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GREEN PARK VILLAGE
PINGEMEAD
INDUSTRIAL ESTATE
VERIFICATION REPORT

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GREEN PARK VILLAGE
PINGEMEAD INDUSTRIAL ESTATE VERIFICATION REPORT

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Description	**Verification Report – re-issue to include unforeseen contamination in Phase 2B and additional groundwater assessment**

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CONTENTS

EXECUTIVE SUMMARY		**1**
1.	**INTRODUCTION**	**2**
1.1	Brief	2
1.2	Constraints and Limitations	2
2.	**BACKGROUND INFORMATION**	**3**
2.1	Site Location and Description	3
2.2	Proposed Development and Intended Earthworks	3
2.3	Previous Work	3
2.4	Additional Ground Investigation	4
2.5	Required Risk Management Measures	4
3.	**VALIDATION OF ENABLING/REMEDIAL WORKS**	**6**
3.1	Introduction	6
3.2	Project Roles and Environmental Watching Briefs	6
3.3	Early Stage Enabling Works	6
3.4	Source Removal Works	6
3.4.1	Void 1	7
3.4.2	Void 2	8
3.4.3	Void 3	11
3.4.4	Void 4	11
3.4.5	Void 5	12
3.4.6	Void 6	12
3.4.7	Void East	12
3.4.8	Fuel Pipes	13
3.5	Well Decommissioning	14
3.6	Controlled Waters DQRA and Additional Groundwater Monitoring	14
3.7	Unforeseen Contamination	15
3.8	Re-use of Materials On-site/Importation of Materials	16
3.9	Waste/Material Management	16
3.10	Groundwater/Surface Water Management and Waste Fuel Disposal	16
3.11	Foundation Works Risk Assessment	17
3.12	Buried Services and Construction Materials	17
3.13	Asbestos Management during Demolition	17
4.	**CONCLUSION**	**18**

APPENDICES

Appendix 1
Figures

Appendix 2
Watching Brief Notes

Appendix 3
Analytical Results

Appendix 4
Woolridge Ecotec Ltd Consultation

Appendix 5
Replacement Monitoring Well Assessment Technical Note

Appendix 6
Waste Oil and Water Consignment and Waste Delievery Notes

Appendix 7
Asbestos Duty of Care Information During Demolition

Appendix 8
Unforseen Contamination – Asbestos containing materials in Phase 2

1. INTRODUCTION

1.1 Brief

Ramboll UK Limited (Ramboll) has been appointed by St Edward Homes Limited to prepare a Verification Report following the enabling works at the Pingemead Industrial Estate which forms part of the proposed Green Park Village (GPV) development.

This Verification Report has been prepared pursuant to Condition 44 of Planning Permission ref 10/01461/OUT dated 13 July 2011 which states that:

Within one month of the completion of any required remediation being carried out for each phase of development, a Site Completion Report shall be submitted to, and approved in writing by, the local planning authority for that phase. The report must include;

Confirmation that all remediation measures have been carried out fully in accordance with the approved remediation scheme. An appropriately qualified person shall oversee the implementation of all remediation.

A long term monitoring and maintenance plan for longer term monitoring of pollutant linkages, maintenance and arrangements for contingency action and for the reporting of this to the local planning authority.

If no contamination is encountered during the development, a letter confirming this fact shall be submitted to the local planning authority upon completion of the development.

This Verification Report forms the 'Site Completion Report' which provides documentary evidence that the risk management measures identified within the Remediation Statement for Pingemead Industrial Estate[1] have been addressed during the enabling works.

The scope of works within this report comprises validation of the actions taken at the site in accordance with the Remediation Statement[1] and relates to chemical contamination with respect to soil and water quality issues only.

1.2 Constraints and Limitations

This report has been prepared for the use of St Edwards Homes Ltd and should not be used in whole or in part by any third parties without the express permission of Ramboll in writing. This verification report has been prepared with reference to the information sources presented in Table 2.1. Ramboll has endeavoured to assess all information provided to them during this validation process; however, this report summarises information provided from a number of external sources and Ramboll cannot offer any guarantees or warranties for the completeness or accuracy of information relied upon.

[1] Ramboll (2016). Remediation Statement for Pingemead Industrial ref. 1620000492/RPT/005

EXECUTIVE SUMMARY

This Verification Report has been prepared for St Edward Homes Ltd to demonstrate how ground contamination hazards and risks have been managed throughout the enabling works at the former Pingemead Industrial Estate which covers Phases 1A West, Phase 1B and Phase 2 of the Green Park Village development.

St Edwards Homes Ltd (SEHL) employed Woolridge Demolition Ltd (WDL) to undertake the demolition of the former Pingemead Industrial Estate. As part of their contract, WDL were responsible for the removal of below ground obstructions, including the USTs and cess pits. Woolridge Ecotec Ltd (WEL) subsequently undertook further groundworks following WDLs demobilisation from site. Ramboll acted as the project Environmental Consultant throughout the enabling works on an ad-hoc basis when site presence was requested by St Edward Homes Ltd. As such Ramboll were not present on a full time basis and during several stages of work sources of contamination were removed by the contractor without a watching brief.

This report details the validation of remediation works undertaken at the site which includes the following:

- Source removal works of underground storage tanks, pipework and cess pits;
- Source removal works of historically identified free-phase hydrocarbons at location R_HP402;
- Implementation of an unforeseen contamination protocol;
- Well decommissioning procedures;
- Installation of additional groundwater monitoring wells, sampling and assessment in relation to Detailed Quantitative Risk Assessment derived target values;
- Suitable re-use of site-won and imported material;
- Waste and material management;
- Groundwater/surface water management and waste fuel disposal;
- Foundation works risk assessment;
- Protection of buried services and construction materials against residual contamination; and
- Suitable asbestos management procedures.

Based on the information provided to and collected by Ramboll it is considered that contamination risks have been appropriately managed and do not represent a significant residual risk at the site. It is therefore considered that further remediation or mitigation measures are not required with Phase 1A West, Phase 1B or Phase 2 of the GPV development.

As such the discharge of the relevant planning conditions (Conditions 43 and 44) of planning permission ref 10/01461/OUT should be recommended.

2. BACKGROUND INFORMATION

2.1 Site Location and Description

The GPV site is located approximately 4 km to the south of Reading Town Centre, Berkshire. The former Pingemead Industrial Estate is present in the centre of the GPV site covering Phases 1A West, Phase 1B and Phase 2. The former industrial estate occupies approximately 2.5 ha at an approximate National Grid reference of SU 698 701. The site location is shown in Figure 1 in Appendix 1.

Historically the site was farmland associated with Smallmead Farm, until 1976 when Pingemead House was constructed in the south of the site. By 1983 the industrial units and other buildings had been constructed at the site along with the site access from Smallmead Road. The Industrial Estate was in continual use from this time until its closure in 2015 as part of which much of the above ground infrastructure and plant was removed from the site.

The industrial estate formerly contained the following uses:

- Steel fabricators;
- Aluminium fabricators;
- Car services and body workshop with a paint spray booth;
- Oil distributers;
- Photocopier sales; and
- A builders' merchant.

In addition, the following historical point sources of contamination were present at the site:

- Four above ground fuel storage tanks (ASTs);
- Three underground fuel storage tanks (USTs) (identified during enabling works);
- Four cess pits (only two identified during enabling works);
- Fume/dust extraction and chemical storage associated with the paint booth; and
- External areas of chemical and oil storage.

The location of these features is shown in Figure 2.

2.2 Proposed Development and Intended Earthworks

The redevelopment of the Pingemead Industrial Estate forms part of Phase 1 (1A West and 1B) and Phase 2 of the GPV redevelopment which will comprise residential housing with gardens, residential apartments and areas of soft landscaping and associated infrastructure. The enabling works phase of the redevelopment involved the demolition of all above ground structures and grubbing out of existing below ground features.

Following the enabling works the site is to be raised to an elevation of 40.25 m above ordnance datum (AOD) for flood alleviation purposes. The existing ground level at the site is approximately 39 mAOD. The filling activities are to be undertaken under waste recovery Environmental Permit number EPR/DB3206HL.

2.3 Previous Work

Various phases of work have been undertaken at the site to assess the potential risks from contamination. Details of the findings of these assessments are given in the relevant reports and are not repeated herein. The relevant reports pertinent to the Pingemead Industrial Estate are contained in Table 2.1.

Table 2.1: Information Sources

Report	Author	Date
Geoenvironmental Investigation for Phase III, Green Park, Reading ref 11321/300/SNK/KB/RP/LG	Peter Brett Associates	August 2002
Gas and Water Quality Monitoring Report, Green Park Village ref 11321/113D/CBH/RHT/KB/HB	Peter Brett Associates	June 2007
Phase 2 Supplementary Geoenvironmental Ground Condition Assessment for the Pingemead Industrial Estate, Reading ref 11321/1028/FINAL/Rev 03	Peter Brett Associates	April 2008
Site Wide Ground Contamination Interpretative Report ref 1620000492/RPT/002.	Ramboll Environ	March 2016
Technical Note - Underground Fuel Storage Tank Decommissioning Procedures ref 1620000492/M/003	Ramboll Environ	May 2016
Supplementary Ground Contamination Interpretative Report - Pingemead Industrial Estate ref 1620000492/RPT/004	Ramboll Environ	October 2016
Remediation Statement For Pingemead Industrial Estate ref 1620000492/RPT/005	Ramboll Environ	October 2016
Foundation Works Risk Assessment ref 1620000492/RPT/006	Ramboll Environ	October 2016
Controlled Waters Detailed Quantitative Risk Assessment for Pingemead Industrial Estate ref 1620000492/RPT/010	Ramboll Environ	November 2016

2.4 Additional Ground Investigation

Within the initial version of the Remediation Statement[1] (January, 2016) the requirement for ground investigation works further to those undertaken historically by PBA was outlined. These works were undertaken in two phases in February and May 2016 and were reported as part of the Supplementary Ground Contamination Interpretative Report[2]. Following ground gas monitoring undertaken as part of this work the requirement for ground gas protection measures within new buildings (indicated to be likely required within the Remediation Statement) was removed.

2.5 Required Risk Management Measures

The stages of work outlined in Table 2.1 identified plausible pollution linkages and potential point sources of contamination which required the implementation of risk management measures to ensure that ground contamination hazards were effectively mitigated/remediated. These risk management measures are discussed in detail within the Remediation Statement and are summarised in Table 2.2 below.

Table 2.2: Risk Management Measures

Risk Item	Description of Risk Management Measures
Free-phase hydrocarbon product at location R_HP402	Due to the presence of free phase hydrocarbons in the soils and standing surface water in the vicinity of R_HP402 localised remedial excavations and impacted water removal should be undertaken and validated through confirmatory soil sampling
Source removal works	Historical point sources of contamination require decommissioning and removal and their extents chased out with excavations to be validated through the collection of verification samples
Unforeseen contamination	An unforeseen contamination protocol to be in place prior to enabling works which in brief is to comprise: Ceasing works and informing St Edwards and/or their representative; Liaising with the statutory authorities; Preparing method statements for removing and classifying contaminated material e.g. segregation, storage, testing etc;

	Removal of contamination encountered including recording of the extent and volume; and Verification following removal of contaminated material.
Re-use of materials on-site/importation of materials	Should materials be re-used or imported for use on site, the following criteria apply: The use of this material is protective of human health and the environment; Materials are suitable for use (either with or without treatment); There is certainty that the materials will be used; Only the required quantity is used; and Quantities and locations of where materials are used are recorded
Waste/material management	Waste disposal to be undertaken in accordance with current legislative requirements. Duty of Care information is to be held on site for viewing. Material that is stockpiled should be done so that no risk is posed to the surrounding environment
Well decommissioning	Following completion of the ground gas monitoring programme, monitoring wells require decommissioning in general accordance with the Environment Agency Document 'Good Practice on Decommissioning Redundant Boreholes and Wells'
Asbestos management	Methodologies and procedures for the removal of asbestos to be selected through consultations with a specialist asbestos contractor, in accordance with best practice and legislation
Groundwater/surface water management	Water removed from excavations to be accompanied by chemical testing to determine its disposal route
Buried services and construction materials	Protection of new services against residual contamination either via barrier pipe or clean corridors
Private gardens and soft landscaped areas	Soft landscaped areas are to be formed with topsoil and subsoil that conform to the requirements outlined above in 'Re-use of Materials on-site/Importation of Materials'

Section 3 provides the documentary evidence collated to demonstrate where the Remediation Statement has been successfully implemented during enabling works at the site.

3. VALIDATION OF ENABLING/REMEDIAL WORKS

3.1 Introduction

The information presented in this section aims to demonstrate how the identified ground contamination hazards and risks were managed during enabling works at the site.

3.2 Project Roles and Environmental Watching Briefs

St Edwards Homes Ltd (SEHL) employed Woolridge Demolition Ltd (WDL) to undertake the demolition of the former Pingemead Industrial Estate. As part of their contract, WDL were responsible for the removal of below ground obstructions, including the USTs and cess pits. Woolridge Ecotec Ltd (WEL) subsequently undertook further groundworks following WDLs demobilisation from site.

Ramboll acted as the project Environmental Consultant throughout the enabling works on an ad-hoc basis when site presence was requested by St Edward Homes Ltd. As such Ramboll were not present on a full time basis. This role involved the audit of site activities, the collation of relevant site data, checking of site records, photographs and monitoring results and providing feedback and advice on land quality issues which arose during the development process.

SEHL also employed Terramech Investigations Ltd (Terramech) and Celtic Technologies Ltd (Celtic), ground investigation and remediation contractors respectively, to undertake additional site investigation works. The findings of the Terramech and Celtic investigations are discussed in Section 3.4.

3.3 Early Stage Enabling Works

As stated above Ramboll watching briefs were carried out on an ad-hoc basis with Ramboll not present during the following works. During the enabling works, Ramboll were informed that the demolition contractor, WDL, had removed two previously unidentified USTs within the former industrial area. The first, known as Void 1, was located to the south of the former warehouses whilst the second, known as Void 2, was situated within the location of what was formerly understood to be a cess pit (see Figure 3.1). It was apparent from observations on site that neither of the USTs were fully decommissioned with fuel bottomed out prior to their removal. Based on observations it would appear that unknown quantities of suspected degraded fuel (Void 1) and heavy oil (Void 2) were released into the site soils during the removal works. In addition to the USTs, a cess pit located on the eastern section of the site was also removed however no visual or olfactory signs of contamination were noted within the excavation.

Ramboll subsequently undertook a series of watching briefs at the site to investigate the impacts from the aforementioned works which included the removal of the remaining hydrocarbon impacts and validation of the associated excavations.

During the watching briefs, a network of subterranean fuel and drainage pipes were encountered with an abstraction well, known as Void 6, was identified to the north of Void 2. The abstraction well was also removed outside the scope of the Ramboll watching brief. A summary of the works conducted during the watching briefs are summarised in Section 3.

3.4 Source Removal Works

As outlined in Sections 2.1 and 3.3, a number of historical point sources of contamination remained at the site. Several of these sources were removed during the demolition phase with investigation of these areas being undertaken as part of the 2016 ground investigation reported as part of the

Supplementary Ground Contamination Interpretative Report[2]. The remaining sources encountered during enabling works are listed in Table 3.1. The locations of the sources are shown in Figure 3.1.

Table 3.1: Remaining Sources of Contamination

Reference	Description
Void 1	UST with unknown volume of suspected degraded fuel
Void 2	UST with unknown volume of heavy fuel oil
Void 3	Cess pit
Void 4	Unknown; however considered to be a storm drain or soakaway tank
Void 5	Area underlying an AST at location R_HP402 where free phase hydrocarbons were identified during the 2016 ground investigation
Void 6	Abstraction Well
Void East	Cess pit
Fuel pipes	Subterranean fuel pipes across the site connecting Voids 1, 2 and 6
Drainage pipe	Ceramic pipe suspected to be a historical drainage pipe linked to Void 2

The source removal works were undertaken by WDL and WEL. Ramboll were present for the removal of Voids 3 and 4 and retrospectively undertook remedial/verification works for the remaining sources which were removed without Ramboll's presence including Voids 1, 2, 6 and Void East. The watching brief records which document the works undertaken at site are included in Appendix 2. The remainder of this section provides a summary of the verification works undertaken for each of the sources listed in Table 3.1. In brief, the verification works comprised:

- Excavation of visually impacted soil/free-phase hydrocarbons;
- Removal of hydrocarbons/potentially contaminated groundwater from the void via use of absorbent materials and pumping into a tanker (if necessary);
- Screening of soils with a photo ionisation detector (PID) against field verification criteria of 50 part per million (ppm) volatile organic compounds (VOC); and
- Collection of verification samples from the base and sides of the excavations.

3.4.1 Void 1

Following the piercing and removal of the UST at Void 1, Ramboll attended site on the 11 April 2016 to undertake verification of the residual impact removal works. Prior to Ramboll's arrival on 11 April, WDL had excavated the visually impacted soils from Void 1 and had placed them within a skip/impermeable sheeting. Black non aqueous phase liquid (NAPL) remained on the groundwater table within the void. Ramboll informed SEHL that the NAPL required removal prior to verification works. A second visit was undertaken on 20 April which showed the large majority of NAPL to be no longer present. A water sample (TW3) was collected to determine the extent of the hydrocarbon contamination. The sample contained elevated concentrations of aliphatic carbon chains C12 to C35 with an overall aliphatic concentration of 40,000 µg/l. It was agreed with SEHL that further delineation of the hydrocarbon impacts were required to inform bulk excavations and verification works.

Terramech commenced the additional investigative works on 3 May under a watching brief of Ramboll. Six window samples (RWS501-RWS505 and RWS510) were undertaken within the vicinity of Void 1 at the location shown within Figure 3.1. Visual and olfactory evidence of contamination was limited to a mild odour at 2.3 mbgl to 2.9 mbgl in RWS502 (5 m southwest of Void 1) suggesting the hydrocarbon

[2] Ramboll (2016). Supplementary Ground Contamination Interpretative Report - Pingemead Industrial Estate ref 1620000492/RTP/004.

impacts remained relatively localised to Void 1. The window samples were installed with response zones from 0.5 m to 2.5-3.5 m within the River Terrace Deposits for groundwater monitoring.

Verification of the remaining soils in Void 1 were undertaken on 4 May. The remaining visually impacted soils were removed to a contained bund. Groundwater was absent from Void 1 at the time of verification. A series of verification samples were collected from the base and sides of the excavation, listed in Table 3.2.

Table 3.2: Void 1 - Soil Verification Samples

Sample	Location	Depth (m)	Description	VOC Concentration (ppm)	Exceedences of Adopted Laboratory Thresholds	Pass/ Fail
V11A	Southern face	1.5	Brown sandy GRAVEL Gravel is subrounded fine to coarse flint Mild hydrocarbon odour	6.0	No	Pass
V12	Base of void	2.0	Brown sandy GRAVEL Gravel is sub rounded fine to coarse flint	0.0	No	Pass
V13	Northern face	2.0	Brown sandy GRAVEL Gravel is sub rounded fine to coarse flint	0.0	No	Pass
V14	Eastern face	2.0	Brown sandy GRAVEL Gravel is sub rounded fine to coarse flint	0.0	No	Pass
V15	Base of void	1.5	Brown sandy GRAVEL Gravel is sub rounded fine to coarse flint	0.0	No	Pass
V16	Western face	1.5	Brown sandy gravelly CLAY Gravel is sub rounded fine to coarse flint	0.0	No	Pass

Two rounds of groundwater sampling were undertaken on the wells on 10 May and 13 May. Exceedences of the 10 µg/l threshold were identified for aliphatic hydrocarbons within RWS510 with a concentration of 160 µg/l and aromatic hydrocarbons within RWS503 with a concentration of 100 µg/l. Analytical results are contained within Appendix 3.

The groundwater sampling confirmed the initial boundary window sample investigations findings that the impacts remain largely localised to Void 1. Whilst marginal exceedences of generic criteria were identified during the groundwater sampling it is considered that no further groundwater remedial works are necessary for Void 1 as the concentrations were subsequently subject to DQRA and passed site specific remedial target values (RTVs). In addition the hydrocarbons in groundwater are also likely to degrade further over time.

As such, based on the additional investigative and verification works undertaken the residual risks associated with Void 1 are considered to be low. The void was backfilled in accordance with the Specification for Earthworks[3].

3.4.2 Void 2

The UST at Void 2 was situated within an area previously understood to contain a cess pit. Ramboll were informed that WDL pumped the contents of the UST to a concrete lined suspected cess pit (which latterly becomes Void 3). However upon arrival to the site on 11 April it was apparent that the UST had not had its entire contents bottomed out prior to removal due to a hydrocarbon odour emanating from Void 2. No visual signs of contamination were noted at this stage.

Soil verification samples were collected from Void 2 as listed in Table 3.3.

[3] Ramboll. (2016). Specification for Earthworks ref. 1620000492/SP/001.

Table 3.3: Void 2 - Soil Verification Samples

Sample	Location	Depth (m)	Description	VOC Concentration (ppm)	Exceedences of Adopted Laboratory Thresholds	Pass /Fail
V5	Northern face	1.5	Light grey to dark grey silty CLAY	0.0	No	Pass
V6	Eastern face	1.5	Dark grey sandy GRAVEL Gravel is fine to coarse sub rounded to sub angular flint Strong hydrocarbon odour	520	Not analysed due to field verification failure	Fail
V7	Northern face	1.5	Light grey sandy GRAVEL Gravel is fine to coarse sub rounded to sub angular flint Mild hydrocarbon odour	0.5	TPH CWG* Aliphatic EC12–EC16 (89 mg/kg) EC16–EC21 (280 mg/kg) EC21-EC35 (110 mg/kg) Aromatic EC16-EC21 (280 mg/kg)	Fail
V8	Western face	1.0	Light grey sandy GRAVEL Gravel is fine to coarse sub rounded to sub-angular flint Mild hydrocarbon odour	0.5	No	Pass
V9	Base of void	2.0	Light grey sandy GRAVEL Gravel is fine to coarse sub rounded to sub angular flint Very mild hydrocarbon odour	40.2	No	Pass
V10	Extended eastern face	2.0	Light grey sandy GRAVEL. Gravel is fine to coarse sub rounded to sub angular flint.	5.0	No	Pass
V7B	Extended northern face	1.5	Light grey sandy GRAVEL. Gravel is fine to coarse sub rounded to sub angular flint. Mild hydrocarbon odour.	400	Not analysed due to field verification failure	Fail
V28	Extended northern face	1.5	Light grey sandy GRAVEL. Gravel is fine to coarse sub rounded to sub angular flint. Moderate hydrocarbon odour.	875	Not analysed due to field verification failure	Fail

* Total petroleum hydrocarbons criteria working group

Due to failure of the field verification criteria within sample V6, the eastern extent of Void 2 was extended 4 m to 6m to the east, stockpiling impacted arisings within a bund. V10, obtained from the extended eastern face passed the field and laboratory assessment criteria. The sample collected from the northern face (V7) passed the field verification criteria but failed the laboratory analysis due to aliphatic hydrocarbons of carbon chains C12 to C35 and aromatic carbon chains C16 to C21.

Additional verification works were undertaken on Void 2 on 4 May due to the failure of sample V7. The northern face of the void was extended by 1.5 m with impacted arisings placed in a contained bund. The verification samples failing the field verification criteria were attributed to the groundwater within the void which contained a strong hydrocarbon odour as soil samples were collected from within the smear zone.

Also on 4 May, investigative works were undertaken by Terramech under the watching brief of Ramboll within the vicinity of Void 2 to determine the impact the UST leakages/removal had upon groundwater. Four window samples (RWS506-RWS508) were installed to supplement the two existing window samples (RWS403 and RWS405) which lie to the south and north of Void 2 respectively (shown on Figure 3.1). Visual and olfactory evidence of contamination within the newly installed window samples was limited to mild hydrocarbon odours between 3.6 m and 3.9 m of RWS506 within the River Terrace Deposits.

Two rounds of groundwater sampling were undertaken on the wells surrounding Void 2 on 10 May and 13 May. Exceedences of the 10 µg/l threshold were identified for either aliphatic hydrocarbons and/or

aromatic hydrocarbons within all the wells. Within wells RWS506-508 and RWS403, aliphatic hydrocarbons ranged from <10 µg/l to 410 µg/l whilst aromatic hydrocarbons ranged from <10 µg/l to 2,500 µg/l. The wells which exhibited the highest exceedences were RWS509 (northwest of Void 2) with a maximum aliphatic concentration of 22,000 µg/l and aromatic concentration of 25,000 µg/l, whilst RWS405 (north of Void 2) recorded a maximum aliphatic concentration of 580,000µg/l and aromatic concentration of 150,000 µg/l. During the initial monitoring visit, approximately 10 mm of free product was recorded in RWS405 which was bailed. Analytical results are contained within Appendix 3.

During the Void 2 verification excavations, suspected terracotta drainage pipes were encountered within both the north-eastern and north-western corners of the void which were identified to be releasing NAPL. Spill kits were used in attempt to absorb the NAPL. Works were ceased until the void could be pumped of its contents.

On 11 May, the groundwater and NAPL were pumped from Void 2 (discussed in further detail in Section 3.10). An additional verification sample was collected from the northern face (V28) which contained a VOC concentration of 875 ppm when analysed with the PID. The void recharged with groundwater and rain water whilst on the following day (12 May) NAPL was identified in the void likely associated with the suspected drainage pipes.

On 18 May additional works were undertaken to chase the extent of the suspected terracotta drainage pipe from the north-eastern corner of Void 2. The pipe was found to lie at the interface between the Alluvium and River Terrace Deposits circa 2 mbgl. A trench was excavated from Void 2 approximately 20 m north with no signs of the pipe ending.

The chasing works were ceased on the following basis:

- The chasing works resulted in damaging the terracotta pipe and subsequent release of suspected contaminated water;
- Due to the depth of the pipe close to the water table, creating a trench to chase the extent of the pipe across the site was impracticable; and
- Due to the unknown volume of water in the drainage network, pumping the pipe was unfeasible.

Therefore, the pipe was plugged with a low permeability alluvial clay to prevent further release of the water and the trench was backfilled.

It is of note that subsequent works undertaken on Phase 5 of the Green Park Development did not encounter the suspected drainage pipe suggesting it was localised to the former Pingemead Industrial Estate.

Ramboll were informed that Void 2 had been backfilled without the presence of a watching brief. Following the backfilling, Celtic were employed by SEHL to aid with the investigative works, chase out any hydrocarbon plume and (where required) undertake treatment of any encountered free product. Celtic undertook six trial pits to delineate the NAPL plume within the vicinity of the backfilled void on 15 June. The Celtic trial pit locations (CT/TP01-CT/TP06) are shown on Figure 3.1. No NAPL was identified within the trial pits with signs of contamination limited to a light sheen <1 mm on groundwater. As such no remedial works were undertaken by Celtic who subsequently provided copies of exploratory hole logs and laboratory results for their work.

A Detailed Quantitative Risk Assessment[4] and additional groundwater monitoring has been prepared to further assess the impact to Controlled Waters from the activities associated with Void 2. The findings of these assessments are discussed further in Section 3.6.

[4] Ramboll. (2016). Pingemead Industrial Estate Controlled Waters Detailed Quantitative Risk Assessment ref. 162000492/RPT/010

3.4.3 Void 3

Void 3 comprised a concrete holder suspected to be a former cess pit. Ramboll were informed that the contents of the Void 2 UST were pumped into the Void 3 concrete holder prior to its removal. The contents of Void 3 were drained on 4 May. On 6 May, WEL removed the concrete holder under the watching brief of Ramboll. Verification samples were collected from the base and sides of the excavation as specified in Table 3.4.

Table 3.4: Void 3 - Soil Verification Samples

Sample	Location	Depth (m)	Description	VOC Concentration (ppm)	Exceedences of Adopted Laboratory Thresholds	Pass /Fail
V18	Southern face	1.5	Dark grey silty CLAY	0.0	No	Pass
V19	Western face	2.0	Dark grey slightly gravelly silty CLAY Gravel is fine to coarse sub rounded flint	0.0	No	Pass
V20	Eastern face	1.5	Dark grey slightly gravelly silty CLAY Gravel is fine to coarse sub rounded flint	0.0	No	Pass
V21	Base of void	2.0	Dark grey clayey GRAVEL Gravel is fine to coarse sub rounded flint	0.0	No	Pass
V22	Northern face	1.5	Dark grey slightly gravelly silty CLAY Gravel is fine to coarse sub rounded flint	0.0	No	Pass
Void 3A	1.5 m from void	1.5	Dark grey clayey sandy GRAVEL Gravel is fine to coarse sub rounded flint	0.0	No	Pass

No visual or olfactory evidence of contamination was identified during the removal works. A pipe was identified on the central northern face of the excavation which was draining into the void. The pipe was chased 1.5 m northeast where is ended, an additional verification sample (Void 3A) was collected at this point. As shown by Table 3.4, none of the verification samples collected failed the field or laboratory assessment criteria with the exception of leachable ammonium which has been identified to be elevated in the majority of soil leachate samples collected at the site. As such, the residual risks associated with Void 3 are considered to be negligible.

The void was backfilled in accordance with the Specification for Earthworks.

3.4.4 Void 4

Void 4 comprised a circular concrete tank suspected to be a storm drain or soakaway tank. WDL commenced removal works of Void 4 on 11 April under the watching brief of Ramboll. During the excavations, redundant pipes with a moderate flow of water leading into the concrete tank were identified. Due to the unknown chemical composition of the water, works were ceased until the void could be pumped of its contents. The void was drained on 4 May; the remaining removal works were undertaken on 9 May. Verification samples (V23 to V26) were collected from the locations specified in Table 3.5 below.

Table 3.5: Void 4 - Soil Verification Samples

Sample	Location	Depth (m)	Description	VOC Concentration (ppm)	Exceedences of Adopted Thresholds	Pass /Fail
V23	Base of void	2.0	Dark grey silty gravelly CLAY Gravel is fine to coarse sub rounded flint	0.0	No	Pass

Sample	Location	Depth (m)	Description	VOC Concentration (ppm)	Exceedences of Adopted Thresholds	Pass /Fail
V24	Northern face	1.5	Grey silty slightly gravelly CLAY Gravel is fine to coarse sub rounded flint	0.0	No	Pass
V25	South-western face	1.5	Grey silty slightly gravelly CLAY Gravel is fine to coarse sub rounded flint	0.0	No	Pass
V26	Eastern face	1.5	Grey to brown silty CLAY	0.0	No	Pass

No visual or olfactory evidence of contamination was identified during the removal works, nor were there failures of the field and laboratory assessment criteria with the exception of leachable ammonium which has been identified to be elevated in the majority of soil leachate samples collected at the site. As such, the residual risks associated with Void 4 are considered to be negligible. The void was backfilled in accordance with the Specification for Earthworks.

3.4.5 Void 5

A trial pit was undertaken within the location of R_HP402 where free phase hydrocarbons were identified during the 2016 ground investigation. Demolition and enabling works had since removed the concrete slab from the area. The trial pit was advanced to 0.9 m with confirmatory samples collected at 0.2 m, 0.4 m and 0.9 m. No visual or olfactory evidence of contamination was noted within the pit, nor were there failures of the laboratory assessment criteria. The source of hydrocarbons has been removed with confirmatory verification samples collected, the residual risk is considered to be negligible.

3.4.6 Void 6

On 11 May, subterranean fuel pipes were found to be leading to a concrete pit containing free-phase hydrocarbons. The pit was drained on 13 May for subsequent removal. On 17 May, WEL started the removal under a watching brief of Ramboll. Underlying the concrete pit was a metal case suspected to be a UST. Within the top of the metal case a combination of NAPL and water was present; samples were collected from both (Void 6-P and Void6-W). Product identification of the NAPL identified it to comprise medium to heavy fuel oil. The water sample contained both elevated aliphatics (total concentration 66,000 µg/l) and aromatics (total concentration of 15,000 µg/l). Removal works were ceased until the suspected UST had been decommissioned.

Ramboll were informed on 24 May that removal works (without Ramboll's presence) on the suspected UST had revealed it to comprise an abstraction well sourced within the River Terrace Deposits (considered to be the former abstraction for Kennet Valley Park Ltd within the Pingemead Industrial Estate). The well was constructed from metal tubing and had a metal top hat. WEL chased the extent of the associated pipework and backfilled the abstraction well void with bentonite clay. Photographic evidence of the removal works and consultation with WEL is contained in Appendix 4.

During the investigative works undertaken by Celtic on 15 June, trial pits were advanced within the vicinity of Void 6. No significant visual or olfactory signs of contamination were noted within the soils encountered within the trial pits suggesting the residual risks associated with Void 6 are low.

3.4.7 Void East

Void East comprised a former cess pit which was removed by WDL without presence of Ramboll. No visual or olfactory signs of contamination were evident within the void which previously contained the cess pit. Verification samples were collected from the locations specified in Table 3.6 below.

Table 3.6: Void East - Soil Verification Samples

Sample	Location	Depth (m)	Description	VOC Concentration (ppm)	Exceedences of Adopted Thresholds	Pass /Fail
V1	Base of northern section of void	0.5	Brown sandy gravelly CLAY Gravel is fine to coarse sub rounded brick and flint	0.0	No	Pass
V2	Base of southern section of void	0.5	Brown sandy silty gravelly CLAY Gravel is fine to coarse sub rounded brick and flint with lumps of chalky clay	0.0	Leachable TPH (C6 – C40) (82µg/l)	Fail
V3	Western face	0.5	Brown sandy gravelly CLAY Gravel is fine to coarse sub rounded brick with rootlets	0.0	TPH CWG Aromatic EC16-EC21 (310mg/kg)	Fail
V4	Eastern face	0.5	Brown silty slightly gravelly CLAY Gravel is fine to coarse sub rounded flint	0.0	No	Pass
V2B	Base of southern section of void	1.0	Brown sandy gravelly CLAY Gravel is fine to coarse sub rounded brick with rootlets	0.0	No	Pass
V11	Extended eastern face	0.5	Brown silty slightly gravelly CLAY Gravel is fine to coarse sub rounded flint	0.0	No	Pass

Following failures for leachable petroleum hydrocarbons and petroleum hydrocarbons in soil for samples V2 and V3 respectively, the base of the southern section of the void and eastern face were extended by 0.5m. Subsequent samples V2B and V11 passed the field and laboratory assessment criteria. As such the residual risks associated with Void East are considered to be negligible. The void was backfilled in accordance with the Specification for Earthworks.

3.4.8 Fuel Pipes

A network of subterranean fuel pipes were identified across the site sourced from the USTs at Voids 1 and 2. The pipes were small diameter metal pipes located between 0.5 mbgl and 1 mbgl at the top of the Alluvial Clay. The pipes were found to still contain fuel however no visual or olfactory signs of contamination evident on the surrounding material. The pipework was subsequently removed in manner preventing the release of hydrocarbons to ground. Following removal verification samples were collected from the surrounding material at 10 m intervals. Descriptions are provided in Table 3.7 below.

Table 3.7: Subterranean Fuel Pipe: Soil Verification Samples

Sample	Depth (m)	Description	Exceedences of Laboratory Adopted Thresholds	Pass /Fail
Void2-CA	1.0	Brown slightly sandy slightly gravelly CLAY Gravel is fine to coarse sub rounded flint with occasional brick	No	Pass
Void2-CB	1.0	Grey slightly gravelly CLAY Gravel is fine to coarse sub rounded flint	No	Pass
Void2-CC	1.0	Greyish brown slightly gravelly CLAY Gravel is fine to coarse sub rounded flint	No	Pass
Void2-CD	1.0	Light grey slightly gravelly silty CLAY Gravel is fine to coarse sub rounded flint with occasional brick	No	Pass
Void2-CE	1.0	Light grey slightly gravelly silty CLAY Gravel is fine to coarse sub rounded flint with occasional brick	No	Pass
Void2-CF	1.0	Light grey clayey gravelly SAND Gravel is fine to coarse sub rounded flint	No	Pass
Void2-CG	1.0	Light grey slightly sandy slightly gravelly silty CLAY Gravel is fine to coarse sub rounded flint	No	Pass
Void2-CH	1.0	Dark grey silty CLAY	No	Pass

Sample	Depth (m)	Description	Exceedences of Laboratory Adopted Thresholds	Pass /Fail
Void2-CI	1.0	Light grey mottled silty CLAY	No	Pass
Void2-CJ	1.0	Dark grey peaty silty CLAY with frequent woody inclusions	No	Pass
Void6-CA	0.5	Light grey silty CLAY	No	Pass
Void6-CB	0.5	Light to dark grey silty sandy gravelly CLAY Gravel is fine to coarse sub rounded flint	No	Pass
Void6-CC	0.5	Light to dark grey silty CLAY	No	Pass

As outlined above no failures of verification criteria were recorded and as such the associated residual risk is considered to be negligible.

