<1	<1
	n-Butylbenzene	104518	µg kg-¹	U	<1	<1	<1	<1	<1	<1
	1,2-Dichlorobenzene	95501	µg kg-¹	U	<1	<1	<1	<1	<1	<1
	1,2-Dibromo-3-chloropropane	96128	µg kg-¹	U	<50	<50	<50	<50	<50	<50
	1,2,4-Trichlorobenzene	120821	µg kg-¹	U	<1	<1	<1	<1	<1	<1

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					89511							
					AF09639	AF09640	AF09641	AF09642	AF09643	AF09644	AF09645	AF09646
					BHA	BHA	BHA	BHB	BHB	BHB	BHB	BHC
					14/06/2010	14/06/2010	14/06/2010	10/06/2010	10/06/2010	10/06/2010	10/06/2010	14/06/2010
					0.5m	1.5m	3.5m	1m	2m	3m	4.5m	0.5m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2760	Hexachlorobutadiene	87683	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,2,3-Trichlorobenzene	87616	µg kg-¹	U	<2	<2	<2	<2	<2	<2	<2	<2
2762	Tentatively Identified Compounds		µg kg-¹		None Detected	None Detected	None Detected	None Detected	None Detected	None Detected	None Detected	None Detected
2790	N-Nitrosodimethylamine	62759	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Phenol	108952	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	bis(2-Chloroethyl)ether	111444	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Chlorophenol	95578	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,3-Dichlorobenzene	541731	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,4-Dichlorobenzene	106467	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,2-Dichlorobenzene	95501	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Methylphenol	95487	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	bis(2-Chloroisopropyl)ether	108601	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Methylphenol	106445	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	N-Nitrosodi-n-propylamine	621647	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Hexachloroethane	67721	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Nitrobenzene	98953	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Isophorone	78591	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Nitrophenol	88755	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4-Dimethylphenol	105679	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	bis(2-Chloroethoxy)methane	111911	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4-Dichlorophenol	120832	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,2,4-Trichlorobenzene	120821	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Naphthalene	91203	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Chloroaniline	106478	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Hexachlorobutadiene	87683	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Chloro-3-methylphenol	59507	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Methylnaphthalene	91576	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Hexachlorocyclopentadiene	77474	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4,6-Trichlorophenol	88062	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4,5-Trichlorophenol	95954	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

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09 July 2010

					89511							
					AF09647	AF09648	AF09649	AF09650	AF09651	AF09652	AF09653	AF09654
					BHC	BHC	BHD	BHD	BHD	BHE	BHE	BHE
					14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010
					1m	2m	0.5m	1.5m	2m	1m	2m	3m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2760	Hexachlorobutadiene	87683	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,2,3-Trichlorobenzene	87616	µg kg-¹	U	<2	<2	<2	<2	<2	<2	<2	<2
2762	Tentatively Identified Compounds		µg kg-¹		None Detected	None Detected	None Detected	None Detected	None Detected	None Detected	None Detected	None Detected
2790	N-Nitrosodimethylamine	62759	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Phenol	108952	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	bis(2-Chloroethyl)ether	111444	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Chlorophenol	95578	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,3-Dichlorobenzene	541731	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,4-Dichlorobenzene	106467	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,2-Dichlorobenzene	95501	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Methylphenol	95487	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	bis(2-Chloroisopropyl)ether	108601	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Methylphenol	106445	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	N-Nitrosodi-n-propylamine	621647	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Hexachloroethane	67721	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Nitrobenzene	98953	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Isophorone	78591	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Nitrophenol	88755	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4-Dimethylphenol	105679	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	bis(2-Chloroethoxy)methane	111911	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4-Dichlorophenol	120832	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,2,4-Trichlorobenzene	120821	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Naphthalene	91203	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Chloroaniline	106478	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Hexachlorobutadiene	87683	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Chloro-3-methylphenol	59507	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Methylnaphthalene	91576	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Hexachlorocyclopentadiene	77474	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4,6-Trichlorophenol	88062	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4,5-Trichlorophenol	95954	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

All tests undertaken between 01-Jul-2010 and 9-Jul-2010

* Accreditation status

This report should be interpreted in conjunction with the notes on the accompanying cover page

RSK STATS Geoconsult Ltd
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

FAO Andrea Grossey

LABORATORY TEST REPORT

Results of analysis of 30 samples
received 02 July 2010

241458 - Twickenham Railway Station

Chemtest
The right chemistry to deliver results

Report Date
09 July 2010

					89511							
					AF09655	AF09656	AF09657	AF09658	AF09659	AF09660	AF09661	AF09662
					BHF	BHF	BHF	BHG	BHG	BHG	BHG	BHG
					14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010
					0.5m	1.5m	3m	0.5m	1m	1.5m	2.5m	4m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2760	Hexachlorobutadiene	87683	µg kg-¹	U	<1	<1	<1	<1	<1	<1	<1	<1
	1,2,3-Trichlorobenzene	87616	µg kg-¹	U	<2	<2	<2	<2	<2	<2	<2	<2
2762	Tentatively Identified Compounds		µg kg-¹		None Detected	None Detected	None Detected	None Detected	None Detected	None Detected	None Detected	None Detected
2790	N-Nitrosodimethylamine	62759	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Phenol	108952	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	bis(2-Chloroethyl)ether	111444	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Chlorophenol	95578	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,3-Dichlorobenzene	541731	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,4-Dichlorobenzene	106467	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,2-Dichlorobenzene	95501	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Methylphenol	95487	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	bis(2-Chloroisopropyl)ether	108601	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Methylphenol	106445	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	N-Nitrosodi-n-propylamine	621647	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Hexachloroethane	67721	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Nitrobenzene	98953	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Isophorone	78591	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Nitrophenol	88755	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4-Dimethylphenol	105679	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	bis(2-Chloroethoxy)methane	111911	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4-Dichlorophenol	120832	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,2,4-Trichlorobenzene	120821	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Naphthalene	91203	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Chloroaniline	106478	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Hexachlorobutadiene	87683	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Chloro-3-methylphenol	59507	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Methylnaphthalene	91576	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Hexachlorocyclopentadiene	77474	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4,6-Trichlorophenol	88062	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4,5-Trichlorophenol	95954	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

All tests undertaken between 01-Jul-2010 and 9-Jul-2010

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FAO Andrea Grossey

LABORATORY TEST REPORT

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received 02 July 2010

241458 - Twickenham Railway Station

Chemtest
The right chemistry to deliver results

Report Date
09 July 2010

					89511					
					AF09663	AF09664	AF09665	AF09666	AF09667	AF09668
					WS1	WS1	WS2	WS2	WS3	WS3
					14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010
					0.25m	1m	0.5m	1m	0.25m	0.75m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2760	Hexachlorobutadiene	87683	µg kg⁻¹	U	<1	<1	<1	<1	<1	<1
	1,2,3-Trichlorobenzene	87616	µg kg⁻¹	U	<2	<2	<2	<2	<2	<2
2762	Tentatively Identified Compounds		µg kg⁻¹		None Detected	None Detected	None Detected	None Detected	None Detected	None Detected
2790	N-Nitrosodimethylamine	62759	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Phenol	108952	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	bis(2-Chloroethyl)ether	111444	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Chlorophenol	95578	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,3-Dichlorobenzene	541731	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,4-Dichlorobenzene	106467	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,2-Dichlorobenzene	95501	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Methylphenol	95487	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	bis(2-Chloroisopropyl)ether	108601	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Methylphenol	106445	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	N-Nitrosodi-n-propylamine	621647	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Hexachloroethane	67721	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Nitrobenzene	98953	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Isophorone	78591	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Nitrophenol	88755	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4-Dimethylphenol	105679	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	bis(2-Chloroethoxy)methane	111911	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4-Dichlorophenol	120832	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,2,4-Trichlorobenzene	120821	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Naphthalene	91203	mg kg⁻¹	N	<0.5	<0.5	0.54	1.6	<0.5	<0.5
	4-Chloroaniline	106478	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Hexachlorobutadiene	87683	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Chloro-3-methylphenol	59507	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Methylnaphthalene	91576	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Hexachlorocyclopentadiene	77474	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4,6-Trichlorophenol	88062	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4,5-Trichlorophenol	95954	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

All tests undertaken between 01-Jul-2010 and 9-Jul-2010

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18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

FAO Andrea Grossey

LABORATORY TEST REPORT

Results of analysis of 30 samples
received 02 July 2010

241458 - Twickenham Railway Station

Chemtest
The right chemistry to deliver results

Report Date
09 July 2010

					89511							
					AF09639	AF09640	AF09641	AF09642	AF09643	AF09644	AF09645	AF09646
					BHA	BHA	BHA	BHB	BHB	BHB	BHB	BHC
					14/06/2010	14/06/2010	14/06/2010	10/06/2010	10/06/2010	10/06/2010	10/06/2010	14/06/2010
					0.5m	1.5m	3.5m	1m	2m	3m	4.5m	0.5m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2790	2-Chloronaphthalene	91587	mg kg-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Nitroaniline	88744	mg kg-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dimethylphthalate	131113	mg kg-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,6-Dinitrotoluene	606202	mg kg-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Acenaphthylene	208968	mg kg-1	N	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	1.1	0.78
	3-Nitroaniline	99092	mg kg-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Acenaphthene	83329	mg kg-1	N	<0.5	<0.5	<0.5	<0.5	0.83	<0.5	<0.5	<0.5
	Dibenzofuran	132649	mg kg-1	N	<0.5	<0.5	<0.5	<0.5	1.5	<0.5	<0.5	<0.5
	2,4-Dinitrotoluene	121142	mg kg-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Diethylphthalate	84662	mg kg-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Fluorene	86737	mg kg-1	N	<0.5	<0.5	<0.5	<0.5	1.1	<0.5	<0.5	<0.5
	4-Chlorophenylphenylether	7005723	mg kg-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Nitroaniline	100016	mg kg-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Methyl-4,6-dinitrophenol	534521	mg kg-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Azobenzene	103333	mg kg-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Bromophenylphenylether	101553	mg kg-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Hexachlorobenzene	118741	mg kg-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Pentachlorophenol	87865	mg kg-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Phenanthrene	85018	mg kg-1	N	0.68	0.68	<0.5	<0.5	25	1.2	11	4.2
	Anthracene	120127	mg kg-1	N	<0.5	<0.5	<0.5	<0.5	4.5	<0.5	2.7	1.0
	Carbazole	86748	mg kg-1	N	<0.5	<0.5	<0.5	<0.5	1.1	<0.5	0.55	<0.5
	Di-n-butylphthalate	84742	mg kg-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Fluoranthene	206440	mg kg-1	N	2.4	1.5	<0.5	<0.5	27	2.5	16	9.2
	Pyrene	129000	mg kg-1	N	2.1	1.2	<0.5	<0.5	22	2.1	14	8.1
	Butylbenzylphthalate	85687	mg kg-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo[a]anthracene	56553	mg kg-1	N	1.4	0.72	<0.5	<0.5	9.4	1.2	7.2	4.2
	Chrysene	218019	mg kg-1	N	1.2	0.74	<0.5	<0.5	7.4	1.1	6.0	4.2
	bis(2-Ethylhexyl)phthalate	117817	mg kg-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Di-n-octylphthalate	117840	mg kg-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo[b]fluoranthene	205992	mg kg-1	N	2.4	1.2	<0.5	<0.5	11	1.6	9.3	6.3

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					89511							
					AF09647	AF09648	AF09649	AF09650	AF09651	AF09652	AF09653	AF09654
					BHC	BHC	BHD	BHD	BHD	BHE	BHE	BHE
					14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010
					1m	2m	0.5m	1.5m	2m	1m	2m	3m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2790	2-Chloronaphthalene	91587	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Nitroaniline	88744	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dimethylphthalate	131113	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,6-Dinitrotoluene	606202	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Acenaphthylene	208968	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	3-Nitroaniline	99092	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Acenaphthene	83329	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dibenzofuran	132649	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4-Dinitrotoluene	121142	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Diethylphthalate	84662	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Fluorene	86737	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Chlorophenylphenylether	7005723	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Nitroaniline	100016	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Methyl-4,6-dinitrophenol	534521	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Azobenzene	103333	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Bromophenylphenylether	101553	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Hexachlorobenzene	118741	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Pentachlorophenol	87865	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Phenanthrene	85018	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	0.60	<0.5	<0.5
	Anthracene	120127	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Carbazole	86748	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Di-n-butylphthalate	84742	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Fluoranthene	206440	mg kg⁻¹	N	1.6	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	<0.5
	Pyrene	129000	mg kg⁻¹	N	1.3	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.5
	Butylbenzylphthalate	85687	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo[a]anthracene	56553	mg kg⁻¹	N	0.78	<0.5	<0.5	<0.5	<0.5	0.64	<0.5	<0.5
	Chrysene	218019	mg kg⁻¹	N	0.65	<0.5	<0.5	<0.5	<0.5	0.63	<0.5	<0.5
	bis(2-Ethylhexyl)phthalate	117817	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Di-n-octylphthalate	117840	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo[b]fluoranthene	205992	mg kg⁻¹	N	1.1	<0.5	<0.5	<0.5	<0.5	1.1	<0.5	<0.5

All tests undertaken between 01-Jul-2010 and 9-Jul-2010

* Accreditation status

This report should be interpreted in conjunction with the notes on the accompanying cover page

RSK STATS Geoconsult Ltd
18 Frogmore Road
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Hertfordshire
HP3 9RT

FAO Andrea Grossey

LABORATORY TEST REPORT

Results of analysis of 30 samples
received 02 July 2010

241458 - Twickenham Railway Station

Chemtest
The right chemistry to deliver results

Report Date
09 July 2010

					89511							
					AF09655	AF09656	AF09657	AF09658	AF09659	AF09660	AF09661	AF09662
					BHF	BHF	BHF	BHG	BHG	BHG	BHG	BHG
					14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010
					0.5m	1.5m	3m	0.5m	1m	1.5m	2.5m	4m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2790	2-Chloronaphthalene	91587	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Nitroaniline	88744	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dimethylphthalate	131113	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,6-Dinitrotoluene	606202	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Acenaphthylene	208968	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	<0.5	<0.5
	3-Nitroaniline	99092	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Acenaphthene	83329	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dibenzofuran	132649	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4-Dinitrotoluene	121142	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Diethylphthalate	84662	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Fluorene	86737	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Chlorophenylphenylether	7005723	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Nitroaniline	100016	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Methyl-4,6-dinitrophenol	534521	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Azobenzene	103333	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Bromophenylphenylether	101553	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Hexachlorobenzene	118741	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Pentachlorophenol	87865	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Phenanthrene	85018	mg kg⁻¹	N	0.74	<0.5	<0.5	0.60	4.8	1.7	<0.5	<0.5
	Anthracene	120127	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	1.3	<0.5	<0.5	<0.5
	Carbazole	86748	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Di-n-butylphthalate	84742	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Fluoranthene	206440	mg kg⁻¹	N	1.7	<0.5	<0.5	3.4	15	5.0	<0.5	<0.5
	Pyrene	129000	mg kg⁻¹	N	1.5	<0.5	<0.5	3.6	13	4.1	<0.5	<0.5
	Butylbenzylphthalate	85687	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo[a]anthracene	56553	mg kg⁻¹	N	0.87	<0.5	<0.5	2.6	8.5	2.8	<0.5	<0.5
	Chrysene	218019	mg kg⁻¹	N	0.84	<0.5	<0.5	2.4	8.6	2.6	<0.5	<0.5
	bis(2-Ethylhexyl)phthalate	117817	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Di-n-octylphthalate	117840	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo[b]fluoranthene	205992	mg kg⁻¹	N	1.4	<0.5	<0.5	4.5	15	4.6	<0.5	<0.5

All tests undertaken between 01-Jul-2010 and 9-Jul-2010

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HP3 9RT

FAO Andrea Grossey

LABORATORY TEST REPORT

Results of analysis of 30 samples
received 02 July 2010

241458 - Twickenham Railway Station

Chemtest
The right chemistry to deliver results

Report Date
09 July 2010

					89511					
					AF09663	AF09664	AF09665	AF09666	AF09667	AF09668
					WS1	WS1	WS2	WS2	WS3	WS3
					14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010
					0.25m	1m	0.5m	1m	0.25m	0.75m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2790	2-Chloronaphthalene	91587	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Nitroaniline	88744	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dimethylphthalate	131113	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,6-Dinitrotoluene	606202	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Acenaphthylene	208968	mg kg⁻¹	N	<0.5	<0.5	1.7	7.2	0.70	<0.5
	3-Nitroaniline	99092	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Acenaphthene	83329	mg kg⁻¹	N	<0.5	<0.5	<0.5	0.76	<0.5	<0.5
	Dibenzofuran	132649	mg kg⁻¹	N	<0.5	<0.5	<0.5	3.0	<0.5	<0.5
	2,4-Dinitrotoluene	121142	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Diethylphthalate	84662	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Fluorene	86737	mg kg⁻¹	N	<0.5	<0.5	<0.5	4.6	<0.5	<0.5
	4-Chlorophenylphenylether	7005723	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Nitroaniline	100016	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Methyl-4,6-dinitrophenol	534521	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Azobenzene	103333	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Bromophenylphenylether	101553	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Hexachlorobenzene	118741	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Pentachlorophenol	87865	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Phenanthrene	85018	mg kg⁻¹	N	0.96	1.3	11	78	3.4	<0.5
	Anthracene	120127	mg kg⁻¹	N	<0.5	<0.5	2.7	15	0.96	<0.5
	Carbazole	86748	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Di-n-butylphthalate	84742	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Fluoranthene	206440	mg kg⁻¹	N	3.1	3.9	23	120	7.3	0.94
	Pyrene	129000	mg kg⁻¹	N	3.0	3.3	20	92	6.5	0.82
	Butylbenzylphthalate	85687	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo[a]anthracene	56553	mg kg⁻¹	N	1.7	2.1	12	53	3.8	0.52
	Chrysene	218019	mg kg⁻¹	N	1.8	2.0	11	41	3.4	0.53
	bis(2-Ethylhexyl)phthalate	117817	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Di-n-octylphthalate	117840	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo[b]fluoranthene	205992	mg kg⁻¹	N	2.9	3.6	18	68	6.4	1.1

All tests undertaken between 01-Jul-2010 and 9-Jul-2010

* Accreditation status

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RSK STATS Geoconsult Ltd
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