3.5 Well Decommissioning

As outlined in Section 3.4 – Void 6, a historical abstraction well considered to be the former abstraction for Kennet Valley Park Ltd was identified at the site. The abstraction well was removed on 24 May with the associated pipework chased out. Following removal, the void was backfilled with bentonite clay. Photographic evidence of the removal works and consultation with WEL is contained in Appendix 4.

All historical boreholes used for groundwater monitoring were lost/destroyed during enabling works and/or land raise at the site. In these instances the risk of residual contamination pathways are considered to be low given the lack of aquitard and pathway creation in boreholes i.e. the hydraulic connectively of the Made Ground and River Terrace Deposits (including the discontinuous Alluvium) and the low risk, residential nature of the proposed development.

3.6 Controlled Waters DQRA and Additional Groundwater Monitoring

Based on the results of groundwater monitoring discussed in Section 3.4 a DQRA was undertaken to further assess the residual risks to controlled waters receptors, primarily the trout lakes as the most proximal receptor. Based on the outcome of the assessment further remedial works were deemed to be required in the following locations:

- Dissolved phase hydrocarbons:
  - Aliphatic EC6-8, Aliphatic EC8-10 and Aromatic EC8-10 bands in the vicinity of RSW405 and RWS509; and
  - Aromatic EC10-12 and Aromatic EC12-16 bands in the vicinity of Void 2 in RWS405, RWS509, RWS508, RWS506 and RWS403; and
- Free phase hydrocarbons within RWS405.

However, as outlined in Section 3.5, all groundwater monitoring wells previously sampled were lost/destroyed during development and it was recommended that a number of additional wells were installed as close to the location of the destroyed wells as possible to enable further monitoring to be undertaken given that concentrations may have reduced between May and November 2016.

Following agreement with the EA the replacement wells were installed in January 2017 with response zones within the River Terrace Deposits. Following installation the wells were monitored on six occasions between 27th January and 7th November 2017.. An interface probe was used during monitoring to check for the presence of non-aqueous phase liquids (NAPL), none of which were recorded.

3.8 Re-use of Materials On-site/Importation of Materials

Following the completion of enabling works, the level across the former Pingemead Industrial Estate were raised by circa 1.25 m to 40.25 m above ordnance datum (AOD). The re-use of site-won material and importation of materials associated with the land raise are documented within the Earthworks Completion Report – Phase 1A and 1b[7] of which the former Pingemead Industrial Estate site falls under.

3.9 Waste/Material Management

Duty of care information for the disposal of the USTs at Voids 1 and 2 has not been supplied to Ramboll.

Impacted arisings excavated as part of the verification process of the source removal works discussed within Section 3.4 were stockpiled within contained bunds located on Phase 4 for subsequent testing and material suitability assessments.

Details regarding the removal of asbestos from the site during the demolition stage are contained within Section 3.13.

No other materials were removed from site during the enabling works.

3.10 Groundwater/Surface Water Management and Waste Fuel Disposal

A combination of oil and contaminated groundwater/surface water was removed from the site on the dates listed below.

- 6 April 2016 – Oil and water from interceptor/tank – Understood to be UST at Void 1 or 2;
- 7 April 2016 – Oil and water from interceptor/tank – Understood to be UST at Void 1 or 2;
- 4 May 2016 – Oil and water from the interceptor at Void 3 and water from Void 4;
- 11 May 2016 – Oil and water from Void 2;
- 13 May 2016 – Oil and water from Void 6; and
- 25 May 2016 – Oil and water from Void 2.

Ramboll were not present for the works that took place on 6 and 7 April 2016, however it is understood that this comprised the pumping of oil and water from the USTs at Void 1 and Void 2. Ramboll were also not present on 25 May 2016 when oil and contaminated groundwater were pumped from Void 2 prior to its backfilling.

Ramboll were present for the pumping works which took place on the 4, 5 and 13 May 2016 which are discussed within the relevant sources of contamination in Section 3.4 above.

Consignment notes and waste delivery notes for the waste oils and water supplied to Ramboll are contained in Appendix 6.

[7] Ramboll. (2017). Earthworks Completion Report – Phase 1A and 1b ref. 1620000492/RPT/001

Following further consultations with the EA it was agreed to undertake assessment of the full groundwater dataset through additional DQRA using benzene as an indicator parameter with a compliance point distance of 50 m from the former source area. This assessment is provided within Technical Note 009[5] and demonstrated that the controlled waters risks were acceptably low. Exceedence of the calculated remedial target threshold (RTV) of 9.64 µg/l was limited to a single occasion in RWS405 on the first visit on 10 May 2016 at 16 µg/l. In the subsequent five visits on RWS405a and in all other wells across up to eight visits concentrations were either below the RTV or below the laboratory limit of detection.

3.7 Unforeseen Contamination

Following communication from site team in October 2016 Ramboll attended site to inspect the central area of Phase 2B where an archaeological trenching exercise had identified possible asbestos containing materials in the subsurface. During the Ramboll site visit suspected asbestos surface debris was identified in the area of archaeological trenching, within the vicinity of an asbestos skip and in the surrounding stockpiled soil. Laboratory testing of this material confirmed the presence of localised amosite asbestos insulation board (AIB) and chrysotile cement. Of the two soil samples collected one was free of asbestos with the other containing free fibres of chrysotile asbestos but at concentrations below laboratory detection limits (<0.001 % w/w). Results of analysis are contained in Appendix 8.

Following identification of the area of impact the current (~39 mAOD) and proposed levels (~40.25 mAOD) were assessed to demonstrate that land raise at the site under the environmental permit would provide a sufficient thickness of clean cover to be protective of end users and future maintenance workers. The asbestos clearance works described below were carried out on 19th and 20th April 2017 to provide betterment at the site and to manage potential human health risks during the enabling works and filling operation.

Health, safety and asbestos management procedures were defined in the Asbestos Management Plan (AMP) for the works[6]. Following the decision making process undertaken as part of the AMP the work was undertaken as non-licensed work in three stages. Initially limited handpicking of predominantly cement bound asbestos tile and rare pieces of AIB was carried out by a UKATA trained operative upon the surface soils and stockpiled material. Following this the stockpiled material was levelled out and the area visually inspected for any further surface debris to delineate the extents of the area to covered by a marker layer. Once established a brightly coloured orange marker layer was installed in the area of impact as shown on the as-built drawing and photographs in Appendix 8. Following this the area was left for future land raise by >1 m in accordance with the Environmental Permit for the site which effectively eliminates human health pathways to the original impacted Made Ground.

During the course of works the following asbestos management control measures were implemented:

- Dust suppression measures were employed throughout the works to prevent the liberation of airborne fibres;
- All personnel within the asbestos exclusion zone adhered to the PPE/RPE requirements and were briefed on the AMP prior to entering;
- Background and personal air/dust monitoring was undertaken by Lucion Environmental which did not identify the presence of dust and fibres above permissible limits; and
- Washing down of plant exiting the asbestos exclusion zone.

Documentation relating to these works is contained in Appendix 8.

No further unforeseen contamination was identified at the site further to that discussed in Section 3.4 above.

[5] Ramboll (2017). Technical Note Pingemead Industrial Estate Groundwater Results – Updated P20 Assessment ref 1620000492/TN0009
[6] Ramboll (2017). Asbestos Management Plan – Phase 5 & Phase 2B ref 1620000492-GPV-P5-AMP-R3

4. CONCLUSION

This Verification Report has been prepared for St Edward Homes Ltd to demonstrate how ground contamination hazards and risks have been managed throughout the enabling works at the former Pingemead Industrial Estate which covers Phases 1A West, Phase 1B and Phase 2 of the GPV development.

The Ground Contamination Interpretative Report and Remediation Strategy for the site identified several items of risk requiring management during demolition and the enabling works. Following the onset of enabling works, further sources of contamination were identified creating the requirement for remedial measures to be implemented at the site with additional assessment through DQRA required. The measures implemented included:

- Source removal works of underground storage tanks, pipework and cess pits;
- Source removal works of historically identified free-phase hydrocarbons at location R_HP402;
- Implementation of an unforeseen contamination protocol;
- Well decommissioning procedures;
- Installation of additional groundwater monitoring wells, sampling and assessment in relation to DQRA derived indicator parameter target values;
- Suitable re-use of site-won and imported material;
- Waste and material management;
- Groundwater/surface water management and waste fuel disposal;
- Foundation works risk assessment;
- Protection of buried services and construction materials against residual contamination; and
- Suitable asbestos management procedures.

This Verification Report details the validation of remediation works undertaken specific to the risks highlighted above. At various stages of the enabling works Ramboll has undertaken a site specific watching brief and verification testing as required. However, during several stages of work sources of contamination were removed by the contractor without a watching brief.

Based on the information provided to and collected by Ramboll it is considered that contamination risks have been appropriately managed and do not represent a significant residual risk at the site. It is therefore considered that further remediation or mitigation measures are not required with Phase 1A West, Phase 1B or Phase 2 of the GPV development.

As such the discharge of the relevant planning conditions (Conditions 43 and 44) of planning permission ref 10/01461/OUT should be recommended.

3.11 Foundation Works Risk Assessment

A Foundation Works Risk Assessment[5] was prepared by Ramboll for Phase 1 (which includes the former Pingemead Industrial Estate) and is presented under a separate cover (ref 1620000492/RPT/006[5]).

3.12 Buried Services and Construction Materials

Water supply pipes for the proposed buildings at the site were installed within the land raise fill. This material has been deemed suitable for use and therefore comprises a clean corridor, removing any pathways for residual contamination to the water supply pipes.

3.13 Asbestos Management during Demolition

It is understood that management measures during demolition comprised the implementation of dust control and the use of personal protective equipment.

Cement bound asbestos was removed from site during the demolition of the former Pingemead Industrial Estate. Approximately 75 tonnes were removed from site within three separate loads between 30 March and 6 April 2016. The asbestos was carried to waste facilities by the following hauliers:

- Wooldridge Ecotec Ltd, Hall Grove Farm, Bagshot, Surrey GU19 5HP under carrier licence CBDU81963; and
- Aggregate Movements (UK) Ltd, 50A, Rookery Road, Bedford MK44 3AX under carrier licence CBDU118765.

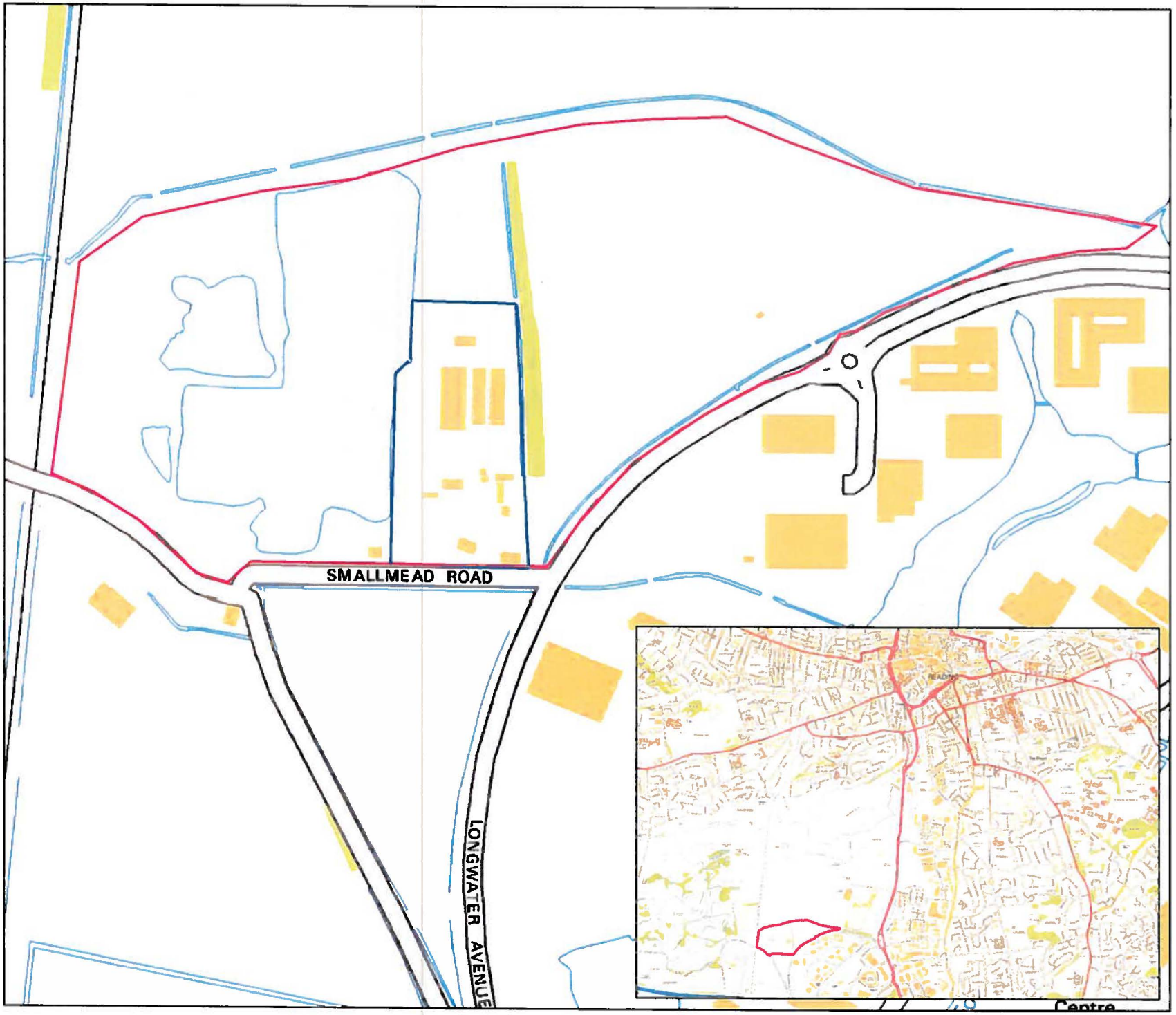
The asbestos waste was disposed at the following facilities:

- Hills Minerals and Waste Ltd, Purton Landfill Site, Mopes Lane, Purton, Swindon, Wiltshire SN5 4HG under permit ref. UP3895EV/A001; and
- Impetus Waste Management Ltd, No 3 Teesport Landfill, Grangetown, Middlesbrough, Cleveland TS6 6UG under permit ref, WP3296ZU/A001.

Duty of care information including consignment notes, carrier licences and environmental permits are contained in Appendix 7.

[5] Ramboll. (2016). Foundations Works Risk Assessment ref. 1620000492/RPT/006

APPENDIX 1
FIGURES



Site Boundary

Pingemead Industrial Estate Approx Site Boundary

1:3,000

1:40,000

N

Drawn at A3

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Client

Berkeley Homes (Western) Ltd

Project Title

Green Park Village

Project Number

1620000492

Figure Title

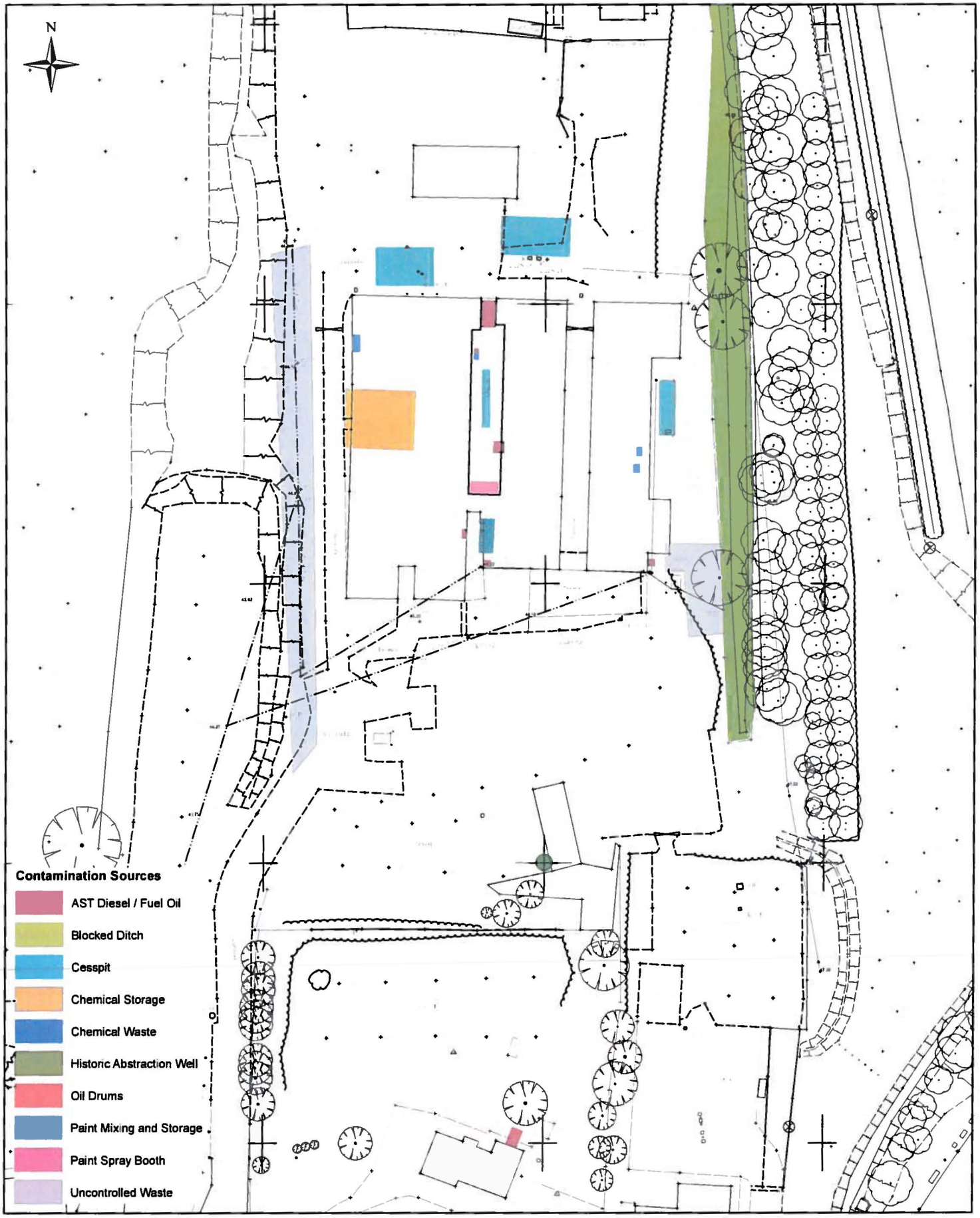
Site Location Plan

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Date	Prepared By
29/01/2016	BH
Figure No.	**Revision**
Figure 1	I01



Client	Project Title	Project Number	Figure No.	Date	Prepared by
Berkeley Homes (Western) Ltd	Green Park Village	1620000492	Figure 2	29/01/16	TS

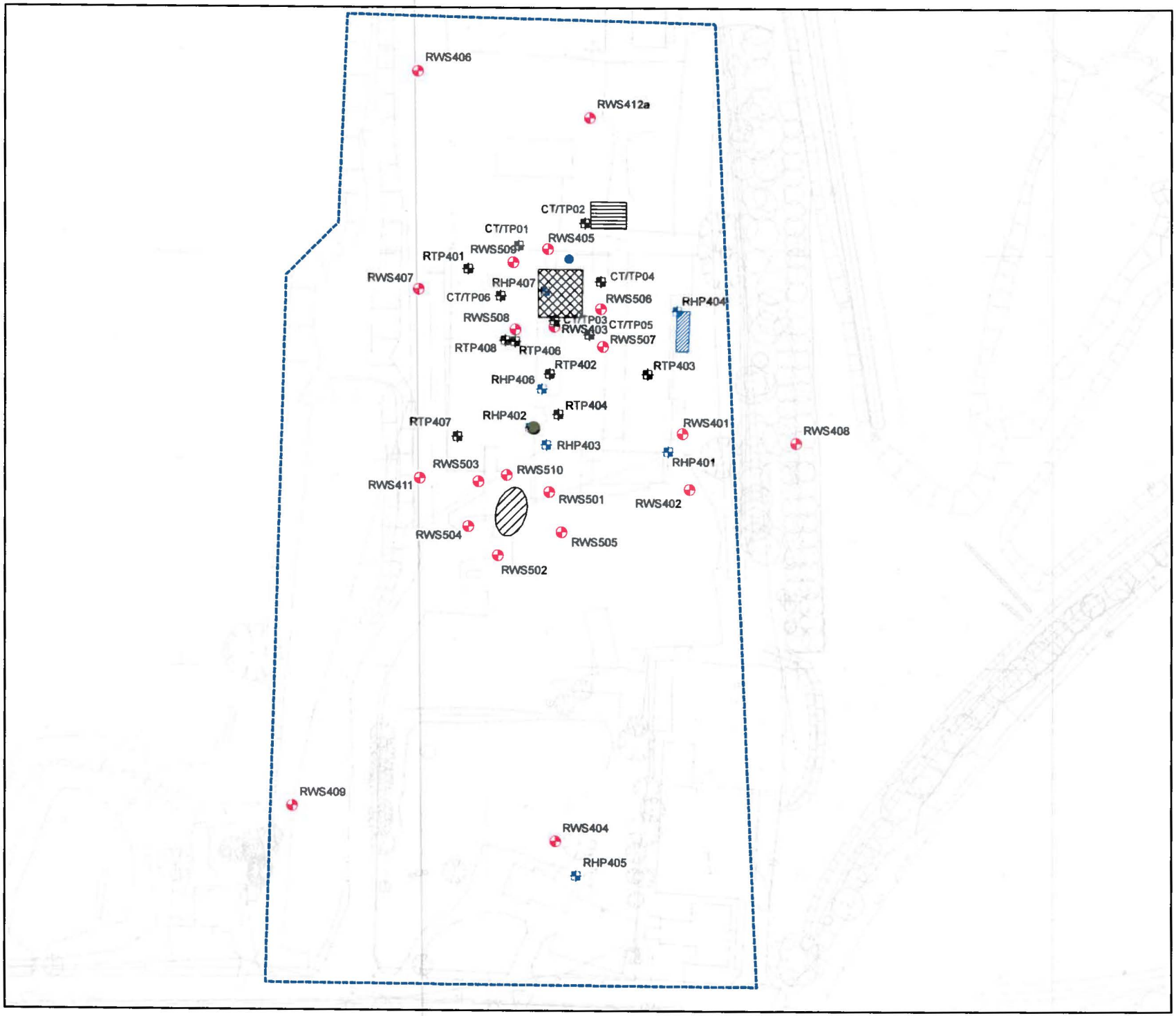
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Figure Title

Pingemead Industrial Estate
Contamination Sources

Scale: 0 4.258.5 17 25.5 34 42.5 Metres

rev. I01



Pingemead Boundary

Void_Ref

- Void 1
- Void 2
- Void 3 & 4
- Void 5
- Void 6
- Void East
- Hand Pit
- Trial Pit
- Window Sample

1:846

Drawn at A3

N

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Client

St Edward Homes Ltd

Project Title

Green Park Village

Project Number

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Figure Title

Exploratory Hole and Void Plan

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Date	Prepared By
24/10/16	TS

Figure No.	Revision
Figure 3.1	-

APPENDIX 2
WATCHING BRIEF NOTES

RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	11 April 2016	file ref.	160411 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Jørn Pace (RE)
met	Andrew West (BHL) Billy (Woolridge Demolition)		
purpose	Environmental Verification of Source Removal Works		

Date of Visit: 11th April 2016
Time of Visit: 0730 to 1700
Weather Conditions: Rain ~12C

General

JP on-site to undertake verification sampling of source removal works. Andrew West discussed the works which had been undertaken by Wooldridge during demolition of the Pingemead Industrial Estate. In summary, this comprised the removal of the former warehouses and concrete slab, the removal of two previously unidentified underground storage tanks (UST) in the south and centre of the site and the removal of a cess pit on the eastern section of the site.

Through earlier consultation with Terramech, BHL and Woolridge, it was apparent that the southern unidentified UST had not been decommissioned and was damaged during removal works. During the site visit, hydrocarbon impacts within the excavation were visible with the non-aqueous phase liquid (NAPL) present on the surface of the groundwater.

The central UST was previously understood to be a cess pit however once Woolridge commenced the removal a UST containing hydrocarbons was identified. The contents of the tank were pumped to a nearby concrete lined holder and the tank was excavated. During the site visit, it was apparent that either the tank had leaked or part of the contents had been released into the sub-strata. No visual signs of hydrocarbons were identified however olfactory evidence was noted.

Site Activities Observed

Eastern Cess Pit

Verification commenced on the eastern cess pit which had previously been excavated by Woolridge. The excavated area was circa 10m in length, 2m in width and 1m deep. Samples were collected from the locations specified below in Attachment 1. Sample descriptions with Photo Ionisation Readings (PID) are provided in Table 1. No visual or olfactory evidence of contamination was identified.

Table 1 – Eastern Cess Pit Sample Descriptions

Sample	Depth (m)	Description	PID (ppm)
V1	0.5	Brown sandy gravelly CLAY. Gravel is fine to coarse sub rounded brick and flint	0.0
V2	0.5	Brown sandy silty gravelly CLAY. Gravel is fine to coarse sub rounded brick and flint with lumps of chalky clay.	0.0
V3	0.5	Brown sandy gravelly CLAY. Gravel is fine to coarse sub rounded brick with rootlets.	0.0
V4	0.5	Brown silty slightly gravelly CLAY. Gravel is fine to coarse sub rounded flint.	0.0

Central Cess Pit/UST

Verifications samples were collected from the sides and base of the central cess pit/UST excavation which was circa 5m in length, 1.5m in width and 1.5-2.0m in depth to groundwater. Sample locations are shown in Attachment 1 whilst sample descriptions are contained in Table 2. The sample collected from the eastern section of the pit contained a volatile organic compound (VOC) concentration of 520ppm from screening with the PID. Due to failure of the field verification criteria of 50ppm the eastern section of the pit was extended by 4-6m to the east, stockpiling the hydrocarbon impacted arisings within a bund in the process. A final verification sample (V10) was collected which contained a VOC of 5.0ppm. A water sample was collected from the excavation labelled as TW1. Samples CP1, CP2 and SS1 were collected from the northern and southern stockpiles of impacted arisings for waste classification purposes.

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met	Andrew West (BHL) Billy (Woolridge Demolition)		
purpose	Environmental Verification of Source Removal Works		

Table 2 – Central Cess Pit/UST Excavation Sample Descriptions

Sample	Depth (m)	Description	PID (ppm)
V5	1.5	Light grey to dark grey silty CLAY.	0.0
V6	1.5m	Dark grey sandy GRAVEL. Gravel is fine to coarse sub rounded to sub angular flint. Strong hydrocarbon odour.	520
V7	1.5m	Light grey sandy GRAVEL. Gravel is fine to coarse sub rounded to sub angular flint. Mild hydrocarbon odour.	0.5
V8	1.0	Light grey sandy GRAVEL. Gravel is fine to coarse sub rounded to sub angular flint. Mild hydrocarbon odour.	0.5
V9	2.0	Light grey sandy GRAVEL. Gravel is fine to coarse sub rounded to sub angular flint. Very mild hydrocarbon odour.	40.2
V10	2.0	Light grey sandy GRAVEL. Gravel is fine to coarse sub rounded to sub angular flint.	5.0
CP1	-	Light grey sandy GRAVEL. Gravel is fine to coarse sub rounded to sub angular flint.	-
CP2	-	Light grey sandy GRAVEL. Gravel is fine to coarse sub rounded to sub angular flint. Mild hydrocarbon odour.	-
SS1	-	Light grey sandy GRAVEL. Gravel is fine to coarse sub rounded to sub angular flint.	-

Bund

A series of samples (B1-B6) were collected from the bund on the eastern extent of Trout Lake to assess their suitability for re-use. Sample locations are shown in Attachment 1 whilst sample descriptions are contained in Table 3. The historical provenance of the bund was unclear however the material appeared to be free of visual or olfactory signs of contamination. It appeared as if the stockpile in which B6 was collected was an extension of the bund however anecdotal evidence suggested it was from the site re-profiling to the south-east.

Table 3 – Bund Sampling

Sample	Depth (m)	Description	PID (ppm)
B1	-	Brown silty sandy gravelly CLAY. Gravel is fine to coarse sub rounded flint and brick with rootlets.	-
B2	-	Brown silty sandy gravelly CLAY. Gravel is fine to coarse sub rounded flint and brick with rootlets.	-
B3	-	Brown to grey sandy gravelly CLAY. Gravel is fine to coarse sub rounded flint.	-
B4	-	Light brown silty clayey SAND.	
B5	-	Brown silty sandy gravelly CLAY. Gravel is fine to coarse sub rounded flint and brick with rootlets.	-
B6	-	Light brown silty clayey sandy GRAVEL. Gravel is fine to coarse sub rounded flint.	-

Storm Drain/Soakaway

A circular concrete feature was identified in the sub-surface which was believed to be a storm drain or soakaway tank. During excavations, suspected redundant pipes leading into the concrete pit were pierced. Once the pipes were pierced, there was a moderate flow of clear water into the excavation. Woolridge thereby ceased works until a strategy could be agreed for drainage of the pit.

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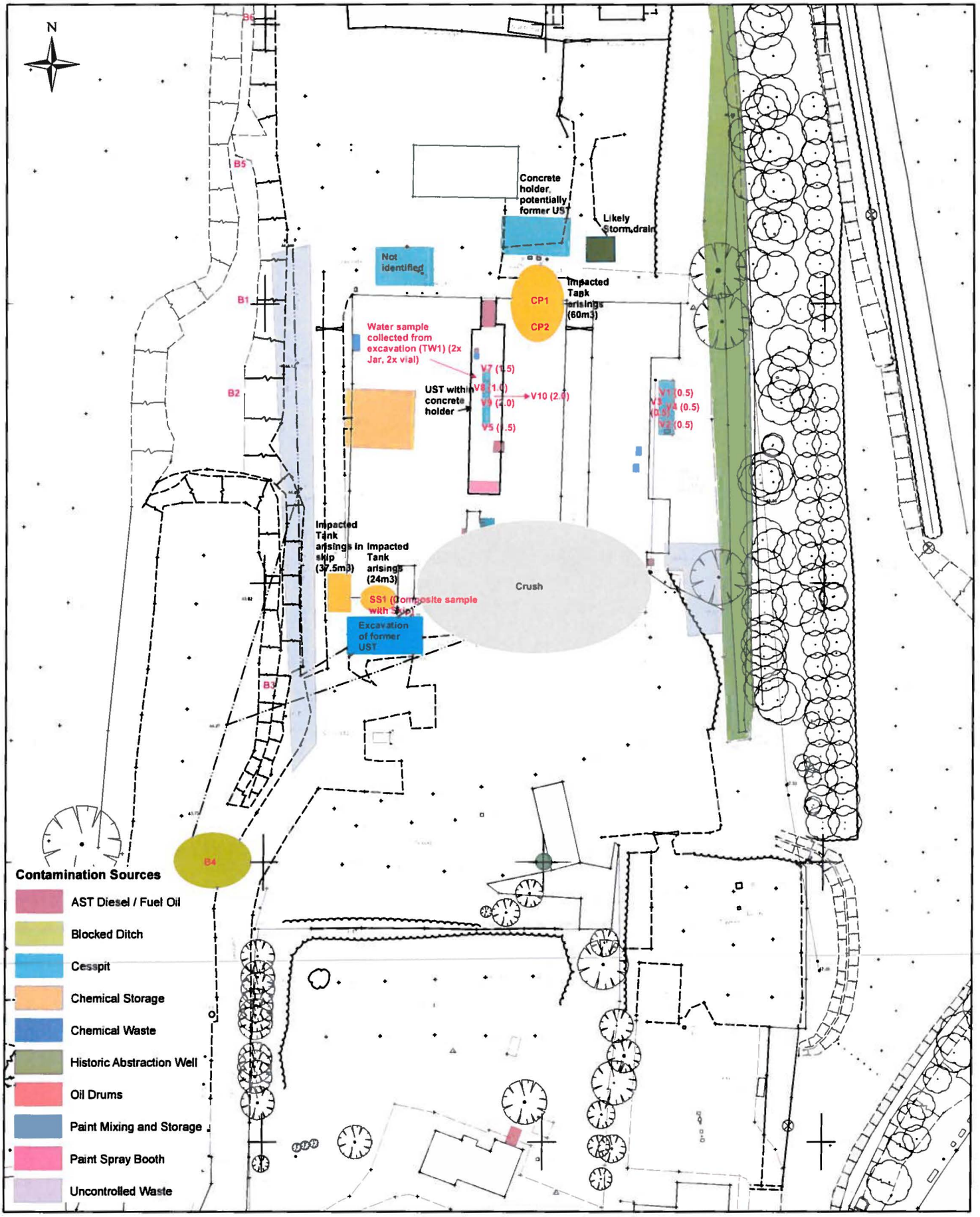
RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	11 April 2016	file ref.	160411 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Jørn Pace (RE)
met	Andrew West (BHL) Billy (Woolridge Demolition)		
purpose	Environmental Verification of Source Removal Works		

Attachments

Attachment 1 – Sample Location Plan

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Client	Project Title	Project Number	Figure No.	Date:	Prepared by
Berkeley Homes (Western) Ltd	Green Park Village	1620000492	Figure 2	29/01/16	TS

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Figure Title

Pingemead Industrial Estate
Contamination Sources

Scale: 0 4.258.5 17 25.5 34 42.5 Metres

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RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	11 April 2016	file ref.	160411 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Jørn Pace (RE)
met	Andrew West (BHL) Billy (Woolridge Demolition)		
purpose	Environmental Verification of Source Removal Works		

Attachment 2 – Site Photographs



Plate 1 – Northern concrete lined pit



Plate 2 – Concrete stockpiled for crushing



Plate 3 – Eastern cess pit excavation



Plate 4 – Southern UST excavation

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RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	11 April 2016	file ref.	160411 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Jørn Pace (RE)
met	Andrew West (BHL) Billy (Woolridge Demolition)		
purpose	Environmental Verification of Source Removal Works		

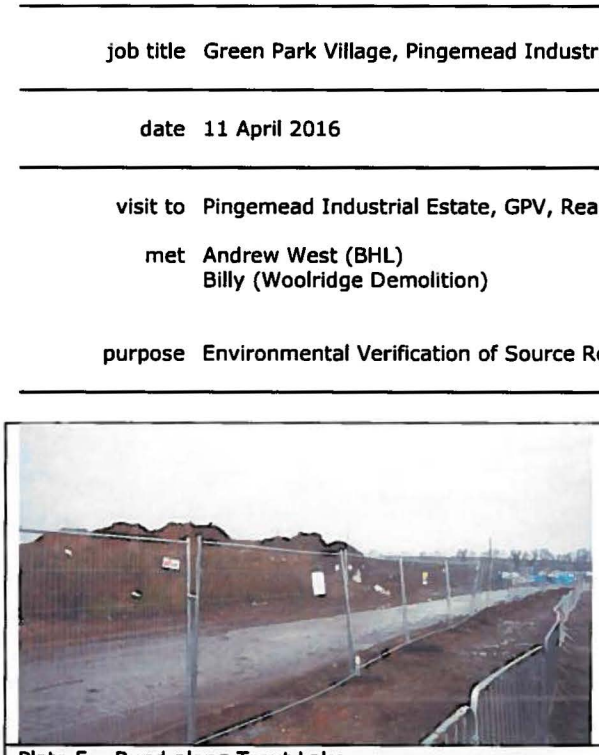


Plate 5 – Bund along Trout Lake



Plate 6 – Bund along Trout Lake (2)

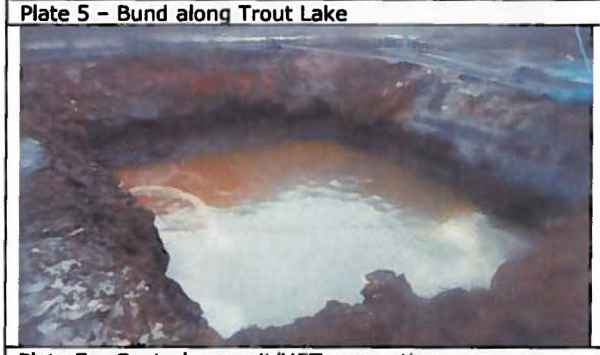


Plate 7 – Central cess pit/UST excavation



Plate 8 – Bunded arisings



Plate 9 - Suspected Storm Drain/Soakaway



Plate 10 - Suspected Storm Drain/Soakaway Excavation

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RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	20 April 2016	file ref.	160420 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Tom Smith (RE)
met	Andrew West (BHL) Barry (Woolridge Demolition)		
purpose	Environmental Verification of Source Removal Works and Phase 1A Platform		

Date of Visit: 20th April 2016
Time of Visit: 0900 to 1600
Weather Conditions: Sun ~14C

General

TS on-site to undertake additional verification sampling of source removal excavations and to collect verification samples from the Phase 1A development platform. .