FAO Andrea Grossey

LABORATORY TEST REPORT

Results of analysis of 30 samples
received 02 July 2010

241458 - Twickenham Railway Station

Chemtest
The right chemistry to deliver results

Report Date
09 July 2010

					89511							
					AF09639	AF09640	AF09641	AF09642	AF09643	AF09644	AF09645	AF09646
					BHA	BHA	BHA	BHB	BHB	BHB	BHB	BHC
					14/06/2010	14/06/2010	14/06/2010	10/06/2010	10/06/2010	10/06/2010	10/06/2010	14/06/2010
					0.5m	1.5m	3.5m	1m	2m	3m	4.5m	0.5m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2790	Benzo[k]fluoranthene	207089	mg kg-1	N	0.63	<0.5	<0.5	<0.5	4.1	0.55	2.6	1.8
	Benzo[a]pyrene	50328	mg kg-1	N	1.8	0.84	<0.5	<0.5	8.6	1.2	6.9	4.1
	Indeno[1,2,3-cd]pyrene	193395	mg kg-1	N	0.82	<0.5	<0.5	<0.5	4.5	0.51	3.8	2.1
	Dibenzo[a,h]anthracene	53703	mg kg-1	N	<0.5	<0.5	<0.5	<0.5	1.1	<0.5	0.98	<0.5
	Benzo[g,h,i]perylene	191242	mg kg-1	N	1.1	<0.5	<0.5	<0.5	4.9	0.69	4.0	2.8
2792	Tentatively Identified Compounds		mg kg-1		Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected
2810	2,4,4'-Trichlorobiphenyl	7012375	mg kg-1	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,2',5,5'-Tetrachlorobiphenyl	35693993	mg kg-1	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,2',4,5,5'-Pentachlorobiphenyl	37680732	mg kg-1	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,3,4,4',5-Pentachlorobiphenyl	31508006	mg kg-1	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,2',3,4,4',5-Hexachlorobiphenyl	35065282	mg kg-1	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,2',4,4',5,5'-Hexachlorobiphenyl	35065271	mg kg-1	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065293	mg kg-1	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2920	Catechols		mg kg-1	N	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Phenol	108952	mg kg-1	M	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Cresols		mg kg-1	N	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Xylenols		mg kg-1	N	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Naphthols		mg kg-1	N	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Trimethyl phenols		mg kg-1	N	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Phenols (total)		mg kg-1	N	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
2010	pH		-	M	9.9	7.9	7.5	8.4	10.1	8.4	8.5	8.6
2186	Asbestos Containing Material		-	U	not found	not found	not found	not found	not found	not found	not found	not found

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					89511							
					AF09647	AF09648	AF09649	AF09650	AF09651	AF09652	AF09653	AF09654
					BHC	BHC	BHD	BHD	BHD	BHE	BHE	BHE
					14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010
					1m	2m	0.5m	1.5m	2m	1m	2m	3m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2790	Benzo[k]fluoranthene	207089	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo[a]pyrene	50328	mg kg⁻¹	N	0.67	<0.5	<0.5	<0.5	<0.5	0.63	<0.5	<0.5
	Indeno[1,2,3-cd]pyrene	193395	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dibenzo[a,h]anthracene	53703	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo[g,h,i]perylene	191242	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2792	Tentatively Identified Compounds		mg kg⁻¹		Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected
2810	2,4,4'-Trichlorobiphenyl	7012375	mg kg⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,2',5,5'-Tetrachlorobiphenyl	35693993	mg kg⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,2',4,5,5'-Pentachlorobiphenyl	37680732	mg kg⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,3,4,4',5-Pentachlorobiphenyl	31508006	mg kg⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,2',3,4,4',5-Hexachlorobiphenyl	35065282	mg kg⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,2',4,4',5,5'-Hexachlorobiphenyl	35065271	mg kg⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065293	mg kg⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2920	Catechols		mg kg⁻¹	N	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Phenol	108952	mg kg⁻¹	M	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Cresols		mg kg⁻¹	N	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Xylenols		mg kg⁻¹	N	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Naphthols		mg kg⁻¹	N	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Trimethyl phenols		mg kg⁻¹	N	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Phenols (total)		mg kg⁻¹	N	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
2010	pH		-	M	7.7	8.3	7.8	7.7	8.2	8.1	7.9	7.2
2186	Asbestos Containing Material		-	U	not found	not found	not found	not found	not found	not found	not found	not found

All tests undertaken between 01-Jul-2010 and 9-Jul-2010

* Accreditation status

This report should be interpreted in conjunction with the notes on the accompanying cover page

RSK STATS Geoconsult Ltd
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

FAO Andrea Grossey

LABORATORY TEST REPORT

Results of analysis of 30 samples
received 02 July 2010

241458 - Twickenham Railway Station

Report Date
09 July 2010

					89511							
					AF09655	AF09656	AF09657	AF09658	AF09659	AF09660	AF09661	AF09662
					BHF	BHF	BHF	BHG	BHG	BHG	BHG	BHG
					14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010
					0.5m	1.5m	3m	0.5m	1m	1.5m	2.5m	4m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2790	Benzo[k]fluoranthene	207089	mg kg⁻¹	N	<0.5	<0.5	<0.5	1.5	3.8	1.3	<0.5	<0.5
	Benzo[a]pyrene	50328	mg kg⁻¹	N	0.93	<0.5	<0.5	3.2	9.1	2.8	<0.5	<0.5
	Indeno[1,2,3-cd]pyrene	193395	mg kg⁻¹	N	<0.5	<0.5	<0.5	1.7	6.1	1.7	<0.5	<0.5
	Dibenzo[a,h]anthracene	53703	mg kg⁻¹	N	<0.5	<0.5	<0.5	<0.5	1.6	<0.5	<0.5	<0.5
	Benzo[g,h,i]perylene	191242	mg kg⁻¹	N	<0.5	<0.5	<0.5	1.9	7.6	2.1	<0.5	<0.5
2792	Tentatively Identified Compounds		mg kg⁻¹		Not detected	Not detected	Not detected	Not detected	None Detected	Not detected	Not detected	Not detected
2810	2,4,4'-Trichlorobiphenyl	7012375	mg kg⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,2',5,5'-Tetrachlorobiphenyl	35693993	mg kg⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,2',4,5,5'-Pentachlorobiphenyl	37680732	mg kg⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,3,4,4',5-Pentachlorobiphenyl	31508006	mg kg⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,2',3,4,4',5-Hexachlorobiphenyl	35065282	mg kg⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,2',4,4',5,5'-Hexachlorobiphenyl	35065271	mg kg⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065293	mg kg⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2920	Catechols		mg kg⁻¹	N	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Phenol	108952	mg kg⁻¹	M	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Cresols		mg kg⁻¹	N	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Xylenols		mg kg⁻¹	N	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Naphthols		mg kg⁻¹	N	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Trimethyl phenols		mg kg⁻¹	N	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Phenols (total)		mg kg⁻¹	N	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
2010	pH		-	M	7.9	7.7	7.5	8.7	7.9	8.1	8.2	8.7
2186	Asbestos Containing Material		-	U	not found	not found	not found	not found	not found	not found	not found	not found

All tests undertaken between 01-Jul-2010 and 9-Jul-2010

* Accreditation status

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Hertfordshire
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FAO Andrea Grossey

LABORATORY TEST REPORT

Results of analysis of 30 samples
received 02 July 2010

241458 - Twickenham Railway Station

Report Date
09 July 2010

					89511					
					AF09663	AF09664	AF09665	AF09666	AF09667	AF09668
					WS1	WS1	WS2	WS2	WS3	WS3
					14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010	14/06/2010
					0.25m	1m	0.5m	1m	0.25m	0.75m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2790	Benzo[k]fluoranthene	207089	mg kg⁻¹	N	0.80	1.0	4.2	21	1.3	<0.5
	Benzo[a]pyrene	50328	mg kg⁻¹	N	1.9	2.4	11	41	3.7	0.60
	Indeno[1,2,3-cd]pyrene	193395	mg kg⁻¹	N	1.0	1.2	6.7	25	2.4	<0.5
	Dibenzo[a,h]anthracene	53703	mg kg⁻¹	N	<0.5	<0.5	1.9	7.3	<0.5	<0.5
	Benzo[g,h,i]perylene	191242	mg kg⁻¹	N	1.3	1.4	7.9	29	2.8	<0.5
2792	Tentatively Identified Compounds		mg kg⁻¹		Not detected	Not detected	Not detected	None Detected	Not detected	Not detected
2810	2,4,4'-Trichlorobiphenyl	7012375	mg kg⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,2',5,5'-Tetrachlorobiphenyl	35693993	mg kg⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,2',4,5,5'-Pentachlorobiphenyl	37680732	mg kg⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,3,4,4',5-Pentachlorobiphenyl	31508006	mg kg⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,2',3,4,4',5-Hexachlorobiphenyl	35065282	mg kg⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,2',4,4',5,5'-Hexachlorobiphenyl	35065271	mg kg⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065293	mg kg⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2920	Catechols		mg kg⁻¹	N	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Phenol	108952	mg kg⁻¹	M	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Cresols		mg kg⁻¹	N	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Xylenols		mg kg⁻¹	N	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Naphthols		mg kg⁻¹	N	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Trimethyl phenols		mg kg⁻¹	N	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Phenols (total)		mg kg⁻¹	N	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
2010	pH		-	M	7.7	7.7	7.8	7.9	6.2	6.2
2186	Asbestos Containing Material		-	U	not found	not found	not found	not found	not found	not found

All tests undertaken between 01-Jul-2010 and 9-Jul-2010

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Hemel Hempstead
Hertfordshire
HP3 9RT

FAO Andrea Grossey

LABORATORY TEST REPORT

Results of analysis of 6 samples
received 12 July 2010

241458 - Twickenham Railway Station

Chemtest
The right chemistry to deliver results

Report Date
21 July 2010

Login Batch No					**120214**						
Chemtest LIMS ID					AF11798	AF11799	AF11800	AF11801	AF11802	AF11803
Sample ID					River 1	River 2	River 3	BH A	BH D	BH F
Sample No										
Sampling Date					01/07/2010	01/07/2010	01/07/2010	01/07/2010	01/07/2010	01/07/2010
Depth										
Matrix					*WATER*	*WATER*	*WATER*	*WATER*	*WATER*	*WATER*
SOP↓	Determinand↓	CAS No↓	Units↓	*						
1010	pH	PH	-	U	8.8	8.8	8.5	6.8	6.5	6.3
1220	Chloride	16887006	mg l-¹	U	75	76	75	110	41	53
	Ammonium	14798039	mg l-¹	U	0.41	0.31	0.21	0.19	< 0.01	0.72
	Ammoniacal Nitrogen	AMM_NIT	mg l-¹	U	0.32	0.24	0.16	0.15	< 0.01	0.56
	Nitrate	14797558	mg l-¹	U	16	21	15	1.8	19	4.7
1300	Cyanide (total)	57125	mg l-¹	U	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	Cyanide (free)	57125	mg l-¹	U	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1325	Sulfide	18496258	mg l-¹	U	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1470	Iron (dissolved)	7439896	µg l-¹	N	<20	<20	<20	260	290	1400
1270	Hardness	HARD_TO	mg CaCO3 l-¹	U	280	270	260	560	150	350
1220	Sulfate	14808798	mg l-¹	U	57	55	54	180	19	100
1450	Arsenic	7440382	µg l-¹	U	<1.0	1.1	<1.0	<1.0	3.0	1.1
	Boron	7440428	µg l-¹	U	110	89	71	240	53	250
	Barium	7440393	µg l-¹	U	21	21	19	49	22	80
	Beryllium	7440417	µg l-¹	U	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Cadmium	7440439	µg l-¹	U	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080
	Chromium (total)	7440473	µg l-¹	U	22	19	5.3	36	38	37
	Copper	7440508	µg l-¹	U	5.2	8.6	6.4	1.4	1.4	<1.0
	Mercury Low Level	7439976	µg l-¹	N	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
	Nickel	7440020	µg l-¹	U	2.2	2.6	2.8	13	3.3	5.1
	Lead	7439921	µg l-¹	U	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Selenium	7782492	µg l-¹	U	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Vanadium	7440622	µg l-¹	U	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Zinc	7440666	µg l-¹	U	1.2	6.7	7.7	7.6	<1.0	7.5
1675	TPH aliphatic >C5-C6		µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TPH aliphatic >C6-C8		µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TPH aliphatic >C8-C10		µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TPH aliphatic >C10-C12		µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TPH aliphatic >C12-C16		µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TPH aliphatic >C16-C21		µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

All tests undertaken between 13-Jul-2010 and 21-Jul-2010

* Accreditation status

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FAO Andrea Grossey

LABORATORY TEST REPORT

Results of analysis of 6 samples
received 12 July 2010

241458 - Twickenham Railway Station

Chemtest
The right chemistry to deliver results

Report Date
21 July 2010

					120214					
					AF11798	AF11799	AF11800	AF11801	AF11802	AF11803
					River 1	River 2	River 3	BH A	BH D	BH F
					01/07/2010	01/07/2010	01/07/2010	01/07/2010	01/07/2010	01/07/2010
					WATER	*WATER*	*WATER*	*WATER*	*WATER*	*WATER*
1675	TPH aliphatic >C21-C35		µg l⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TPH aliphatic >C35-C44		µg l⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TPH aromatic >C5-C7		µg l⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TPH aromatic >C7-C8		µg l⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TPH aromatic >C8-C10		µg l⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TPH aromatic >C10-C12		µg l⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TPH aromatic >C12-C16		µg l⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TPH aromatic >C16-C21		µg l⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TPH aromatic >C21-C35		µg l⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TPH aromatic >C35-C44		µg l⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Total Petroleum Hydrocarbons		µg l⁻¹	N	<10	<10	<10	<10	<10	<10
1700	Naphthalene	91203	µg l⁻¹	N	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Acenaphthylene	208968	µg l⁻¹	N	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Acenaphthene	83329	µg l⁻¹	N	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Fluorene	86737	µg l⁻¹	N	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Phenanthrene	85018	µg l⁻¹	N	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Anthracene	120127	µg l⁻¹	N	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Fluoranthene	206440	µg l⁻¹	N	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Pyrene	129000	µg l⁻¹	N	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Benzo[a]anthracene	56553	µg l⁻¹	N	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Chrysene	218019	µg l⁻¹	N	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Benzo[b]fluoranthene	205992	µg l⁻¹	N	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Benzo[k]fluoranthene	207089	µg l⁻¹	N	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Benzo[a]pyrene	50328	µg l⁻¹	N	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Dibenzo[a,h]anthracene	53703	µg l⁻¹	N	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Indeno[1,2,3-cd]pyrene	193395	µg l⁻¹	N	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Benzo[g,h,i]perylene	191242	µg l⁻¹	N	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Total (of 16) PAHs		µg l⁻¹	N	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1760	Dichlorodifluoromethane	75718	µg l⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chloromethane	74873	µg l⁻¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

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Report Date
21 July 2010

					120214					
					AF11798	AF11799	AF11800	AF11801	AF11802	AF11803
					River 1	River 2	River 3	BH A	BH D	BH F
					01/07/2010	01/07/2010	01/07/2010	01/07/2010	01/07/2010	01/07/2010
					WATER	*WATER*	*WATER*	*WATER*	*WATER*	*WATER*
1760	Vinyl chloride	75014	µg l-1	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Bromomethane	74839	µg l-1	N	<2	<2	<2	<2	<2	<2
	Chloroethane	75003	µg l-1	N	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Trichlorofluoromethane	75694	µg l-1	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,1-Dichloroethene	75354	µg l-1	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Dichloromethane	75092	µg l-1	N	ne	ne	ne	ne	ne	ne
	trans-1,2-Dichloroethene	156605	µg l-1	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,1-Dichloroethane	75343	µg l-1	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	cis-1,2-Dichloroethene	156592	µg l-1	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Bromochloromethane	74975	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Trichloromethane	67663	µg l-1	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,1,1-Trichloroethane	71556	µg l-1	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Tetrachloromethane	56235	µg l-1	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,1-Dichloropropene	563586	µg l-1	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzene	71432	µg l-1	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,2-Dichloroethane	107062	µg l-1	N	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Trichloroethene	79016	µg l-1	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,2-Dichloropropane	78875	µg l-1	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Dibromomethane	74953	µg l-1	N	<1	<1	<1	<1	<1	<1
	Bromodichloromethane	75274	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	cis-1,3-Dichloropropene	10061015	µg l-1	N	<1	<1	<1	<1	<1	<1
	Toluene	108883	µg l-1	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	trans-1,3-Dichloropropene	10061026	µg l-1	N	<1	<1	<1	<1	<1	<1
	1,1,2-Trichloroethane	79005	µg l-1	N	<1	<1	<1	<1	<1	<1
	Tetrachloroethene	127184	µg l-1	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,3-Dichloropropane	142289	µg l-1	N	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Dibromochloromethane	124481	µg l-1	N	<1	<1	<1	<1	<1	<1
	1,2-Dibromoethane	106934	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Chlorobenzene	108907	µg l-1	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,1,1,2-Tetrachloroethane	630206	µg l-1	N	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

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					River 1	River 2	River 3	BH A	BH D	BH F
					01/07/2010	01/07/2010	01/07/2010	01/07/2010	01/07/2010	01/07/2010
					WATER	*WATER*	*WATER*	*WATER*	*WATER*	*WATER*
1760	Ethylbenzene	100414	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	m- & p-Xylene	1330207	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	o-Xylene	95476	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Styrene	100425	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Tribromomethane	75252	µg l-¹	N	<1	<1	<1	<1	<1	<1
	Isopropylbenzene	98828	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Bromobenzene	108861	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,1,2,2-Tetrachloroethane	79345	µg l-¹	N	<1	<1	<1	<1	<1	<1
	1,2,3-Trichloropropane	96184	µg l-¹	N	<5	<5	<5	<5	<5	<5
	n-Propylbenzene	103651	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2-Chlorotoluene	95498	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,3,5-Trimethylbenzene	108678	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	4-Chlorotoluene	106434	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	tert-Butylbenzene	98066	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,2,4-Trimethylbenzene	95636	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	sec-Butylbenzene	135988	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,3-Dichlorobenzene	541731	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	4-Isopropyltoluene	99876	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,4-Dichlorobenzene	106467	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	n-Butylbenzene	104518	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,2-Dichlorobenzene	95501	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,2-Dibromo-3-chloropropane	96128	µg l-¹	N	<5	<5	<5	<5	<5	<5
	1,2,4-Trichlorobenzene	120821	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Hexachlorobutadiene	87683	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,2,3-Trichlorobenzene	87616	µg l-¹	N	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Methyl tert-butylether	1634044	µg l-¹	N	<1	<1	<1	<1	<1	<1
1762	Tentatively Identified Compounds		µg l-¹		None Detected	None Detected	None Detected	None Detected	None Detected	None Detected
1790	N-Nitrosodimethylamine	62759	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Phenol	108952	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	bis(2-Chloroethyl)ether	111444	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

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					WATER	*WATER*	*WATER*	*WATER*	*WATER*	*WATER*
1790	2-Chlorophenol	95578	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,3-Dichlorobenzene	541731	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,4-Dichlorobenzene	106467	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,2-Dichlorobenzene	95501	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Methylphenol	95487	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	bis(2-Chloroisopropyl)ether	108601	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Methylphenol	106445	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	N-Nitrosodi-n-propylamine	621647	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Hexachloroethane	67721	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Nitrobenzene	98953	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Isophorone	78591	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Nitrophenol	88755	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4-Dimethylphenol	105679	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	bis(2-Chloroethoxy)methane	111911	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4-Dichlorophenol	120832	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,2,4-Trichlorobenzene	120821	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Naphthalene	91203	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Chloroaniline	106478	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Hexachlorobutadiene	87683	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Chloro-3-methylphenol	59507	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Methylnaphthalene	91576	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Hexachlorocyclopentadiene	77474	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4,6-Trichlorophenol	88062	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4,5-Trichlorophenol	95954	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Chloronaphthalene	91587	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Nitroaniline	88744	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dimethylphthalate	131113	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,6-Dinitrotoluene	606202	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Acenaphthylene	208968	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	3-Nitroaniline	99092	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

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					01/07/2010	01/07/2010	01/07/2010	01/07/2010	01/07/2010	01/07/2010
					WATER	*WATER*	*WATER*	*WATER*	*WATER*	*WATER*
1790	Acenaphthene	83329	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dibenzofuran	132649	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4-Dinitrotoluene	121142	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Diethylphthalate	84662	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Fluorene	86737	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Chlorophenylphenylether	7005723	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Nitroaniline	100016	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Methyl-4,6-dinitrophenol	534521	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Azobenzene	103333	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Bromophenylphenylether	101553	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Hexachlorobenzene	118741	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Pentachlorophenol	87865	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Phenanthrene	85018	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Anthracene	120127	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Carbazole	86748	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Di-n-butylphthalate	84742	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Fluoranthene	206440	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Pyrene	129000	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Butylbenzylphthalate	85687	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo[a]anthracene	56553	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Chrysene	218019	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	bis(2-Ethylhexyl)phthalate	117817	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Di-n-octylphthalate	117840	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo[b]fluoranthene	205992	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo[k]fluoranthene	207089	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo[a]pyrene	50328	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Indeno[1,2,3-cd]pyrene	193395	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dibenzo[a,h]anthracene	53703	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo[g,h,i]perylene	191242	µg l-1	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1792	Tentatively Identified Compounds		ug l-1		None Detected	None Detected	None Detected	None Detected	None Detected	None Detected

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					WATER	*WATER*	*WATER*	*WATER*	*WATER*	*WATER*
1810	2,4,4'-Trichlorobiphenyl	7012375	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,2',5,5'-Tetrachlorobiphenyl	35693993	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,2',4,5,5'-Pentachlorobiphenyl	37680732	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,3,4,4',5-Pentachlorobiphenyl	31508006	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,2',3,4,4',5-Hexachlorobiphenyl	35065282	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,2',4,4',5,5'-Hexachlorobiphenyl	35065271	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065293	µg l-¹	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1830	Atrazine	1912249	µg l-¹	N	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Simazine	122349	µg l-¹	N	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Diuron	330541	µg l-¹	N	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1845	2,4-D	94757	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dichlorprop	120365	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	MCPA	94746	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	MCPB	94815	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Mecoprop	7085190	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4,5-T	93765	µg l-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1920	Catechols		mg l-¹	N	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
	Phenol	108952	mg l-¹	N	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
	Cresols		mg l-¹	N	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
	Xylenols		mg l-¹	N	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
	Naphthols		mg l-¹	N	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
	Trimethyl phenols		mg l-¹	N	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
	Phenols (total)		mg l-¹	N	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03

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Appendix G. Risk Rating Matrix

Table G.1: Risk rating for contaminated land qualitative risk assessment

Level of Severity	Likelihood		
	Most Likely	Reasonably Foreseeable	Unlikely
Acute harm or severe chronic harm. Direct pollution of sensitive water receptors or serious pollution of other water bodies.	High	High	Low
Harm from long-term exposure. Slight pollution of sensitive receptors or pollution of other water bodies.	Medium	Medium	Low
No significant harm in either short or long term. No pollution of water that is likely to affect sensitive receptors. No more than slight pollution of other water bodies.	Low	Low	Low

Appendix H. Environmental Receptors

Table H.1: Pollution to controlled waters

'Section 78A(9) of the EPA 1990 defines the pollution of controlled waters as: "the entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter".' (A35) 'Before determining that pollution of controlled water is being, or is likely to be, caused, the local authority should be satisfied that a substance is continuing to enter controlled waters or is likely to enter controlled waters. The local authority should regard something as being "likely" to be caused when the local authority judge it more likely than not to occur.' (A36) 'Land should **not** be designated as contaminated land where: (a) a substance is already present in controlled waters; (b) entry into controlled waters of that substance from land has ceased; and (c) it is not likely that further entry will take place.' (A37) 'Substances should be regarded as having entered controlled waters where: (a) they are dissolved or suspended in those waters; or (b) if they are immiscible with water, they have direct contact with those waters on or beneath the surface of the water.' (A38) The term 'continuing to enter' should be taken to mean any entry additional to any which has already occurred. (A39)

Reproduced from DEFRA (2006) Contaminated Land: Implementation of Part IIA of the Environmental Protection Act 1990 Circular 01/2006 and Scottish Executive Rural Affairs Department (2006) Edition 2 (Paper SE/2006/44). Environmental Protection Act 1990: Part IIA – Contaminated Land.

Table H.2: Significant harm to various receptors.

Type of receptor	Description of harm to that type of receptor that is to be regarded as significant harm
Human beings	Death, disease, serious injury, genetic mutation, birth defects or the impairment of reproductive functions. For these purposes, disease is to be taken to mean an unhealthy condition of the body or a part of it and can include, for example, cancer, liver dysfunction or extensive skin ailments. Mental dysfunction is included only insofar as it is attributable to the effects of a pollutant on the body of the person concerned. In the Guidance, this description of significant harm is referred to as a 'human health effect'.
Any ecological system, or living organism forming part of such a system, within a location which is: • an area notified as an Area of Special Scientific Interest under Section 28 of the Wildlife and Countryside Act 1981. • any land declared a National Nature Reserve under Section 35 of that Act • any area designated as a Marine Nature Reserve under Section 36 of that Act • an area of Special Protection of Birds, established under Section 3 of that Act • any European Site within the meaning of Regulation 1 0 of the Conservation (Natural	For any protected location: Harm which results in an irreversible adverse change, or in some other substantial adverse change, in the functioning of the ecological system within any substantial part of that location; or Harm which affects any species of special interest within that location and which endangers the long-term maintenance of the population of that species at that location. In addition, in the case of a protected location that is a European Site (or a candidate Special Area of Conservation or a potential Special Protection Area), harm which is

Type of receptor	Description of harm to that type of receptor that is to be regarded as significant harm
Habitats etc) Regulations 1994 (ie Special Areas of Conservation and Special protection Areas) • any candidate Special Areas of Conservation or potential Special Protection Areas given equivalent protection • any habitat or site afforded policy protection under paragraph 6 of Planning Policy Statement (PPS9) on nature conservation (i.e. candidate Special Areas of Conservation, potential Special protection Areas and listed Ramsar sites); or • any nature reserve established under Section 21 of the National Parks and Access to the Countryside Act 1949.	incompatible with the favourable conservation status of natural habitats at that location or species typically found there. In determining what constitutes such harm, the local authority should have regard to the advice of English nature and to the requirements of the Conservation (Natural Habitats etc) Regulations 1994. In the Guidance this description of significant harm is referred to as an 'ecological system effect'.
Property in the form of: • crops, including timber • produce grown domestically, or on allotments, for consumption • livestock • other owned or domesticated animals; • wild animals which are the subject of shooting or fishing rights.	For crops, a substantial diminution in yield or other substantial loss in their value, resulting from death, disease or other physical damage. For domestic pets, death, serious disease or serious physical damage. For other property in this category, a substantial loss in its value resulting from death, disease or other serious physical damage. The local authority should regard a substantial loss in value as occurring only when a substantial proportion of the animals or crops are dead or otherwise no longer fit for their intended purpose. Food should be regarded as being no longer fit for purpose when it fails to comply with the provisions of the Food Safety Act 1990. Where a diminution in yield or loss in value is caused by a pollutant linkage, a 20% diminution or loss should be regarded as a benchmark for what constitutes a substantial diminution or loss. In the Guidance this description of significant ham is referred to as an 'animal or crop effect'.
Property in the form of buildings. For this purpose 'building' means any structure or erection and any part of a building, including any part below ground level, but does not include plant or machinery comprised in a building.	Structural failure, substantial damage or substantial interference with any right of occupation. For this purpose, the local authority should regard substantial damage or substantial interference as occurring when any part of the building ceases to be capable of being used for the purpose for which it is or was intended. Additionally, in the case of a scheduled Ancient Monument, substantial damage should be regarded as occurring when the damage significantly impairs the historic, architectural, traditional, artistic or archaeological interest by reason of which the monument was scheduled in the Guidance this description of significant harm is referred to as a 'building effect'.

Reproduced from DEFRA (2006) Contaminated Land: Implementation of Part IIA of the Environmental Protection Act 1990. Circular 01/2006 and Scottish Executive Rural Affairs Department (2006) Edition 2 (Paper SE/2006/44). Environmental Protection Act 1990: Part IIA – Contaminated Land.

Appendix I. Generic Assessment Criteria

Human Health Generic Assessment Criteria

Background

In order to be able to make inference on whether the results obtained during the site investigation (e.g. chemical concentrations in soils, waters and gas) point to the presence of a potential hazard to human health, it is necessary to distinguish between the results, reflecting background and/or insignificantly elevated levels of contamination (i.e. with negligible potential to cause harm or pollution) and the results with significantly elevated concentrations (i.e. with significant potential to cause harm or pollution).

The approach to risk assessment with respect to risks to human health from contaminated land in the UK is set out in the publication Model Procedures for the Management of Land Contamination (CLR11) Environment Agency (2004).

This sets out a tiered approach:

- Preliminary Risk Assessment (e.g. establishing potential pollutant linkages);
- Generic Quantitative Risk Assessment (GQRA) (e.g. comparison of site contaminant concentrations against generic standards and compliance criteria e.g. Soil Guideline Values (SGV) or other Generic Assessment Criteria including an assessment of risk using the source pathway target model); and
- Detailed Quantitative Risk Assessment (DQRA) (e.g. the comparison of contaminant concentrations against site specific assessment criteria).

Preliminary Risk Assessment

This typically encompasses a desk based generation of a conceptual model to establish the potential pollutant linkages associated with the site and any proposed development. Works would typically involve:

- Evaluation of the potential sources of contamination on the site and in the locality and from both a current and historical perspective
- Statutory Consultation;
- Evaluation of a sites geology, hydrology and hydrogeology;
- Site inspection;
- Additional pertinent information as necessary on a site by site basis.

Where works indicate the presence of a potential pollutant linkage further evaluation and potentially site investigation works are necessary to determine the significance of the linkage.

Generic Quantitative Risk Assessment (GQRA)

In August 2008 the Environment Agency (EA) and Department of Environment Food and Rural Affairs (DEFRA) announced the withdrawal of the Contaminated Land Reports CLR7 – 10, CLEA UK (beta) and existing SGV reports as they no-longer fully reflected the revised approach to human health risk assessment.

New partial guidance (in particular Science Reports SR2, SR3 and SR7) and new risk assessment tools (CLEA model version v1.04, v1.05 and currently v1.06) were published and these allow environmental practitioners to derive generic and site specific Soil Assessment Criteria (GAC and SAC). The EA and DEFRA are currently in the process of updating the existing TOX reports and Soil Guideline Values (SGVs) to reflect the new guidance. Thus far SGVs for arsenic, nickel, mercury, selenium and BTEX compounds (benzene, toluene, ethylbenzene and xylenes) have been made available.

In addition Land Quality Management (LQM), Chartered Institute of Environmental Health (CIEH) and Contaminated Land Applications in Real Environments (CL:AIRE) have undertaken the production of GAC values using CLEA 1.04 for parameters not covered by SGV's.

Alterations have been made to the CLEA model since the GAC's calculated by LQM / CIEH and CL:AIRE, which used software version v1.04. The Environment Agency have however confirmed that v1.05 has only a "minor effect on assessment criteria calculated using the CLEA software 1.04" and consequently the GAC's derived are considered to remain valid. Environment Agency SGV's generated using v1.04 have also not been updated. Software version v1.06 is identical to v1.05 with some password protection enhancements that in no way effect the GAC values generated.

Waterman Energy Environment and Design have used the following hierarchy for the generic assessment of soils to evaluate Human Health.

- Published Soil Guideline Values (SGV's), or in their absence;
- GAC prepared in accordance with the CLEA v1.04 / v1.06 model by authoritative bodies (e.g. Chartered Institute of Environmental Health (CIEH), Land Quality Management (LQM) and Contaminated Land Applications in Real Environments (CL:AIRE), or in their absence,
- Waterman in-house GAC prepared in accordance with the CLEA V1.04 model or associated documents.

Tabulated values of the GACs used and there reference sources are presented overleaf.

Detailed Quantitative Risk Assessment (DQRA)

Detailed Quantitative Risk Assessments are undertaken on a site specific basis and full details of the alterations to the CLEA model and generic land use scenarios will be described within the specific reports.

Generic Quantitative Risk Assessment Criteria

Proposed End Use	units	Residential			Source
Soil Organic Matter Content	%	1	2.5	6	
Arsenic	mg/kg	32	32	32	**CLEA SGV 2009**
Antimony	mg/kg	550	550	550	**CL:AIRE 2009**
Barium	mg/kg	1300	1300	1300	**CL:AIRE 2009**
Beryllium	mg/kg	51	51	51	**LQM / CIEH**
Boron (Water Soluble)	mg/kg	291	291	291	**LQM / CIEH**
Cadmium	mg/kg	10	10	10	**CLEA SGV 2009**
Chromium (Total)	mg/kg	3000	3000	3000	**LQM / CIEH**
Chromium (VI)	mg/kg	4.3	4.3	4.3	**LQM / CIEH**
Cobalt	mg/kg	240	240	240	**Dutch Intervention**
Copper	mg/kg	2330	2330	2330	**LQM / CIEH**
Lead	mg/kg	450	450	450	**CLEA SGV 2002 (Withdrawn in 2008)**
Mercury	mg/kg	1	1	1	**CLEA SGV 2009**
Molybdenum	mg/kg	670	670	670	**CL:AIRE 2009**
Nickel	mg/kg	130	130	130	**CLEA SGV 2009**
Selenium	mg/kg	350	350	350	**CLEA SGV 2009**
Vanadium*	mg/kg	75	75	75	**LQM / CIEH**
Zinc	mg/kg	3750	3750	3750	**LQM / CIEH**
Cyanide (Free)	mg/kg	26	26	26	**Waterman GAC - CLEA v1.06**
Complex Cyanide	mg/kg	63000	63000	63000	
Total Cyanide	mg/kg				
Thiocyanate	mg/kg	230	230	230	**Waterman GAC - CLEA v1.06**
Aliphatic EC5 - EC6	mg/kg	30	55	110	**LQM / CIEH**
Aliphatic EC6 - EC8	mg/kg	73	160	370	**LQM / CIEH**
Aliphatic EC8-EC10	mg/kg	19	46	110	**LQM / CIEH**
Aliphatic EC10-EC12	mg/kg	93	230	540	**LQM / CIEH**
Aliphatic EC12-EC16	mg/kg	740	1700	3000	**LQM / CIEH**
Aliphatic EC16-EC35	mg/kg	45000	64000	76000	**LQM / CIEH**
Aliphatic EC35-EC44	mg/kg	45000	64000	76000	**LQM / CIEH**
Aromatic C6-C7 (Benzene)	mg/kg	0.08	0.16	0.33	**CLEA SGV 2009 / Waterman GACs - CLEA v1.04**
Aromatic C7-C8 (Toluene)	mg/kg	120	270	610	
Aromatic C8-C10	mg/kg	27	65	151	**LQM / CIEH**
Aromatic C10-C12	mg/kg	69	160	346	**LQM / CIEH**
Aromatic C12-C16	mg/kg	140	310	593	**LQM / CIEH**
Aromatic C16-C21	mg/kg	250	480	770	**LQM / CIEH**