At the onset on the site visit TS and JP met with AW to discuss the approach to the further remediation and source removal works required at the site. It was agreed that further delineation of hydrocarbon impacts in groundwater is required prior to bulk excavations and that these will be undertaken during the Terramech Investigations Ltd ground investigation in early May 2016.

Site Activities Observed

Eastern Cess Pit

Further verification sampling was undertaken in the eastern cess pit following the lab analysis failure of sample V3 for petroleum hydrocarbons. The eastern face was extended by a further 0.5m with an additional sample collected (V11).

Northern concrete tank

A water sample (TW2) was collected from the concrete tank to inform on the chemical quality of the water to inform removal.

Southern UST excavation

A water sample (TW3) was collected to determine the extent of hydrocarbon impact at those location.

Crushed concrete stockpile

During the site visit 6No samples (CC01 to CC06) were collected from the crushed concrete stockpile in Phase 2 (sourced from demolition of the Pingemead area) to enable a classification for re-use.

Phase 1A Platform

A total of 18No samples were collected from random locations with the Phase 1A platform to enable sign of the land raise activities there. Samples were taken at the following locations:

Sample ID	Lat	Long
1AV1	51.4265948	-0.9930955
1AV2	51.4265057	-0.9930665
1AV3	51.4263857	-0.9929925
1AV4	51.4263737	-0.9927455
1AV5	51.4262367	-0.9923484
1AV6	51.4261537	-0.9923374
1AV7	51.4260777	-0.9919144
1AV8	51.4257606	-0.9916324
1AV9	51.4258206	-0.9922464

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RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	20 April 2016	file ref.	160420 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Tom Smith (RE)
met	Andrew West (BHL) Barry (Woolridge Demolition)		
purpose	Environmental Verification of Source Removal Works and Phase 1A Platform		

1AV10	51.4256866	-0.9924275
1AV11	51.4259667	-0.9926865
1AV12	51.4254736	-0.9932756
1AV13	51.4257016	-0.9929635
1AV14	51.4259137	-0.9932535
1AV15	51.4262167	-0.9932175
1AV16	51.4262227	-0.9929395
1AV17	51.4266318	-0.9935285
1AV18	51.4264217	-0.9936576

Further soil samples (1AFOUND1, 1AFOUND2, 2FOUND1 and 2FOUND2) were collected from the foundation arsings from Phase 1A andf Phase 2 to allow classification for re-use.

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RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	20 April 2016	file ref.	160420 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Tom Smith (RE)
met	Andrew West (BHL) Barry (Woolridge Demolition)		
purpose	Environmental Verification of Source Removal Works and Phase 1A Platform		

Attachments

Attachment 1 – Site Photographs



Plate 1 – Eastern cess pit excavation



Plate 2 – Concrete stockpiled for crushing

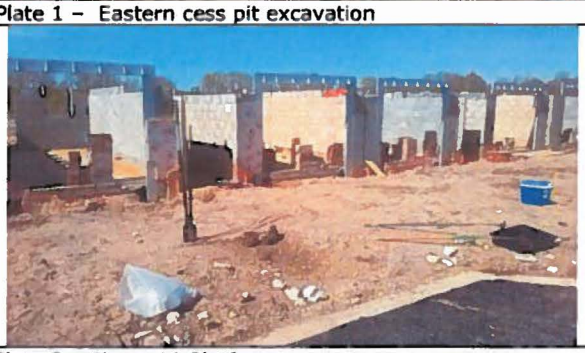


Plate 3 – Phase 1A Platform

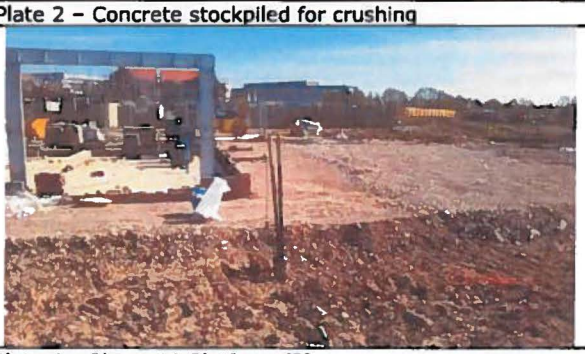


Plate 4 – Phase 1A Platform (2)



Plate 5 – Phase 1A Platform (3)



Plate 6 – Phase 1A Platform (4)

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RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	10 May 2016	file ref.	160503-05 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Jørn Pace (RE)
met	Andrew West (BHL) Gavin, Ricky (Woolridge Eco) Matthew Hollow (Terramech)		
purpose	Environmental Verification of Source Removal Works and Additional Ground Investigation		

Date of Visits: 3rd to 5th May 2016
General Working Hours: 0730 to 1630
Weather Conditions: Sun ~15C-22C

General

JP on-site during additional ground investigative works post demolition of the Pingemeed Industrial Estate and verification sampling of source removal works.

Void Investigations

Following the identified hydrocarbon impacts within Voids 1 and 2 (see Attachment 2), it was agreed with BHL that boundary investigative works would be required in the vicinity of the voids to determine the extent and impact to groundwater.

Void 1

Terramech Investigations undertook the investigative works under the supervision of Ramboll. Works commenced on the 3rd of May 2016 on Void 1. Six window sample boreholes (RWS501-RWS505 and RWS510) were undertaken within the vicinity of Void 1, advancing to depths of 4m below ground level (bgl). No visual signs of contamination were identified within the window samples whilst olfactory evidence of contamination was limited to mild hydrocarbon odours in RWS502 (5m south-west of Void 1) between 2.3 and 2.9mbgl. When analysed with the Photo Ionisation detector (PID), a Volatile Organic Compound (VOC) of 35ppm was identified at 2.3m. Environmental samples were collected for laboratory analysis. The window sample boreholes were installed to response zones of 0.5 to 2.5-3.5m for subsequent groundwater monitoring.

Void 2

Investigative works on Void 2 commenced on the 4th May 2016. Four window sample boreholes (RWS506-RWS508) were advanced to a depth of 4mbgl to supplement the two existing window sample boreholes (RWS403 and RWS405) which lie to the south and north of Void 2 respectively. As Void 1, no visual signs of contamination were identified however mild hydrocarbon odours were identified at 3.6 to 3.9mbgl within RWS506 (5m east of Void 2), recording a VOC concentration of 3.9ppm. In addition, monitoring of RWS405 and RWS509 post drilling identified free product within each exploratory hole.

To supplement the boundary window sample boreholes, RTP408 was advanced to a depth of 3.8mbgl 10m south-west of Void 2. At a depth of 2.2m to 3.6m a slight hydrocarbon odour was identified. No VOCs were identified when analysed with the PID (0.0ppm).

Void Verification

Void 1

A verification exercise was undertaken on Void 1 on the 4th of May 2016. Following Woolridge Demolition's prior removal of the Underground Storage Tank (UST), impacted arisings from the void had been stockpiled within a contained bund. At the time of the verification, groundwater was absent from the void. The remaining visually impacted material was removed and added to the stockpile. A series of verification samples (V11-V16) were then obtained from the base and sides of the void at the locations shown within Attachment 2. Table 1 below outlines material descriptions, depths and VOC concentrations.

Sample	Location	Depth	Description	VOC Concentration (ppm)
V11	Southern face	1.5m	Brown sandy GRAVEL. Gravel is sub rounded fine to coarse flint. Mild hydrocarbon odour.	6.0
V12	Base of void	2.0m	Brown sandy GRAVEL. Gravel is sub rounded fine to coarse flint.	0.0

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RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	10 May 2016	file ref.	160503-05 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Jørn Pace (RE)
met	Andrew West (BHL) Gavin, Ricky (Woolridge Eco) Matthew Hollow (Terramech)		
purpose	Environmental Verification of Source Removal Works and Additional Ground Investigation		

Sample	Location	Depth	Description	VOC Concentration (ppm)
V13	Northern face	2.0m	Brown sandy GRAVEL. Gravel is sub rounded fine to coarse flint.	0.0
V14	Eastern face	2.0m	Brown sandy GRAVEL. Gravel is sub rounded fine to coarse flint.	0.0
V15	Base of void	1.5m	Brown sandy GRAVEL. Gravel is sub rounded fine to coarse flint.	0.0
V16	Western face	1.5m	Brown sandy gravelly CLAY. Gravel is sub rounded fine to coarse flint.	0.0

Void 2

Additional verification works were required on Void 2 following failures of laboratory thresholds for samples V7 (northern face of void) and V9 (base of void) which were collected on the 12th of April 2016. The northern face of the excavation was extended by 1.5m with impacted arisings stockpiled within a contained bund. Samples were collected from the base of the void and from the northern face following the excavations for VOC assessment. Concentrations of 1000ppm and 400ppm were recorded respectively failing the field verification criteria of 50ppm. Whilst no visual impacts were identified within the arisings, groundwater within the void contained a strong hydrocarbon odour thereby resulting in the failed verification tests.

During the excavations, pipes were encountered within both the north-eastern and north-western corners of the void which were identified to be releasing free-phase hydrocarbons. Spill kits were used in attempt to absorb the free-phase hydrocarbon product. Works were ceased until the void could be pumped of its contents.

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RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	10 May 2016	file ref.	160503-05 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Jørn Pace (RE)
met	Andrew West (BHL) Gavin, Ricky (Woolridge Eco) Matthew Hollow (Terramech)		
purpose	Environmental Verification of Source Removal Works and Additional Ground Investigation		

Attachments

Attachment 1 – Site Photographs



Plate 1 – Void 1 following removal of impacted material



Plate 2 – Void 1 perimeter window sample



Plate 3 – Free-phase hydrocarbon product entering Void 2 from north-eastern corner



Plate 4 – Free-phase hydrocarbon product contained in Void 2



Plate 5 – Spill kits within Void 2



Plate 6 – Spill kits within Void 2 (2)

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RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	10 May 2016	file ref.	160503-05 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Jørn Pace (RE)
met	Andrew West (BHL) Gavin, Ricky (Woolridge Eco) Matthew Hollow (Terramech)		
purpose	Environmental Verification of Source Removal Works and Additional Ground Investigation		



Plate 7 – Bunded biopile



Plate 8 – Bunded biopile (2)

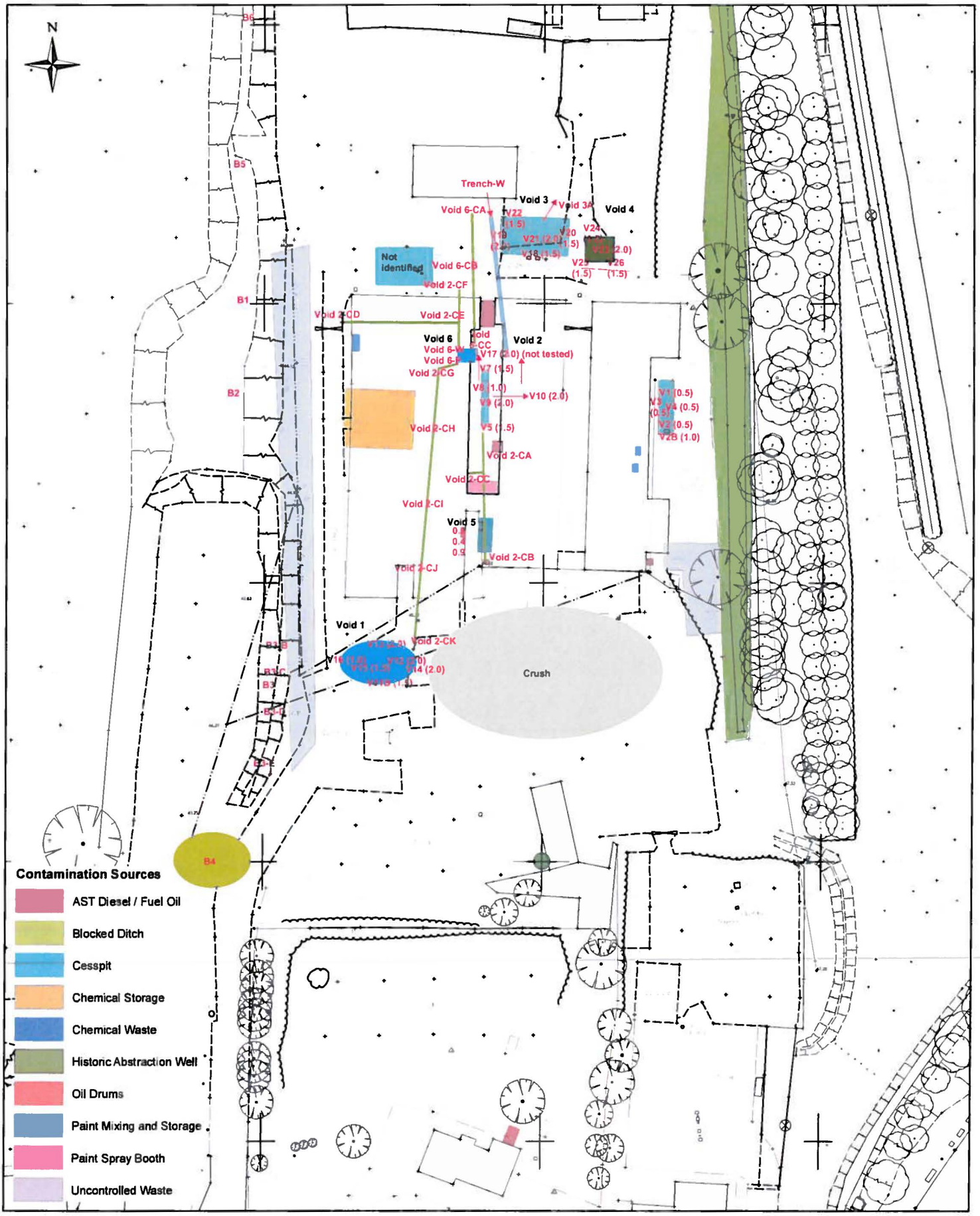
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RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	10 May 2016	file ref.	160503-05 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Jørn Pace (RE)
met	Andrew West (BHL) Gavin, Ricky (Woolridge Eco) Matthew Hollow (Terramech)		
purpose	Environmental Verification of Source Removal Works and Additional Ground Investigation		

Attachment 2 – Void and Sample Location Plan

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Client	Project Title	Project Number	Figure No.	Date	Prepared by
Berkeley Homes (Western) Ltd	Green Park Village	1620000492	Figure 2	29/01/16	TS

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Figure Title	Scale	rev.
Pingemead Industrial Estate Contamination Sources	0 4.258.5 17 25.5 34 42.5 Metres	I01

RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	19 May 2016	file ref.	160506 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Jørn Pace (RE)
met	Andrew West (BHL) Gavin, Ricky (Woolridge Eco)		
purpose	Environmental Verification of Source Removal Works and Additional Ground Investigation		

Date of Visit: 6th May 2016
General Working Hours: 0730 to 1615
Weather Conditions: Sun ~15C

General

JP on-site for the verification of source removal works on the former Pingemeed Industrial Estate.

Void Verification

Void 3 – Concrete Holder

Following the draining of the contents of Void 3 (see Attachment 2) on the 4th May 2016, a verification exercise was undertaken on the 6th May whilst WEL removed the concrete holder. A series of verification samples (V18-V22) were collected from the faces and base of the excavation at the depths and locations detailed in Table 1 and Attachment 2 below. No visual or olfactory signs of contamination were identified within the material surrounding the former concrete holder. Samples were subjected to volatile organic compound (VOC) analysis with the photo ionisation detector (PID) which recorded a concentration of 0.0ppm within all samples. During the works, a pipe connected to the central northern section of concrete holder was found to be draining into the void. The pipe was chased 1.5m north-east of the void where it ended. A final verification sample (Void 3A) was obtained from this point. Material excavated from the void was placed in a contained bund until laboratory analysis of the material was available.

Table 1: Void 3 Verification samples

Sample	Location	Depth	Description	VOC Concentration (ppm)
V18	Southern face	1.5m	Dark grey silty CLAY.	0.0
V19	Western face	2.0m	Dark grey slightly gravelly silty CLAY. Gravel is fine to coarse sub rounded flint.	0.0
V20	Eastern face	1.5m	Dark grey slightly gravelly silty CLAY. Gravel is fine to coarse sub rounded flint.	0.0
V21	Base of void	2.0m	Dark grey clayey GRAVEL. Gravel is fine to coarse sub rounded flint.	0.0
V22	Northern Face	1.5m	Dark grey slightly gravelly silty CLAY. Gravel is fine to coarse sub rounded flint.	0.0
Void 3A	1.5m from Void	1.5m	Dark grey clayey sandy GRAVEL. Gravel is fine to coarse sub rounded flint.	0.0

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RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	19 May 2016	file ref.	160506 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Jørn Pace (RE)
met	Andrew West (BHL) Gavin, Ricky (Woolridge Eco)		
purpose	Environmental Verification of Source Removal Works and Additional Ground Investigation		

Attachments

Attachment 1 – Site Photographs



Plate 1 – Void 3 following removal of concrete holder



Plate 2 – Void 3 following removal of concrete holder (2)



Plate 3 – Contained bunds



Plate 4 – Contained bunds (2)

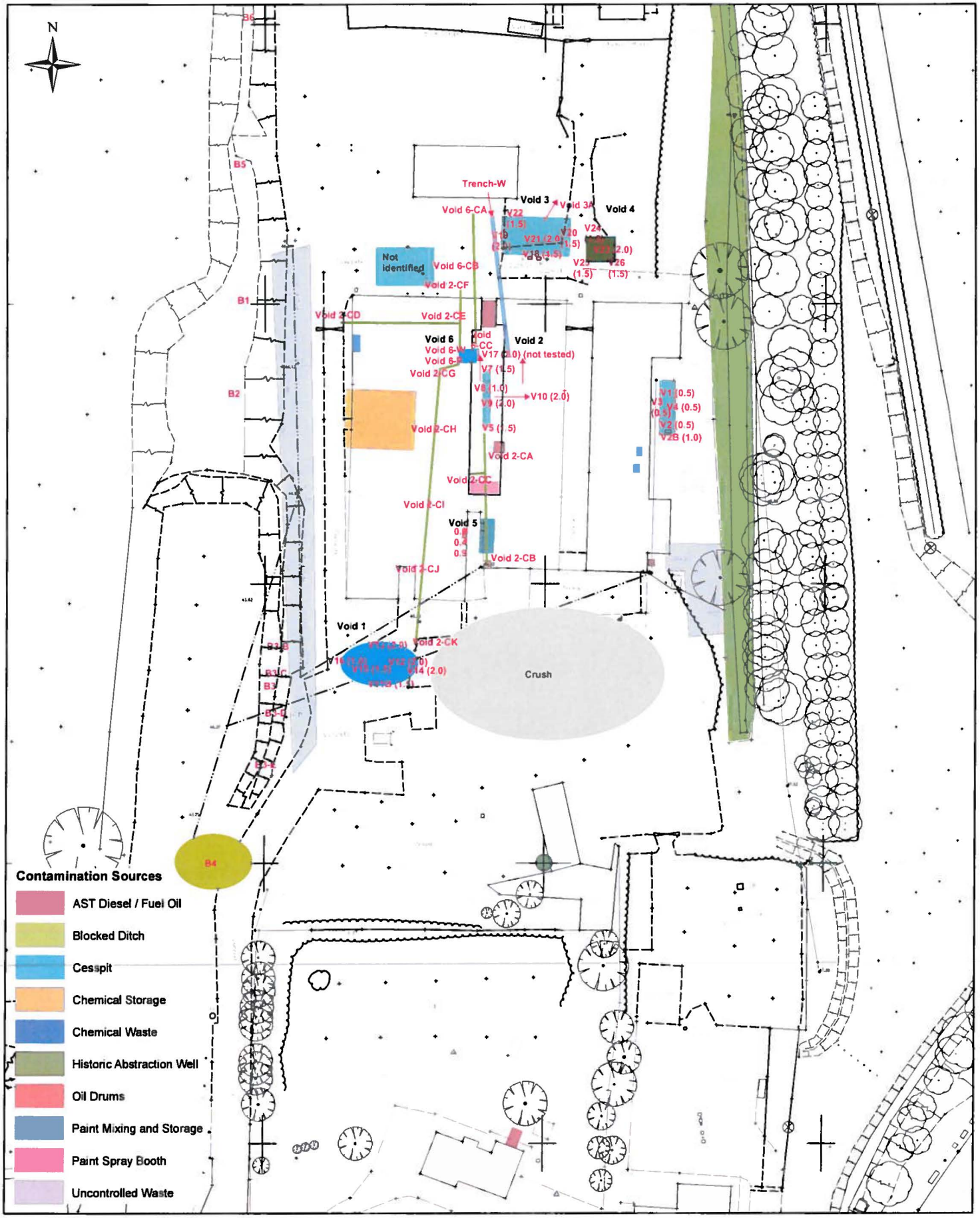
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RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	19 May 2016	file ref.	160506 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Jørn Pace (RE)
met	Andrew West (BHL) Gavin, Ricky (Woolridge Eco)		
purpose	Environmental Verification of Source Removal Works and Additional Ground Investigation		

Attachment 2 – Void and Sample Location Plan

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Client	Project Title	Project Number	Figure No.	Date	Prepared by
Berkeley Homes (Western) Ltd	Green Park Village	1620000492	Figure 2	29/01/16	TS

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Figure Title

Pingemead Industrial Estate
Contamination Sources

Scale: 0 4.258.5 17 25.5 34 42.5 Metres

rev. I01

RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	19 May 2016	file ref.	160509 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Jørn Pace (RE)
met	Andrew West (BHL) Gavin, Ricky (Woolridge Eco)		
purpose	Environmental Verification of Source Removal Works		

Date of Visit: 9th May 2016
General Working Hours: 0730 to 1615
Weather Conditions: Sun ~15C

General

JP on-site for the verification of source removal works on the former Pingemeed Industrial Estate.

Void Verification

Void 4 – Storm Drain/Soakaway

The concrete sides to the suspected storm drain/soakaway (Void 4) were removed prior on the 11th of April 2016 whilst the void was drained on the 4th of May 2016. On the 9th of May 2016 the concrete base to the former storm drain/soakaway was removed. Following the removal, verification samples V23 to V26 were collected from the depths and locations detailed in Table 1 and Attachment 2 below. No signs of visual or olfactory contamination were identified during the removal works nor were volatile organic compounds (VOC) detected from photo ionisation detector (PID) analysis.

Table 1: Void 4 Verification samples

Sample	Location	Depth	Description	VOC Concentration (ppm)
V23	Base of void	2.0m	Dark grey silty gravelly CLAY. Gravel is fine to coarse sub rounded flint.	0.0
V24	Northern face	1.5m	Grey silty slightly gravelly CLAY. Gravel is fine to coarse sub rounded flint.	0.0
V25	South-western face	1.5m	Grey silty slightly gravelly CLAY. Gravel is fine to coarse sub rounded flint.	0.0
V26	Eastern face	1.5m	Grey to brown silty CLAY.	0.0

Eastern Cess Pit

Initial verification works on the Eastern Cess Pit commenced on the 11th of April 2016. Following the failure of sample V2 (0.5m) for leachable total petroleum hydrocarbons, circa 0.5m of material was excavated within the area from which the sample was obtained. The material was removed and added to a contained bund. Following the excavations an additional sample V2-B was obtained comprising a brown silty slightly gravelly CLAY, gravel comprising fine to coarse sub rounded flint. No visual or olfactory signs of contamination were identified whilst a VOC concentration of 0.0ppm was recorded.

Void 2

Following the works on Void 2 on the 11th of April and 4th of May 2016, additional works were undertaken on the 9th of May to chase pipework within the north-eastern and north-western corners of the void. Each corner was excavated by 1m with arisings placed within a contained bund. Chasing of each of the pipes proved to be difficult due to the level of water within Void 2. Works were ceased until the void could be drained.

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RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	19 May 2016	file ref.	160509 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Jørn Pace (RE)
met	Andrew West (BHL) Gavin, Ricky (Woolridge Eco)		
purpose	Environmental Verification of Source Removal Works		

Attachments

Attachment 1 – Site Photographs



Plate 1 – Void 4 following removal of concrete holder



Plate 2 – Excavations within Void 2



Plate 3 – Excavations within Void 2 (2)

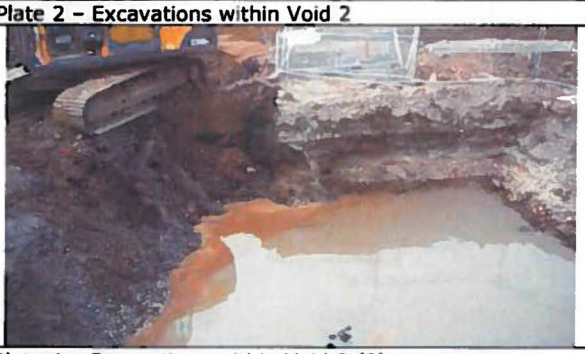


Plate 4 – Excavations within Void 2 (3)



Plate 5 – Eastern Cess Pit Sample Location V2

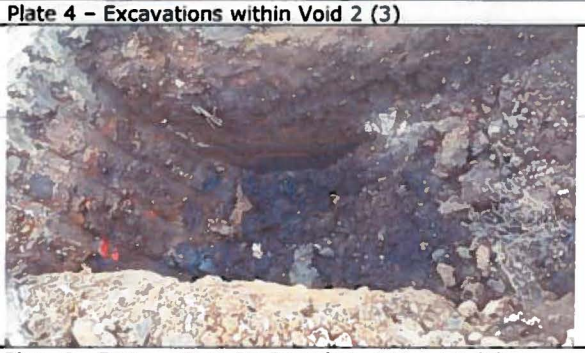


Plate 6 - Eastern Cess Pit Sample Location V2 (2)

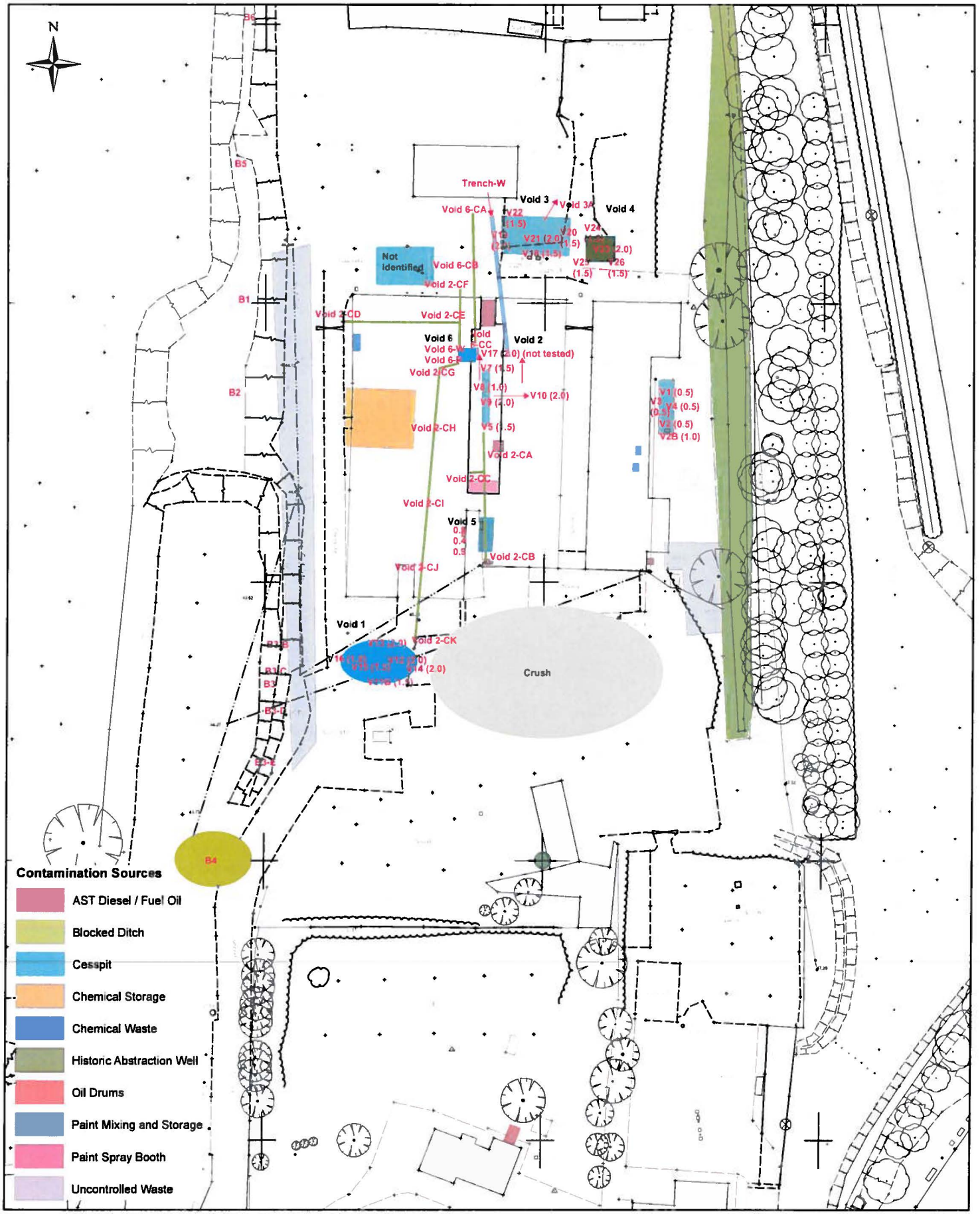
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RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	19 May 2016	file ref.	160509 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Jørn Pace (RE)
met	Andrew West (BHL) Gavin, Ricky (Woolridge Eco)		
purpose	Environmental Verification of Source Removal Works		

Attachment 2 – Void and Sample Location Plan

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Client	Project Title	Project Number	Figure No.	Date	Prepared by
Berkeley Homes (Western) Ltd	Green Park Village	1620000492	Figure 2	29/01/16	TS

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Figure Title	Scale	rev.
Pingemead Industrial Estate Contamination Sources	0 4.258.5 17 25.5 34 42.5 Metres	I01

RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	19 May 2016	file ref.	160510-13 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Jørn Pace (RE)
met	Andrew West (BHL) Gavin, Ricky (Woolridge Eco)		
purpose	Environmental Verification of Source Removal Works		

Date of Visits: 10-13 May 2016
General Working Hours: 0730 to 1615
Weather Conditions: Rain ~12C

General

JP on-site for the verification of source removal works on the former Pingemead Industrial Estate.

Void Verification

A number of fuel pipes were identified within the sub-strata across the former Pingemead Industrial Estate. The pipes laid 1mbgl on top of the Alluvial Clay. A few of the pipes were found to contain fuel however no visual or olfactory signs of contamination were identified within the material surrounding the pipe. The pipes were identified to source from Void 1, Void 2 and Void 6 which was later identified to be a further underground storage tank on the 17th of May 2016. Verification samples of the Alluvial Clay were collected at ten metre intervals across the course of the subterranean pipe network as shown by Attachment 2. Sample descriptions are contained within Table 1 below.

Table 1: Fuel Pipe Verification Samples

Sample	Description
Void2-CA	Brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse sub rounded flint with occasional brick.
Void2-CB	Grey slightly gravelly CLAY. Gravel is fine to coarse sub rounded flint.
Void2-CC	Greyish brown slightly gravelly CLAY. Gravel is fine to coarse sub rounded flint.
Void2-CD	Light grey slightly gravelly silty CLAY. Gravel is fine to coarse sub rounded flint with occasional brick.
Void2-CE	Light grey slightly gravelly silty CLAY. Gravel is fine to coarse sub rounded flint with occasional brick.
Void2-CF	Light grey clayey gravelly SAND. Gravel is fine to coarse sub rounded flint.
Void2-CG	Light grey slightly sandy slightly gravelly silty CLAY. Gravel is fine to coarse sub rounded flint.
Void2-CH	Dark grey silty CLAY.
Void2-CI	Light grey mottled silty CLAY.
Void2-CJ	Dark grey peaty silty CLAY with frequent woody inclusions.

Void 2

On the 11th of May, Void 2 was pumped in an attempt to remove the impacted water and free product. Following the emptying of the void, verification samples V27 (2.0m) and V28 (1.5m) were collected from the base and northern face of the void respectively. Each sample failed the field verification criteria of 50ppm volatile organic compounds (VOC) when analysed with the photo ionisation detector (PID) with concentrations of 195ppm and 875ppm. Circa 0.3m was removed from the base of the pit whilst 0.5m was removed from the northern face. Further material excavated from the void also failed field verification criteria. Due to the rain, surface water runoff and pipework within the north-eastern and north-western corners of the void it quickly re-filled. Further free-product was identified within the void on the following day (12th of May). Absorbent spill kits were used in an attempt to remove the free-product.

Void 6

Void 6 was pumped dry on the 13th of May for subsequent removal.

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RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	19 May 2016	file ref.	160510-13 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Jørn Pace (RE)
met	Andrew West (BHL) Gavin, Ricky (Woolridge Eco)		
purpose	Environmental Verification of Source Removal Works		

Attachments

Attachment 1 – Site Photographs



Plate 1 – Fuel pipe chased from Void 2



Plate 2 – Trench from Void 2 heading south



Plate 3 – Trench heading west from Void 6



Plate 4 – Void 6



Plate 5 – Void 2 pumping



Plate 6 – Void 2 pumping (2)

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RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	19 May 2016	file ref.	160510-13 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Jørn Pace (RE)
met	Andrew West (BHL) Gavin, Ricky (Woolridge Eco)		
purpose	Environmental Verification of Source Removal Works		

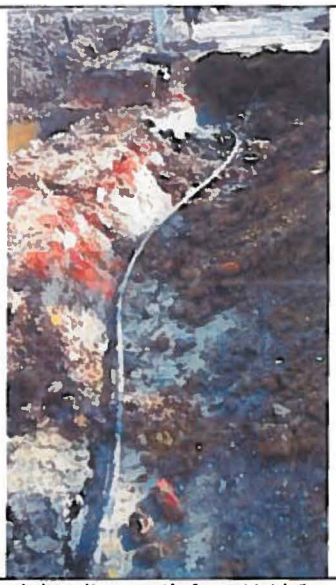


Plate 7 – Trench heading north from Void 6



Plate 8 – Trench heading north from Void 6 (2)



Plate 9 – Pipe within north-eastern corner of Void 2



Plate 10 – Pipe within north-eastern corner of Void 2 (2)

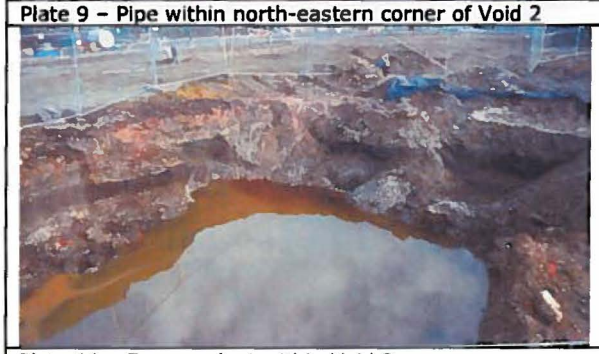


Plate 11 – Free product within Void 2

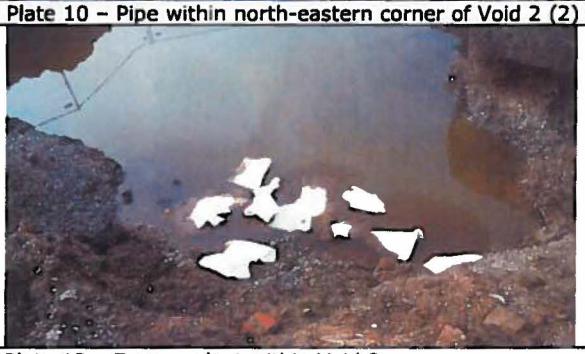


Plate 12 – Free product within Void 2

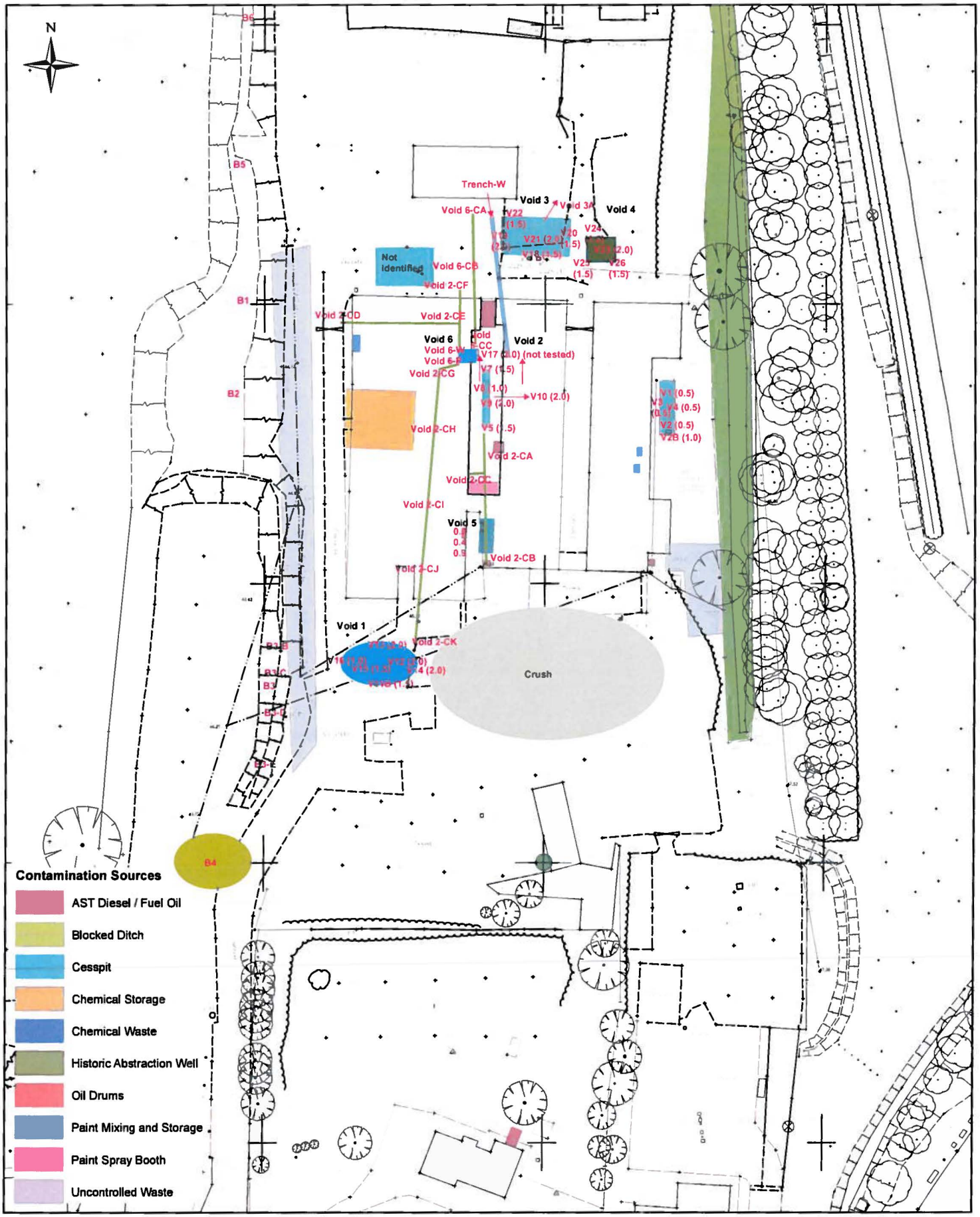
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RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	19 May 2016	file ref.	160510-13 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Jørn Pace (RE)
met	Andrew West (BHL) Gavin, Ricky (Woolridge Eco)		
purpose	Environmental Verification of Source Removal Works		

Attachment 2 – Void and Sample Location Plan

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Client	Project Title	Project Number	Figure No.	Date	Prepared by
Berkeley Homes (Western) Ltd	Green Park Village	1620000492	Figure 2	29/01/16	TS

RAMBOLL
Tel: 020 7631 5291
Fax 020 7323 4645
london@ramboll.co.uk
www.ramboll.co.uk

Figure Title: **Pingemead Industrial Estate Contamination Sources**

Scale: 0 4.258.5 17 25.5 34 42.5 Metres

rev. I01

RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	24 May 2016	file ref.	160517-18 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Jørn Pace (RE)
met	Andrew West (BHL) Gavin, Ricky (Woolridge Eco)		
purpose	Environmental Verification of Source Removal Works		

Date of Visits: 17-18 May 2016
General Working Hours: 0730 to 1615
Weather Conditions: Rain ~12C

General

JP on-site for the verification of source removal works and remedial works on the former Pingemead Industrial Estate.