Proposed End Use	units	Residential			Source
Soil Organic Matter Content	%	1	2.5	6	
Aromatic C21-C35	mg/kg	890	1100	1230	**LQM / CIEH**
Benzene	mg/kg	0.08	0.16	0.33	**CLEA SGV 2009 / Waterman GACs - CLEA v1.04**
Toluene	mg/kg	120	270	610	
Ethyl Benzene	mg/kg	65	150	350	
Xylene - o	mg/kg	45	110	250	
Xylene - m	mg/kg	44	100	240	
Xylene - p	mg/kg	42	98	230	
MTBE (Methyl tert-butyl ether)	mg/kg	49	84	160	**CL:AIRE 2009**
Naphthalene	mg/kg	1.5	3.7	8.7	**LQM / CIEH**
Acenaphthylene	mg/kg	170	400	850	**LQM / CIEH**
Acenaphthene	mg/kg	210	480	1000	**LQM / CIEH**
Fluorene	mg/kg	160	380	780	**LQM / CIEH**
Phenanthrene	mg/kg	92	200	380	**LQM / CIEH**
Anthracene	mg/kg	2300	4900	9200	**LQM / CIEH**
Fluoranthene	mg/kg	260	460	670	**LQM / CIEH**
Pyrene	mg/kg	560	1000	1600	**LQM / CIEH**
Benzo(a)anthracene	mg/kg	3.1	4.7	5.9	**LQM / CIEH**
Chrysene	mg/kg	6	8	9.3	**LQM / CIEH**
Benzo(b)fluoranthene	mg/kg	5.6	6.5	7	**LQM / CIEH**
Benzo(k)fluoranthene	mg/kg	8.5	9.6	10	**LQM / CIEH**
Benzo(a)pyrene	mg/kg	0.83	0.94	1	**LQM / CIEH**
Indeno(1,2,3-cd)pyrene	mg/kg	3.2	3.9	4.2	**LQM / CIEH**
Di-benzo(a.h.)anthracene	mg/kg	0.76	0.86	0.9	**LQM / CIEH**
Benzo(g.h.i.) Perylene	mg/kg	44	46	47	**LQM / CIEH**
Phenols	mg/kg	210	390	420	**CLEA 2006 / CLEA SGV 1.04**
Phenol	mg/kg	210	390	420	
Pentachlorophenol (PCP)	mg/kg	0.55	1.3	2.96	**LQM / CIEH**
2,4-Dimethylphenol	mg/kg	19	43	97	**CL:AIRE 2009**
Total Cresols (2-, 3- and 4-methylphenol)	mg/kg	80	180	400	**CL:AIRE 2009**
1,1,2,2 Tetrachloroethane	mg/kg	0.9	2.1	4.8	**LQM / CIEH**
1,1,2,2 Tetrachloroethene	mg/kg	0.9	2.1	4.8	**LQM / CIEH**
1,1,1 Trichloroethane	mg/kg	6.2	13	28	**LQM / CIEH**
Trichloroethane	mg/kg	0.018	0.039	0.089	**LQM / CIEH**
Tetrachloromethane (Carbon Tetrachloride)	mg/kg	0.0054	0.008	0.014	**LQM / CIEH**

Proposed End Use	units	Residential			Source
Soil Organic Matter Content	%	1	2.5	6	
1,2- Dichloroethane	mg/kg	0.00047	0.00064	0.00099	**LQM / CIEH**
Chloroethene (Vinyl chloride)	mg/kg	0.11	0.22	0.49	**LQM / CIEH**
Trichloroethene	mg/kg	0.94	2.1	4.8	**LQM / CIEH**
Sum of PCDDs, PCDFs and dioxins like PCBs	mg/kg			8	**CLEA SGVs 2009**
Isopropylbenzene	mg/kg	11	27	64	**CL:AIRE 2009**
Propylbenzene	mg/kg	34	82	190	**CL:AIRE 2009**
Styrene	mg/kg	8.1	19	43	**CL:AIRE 2009**
Bromobenzene	mg/kg	0.87	2	4.7	**CL:AIRE 2009**
1,1,2 Trichloroethane	mg/kg	0.6	1.2	2.7	**CL:AIRE 2009**
1,1-Dichloroethane	mg/kg	2.4	3.9	7.4	**CL:AIRE 2009**
1,1-Dichloroethene	mg/kg	0.23	0.4	0.82	**CL:AIRE 2009**
1,2,4-Trimethylbenzene	mg/kg	0.35	0.85	2	**CL:AIRE 2009**
1,2-Dichloropropane	mg/kg	0.024	0.042	0.084	**CL:AIRE 2009**
2-Chloronaphthalene	mg/kg	3.7	9.2	22	**CL:AIRE 2009**
Bromodichloromethane	mg/kg	0.016	0.03	0.061	**CL:AIRE 2009**
Bromoform	mg/kg	2.8	5.9	13	**CL:AIRE 2009**
Chloroethane	mg/kg	8.3	11	18	**CL:AIRE 2009**
Chloromethane	mg/kg	0.0083	0.0098	0.013	**CL:AIRE 2009**
Cis 1,2 Dichloroethene	mg/kg	0.11	0.19	0.37	**CL:AIRE 2009**
Dichloromethane	mg/kg	0.58	0.98	1.7	**CL:AIRE 2009**
Hexachloroethane	mg/kg	0.2	0.48	1.1	**CL:AIRE 2009**
Trans 1,2 Dichloroethene	mg/kg	0.19	0.34	0.7	**CL:AIRE 2009**
Bis (2-ethylhexyl) phthalate	mg/kg	280	610	1100	**CL:AIRE 2009**
Butyl benzyl phthalate	mg/kg	1400	3300	7200	**CL:AIRE 2009**
Diethyl Phthalate	mg/kg	120	260	570	**CL:AIRE 2009**
Di-n-butyl phthalate	mg/kg	13	31	67	**CL:AIRE 2009**
Di-n-octyl phthalate	mg/kg	2300	2800	3100	**CL:AIRE 2009**
Biphenyl	mg/kg	66	160	360	**CL:AIRE 2009**
2,4-Dinitrotoluene	mg/kg	1.5	3.2	7.2	**CL:AIRE 2009**
2,6-Dinitrotoluene	mg/kg	0.78	1.7	3.9	**CL:AIRE 2009**
Tributyl tin oxide	mg/kg	0.25	0.59	1.3	**CL:AIRE 2009**

Soil Contamination – Risk of Harm to Property

Structures and Underground Services

Buried Concrete

BRE Special Digest 1 (2005), 3rd Edition, entitled *Concrete in aggressive ground*, provides guidance on the specification for concrete for installation in natural ground and in brownfield locations. The procedures given for the ground assessment and concrete specification cover the fairly common occurrences of sulfates, sulfides and acids, and the more rarely occurring aggressive carbon dioxide found in some ground and surface waters, which affects concrete foundations and sub-structures. It gives procedures for specification of concrete and applies to both buildings and civil engineering construction.

Water Supply Pipes

Guidance is provided in the Water Regulations Advisory Scheme Information and Guidance Note entitled *"The selection of materials for water supply pipes to be laid in contaminated land"* No. 9-04-03, October 2002.

Where soil concentrations exceed these threshold values, it is likely that special consideration of material selection will be required.

Notwithstanding the above, it is reasonable to assume that if contaminants are present above background concentrations, problems will arise and therefore materials should be selected accordingly. In cases where there is uncertainty; eg potentially aggressive contaminants are present for which there are no critical thresholds, some organic contaminants may have a greater effect on polyethylene (PE) pipes when present in mixtures than singly; this approach is recommended by the Water Suppliers,.

The material selection thresholds contained in this document are reproduced in the table below:

Contaminant concentrations in Soils

Contaminant	Material selection threshold mg/kg
Corrosion	
Sulphate	2000
Sulphur	5000
Sulphide	250
Ph	Less than pH5 greater than pH8
Toxic Substances	
Antimony	10
Arsenic	10*
Cadmium	3
Chromium (total)	600
Chromium (hexavalent)	25
Cyanide (free)	25*
Cyanide (complex)	250*
Lead	500
Mercury	1
Selenium	3

Contaminant	Material selection threshold mg/kg
Thiocyanate	50
Organic Contaminants	
Coal tar	50
Cyclohexane extractable	50
Phenol	5
PAHs	50
Toluene extractable	50
Petroleum hydrocarbons	50

Footnotes:
*It is not recommended that water pipes should be laid in sites where these substances are identified or expected

Soil Contamination – Risk of Combustion

The combustibility of soils is a complex function of soil type, energy content, and availability of oxygen. The Building Research Establishment (BRE) has published guidance based on Calorific Value (i.e. energy content, alone), namely *IP 2/87, Fire and explosion hazards associated with the redevelopment of contaminated land*. This document provides a level below which combustibility is unlikely (2MJ/kg) and a level above which combustibility is likely (10MJ/kg). In the range between these two values combustibility is uncertain. Therefore, where the lower value is exceeded, the other key factors mentioned above need to be considered.

Soil Contamination – Risk of Harm to Vegetation

Where there is topsoil present on Site and it is being considered for reuse in landscaped areas then it needs to be assessed for its suitability for use by an appropriately qualified specialist. Topsoil can be both naturally-occurring and manufactured. The requirements for topsoil that is to be reused on site are specified in BS3882:2007 and cover a range of properties including texture, organic matter content, grading, pH, nutrients and phytotoxic contaminants. The specification for phytotoxic contaminants is reproduced in the table below:

Phytotoxic Contaminants (by soil pH) for Topsoil

Contaminant*	pH		
	<6	6.0 to 7.0	>7
Zinc (Nitric acid extractable**)	<200mg/kg	<200mg/kg	<300mg/kg
Copper (Nitric acid extractable**)	<100mg/kg	<135mg/kg	<200mg/kg
Nickel (Nitric acid extractable**)	<60mg/kg	<75mg/kg	<110mg.kg

Footnotes:

*The lower of the Generic Assessment Criteria for chemical contaminants (human health and the environment) and phytotoxicity shall be used for topsoil

**The method of testing is given in Annex D to BS3882:2007 Specification for topsoil and requirements for use.

The risk to human health and the environment needs to be considered as well as phytotoxicity and this will be carried out using the Generic Assessment Criteria selected for these risks as described elsewhere in this appendix and this report.

In order to assess the suitability of topsoil to be reused the full range of testing specified needs to be carried out and assessed by an appropriately qualified specialist.

Controlled Waters Generic Assessment Criteria

The Screening Values adopted by Waterman for ground and surface water quality have been selected on the basis of the water quality standards that apply at the controlled water receptor considered to be at potential risk of harm. Where the receptor is to be assessed for potential harm to aquatic life then the Environmental Quality Standards (EQS) for List 1 and List 2 dangerous substances (EC Dangerous Substances Directive (76/464/EEC)) will be used. Where the receptor is to be assessed for potential harm with respect to use as a drinking water resource then the Water Supply (Water Quality) Regulations 1989 and 2000 as amended will be used. Where the receptor is to be used by aquatic life and for drinking water purposes both sets of criteria will be used. The standards for the substances tested for in this investigation are provided in Table D3 and D4 below.

Environmental Quality Standards

Environmental Quality Standards (EQS) annual average		Freshwater
pH (Acid)		6.0
pH (Alkaline)		9.0
Arsenic	µg/l	50
Barium	µg/l	NV
Cadmium	µg/l	5
Chromium	µg/l	5 – 250(1)
Lead	µg/l	4 -250(1)
Mercury	µg/l	1
Selenium	µg/l	NV
Boron	µg/l	2000
Copper	µg/l	1 - 28(1)
Nickel	µg/l	50 - 200(1)
Zinc	µg/l	75 - 500(1)
Sulfate	mg/l	*400*
Cyanide	µg/l	NV
Ammonium (NH_3 as N)	µg/l	15
Ammonium (NH_4+)	µg/l	NV
Nitrate (as $N0_3$)	mg/l	NV
Total Petroleum Hydrocarbons (TPH)	µg/l	NV
Polyaromatic Hydrocarbons (PAH)	µg/l	NV
Benzo(a)pyrene	µg/l	NV
Phenols	µg/l	NV
Phenol	µg/l	30
Tetrachloromethane (PCM)	µg/l	12
Trichloroethene (TCE)	µg/l	10
Tetrachloroethene (PCE)	µg/l	10
Benzene	µg/l	30
Ethyl Benzene	µg/l	NV
Toluene	µg/l	50
Xylene	µg/l	30

Footnotes:
NV – No value
(1) – Dependant on Hardness (See DoE circular 7/89).

UK Drinking Water Supply Standards

Water Supply (Water Quality) Regulations 1989 and 2000- as amended		
pH (Acid)		5.5
pH (Alkaline)		9.5
Acrylamide	µg/l	0.1
Antimony	µg/l	5
Arsenic	µg/l	10
Barium	µg/l	1000
Bromate	µg/l	10
Calcium	mg/l	250
Cadmium	µg/l	5
Chloride	mg/l	250
Chromium	µg/l	50
Iron	µg/l	200
Lead	µg/l	25 (Reducing to 10 in 2013)
Magnesium	mg/l	50
Manganese	µg/l	50
Mercury	µg/l	1
Selenium	µg/l	10
Sodium	mg/l	200
Boron	µg/l	1000
Copper	µg/l	2000
Nickel	µg/l	20
Zinc	µg/l	5000
Sulphate	mg/l	250
Total/Complex Cyanide	µg/l	50
Ammonium (NH4+)	µg/l	500
Nitrate (as $N0_3$)	mg/l	50
Nitrite (as $N0_2$)	mg/l	0.5
Hydrocarbons (dissolved/emulsions)	µg/l	10
Polyaromatic Hydrocarbons (PAH)	µg/l	0.1
Benzo(a)pyrene	µg/l	0.01
Phenol	µg/l	0.5
Tetrachloromethane	µg/l	3
Trichloroethene (TCE) Tetrachloroethene (PCE)	µg/l	10 (combined total)
Trihalomethanes	µg/l	100
Vinyl chloride	µg/l	0.5
Benzene	µg/l	1
Ethyl Benzene	µg/l	NV
Toluene	µg/l	NV
Xylene	µg/l	NV
EU Surface Water Directive (75/440/EEC) - Class A1 – only simple treatment required.		
Sulphide	mg/l	*150*

Ground Gas and Volatile Organic Compounds Generic Assessment Criteria

Ground Gas

The Building Regulations 2000 Approved Document C (2004 Edition) require that methane and other gases from the ground are considered on a risk assessment basis. Methane and other gases from the ground are defined in this document as *"hazardous soil gases which originate from waste deposited in landfill sites or are generated naturally"*. Ground gas can also be generated by fill materials present on sites that are not classed as landfills. Therefore a preliminary ground gas risk assessment should consider the potential for methane or other gases to be present. This includes identification of the potential sources on or near to the site that could produce methane or other ground gas.

The most common gases assessed with respect to development are methane and carbon dioxide. Methane forms a potentially explosive mixture when mixed with air within certain concentration limits, known as the „explosive range'. The Lower Explosive Limit (LEL) for methane is 5%. Carbon dioxide (CO_2) is a dense gas, capable of accumulating in confined spaces such as basements, causing a potential asphyxiation hazard. The Occupational Exposure Limit (OEL) for a short-term exposure to carbon dioxide is 1.5% over a 15 minute period. Both methane and carbon dioxide when present at high concentrations can act as simple asphyxiants by reducing the oxygen content by dilution.

Reference in the Building Regulations is made to guidance documents produced by a variety of organisations, primarily those produced by the Construction Industry Research and Information Association (CIRIA). These include the following documents:

- CIRIA Report 149 Protecting development from methane, 1995
- CIRIA Report 131 The measurement of methane and other gases from the ground, 1993.
- CIRIA Report 150 Methane investigation strategies, 1995
- CIRIA Report 151 Interpreting measurements of gas in the ground, 1995
- CIRIA Report 152 Risk assessment for methane and other gases from the ground, 1995

In addition guidance is provided in the BRE document „Construction of new buildings on gas-contaminated land (BRE Report BR212)'.

CIRIA, Report 131, 1993, suggests that there are no fixed rules for safe gas concentrations on a site since this risk is dependent on a number of factors that include gas emission rate from the ground and the potential for gas to enter into structures.

The Building Regulations relate to domestic dwellings. However, for non-domestic dwellings the same principle of risk assessment applies.

The latest guidance document is provided by CIRIA Report C665, *"Assessing risks posed by hazardous ground gases to buildings"*, 2007 and BS8485:2007: *"Code of practice for the characterisation and remediation from ground gas in affected developments"*.

CIRIA C665 aims to consolidate good practice in investigation, facilitate the collection of relevant data, instigate appropriate monitoring programmes, all in a risk based approach to gas contaminated land. As with BS8485, this document largely focuses on Methane and Carbon Dioxide. However, much of the text is also relevant to consideration of other contamination present in vapour phase.

BS8485, 2007 describes methods for the investigation and assessment of the ground gases methane and carbon dioxide provides recommendations for protection of new development on affected sites. This standard is not intended for the assessment of completed developments and considers only methane and carbon dioxide.

Both of these publications have been prepared to be generally consistent with CLR11, *Model Procedures for the management of land contamination,* (DEFRA and the Environment Agency, 2004a) and follow a step by step approach summarised below:-

1. Desk Study and Site Walkover
2. Development of a Preliminary Conceptual Model and Risk Assessment
3. Site Investigation (If deemed necessary from stage 2)
4. Risk Assessment and Site Characterisation
5. Recommendation and Mitigation

Where, the preliminary conceptual model has deemed further investigation necessary to characterise the ground gas regime, an appropriate site investigation and monitoring regime should be designed and undertaken. In-depth guidance to assist in the design of the investigation is provided within C665, which describes intrusive investigation techniques and provides guidance on selecting the number and location of monitoring wells based on the site specific conceptual model.

Waterman has generally followed the approach recommended in CRIRIA C665 with respect to characterising a site and determining the levels of gas protection methods required. This approach is generally consistent with the guidance provided in BS8485.

In accordance with C665, to assess the ground gas regime at a site, the ground gas monitoring data should be assessed by determining the Gas Screening Value (GSV) (l/hr) (BS8485 refers to the GSV as the Hazardous Gas Flow Rate). The GSV is calculated as follows:

GSV = (Measured Maximum CO_2 or CH_4 Gas Concentration (%) / 100) x Maximum Measured Gas Flow Rate from boreholes (l/hr)

Where the gas flow rate has been measured as less than the detection limit of the instrument used (ie <0.1 l/hr), C665 recommends that the detection limit for the Gas Analyser is used as the gas flow rate (ie 0.1l/hr).

The Gas Screening Value is used to classify the site, subject to the proposed end use of the site, falling into either Situation A or Situation B, as described below.

Situation A – For All Development Types except Low Rise Housing with a ventilated underfloor void (150mm)

For situation A, the Modified Wilson and Card classification system is used. This system attributes a Characteristic Situation (CS) value to the site/zone depending upon the calculated GSV. When attributing a CS, additional factors including the maximum recorded gas concentration and the maximum recorded gas flow rate should also be taken into account and may result in an increase in the CS value. Table I.2 below, outlines the CS values associated GSV's and additional factors which must be taken into account.

Modified Wilson and Card Classification

Characteristic Situation (CIRIA 149)	Risk Classification	Gas screening value (CH_4 CO_2) l/hr	Additional Factors	Typical source of generation
1	**Very low risk**	**<0.07**	Typically methane ≤1% and / or carbon dioxide ≤5%. Otherwise consider increase to CS 2.	Natural soils with low organic content „Typical' made ground
2	**Low risk**	**<0.7**	Borehole air flow rate not to exceed 70 l/hr. Otherwise consider increase to CS 3.	Natural soil, high peat/organic content. „Typical' made ground
3	**Moderate risk**	**<3.5**		Old landfill, inert waste, mineworking flooded
4	**Moderate to high risk**	**<15**	Quantitative risk assessment required to evaluate scope of protective measures.	Mineworking – susceptible to flooding, completed landfill (WMP 26B criteria)
5	**High risk**	**<70**		Mineworking unflooded inactive with shallow workings near surface
6	**Very High risk**	**>70**		Recent landfill site

Notes:

1) Gas screening value: litres of gas / hour is calculated by multiplying the gas concentration (%) by the measured borehole flow rate (l/hr)
2) Source of gas and generation potential/performance must be identified.
3) If there is no detectable flow use the limit of detection of the instrument.

Once the characteristic situation has been determined, the requirements and scope of gas protection measures can be determined based on Table I.3 below (based on guidance provided within C665):

Modified Wilson and Card Protection Measures

CS*	Residential building (not those subject to NHBC Classification Method			Office/commercial/industrial development	
	Risk Classification	No. of levels of protection	Typical scope of protective measures	No. of levels of protection	Typical scope of protective measures
1	**Very low risk**	**None**	No special precautions	None	
2	**Low risk**	**2**	a) Reinforced concrete cast in situ floor slab (suspended, non-suspended or raft) with at least 1200g DPM[2,7] and underfloor venting. b) Beam and block or pre-cast concrete and 2000g DPM[7]/ reinforced gas membrane and underfloor venting. All joints and penetrations sealed	1 to 2	a) Reinforced concrete cast in situ floor slab (Suspended, non-suspended or raft) with at least 1200g DPM[2,7]. b) Beam and block or pre-cast concrete slab and minimum 2000g DPM / reinforced gas membrane. c) Possibly underfloor venting or pressurisation in combination with a) and b) depending on use. All joints and penetrations sealed
3	**Moderate risk**	**2**	All types of floor slab as above. All joints and penetrations sealed. Proprietary gas resistant membrane and passively ventilated or positively pressurised underfloor sub-space.	1 to 2	All types of floor slab as above. All joints and penetrations sealed. Minimum 2000g/reinforced gas proof membrane and passively ventilated underfloor sub-space or positively pressurised underfloor sub-space.
4	**Moderate to high risk**	**3**	All types of floor slab as above. All joins and penetrations sealed. Proprietary gas resistant membrane and passively ventilated underfloor sub-space or positively pressurised underfloor sub-space, oversite capping or binding and in ground venting layer.	2 to 3	All types of floor slab as above. All joins and penetrations sealed. Proprietary gas resistant membrane and passively ventilated or positively pressurised underfloor sub-space.
5	**High risk**	**4**	Reinforced concrete cast in situ floor slab (suspended, non-suspended or raft). All joints and penetrations sealed. Proprietary gas resistant membrane and ventilated or positively pressurised underfloor sub-space, oversite capping and in ground venting layer and in ground venting wells or barriers	3 to 4	Reinforced concrete cast in situ floor slab (suspended, non-suspended or raft). All joins and penetrations sealed. Proprietary gas resistant membrane and passively ventilated or positively pressurised underfloor sub-space with monitoring facility. In ground venting wells or barriers.

CS*	Residential building (not those subject to NHBC Classification Method			Office/commercial/industrial development	
	Risk Classification	No. of levels of protection	Typical scope of protective measures	No. of levels of protection	Typical scope of protective measures
6	**Very high risk**	**5**	Not suitable unless gas regime is reduced first and quantitative risk assessment carried out to assess design of protection measures in conjunction with foundation design.	4 to 5	Reinforced concrete cast in-situ floor slab (suspended, non-suspended or raft). All joints and penetration sealed. Proprietary gas resistant membrane and actively ventilated or positively pressurised underfloor sub-space with monitoring facility, with monitoring. In ground venting wells and reduction of gas regime.

Notes:

1) Typical scope of protective measures may be rationalised for specific developments on the basis of quantitative risk assessments.
2) Note, the type of protection is given for illustrative purposes only. Information on the detailing and construction of passive protection measures is given in BR414 [Ref: 16]. Individual site specific designs should provide the same number of separate protective methods for any given characteristic situation.
3) In all cases there should be minimum penetration of ground slabs by services and minimum number of confined spaces such as cupboards above the ground slab. Any confined spaces should be ventilated.
4) Foundation design must minimise differential settlement particularly between structural elements and ground baring slabs.
5) Floor slabs should provide an acceptable formation on which to lay the gas membrane. If a block beam floor is used it should be well detailed so it has no voids in it that membranes have to span and all holes for service penetrations should be filled. The minimum density of the blocks should be 600kg/m^3 and the top surface should have a 4:1 sand cement grout brushed into all joints before placing any membranes (this is also good practice to stabilise the floor and should be carried out regardless of the need for gas membranes).
6) The gas resistant membrane can also act as the damp proof membrane.
7) DPM = Damp Proof Membrane

Situation B – For Low Rise Housing with a ventilated underfloor void (min 150mm)

Situation B should be used for low-rise residential housing with gardens and sub-floor void. Where a sub-space void is not proposed, the development should be assessed using the situation A classification system above.

For situation B, the National House Building Council's (NHBC) Traffic Light classification system is used. This system attributes a colour to a site/zone depending upon the calculated GSV. As with the Wilson and Card system, in addition to the GSV, additional factors including the maximum recorded gas concentration and the maximum recorded gas flow rate must be taken into account when determining the Traffic Light classification. Table I.4, outlines the Traffic Light classification system, based on the calculated GSV's and additional factors which must be taken into account.

NHBC traffic light system for 150mm void

Traffic Light	Methane		Carbon Dioxide	
	Typical Maximum Concentration (% v/v)	Gas Screening Value (GSV) l/hr	Typical Maximum Concentration (% v/v)	Gas Screening Value (GSV) l/hr
Green				
Amber 1	1	0.16	5	0.78
Amber 2	5	0.63	10	1.56
Red	20	1.56	30	3.13

Notes:-

- The worst gas regime identified at the site, either methane or carbon dioxide, recorded from monitoring in the worst temporal conditions, will be the decider as to what Traffic Light and GSV is allocated.
- Generic GSVs are based on guidance contained within latest revision of Department of the Environment and the Welsh Office (2004 edition) "The Building Regulations: Approved Document C" [Ref:17] and used a sub-floor void of 150mm thickness.
- This assessment is based on a small room e.g. downstairs toilet with dimensions of 1.5 x 2.5m, with a soil pipe passing into the sub-floor void.
- The GSV, in litres per hour, is as defined as the bore hole flow rate multiplied by the concentration of the particular gas being considered.
- The typical maximum concentrations can be exceeded in certain circumstances should the conceptual site model indicate it is safe to do so. This is where professional judgement will be required based on a thorough understanding of the gas regime identified at the site where monitoring in the worst case temporal conditions has occurred.
- The GSV threshold should not generally be exceeded without completion of a detailed gas risk assessment taking into account site specific conditions.

Once the Traffic Light classification has been determined, the requirements and scope of gas protection / mitigation measures can also be determined based on Table I.5 below (based on guidance provided within CIRIA C665):

Gas Protection Measures for Low-Rise Housing Development Based Upon Allocation NHBC Traffic Light (Boyle and Witherington, 2006)

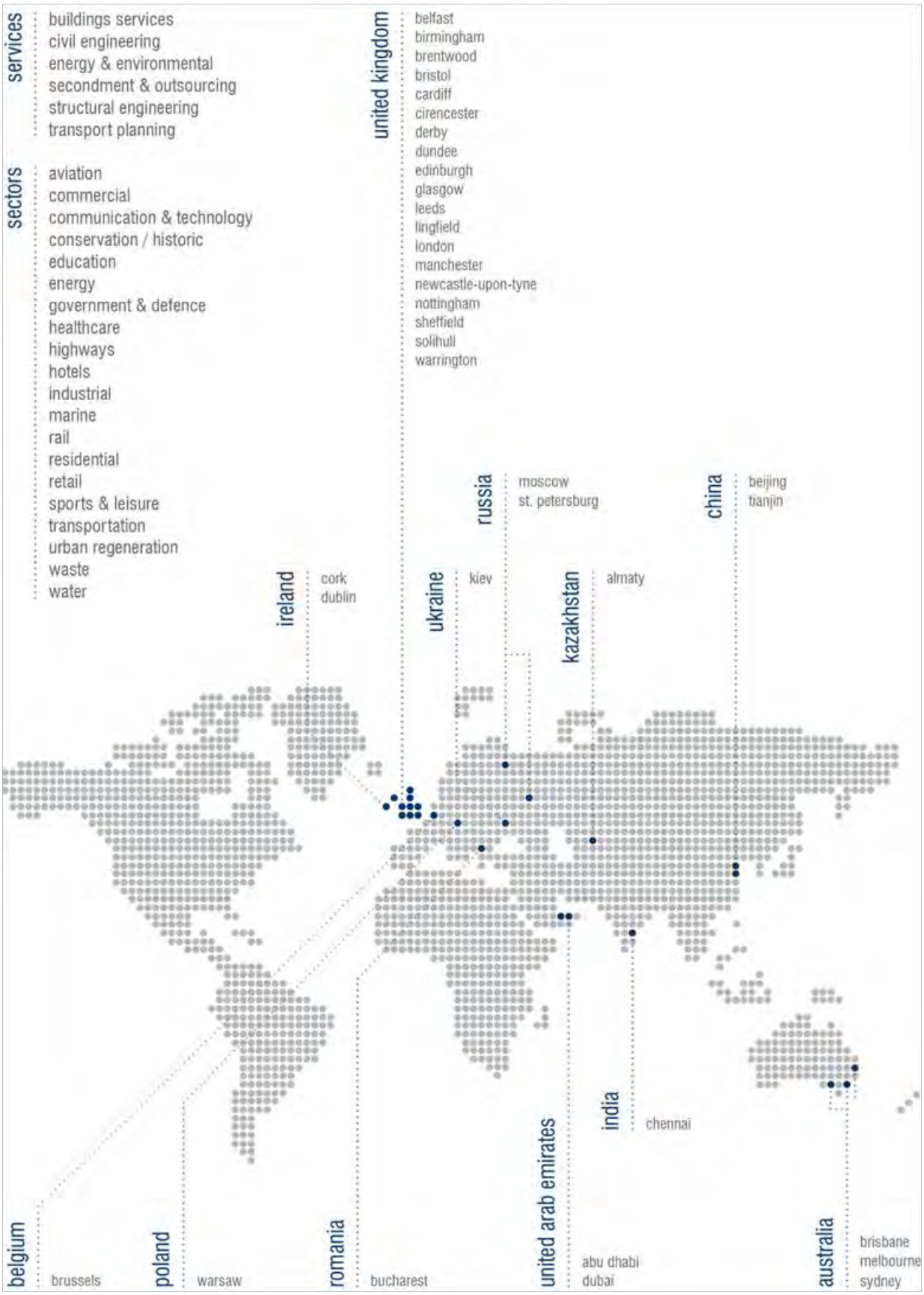
Traffic Light Classification	Protection Measures Required
Green	Negligible gas regime identified and gas protection measures are not considered necessary.
Amber 1.	Low to intermediate gas regime identified, which requires low-level gas protection measures, comprising a membrane and ventilated sub-floor void to create a permeability contrast to limit the ingress into buildings. Gas protection measures should be as prescribed in BRE Report 414 (Johnson 2001). Ventilation of sub-floor void should facilitate a minimum of one complete volume change per 24 hours.
Amber 2.	Intermediate to high gas regime identified, which requires high level gas protection measures, comprising a membrane and ventilated sub-floor void to create a permeability contrast to prevent the ingress of gas into buildings. Gas protection measures should be as prescribed in BRE Report 414. Membranes should always be fitted by a specialist contractor. As with Amber 1, ventilation of the sub-floor void should facilitate a minimum of one complete volume change per 24 hours. Certification that these passive protection measures have been installed correctly should be provided.
Red	High gas regime identified. It is considered that standard residential housing would not normally be acceptable without a further Gas Risk Assessment and / or possible remedial mitigation measures to reduce and / or remove the source of gas.

Volatile Organic Compounds

The Building Regulations 2000 Approved Document C (2004 Edition) also refers to volatile organic carbons (VOCs). These are primarily assessed by examination of the VOC content of site soils. Further guidance on VOCs is provided in *"The VOCs Handbook; Investigating, assessing and managing risks from inhalation of VOCs at land affected by contamination"*, CIRIA Report C682, 2009.

For former landfill sites the risk from a wider range of trace gases are considered on a site specific basis when appropriate.

Waterman


services
buildings services
civil engineering
energy & environmental
secondment & outsourcing
structural engineering
transport planning
sectors
aviation
commercial
communication & technology
conservation / historic
education
energy
government & defence
healthcare
highways
hotels
industrial
marine
rail
residential
retail
sports & leisure
transportation
urban regeneration
waste
water
united kingdom
belfast
birmingham
brentwood
bristol
cardiff
cirencester
derby
dundee
edinburgh
glasgow
leeds
lingfield
london
manchester
newcastle-upon-tyne
nottingham
sheffield
solihull
warrington
russia
moscow
st. petersburg
china
beijing
tianjin
ireland
cork
dublin
ukraine
kiev
kazakhstan
almaty
india
chennai
belgium
brussels
poland
warsaw
romania
bucharest
united arab emirates
abu dhabi
dubai
australia
brisbane
melbourne
sydney

Appendix F-4: Type 2 Asbestos Survey, Osborne on behalf of Network Rail, 2009

LEGEND for Risk Colours	
Colour	**Risk**
Red	High
Yellow	Medium
Green	Low
Blue	Very Low
Grey	No ACMs present or Property is Post 1999
White/ No Colour	No Survey Performed

Asbestos Type 2 Report
Site: TWICKENHAM Rail Station
Status: Authorised
Risk Colour: LightBlue

Site Reference	25683
Mentor/REID ID	257009000
Site/Property Name	TWICKENHAM Rail Station
Description	TWICKENHAM Rail Station
ELR	RDG1
Mileage	11.0484
Territory	Southern
Route	Southern
Block Address	London Road, Twickenham, Greater London London Road Twickenham Greater London TW1 3SX
Category	Station
Survey Date	18-Jun-2009
Version	4

IMPORTANT - THE FOLLOWING MUST BE READ PRIOR TO UNDERTAKING ANY INSPECTION OR OTHER WORKS

Scope of the Asbestos Survey

Unless stated to the contrary all inspections have been carried out to the standard of an MDHS 100 type 2 asbestos survey, as defined by the HSE.

These are visual, non-intrusive surveys only and consequently only areas that are reasonably accessible have been inspected. No attempt has been made for example to access any sealed void; covered area; plant; machinery or equipment or to inspect any ducts, cable trays or areas above suspended ceilings higher than 3 metres (the safe limit of inspection using a 2 metre ladder). No equipment has been moved or floor coverings lifted and no panelling or partitioning has been removed or areas opened up, in the course of the inspection.

Any specific rooms or other parts that could not be inspected are listed in the text.

Where materials were suspected of containing asbestos, samples were taken, analysed and the results have been incorporated.

Prime Contractor	Osborne	**Sub-contractor**	Crabtree
Address	Raven House First Fl 29 Linkfield Lane Redhill Surrey RH1 1JP	**Address**	. 2A Wanlip Road Plaistow London . E13 8QP
E-Mail	chris.rowe@osborne.co.uk	**E-Mail**	headoffice@crabtrees.co.uk
Telephone	017373788200	**Telephone**	020 7055 5355
Surveyor Name	Richard Ward		
Comments	MONITORING INSPECTION CARRIED OUT BY McGINLEY ON 12/03/09 - NO CHANGE TO LAST SURVE RECORDED. NO LAB TEST REQUIRED..		