Void 5/RHP402

A trial pit was undertaken on the 17th of May in the location (RHP402) which identified hydrocarbon contamination during the initial ground investigation. Since the concrete slab had been removed from the demolition phase no impacts were visible from the surface. The trial pit was advanced to 0.9mbgl with confirmatory samples collected at 0.2m, 0.4m and 0.9m. None of the samples exhibited visual or olfactory evidence of contamination.

Void 6

Following the pumping out of Void 6 on the 13th of May, works were undertaken to remove the concrete holder. Once works commenced it became apparent an underground storage tank (UST) was present with a combination of free hydrocarbon product and water within. Samples were collected of the free product (Void6-P) and water (Void6-W) for laboratory analysis. Works were ceased until the tank could be drained.

Further subterranean fuel pipes were identified extending north of Void 6. The pipe was identified approximately 0.5mbgl and comprised a smaller pipe within a larger diameter pipe. The pipes ended approximately 20m north of Void 6. Whilst removing the pipe it was apparent it still contained fuel. Any impacted arisings were stockpiled within a bund. Verification samples were collected at 10m intervals at the locations specified in Attachment 2. Sample descriptions are contained within Table 1 below.

Table 1: Fuel Pipe Verification Samples

Sample	Description
Void6-CA	Light grey silty CLAY.
Void6-CB	Light to dark grey silty sandy gravelly CLAY. Gravel is fine to coarse sub rounded flint.
Void6-CC	Light to dark grey silty CLAY.

Void 2

On the 18th of May additional works were undertaken to chase out the pipe within the north-eastern corner of Void 2. The pipe was found to lie at the interface between the Alluvium and River Terrace Deposits at a depth of 2mbgl. The pipe was ceramic, had a diameter of 10 to 20cm and was suspected to be for drainage purposes. During the chasing, attempts were made to keep the pipe intact however this proved difficult and the pipe was broken on several occasions. Once broken, a moderate flow of water discharged from the pipe. The water emitted exhibited a hydrocarbon sheen and odour, on this basis, collecting verification samples proved difficult. The trench was extended circa 20m to the north with no signs of the pipe ending. The chasing works were ceased on the following basis:

- The works resulted in damaging the pipe and subsequent release of suspected contaminated water;
- Due to the depth of the pipe, creating a trench to chase the extent of the pipe was impracticable; and
- Due to the unknown volume of water in the drainage network, pumping the pipe was unfeasible.

Therefore, the pipe was plugged with alluvial clay to prevent further release of the water and the trench was backfilled.

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RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	24 May 2016	file ref.	160517-18 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Jørn Pace (RE)
met	Andrew West (BHL) Gavin, Ricky (Woolridge Eco)		
purpose	Environmental Verification of Source Removal Works		

Attachments

Attachment 1 – Site Photographs



Plate 1 – Void 5



Plate 2 – Void 5 with Void 1 to the north



Plate 3 – UST at Void 6



Plate 4 – Subterranean pipe heading north from Void 6



Plate 5 – Potential free-product in trench from Void 2



Plate 6 – Trench from Void 2

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RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	24 May 2016	file ref.	160517-18 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Jørn Pace (RE)
met	Andrew West (BHL) Gavin, Ricky (Woolridge Eco)		
purpose	Environmental Verification of Source Removal Works		



Plate 7 – Trench from Void 2 (2)



Plate 8 – Ceramic pipe within trench from Void 2

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RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	24 May 2016	file ref.	160517-18 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Jørn Pace (RE)
met	Andrew West (BHL) Gavin, Ricky (Woolridge Eco)		
purpose	Environmental Verification of Source Removal Works		

Attachment 2 – Void and Sample Location Plan

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RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	15 June 2016	file ref.	160615 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Jørn Pace (RE)
met	Andrew West (BHL) Michael McHugh (Celtic)		
purpose	Watching Brief of Celtic investigative works		

Date of Visits: 15 June 2016
General Working Hours: 0730 to 1630
Weather Conditions: Rain ~15C

General

JP on-site to aid Celtic with their investigative works of hydrocarbon impacts within the vicinity of the backfilled Void 2.

Following works undertaken by Ramboll throughout April and May 2016 on Void 2, Celtic, a specialist remediation contractor, were introduced to the project to aid with source removal works of the free-phase hydrocarbon product.

Since Ramboll's last visit on the 18th of May, Void 2 has been backfilled with sandy silty clay. In order to locate the free-phase hydrocarbon product, Celtic undertook six trial pits within the vicinity of Void 2 at the locations specified within Attachment 2.

No free-phase hydrocarbon product was identified within the trial pits with signs of contamination being limited to a light sheen <1mm on groundwater.

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RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	15 June 2016	file ref.	160615 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Jørn Pace (RE)
met	Andrew West (BHL) Michael McHugh (Celtic)		
purpose	Watching Brief of Celtic investigative works		

Attachments

Attachment 1 – Site Photographs



Plate 1 – TP01



Plate 2 – TP01 (2)



Plate 3 – TP02



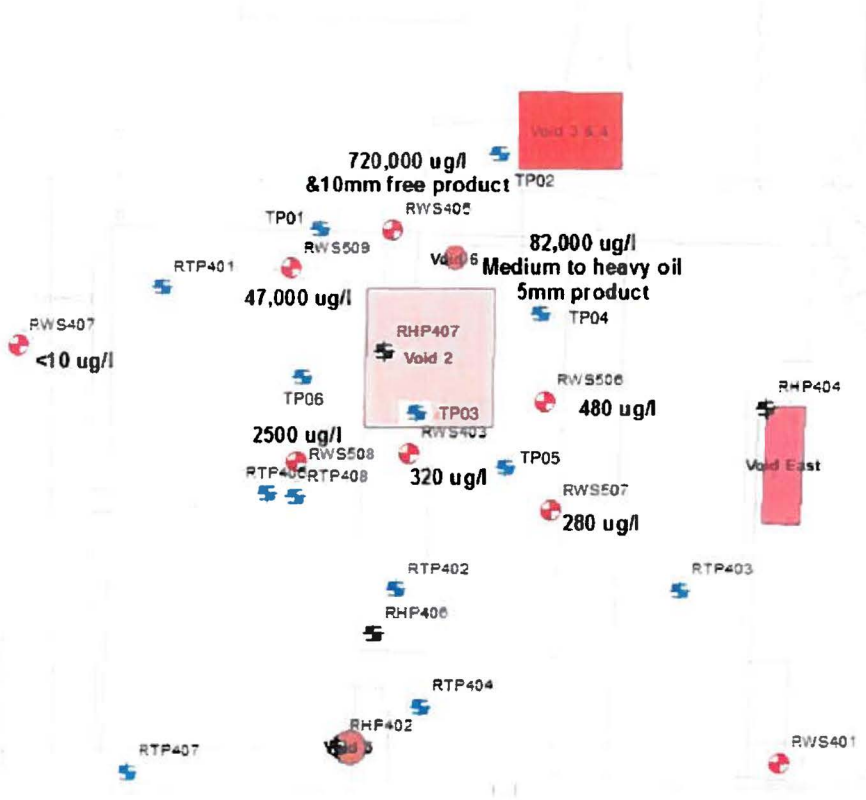
Plate 4 – TP04

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RECORD OF SITE VISIT

job title	Green Park Village, Pingemead Industrial Estate	job no.	1620000492
date	15 June 2016	file ref.	160615 Site Visit Record
visit to	Pingemead Industrial Estate, GPV, Reading	by	Jørn Pace (RE)
met	Andrew West (BHL) Michael McHugh (Celtic)		
purpose	Watching Brief of Celtic investigative works		

Attachment 2 – Trial Pit Location Plan



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APPENDIX 3
ANALYTICAL RESULTS

Green Park Village
Source Removal - Soil Verification

						No free phase							No free phase			
Lab Sample Number			Verification Criteria	******	******	******	******	******		******	******	******	******	******	******	
Sample Reference				**	**	***	***	**		****	***	***	***	***	***	
Depth (m)				***	***	***	*	***		*	*	*	*	*	*	
Date Sampled				**********	**********	**********	**********	**********		**********	**********	**********	**********	**********	**********	
Void						Void East							Void 1			
Analytical Parameter (Soil Analysis)	Units	Practical Quantitation Limit (PQL)	Acceptance Basis				replaced by V11									
Stone Content	%	0.1	NONE													
Moisture Content	%	N/A	NONE		24	18	16	8.7	24	5.2	7.9	4.8	8.4	8.7	10	
Total mass of sample received	kg	0.001	NONE		1.3	1.3	1.6	1.4	1.2	1.4	1.4	1.3	1.3	1.4	1.2	
General Inorganics																
Free Cyanide	mg/kg	1	NONE							-	-	-	-	-	-	
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS		0.57	0.27	1.1	0.077	0.071	-	-	-	-	-	-	
Water Soluble Chloride (2:1)	mg/kg	1	MCERTS		20	14	25	8.0	240	-	-	-	-	-	-	
Water Soluble Phosphate as P (2:1)	mg/kg	0.1	NONE		0.22	0.21	0.18	0.33	0.30	-	-	-	-	-	-	
Water Soluble Fluoride (2:1)	mg/kg	1	NONE		4.7	1.7	3.5	1.0	8.3	-	-	-	-	-	-	
Ammonium as NH_4	mg/kg	0.5	MCERTS			17	0.6	21		-	-	-	-	-	-	
Water Soluble Nitrate (2:1) as NO_3	mg/kg	2	NONE		25	280		500	63	-	-	-	-	-	-	
Heavy Metals / Metalloids																
Aluminium (aqua regia extractable)	mg/kg	30	NONE		16000	13000	16000	8400	16000	-	-	-	-	-	-	
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	46	13	8.5	15	9.8	14	-	-	-	-	-	-	
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	88	0.4	0.2			0.3	-	-	-	-	-	-	
Chromium (hexavalent)	mg/kg	4	MCERTS	21						-	-	-	-	-	-	
Chromium (III)	mg/kg	1	NONE	910	97	89	46	22	53	-	-	-	-	-	-	
Chromium (aqua regia extractable)	mg/kg	1	MCERTS		97	89	46	22	53	-	-	-	-	-	-	
Copper (aqua regia extractable)	mg/kg	1	MCERTS	7380	72	42	22	22	42	-	-	-	-	-	-	
Iron (aqua regia extractable)	mg/kg	40	MCERTS		32000	25000	36000	16000	33000	-	-	-	-	-	-	
Lead (aqua regia extractable)	mg/kg	1	MCERTS	310	83	65	39	41	110	-	-	-	-	-	-	
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	56	1.0	0.5			1.2	-	-	-	-	-	-	
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	980	74	50	39	15	27	-	-	-	-	-	-	
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	40,000	150	97	76	70	180	-	-	-	-	-	-	
Monoaromatics																
Benzene	µg/kg	1	MCERTS					-				-				
Toluene	µg/kg	1	MCERTS					-				-				
Ethylbenzene	µg/kg	1	MCERTS					-				-				
p & m-xylene	µg/kg	1	MCERTS					-				-				
o-xylene	µg/kg	1	MCERTS					-				-				
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS					-				-				
Petroleum Hydrocarbons																
TPH C10 - C40	mg/kg	10	MCERTS	27	130	370	1200	21	140	700	73	25	930		120	
TPH2 (C6 - C10)	mg/kg	0.1	NONE													
TPH C6 - C40	mg/kg	10	NONE	27	130	370	1200	21	140	700	73	25	930		120	
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	42				-				-		-		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	100				-				-		-		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	27				-				-		-		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	130 (MI)				-				-		-		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	1,100 (MI)			48	-		8.2	2.2	-	15	-		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	65,000 (N-HF)	15	53	76	-		40		-	36	-		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	65,000 (N-HF)	75	120	72	-	27	300	63	-	330	-		
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE		11	8.5		-		80			140			
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS		92	210	190	-	28	350	69	-	380	-		
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE		100	220	100	-	28	-	-	-	-	-	-	
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	70				-				-		-		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	130				-				-		-		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	34				-				-		-		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	74				-				-		-		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	140			26	-		7.6		-	2.2	-		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	300		41	110	-	21	17		-	12	-	38	
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	1,100	25	110	140	-	73	58		-	130	-	69	
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	1,100		17	76	-	14	47			100		64	
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS		33	170	480	-	94	70		-	150	-	98	
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE		35	170	950	-	110	-	-	-	-	-	-	
TPH Aliphatic + Aromatic >EC44-C40	mg/kg	500	NONE					-				-		-		
TPH Total C6 - C44	mg/kg	10	NONE		140	380	1150	-	140	-	-	-	-	-	-	

Green Park Village
Source Removal - Soil Verification

				Free phase in water (solubility limit thresholds adopted)										No free phase								No free phase				
Lab Sample Number																										
Sample Reference			**Verification Criteria**																							
Depth (m)																										
Days Recorded																										
Void				**Void 2**										**Void 2 Pipework**								**Void 3**				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation**																							
Stone Content	%	0.1	NONE																							
Moisture Content	%	N/A	NONE		17	8.7	13	14	6.4	17	13	16	19	17	11	8.5	16	14	19	17		17	26	24	13	15
Total mass of sample received	kg	0.001	NONE		1.5	1.5	1.8	1.8	1.7	1.3	1.3	1.5	1.4	1.7	1.5	1.8	1.4	1.5	1.3	1.4		1.8	1.4	1.3	1.5	1.5
General Inorganics																										
Free Cyanide	mg/kg	1	NONE							-	-	-														
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS		0.76	0.091	0.057	0.088	0.089	-	-	-										0.53	0.13	0.079	0.26	0.26
Water Soluble Chloride (2:1)	mg/kg	1	MCERTS		140	100	100	94	96	-	-	-										58	45	19	37	37
Water Soluble Phosphate as P (2:1)	mg/kg	0.1	NONE		0.18	0.21	0.48	0.21	0.49	-	-	-										0.94	0.22	0.26	0.42	0.47
Water Soluble Fluoride (2:1)	mg/kg	1	NONE		4.8	2.8	2.4	2.8	2.5	-	-	-										1.8	3.2	3.3	3.2	2.5
Ammonium as NH_4	mg/kg	0.5	MCERTS		79	14	13	11	2.3	-	-	-										28	66	76	79	38
Water Soluble Nitrate (2:1) as NO_3	mg/kg	2	NONE		7.2					-	-	-											5.8			2.3
Heavy Metals / Metalloids																										
Aluminium (aqua regia extractable)	mg/kg	30	NONE		10000	5900	3100	2800	2300	-	-	-										11000	22000	23000	12000	8300
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	40	6.6	5.3	6.5	3.8	4.6	-	-	-										9.7	12	6.3	8.8	9.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	85				0.2		-	-	-														
Chromium (hexavalent)	mg/kg	4	MCERTS	21						-	-	-														
Chromium (III)	mg/kg	1	NONE	910	32	25	25	9.9	8.1	-	-	-										37	38	35	26	23
Chromium (aqua regia extractable)	mg/kg	1	MCERTS		32	25	25	9.9	8.1	-	-	-										37	38	35	26	23
Copper (aqua regia extractable)	mg/kg	1	MCERTS	7380	20	12	11	11	13	-	-	-										38	19	15	18	16
Iron (aqua regia extractable)	mg/kg	40	MCERTS		20000	11000	13000	6320	4700	-	-	-										30000	38000	49000	24000	19000
Lead (aqua regia extractable)	mg/kg	1	MCERTS	310	46	13	8.4	11	7.4	-	-	-										82	28	12	31	23
Mercury (aqua regia extractable)	mg/kg	0.1	MCERTS	56	0.5					-	-	-														
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	180	33	24	20	9.7	9.3	-	-	-										35	37	30	24	27
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	40,000	70	31	16	23	13	-	-	-										77	90	91	71	54
Monoaromatics																										
Benzene	µg/kg	1	MCERTS		-		-	-	-	-	-	-											-	-		
Toluene	µg/kg	1	MCERTS		-		-	-	-	-	-	-											-	-		
Ethylbenzene	µg/kg	1	MCERTS		-		-	-	-	-	-	-											-	-		
p & m-xylene	µg/kg	1	MCERTS		-		-	-	-	-	-	-											-	-		
o-xylene	µg/kg	1	MCERTS		-		-	-	-	-	-	-											-	-		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS		-		-	-	-	-	-	-											-	-		
Petroleum Hydrocarbons																										
TPH C10 - C40	mg/kg	10	MCERTS	27	22	970		57		-	-	-										83			230	57
TPH2 (C6 - C10)	mg/kg	0.1	NONE					0.4		-	-	-														
TPH C8 - C40	mg/kg	10	NONE	27	22	970		58		-	-	-										83			230	57
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	42	-		-	-	-	-	-	-											-	-		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	100	-		-	-	-	-	-	-											-	-		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	27	-		-	-	-	-	-	-											-	-		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	130 (48)	-	1.9	-	-	-	-	-	-		4.1					2.6				-	-		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	1,100 (28)	-	80	-	6.1	-	-	-	-		31					5.2			2.6	-	-		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	65,000 (8.48)	-	280	-	15	-	-	-	-		58								13	-	-	12	8.9
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	65,000 (8.48)	-	110	-		-	-	-	-	25	65					28			11	-	-	130	35
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE		-		-		-	-	-	-	23	160					34				-	-	36	
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS		-	490	-	27	-	-	-	-										67	-	-	170	45
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE		-	490	-	27	-	-	-	-										47	-	-	200	45
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	70	-		-	-	-	-	-	-											-	-		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	130	-		-	-	-	-	-	-											-	-		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	34	-		-	-	-	-	-	-											-	-		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	74	-	7.8	-	1.1	-	-	-	-											-	-		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	140	-	84	-	5.0	-	-	-	-		21									-	-		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	300	-	280	-	19	-	-	-	-		58									-	-		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	1,100	-	99	-		-	-	-	-	21	79			11		15			20	-	-	33	
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	1,100	-		-		-	-	-	-	13	130			12		23			6.5	-	-		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS		-	490	-	31	-	-	-	-	-	-	-	-	-	-	-	-	-	25	-	-	25	
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE		-	490	-	31	-	-	-	-	-	-	-	-	-	-	-	-	-	35	-	-	35	
TPH Aliphatic + Aromatic >C44-C76	mg/kg	500	NONE		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-		
TPH Total C8 - C44	mg/kg	10	NONE		-	970	-	57	-	-	-	-	-	-	-	-	-	-	-	-	-	81	-	-	240	45

Green Park Village
Source Removal - Soil Verification

					No free phase						No free phase		
Lab Sample Number				------	------	------	------	------	------	------	------	------	------
Sample Reference				---	---	---	---	---	---	---	------	------	------
Depth (m)			**Verification Criteria**	-	-	-	-	--	--	-	-	-	-
Date Sampled				-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Void					Void 4				Void 5			Void 6	
Analytical Parameter (Soil Analysis)	**Units**	**Limit of Detection**	**Accreditation Status**										
Stone Content	%	0.1	NONE										
Moisture Content	%	N/A	NONE		29	23	26	22	9.9	16	17	11	21
Total mass of sample received	kg	0.001	NONE		1.4	1.3	1.3	1.3	1.3	1.4	1.5	1.3	1.3
General Inorganics													
Free Cyanide	mg/kg	1	NONE						-	-	-	-	-
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS		0.20	0.043	0.13	0.076	-	-	-	-	-
Water Soluble Chloride (2:1)	mg/kg	1	MCERTS		35	26	180	21	-	-	-	-	-
Water Soluble Phosphate as P (2:1)	mg/kg	0.1	NONE		0.70	0.38	0.37	0.37	-	-	-	-	-
Water Soluble Fluoride (2:1)	mg/kg	1	NONE		3.6	3.8	3.9	3.8	-	-	-	-	-
Ammonium as NH_4	mg/kg	0.5	MCERTS		19	35	15	31	-	-	-	-	-
Water Soluble Nitrate (2:1) as NO_3	mg/kg	2	NONE						-	-	-	-	-
Heavy Metals / Metalloids													
Aluminium (aqua regia extractable)	mg/kg	10	NONE		24000	17000	20000	16000	-	-	-	-	-
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	40	6.3	4.7	3.8	4.6	-	-	-	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	85				0.3	-	-	-	-	-
Chromium (hexavalent)	mg/kg	4	MCERTS	21					-	-	-	-	-
Chromium (III)	mg/kg	1	NONE	910	35	43	29	23	-	-	-	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS		35	43	29	23	-	-	-	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	7100	38	19	17	17	-	-	-	-	-
Iron (aqua regia extractable)	mg/kg	40	MCERTS		36000	26000	37000	29000	-	-	-	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	310	18	11	10	11	-	-	-	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	56					-	-	-	-	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	180	31	23	27	21	-	-	-	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	46,000	110	78	84	69	-	-	-	-	-
Monoaromatics													
Benzene	µg/kg	1	MCERTS		-	-	-	-	-	-	-	-	-
Toluene	µg/kg	1	MCERTS		-	-	-	-	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS		-	-	-	-	-	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS		-	-	-	-	-	-	-	-	-
o-xylene	µg/kg	1	MCERTS		-	-	-	-	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS		-	-	-	-	-	-	-	-	-
Petroleum Hydrocarbons													
TPH C10 - C40	mg/kg	10	MCERTS	27					210		140		
TPH2 (C6 - C10)	mg/kg	0.1	NONE										
TPH C6 - C40	mg/kg	10	NONE	27					210		140		
TPH-CWG - Aliphatic >EC5 - EC8	mg/kg	0.1	MCERTS	42	-	-	-	-		-		-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	100	-	-	-	-		-		-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	0.1	MCERTS	27	-	-	-	-		-		-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	1	MCERTS	130 (140)	-	-	-	-		-		-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	2	MCERTS	1,100 (140)	-	-	-	-	7.6	-		-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	65,000 (9.4K)	-	-	-	-	13	-		-	-
TPH-CWG - Aliphatic >EC35 - EC44	mg/kg	8	MCERTS	65,000 (9.4K)	-	-	-	-	26	-	13	-	-
TPH-CWG - Aliphatic >EC35 - EC44	mg/kg	8.4	NONE		-	-	-	-	-	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS		-	-	-	-	46	-	14	-	-
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE		-	-	-	-	-	-	-	-	
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	70	-	-	-	-		-		-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	130	-	-	-	-		-		-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	34	-	-	-	-		-		-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	74	-	-	-	-		-		-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	140	-	-	-	-	6.5	-	2.1	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	260	-	-	-	-	38	-	14	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	1,100	-	-	-	-	72	-	72	-	-
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	1,100	-	-	-	-		-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS		-	-	-	-	120	-	91	-	-
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE		-	-	-	-	-	-	-	-	-
TPH Aliphatic + Aromatic >C44-C70	mg/kg	500	NONE		-	-	-	-	-	-	-	-	-
TPH Total C6 - C44	mg/kg	10	NONE		-	-	-	-	-	-	-	-	-

Green Park Village
Source Removal - GeoVerification
(Leachates)

Lab Sample Number					360941	360942	371328	360943	360944	360945		360946	360947	360948	360949	360950		371327	371329	371330	371331	371332		371333	371334	371335	371336
Sample Reference					V1	V2	V28	V3	V11	V9		V5	V7	V8	V29	V30		V34	V28	V29	V33	V31		V21	V24	V23	V26
Depth (m)					0.30	0.30	Bore Sealed	0.30	-	0.30		1.20	1.80	2.40	2.60	2.80		-	-	-	-	-		-	-	-	-
Date Sampled					12/04/2016	12/04/2016	07/07/2016	12/04/2016	12/04/2016	12/04/2016		12/04/2016	12/04/2016	12/04/2016	14/04/2016	12/04/2016		06/07/2016	07/07/2016	06/07/2016	07/07/2016	07/07/2016		07/07/2016	07/07/2016	07/07/2016	07/07/2016
Location					Void Fast							Void 3						Void 3						Void 4			
Analytical Parameter (Leachate Analysis)	Units	Method of Analysis	Accreditation Status	Verification Criteria		replaced by V28		replaced by V11																			
General Inorganics																											
pH	pH Units	N/A	TSQ LR/01	6 to 9	6.3	6.3	-	6.1	6.1	6.8		6.6	6.7	6.7	6.8	6.7		6.8	6.9	6.9	6.9	7.0		7.0	6.9	7.0	6.9
Free Cyanide	µg/l	10	62mol	1	-	-	-	-	-	-		-	-	-	-	-		< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1
Free Cyanide Conc Level 1 use?	use?	1	TSQ LR/01	1	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-
Cyanate as SO3	µg/l	500	TSQ LR/01	exc.use	9.6e3	3.4e3	-	176e3	2.7e3	1.9e3		3.4e3	30.4e3	8.9e3	56e3	35e3		13e3	41.9e	14e3	17.3e	9.9e		10.3e	3.9e	41.9e	3.9e
Chloride	mg/l	0.13	TSQ LR/01	250	3.6	3.3	-	2.4	0.45	1.7		2.1	1.3	1.2	1.2	1.2		11	3.1	1.7	3.7	4.1		2.3	1.2	7.6	1.7
Phosphate, as P	mg/l	20	62mol		170	200	-	110	110	200		140	120	170	130	140		190	78	79	91	85		76	77	71	72
Fluoride	mg/l	50	62mol		820	630	-	600	270	1100		170	250	170	200	230		240	530	600	190	800		750	460	540	240
Ammonium as NH4	mg/l	15	62mol	500	30	45	-	20	5.0	40		5.0	420	1.4e3	750	2.0		1.4e3	1.4e3	1.4e3	1.4e3	1.4e3		1.4e3	1.4e3	1.4e3	1.4e3
Dissolved Organic Carbon (DOC)	mg/l	0.1	62mol		7.39	11.4	-	6.41	8.38	11.6		7.25	4.11	5.51	4.36	3.12		13.2	12.8	7.12	13.6	23.1		5.24	8.27	8.35	5.51
Nitrate as N	mg/l	0.01	62mol		1.74	5.38	-	0.39	1.43	1.38		1.28	0.16	0.13	0.13	0.11		0.38	0.22	0.21	0.21	0.26		0.20	0.17	0.17	0.16
Hardness - Total	mgCaCO3/l	1	62mol		209	131	-	227	13.3	17.1		127	13.8	41.2	31.7	9.2		49.7	25.7	31.2	46.1	46.1		36.2	36.2	44.3	41.8
Total PAH																											
Total EPA-16 PAHs	mg/l	0.2	62mol		-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-
Heavy Metals / Metalloids																											
Aluminium (dissolved)	mg/l	0.012	TSQ LR/21		0.13	0.10	-	0.19	0.05	0.45		0.36	0.24	0.05	0.03	1.3		0.47	0.31	0.24	0.22	0.24		0.21	C.44	0.11	0.26
Boron (dissolved)	mg/l	1.1	TSQ LR/21	30	4.8	4.7	-	-	-	4.5		4.4	1.1	1.1	0.8	0.2		20	2.8	2.8	0.8	6.6		1.1	2.0	1.2	2.4
Boron (dissolved)	mg/l	10	TSQ LR/21	3000	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-
Cadmium (dissolved)	mg/l	0.08	TSQ LR/25	0.05			-											< 0.08	< 0.08	< 0.08	< 0.08	< 0.08		< 0.08	< 0.08	< 0.08	< 0.08
Chromium (hexavalent)	mg/l	5	62mol	0.5			-											< 5.0	< 5.0	< 5.0	< 5.0	< 5.0		< 5.0	< 5.0	< 5.0	< 5.0
Chromium (dissolved)	mg/l	0.5	TSQ LR/15	0.1	1.1	1.1	-	2.1	1.1	2.7		1.2	1.5	1.6	1.8	3.8		1.6	0.8	0.8	0.9	1.1		1.2	0.8	0.8	0.6
Copper (dissolved)	mg/l	0.7	TSQ LR/15	30	13	15	-	12	2.3	30		9.5	4.7	6.8	6.7	5.2		12	8.8	6.8	11	17		9.2	9.1	7.3	6.7
Iron (dissolved)	mg/l	0.004	TSQ LR/15	3	0.30	0.11	-	0.38	0.04	0.78		0.22	0.20	0.11	0.04	1.3		0.45	0.20	0.13	0.23	0.24		0.07	0.34	0.072	0.21
Lead (dissolved)	mg/l	1	TSQ LR/15	5.0			-			0.1		1.9	2.7	2.3	2.3	3.2		3.4	3.2	< 1.0	4.9	2.1		1.0	1.5	1.1	2.2
Mercury (dissolved)	mg/l	0.5	TSQ LR/21	0.01			-											< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		< 0.5	< 0.5	< 0.5	< 0.5
Nickel (dissolved)	mg/l	2.2	TSQ LR/15	20	35	35	-	4.8	2.2	6.4		5.5	3.0	1.8	3.0	7.7		9.4	9.1	3.4	5.7	11		3.5	11	4.9	2.2
Selenium (dissolved)	mg/l	4	TSQ LR/15		-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-
Vanadium (dissolved)	mg/l	1.2	TSQ LR/15		-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-
Zinc (dissolved)	mg/l	0.4	TSQ LR/15	20	11	12	-	3.1	0.7	20		11	13	17	15	16		4.9	1.7	1.7	7.2	11		5.6	7.8	11	3.4
Calcium (dissolved)	mg/l	0.015	TSQ LR/21		57	45	-	83	4.3	8.7		47	28	15	11	3.3		19	13	12	17	17		14	14	17	11
Magnesium (dissolved)	mg/l	0.005	TSQ LR/21		4.6	4.4	-	9.7	0.67	1.3		2.8	1.8	0.86	0.61	0.46		0.41	0.31	0.33	0.78	0.86		0.89	0.65	0.93	0.48
Petroleum Hydrocarbons																											
TPH (C10 - C40)	mg/l	10	62mol	10		52	< 10											< 10	< 10	< 10	< 10	< 10		< 10	< 10	< 10	< 10
TPH (C6 - C10)	mg/l	10	62mol	10			< 10											< 10	< 10	< 10	< 10	< 10		< 10	< 10	< 10	< 10
TPH CS (C6 - C40)	mg/l	10	62mol	10		52	< 10											< 10	< 10	< 10	< 10	< 10		< 10	< 10	< 10	< 10

Green Park Village
Additional Delineation Window Sampling
and Trial Pitting

Lab Sample Number																									
Sample Reference																									
Depth (m)																									
Date Sampled																									
Analytical Parameter (Soil Analysis)	Units	Limit of Detection	Method	Worthington Criteria																					
Stone Content	%	0.1	NONE		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Moisture Content	%	0.01	NONE		9.2	9.2	11	7.7	8.4	4.7	8.4	12	9.2	6.4	9.6	6.1	19	7.3	13	15	8.8	8.3	11	9.3	8.4
Total mass of sample received	kg	0.001	NONE		1.8	1.3	1.3	1.3	1.3	1.3	1.8	1.1	1.8	1.8	1.7	1.8	-	-	-	-	-	-	-	-	-
Fibre Identification																									
Asbestos	asbs	1	HSE073		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile	asbs	1	HSE073		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amosite	asbs	1	HSE073		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crocidolite	asbs	1	HSE073		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fibrous Actinolite	asbs	1	HSE073		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthophyllite	asbs	1	HSE073		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MMMF (Man Made Mineral Fibre)	asbs	1	HSE073		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Petroleum Hydrocarbons																									
TPH C35 - C40	mg/kg	10	HSE073	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH C6 - C40	mg/kg	0.1	NONE		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH C6 - C40	mg/kg	10	NONE	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	HSE073	42																					
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	HSE073	100																					
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	HSE073	27																					
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	HSE073	130 (65)																42					
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	HSE073	1,100 (540)																73					
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	HSE073	22,000 (5,400)																29					
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	HSE073	22,000 (5,400)																					
TPH-CWG - Aliphatic > EC35 - EC40	mg/kg	8.4	NONE		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	37	-	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	HSE073																						
TPH-CWG - Aliphatic (EC5 - EC40)	mg/kg	10	NONE		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	46	-	-	-	-	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	HSE073	70																					
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	HSE073	130																					
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	HSE073	34																					
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	HSE073	74																					
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	HSE073	140																2.8					
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	HSE073	260																					
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	HSE073	1,100																5.1					
TPH-CWG - Aromatic > EC35 - EC40	mg/kg	8.4	NONE	1,100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	HSE073																						
TPH-CWG - Aromatic (EC5 - EC40)	mg/kg	10	NONE		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.9	-	-	-	-	-
TPH (Aliphatic + Aromatic >C40-C70)	mg/kg	500	NONE		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH Total C5 - C40	mg/kg	10	NONE		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	54	-	-	-	-	-