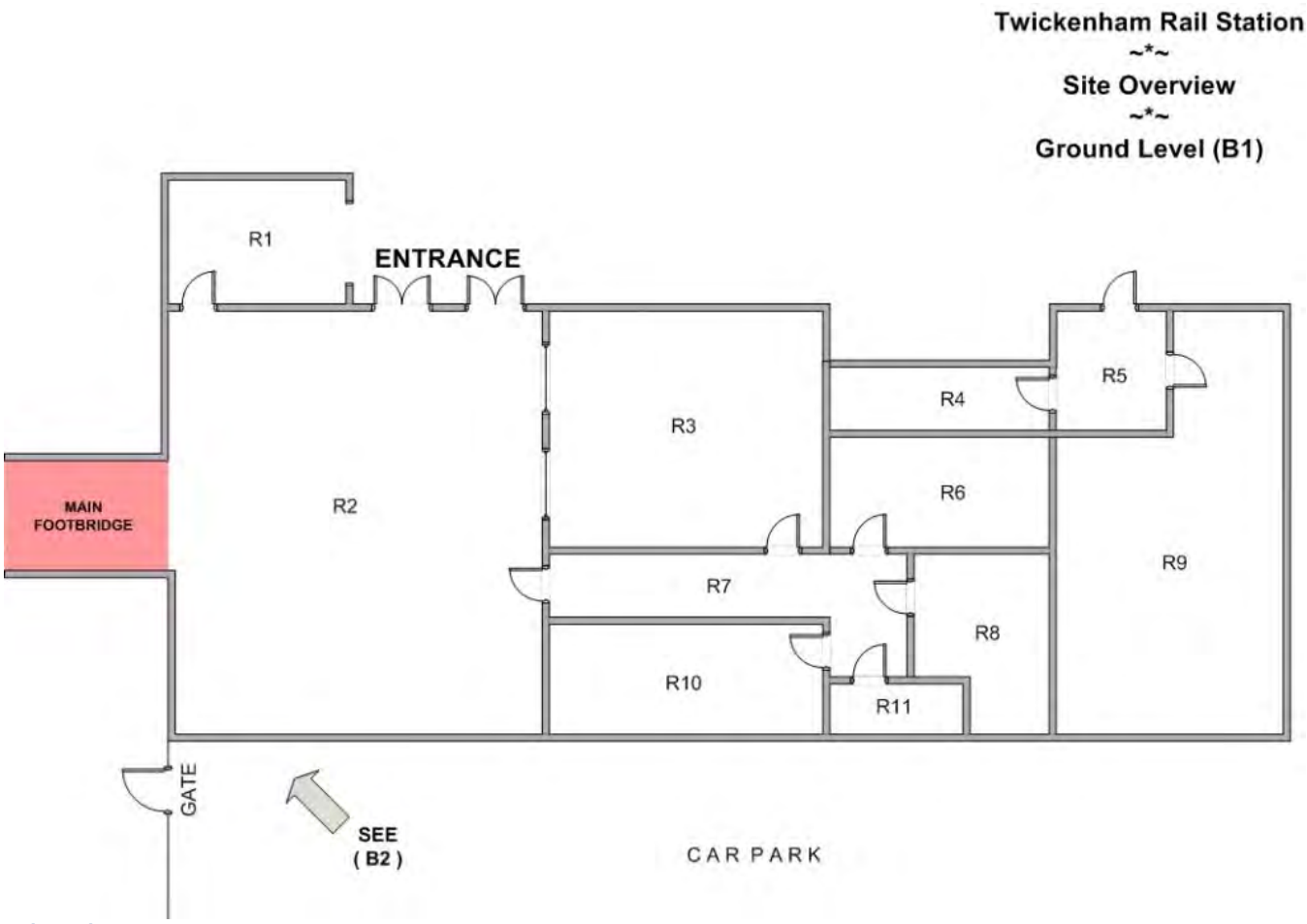
Disclaimer **This data is incomplete**

Locations Not Inspected

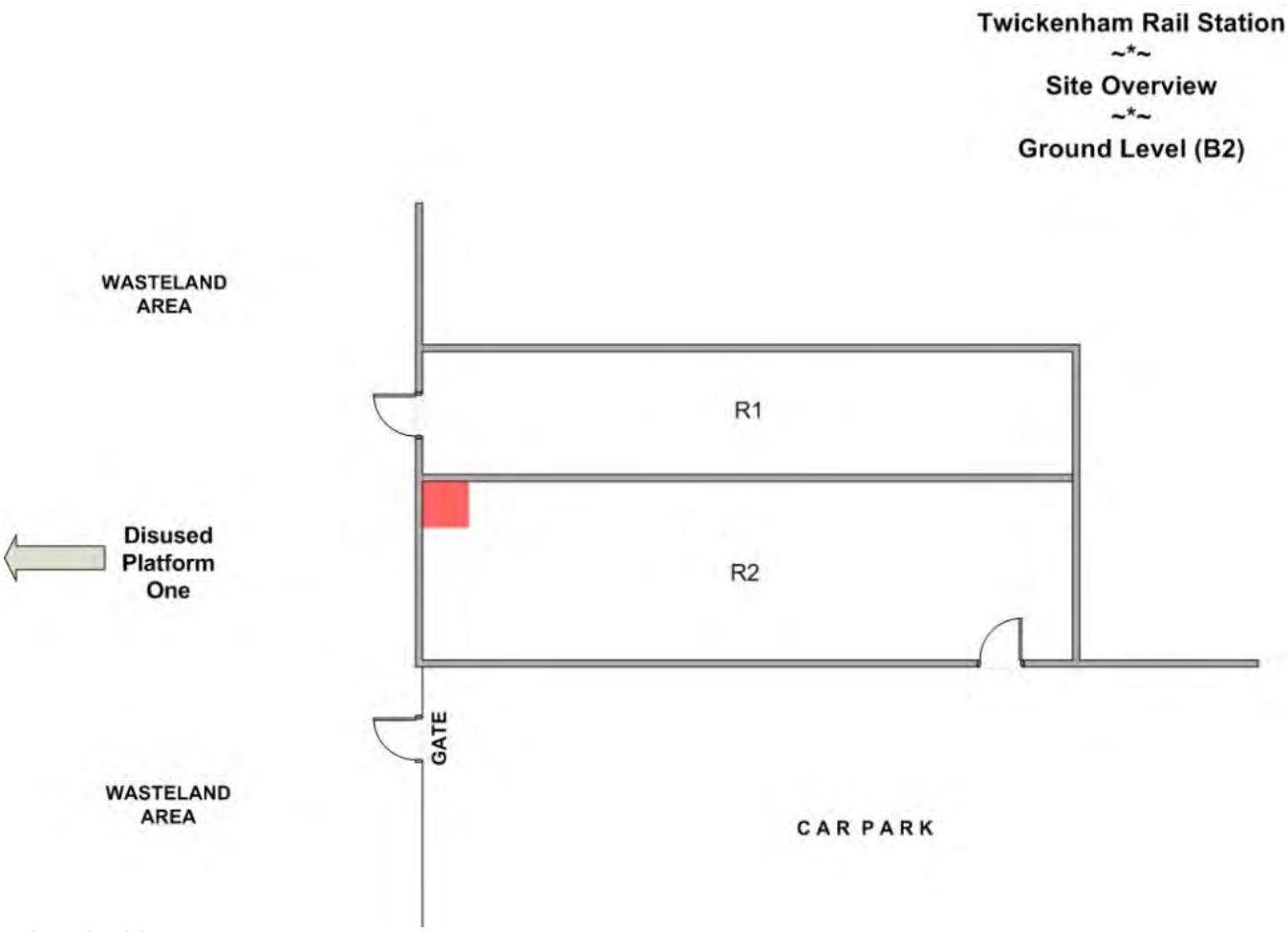
None

Site Images

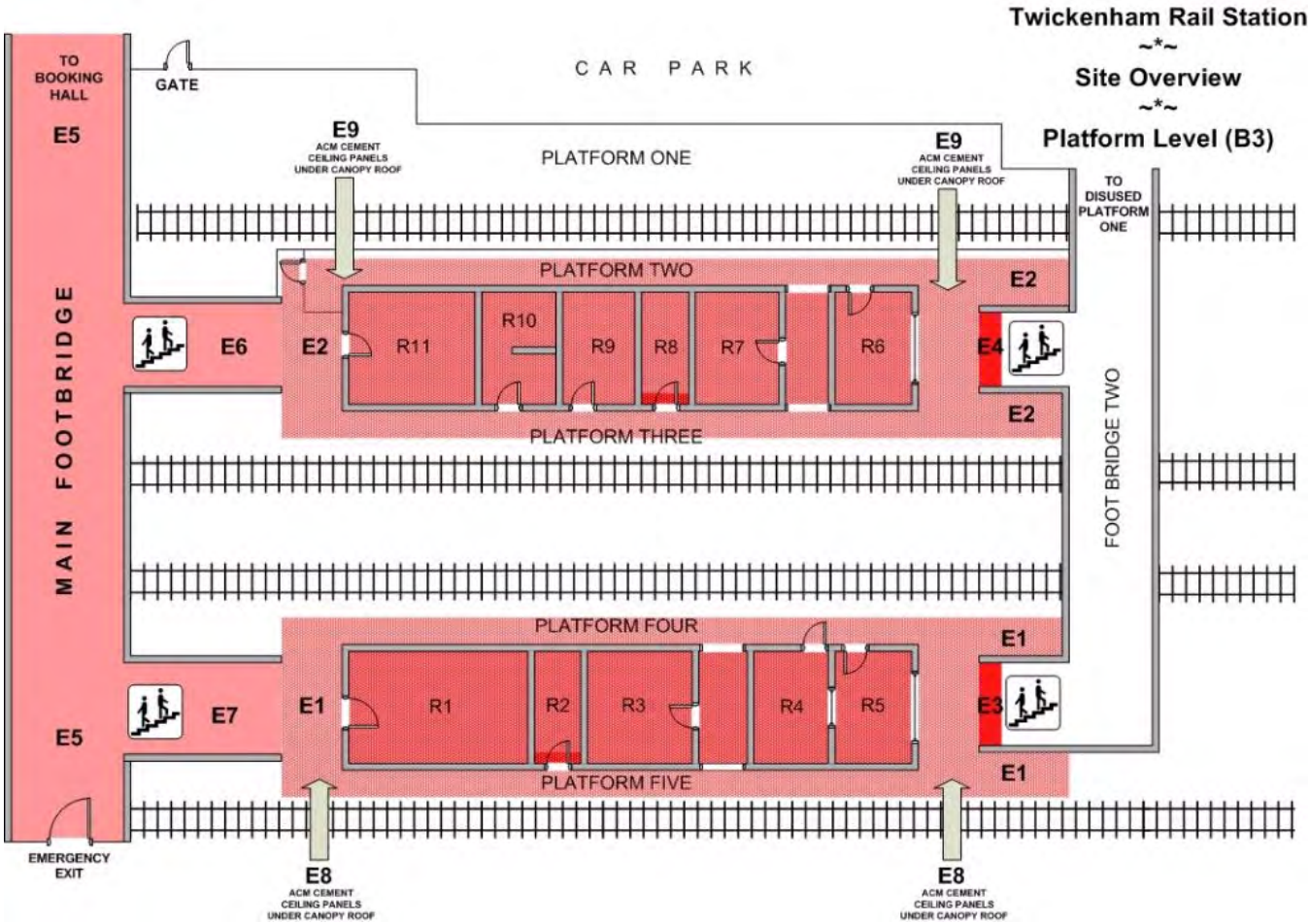
Site photo



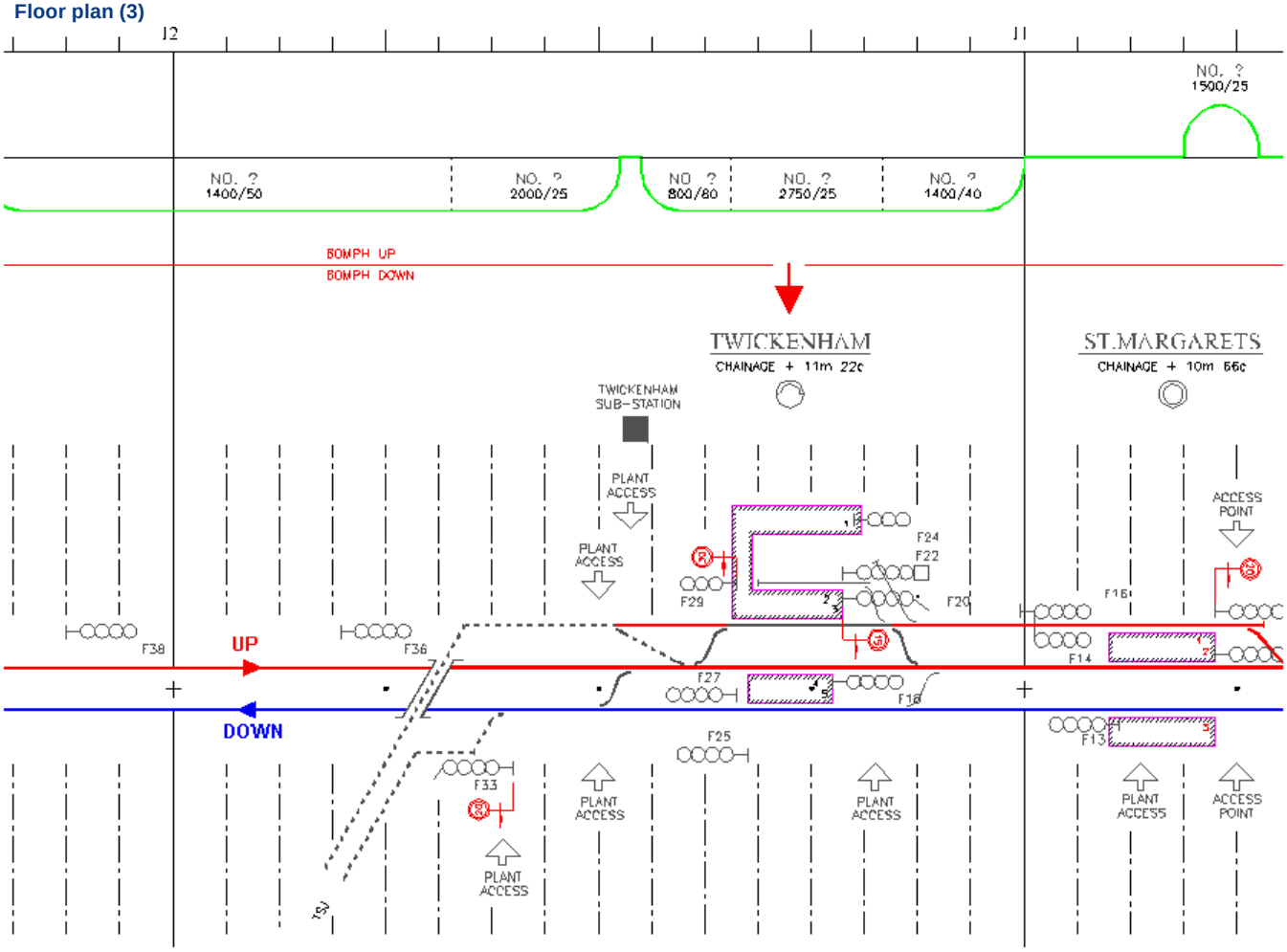
Floor plan



Floor plan (2)



Floor plan (3)



Location Diagram

Analysis Reports

AMS
AMS Management Ltd
Unit1, 9 Cannon Lane
Tonbridge
Kent
TN9 1PP
Tel: 01732 368 359
Fax: 01732 368 361

CERTIFICATE OF ANALYSIS

Report Number: LB22776 Other Ref Report Date: 12/07/2005

Company: Crestree

2A Wantip Road
Plaistow
London
E13 8QP

Site: Twickenham Rail Station

AMS Sample Ref. No.	Client Sample No.	Sample Location	Material Type	Asbestos Type	Estimated Fibre
AMS/CS/34132	040792	Plat 2/3 stair to footbridge 2 canopy panel	Cement Product	Chrysotile Crocidolite	Low Trace
AMS/CS/34133	040793	plat 4/5 stair to footbridge 2 canopy panel	Cement Product	Chrysotile Crocidolite	Low Trace
AMS/CS/34134	040794	Plat 4/5 guards office wall panel	Insulation Board	No Asbestos Detecte	None
AMS/CS/34135	040795	Plat 4/5 Puccino's café wall panel	Insulation Board	No Asbestos Detecte	None
AMS/CS/34136	040796	Plat 4/5 Gents wc wall panel	Insulation Board	No Asbestos Detecte	None
AMS/CS/34137	040797	Staff mess room wall panel	Insulation Board	No Asbestos Detecte	None

Key to estimated fibre content: Trace = <2% Low = 2%-15% Medium = 15% -50% High = >50%

Any opinion or representation of asbestos fibre content levels are a visually assessed approximation only and are outside the scope of UKAS accreditation. The analysis has been performed using the AMS "In House" method of transmitted/polarised light microscopy and centre stop dispersion staining, based on the HSE's MDHS 77. AMS do not accept responsibility for any discrepancy or inaccuracy arising from samples labelled or collected by clients or third parties.

Sampled By: CLIENT Number of Samples: 15 Date Samples Received: 12/07/2005

Name of Analyst: C Squires Date of Analysis: 12/07/2005

For and on behalf of AMS Management Ltd

UKAS 2343

AMS Management Bulk Sample Analysis ver 4 Mar 2004

AMS Management Limited. Registered in England 3541783

Page 1 of 3

Twickenham station

AMS
AMS Management Ltd
Unit1, 9 Cannon Lane
Tonbridge
Kent
TN9 1PP
Tel: 01732 368 359
Fax: 01732 368 361

CERTIFICATE OF ANALYSIS

Report Number: LB22776 Other Ref Report Date: 12/07/2005

Company: Crestree Site: Twickenham Rail Station

2A Wantip Road
Plaistow
London
E13 8QP

AMS Sample Ref. No.	Client Sample No.	Sample Location	Material Type	Asbestos Type	Estimated Fibre
AMS/CS/34138	040798	Ground level building staff wc wall panel	Insulation Board	No Asbestos Detecte	None
AMS/CS/34139	040799	Plat 2/3 station masters office wall panel	Insulation Board	No Asbestos Detecte	None
AMS/CS/34140	040800	Plat 2/3 waiting room wall panel	Insulation Board	No Asbestos Detecte	None
AMS/CS/34141	040801	Plat 2/3 disabled wc wall panel	Insulation Board	No Asbestos Detecte	None
AMS/CS/34142	040802	Plat 2/3 ladies wc wall panel	Insulation Board	No Asbestos Detecte	None
AMS/CS/34143	040803	Plat 2/3 Gents wc wall panel	Insulation Board	No Asbestos Detecte	None
AMS/CS/34144	040804	Switch room wall panel	Insulation Board	No Asbestos Detecte	None

Key to estimated fibre content: Trace = <2% Low = 2%-15% Medium = 15% -50% High = >50%

Any opinion or representation of asbestos fibre content levels are a visually assessed approximation only and are outside the scope of UKAS accreditation. The analysis has been performed using the AMS "In House" method of transmitted/polarised light microscopy and centre stop dispersion staining, based on the HSE's MDHS 77. AMS do not accept responsibility for any discrepancy or inaccuracy arising from samples labelled or collected by clients or third parties.

Sampled By: CLIENT Number of Samples: 15 Date Samples Received: 12/07/2005

Name of Analyst: C Squires Date of Analysis: 12/07/2005

For and on behalf of AMS Management Ltd

AMS Management Bulk Sample Analysis ver 4 Mar 2004

AMS Management Limited. Registered in England 3641783

Page 2 of 3

UKAS TESTING
2343

Twickenham station 2

AMS
AMS Management Ltd
Unit1, 9 Cannon Lane
Tonbridge
Kent
TN9 1PP
Tel: 01732 368 359
Fax: 01732 368 361

CERTIFICATE OF ANALYSIS

Report Number: LB22776 Other Ref Report Date: 12/07/2005

Company: Crabtree

2A Wantip Road
Plaistow
London
E13 8QP

Site: Twickenham Rail Station

AMS Sample Ref. No.	Client Sample No.	Sample Location	Material Type	Asbestos Type	Estimated Fibre
AMS/CS/34145	040805	Ground level S & T room wall panel	Insulation Board	No Asbestos Detecte	None
AMS/CS/34146	040806	Ground level lobby wall panel	Insulation Board	No Asbestos Detecte	None

Key to estimated fibre content: Trace = <2% Low = 2%-15% Medium = 15% -50% High = >50%

Any opinion or representation of asbestos fibre content levels are a visually assessed approximation only and are outside the scope of UKAS accreditation. The analysis has been performed using the AMS "In House" method of transmitted/polarised light microscopy and centre stop dispersion staining, based on the HSE's MDHS 77. AMS do not accept responsibility for any discrepancy or inaccuracy arising from samples labelled or collected by clients or third parties.