Crown Park Village
Source Removal and Additional GI Water Sampling

					Void 1													
Lab Sample Number				**Verification Criteria**	56-5795	574854	572887	574855	572894	574856	572895	574857	572889	574858	572888	574861	574867	
Sample Reference					TW1	BW5301	BW5302	BW5302	BW5303	BW5303	BW5304	BW5304	BW5305	BW5305	BW5319	BW5320	BW5411	
Direction from Void					Void 1 Water	E	E	SSW	SSW	NW	W	W	SE	SE	NE	NE	E	
Distance from Void (m)					0m	5m	5m	5m	5m	5m	0m	0m	10m	10m	4m	4m	20m	
Date Sampled					29/04/2016	12/05/2016	19/05/2016	12/05/2016	19/05/2016	12/05/2016	19/05/2016	12/05/2016	19/05/2016	12/05/2016	19/05/2016	12/05/2016	13/05/2016	
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**															
Monoaromatics																		
Benzene	µg/l	1	ISO 17025	10														
Toluene	µg/l	1	ISO 17025	74														
Ethylbenzene	µg/l	1	ISO 17025															
p & m-xylene	µg/l	1	ISO 17025															
o-xylene	µg/l	1	ISO 17025															
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025		22.8													
Petroleum Hydrocarbons																		
TPH1 (C10 - C40)	µg/l	10	NONE	10	40000	-	-	-	-	-	-	-	-	-	-	-	-	
TPH2 (C6 - C10)	µg/l	10	NONE	10		-	-	-	-	-	-	-	-	-	-	-	-	
TPH-CWG Aliphatic >C5 C6	µg/l	10	NONE	10														
TPH-CWG Aliphatic >C6 C8	µg/l	10	NONE	10														
TPH-CWG Aliphatic >C8 C10	µg/l	10	NONE	10														
TPH-CWG Aliphatic >C10 C12	µg/l	10	NONE	10												79	53	
TPH-CWG Aliphatic >C12 C16	µg/l	10	NONE	10	10000											89	59	
TPH-CWG Aliphatic >C16 C21	µg/l	10	NONE	10	5200													
TPH-CWG Aliphatic >C21 C35	µg/l	10	NONE	10	24000													
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	10	40000											168	112	
TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	10														
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	10														
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	10														
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	10					64									
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	10					32									
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	10														
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	10														
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	10					160									
Miscellaneous Organics																		
Product ID		N/A	NONE		-	-	-	-	-	-	-	-	-	-	-	-	-	

Green Park Village
Source Removal and Additional GI Water Sampling

					Void 2														Void 6	
Lab Sample Number				Verification Criteria	566699	576199	572882	574859	572880	574860	572883	574861	572881	574862	574865	572885	574864	574866	574868	56-0285	576-020	576-021
Sample Reference					TW1	Trench W	EWS306	EWS306	EWS307	EWS307	EWS308	EWS309	EWS309	EWS309	EWS403	EWS405	EWS405	EWS406	EWS407	TW2	Void 6 - W	Void 6 - P
Direction from Void					Void 2 Water	Void 2 Pipework	E	E	SE	SE	W	W	NW	NW	S	N	N	NW	SW	Void 3		
Distance from Void (m)					0m	0m	5m	5m	10m	10m	5m	5m	10m	10m	2m	2m	2m	55m	30m	-		
Date Sampled					12/04/2016	10/05/2016	10/05/2016	13/05/2016	10/05/2016	13/05/2016	10/05/2016	13/05/2016	10/05/2016	13/05/2016	13/05/2016	10/05/2016	13/05/2016	13/05/2016	13/05/2016	20/04/2016	17/05/2016	17/05/2016
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status																			
Monoaromatics																						
Benzene	µg/l	1	ISO 17025	10									3.5			140	5.8			-	5.7	-
Toluene	µg/l	1	ISO 17025	74									149				65.9			-	119	-
Ethylbenzene	µg/l	1	ISO 17025																	-	24.9	-
m & p-xylene	µg/l	1	ISO 17025								3.9		791			2290	647			-	157	-
o-xylene	µg/l	1	ISO 17025								3.4		495			1930	598			-	150	-
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025														598			-		-
Petroleum Hydrocarbons																						
TPH1 (C10 - C40)	µg/l	10	NONE	10	20000	3400	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-
TPH2 (C8 - C10)	µg/l	10	NONE	10	290		-	-	-	-	-	-	-	-	-	-	-	-	-		-	-
TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	10																-		-
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	10									170	30		17000	48			-	10	-
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	10									21000	70		490000	4300			-	1190	-
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	10	3800				200	25		15	180	40000	72	32000	100000			-	28000	-
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	10	4300	880		32	210	35		52	760	130000	95	52000	250000			-	34000	-
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	10	5300	1500														-		-
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	10																-		-
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	10	14000	2500		32	410	60		67	22000	150000	170	500000	500000			-	64000	-
TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	10												56				-		-
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	10									100				66			-	120	-
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	10	290						59		21000	190		140000	5500			-	3200	-
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	10	5100	54	270	190		170	700		3400		150	8900	9500			-	11000	-
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	10	7700	470	220	39		49	1100		880			1200	2500			-	830	-
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	10	1800	410														-		-
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	10																-		-
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	10	15000	940	490	230		220	2500		25000	190	150	150000	17000			-	15000	-
Miscellaneous Organics																						
Product ID		N/A	NONE		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Medium to heavy fuel oil

APPENDIX 4
WOOLRIDGE ECOTEC LTD CONSULTATION

Jorn Pace

From: Jamie Wilkinson <jamie@wooldridgegroup.co.uk>
Sent: 06 February 2017 15:47
To: Jorn Pace
Subject: FW: Information required - former Pingemead Industrial Estate

Follow Up Flag: Follow up
Flag Status: Flagged

Jorn,

Hope you are well. With regards to question...**Details of any re-used site won material – volumes used and locations;**

Site-won material on site was used in Phase 1A. There was a requirement of 26,500m3 in Phase 1A. There was 20,500m3 of material in Phase 1A to use, however, 9,400m3 comprised of topsoil which was stockpiled separately. Therefore 11,100m3 of fill from Phase 1A was used in Phase 1A. The remaining 15,400m3 of material that was required in Phase 1A was taken from Phase 3 and 5. Any queries please let me know.

Kind regards,
Jamie

Jamie Wilkinson
Wooldridge Group
Unit 17 Hall Grove Farm Industrial Estate
London Road
Bagshot, Surrey
GU19 5HP

tel +44 1276 470300
fax +44 1276 470301
mob +44 7769 746022

jamie@wooldridgegroup.co.uk

From: Jamie Wilkinson
Sent: 25 January 2017 14:08
To: 'Jorn Pace' <Jorn.Pace@ramboll.co.uk>
Subject: RE: Information required - former Pingemead Industrial Estate

Hi Jorn,

I haven't heard back from Simon our surveyor but am aware he's taken a long time to get back to us, I'll chase him on the volumes.

I trust that is Wayne Gallagher he is the Senior Manager for Wooldridge Contractors groundworkers, it is wayne@wooldridgegroup.co.uk.

Kind regards,
Jamie

Jamie Wilkinson
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GU19 5HP

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fax +44 1276 470301
mob +44 7769 746022

jamie@wooldridgegroup.co.uk

From: Jorn Pace [mailto:Jorn.Pace@ramboll.co.uk]
Sent: 25 January 2017 13:50
To: Jamie Wilkinson <jamie@wooldridgegroup.co.uk>
Subject: RE: Information required - former Pingemead Industrial Estate

Hi Jamie,

Did you ever hear back from your surveyor whether there was any re-use of site won material?

Also, could you give me Wayne's email? I understand he arranged the gulley sucker at the demolition stage.

Thanks for your help.

Kind regards,
Jørn Pace

Environmental Consultant

M +44 7929034933
jorn.pace@ramboll.co.uk

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From: Jamie Wilkinson [mailto:jamie@wooldridgegroup.co.uk]
Sent: 10 January 2017 15:02
To: Jorn Pace
Subject: RE: Information required - former Pingemead Industrial Estate

Hi Jorn,

You're welcome, yes just let me know if you need any more information. I'll get back to you tomorrow with regards to the third point once I've spoken to our surveyor again.

Kind regards,
Jamie

Jamie Wilkinson
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Unit 17 Hall Grove Farm Industrial Estate
London Road
Bagshot, Surrey
GU19 5HP

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fax +44 1276 470301
mob +44 7769 746022

jamie@wooldridgegroup.co.uk

From: Jorn Pace [mailto:Jorn.Pace@ramboll.co.uk]
Sent: 10 January 2017 14:39
To: Jamie Wilkinson <jamie@wooldridgegroup.co.uk>
Subject: RE: Information required - former Pingemead Industrial Estate

Hi Jamie,

Thank you for getting this through.

I'll have a look at the information and get back to if I have any questions.

Kind regards,

Jørn Pace

Environmental Consultant

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jorn.pace@ramboll.co.uk

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RAMBOLL ENVIRON

Reg.no. 03659970

From: Jamie Wilkinson [mailto:jamie@wooldridgegroup.co.uk]
Sent: 10 January 2017 09:01
To: Jorn Pace
Subject: RE: Information required - former Pingemead Industrial Estate

Morning Jorn,

Please see response in green below and the other information attached. If you need any more information please let me know.

1. **Details of removing the tank/abstraction well (Void 6 on the attached, identified north of the large square Void 2) - including a description of works, dates removed and photographic evidence;** The pipework (thought to be historical abstraction well) uncovered in the excavation area was decommissioned on 24th May (13:00). The deep abstraction well was pulled from the ground by an excavator and chains. The well was constructed from metal tubing and had a metal top hat. When the tubing was removed the borehole was backfilled with bentonite clay to surface. Photographs attached.
2. **Duty of care information for the removal of the tanks - waste tickets, waste carriers, waste facilities;** Covered by Wooldridge Demolition.
3. **Details of any re-used site won material – volumes used and locations;** I've put this question to our surveyor. Details to follow.
4. **Disposal details for the fuel/contaminated groundwater pumped from the voids/excavations - waste tickets, waste carriers, waste facilities.** Contaminated groundwater was pumped from the 'hotspot' area and disposed of off-site. Please see consignment notes and photographs attached.

Kind regards,
Jamie

Jamie Wilkinson
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fax +44 1276 470301

mob +44 7769 746022

jamie@wooldridgegroup.co.uk

From: Jorn Pace [mailto:Jorn.Pace@ramboll.co.uk]
Sent: 05 January 2017 09:14
To: Jamie Wilkinson <jamie@wooldridgegroup.co.uk>; Rick Cox <Rick@wooldridgegroup.co.uk>
Cc: martin.rutledge@berkeleygroup.co.uk; Russell.Ayres@berkeleygroup.co.uk; Tom Smith <thomas.smith@ramboll.co.uk>
Subject: Information required - former Pingemead Industrial Estate

Hi Jamie/Ricky,

Happy New Year.

We are looking to finalise our verification/completion report for the enabling works stage of the former Pingemead industrial estate.

Part of the information required for closing the report out comes from when works were undertaken without Ramboll's presence.

Can I therefore ask you to supply me with the following bits of information:

- Details of removing the tank/abstraction well (Void 6 on the attached, identified north of the large square Void 2) - including a description of works, dates removed and photographic evidence;
- Duty of care information for the removal of the tanks - waste tickets, waste carriers, waste facilities;
- Details of any re-used site won material – volumes used and locations;
- Disposal details for the fuel/contaminated groundwater pumped from the voids/excavations - waste tickets, waste carriers, waste facilities.

It may be that some of this information is held by Woolridge Demolition, do you have a contact who I can request this from?

Give me a call if any of this is unclear. Thanks for your help.

Regards,

Jørn Pace

Environmental Consultant

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RAMBOLL ENVIRON

Reg.no. 03659970

Table A4 1: Photographic Evidence Supplied by WEL



Plate 1: Removed Abstraction Well

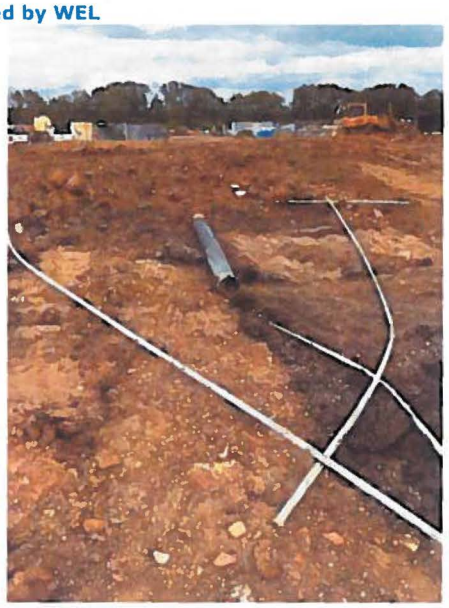


Plate 2: Removed Abstraction Well and Associated Pipework



Plate 3: Chased Area of Pipework

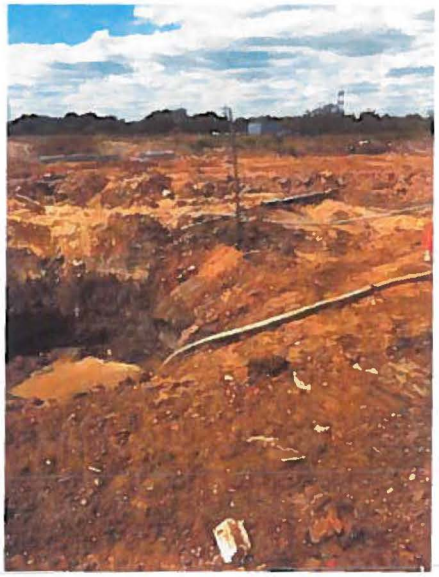


Plate 4: Pumping of Void 2 Prior to Backfilling

APPENDIX 5
REPLACEMENT MONITORING WELL ASSESSMENT TECHNICAL NOTE

RAMBOLL

ENVIRONMENT
& HEALTH

TECHNICAL NOTE

Job	**Green Park Village**
Client	**St Edward Homes Ltd**
Memo no.	**1620000492/TN/009**
Date	**13/12/2017**
By	**Tom Smith**
Reviewed	**Karen Allso**
Approved	**Simon Corness**
Subject	**Pingemead Industrial Estate Groundwater Results– Updated P20 Assessment for Benzene**
Revision	**-**

1. Introduction

Ramboll UK Limited (Ramboll) has been commissioned by St Edward Homes Ltd to prepare a technical note presenting the results of the Remedial Targets Methodology (P20) assessment for groundwater at the Pingemead Industrial Estate, Green Park Village, Reading using benzene as an indicator parameter for hydrocarbon impacts as indicated by the Environment Agency (EA) via letter on 4th December 2017. The site location is shown on Figure 1.

This technical note provides a further stage of quantitative risk assessment of hydrocarbon impacts, and builds upon the content of the Controlled Waters Detailed Quantitative Risk Assessment (DQRA)[1] and subsequent Technical Note on Replacement Well Monitoring Results[2].

This technical note provides an assessment of all groundwater data collected since the identification of petroleum hydrocarbon impacts within the River Terrace Deposits in May 2016 and includes data from groundwater sampling visits carried out on up to eight occasions between 10th May 2016 and 7th November 2017 from seven monitoring locations as shown in Figure 2.

Assessment is provided against the EA recommended indicator compound (benzene), for which a site specific remedial target has been derived by modelling in line with EA Remedial Targets Methodologies (RTM)[3].

This technical note has been prepared to support the discharge of condition 43 of planning permission 10/01461/OUT.

---

[1] Ramboll (2016). Green Park Village, Reading Pingemead Industrial Estate Controlled Waters Detailed Quantitative Risk Assessment ref 1620000492/RPT/010.

[2] Ramboll (2017). Green Park Village, Reading, Pingemead Replacement Well Monitoring Results ref 1620000492/TN/008.

[3] Environment Agency (2006). Remedial Targets Methodology Hydrogeological Risk Assessment for Land Contamination.

2. Planning / Technical Context

Following submission of the DQRA and replacement well monitoring technical note, the EA provided feedback (see Appendix A) on the use of specific parameters within the P20 as follows:

- *"In this instance groundwater pollution is classified as a hazardous substance and hence a 50 m default compliance distance should apply; and*
- *This fuel is a light non-aqueous phase liquid (LNAPL) and therefore free phase will not remain for long in the centre of the aquifer but would float to the surface. Therefore, dispersion in one direction should be used".*

Furthermore, the EA suggested that the P20 be re-run using one or other of the following parameters due to the use of the withdrawn drinking water standard (DWS) for Total Petroleum Hydrocarbons (TPH) (10 µg/l) as the target concentration within the previous model:

- *"Use Benzene as an indicator species (16 µg/l at RWS405 plume core contaminant concentration) with a 1 µg/l Drinking Water Standard as the target; or*
- *Use Table 5.4 WHO Guide Values for TPH CWG fractions in drinking water[4] and select a target concentration".*

This technical note presents the findings of the re-run P20 using the first option i.e. benzene as an indicator species, with a 50 m compliance point distance and dispersion in one direction only. All other parameters remain as previously adopted within the DQRA[1]. The approach using benzene as an indicator compound has been selected as the most conservative option with initial concentrations in the plume core at 16 times the stringent DWS compliance criteria.

3. Monitoring Data

The groundwater chemical data discussed within this assessment has been collected on up to eight occasions between 10th May 2016 and 7th November 2017 from seven monitoring locations as shown in Figure 2. Monitoring of these wells indicates a groundwater flow direction to the northeast.

The original wells used for monitoring in 2016 were destroyed during the enabling works at the site and were replaced as close to the original location as possible in early 2017 as outlined in Table 1 below.

[4] CL:AIRE (2017) Petroleum Hydrocarbons in Groundwater: Guidance on assessing petroleum hydrocarbons using existing hydrogeological risk assessment methodologies.

Table 1 Summary of Well Installations

Original Well ID	Response Zone (m)	Response Zone Strata	Replacement Well ID	Response Zone (m)	Response Zone Strata
RWS403	0.6 to 3.5	MG, Alluvium and RTD	RWS403a	2.5 to 4.5	Alluvium and RTD
RWS405	1.0 to 3.0	Alluvium and RTD	RWS405a	2.5 to 4.5	MG/Alluvium and RTD
RWS412a	1.6 to 2.6	Alluvium and RTD	RWS412b	2.5 to 4.5	Alluvium and RTD
RWS506	0.5 to 3.5	Alluvium and RTD	RWS506a	2.0 to 5.0	Alluvium and RTD
RWS507	0.5 to 3.5	MG, Alluvium and RTD	RWS507a	2.0 to 5.0	Alluvium and RTD
RWS508	0.4 to 3.4	MG, Alluvium and RTD	RWS508a	2.0 to 5.0	Alluvium and RTD
RWS509	0.7 to 3.7	MG, Alluvium and RTD	RWS509a	2.0 to 4.5	Alluvium and RTD

The results of monitoring and sampling are discussed in detail in the DQRA[1] and replacement well technical note[2] and are not discussed in full herein.

In summary, following enabling works and the removal of underground fuel storage tanks in April 2016 (from Void 2 on Figure 2) evidence of free phase hydrocarbons of up to 10 mm in thickness and elevated laboratory test results for aliphatic and aromatic hydrocarbons were identified in RWS405. Elevated concentrations of hydrocarbons (but no free phase) were also recorded in a nearby well, RWS509 to the west. Monitoring of the new wells in 2017 indicated low concentrations of hydrocarbons in all locations with the exception of RWS509 where concentrations had decreased by several orders of magnitude but were still elevated above background levels. Full results are contained in Appendix B.

As part of monitoring, an interface probe was used to check for the presence of free phase, none of which were recorded since the initial identification in May 2016.

Samples were collected from all wells across the monitoring period in accordance with relevant British Standards[5] using manual bailing and have been analysed for a TPH Criteria Working Group (TPH CWG) suite and benzene, toluene, ethylbenzene and xylene (BTEX).

[5] British Standards Institute (2009). BS ISO 5667-11:2009 / BS6068-6.11:2009. Water quality sampling: Part 11 Guidance on sampling of groundwaters

4. Quantitative Risk Assessment

Updated fate and transport modelling has been carried for level 3 groundwater only in general accordance EA RTM and using the associated EA remedial targets worksheet version 3.2. All parameters have been adopted as per the DQRA[1] with the exception of those for compliance point distance, dispersion direction and in relation to the indicator species (benzene). Input values for the adjusted input parameters are contained in Table 2 below.

Table 2 Input Parameters

Parameter	Value	Source
Benzene target concentration	1 µg/l	UK Drinking Water Standard
Contaminant concentration at plume core (benzene)	16 µg/l	RWS405 on 10th May 2016
Compliance point distance	50 m	EA default distance for hazardous substances with a flow direction to the northeast
Dispersion direction	One direction only	
Benzene organic carbon partition coefficient (K_{oc})	134.1 l/kg	Review of the fate and transport of selected contaminants in the soil environment ref EA P5-079/TR1[6]
Benzene biodegradation half life ($t^{1/2}$)	300 days	Mid range value for sand and gravel aquifer - EA document the effects of contaminant concentration on the potential for natural attenuation ref EA P2-228/TR[7]

P20 Output

The result of the P20 provides a revised remedial target value (RTV) for the benzene indicator species of **9.64 µg/l.**

Sensitivity analysis undertaken as part of the DQRA[1] indicated that the modelling is most sensitive to changes in plume width, hydraulic gradient and hydraulic conductivity which are all based on site data / observations or published standard values.

The final model output sheet for benzene is presented in Appendix C.

5. Results Discussion

When compared against the indicator RTV for benzene a single failure was recorded within the plume core in RWS405 on 10th May 2016 at 16 µg/l. In the subsequent visit on 13th May 2016

[6] EA (2003). Review of the fate and transport of selected contaminants in the soil environment ref EA P5-079/TR1.

[7] EA (2002). The effects of contaminant concentration on the potential for natural attenuation ref EA P2-228/TR

the result was recorded below the RTV at 5.8 µg/l and in the following four visits on RWS405 between January and March 2017 benzene was recorded below laboratory limits of detection (LoD) at < 1 µg/l. This is reflected by the presence of free phase in May 2016 and its absence in subsequent visits. In all other wells across up to eight sampling visits the recorded concentrations were either below RTV (on the initial visit in RWS509 at 1.5 µg/l) or below LoD (in all other wells on all visits and on seven visits in RWS509). Full results are contained in Appendix B.

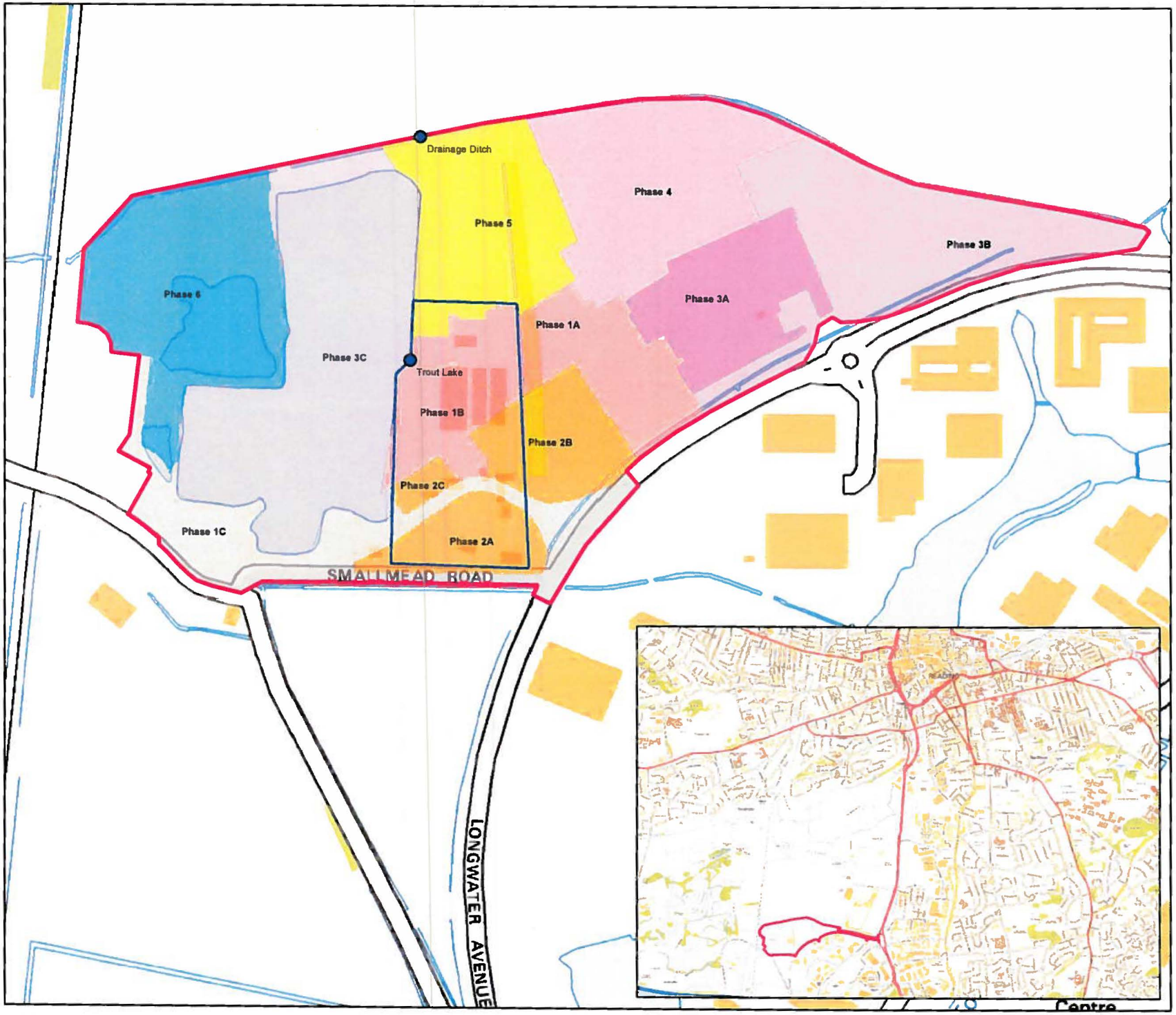
Across the monitoring period the majority of other hydrocarbon species concentrations have reduced to be below LoD; where they have remained elevated above this e.g. aliphatics in the C10 to C35 range in RWS509, observed concentrations have decreased by several orders of magnitude and are now considered to be stable. Furthermore, the downgradient monitoring well (RWS412a / RWS412b), 35m northeast of the source area has not exhibited elevated concentrations of any of the hydrocarbon species analysed across the whole of the monitoring period.

In addition to this it is of note that the proposed development does not introduce new receptors or pathways to the surrounding watercourses or the underlying aquifers that could further mobilise any residual contamination. For example, buildings in this phase are founded upon vibro-stone columns that terminate within and do no penetrate through the granular River Terrace Deposits.

6. Conclusions

On the basis of the assessment carried out herein using an updated RTV derived using benzene as an indicator species the risks to controlled waters have been demonstrated to be acceptably low. Due to this, further investigation and/or remediation works are not warranted in relation to controlled waters risks within Phase 1 of the Green Park Village development. As such, no further information is considered by Ramboll to be necessary to allow the discharge of planning condition 42 of planning permission ref 10/01461/OUT.

Figures



Site Boundary

Pingemead Industrial Estate Approx Site Boundary

Controlled Waters Receptors

Phase

- Phase 1A
- Phase 1B
- Phase 1C
- Phase 2A
- Phase 2B
- Phase 2C
- Phase 3A
- Phase 3B
- Phase 3C
- Phase 4
- Phase 5
- Phase 6
- Phase 7

1:3,000

1:40,000

N

Drawn at A3

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Client

St Edward Homes Ltd

Project Title

Green Park Village

Project Number

1620000492

Figure Title

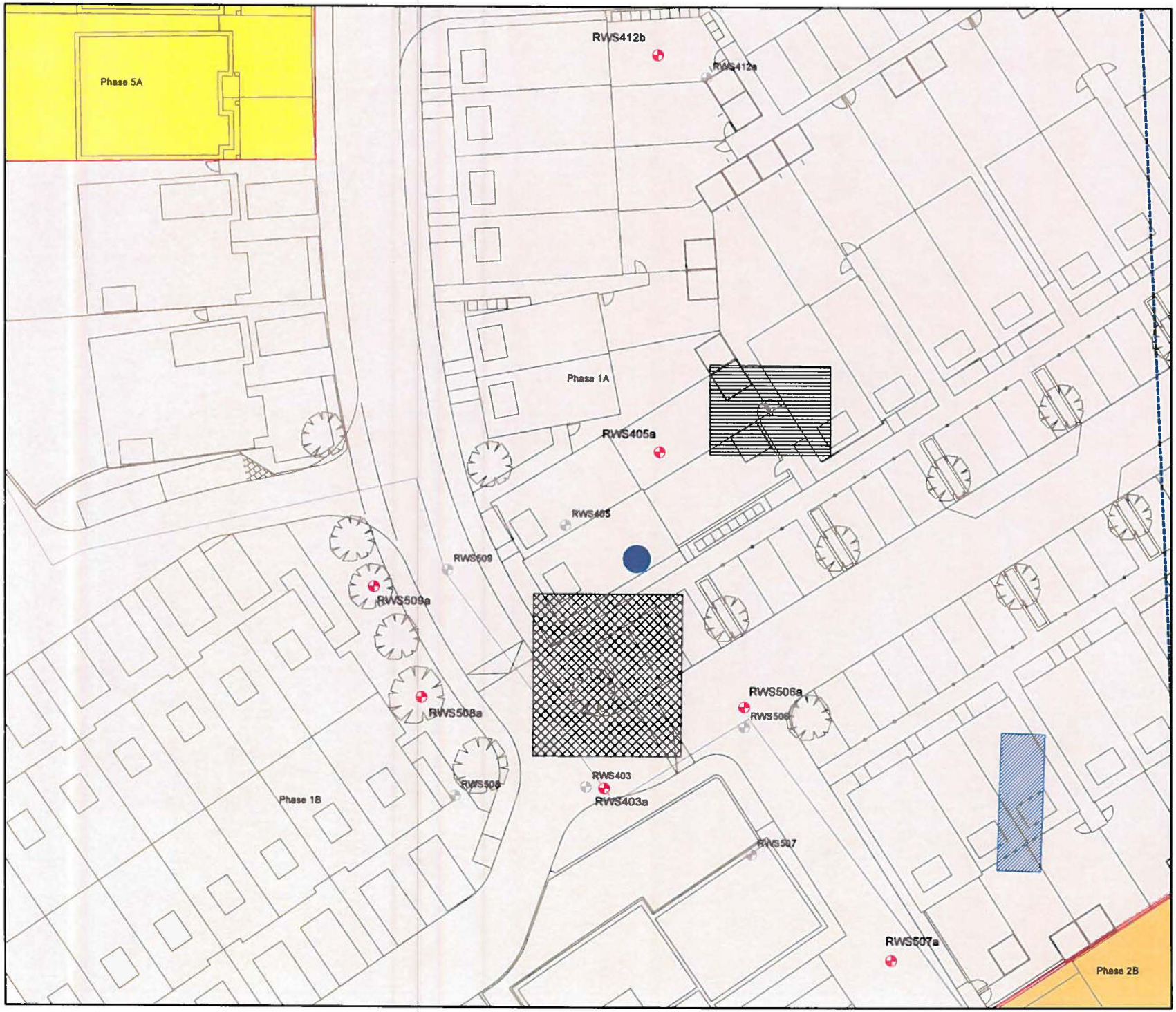
Site Location Plan

RAMBOLL

Tel 023 8081 7500
Fax 023 8081 7800

southampton@ramboll.co.uk
www.ramboll.co.uk

Date	Prepared By
28/09/16	TS
Figure No.	**Revision**
Figure 1	-



Key

- Monitoring Well
- Historical Monitoring Well
- Pingemead Boundary
- Void 2
- Void 3 & 4
- Void 6
- Void East
- Phase 1A
- Phase 1B
- Phase 2B
- Phase 5A

N

1:250 Drawn at A3

Client
St Edward Homes Ltd

Project Title
Green Park Village

Project Number
1620000492

Figure Title
Monitoring Well Location Plan

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Date	Prepared By
11/12/17	TS
Figure No.	**Revision**
Figure 2	-

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Appendix A – Regulatory Consultation

creating a better place

Environment Agency

Ms Alison Amoah
Development Control
Reading Borough Council
PO Box 17
Reading
Berkshire
RG1 7TD

Our ref: WA/2016/123125/05-L01
Your ref: 161944

Date: 04 December 2017

Dear Ms Amoah

Application for approval of details reserved by conditions 42 (remainder of phase 1 & phase 2), 44 (phase 1) and 48 (phases 1& 2) of 10/01461/out (102172) Green Park Village, Longwater Avenue, Reading

In answer to email dated 20.11.17 from Tom Smith at Ramboll, we have the following comments.

DQRA compliance point distance.

In this same reference document under the heading 'Compliance points distances for resource protection' it states that 'The default compliance point distance for resource protection from the contaminant source is 50 metres for:-

- All hazardous substances in all aquifers for contaminants already in the groundwater.

In this instance groundwater pollution is classified as a hazardous substance and hence a 50m default compliance distance should apply.

Dispersion direction.

This fuel is an LNAPL and therefore any free phase will not remain for long in the centre of the aquifer but would float to the surface. Therefore dispersion in one direction should be used in the P20.

It will be difficult to achieve compliance when using 10 µg/l value as the target concentration for Aliphatics and Aromatics. We therefore suggest that you re-run the P20 using one or other of the following parameters:

a. Use Benzene as an indicator species (16 µg/l at RWS405 plume core contaminant concentration) with a 1 µg/l Drinking Water Standard as the target

Cont/d..

concentration.

b. Use Table 5.4 WHO Guide Values for TPHCWG fractions in drinking water (*) and select a target concentration.

*CL:AIRE Document 'Petroleum Hydrocarbons in Groundwater: Guidance on assessing petroleum hydrocarbons using existing hydrogeological risk assessment methodologies'

Yours sincerely

Mrs Cathy Harrison
Planning Advisor

Direct dial 0203 025 9601
Direct e-mail planning_THM@environment-agency.gov.uk

Cc Ramboll

End

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Appendix B – Groundwater Analysis Laboratory Results

1630000402 - Cross Park Village

Table A2.1 Groundwater results summary for 2016 and 2017

Lab Sample Number					174881	693090	697308	708151	712633	572885	579684	693081	697303	708152	712634	693085	697309	708153	712635	699796	853306	574898	574899	693083
Sample Reference					RW5463	RW54C3a	RW5403a	RW54C3a	RW5403a	RW5405	RW54C5	RW5405a	RW54C5a	RW5405a	RW5405a	RW5412a	RW5412a	RW5412a	RW5412a	RW5412a	RW5412a	RW5306	RW5306	RW5304
Date Sampled					13/12/2016	27/01/2017	01/02/2017	27/01/2017	31/01/2017	13/12/2016	13/12/2016	27/01/2017	27/01/2017	01/02/2017	31/01/2017	27/01/2017	01/02/2017	06/02/2017	08/02/2017	27/11/2017	27/11/2017	13/12/2016	14/12/2016	27/01/2017
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status	Updated ATV Limits																				
Monocyclic																								
Benzene	ug/l	1	ISO 17025	9.04						18	5.8													
Toluene	ug/l	1	ISO 17025																					
Ethylbenzene	ug/l	1	ISO 17025																					
m & p-Xylene	ug/l	1	ISO 17025							24.6	6.8													
o-Xylene	ug/l	1	ISO 17025							19.6	5.8													
BTEX (Benzene Toluene Ethylbenzene Xylenes)	ug/l	1	ISO 17025																					
Petroleum Hydrocarbons																								
Total Petroleum Hydrocarbons	ug/l	10	NONE																					
TPH CWG - Aliphatic >C5-C6	ug/l	10	NONE																					
TPH CWG - Aliphatic >C6-C8	ug/l	10	NONE																					
TPH CWG - Aliphatic >C8-C10	ug/l	10	NONE							44.2	11.2													
TPH CWG - Aliphatic >C10-C12	ug/l	10	NONE							44.2	11.2													
TPH CWG - Aliphatic >C12-C16	ug/l	10	NONE							44.2	11.2													
TPH CWG - Aliphatic >C16-C21	ug/l	10	NONE							44.2	11.2													
TPH CWG - Aliphatic >C21-C35	ug/l	10	NONE							44.2	11.2													
TPH CWG - Aliphatic (C5 - C35)	ug/l	10	NONE							44.2	11.2													
TPH CWG - Aromatic >C5-C7	ug/l	10	NONE							44.2	11.2													
TPH CWG - Aromatic >C7-C8	ug/l	10	NONE							44.2	11.2													
TPH CWG - Aromatic >C8-C10	ug/l	10	NONE							44.2	11.2													
TPH CWG - Aromatic >C10-C12	ug/l	10	NONE							44.2	11.2													
TPH CWG - Aromatic >C12-C16	ug/l	10	NONE							44.2	11.2													
TPH CWG - Aromatic >C16-C21	ug/l	10	NONE							44.2	11.2													
TPH CWG - Aromatic >C21-C35	ug/l	10	NONE							44.2	11.2													
TPH CWG - Aromatic (C5 - C35)	ug/l	10	NONE							44.2	11.2													

16J00000062 - Orcon Port Village

Table A2.1 Groundwater results summary for 2016 and 2017

Lab Sample Number				697305	708154	712636		572880	574460	693099	697306	708155	712637	695795	853305		572881	574661	693085	697307	708156	712638	695796	853308		572881	574662
Sample Reference				RWS5084	RWS5084	RWS5084		RWS507	RWS507	RWS507a	RWS507a	RWS507a	RWS507a	RWS507a	RWS507a		RWS508	RWS508	RWS508	RWS508a	RWS508a	RWS508a	RWS508a	RWS508a		RWS509	RWS509
Date Sampled				01/02/2017	22/02/2017	01/03/2017		10/05/2016	13/05/2016	27/01/2017	03/02/2017	22/02/2017	01/03/2017	01/11/2017	07/11/2017		10/05/2016	13/05/2016	27/01/2017	03/02/2017	22/02/2017	01/03/2017	01/11/2017	07/11/2017		10/05/2016	13/05/2016
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Status**																								
Monoaromatics																											
Benzene	**µg/l**	**1**	**ISO 17025**																							**1.5**	
Toluene	µg/l	1	ISO 17025																							<0.5	
Ethylbenzene	µg/l	1	ISO 17025																							<0.5	
m & p-Xylene	µg/l	1	ISO 17025																							<0.5	
o-Xylene	µg/l	1	ISO 17025																							<0.5	
Total Monoaromatics - Calculation	µg/l	1	ISO 17025																							<0.5	
Petroleum Hydrocarbons																											
Total Petroleum Hydrocarbons	µg/l	10	ISO 17025																								
Total Petroleum Hydrocarbons - C6-C10	µg/l	10	ISO 17025																								
Total Petroleum Hydrocarbons - C10-C15	µg/l	10	ISO 17025																								
Total Petroleum Hydrocarbons - C15-C20	µg/l	10	ISO 17025																								
Total Petroleum Hydrocarbons - C20-C28	µg/l	10	ISO 17025																								
Total Petroleum Hydrocarbons - C28-C36	µg/l	10	ISO 17025																								
Total Petroleum Hydrocarbons - C36-C40	µg/l	10	ISO 17025																								
Total Petroleum Hydrocarbons - Aliphatic C10-C40	µg/l	10	ISO 17025																								
Total Petroleum Hydrocarbons - Aromatic C10-C40	µg/l	10	ISO 17025																								
Total Petroleum Hydrocarbons - Aliphatic C6-C10	µg/l	10	ISO 17025																								
Total Petroleum Hydrocarbons - Aromatic C6-C10	µg/l	10	ISO 17025																								
Total Petroleum Hydrocarbons - Aliphatic C10-C15	µg/l	10	ISO 17025																								
Total Petroleum Hydrocarbons - Aromatic C10-C15	µg/l	10	ISO 17025																								
Total Petroleum Hydrocarbons - Aliphatic C15-C20	µg/l	10	ISO 17025																								
Total Petroleum Hydrocarbons - Aromatic C15-C20	µg/l	10	ISO 17025																								
Total Petroleum Hydrocarbons - Aliphatic C20-C28	µg/l	10	ISO 17025																								
Total Petroleum Hydrocarbons - Aromatic C20-C28	µg/l	10	ISO 17025																								
Total Petroleum Hydrocarbons - Aliphatic C28-C36	µg/l	10	ISO 17025																								
Total Petroleum Hydrocarbons - Aromatic C28-C36	µg/l	10	ISO 17025																								
Total Petroleum Hydrocarbons - Aliphatic C36-C40	µg/l	10	ISO 17025																								
Total Petroleum Hydrocarbons - Aromatic C36-C40	µg/l	10	ISO 17025																								

1620008492 - Green Park Village

Table A1.1 Groundwater results summary for 2016 and 2017

Lab Sample Number				693086	697308	708157	712639	849797	853307
Sample Reference				RWS509a	RWS509a	RWS509a	RWS509a	RWS509a	RWS509a
Date Sampled				27/01/2017	03/02/2017	22/02/2017	01/03/2017	01/11/2017	07/11/2017
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status						
Monoaromatics									
Benzene	µg/l	1	ISO 17025						
[illegible]	[illegible]	[illegible]	[illegible]						
[illegible]	[illegible]	[illegible]	[illegible]						
[illegible]	[illegible]	[illegible]	[illegible]						
[illegible]	[illegible]	[illegible]	[illegible]						
[illegible]	[illegible]	[illegible]	[illegible]						
Petroleum Hydrocarbons									
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]						
[illegible]	[illegible]	[illegible]	[illegible]						
[illegible]	[illegible]	[illegible]	[illegible]						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]						
[illegible]	[illegible]	[illegible]	[illegible]						
[illegible]	[illegible]	[illegible]	[illegible]						
[illegible]	[illegible]	[illegible]	[illegible]						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		

Lab Sample Number	712640	712640	[illegible]	853309	712641	712641	849800	853310
Sample Reference	SWA2	SWA2	SWA2	SWA2	SWA3	SWA3	SWA3	SWA3
Date Sampled	22/02/2017	01/03/2017	01/11/2017	07/11/2017	22/02/2017	01/03/2017	01/11/2017	07/11/2017

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Analytical Report Number : 17-38505

Project / Site name:	Green Park Village, Reading	**Samples received on:**	27/01/2017
Your job number:	1620000492	**Samples instructed on:**	27/01/2017
Your order number:		**Analysis completed by:**	03/02/2017
Report Issue Number:	1	**Report issued on:**	03/02/2017
Samples Analysed:	7 water samples		

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Emma Winter
Assistant Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number: 17-38505

Project / Site name: Green Park Village, Reading

Lab Sample Number				693080	693081	693082	693083	693084
Sample Reference				RWS403a	RWS405a	RWS412b	RWS506a	RWS507a
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample

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Environmental Science

Analytical Report Number: 17-38505

Project / Site name: Green Park Village, Reading

Lab Sample Number				693085	693086			
Sample Reference				RWS508a	RWS509a			
Sample Number				None Supplied	None Supplied			
Depth (m)				None Supplied	None Supplied			
Date Sampled				27/01/2017	27/01/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0			
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	92			
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	930			
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	1500			
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	400			
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	2900			
TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	680			
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	1500			
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	2200			

U/S = Unsuitable Sample I/S = Insufficient Sample

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Environmental Science

Analytical Report Number : 17-38505

Project / Site name: Green Park Village, Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Analytical Report Number : 17-39139

Project / Site name:	Green Park Village, Reading	**Samples received on:**	06/02/2017
Your job number:	1620000492	**Samples instructed on:**	06/02/2017
Your order number:		**Analysis completed by:**	10/02/2017
Report Issue Number:	1	**Report issued on:**	10/02/2017
Samples Analysed:	7 water samples		

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Emma Winter
Assistant Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Environmental Science

Analytical Report Number: 17-39139

Project / Site name: Green Park Village, Reading

Lab Sample Number				697302	697303	697304	697305	697306
Sample Reference				RWS403a	RWS405a	RWS412b	RWS506a	RWS507a
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				03/02/2017	03/02/2017	03/02/2017	03/02/2017	03/02/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
Monoaromatics								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample

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The results included within the report are representative of the samples submitted for analysis.

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Environmental Science

Analytical Report Number: 17-39139

Project / Site name: Green Park Village, Reading

Lab Sample Number				697307	697308			
Sample Reference				RWS508a	RWS509a			
Sample Number				None Supplied	None Supplied			
Depth (m)				None Supplied	None Supplied			
Date Sampled				03/02/2017	03/02/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0			
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	840			
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	3100			
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	4400			
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	1000			
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	9300			
TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10			

U/S = Unsuitable Sample I/S = Insufficient Sample

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Analytical Report Number : 17-39139

Project / Site name: Green Park Village, Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Analytical Report Number : 17-41004

Project / Site name:	Green Park Village, Reading	**Samples received on:**	23/02/2017
Your job number:	1620000492	**Samples instructed on:**	23/02/2017
Your order number:		**Analysis completed by:**	28/02/2017
Report Issue Number:	1	**Report issued on:**	28/02/2017
Samples Analysed:	7 water samples		

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Emma Winter
Assistant Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 17-41004

Project / Site name: Green Park Village, Reading

Lab Sample Number				708151	708152	708153	708154	708155
Sample Reference				RWS403a	RWS405a	RWS412b	RWS506a	RWS507a
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				22/02/2017	22/02/2017	22/02/2017	22/02/2017	22/02/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
Monoaromatics								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample

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Environmental Science

Analytical Report Number: 17-41004

Project / Site name: Green Park Village, Reading

Lab Sample Number				708156	708157			
Sample Reference				RWS508a	RWS509a			
Sample Number				None Supplied	None Supplied			
Depth (m)				None Supplied	None Supplied			
Date Sampled				22/02/2017	22/02/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0			
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	250			
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	2900			
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	4700			
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	1200			
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	9100			
TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	71			
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	75			
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	150			

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Environmental Science

Analytical Report Number : 17-41004

Project / Site name: Green Park Village, Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Analytical Report Number : 17-41740

Project / Site name:	Green Park Village, Reading	**Samples received on:**	03/03/2017
Your job number:	1620000492	**Samples instructed on:**	03/03/2017
Your order number:		**Analysis completed by:**	08/03/2017
Report Issue Number:	1	**Report issued on:**	08/03/2017
Samples Analysed:	9 water samples		

Signed:

Dr Irma Doyle
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Emma Winter
Assistant Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 17-41740

Project / Site name: Green Park Village, Reading

Lab Sample Number				712633	712634	712635	712636	712637
Sample Reference				RWS403a	RWS405a	RWS412b	RWS506a	RWS507a
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				01/03/2017	01/03/2017	01/03/2017	01/03/2017	01/03/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
Monoaromatics								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample

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Environmental Science

Analytical Report Number: 17-41740

Project / Site name: Green Park Village, Reading

Lab Sample Number				712638	712639	712640	712641	
Sample Reference				RWS508a	RWS509a	SWA2	SWA3	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	
Date Sampled				01/03/2017	01/03/2017	01/03/2017	01/03/2017	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
Monoaromatics								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	160	< 10	< 10	
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	1600	< 10	< 10	
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	2700	< 10	< 10	
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	560	< 10	< 10	
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	5000	< 10	< 10	
TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	21	< 10	< 10	
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	21	< 10	< 10	

U/S = Unsuitable Sample I/S = Insufficient Sample

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Environmental Science

Analytical Report Number : 17-41740

Project / Site name: Green Park Village, Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Analytical Report Number : 17-66287

Project / Site name:	Green Park Village	**Samples received on:**	02/11/2017
Your job number:	16200000492	**Samples instructed on:**	02/11/2017
Your order number:	1620013202	**Analysis completed by:**	07/11/2017
Report Issue Number:	1	**Report issued on:**	07/11/2017
Samples Analysed:	6 water samples		

Signed:

Rexona Rahman
Customer Services Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Environmental Science

Analytical Report Number: 17-66287

Project / Site name: Green Park Village

Your Order No: 1620013202

Lab Sample Number				849795	849796	849797	849798	849799
Sample Reference				RWS507a	RWS412b	RWS509a	RWS508a	SWA2
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				01/11/2017	01/11/2017	01/11/2017	01/11/2017	01/11/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	240	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	1900	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	2500	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	730	< 10	< 10
TPH-CWG - Aliphatic >C35 - C44	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	5400	< 10	< 10
TPH-CWG - Aliphatic (C5 - C44)	µg/l	10	NONE	< 10	< 10	5400	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C35 - C44	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C44)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample

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The results included within the report are representative of the samples submitted for analysis.

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Environmental Science

Analytical Report Number: 17-66287

Project / Site name: Green Park Village

Your Order No: 1620013202

Lab Sample Number				849800				
Sample Reference				SWA3				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				01/11/2017				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-xylene	µg/l	1	ISO 17025	< 1.0				
o-xylene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C35 - C44	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic (C5 - C44)	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C35 - C44	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic (C5 - C44)	µg/l	10	NONE	< 10				

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Environmental Science

Analytical Report Number : 17-66287

Project / Site name: Green Park Village

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
TPH in (Water)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding.	L070-PL	W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Analytical Report Number : 17-66866

Project / Site name:	Green Park Village	**Samples received on:**	08/11/2017
Your job number:	1620000492	**Samples instructed on:**	08/11/2017
Your order number:	1620013202	**Analysis completed by:**	15/11/2017
Report Issue Number:	1	**Report issued on:**	15/11/2017
Samples Analysed:	6 water samples		

Signed:

Jordan Hill
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 17-66866

Project / Site name: Green Park Village

Your Order No: 1620013202

Lab Sample Number				853305	853306	853307	853308	853309
Sample Reference				RWS507a	RWS412b	RWS509a	RWS508a	SW A2
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				07/11/2017	07/11/2017	07/11/2017	07/11/2017	07/11/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
General Inorganics								
pH	pH Units	N/A	ISO 17025	-	-	-	-	8.1
Electrical Conductivity at 20 °C	µS/cm	10	NONE	-	-	-	-	490
Total Cyanide	µg/l	10	ISO 17025	-	-	-	-	< 10
Free Cyanide	µg/l	10	ISO 17025	-	-	-	-	< 10
Sulphate as SO_4	µg/l	45	ISO 17025	-	-	-	-	84300
Dissolved Phosphate as P	µg/l	20	ISO 17025	-	-	-	-	49
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	-	-	-	-	35
Ammonium as NH_4	µg/l	15	ISO 17025	-	-	-	-	45
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	-	-	-	-	11.0
Nitrate as N	mg/l	0.01	ISO 17025	-	-	-	-	0.09
Nitrite as N	µg/l	1	ISO 17025	-	-	-	-	15
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	-	-	-	-	35
BOD (Biochemical Oxygen Demand) (Total)	mg/l	1	ISO 17025	-	-	-	-	1.5
Hardness - Total	mg $CaCO_3$/l	1	ISO 17025	-	-	-	-	184
Dissolved Oxygen	mg/l	1	NONE	-	-	-	-	9.9
Total Phenols								
Total Phenols (monohydric)	µg/l	10	ISO 17025	-	-	-	-	< 10
Speciated PAHs								
Naphthalene	µg/l	0.01	ISO 17025	-	-	-	-	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	-	-	-	-	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	-	-	-	-	< 0.01
Fluorene	µg/l	0.01	ISO 17025	-	-	-	-	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	-	-	-	-	< 0.01
Anthracene	µg/l	0.01	ISO 17025	-	-	-	-	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	-	-	-	-	< 0.01
Pyrene	µg/l	0.01	ISO 17025	-	-	-	-	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	-	-	-	-	< 0.01
Chrysene	µg/l	0.01	ISO 17025	-	-	-	-	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	-	-	-	-	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	-	-	-	-	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	-	-	-	-	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	-	-	-	-	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	-	-	-	-	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	-	-	-	-	< 0.01
Total PAH								
Total EPA-16 PAHs	µg/l	0.16	NONE	-	-	-	-	< 0.16
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	0.15	ISO 17025	-	-	-	-	2.63
Beryllium (dissolved)	µg/l	0.1	ISO 17025	-	-	-	-	< 0.1
Boron (dissolved)	µg/l	10	ISO 17025	-	-	-	-	110
Cadmium (dissolved)	µg/l	0.02	ISO 17025	-	-	-	-	< 0.02
Calcium (dissolved)	mg/l	0.012	ISO 17025	-	-	-	-	57
Chromium (hexavalent)	µg/l	5	ISO 17025	-	-	-	-	< 5.0
Chromium (III)	µg/l	1	NONE	-	-	-	-	< 1.0
Chromium (dissolved)	µg/l	0.2	ISO 17025	-	-	-	-	0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	-	-	-	-	2.5
Lead (dissolved)	µg/l	0.2	ISO 17025	-	-	-	-	< 0.2
Magnesium (dissolved)	mg/l	0.005	ISO 17025	-	-	-	-	9.9
Mercury (dissolved)	µg/l	0.05	ISO 17025	-	-	-	-	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	-	-	-	-	1.7
Selenium (dissolved)	µg/l	0.6	ISO 17025	-	-	-	-	0.7
Vanadium (dissolved)	µg/l	0.2	ISO 17025	-	-	-	-	0.5
Zinc (dissolved)	µg/l	0.5	ISO 17025	-	-	-	-	2.2

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Environmental Science

Analytical Report Number: 17-66866

Project / Site name: Green Park Village

Your Order No: 1620013202

Lab Sample Number				853305	853306	853307	853308	853309
Sample Reference				RWS507a	RWS412b	RWS509a	RWS508a	SW A2
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				07/11/2017	07/11/2017	07/11/2017	07/11/2017	07/11/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
Monoaromatics								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	16	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	90	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	120	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	40	< 10	< 10
TPH-CWG - Aliphatic >C35 - C44	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	260	< 10	< 10
TPH-CWG - Aliphatic (C5 - C44)	µg/l	10	NONE	< 10	< 10	260	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C35 - C44	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C44)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample

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Environmental Science

Analytical Report Number: 17-66866

Project / Site name: Green Park Village

Your Order No: 1620013202

Lab Sample Number				853310				
Sample Reference				SW A3				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				07/11/2017				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
General Inorganics								
pH	pH Units	N/A	ISO 17025	8.1				
Electrical Conductivity at 20 °C	µS/cm	10	NONE	500				
Total Cyanide	µg/l	10	ISO 17025	< 10				
Free Cyanide	µg/l	10	ISO 17025	< 10				
Sulphate as SO_4	µg/l	45	ISO 17025	84400				
Dissolved Phosphate as P	µg/l	20	ISO 17025	37				
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	22				
Ammonium as NH_4	µg/l	15	ISO 17025	28				
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	10.8				
Nitrate as N	mg/l	0.01	ISO 17025	0.07				
Nitrite as N	µg/l	1	ISO 17025	25				
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	27				
BOD (Biochemical Oxygen Demand) (Total)	mg/l	1	ISO 17025	2.0				
Hardness - Total	mg $CaCO_3$/l	1	ISO 17025	190				
Dissolved Oxygen	mg/l	1	NONE	10				
Total Phenols								
Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10				
Speciated PAHs								
Naphthalene	µg/l	0.01	ISO 17025	< 0.01				
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01				
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01				
Fluorene	µg/l	0.01	ISO 17025	< 0.01				
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01				
Anthracene	µg/l	0.01	ISO 17025	< 0.01				
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Pyrene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01				
Chrysene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01				
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01				
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01				
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01				
Total PAH								
Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16				
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	0.15	ISO 17025	2.97				
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1				
Boron (dissolved)	µg/l	10	ISO 17025	100				
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02				
Calcium (dissolved)	mg/l	0.012	ISO 17025	59				
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0				
Chromium (III)	µg/l	1	NONE	< 1.0				
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.4				
Copper (dissolved)	µg/l	0.5	ISO 17025	3.7				
Lead (dissolved)	µg/l	0.2	ISO 17025	1.3				
Magnesium (dissolved)	mg/l	0.005	ISO 17025	10				
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05				
Nickel (dissolved)	µg/l	0.5	ISO 17025	2.2				
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.0				
Vanadium (dissolved)	µg/l	0.2	ISO 17025	0.7				
Zinc (dissolved)	µg/l	0.5	ISO 17025	2.1				

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Environmental Science

Analytical Report Number: 17-66866

Project / Site name: Green Park Village

Your Order No: 1620013202

Lab Sample Number				853310				
Sample Reference				SW A3				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				07/11/2017				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-xylene	µg/l	1	ISO 17025	< 1.0				
o-xylene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C35 - C44	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic (C5 - C44)	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C35 - C44	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic (C5 - C44)	µg/l	10	NONE	< 10				

U/S = Unsuitable Sample I/S = Insufficient Sample

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 17-66866

Project / Site name: Green Park Village

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammoniacal Nitrogen as N in water	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Ammonium as NH4 in water	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
Boron in water	Determination of boron in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K2Cr2O7 followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Cr (III) in water	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
Dissolved Oxygen in water	Determination of dissolved oxygen.	In-house method	L086-PL	W	NONE
Dissolved Phosphate as P in water	Determination of ortho phosphate in water by addition of ammonium molybdate, potassium antimonyl tartrate and ascorbic acid followed by colorimetry.Accredited matrices: SW, PW, GW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton, analysis by discreet analyser.	L048-PL	W	ISO 17025
Electrical conductivity at 20oC of water	Determination of electrical conductivity in water by electrometric measurement.	In-house method	L031-PL	W	NONE
Free cyanide in water	Determination of free cyanide by distillation followed by colorimetry.Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

4041

Environmental Science

Analytical Report Number : 17-66866

Project / Site name: Green Park Village

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Nitrite as N in water	Determination of nitrite in water by addition of sulphanilamide and NED followed by discrete analyser (colorimetry). Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	NONE
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium. Accredited Matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	ISO 17025
TPH in (Water)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding.	L070-PL	W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE

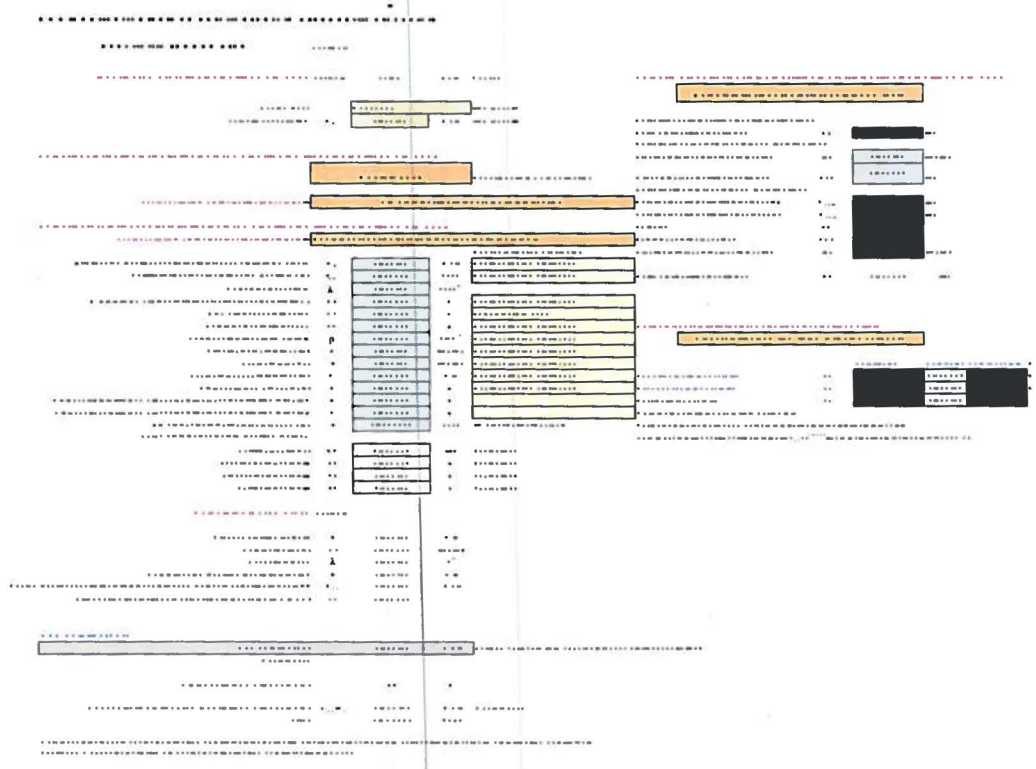
For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

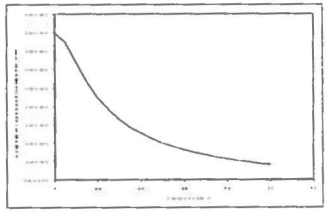
This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
SW A2		W	17-66866	853309	c	Biological oxygen demand (total) of water	L086-PL	c
SW A2		W	17-66866	853309	c	Dissolved Oxygen in water	L086-PL	c
SW A3		W	17-66866	853310	c	Biological oxygen demand (total) of water	L086-PL	c
SW A3		W	17-66866	853310	c	Dissolved Oxygen in water	L086-PL	c

RAMBOLL

Appendix C –RTM Model for Benzene







APPENDIX 6
WASTE OIL AND WATER CONSIGNMENT AND WASTE DELIEVERY NOTES

The Hazardous Waste Regulations 2005: Consignment Note

WOOLDRIDGE
Tel: (01276) 470333

PRODUCER'S/HOLDER'S/CONSIGNOR'S COPY (Delete as appropriate)

PART A Notification details

1 Consignment note code: 0 5 H 0 4 8 W G P V 0 1

2 The waste described below is to be removed from (name, address, postcode, telephone, e-mail, facsimile):
GREENPARK VILLAGE. SNAILMEADE CLOSE READING. RG30 3UR

3 Premises code (where applicable): 0 5 H 0 4 8

4 The waste will be taken to (name, address and postcode):
VIRIDOR - CAMBERLEY

5 The waste producer was (if different from 2) name, address, postcode, telephone, e-mail, facsimile):

PART B Description of the waste

If continuation sheet used, tick here ☐

1 The process giving rise to the waste(s) was: INTERCEPTOR

2 SIC for the process giving rise to the waste: 4 5 . 1 1 /

3 WASTE DETAILS (where more than one waste type is collected all of the information given below must be completed for each EWC identified)

Description of waste	List of wastes (EWC code) (6 digits)	Quantity (kg)	The chemical/biological components of the waste and their concentrations are:		Physical form (gas, liquid, solid, powder, sludge or mixed)	Hazard codes(s)	Container type, number and size
			OIL + WATER				
OILY WATER	1 3 0 7 0 3	3000			LIQUID.	H7	TANKER

The information given below is to be completed for each EWC identified

EWC code	Packing group(s)	UN identification number(s)	Proper shipping name(s)	UN class(es)	Special handling requirements

PART C Carrier's certificate

(If more than one carrier is used, please attach schedule for subsequent carriers. If a schedule of carriers is attached tick here. ☐)

I certify that I today collected the consignment and that the details in A2, A4 and B3 are correct and I have been advised of any specific handling requirements.

Where this note comprises part of a multiple collection the round number and collection number are:

1 Carrier name: PAUL WALLACE
On behalf of (name, address, postcode, telephone, e-mail, facsimile):
WPL

2 Carrier registration no./reason for exemption:
CB/QE5193JL

3 Vehicle registration no. (or mode of transport, if not road):
SD53 AHO

Signature

Date 0 6 0 4 2 0 1 6 Time 1 0 0 0

PART D Consignor's certificate

I certify that the information in A, B and C has been completed and is correct, that the carrier is registered or exempt and was advised of the appropriate precautionary measures. All of the waste is packaged and labelled correctly and the carrier has been advised of any special handling requirements.

I confirm that I have fulfilled my duty to apply the waste hierarchy as required by Regulation 12 of the Waste (England and Wales) Regulations 2011. MARTIN TAYLOR

1 Consignor name: WOOLDRIDGE PLANT Ltd

On behalf of (name, address, postcode, telephone, e-mail, facsimile):
UNIT 17
NAILGOUGE LANE
BLACKNEST ISY. GU19 5HA

Signature

Date 0 5 0 4 2 0 1 6 Time 0 3 1 5

PART E Consignee's certificate (where more than one waste type is collected all of the information given below must be completed for each EWC)

Individual EWC code(s) received	Quantity of each EWC code received (kg)	EWC code accepted/rejected	Waste management operation (R or D code)
1 2 0 1 0 3	1", 500	ACCEPTED	D9

1 I received this waste at the address given in A4 on: Date 0 6 0 4 2 0 1 6 Time 1 1 3 0

2 Vehicle registration no. (or mode of transport if not road):

3 Where waste is rejected please provide details: SD52 NHO

Name:

On behalf of (name, address, postcode, telephone, e-mail, facsimile):

Viridor Waste (Thames) Limited
30 Doman Road, Camberley, Surrey GU15 3DF
Tel: (01276) 686075 Fax: (01276) 683625

I certify that waste management licence/permit/authorised exemption no(s):
CP09HL
authorises the management of the waste described in B at the address given in A4

Where the consignment forms part of a multiple collection, as identified in Part C, I certify that the total number of consignments forming the colection are:

Signature

Date 0 6 0 4 2 0 1 6 Time 1 1 3 0

Viridor

Transforming waste™

CONTROLLED WASTE TRANSFER / DELIVERY NOTE

Transfer Note No.	
VWM Control Form No.	
Carrier's Reference	

Licensed Premises Where Waste Delivered	Licensing Authority
	The Environment Agency Kings Meadow House Kings Meadow Road Reading RG1 8DQ
	Licence No.

Particulars of Waste Delivered	
Producer Name : P	
Waste Details : EX SLUDGE £150 PER 1000 GALS WCL & GPV	
Load Volume :	Washout Used ?

Waste Carrier	Invoice Address
Reg. Carrier No. :	Issued By :

On Behalf of VWM	On Behalf of Carrier
Date :	Vehicle Registration No. :
Time :	Signed :
Signed :	Name : P. WALLACE
Name :	Representing :

The Hazardous Waste Regulations 2005: Consignment Note

WOOLDRIDGE
Tel: (01276) 470333

PRODUCER'S/HOLDER'S/CONSIGNOR'S COPY (Delete as appropriate)

PART A Notification details

1 Consignment note code: 0 5 H 0 4 8 / G P V 0 2

2 The waste described below is to be removed from (name, address, postcode, telephone, e-mail, facsimile):

3 Premises code (where applicable): 0 5 H 0 4 8

4 The waste will be taken to (name, address and postcode):
VIRIDOR – DOMAN ROAD CAMBERLEY

5 The waste producer was (if different from 2) name, address, postcode, telephone, e-mail, facsimile):

PART B Description of the waste

If continuation sheet used, tick here ☐

1 The process giving rise to the waste(s) was: INTERCEPTOR

2 SIC for the process giving rise to the waste: 4 5 . 1 1 /

3 WASTE DETAILS (where more than one waste type is collected all of the information given below must be completed for each EWC identified)

Description of waste	List of wastes (EWC code) (6 digits)	Quantity (kg)	The chemical/biological components of the waste and their concentrations are.	Physical form (gas, liquid, solid, powder, sludge or mixed)	Hazard codes(s)	Container type, number and size
OILY WATER	1 3 0 7 0 3	50	OIL + WATER	LIQUID	HF	TANKER

The information given below is to be completed for each EWC identified

EWC code	Packing group(s)	UN identification number(s)	Proper shipping name(s)	UN class(es)	Special handling requirements

PART C Carrier's certificate

(If more than one carrier is used, please attach schedule for subsequent carriers. If a schedule of carriers is attached tick here. ☐)

I certify that I today collected the consignment and that the details in A2, A4 and B3 are correct and I have been advised of any specific handling requirements.

Where this note comprises part of a multiple collection the round number and collection number are:

1 Carrier name: ROB LOCKEY
On behalf of (name, address, postcode, telephone, e-mail, facsimile):
WOOLDRIDGE PLANT LTD.

2 Carrier registration no /reason for exemption:
CBDE5193JL

3 Vehicle registration no. (or mode of transport, if not road): SD53 AHO

Signature

Date 0 7 0 4 2 0 1 6 Time 1 2 0 0

PART D Consignor's certificate

I certify that the information in A, B and C has been completed and is correct, that the carrier is registered or exempt and was advised of the appropriate precautionary measures. All of the waste is packaged and labelled correctly and the carrier has been advised of any special handling requirements.

I confirm that I have fulfilled my duty to apply the waste hierarchy as required by Regulation 12 of the Waste (England and Wales) Regulations 2011.

1 Consignor name: MARTIN TAYLOR

On behalf of (name, address, postcode, telephone, e-mail, facsimile):
WOOLDRIDGE PLANT
UNIT 12, MALLOW FARM
BAGSHOT, ST. GU19 5UD

Signature

Date 0 7 0 4 2 0 1 6 Time 1 2 0 0

PART E Consignee's certificate (where more than one waste type is collected all of the information given below must be completed for each EWC)

Individual EWC code(s) received	Quantity of each EWC code received (kg)	EWC code accepted/rejected	Waste management operation (R or D code)
1 3 0 7 0 3	6750	RECEIVED	D9

1 I received this waste at the address given in A4 on: Date 0 7 0 4 2 0 1 6 Time 1 5 4 5

2 Vehicle registration no. (or mode of transport if not road):

3 Where waste is rejected please provide details: SD53 AHO

Name:

On behalf of (name, address, postcode, telephone, e-mail, facsimile):

I certify that waste management licence/permit/authorised exemption no(s).

CBDE266LL

authorises the management of the waste described in B at the address given in A4.

Where the consignment forms part of a multiple collection, as identified in Part C, I certify that the total number of consignments forming the colection are:

Viridor Waste (Thames) Limited
30 Doman Road, Camberley, Surrey GU15 3DF
Tel: (01276) 686075 Fax: (01276) 683625

Signature

Date Time

Viridor

Transforming waste™

CONTROLLED WASTE TRANSFER / DELIVERY NOTE

Transfer Note No.	
VWM Control Form No.	
Carrier's Reference	

Licensed Premises Where Waste Delivered	Licensing Authority
	The Environment Agency Kings Meadow House Kings Meadow Road Reading RG1 8DQ
	Licence No.

Particulars of Waste Delivered	
Producer Name :	
Waste Details :	
Load Volume :	Washout Used ?

Waste Carrier	Invoice Address
Reg. Carrier No. :	Issued By :

On Behalf of VWM	On Behalf of Carrier
Date :	Vehicle Registration No. :
Time :	Signed :
Signed :	Name : R Lockley
Name :	Representing :

The Hazardous Waste Regulations 2005: Consignment Note

WOOLDRIDGE
Tel: (01276) 470333

PRODUCER'S/HOLDER'S/CONSIGNOR'S COPY (Delete as appropriate)

PART A Notification details

1 Consignment note code: D S H 0 4 8 / 6 P V 0 3

2 The waste described below is to be removed from (name, address, postcode, telephone, e-mail, facsimile):
GREEN PARK VILLAGE, READING, RG30 2QL

3 Premises code (where applicable): D S H 0 4 8

4 The waste will be taken to (name, address and postcode):
VIRIDOR – DOMAN ROAD, CAMBERLEY

5 The waste producer was (if different from 2) name, address, postcode, telephone, e-mail, facsimile):

PART B Description of the waste

If continuation sheet used, tick here ☐

1 The process giving rise to the waste(s) was: INTERCEPTOR

2 SIC for the process giving rise to the waste: 45.11 / 1

3 WASTE DETAILS (where more than one waste type is collected all of the information given below must be completed for each EWC identified)

Description of waste	List of wastes (EWC code) (6 digits)	Quantity (kg)	The chemical/biological components of the waste and their concentrations are:		Physical form (gas, liquid, solid, powder, sludge or mixed)	Hazard codes(s)	Container type, number and size
OILY WATER	1 3 0 7 0 3	1500L	OIL + WATER	> 1%	LIQUID	H7	TANKER

The information given below is to be completed for each EWC identified

EWC code	Packing group(s)	UN identification number(s)	Proper shipping name(s)	UN class(es)	Special handling requirements

PART C Carrier's certificate

(If more than one carrier is used, please attach schedule for subsequent carriers. If a schedule of carriers is attached tick here. ☐)

I certify that I today collected the consignment and that the details in A2, A4 and B3 are correct and I have been advised of any specific handling requirements.

Where this note comprises part of a multiple collection the round number and collection number are:

1 Carrier name: ROB LUCHFORD
On behalf of (name, address, postcode, telephone, e-mail, facsimile):
WOOLDRIDGE PLANT

2 Carrier registration no./reason for exemption:
CB/QES193JL

3 Vehicle registration no. (or mode of transport, if not road): SD53 AMO

Signature

Date 0 4 0 5 2 0 1 6 Time 1 5 0 0

PART D Consignor's certificate

I certify that the information in A, B and C has been completed and is correct, that the carrier is registered or exempt and was advised of the appropriate precautionary measures. All of the waste is packaged and labelled correctly and the carrier has been advised of any special handling requirements.

I confirm that I have fulfilled my duty to apply the waste hierarchy as required by Regulation 12 of the Waste (England and Wales) Regulations 2011.

1 Consignor name: MARTIN TAYLOR

On behalf of (name, address, postcode, telephone, e-mail, facsimile):
WOOLDRIDGE PLANT
UNIT 17, MILLGATE KILN BARNS
GU19 5HD

Signature

Date 0 4 0 5 2 0 1 6 Time 1 3 0 0

PART E Consignee's certificate (where more than one waste type is collected all of the information given below must be completed for each EWC)

Individual EWC code(s) received	Quantity of each EWC code received (kg)	EWC code accepted/rejected	Waste management operation (R or D code)
1 3 0 7 0 3		ACCEPTED	D9

1 I received this waste at the address given in A4 on: Date 0 4 0 5 2 0 1 6 Time 1 5 0 0

2 Vehicle registration no. (or mode of transport if not road): SD53 AMO

3 Where waste is rejected please provide details:

Name:

On behalf of (name, address, postcode, telephone, e-mail, facsimile):

I certify that waste management licence/permit/authorised exemption no(s).