Sampled By: CLIENT Number of Samples: 15 Date Samples Received: 12/07/2005

Name of Analyst: C Squires Date of Analysis: 12/07/2005

For and on behalf of AMS Management Ltd

AMS Management Bulk Sample Analysis ver 4 Mar 2004

AMS Management Limited. Registered in England 3641783

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UKAS
2343

Twickenham station 3

Twickenham Station
Building 3 - Platform 2/3

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193620			
ACM Location	Presumed ACM corrugated cement roofing sheets to roof canopy			
ACM Type	Type 1 - Chrysotile (white)	**Material Assessment**	Very Low	Very Low
Condition/Deterioration	Good - intact and no visible damage	**Rating**	3	3
Surface Treatment	Plain asbestos cement	**Priority Assessment Recommendations**	Record; manage; monitor	Record; Manage; Monitor
Product Type	Cement sheets	**Access Restrictions**	Unrestricted	Unrestricted
Exposure	External	**Precaution/Protection**	Take care not to disturb ACM	Take care not to disturb ACM
Likelihood of Damage	Unlikely	**Protection From Public Recommendations**	No action specified	No action specified
Occupancy	Low	**Risk Colour**	LightBlue	LightBlue
Extent	>50m2 or >50m pipe run	**Public Accessibility**	Inaccessible	
Level of Identification	Presumed	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193621			
ACM Location	Upstand fascia panel to end of canopy roof to staircase			
ACM Type	Type 1 - Chrysotile (white)	**Material Assessment**	Low	Low
Condition/Deterioration	Medium Damage	**Rating**	5	5
Surface Treatment	Plain asbestos cement	**Priority Assessment Recommendations**	Record; manage; monitor	Record; Manage; Monitor
Product Type	Cement sheets	**Access Restrictions**	Unrestricted	Unrestricted
Exposure	External	**Precaution/Protection**	Take care not to disturb ACM	Take care not to disturb ACM
Likelihood of Damage	Unlikely	**Protection From Public Recommendations**	Monitor every 6 months	Monitor every 6 months
Occupancy	Low	**Risk Colour**	LightBlue	LightBlue
Extent	Small amounts or items	**Public Accessibility**	Heavily trafficked areas	
Level of Identification	Confirmed from sample taken	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193622			
ACM Location	Corrugated cement sheets to walkway canopy			
ACM Type	Type 1 - Chrysotile (white)	**Material Assessment**	Very Low	Very Low
Condition/Deterioration	Good - intact and no visible damage	**Rating**	3	3
Surface Treatment	Plain asbestos cement	**Priority Assessment Recommendations**	Record; manage; monitor	Record; Manage; Monitor
Product Type	Cement sheets	**Access Restrictions**	Unrestricted	Unrestricted
Exposure	External	**Precaution/Protection**	Take care not to disturb ACM	Take care not to disturb ACM
Likelihood of Damage	Unlikely	**Protection From Public Recommendations**	No action specified	No action specified
Occupancy	Low	**Risk Colour**	LightBlue	LightBlue
Extent	>50m2 or >50m pipe run	**Public Accessibility**	Inaccessible	
Level of Identification	Presumed	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Type 2 Report for TWICKENHAM Rail Station

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193623			
ACM Location	Platform ceiling			
ACM Type	Type 1 - Chrysotile (white)	**Material Assessment**	Very Low	Very Low
Condition/Deterioration	Good - intact and no visible damage	**Rating**	3	3
Surface Treatment	Encapsulated asbestos cement	**Priority Assessment Recommendations**	Record; manage; monitor	Record; Manage; Monitor
Product Type	Cloth	**Access Restrictions**	Unrestricted	Unrestricted
Exposure	External	**Precaution/Protection**	Take care not to disturb ACM	Take care not to disturb ACM
Likelihood of Damage	Unlikely	**Protection From Public Recommendations**	No action specified	No action specified
Occupancy	Low	**Risk Colour**	LightBlue	LightBlue
Extent	>50m2 or >50m pipe run	**Public Accessibility**	Heavily trafficked areas	
Level of Identification	Presumed	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station
Building 3 - Platform 4/5

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193616			
ACM Location	ACM corrugated cement roof sheeting to canopy			
ACM Type	Type 1 - Chrysotile (white)	**Material Assessment**	Very Low	Very Low
Condition/Deterioration	Good - intact and no visible damage	**Rating**	3	3
Surface Treatment	Plain asbestos cement	**Priority Assessment Recommendations**	Record; manage; monitor	Record; Manage; Monitor
Product Type	Cement sheets	**Access Restrictions**	Unrestricted	Unrestricted
Exposure	External	**Precaution/Protection**	Take care not to disturb ACM	Take care not to disturb ACM
Likelihood of Damage	Unlikely	**Protection From Public Recommendations**	No action specified	No action specified
Occupancy	Low	**Risk Colour**	LightBlue	LightBlue
Extent	>50m2 or >50m pipe run	**Public Accessibility**	Inaccessible	
Level of Identification	Presumed	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193617			
ACM Location	Upstand fascia panel to end of canopy roof to staircase			
ACM Type	Type 1 - Chrysotile (white)	**Material Assessment**	Low	Low
Condition/Deterioration	Medium Damage	**Rating**	5	5
Surface Treatment	Plain asbestos cement	**Priority Assessment Recommendations**	Record; manage; monitor	Record; Manage; Monitor
Product Type	Cement sheets	**Access Restrictions**	Unrestricted	Unrestricted
Exposure	External	**Precaution/Protection**	Take care not to disturb ACM	Take care not to disturb ACM
Likelihood of Damage	Unlikely	**Protection From Public Recommendations**	Monitor every 6 months	Monitor every 6 months
Occupancy	Low	**Risk Colour**	LightBlue	LightBlue
Extent	Small amounts or items	**Public Accessibility**	Heavily trafficked areas	
Level of Identification	Confirmed from sample taken	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193618			
ACM Location	Corrugated cement roof sheets to walkway canopy			
ACM Type	Type 1 - Chrysotile (white)	**Material Assessment**	Very Low	Very Low
Condition/Deterioration	Good - intact and no visible damage	**Rating**	3	3
Surface Treatment	Plain asbestos cement	**Priority Assessment Recommendations**	Record; manage; monitor	Record; Manage; Monitor
Product Type	Cement sheets	**Access Restrictions**	Unrestricted	Unrestricted
Exposure	External	**Precaution/Protection**	Take care not to disturb ACM	Take care not to disturb ACM
Likelihood of Damage	Unlikely	**Protection From Public Recommendations**	No action specified	No action specified
Occupancy	Low	**Risk Colour**	LightBlue	LightBlue
Extent	>50m2 or >50m pipe run	**Public Accessibility**	Inaccessible	
Level of Identification	Presumed	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Type 2 Report for TWICKENHAM Rail Station

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193619			
ACM Location	Platform ceiling			
ACM Type	Type 1 - Chrysotile (white)	**Material Assessment**	Very Low	Very Low
Condition/Deterioration	Good - intact and no visible damage	**Rating**	3	3
Surface Treatment	Encapsulated asbestos cement	**Priority Assessment Recommendations**	Record; manage; monitor	Record; Manage; Monitor
Product Type	Cloth	**Access Restrictions**	Unrestricted	Unrestricted
Exposure	External	**Precaution/Protection**	Take care not to disturb ACM	Take care not to disturb ACM
Likelihood of Damage	Unlikely	**Protection From Public Recommendations**	No action specified	No action specified
Occupancy	Low	**Risk Colour**	LightBlue	LightBlue
Extent	>50m2 or >50m pipe run	**Public Accessibility**	Heavily trafficked areas	
Level of Identification	Presumed	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station
Ground level - B1 - R1 Newsagents

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193650			
ACM Location	No ACMs			
ACM Type	No ACMs Present	**Material Assessment**	No Risk	Not Recorded
Condition/Deterioration		**Rating**	0	0
Surface Treatment		**Priority Assessment Recommendations**	None Required	None Required
Product Type		**Access Restrictions**	Unrestricted	Unrestricted
Exposure		**Precaution/Protection**	None Required	None Required
Likelihood of Damage		**Protection From Public Recommendations**	No action specified	No action specified
Occupancy		**Risk Colour**	LightGrey	LightGrey
Extent		**Public Accessibility**		
Level of Identification		**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station

Ground level - B1 - R10 Staff mess room

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193654			
ACM Location	Wall panel			
ACM Type	No ACMs Present	**Material Assessment**	No Risk	Not Recorded
Condition/Deterioration		**Rating**	0	0
Surface Treatment		**Priority Assessment Recommendations**	None Required	None Required
Product Type		**Access Restrictions**	Unrestricted	Unrestricted
Exposure		**Precaution/Protection**	None Required	None Required
Likelihood of Damage		**Protection From Public Recommendations**	No action specified	No action specified
Occupancy		**Risk Colour**	LightGrey	LightGrey
Extent		**Public Accessibility**		
Level of Identification	Not present, sample negative	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station
Ground level - B1 - R11 Staff W/C

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193661			
ACM Location	No ACMs			
ACM Type	No ACMs Present	**Material Assessment**	No Risk	Not Recorded
Condition/Deterioration		**Rating**	0	0
Surface Treatment		**Priority Assessment Recommendations**	None Required	None Required
Product Type		**Access Restrictions**	Unrestricted	Unrestricted
Exposure		**Precaution/Protection**	None Required	None Required
Likelihood of Damage		**Protection From Public Recommendations**	No action specified	No action specified
Occupancy		**Risk Colour**	LightGrey	LightGrey
Extent		**Public Accessibility**		
Level of Identification		**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station

Ground level - B1 - R2 Booking hall

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193651			
ACM Location	No ACMs			
ACM Type	No ACMs Present	**Material Assessment**	No Risk	Not Recorded
Condition/Deterioration		**Rating**	0	0
Surface Treatment		**Priority Assessment Recommendations**	None Required	None Required
Product Type		**Access Restrictions**	Unrestricted	Unrestricted
Exposure		**Precaution/Protection**	None Required	None Required
Likelihood of Damage		**Protection From Public Recommendations**	No action specified	No action specified
Occupancy		**Risk Colour**	LightGrey	LightGrey
Extent		**Public Accessibility**		
Level of Identification		**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station
Ground level - B1 - R3 Ticket office

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193655			
ACM Location	No ACMs			
ACM Type	No ACMs Present	**Material Assessment**	No Risk	Not Recorded
Condition/Deterioration		**Rating**	0	0
Surface Treatment		**Priority Assessment Recommendations**	None Required	None Required
Product Type		**Access Restrictions**	Unrestricted	Unrestricted
Exposure		**Precaution/Protection**	None Required	None Required
Likelihood of Damage		**Protection From Public Recommendations**	No action specified	No action specified
Occupancy		**Risk Colour**	LightGrey	LightGrey
Extent		**Public Accessibility**		
Level of Identification		**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station
Ground level - B1 - R4 Store room

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193656			
ACM Location	No ACMs			
ACM Type	No ACMs Present	**Material Assessment**	No Risk	Not Recorded
Condition/Deterioration		**Rating**	0	0
Surface Treatment		**Priority Assessment Recommendations**	None Required	None Required
Product Type		**Access Restrictions**	Unrestricted	Unrestricted
Exposure		**Precaution/Protection**	None Required	None Required
Likelihood of Damage		**Protection From Public Recommendations**	No action specified	No action specified
Occupancy		**Risk Colour**	LightGrey	LightGrey
Extent		**Public Accessibility**		
Level of Identification		**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station
Ground level - B1 - R5 Lobby 1

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193657			
ACM Location	No ACMs			
ACM Type	No ACMs Present	**Material Assessment**	No Risk	Not Recorded
Condition/Deterioration		**Rating**	0	0
Surface Treatment		**Priority Assessment Recommendations**	None Required	None Required
Product Type		**Access Restrictions**	Unrestricted	Unrestricted
Exposure		**Precaution/Protection**	None Required	None Required
Likelihood of Damage		**Protection From Public Recommendations**	No action specified	No action specified
Occupancy		**Risk Colour**	LightGrey	LightGrey
Extent		**Public Accessibility**		
Level of Identification		**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station
Ground level - B1 - R6 Office

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193658			
ACM Location	No ACMs			
ACM Type	No ACMs Present	**Material Assessment**	No Risk	Not Recorded
Condition/Deterioration		**Rating**	0	0
Surface Treatment		**Priority Assessment Recommendations**	None Required	None Required
Product Type		**Access Restrictions**	Unrestricted	Unrestricted
Exposure		**Precaution/Protection**	None Required	None Required
Likelihood of Damage		**Protection From Public Recommendations**	No action specified	No action specified
Occupancy		**Risk Colour**	LightGrey	LightGrey
Extent		**Public Accessibility**		
Level of Identification		**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station
Ground level - B1 - R7 Lobby

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193649			
ACM Location	Wall panel			
ACM Type	No ACMs Present	**Material Assessment**	No Risk	Not Recorded
Condition/Deterioration		**Rating**	0	0
Surface Treatment		**Priority Assessment Recommendations**	None Required	None Required
Product Type		**Access Restrictions**	Unrestricted	Unrestricted
Exposure		**Precaution/Protection**	None Required	None Required
Likelihood of Damage		**Protection From Public Recommendations**	No action specified	No action specified
Occupancy		**Risk Colour**	LightGrey	LightGrey
Extent		**Public Accessibility**		
Level of Identification	Not present, sample negative	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station
Ground level - B1 - R8 Safe room

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193659			
ACM Location	No ACMs			
ACM Type	No ACMs Present	**Material Assessment**	No Risk	Not Recorded
Condition/Deterioration		**Rating**	0	0
Surface Treatment		**Priority Assessment Recommendations**	None Required	None Required
Product Type		**Access Restrictions**	Unrestricted	Unrestricted
Exposure		**Precaution/Protection**	None Required	None Required
Likelihood of Damage		**Protection From Public Recommendations**	No action specified	No action specified
Occupancy		**Risk Colour**	LightGrey	LightGrey
Extent		**Public Accessibility**		
Level of Identification		**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station

Ground level - B1 - R9 RPI Office/Locker room

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193660			
ACM Location	No ACMs			
ACM Type	No ACMs Present	**Material Assessment**	No Risk	Not Recorded
Condition/Deterioration		**Rating**	0	0
Surface Treatment		**Priority Assessment Recommendations**	None Required	None Required
Product Type		**Access Restrictions**	Unrestricted	Unrestricted
Exposure		**Precaution/Protection**	None Required	None Required
Likelihood of Damage		**Protection From Public Recommendations**	No action specified	No action specified
Occupancy		**Risk Colour**	LightGrey	LightGrey
Extent		**Public Accessibility**		
Level of Identification		**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station
Ground level - B2 - R1 Switch room

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193648			
ACM Location	Wall panel			
ACM Type	No ACMs Present	**Material Assessment**	No Risk	Not Recorded
Condition/Deterioration		**Rating**	0	0
Surface Treatment		**Priority Assessment Recommendations**	None Required	None Required
Product Type		**Access Restrictions**	Unrestricted	Unrestricted
Exposure		**Precaution/Protection**	None Required	None Required
Likelihood of Damage		**Protection From Public Recommendations**	No action specified	No action specified
Occupancy		**Risk Colour**	LightGrey	LightGrey
Extent		**Public Accessibility**		
Level of Identification	Not present, sample negative	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station
Ground level - B2 - R2 S and T room

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193662			
ACM Location	No ACMs			
ACM Type	No ACMs Present	**Material Assessment**	No Risk	Not Recorded
Condition/Deterioration		**Rating**	0	0
Surface Treatment		**Priority Assessment Recommendations**	None Required	None Required
Product Type		**Access Restrictions**	Unrestricted	Unrestricted
Exposure		**Precaution/Protection**	None Required	None Required
Likelihood of Damage		**Protection From Public Recommendations**	No action specified	No action specified
Occupancy		**Risk Colour**	LightGrey	LightGrey
Extent		**Public Accessibility**		
Level of Identification		**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station
Ground level - B2 - R2 S and T room

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193629			
ACM Location	Cable sleeve			
ACM Type	Type 1 - Chrysotile (white)	**Material Assessment**	Very Low	Very Low
Condition/Deterioration	Good - intact and no visible damage	**Rating**	4	4
Surface Treatment	Plain asbestos cement	**Priority Assessment Recommendations**	Record; manage; monitor	Record; Manage; Monitor
Product Type	Pre-formed moulded/extruded products i.e. toilet cisterns	**Access Restrictions**	Unrestricted	Unrestricted
Exposure	Internal	**Precaution/Protection**	Take care not to disturb ACM	Take care not to disturb ACM
Likelihood of Damage	Unlikely	**Protection From Public Recommendations**	Monitor every 12 months; inform occupants	Monitor every 12 months; inform occupants
Occupancy	Low	**Risk Colour**	LightBlue	LightBlue
Extent	Small amounts or items	**Public Accessibility**	Accessible to limited numbers	
Level of Identification	Presumed	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193630			
ACM Location	Wall panel			
ACM Type	No ACMs Present	**Material Assessment**	No Risk	Not Recorded
Condition/Deterioration		**Rating**	0	0
Surface Treatment		**Priority Assessment Recommendations**	None Required	None Required
Product Type		**Access Restrictions**	Unrestricted	Unrestricted
Exposure		**Precaution/Protection**	None Required	None Required
Likelihood of Damage		**Protection From Public Recommendations**	No action specified	No action specified
Occupancy		**Risk Colour**	LightGrey	LightGrey
Extent		**Public Accessibility**		
Level of Identification	Not present, sample negative	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station
Main footbridge

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193624			
ACM Location	Corrugated roof to canopy			
ACM Type	Type 1 - Chrysotile (white)	**Material Assessment**	Very Low	Very Low
Condition/Deterioration	Good - intact and no visible damage	**Rating**	3	3
Surface Treatment	Plain asbestos cement	**Priority Assessment Recommendations**	Record; manage; monitor	Record; Manage; Monitor
Product Type	Cement sheets	**Access Restrictions**	Unrestricted	Unrestricted
Exposure	External	**Precaution/Protection**	Take care not to disturb ACM	Take care not to disturb ACM
Likelihood of Damage	Unlikely	**Protection From Public Recommendations**	Monitor every 6 months	Monitor every 6 months
Occupancy	Low	**Risk Colour**	LightBlue	LightBlue
Extent	Small amounts or items	**Public Accessibility**	Heavily trafficked areas	
Level of Identification	Presumed	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station
Platform level - B1 - R11 Staff WC

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193647			
ACM Location	Wall panel			
ACM Type	No ACMs Present	**Material Assessment**	No Risk	Not Recorded
Condition/Deterioration		**Rating**	0	0
Surface Treatment		**Priority Assessment Recommendations**	None Required	None Required
Product Type		**Access Restrictions**	Unrestricted	Unrestricted
Exposure		**Precaution/Protection**	None Required	None Required
Likelihood of Damage		**Protection From Public Recommendations**	No action specified	No action specified
Occupancy		**Risk Colour**	LightGrey	LightGrey
Extent		**Public Accessibility**		
Level of Identification	Not present, sample negative	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station

Platform level - B3 - R1 Puccino Cafe

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193641			
ACM Location	Ceiling panel			
ACM Type	Type 1 - Chrysotile (white)	**Material Assessment**	Very Low	Very Low
Condition/Deterioration	Good - intact and no visible damage	**Rating**	4	4
Surface Treatment	Encapsulated asbestos cement	**Priority Assessment Recommendations**	Record; manage; monitor	Record; Manage; Monitor
Product Type	Cement sheets	**Access Restrictions**	Unrestricted	Unrestricted
Exposure	Internal	**Precaution/Protection**	Take care not to disturb ACM	Take care not to disturb ACM
Likelihood of Damage	Unlikely	**Protection From Public Recommendations**	No action specified	No action specified
Occupancy	Low	**Risk Colour**	LightBlue	LightBlue
Extent	<= 10m2 or <=10m pipe run	**Public Accessibility**	Accessible to limited numbers	
Level of Identification	Presumed	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193642			
ACM Location	Wall panel			
ACM Type	No ACMs Present	**Material Assessment**	No Risk	Not Recorded
Condition/Deterioration		**Rating**	0	0
Surface Treatment		**Priority Assessment Recommendations**	None Required	None Required
Product Type		**Access Restrictions**	Unrestricted	Unrestricted
Exposure		**Precaution/Protection**	None Required	None Required
Likelihood of Damage		**Protection From Public Recommendations**	No action specified	No action specified
Occupancy		**Risk Colour**	LightGrey	LightGrey
Extent		**Public Accessibility**		
Level of Identification	Not present, sample negative	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station

Platform level - B3 - R10 Disabled WC

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193633			
ACM Location	Ceiling panels			
ACM Type	Type 1 - Chrysotile (white)	**Material Assessment**	Very Low	Very Low
Condition/Deterioration	Good - intact and no visible damage	**Rating**	4	4
Surface Treatment	Encapsulated asbestos cement	**Priority Assessment Recommendations**	Record; manage; monitor	Record; Manage; Monitor
Product Type	Cement sheets	**Access Restrictions**	Unrestricted	Unrestricted
Exposure	Internal	**Precaution/Protection**	Take care not to disturb ACM	Take care not to disturb ACM
Likelihood of Damage	Unlikely	**Protection From Public Recommendations**	No action specified	No action specified
Occupancy	Low	**Risk Colour**	LightBlue	LightBlue
Extent	<= 10m2 or <=10m pipe run	**Public Accessibility**	Accessible to limited numbers	
Level of Identification	Presumed	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193634			
ACM Location	Wall panel			
ACM Type	No ACMs Present	**Material Assessment**	No Risk	Not Recorded
Condition/Deterioration		**Rating**	0	0
Surface Treatment		**Priority Assessment Recommendations**	None Required	None Required
Product Type		**Access Restrictions**	Unrestricted	Unrestricted
Exposure		**Precaution/Protection**	None Required	None Required
Likelihood of Damage		**Protection From Public Recommendations**	No action specified	No action specified
Occupancy		**Risk Colour**	LightGrey	LightGrey
Extent		**Public Accessibility**		
Level of Identification	Not present, sample negative	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station

Platform level - B3 - R11 Waiting room

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193631			
ACM Location	Ceiling panels			
ACM Type	Type 1 - Chrysotile (white)	**Material Assessment**	Very Low	Very Low
Condition/Deterioration	Good - intact and no visible damage	**Rating**	4	4
Surface Treatment	Encapsulated asbestos cement	**Priority Assessment Recommendations**	Record; manage; monitor	Record; Manage; Monitor
Product Type	Cloth	**Access Restrictions**	Unrestricted	Unrestricted
Exposure	Internal	**Precaution/Protection**	Take care not to disturb ACM	Take care not to disturb ACM
Likelihood of Damage	Unlikely	**Protection From Public Recommendations**	No action specified	No action specified
Occupancy	Low	**Risk Colour**	LightBlue	LightBlue
Extent	<= 10m2 or <=10m pipe run	**Public Accessibility**	Accessible to limited numbers	
Level of Identification	Presumed	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193632			
ACM Location	Wall panel			
ACM Type	No ACMs Present	**Material Assessment**	No Risk	Not Recorded
Condition/Deterioration		**Rating**	0	0
Surface Treatment		**Priority Assessment Recommendations**	None Required	None Required
Product Type		**Access Restrictions**	Unrestricted	Unrestricted
Exposure		**Precaution/Protection**	None Required	None Required
Likelihood of Damage		**Protection From Public Recommendations**	No action specified	No action specified
Occupancy		**Risk Colour**	LightGrey	LightGrey
Extent		**Public Accessibility**		
Level of Identification	Not present, sample negative	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station

Platform level - B3 - R2 Tank room 1

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193625			
ACM Location	Panel above doorway			
ACM Type	Type 1 - Chrysotile (white)	**Material Assessment**	Very Low	Very Low
Condition/Deterioration	Good - intact and no visible damage	**Rating**	4	4
Surface Treatment	Plain asbestos cement	**Priority Assessment Recommendations**	Record; manage; monitor	Record; Manage; Monitor
Product Type	Cement sheets	**Access Restrictions**	Unrestricted	Unrestricted
Exposure	Internal	**Precaution/Protection**	Take care not to disturb ACM	Take care not to disturb ACM
Likelihood of Damage	Unlikely	**Protection From Public Recommendations**	Monitor every 12 months; inform occupants	Monitor every 12 months; inform occupants
Occupancy	Low	**Risk Colour**	LightBlue	LightBlue
Extent	Small amounts or items	**Public Accessibility**	Accessible to limited numbers	
Level of Identification	Presumed	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193626			
ACM Location	Ceiling panels			
ACM Type	Type 1 - Chrysotile (white)	**Material Assessment**	Very Low	Very Low
Condition/Deterioration	Good - intact and no visible damage	**Rating**	4	4
Surface Treatment	Plain asbestos cement	**Priority Assessment Recommendations**	Record; manage; monitor	Record; Manage; Monitor
Product Type	Cement sheets	**Access Restrictions**	Unrestricted	Unrestricted
Exposure	Internal	**Precaution/Protection**	Take care not to disturb ACM	Take care not to disturb ACM
Likelihood of Damage	Unlikely	**Protection From Public Recommendations**	Monitor every 12 months; inform occupants	Monitor every 12 months; inform occupants
Occupancy	Low	**Risk Colour**	LightBlue	LightBlue
Extent	Small amounts or items	**Public Accessibility**	Accessible to limited numbers	
Level of Identification	Presumed	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station
Platform level - B3 - R3 Gents W/C

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193652			
ACM Location	Cement ceiling panels			
ACM Type	Type 1 - Chrysotile (white)	**Material Assessment**	Very Low	Very Low
Condition/Deterioration	Good - intact and no visible damage	**Rating**	4	4
Surface Treatment	Encapsulated asbestos cement	**Priority Assessment Recommendations**	Record; manage; monitor	Record; Manage; Monitor
Product Type	Cement sheets	**Access Restrictions**	Unrestricted	Unrestricted
Exposure	Internal	**Precaution/Protection**	Take care not to disturb ACM	Take care not to disturb ACM
Likelihood of Damage	Unlikely	**Protection From Public Recommendations**	No action specified	No action specified
Occupancy	Low	**Risk Colour**	LightBlue	LightBlue
Extent	<= 10m2 or <=10m pipe run	**Public Accessibility**	Accessible to limited numbers	
Level of Identification	Presumed	**Affects Vital Services**	No	
Risk Assessment	Unknown			
Comments				

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193653			
ACM Location	Wall panel			
ACM Type	No ACMs Present	**Material Assessment**	No Risk	Not Recorded
Condition/Deterioration		**Rating**	0	0
Surface Treatment		**Priority Assessment Recommendations**	None Required	None Required
Product Type		**Access Restrictions**	Unrestricted	Unrestricted
Exposure		**Precaution/Protection**	None Required	None Required
Likelihood of Damage		**Protection From Public Recommendations**	No action specified	No action specified
Occupancy		**Risk Colour**	LightGrey	LightGrey
Extent		**Public Accessibility**		
Level of Identification	Not present, sample negative	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station

Platform level - B3 - R4 Staff mess room

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193643			
ACM Location	Ceiling panels			
ACM Type	Type 1 - Chrysotile (white)	**Material Assessment**	Very Low	Very Low
Condition/Deterioration	Good - intact and no visible damage	**Rating**	4	4
Surface Treatment	Encapsulated asbestos cement	**Priority Assessment Recommendations**	Record; manage; monitor	Record; Manage; Monitor
Product Type	Cement sheets	**Access Restrictions**	Unrestricted	Unrestricted
Exposure	Internal	**Precaution/Protection**	Take care not to disturb ACM	Take care not to disturb ACM
Likelihood of Damage	Unlikely	**Protection From Public Recommendations**	No action specified	No action specified
Occupancy	Low	**Risk Colour**	LightBlue	LightBlue
Extent	<= 10m2 or <=10m pipe run	**Public Accessibility**	Accessible to limited numbers	
Level of Identification	Presumed	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193644			
ACM Location	Wall panel			
ACM Type	No ACMs Present	**Material Assessment**	No Risk	Not Recorded
Condition/Deterioration		**Rating**	0	0
Surface Treatment		**Priority Assessment Recommendations**	None Required	None Required
Product Type		**Access Restrictions**	Unrestricted	Unrestricted
Exposure		**Precaution/Protection**	None Required	None Required
Likelihood of Damage		**Protection From Public Recommendations**	No action specified	No action specified
Occupancy		**Risk Colour**	LightGrey	LightGrey
Extent		**Public Accessibility**		
Level of Identification	Not present, sample negative	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station

Platform level - B3 - R5 Guards office

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193645			
ACM Location	ceiling panels			
ACM Type	Type 1 - Chrysotile (white)	**Material Assessment**	Very Low	Very Low
Condition/Deterioration	Good - intact and no visible damage	**Rating**	4	4
Surface Treatment	Encapsulated asbestos cement	**Priority Assessment Recommendations**	Record; manage; monitor	Record; Manage; Monitor
Product Type	Cement sheets	**Access Restrictions**	Unrestricted	Unrestricted
Exposure	Internal	**Precaution/Protection**	Take care not to disturb ACM	Take care not to disturb ACM
Likelihood of Damage	Unlikely	**Protection From Public Recommendations**	No action specified	No action specified
Occupancy	Low	**Risk Colour**	LightBlue	LightBlue
Extent	<= 10m2 or <=10m pipe run	**Public Accessibility**	Accessible to limited numbers	
Level of Identification	Presumed	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193646			
ACM Location	Wall panel			
ACM Type	No ACMs Present	**Material Assessment**	No Risk	Not Recorded
Condition/Deterioration		**Rating**	0	0
Surface Treatment		**Priority Assessment Recommendations**	None Required	None Required
Product Type		**Access Restrictions**	Unrestricted	Unrestricted
Exposure		**Precaution/Protection**	None Required	None Required
Likelihood of Damage		**Protection From Public Recommendations**	No action specified	No action specified
Occupancy		**Risk Colour**	LightGrey	LightGrey
Extent		**Public Accessibility**		
Level of Identification	Not present, sample negative	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station

Platform level - B3 - R6 Station masters room

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193639			
ACM Location	Ceiling panels			
ACM Type	Type 1 - Chrysotile (white)	**Material Assessment**	Very Low	Very Low
Condition/Deterioration	Good - intact and no visible damage	**Rating**	4	4
Surface Treatment	Encapsulated asbestos cement	**Priority Assessment Recommendations**	Record; manage; monitor	Record; Manage; Monitor
Product Type	Cement sheets	**Access Restrictions**	Unrestricted	Unrestricted
Exposure	Internal	**Precaution/Protection**	Take care not to disturb ACM	Take care not to disturb ACM
Likelihood of Damage	Unlikely	**Protection From Public Recommendations**	No action specified	No action specified
Occupancy	Low	**Risk Colour**	LightBlue	LightBlue
Extent	<= 10m2 or <=10m pipe run	**Public Accessibility**	Accessible to limited numbers	
Level of Identification	Presumed	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193640			
ACM Location	Wall panel			
ACM Type	No ACMs Present	**Material Assessment**	No Risk	Not Recorded
Condition/Deterioration		**Rating**	0	0
Surface Treatment		**Priority Assessment Recommendations**	None Required	None Required
Product Type		**Access Restrictions**	Unrestricted	Unrestricted
Exposure		**Precaution/Protection**	None Required	None Required
Likelihood of Damage		**Protection From Public Recommendations**	No action specified	No action specified
Occupancy		**Risk Colour**	LightGrey	LightGrey
Extent		**Public Accessibility**		
Level of Identification	Not present, sample negative	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station
Platform level - B3 - R7 Gents WC

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193637			
ACM Location	Ceiling panels			
ACM Type	Type 1 - Chrysotile (white)	**Material Assessment**	Very Low	Very Low
Condition/Deterioration	Good - intact and no visible damage	**Rating**	4	4
Surface Treatment	Encapsulated asbestos cement	**Priority Assessment Recommendations**	Record; manage; monitor	Record; Manage; Monitor
Product Type	Cement sheets	**Access Restrictions**	Unrestricted	Unrestricted
Exposure	Internal	**Precaution/Protection**	Take care not to disturb ACM	Take care not to disturb ACM
Likelihood of Damage	Unlikely	**Protection From Public Recommendations**	No action specified	No action specified
Occupancy	Low	**Risk Colour**	LightBlue	LightBlue
Extent	<= 10m2 or <=10m pipe run	**Public Accessibility**	Accessible to limited numbers	
Level of Identification	Presumed	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193638			
ACM Location	Wall panel			
ACM Type	No ACMs Present	**Material Assessment**	No Risk	Not Recorded
Condition/Deterioration		**Rating**	0	0
Surface Treatment		**Priority Assessment Recommendations**	None Required	None Required
Product Type		**Access Restrictions**	Unrestricted	Unrestricted
Exposure		**Precaution/Protection**	None Required	None Required
Likelihood of Damage		**Protection From Public Recommendations**	No action specified	No action specified
Occupancy		**Risk Colour**	LightGrey	LightGrey
Extent		**Public Accessibility**		
Level of Identification	Not present, sample negative	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station

Platform level - B3 - R8 Tank room 2

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193627			
ACM Location	Panel above doorway			
ACM Type	Type 1 - Chrysotile (white)	**Material Assessment**	Very Low	Very Low
Condition/Deterioration	Good - intact and no visible damage	**Rating**	4	4
Surface Treatment	Plain asbestos cement	**Priority Assessment Recommendations**	Record; manage; monitor	Record; Manage; Monitor
Product Type	Cement sheets	**Access Restrictions**	Unrestricted	Unrestricted
Exposure	Internal	**Precaution/Protection**	Take care not to disturb ACM	Take care not to disturb ACM
Likelihood of Damage	Unlikely	**Protection From Public Recommendations**	Monitor every 12 months; inform occupants	Monitor every 12 months; inform occupants
Occupancy	Low	**Risk Colour**	LightBlue	LightBlue
Extent	Small amounts or items	**Public Accessibility**	Accessible to limited numbers	
Level of Identification	Presumed	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193628			
ACM Location	Ceiling panels			
ACM Type	Type 1 - Chrysotile (white)	**Material Assessment**	Very Low	Very Low
Condition/Deterioration	Good - intact and no visible damage	**Rating**	4	4
Surface Treatment	Plain asbestos cement	**Priority Assessment Recommendations**	Record; manage; monitor	Record; Manage; Monitor
Product Type	Cement sheets	**Access Restrictions**	Unrestricted	Unrestricted
Exposure	Internal	**Precaution/Protection**	Take care not to disturb ACM	Take care not to disturb ACM
Likelihood of Damage	Unlikely	**Protection From Public Recommendations**	Monitor every 12 months; inform occupants	Monitor every 12 months; inform occupants
Occupancy	Low	**Risk Colour**	LightBlue	LightBlue
Extent	Small amounts or items	**Public Accessibility**	Accessible to limited numbers	
Level of Identification	Presumed	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

Twickenham Station
Platform level - B3 - R9 Ladies WC

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193635			
ACM Location	Ceiling panels			
ACM Type	Type 1 - Chrysotile (white)	**Material Assessment**	Very Low	Very Low
Condition/Deterioration	Good - intact and no visible damage	**Rating**	4	4
Surface Treatment	Encapsulated asbestos cement	**Priority Assessment Recommendations**	Record; manage; monitor	Record; Manage; Monitor
Product Type	Cement sheets	**Access Restrictions**	Unrestricted	Unrestricted
Exposure	Internal	**Precaution/Protection**	Take care not to disturb ACM	Take care not to disturb ACM
Likelihood of Damage	Unlikely	**Protection From Public Recommendations**	No action specified	No action specified
Occupancy	Low	**Risk Colour**	LightBlue	LightBlue
Extent	<= 10m2 or <=10m pipe run	**Public Accessibility**	Accessible to limited numbers	
Level of Identification	Presumed	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				

			Automatic Assessment	Surveyor's Assessment
Survey Reference	193636			
ACM Location	Wall panel			
ACM Type	No ACMs Present	**Material Assessment**	No Risk	Not Recorded
Condition/Deterioration		**Rating**	0	0
Surface Treatment		**Priority Assessment Recommendations**	None Required	None Required
Product Type		**Access Restrictions**	Unrestricted	Unrestricted
Exposure		**Precaution/Protection**	None Required	None Required
Likelihood of Damage		**Protection From Public Recommendations**	No action specified	No action specified
Occupancy		**Risk Colour**	LightGrey	LightGrey
Extent		**Public Accessibility**		
Level of Identification	Not present, sample negative	**Affects Vital Services**	Not Known	
Risk Assessment	Unknown			
Comments				