CB/QES193JL

authorises the management of the waste described in B at the address given in A4.

Viridor Waste (Thames) Limited
30 Doman Road, Camberley, Surrey GU15 3DF
Tel: (01276) 686075 Fax: (01276) 683625

Where the consignment forms part of a multiple collection, as identified in Part C, I certify that the total number of consignments forming the colection are:

Signature

Date Time

Viridor

Transforming waste™

CONTROLLED WASTE TRANSFER / DELIVERY NOTE

Transfer Note No.	
VWM Control Form No.	
Carrier's Reference	

Licensed Premises Where Waste Delivered	Licensing Authority
	The Environment Agency Kings Meadow House Kings Meadow Road Reading RG1 8DQ
	Licence No.

Particulars of Waste Delivered	
Producer Name :	
Waste Details :	
Load Volume :	Washout Used ?

Waste Carrier	Invoice Address
Reg. Carrier No. :	Issued By :

On Behalf of VWM	On Behalf of Carrier
Date :	Vehicle Registration No. :
Time :	Signed : .....
Signed :	Name : .....
Name :	Representing : .....

The Hazardous Waste Regulations 2005: Consignment Note

WOOLDRIDGE
Tel: (01276) 470333

PRODUCER'S/HOLDER'S/CONSIGNOR'S COPY (Delete as appropriate)

PART A Notification details

1 Consignment note code: 0SH0481/GPV04

2 The waste described below is to be removed from (name, address, postcode, telephone, e-mail, facsimile): GPU
SMALL MEAD RD READING RG30 3UR

3 Premises code (where applicable): 0SH0481

4 The waste will be taken to (name, address and postcode):
VIRIDOR / CAMBERLEY.

5 The waste producer was (if different from 2) name, address, postcode, telephone, e-mail, facsimile):

PART B Description of the waste

If continuation sheet used, tick here ☐

1 The process giving rise to the waste(s) was: INTERCEPTOR

2 SIC for the process giving rise to the waste: 45.11/

3 WASTE DETAILS (where more than one waste type is collected all of the information given below must be completed for each EWC identified)

Description of waste	List of wastes (EWC code) (6 digits)	Quantity (kg)	The chemical/biological components of the waste and their concentrations are:		Physical form (gas, liquid, solid, powder, sludge or mixed)	Hazard codes(s)	Container type, number and size
OILY WATER	130703	10,000	OIL / WATER		LIQUID	H7	TANKER.

The information given below is to be completed for each EWC identified

EWC code	Packing group(s)	UN identification number(s)	Proper shipping name(s)	UN class(es)	Special handling requirements

PART C Carrier's certificate

(If more than one carrier is used, please attach schedule for subsequent carriers. If a schedule of carriers is attached tick here. ☐)

I certify that I today collected the consignment and that the details in A2, A4 and B3 are correct and I have been advised of any specific handling requirements.

Where this note comprises part of a multiple collection the round number and collection number are:

1 Carrier name: PAUL WALLACE
On behalf of (name, address, postcode, telephone, e-mail, facsimile):
WOOLDRIDGE PLANT

2 Carrier registration no./reason for exemption:
CBDES/93JL

3 Vehicle registration no. (or mode of transport, if not road): SD53 AMO

Signature

Date 13/05/2016 Time

PART D Consignor's certificate

I certify that the information in A, B and C has been completed and is correct, that the carrier is registered or exempt and was advised of the appropriate precautionary measures. All of the waste is packaged and labelled correctly and the carrier has been advised of any special handling requirements.

I confirm that I have fulfilled my duty to apply the waste hierarchy as required by Regulation 12 of the Waste (England and Wales) Regulations 2011.

1 Consignor name: MAINTENANCE.

On behalf of (name, address, postcode, telephone, e-mail, facsimile): WOOLDRIDGE PLANT
UNIT 17, BASCOT, GU19 5AA

Signature

Date 13/05/2016 Time

PART E Consignee's certificate (where more than one waste type is collected all of the information given below must be completed for each EWC)

Individual EWC code(s) received	Quantity of each EWC code received (kg)	EWC code accepted/rejected	Waste management operation (R or D code)
130703	10000	ACCEPTED	D09

1 I received this waste at the address given in A4 on: Date 13/05/2016 Time 09:15

2 Vehicle registration no. (or mode of transport if not road): SD53AMO

3 Where waste is rejected please provide details:

I certify that waste management licence/permit/authorised exemption no(s):
CP3936LC
authorises the management of the waste described in B at the address given in A4.

Where the consignment forms part of a multiple collection, as identified in Part C, I certify that the total number of consignments forming the colection are:

Name: R M WHEELER

On behalf of (name, address, postcode, telephone, e-mail, facsimile):

Viridor Waste (Thames) Limited
30 Doman Road, Camberley, Surrey GU15 3DF
Tel: (01276) 686075 Fax: (01276) 683625

Signature

Date 13/5/2016 Time 09:15

Viridor

Transforming waste™

CONTROLLED WASTE TRANSFER / DELIVERY NOTE

Transfer Note No.	
VWM Control Form No.	
Carrier's Reference	

Licensed Premises Where Waste Delivered	Licensing Authority
	The Environment Agency Kings Meadow House Kings Meadow Road Reading RG1 8DQ
	Licence No.

Particulars of Waste Delivered	
Producer Name :	
Waste Details :	
Load Volume :	Washout Used ?

Waste Carrier	Invoice Address
Reg. Carrier No. :	Issued By :

On Behalf of VWM	On Behalf of Carrier
Date : Time : Signed : ..... Name : R M Wheeler	Vehicle Registration No. : Signed : ..... Name : P. WALLACE Representing : .....

2000 s

The Hazardous Waste Regulations 2005: Consignment Note

WOOLDRIDGE
Tel: (01276) 470333

PRODUCER'S/HOLDER'S/CONSIGNOR'S COPY (Delete as appropriate)

PART A Notification details

1 Consignment note code: 0SH048/6PV05

2 The waste described below is to be removed from (name, address, postcode, telephone, e-mail, facsimile):
G.P.J - SMALLMEADE ROAD, READING RG30 3UR

3 Premises code (where applicable): 0SH048

4 The waste will be taken to (name, address and postcode):
VIRIDOR - CAMBERLEY.

5 The waste producer was (if different from 2) name, address, postcode, telephone, e-mail, facsimile):

PART B Description of the waste

If continuation sheet used, tick here ☐

1 The process giving rise to the waste(s) was: INTERCEPTOR

2 SIC for the process giving rise to the waste: 45.11/

3 WASTE DETAILS (where more than one waste type is collected all of the information given below must be completed for each EWC identified)

Description of waste	List of wastes (EWC code) (6 digits)	Quantity (kg)	The chemical/biological components of the waste and their concentrations are:		Physical form (gas, liquid, solid, powder, sludge or mixed)	Hazard codes(s)	Container type, number and size
OILY WATER							
	130703	10000	OILY WATER		LIQUID	H7	TANKER

The information given below is to be completed for each EWC identified

EWC code	Packing group(s)	UN identification number(s)	Proper shipping name(s)	UN class(es)	Special handling requirements

PART C Carrier's certificate

(If more than one carrier is used, please attach schedule for subsequent carriers. If a schedule of carriers is attached tick here. ☐)

I certify that I today collected the consignment and that the details in A2, A4 and B3 are correct and I have been advised of any specific handling requirements.

Where this note comprises part of a multiple collection the round number and collection number are:

1 Carrier name: JAMES AICHORNE
On behalf of (name, address, postcode, telephone, e-mail, facsimile):
WOOLDRIDGE DEPOT, BAGSHOT, GU19 5HP

2 Carrier registration no./reason for exemption:
CBDE5193JL

3 Vehicle registration no. (or mode of transport, if not road): SD53 AMO

Signature JA

Date 17/05/2016 Time

PART D Consignor's certificate

I certify that the information in A, B and C has been completed and is correct, that the carrier is registered or exempt and was advised of the appropriate precautionary measures. All of the waste is packaged and labelled correctly and the carrier has been advised of any special handling requirements.

I confirm that I have fulfilled my duty to apply the waste hierarchy as required by Regulation 12 of the Waste (England and Wales) Regulations 2011.

1 Consignor name: MARTIN TAYLOR

On behalf of (name, address, postcode, telephone, e-mail, facsimile):
WOOLDRIDGE DEPOT, GU19 5HP.

Signature

Date 17/05/2016 Time

PART E Consignee's certificate (where more than one waste type is collected all of the information given below must be completed for each EWC)

Individual EWC code(s) received	Quantity of each EWC code received (kg)	EWC code accepted/rejected	Waste management operation (R or D code)
130703	10000	ACCEPTED	D09

1 I received this waste at the address given in A4 on: Date 17-5-2016 Time 1445

2 Vehicle registration no. (or mode of transport if not road): SD53 AMO

3 Where waste is rejected please provide details:

I certify that waste management licence/permit/authorised exemption no(s).

CP3936LL

authorises the management of the waste described in B at the address given in A4.

Where the consignment forms part of a multiple collection, as identified in Part C, I certify that the total number of consignments forming the colection are: 1

Name: R M WHEELER

On behalf of (name, address, postcode, telephone, e-mail, facsimile):

Viridor Waste (Thames) Limited
30 Doman Road, Camberley, Surrey GU15 3DF
Tel: (01276) 686075 Fax: (01276) 683625

Signature

Date 17-5-2016 Time 1445

Viridor

Transforming waste™

CONTROLLED WASTE TRANSFER / DELIVERY NOTE

Transfer Note No.	
VWM Control Form No.	
Carrier's Reference	

Licensed Premises Where Waste Delivered	Licensing Authority
	The Environment Agency Kings Meadow House Kings Meadow Road Reading RG1 8DQ
	Licence No.

Particulars of Waste Delivered	
Producer Name :	
Waste Details :	£140 per 1600 gals = £308 + £50 Consignment note + V.A.T
Load Volume :	Washout Used ?

Waste Carrier	Invoice Address
Reg. Carrier No. :	Issued By :

On Behalf of VWM	On Behalf of Carrier
Date : Time : Signed : ..... Name : R M Wheeler	Vehicle Registration No. : Signed : JAL Name : James Allchorne Representing : .....

171968

The Hazardous Waste Regulations 2005: Consignment Note

WOOLDRIDGE
Tel: (01276) 470333

PRODUCER'S/HOLDER'S/CONSIGNOR'S COPY (Delete as appropriate)

PART A Notification details

1 Consignment note code: 0 5 H 0 4 8 / 6 P V 0 6

2 The waste described below is to be removed from (name, address, postcode, telephone, e-mail, facsimile):
G.A.V, SMALLMEADE Road, READING RG30 2UR

3 Premises code (where applicable): 0 5 H 0 4 8
05H048

4 The waste will be taken to (name, address and postcode):
VIRIDOR CAMBERLEY

5 The waste producer was (if different from 2) name, address, postcode, telephone, e-mail, facsimile):

PART B Description of the waste

If continuation sheet used, tick here ☐

1 The process giving rise to the waste(s) was: INTERCEPTOR

2 SIC for the process giving rise to the waste: 4 5 1 1 /

3 WASTE DETAILS (where more than one waste type is collected all of the information given below must be completed for each EWC identified)

Description of waste	List of wastes (EWC code) (6 digits)	Quantity (kg)	The chemical/biological components of the waste and their concentrations are:	Physical form (gas, liquid, solid, powder, sludge or mixed)	Hazard codes(s)	Container type, number and size
OILY WATER	1 3 0 7 0 3	6500	OIL + WATER	LIQUID	H7	TANKER

The information given below is to be completed for each EWC identified

EWC code	Packing group(s)	UN identification number(s)	Proper shipping name(s)	UN class(es)	Special handling requirements

PART C Carrier's certificate

(If more than one carrier is used, please attach schedule for subsequent carriers. If a schedule of carriers is attached tick here. ☐)

I certify that I today collected the consignment and that the details in A2, A4 and B3 are correct and I have been advised of any specific handling requirements.

Where this note comprises part of a multiple collection the round number and collection number are:

1 Carrier name: JAMES AICHORNE
On behalf of (name, address, postcode, telephone, e-mail, facsimile):
WOOLDRIDGE DEPOT, BAGSHOT, GU19 5HP

2 Carrier registration no./reason for exemption:
CB/DES193JL

3 Vehicle registration no. (or mode of transport, if not road): SD53AMO

Signature

Date 2 5 0 5 2 0 1 6 Time

PART D Consignor's certificate

I certify that the information in A, B and C has been completed and is correct, that the carrier is registered or exempt and was advised of the appropriate precautionary measures. All of the waste is packaged and labelled correctly and the carrier has been advised of any special handling requirements.

I confirm that I have fulfilled my duty to apply the waste hierarchy as required by Regulation 12 of the Waste (England and Wales) Regulations 2011.

1 Consignor name: MARTIN TAYLOR

On behalf of (name, address, postcode, telephone, e-mail, facsimile):
WOOLDRIDGE DEPOT
GU19 5HP

Signature

Date 2 5 0 5 2 0 1 6 Time

PART E Consignee's certificate (where more than one waste type is collected all of the information given below must be completed for each EWC)

Individual EWC code(s) received	Quantity of each EWC code received (kg)	EWC code accepted/rejected	Waste management operation (R or D code)
1 3 0 7 0 3	6500	ACCEPTED	D09

1 I received this waste at the address given in A4 on: Date 2 5 - 6 2 0 1 6 Time 1 0 4 0

2 Vehicle registration no. (or mode of transport if not road): SD53AMO

3 Where waste is rejected please provide details:

Name: P M WHEELER

On behalf of (name, address, postcode, telephone, e-mail, facsimile):
Viridor Waste (Thames) Limited
30 Doman Road, Camberley, Surrey GU15 3DI
Tel: (01276) 686075 Fax: (01276) 683625

I certify that waste management licence/permit/authorised exemption no(s).

CP3936LL

authorises the management of the waste described in B at the address given in A4.

Where the consignment forms part of a multiple collection, as identified in Part C, I certify that the total number of consignments forming the colection are:

Signature

Date 2 5 - 6 2 0 1 5 Time 1 0 4 0

Viridor

Transforming waste™

CONTROLLED WASTE TRANSFER / DELIVERY NOTE

Transfer Note No.	
VWM Control Form No.	
Carrier's Reference	

Licensed Premises Where Waste Delivered	Licensing Authority
	The Environment Agency Kings Meadow House Kings Meadow Road Reading RG1 8DQ
	Licence No.

Particulars of Waste Delivered	
Producer Name :	
Waste Details :	
Load Volume :	Washout Used ?

Waste Carrier	Invoice Address
Reg. Carrier No. :	Issued By :

On Behalf of VWM	On Behalf of Carrier
Date :	Vehicle Registration No. :
Time :	Signed : JAL
Signed :	Name : James Allchorne
Name : R M Wheeler	Representing : .....

APPENDIX 7
ASBESTOS DUTY OF CARE INFORMATION DURING DEMOLITION

WOOLDRIDGE
ECOTEC

W572150

CONVEYANCE NOTE C (Weight and Vol.)
CONTROLLED WASTE TRANSFER NOTE

BULK EXCAVATION, TOP SOIL, PLANT HIRE,
GROUNDWORK CONTRACTORS
HALL GROVE FARM, BAGSHOT, SURREY GU19 5HP
Tel: (01276) 470333 Fax: (01276) 470301
HAULAGE MANAGER - MICK ATKINS 07831 859111

Registered Waste Carrier
Registration No. CBZN5577WT
Issued by Environment Agency

DATE	VEHICLE REG. No:	NAME OF PERSON IN CHARGE OF VEHICLE:
6-4-16	[illegible]	[illegible]

CUSTOMER: W.D.C

SITE ADDRESS: Grun Park Reading RG30 3UR

I confirm that I have fulfilled my duty to apply the waste hierarchy as required by regulation 12 of the waste regulations (England and Wales) 2011

SIC CODE 43.11

Time of Loading		Gross Weight of Vehicle	TONNES	M³ 4 YRD
Description of Material Rubbish - Away		Tare Weight		
LORRY HIRE	Cash Sale	Net Weight		

HOURS WORKED .....

TRAVELLING TIME .....

No. OF LOADS .....

WHERE TIPPED .....

CUBIC METERS

TIP CODE

Certified that the above particulars are true and relate to the aggregates, sub-based materials and arising materials being conveyed or disposed of in:
(a) A sale or an agreement for the sale thereof made by weight
(b) An agreement for the carriage thereof made by weight or volume
Delete (a) or (b) as applicable
On behalf of the Seller
SIGNED BY (DRIVER'S SIGNATURE)

DESCRIPTION OF MATERIAL

☐ 17.01.07 Clean Hardcore ☐ 17.05.04 Soil & Stones ☐ 17.04.07 Mixed Metal
☐ 17.09.04 Mixed Construction ☐ 17.06.05 Construction Asbestos ☐ 17.02.01 Wood
☐ 20.02.01 Garden / Park Waste ☐ Other .....

The producer of this load of waste certifies that recyclable and non-hazardous materials have been separated prior to collection
SIGNED BY PRODUCER/CUSTOMER
PRINT NAME

ADDRESS OF TIP/TRANSFER POINT

Mid's Waste
Easton Swindon.

TRANSFER OF WASTE

TRANSFER DATE	6-4-16
TRANSFER TIME	
SITE LICENCE No.	

IF MULTIPLE TRANSFER BETWEEN DATES

SIGNED BY TIP OPERATOR

SIGNED BY DRIVER

THE COMPANY UNDERTAKES DELIVERY TO THE NEAREST HARD ROAD AND WILL ONLY ENTER PRIVATE PROPERTY WHERE ACCESS IS ADEQUATE AND ON CONSIGNEE'S INVITATION THE COMPANY AND ITS AGENTS WILL NOT BE LIABLE FOR ANY DAMAGE TO PRIVATE PROPERTY WHATSOEVER CAUSED BY THE VEHICLE AND/OR LOAD

SALES ADVICE & CONTROLLED WASTE TRANSFER NOTE

Waste/Account Incoming

Hills Waste Solutions Ltd
Head Office:
Wiltshire House,
County Park Business Centre,
Shrivenham Road,
Swindon, SN1 2NR

Tel No: 01793 781200
Fax No: 01793 781201
VAT No: 194 3718 37

Disposal Facilty: Parkgate

Trans Date: 06/04/2016
Ticket Number: 4/37856
Disp Point: Parkgate Asb LF
Lic/Permit Nbr: BK0418IS
Issuing Auth: WEST THAMES EA

CUSTOMER ADDRESS	WOOLDRIDGE ECOTEC LTD UNIT 17 HALL GROVE FARM BAGSHOT SURREY GU19 5HP	DELIVERY/ PRODUCER ADDRESS	Wooldrige Ecotec Ltd Fernbank Road, Ascot SL5 8JN

ACCOUNT NUMBER	W85010	**S.I.C. CODE**	45.11
CUSTOMER ORDER No.		**CWTN No.**	w572150

FLEET No.		WEIGHTS		DATE	TIME	TALLY No
VEHICLE REG	X40EMO	26420 kg	GROSS	06/04/2016	09:31	24495
VEHICLE TYPE	30.6M Hooklift	17520 kg	TARE	06/04/2016	09:56	24496
		8900 kg	NETT			
HAULIER CODE	749	0	QUANTITY	Consignment Note Charge Applied		

HAULIER NAME	Wooldridge Ecotec Ltd
WASTE CARRIER No	CB/ZN5577WT
ISSUING AUTH	
EXPIRY DATE	09/02/2016

PRODUCT CODE	10036
MATERIAL DESCRIPTION	Hazardous Asbestos - Construction
EWC CODE	17 06 05
HAZARDOUS CODES	HP7
SOURCE	Surrey

OPERATOR'S NAME Mark Clarkson	OPERATOR'S SIGNATURE
CUSTOMER'S NAME	CUSTOMER'S SIGNATURE

From the 30th October 2007 it is a legal requirement that all waste for Landfill is pre-treated. By signing this document you are confirming that the above conditions have been complied with. I declare that the waste hierarchy has been considered in deciding the most appropriate waste management option for the waste being transferred.

HAULIER'S NAME mark HAULIER'S SIGNATURE

CONSIGNMENT No's.

WOOLDE/00001

SUBJECT TO HILLS WASTE SOLUTIONS LIMITED TERMS & CONDITIONS OF BUSINESS WHICH ARE AVAILABLE FOR INSPECTION AT THE COMPANY'S HEAD OFFICE. REGISTERED IN ENGLAND AND WALES No. 571289

A record of the weights used for this transaction is available for six months

SGS SGS SGS

The Hazardous Waste Regulations 2005: Consignment Note

WOOLDRIDGE
Tel: (01276) 470333

PRODUCER'S/HOLDER'S/CONSIGNOR'S COPY (Delete as appropriate)

PART A Notification details

1 Consignment note code: W004DE / 0001

2 The waste described below is to be removed from (name, address, postcode, telephone, e-mail, facsimile):
Wooldridge Ecotec Ltd, Green Park Village, Small Mead Road Reading RG30 3UR

3 Premises code (where applicable):
N/A As of April 2016

4 The waste will be taken to (name, address and postcode):
Hills Waste Solutions, Limited, Mopes Lane, Purton, Swindon, SN5 4HG

5 The waste producer was (if different from 2) name, address, postcode, telephone, e-mail, facsimile):
Wooldridge Ecotec Ltd, Unit 17 Hall Gore Farm, Bagshot, Surrey GU19 5HP

PART B Description of the waste

If continuation sheet used, tick here ☐

1 The process giving rise to the waste(s) was: Demolition

2 SIC for the process giving rise to the waste: 43.11/

3 WASTE DETAILS (where more than one waste type is collected all of the information given below must be completed for each EWC identified)

Description of waste	List of wastes (EWC code) (6 digits)	Quantity (kg)	The chemical/biological components of the waste and their concentrations are:		Physical form (gas, liquid, solid, powder, sludge or mixed)	Hazard code(s)	Container type, number and size
Cement Bonded Asbestos	170605		Crysotile	<10%	Solid	H7	40 yard

The information given below is to be completed for each EWC identified

EWC code	Packing group(s)	UN identification number(s)	Proper shipping name(s)	UN class(es)	Special handling requirements
170605	III	2590	White Waste Asbestos	9	Do not inhale

PART C Carrier's certificate

(If more than one carrier is used, please attach schedule for subsequent carriers. If a schedule of carriers is attached tick here. ☐)

I certify that I today collected the consignment and that the details in A2, A4 and B3 are correct and I have been advised of any specific handling requirements.

Where this note comprises part of a multiple collection the round number and collection number are:

1 Carrier name: MARK FINDLAY
On behalf of (name, address, postcode, telephone, e-mail, facsimile):
Wooldridge Ecotec Ltd a. As above

2 Carrier registration no./reason for exemption:
~~EB7ANSS~~ CBDU81963

3 Vehicle registration no. (or mode of transport, if not road):
X40EMO

Signature

Date 06/04/2016 Time 0800

PART D Consignor's certificate

I certify that the information in A, B and C has been completed and is correct, that the carrier is registered or exempt and was advised of the appropriate precautionary measures. All of the waste is packaged and labelled correctly and the carrier has been advised of any special handling requirements.

I confirm that I have fulfilled my duty to apply the waste hierarchy as required by Regulation 12 of the Waste (England and Wales) Regulations 2011.

1 Consignor name: Barry HARMES

On behalf of (name, address, postcode, telephone, e-mail, facsimile):
Wooldridge Ecotec - As As above.

Signature

Date 06/04/2016 Time 0800

PART E Consignee's certificate (where more than one waste type is collected all of the information given below must be completed for each EWC)

Individual EWC code(s) received	Quantity of each EWC code received (kg)	EWC code accepted/rejected	Waste management operation (R or D code)
170605	8405	A	D05

1 I received this waste at the address given in A4 on: Date 6/4/2016 Time 09:30

2 Vehicle registration no. (or mode of transport if not road):

3 Where waste is rejected please provide details:
X40EMO

Name: CLARKSON

On behalf of (name, address, postcode, telephone, e-mail, facsimile):
HILLS WASTE SOLUTIONS LTD
PARKGATE FARM LANDFILL
MOPES LANE, PURTON
SWINDON
WILTSHIRE SN5 4HG
Tel: 01793 771700

I certify that waste management licence/permit/authorised exemption no(s):
BK04181S
authorises the management of the waste described in B at the address given in A4.

Signature

Where the consignment forms part of a multiple collection, as identified in Part C, I certify that the total number of consignments forming the colection are:

Date 6/4/2016 Time 09:30

AGGREGATE MOVEMENTS UK LTD

50A Rookery Road, Wyboston, Bedford, MK44 3AX.
01480 819 267

30105268

Part A Notification Details

1. Consignment note code, 1st six characters represent the relevant site premise code *(normally part A3)*: **OSH048/WOL01**
2. Waste to be removed from: **Green Park Village, Smallmead Road, Reading, RG30 3UR.**
4. Waste to be taken to: **Impetus Waste Management Ltd, Teesport No 3, Teesport, Grangetown, Middlesbrough, TS6 6UG**
5. Waste producer (if different to A2): **As Part D**

Part B Description of the Waste

1. The process giving rise to the waste was: **Demolition** 2. SIC for the process giving rise to the waste: **45.11**

3. Waste details:

Description of waste	EWC code	Quantity/te	Component	Conc'/ppm	Physical form	Haz code	Container size
Cement bonded Asbestos	**170605**	**25 tonnes**	**Chrysotile**	**>0.1%**	**Solid**	**H7**	**Artic 55m +**

The information below is to be completed for each EWC identified, where necessary.

EWC code	Packaging group	UN identification number	Proper shipping name	UN classes	Special handling requirements
170605	**********	N/A	*********		

Part C Carriers Certificate

1. Is a schedule of carriers attached:

I certify that I today collected the consignment, and that the details in A2, A4 and B3 are correct, and I have been advised of any specific handling requirements.

1. Drivers name: R. Cook
On behalf of: **J & J Ward ltd, The Garage, Patrick Brompton, Bedale, North Yorks, DL8 1JP**

2. Waste Carrier Licence Number: **CB/EN5373DN** 3. Vehicle registration no. (or mode of transport, if not by road): SV11 AYY

Signature: R Cook Date: 30-3-16 Time: 08.00

Part D Consignor's Certificate

I certify that the information in A, B and C above is correct, that the carrier is registered or exempt, and was advised of the appropriate precautionary measures. All of the waste is packaged and labelled correctly and the carrier has been advised of any special handling requirements.
I can confirm that I have fulfilled my duty to apply the waste hierarchy as required by Regulation 12 of the Waste (England & Wales) Regulations 2011.=

1. Name of consignor: Billy HARMES 2. Signature. B

On behalf of: **Wooldridge Ecotec Ltd, Hall Grove Farm, Bagshot, Surrey, GU19 5HP**
Tel. 01276 470333 Fax

Date: 30.3.16 Time: 08.00

Part E Consignee's Certificate

27680

Individual EWC code received	Quantity of each EWC	Accepted/Rejected	Waste management operation (R or D)
170605			

1. I received this waste at the address given in A4 on: Date: 30/3/16 Time: 14:34

2. Vehicle registration no. (or mode of transport, if not by road) SV11 AYY Name: CURTIS
On behalf of: I WM I PUM

3. Where waste was rejected, please provide details why:

I certify that waste management licence/permit/authorised exemption no(s) AV917 authorises the management of the waste described in B at the address in A4.

Signature: Date: 30/3/16

IMPETUS WASTE MANAGEMENT

COMPLETED WEIGHING TICKET/DUTY OF CARE TRANSFER NOTE

Waste/Account Incoming

Wynyard Park House
Wynyard Avenue
Billingham
Stockton on Tees
TS22 5TB
Tel: 01740 661213
Fax: 01740 661220
VAT Reg Nbr: 177 3251 00

Facility
Impetus Teesport Landfill
Impetus Waste Management
Grangetown
Middlesborough
TS6 6UG
Tel Nbr: 07939 837 332 **Fax:**
Permit Nbr: BV1917

Customer Details AGG001
Aggregate Movements UK Ltd
50a Rookery Road
Wyboston
Bedford

Ticket Number: 30105268 **Trans Date:** 30/03/2016
Consignment Ref: osh048
Order Nbr:

Vehicle Reg SV11AYY **F/N:**

Vehicle Type Artic Tipper

Origin/Destination Reading UA

Internal Note Nbr GREENPARKVILLAG

EWC Code 17 06 05

Haulier: r cole haulage

Waste Carriers Licence Nbr: CB/JM3444KN

Issuing Authority & Expiry Date sheffield 09/03/2017

Product Description Construction Material Containing Asbestos

Hazard Codes HP7

Consign Nbr	Postcode
OSH048WOL01	RG303UR

WEIGHTS		DATE	TIME	TALLY No
43180 kg	GROSS	30/03/2016	14:34	MANUAL
15500 kg	TARE	10/03/2016		
27680 kg	NETT			
0	QUANTITY			

Notes

Operators Name Chris Wall **OPERATOR'S SIGNATURE**

I confirm that I have fulfilled my duty to apply the waste hierarchy as required by regulation 12 of the Waste (England and Wales) Regulations 2011

DRIVER'S INITIALS AND SURNAME R. Cole **DRIVER'S SIGNATURE** R Cole

SUBJECT TO IMPETUS WASTE MANAGEMENT TERMS & CONDITIONS OF BUSINESS AS SHOWN OVERLEAF
REGISTERED IN ENGLAND AND WALES

~~30~~ 30105660

AGGREGATE MOVEMENTS UK LTD

50A Rookery Road, Wyboston, Bedford, MK44 3AX.
01480 819 267

Part A Notification Details

1. Consignment note code, 1st six characters represent the relevant site premise code *(normally part A3)*: **OSH048/WOL02**
2. Waste to be removed from: **Green Park Village, Smallmead Road, Reading, RG30 3UR**
4. Waste to be taken to: **Impetus Waste Management Ltd, Teesport No 3, Teesport, Grangetown, Middlesbrough, TS6 6UG**
5. Waste producer (if different to A2): **As Part D**

Part B Description of the Waste

1. The process giving rise to the waste was: **Demolition**
2. SIC for the process giving rise to the waste: **45.11**
3. Waste details:

Description of waste	EWC code	Quantity/te	Component	Conc'/ppm	Physical form	Haz code	Container size
Cement bonded Asbestos	**170605**	**25 tonnes**	**Chrysotile**	**>0.1%**	**Solid**	**H7**	**Artic 55m +**

The information below is to be completed for each EWC identified, where necessary.

EWC code	Packaging group	UN identification number	Proper shipping name	UN classes	Special handling requirements
170605	**********	N/A	**********		

Part C Carriers Certificate

1. Is a schedule of carriers attached:

I certify that I today collected the consignment, and that the details in A2, A4 and B3 are correct, and I have been advised of any specific handling requirements.

1. Drivers name:
On behalf of: **J & J Ward ltd, The Garage, Patrick Brompton, Bedale, North Yorks, DL8 1JP**

2. Waste Carrier Licence Number: **CB/EN5373DN** 3. Vehicle registration no. (or mode of transport, if not by road): FJ59 OJK

Signature: _____ Date: 4/4/16 Time: 9.45 AM

Part D Consignor's Certificate

I certify that the information in A, B and C above is correct, that the carrier is registered or exempt, and was advised of the appropriate precautionary measures. All of the waste is packaged and labelled correctly and the carrier has been advised of any special handling requirements.
I can confirm that I have fulfilled my duty to apply the waste hierarchy as required by Regulation 12 of the Waste (England & Wales) Regulations 2011.=

1. Name of consignor: BARRY WATTS 2. Signature _____

On behalf of: **Wooldridge Ecotec Ltd, Hall Grove Farm, Bagshot, Surrey, GU19 5HP**
Tel. 01276 470333 Fax

Date: 4/4/16 Time: 1020AM

Part E Consignee's Certificate

27780

Individual EWC code received	Quantity of each EWC	Accepted/Rejected	Waste management operation (R or D)
170605			

1. I received this waste at the address given in A4 on: Date: 5/4/16 Time: 7.04
2. Vehicle registration no. (or mode of transport, if not by road) FJ59 OJK Name: CHRIS
On behalf of: I M J PONT
3. Where waste was rejected, please provide details why:

I certify that waste management licence/permit/authorised exemption no(s) BV1917 authorises the management of the waste described in B at the address in A4.

Signature: _____

IMPETUS WASTE MANAGEMENT

COMPLETED WEIGHING TICKET/DUTY OF CARE TRANSFER NOTE

Waste/Account Incoming

Wynyard Park House
Wynyard Avenue
Billingham
Stockton on Tees
TS22 5TB
Tel: 01740 661213
Fax: 01740 661220
VAT Reg Nbr: 177 3251 00

Facility
Impetus Teesport Landfill
Impetus Waste Management
Grangetown
Middlesborough
TS6 6UG
Tel Nbr: 07939 837 332 **Fax:**
Permit Nbr: BV1917

Customer Details AGG001
Aggregate Movements UK Ltd
50a Rookery Road
Wyboston
Bedford

Ticket Number: 30105660 **Trans Date:** 05/04/2016
Consignment Ref: osh048
Order Nbr:

Vehicle Reg FJ59DJK **F/N:**

Vehicle Type Artic Tipper

Origin/Destination Reading UA

Haulier: HARGREAVES LOGISTICS

Internal Note Nbr GREENPARKVILLAG

Waste Carriers Licence Nbr: CBDU69509

EWC Code 17 06 05

Issuing Authority & Expiry Date Sheffield 24/10/2018

Product Description Construction Material Containing Asbestos

Hazard Codes HP7

Consign Nbr	Postcode
OSH048WOL02	RG303UR

WEIGHTS		DATE	TIME	TALLY No
43480 kg	GROSS	05/04/2016	07:04	MANUAL
15700 kg	TARE	29/03/2016		
27780 kg	NETT			
0	QUANTITY			

Notes

Operators Name Chris Wall **OPERATOR'S SIGNATURE**

I confirm that I have fulfilled my duty to apply the waste hierarchy as required by regulation 12 of the Waste (England and Wales) Regulations 2011

DRIVER'S INITIALS AND SURNAME DJBB **DRIVER'S SIGNATURE**

SUBJECT TO IMPETUS WASTE MANAGEMENT TERMS & CONDITIONS OF BUSINESS
REGISTERED IN E

BETA This is a trial service – your feedback (mailto:enquiries@environment-agency.gov.uk) will help us to improve it.

Home (/public-register/view/index)
/ Search waste carriers, brokers and dealers (/public-register/view/search-waste-carriers-brokers)
/ Result from Waste Carriers and Brokers Public Register for England

Registration CBDU118765 – AGGREGATE MOVEMENTS (UK) LIMITED

Registration number	CBDU118765
Business name	AGGREGATE MOVEMENTS (UK) LIMITED
Company number	07334316 (http://business.data.gov.uk/id/company/07334316)
Registered as	Broker Dealer - Upper Tier
Applicant type	Company
Registration date:	29/06/2016
Expiry date:	22/08/2019

Business address

Address	50A, ROOKERY ROAD, BEDFORD, MK44 3AX
Postcode	MK44 3AX (http://data.ordnancesurvey.co.uk/id/postcodeunit/MK443AX)

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/ Search waste carriers, brokers and dealers (/public-register/view/search-waste-carriers-brokers)
/ Result from Waste Carriers and Brokers Public Register for England

Registration CBDU81963 – WOOLDRIDGE ECOTEC LTD

Registration number	CBDU81963
Business name	WOOLDRIDGE ECOTEC LTD
Company number	03399413 (http://business.data.gov.uk/id/company/03399413)
Registered as	Carrier Dealer - Upper Tier
Applicant type	Company
Registration date:	12/01/2016
Expiry date:	09/02/2019

Business address

Address	Hall Grove Farm, Bagshot, Surrey, GU19 5HP
Postcode	GU19 5HP (http://data.ordnancesurvey.co.uk/id/postcodeunit/GU195HP)

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Permit UP3895EV/A001 – Hills Minerals & Waste Ltd

Permit number	UP3895EV/A001
Waste Management Licence No.	86384
Pre-EA Permit Ref	BU6018ID
Licence Holder Name	Hills Minerals & Waste Ltd
Trading Name	Hills Minerals & Waste Ltd

Site

Site name	Purton Landfill Site
Site type	A2 : Other Landfill Site taking Special Waste
Site Address	Purton Landfill Site, Mopes Lane, Purton, Swindon, Wiltshire, SN5 4HG
Site Postcode	SN5 4HG (http://data.ordnancesurvey.co.uk/id/postcodeunit/SN54HG)
Site Grid Reference	SU0878588771
Easting	408785
Northing	188771
Local Authority	Wiltshire (http://www.wiltshire.gov.uk/)

Status

Status Description	To PPC
Issued Date	05/03/2004
Licence IPPC Reference	BU6018ID

Request documents (mailto:dutyofcare@environment-agency.gov.uk?subject=Request for WO documents: UP3895EV/A001&body=I would like to request docum

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Home (/public-register/view/index) / Search waste operations (/public-register/view/search-waste-operations) / Result from Environmental Permitting Regulations – Waste Operations for England

Permit WP3296ZU/A001 – Impetus Waste Management Ltd

Permit number	WP3296ZU/A001
Waste Management Licence No.	66181
Pre-EA Permit Ref	ICI No 3
Licence Holder Name	Impetus Waste Management Ltd

Site

Site name	I C I No 3 Teesport Landfill
Site type	A2 : Other Landfill Site taking Special Waste
Site Address	No 3 Teesport Landfill, Grangetown, Middlesbrough, Cleveland, TS6 6UG
Site Postcode	TS6 6UG (http://data.ordnancesurvey.co.uk/id/postcodeunit/TS66UG)
Site Grid Reference	NZ5463822245
Easting	454638
Northing	522245
Local Authority	Redcar and Cleveland (http://www.redcar-cleveland.gov.uk/)

Status

Status Description	To PPC
Issued Date	09/11/2004
Licence IPPC Reference	BV1917IT

Request documents (mailto dutyofcare@environment-agency.gov.uk?subject=Request for WO documents: WP3296ZU/A001&body=I would like to request docun

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APPENDIX 8
UNFORSEEN CONTAMINATION – ASBESTOS CONTAINING MATERIALS IN PHASE 2

UKAS TESTING
4041

Environmental Science

Tom Smith
Ramboll Environ UK Limited
Carlton House
Ringwood Road
Woodlands
Southampton
SO40 7HT

t: 02380817500

e: tom.smith@ramboll.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 16-30457

Project / Site name:	Green Park Village, Reading	**Samples received on:**	19/10/2016
Your job number:	1620000492	**Samples instructed on:**	19/10/2016
Your order number:		**Analysis completed by:**	24/10/2016
Report Issue Number:	1	**Report issued on:**	24/10/2016
Samples Analysed:	3 bulk samples - 2 soil samples		

Signed:

Dr Irma Doyle
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Emma Winter
Assistant Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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The results included within the report are representative of the samples submitted for analysis.

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Environmental Science

Analytical Report Number: 16-30457

Project / Site name: Green Park Village, Reading

Lab Sample Number				645600	645601			
Sample Reference				PH2B_3	PH2B_4			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.00	0.00			
Date Sampled				17/10/2016	17/10/2016			
Time Taken				1300	1300			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile	-			
Asbestos in Soil	Type	N/A	ISO 17025	Detected	Not-detected			
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	< 0.001	-			
Asbestos Quantification Total	%	0.001	ISO 17025	< 0.001	-			

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Analytical Report Number: 16-30457

Project / Site name: Green Park Village, Reading

Lab Sample Number				645598	645599	645602		
Sample Reference				PH2B_1	PH2B_2	PH2B_5		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.00	0.00	0.00		
Date Sampled				17/10/2016	17/10/2016	17/10/2016		
Time Taken				1300	1300	1300		
Analytical Parameter (Bulk Analysis)	Units	Limit of detection	Accreditation Status					
Asbestos Identification Name	Type	N/A	ISO 17025	Amosite - Insulation board/tile	Amosite - Insulation board/tile	Chrysotile - Hard/cement type material		

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Environmental Science

Analytical Report Number: 16-30457
Project / Site name: Green Park Village, Reading
Your Order No:

Certificate of Analysis - Asbestos Quantification

Methods

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

"The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
645600	PH2B_3	0.00	136	Loose Fibres & Hard/Cement Type Material	**Chrysotile**	< 0.001	**< 0.001**

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

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4041

Environmental Science

Analytical Report Number : 16-30457

Project / Site name: Green Park Village, Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Bulks	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	W	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in ouse method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Lucion Environmental

Lucion Environmental Ltd
Registered in England + Wales 6495874
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Asbestos Analyst's Job Summary Report

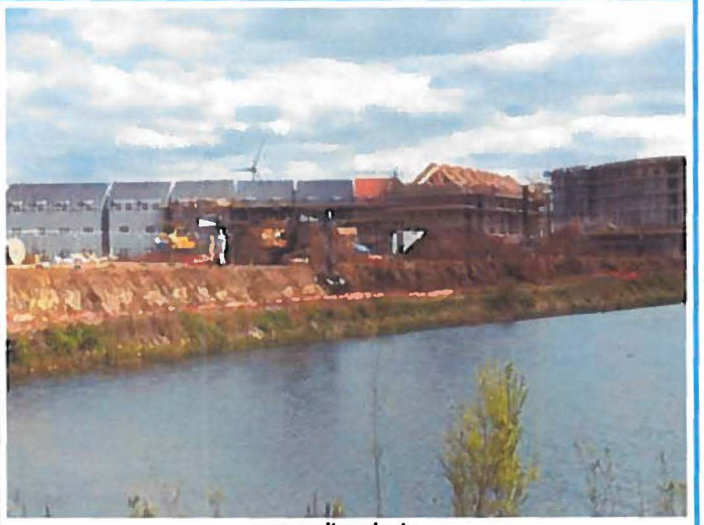
Job Ref No: ***182918****, Account Ref No:* ***17752****, Contract Ref No:* ***24293***

Nearest postcode is: RG30 3UR. Refer to notes for directions.

Title*: Boundary air monitoring during Phase 5 excavation works adjacent to stream.*



latlng: 51.425105,-0.996164



on site photo

Passed Certificates	Failed Certificates
5	0

First Visit to Site*: Monday, 10th April, 2017,* ***Last Visit to Site****: Tuesday, 2nd May, 2017*

Head Office
7 Halifax Court, Dunston,
Gateshead, NE11 9JT
E:
info@innov8safetysolutions.com
T: *0845 468 1974*

Intro

This document is a summary of findings relating to asbestos analytical works at **Nearest postcode is: RG30 3UR. Refer to notes for directions.** from **Monday, 10th April, 2017** to **Tuesday, 2nd May, 2017**. It is intended to give an overview of testing and must be read only in conjunction with the certificates it references. The document should never be read in isolation as asbestos analysts reports often contain additional notes and advice that should be referred to.

Furthermore, this document contains a summary of analyst notes and comments made in relation to works at this site.

Please note this document may contain findings from more than one analyst on more than one date.

Key to Air-Test Icons

To aid ease of reading the following icons have been used in this document to reference commonly undertaken activities.

- Clearance Stage 1
- Clearance Stage 2
- Clearance Stage 3
- Clearance Stage 4
- DCU Stage 2
- DCU Stage 3
- Reassurance
- Background
- Leak Testing
- Personal
- Smoke Test Witness
- Report Acknowledgement

A WARNING is used by the analyst to draw the readers attention to a particular area of the report.

Overview of Works

To view a complete air-certificate, follow the relevent link

Certificate: phase 5

Building: green park village reading Level: 0

View the Full Certificate Here: http://web.lucion.co.uk/air_cert/29915?s=ec2ab3296ba01d6e10a2c276d9f287a9

Type	Test-ID	Start Time	End Time	Date	Operative	# Samples
Reassurance	182918-10				Aaron Garnett	1
Personal	182918-2			10-04-2017	Kelvin Reynolds	1
Background	182918-1			10-04-2017	Kelvin Reynolds	9
Personal	182918-4			11-04-2017	Kelvin Reynolds	1
Reassurance	182918-3			11-04-2017	Kelvin Reynolds	6
Personal	182918-5			11-04-2017	Kelvin Reynolds	1
Personal	182918-7			12-04-2017	Kelvin Reynolds	1
Reassurance	182918-6			12-04-2017	Kelvin Reynolds	7
Personal	182918-9			13-04-2017	Aaron Garnett	2
Reassurance	182918-8			13-04-2017	Aaron Garnett	9
Reassurance	182918-11			19-04-2017	Aaron Garnett	1

Certificate: Phase 2

Building: green park village reading Level: 0

View the Full Certificate Here: http://web.lucion.co.uk/air_cert/30155?s=dc804059ea4675e929ca1879f94ddcf3

Type	Test-ID	Start Time	End Time	Date	Operative	# Samples
Personal	182918-13			19-04-2017	Aaron Garnett	1
Background	182918-13			19-04-2017	Aaron Garnett	4
Reassurance	182918-14			19-04-2017	Aaron Garnett	1

Certificate: Phase 2 | **Building: The Green Park Village** | **Level: 0** | **Passed**

View the Full Certificate Here: http://web.lucion.co.uk/air_cert/30199?s=2b76d8b91da538395ff089d2548edb51

Type	Test-ID	Start Time	End Time	Date	Operative	# Samples	
Personal	182918-15			20-04-2017	Mohammad Khan	1	
Background	182918-16			20-04-2017	Mohammad Khan	8	

Certificate: North Lake Boundry area | **Building: Green Park Village** | **Level: 0** | **Passed**

View the Full Certificate Here: http://web.lucion.co.uk/air_cert/30267?s=15ccbdce7d18a78d88bf89d0008ed4fc

Type	Test-ID	Start Time	End Time	Date	Operative	# Samples	
Background	182918-18			21-04-2017	Mohammad Khan	6	
Personal	182918-17			21-04-2017	Mohammad Khan	1	

Certificate: Phase 5 | **Building: Green Park Village Reading RG12 3UR** | **Level: 0** | **Passed**

View the Full Certificate Here: http://web.lucion.co.uk/air_cert/30334?s=d6fe1a17a420bac2629d7f306ce76de9

Type	Test-ID	Start Time	End Time	Date	Operative	# Samples	
Background	182918-19			24-04-2017	Mohammad Khan	5	
Personal	182918-20			25-04-2017	Mohammad Khan	2	
Background	182918-21			25-04-2017	Mohammad Khan	10	
Personal	182918-22			26-04-2017	Mohammad Khan	2	
Background	182918-23			26-04-2017	Mohammad Khan	9	
Personal	182918-24			27-04-2017	Mohammad Khan	2	
Background	182918-25			27-04-2017	Mohammad Khan	10	
Background	182918-27			28-04-2017	Mohammad Khan	9	
Personal	182918-26			28-04-2017	Mohammad Khan	2	
Reassurance	182918-31			02-05-2017	Kelvin Reynolds	4	

Certificate: Envirograd SH400	Building: Green Park Village Reading RG12 3UR	Level: 0	Passed

View the Full Certificate Here: http://web.lucion.co.uk/air_cert/30481?s=53796bea9af0bafe14490080ec929ce1

Type	Test-ID	Start Time	End Time	Date	Operative	# Samples	
DCU Stage 2	182918-28	12:41:00	12:44:00	28-04-2017	Mohammad Khan	--	Passed
DCU Stage 3	182918-29	12:46:00	14:09:00	28-04-2017	Mohammad Khan	1	Passed
Report Acknowledgement	182918-30			28-04-2017	Mohammad Khan	--	

Certificate: DCU SH400	Building: Berkeley Homes - Green Park Village	Level: 0	Passed

View the Full Certificate Here: http://web.lucion.co.uk/air_cert/30537?s=c277cf7e837a14e809416e105a9d3f4f

Type	Test-ID	Start Time	End Time	Date	Operative	# Samples	
DCU Stage 2	182918-32	12:10:00	12:16:00	02-05-2017	Kelvin Reynolds	--	Passed
Report Acknowledgement	182918-34			02-05-2017	Kelvin Reynolds	--	
DCU Stage 3	182918-33	12:23:00	13:36:00	02-05-2017	Kelvin Reynolds	1	Passed

Job Notes

Operative	Note	Date
 **Mohammad Khan** *Senior Analyst*	It looks like that the work is not finished on Phase 5 area and they may need analyst on Tuesday 2nd May.	Friday, 28th April, 2017

Attachments

The following documents accompany this report and should be regarded as an integral part of this report.

They can be downloaded from http://web.lucion.co.uk/reports/182918/attachments.

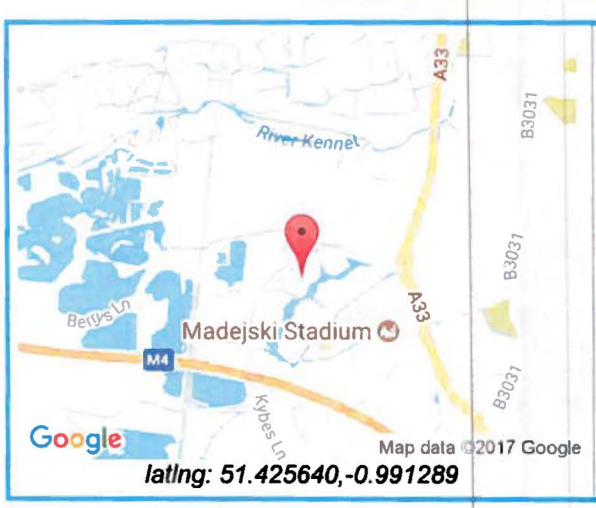
- Method Statement [http://web.lucion.co.uk/method_statements/182918?s=bc361cdffb680826241aeba28d52bbf4]
- Risk Assessment [http://web.lucion.co.uk/risk_assessment/182918?s=b3d5ed62e1c01282fd6870c82684889c]

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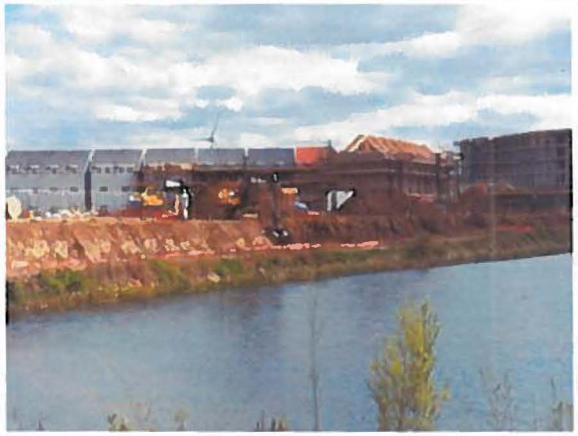
Asbestos Analyst's Certificate Report

Job Ref No: ***182918****, Cert Ref No:* ***30155****, Account Ref No:* ***17752****, Contract Ref No:* ***24293***

St Edwards Homes, Green Park Village, Reading, RG30 3UR



latlng: 51.425640,-0.991289



on site photo



general works area photo

Building	Level	Works-Area	Enclosure Used?
green park village reading	0	Phase 2	No

Passed Tests	Failed Tests	WARNINGS
0	0	0

Head Office
7 Halifax Court, Dunston,
Gateshead, NE11 9JT
E:
info@innov8safetysolutions.com
T: *0845 468 1974*

Intro

This certificate is for the attention of	**Martin Rutledge** **Berkeley Homes (Western) Limited** 200 Longwater Avenue Green Park Reading Berkshire RG2 6GB

Sampling & Evaluation Methods

In-house methods TOP02.08 & TOP02.09 in accordance with HSG 248 Asbestos - The Analyst's Guide to Sampling, Analysis and Clearance Procedures.

Notes: The samples referred to in this report will be retained for 6 months unless requested otherwise. Unless otherwise stated, there are no departures from the sampling and evaluation methods specified. Results detailed in this report relate only to the time, and corresponding conditions prevailing, when the sampling and examination were undertaken.

Notes to Test Accuracy

Airflow measured on site is recorded against a correction chart. Flow meters are calibrated against a UKAS certified master flow meter accurate to ±0.5%. In accordance with HSG248, if the combined effect of ambient temperature and pressure between calibration and sampling location exceeds 5% a correction is applied to the air sample volume. The calculated fibre concentration is given for each air sample taken. Where the corresponding reported fibre concentration is preceded by "<", the lower limit of quantification (LOQ) of the method has not been reached. For a 480 litre air sample with 200 graticule areas counted, the (LOQ) of this method is 0.010 fibres per cubic centimetre of air; samples of less volume/graticules will be reported to a lower LOQ (refer count sheet). While counting randomly distributed fibres, an expected degree of variation of 1.5 standard deviations from the mean count may occur. At clearance indicator level (0.01 fibres per cubic centimetre of air) a 480-litre air sample yielding a count of 20 fibres over 200 fields would have an expected standard deviation of ±8 fibres.

Sampling

When testing within an Enclosure and conducting a 4-Stage Clearance - the number of samples (Ns) is calculated by A1/3-1. Where enclosure is less than 3m in height: A is denoted by area. Where enclosure is greater than 3m in height: A is denoted by volume/3. Refer air sampling and fibre counting sheet.

When testing within a decontamination unit (DCU) - where the combined floor area of shower and dirty areas is less than 10m2; 1 air test has been carried out. During this test the door between these areas has been propped open. For combined floor areas exceeding 10m2 a sample in each area (i.e. shower and dirty end) will be taken.

For tests other than those associated with 4-Stage Clearance testing the analyst will apply the principles of current HSE guidance and experience combined with situational circumstances.

Where a photograph of the completed decontamination unit certificate appears in this report the analyst has completed an abridged report to be left inside the DCU; this abridged report should not be used in lieu of this comprehensive report.

Where sampling plans have been supplied; please note these are not to scale.

Where a sample filter has been deemed uncountable or biased the analyst will record this as "uncountable" in the count-sheet.

Field Blanks - Where site sampling and counting is carried out in a field laboratory a field blank is carried out by the analyst prior to the start of sampling and counting. The field blank constitutes a filter taken from a loaded but unused filter head that is mounted in the usual way and assigned a sample number which is recorded on the slide and the count sheet. Following sampling and analysis of the air tests, the results shall be assessed; where low counts (<0.01 fcm-^{3}) are obtained from some of the field samples, analysis of the field blank will not be necessary. Where elevated counts (>0.01 fcm-^{3}) are obtained on all field samples, then the field blank must be counted to exclude the possibility of contamination.

Disclaimers

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Report Contents

Test: Personal (182918-13) 5
Sample: On Operative Flore Pop moving contaminated land (182918-13-1) 6
Test: Background (182918-13) 7
Sample: within phase 2 perimeter (182918-13-1) 8
Sample: within phase 2 perimeter (182918-13-2) 8
Sample: within phase 2 perimeter (182918-13-3) 8
Sample: within phase 2 perimeter (182918-13-4) 8
Test: Reassurance (182918-14) 9
Sample: West of perimeter adjacent DCU (182918-14-1) 10

Test: Personal (182918-13)

Number of samples being taken	1
RPE used for works	Sundstrom SR100 P3 filter
Description of works / product removed	Monington contaminated land
Asbestos Contractor	wooldridge
Client Representative or Contractor	flore pop
Air sample results	All final results below 0.01 fibres per cc of air.
Stage Warning?	No
Analyst Signature Signature Date	 Wednesday, 19th April, 2017 @ 13:19:16

Test: Personal (182918-13) - Count Sheet

Lucion Report Number	Test Date	Sampled By	Counted By
182918-13	Wednesday, 19th April, 2017	Aaron Garnett	Aaron Garnett

Air Volume Correction Detail

T Cal (K)	T Site (C)	T Pcal (hPa)
293	23	1013

Microscope & Calculation Detail

P Site (hPa)	Correction Required	Micro No.	Graticule Dia (µm)	Test Slide Result (Grid No.)	Filter Dia. Exposed (mm)
1028	1	MS90	100	5	22.5

Instrument Detail

Thermometer, Barometer, Timepiece	Flow (Hi)	Flow (Low)	HSE/NPL	Graticule Slide
WS83	FM375	FM162	312	SM754

Sample Details

Sample No.	Sample Location	Head No.	Pump No.	Time On (hh:mm)	Time Off (hh:mm)	Run Time (mins)	Start Flow (lmin-1)	Int Flow (lmin-1)	End Flow (lmin-1)	Calc. Volume (l)	Corr. Volume (l)	Fibres	Fields	Calc. Conc. (Fibres cm^{-3})	Report. Conc. (Fibres cm^{-3})
182918-13-1	On Operative Flore Pop moving contaminated land	388	416	11:41:00	12:38:00	57	2.0		2.0	114	114	3.0	100	0.013	<0.08

Test: Background (182918-13)

Number of samples being taken	4
Air sample results	All final results below 0.01 fibres per cc of air.
Stage Warning?	No
Analyst Signature Signature Date	 Wednesday, 19th April, 2017 @ 13:47:39

Test: Background (182918-13) - Count Sheet

Lucion Report Number	Test Date	Sampled By	Counted By
182918-13	Wednesday, 19th April, 2017	Aaron Garnett	Aaron Garnett

Air Volume Correction Detail

T Cal (K)	T Site (C)	T Pcal (hPa)
293	24	1013

Microscope & Calculation Detail

P Site (hPa)	Correction Required	Micro No.	Graticule Dia (µm)	Test Slide Result (Grid No.)	Filter Dia. Exposed (mm)
1028	1	MS90	100	5	22.5

Instrument Detail

Thermometer, Barometer, Timepiece	Flow (Hi)	Flow (Low)	HSE/NPL	Graticule Slide
WS83	FM375	FM162	312	SM754

Sample Details

Sample No.	Sample Location	Head No.	Pump No.	Time On (hh:mm)	Time Off (hh:mm)	Run Time (mins)	Start Flow (lmin-1)	Int Flow (lmin-1)	End Flow (lmin-1)	Calc. Volume (l)	Corr. Volume (l)	Fibres	Fields	Calc. Conc. (Fibres cm^{-3})	Report. Conc. (Fibres cm^{-3})
182918-13-1	within phase 2 perimeter	500	1873	11:00:00	12:00:00	60	8.0		8.0	480	480	3.0	200	0.002	<0.01
182918-13-2	within phase 2 perimeter	611	1657	11:00:00	12:00:00	60	8.0		8.0	480	480	3.0	200	0.002	<0.01
182918-13-3	within phase 2 perimeter	658	1873	12:02:00	13:02:00	60	8.0		8.0	480	480	2.0	200	0.001	<0.01
182918-13-4	within phase 2 perimeter	848	1657	12:03:00	13:03:00	60	8.0		8.0	480	480	2.0	200	0.001	<0.01

Test: Reassurance (182918-14)

Number of samples being taken	1
Air sample results	All final results below 0.01 fibres per cc of air.
Stage Warning?	No
Analyst Signature Signature Date	 Wednesday, 19th April, 2017 @ 14:22:11

Test: Reassurance (182918-14) - Count Sheet

Lucion Report Number	Test Date	Sampled By	Counted By
182918-14	Wednesday, 19th April, 2017	Aaron Garnett	Aaron Garnett

Air Volume Correction Detail

T Cal (K)	T Site (C)	T Pcal (hPa)
293	24	1013

Microscope & Calculation Detail

P Site (hPa)	Correction Required	Micro No.	Graticule Dia (µm)	Test Slide Result (Grid No.)	Filter Dia. Exposed (mm)
1028	1	MS90	100	5	22.5

Instrument Detail

Thermometer, Barometer, Timepiece	Flow (Hi)	Flow (Low)	HSE/NPL	Graticule Slide
WS83	FM375	FM162	312	SM754

Sample Details

Sample No.	Sample Location	Head No.	Pump No.	Time On (hh:mm)	Time Off (hh:mm)	Run Time (mins)	Start Flow (lmin-1)	Int Flow (lmin-1)	End Flow (lmin-1)	Calc. Volume (l)	Corr. Volume (l)	Fibres	Fields	Calc. Conc. (Fibres cm^{-3})	Report. Conc. (Fibres cm^{-3})
182918-14-1	West of perimeter adjacent DCU	660	1657	13:15:00	14:15:00	60	8.0		8.0	480	480	3.0	200	0.002	<0.01

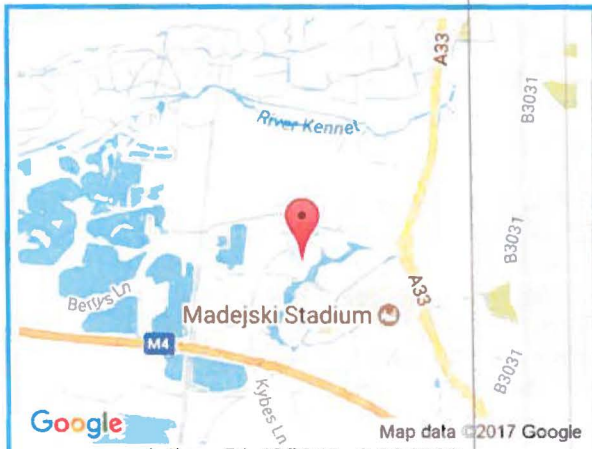
Lucion Environmental

Lucion Environmental Ltd
Registered in England + Wales 6495874
VAT Registration Number 208156326

Asbestos Analyst's Certificate Report

Job Ref No: ***182918****, Cert Ref No:* ***30199****, Account Ref No:* ***17752****, Contract Ref No:* ***24293***

St Edwards Homes, Green Park Village, Reading, RG30 3UR



latlng: 51.425640,-0.991289



on site photo



general works area photo

Building	Level	Works-Area	Enclosure Used?	Certificate Issue Date
The Green Park Village	0	Phase 2	No	Thursday, 20th April, 2017

Overall Certificate Status	Passed Tests	Failed Tests	WARNINGS
PASSED	0	0	0

Head Office
7 Halifax Court, Dunston,
Gateshead, NE11 9JT
E:
info@innov8safetysolutions.com
T: *0845 468 1974*

Intro

This certificate is for the attention of	**Martin Rutledge** **Berkeley Homes (Western) Limited** 200 Longwater Avenue Green Park Reading Berkshire RG2 6GB

Sampling & Evaluation Methods

In-house methods TOP02.08 & TOP02.09 in accordance with HSG 248 Asbestos - The Analyst's Guide to Sampling, Analysis and Clearance Procedures.

Notes: The samples referred to in this report will be retained for 6 months unless requested otherwise. Unless otherwise stated, there are no departures from the sampling and evaluation methods specified. Results detailed in this report relate only to the time, and corresponding conditions prevailing, when the sampling and examination were undertaken.

Notes to Test Accuracy

Airflow measured on site is recorded against a correction chart. Flow meters are calibrated against a UKAS certified master flow meter accurate to ±0.5%. In accordance with HSG248, if the combined effect of ambient temperature and pressure between calibration and sampling location exceeds 5% a correction is applied to the air sample volume. The calculated fibre concentration is given for each air sample taken. Where the corresponding reported fibre concentration is preceded by "<", the lower limit of quantification (LOQ) of the method has not been reached. For a 480 litre air sample with 200 graticule areas counted, the (LOQ) of this method is 0.010 fibres per cubic centimetre of air; samples of less volume/graticules will be reported to a lower LOQ (refer count sheet). While counting randomly distributed fibres, an expected degree of variation of 1.5 standard deviations from the mean count may occur. At clearance indicator level (0.01 fibres per cubic centimetre of air) a 480-litre air sample yielding a count of 20 fibres over 200 fields would have an expected standard deviation of ±8 fibres.

Sampling

When testing within an Enclosure and conducting a 4-Stage Clearance - the number of samples (Ns) is calculated by A1/3-1. Where enclosure is less than 3m in height: A is denoted by area. Where enclosure is greater than 3m in height: A is denoted by volume/3. Refer air sampling and fibre counting sheet.

When testing within a decontamination unit (DCU) - where the combined floor area of shower and dirty areas is less than 10m2; 1 air test has been carried out. During this test the door between these areas has been propped open. For combined floor areas exceeding 10m2 a sample in each area (i.e. shower and dirty end) will be taken.

For tests other than those associated with 4-Stage Clearance testing the analyst will apply the principles of current HSE guidance and experience combined with situational circumstances.

Where a photograph of the completed decontamination unit certificate appears in this report the analyst has completed an abridged report to be left inside the DCU; this abridged report should not be used in lieu of this comprehensive report.

Where sampling plans have been supplied; please note these are not to scale.

Where a sample filter has been deemed uncountable or biased the analyst will record this as "uncountable" in the count-sheet.

Field Blanks - Where site sampling and counting is carried out in a field laboratory a field blank is carried out by the analyst prior to the start of sampling and counting. The field blank constitutes a filter taken from a loaded but unused filter head that is mounted in the usual way and assigned a sample number which is recorded on the slide and the count sheet. Following sampling and analysis of the air tests, the results shall be assessed; where low counts (<0.01 fcm-³) are obtained from some of the field samples, analysis of the field blank will not be necessary. Where elevated counts (>0.01 fcm-³) are obtained on all field samples, then the field blank must be counted to exclude the possibility of contamination.

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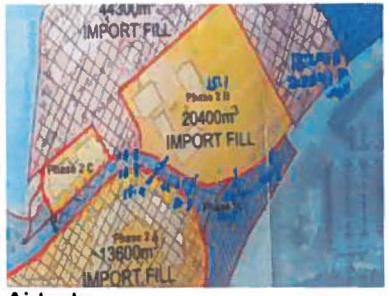
Report Contents

Test: Personal (182918-15) 5
Sample: Phase 2 (182918-15-1) 7
Test: Background (182918-16) 8
Sample: Adjacent to perimeter (182918-16-1) 10
Sample: Adjacent to Perimeter (182918-16-2) 10
Sample: Adjacent to perimeter (182918-16-3) 10
Sample: Adjacent to perimeter (182918-16-4) 10
Sample: Adjacent to perimeter (182918-16-5) 10
Sample: Adjacent to perimeter (182918-16-6) 10
Sample: Adjacent to perimeter (182918-16-7) 10
Sample: Field Blank (182918-16-8) 10

Test: Personal (182918-15)

Number of samples being taken	1
RPE used for works	Sundstrom SR100 P3 filter
Description of works / product removed	Soil moving
Asbestos Contractor	Wooldridge
Client Representative or Contractor	Flori Pop
Air sample results	All air samples gave results below 0.01 fibres per cc of air.
Stage Warning?	No
Analyst Signature Signature Date	 Thursday, 20th April, 2017 @ 11:31:50
Additional notes	satisfactory
Additional Photo 1	

table continued from previous page

Additional Photo 2	 Airtests

Test: Personal (182918-15) - Count Sheet

Lucion Report Number	Test Date	Sampled By	Counted By
182918-15	Thursday, 20th April, 2017	Mohammad Khan	Mohammad Khan

Air Volume Correction Detail

T Cal (K)	T Site (C)	T Pcal (hPa)
293	8	1013

Microscope & Calculation Detail

P Site (hPa)	Correction Required	Micro No.	Graticule Dia (µm)	Test Slide Result (Grid No.)	Filter Dia. Exposed (mm)
1030	1	MS059	100	5	22.5

Instrument Detail

Thermometer, Barometer, Timepiece	Flow (Hi)	Flow (Low)	HSE/NPL	Graticule Slide
WS80	FM111	FM190	222	SM748

Sample Details

Sample No.	Sample Location	Head No.	Pump No.	Time On (hh:mm)	Time Off (hh:mm)	Run Time (mins)	Start Flow (lmin-1)	Int Flow (lmin-1)	End Flow (lmin-1)	Calc. Volume (l)	Corr. Volume (l)	Fibres	Fields	Calc. Conc. (Fibres cm^{-3})	Report. Conc. (Fibres cm^{-3})
182918-15-1	Phase 2	80	20	09:07:00	11:00:00	113	2.0		2.0	226	226	3.0	200	0.003	<0.02

Test: Background (182918-16)

Number of samples being taken	8
Air sample results	All air samples gave results below 0.01 fibres per cc of air.
Stage Warning?	No
Analyst Signature Signature Date	 Thursday, 20th April, 2017 @ 12:25:27
Additional notes	satisfactory
Additional Photo 1	
Additional Photo 2	

table continued from previous page

Additional Photo 3	
Additional Photo 4	 Airtests

Test: Background (182918-16) - Count Sheet

Lucion Report Number	Test Date	Sampled By	Counted By
182918-16	Thursday, 20th April, 2017	Mohammad Khan	Mohammad Khan

Air Volume Correction Detail

T Cal (K)	T Site (C)	T Pcal (hPa)
293	8	1013

Microscope & Calculation Detail

P Site (hPa)	Correction Required	Micro No.	Graticule Dia (µm)	Test Slide Result (Grid No.)	Filter Dia. Exposed (mm)
1030	1	MS059	100	5	22.5

Instrument Detail

Thermometer, Barometer, Timepiece	Flow (Hi)	Flow (Low)	HSE/NPL	Graticule Slide
WS80	FM111	FM190	222	SM748

Sample Details

Sample No.	Sample Location	Head No.	Pump No.	Time On (hh:mm)	Time Off (hh:mm)	Run Time (mins)	Start Flow (lmin-1)	Int Flow (lmin-1)	End Flow (lmin-1)	Calc. Volume (l)	Corr. Volume (l)	Fibres	Fields	Calc. Conc. (Fibres cm^{-3})	Report. Conc. (Fibres cm^{-3})
182918-16-1	Adjacent to perimeter	635	1709	09:14:00	10:21:00	67	8.0		8.0	536	536	2.0	179	0.001	<0.01
182918-16-2	Adjacent to Perimeter	324	1716	09:15:00	10:19:00	64	8.0		8.0	512	512	1.5	188	0.001	<0.01
182918-16-3	Adjacent to perimeter	450	1908	09:15:00	10:20:00	65	8.0		8.0	520	520	3.0	185	0.002	<0.01
182918-16-4	Adjacent to perimeter	530	1721	09:21:00	10:25:00	64	8.0		8.0	512	512	2.5	188	0.001	<0.01
182918-16-5	Adjacent to perimeter	30	1908	10:50:00	11:54:00	64	8.0		8.0	512	512	3.0	188	0.002	<0.01
182918-16-6	Adjacent to perimeter	530	1716	10:51:00	11:54:00	63	8.0		8.0	504	504	1.0	190	0.001	<0.01
182918-16-7	Adjacent to perimeter	635	1709	10:51:00	11:55:00	64	8.0		8.0	512	512	2.5	188	0.001	<0.01
182918-16-8	Field Blank	535										0.0	100		

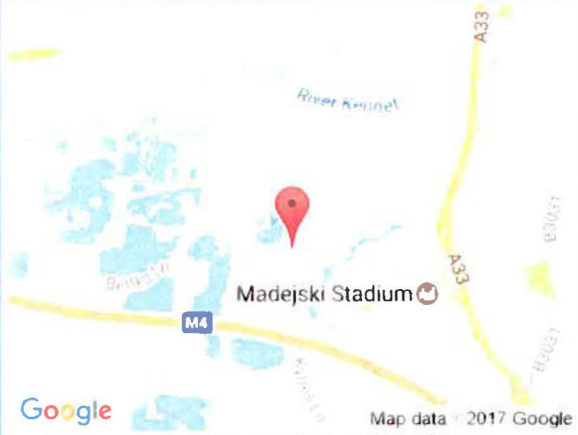
Lucion Environmental

Lucion Environmental Ltd
Registered in England + Wales 6495874
VAT Registration Number 208156326

Asbestos Analyst's Certificate Report

Job Ref No: ***182918****, Cert Ref No:* ***30155****, Account Ref No:* ***17752****, Contract Ref No:* ***24293***

Nearest postcode is: RG30 3UR. Refer to notes for directions.



latlng: 51.425105,-0.996164



on site photo



general works area photo

Building	Level	Works-Area	Enclosure Used?
green park village reading	0	Phase 2	No

Passed Tests	Failed Tests	WARNINGS
0	0	0

Head Office
7 Halifax Court, Dunston,
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T: *0845 468 1974*

Intro

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In-house methods TOP02.08 & TOP02.09 in accordance with HSG 248 Asbestos - The Analyst's Guide to Sampling, Analysis and Clearance Procedures.

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When testing within an Enclosure and conducting a 4-Stage Clearance - the number of samples (Ns) is calculated by A1/3-1. Where enclosure is less than 3m in height: A is denoted by area. Where enclosure is greater than 3m in height: A is denoted by volume/3. Refer air sampling and fibre counting sheet.

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Sample: On Operative Flore Pop moving contaminated land (182918-13-1) 6
Test: Background (182918-13) 7
Sample: within phase 2 perimeter (182918-13-1) 8
Sample: within phase 2 perimeter (182918-13-2) 8
Sample: within phase 2 perimeter (182918-13-3) 8
Sample: within phase 2 perimeter (182918-13-4) 8
Test: Reassurance (182918-14) 9
Sample: West of perimeter adjacent DCU (182918-14-1) 10

Test: Personal (182918-13)

Number of samples being taken	1
RPE used for works	Sundstrom SR100 P3 filter
Description of works / product removed	Monington contaminated land
Asbestos Contractor	wooldridge
Air sample results	All final results below 0.01 fibres per cc of air.
Stage Warning?	No
Analyst Signature	
Signature Date	Wednesday, 19th April, 2017 @ 13:19:16

Test: Personal (182918-13) - Count Sheet

Lucion Report Number	Test Date	Sampled By	Counted By
182918-13	Wednesday, 19th April, 2017	Aaron Garnett	Aaron Garnett

T Cal (K)	T Site (C)	T Pcal (hPa)
293	23	1013

P Site (hPa)	Correction Required	Micro No.	Graticule Dia (µm)	Test Slide Result (Grid No.)	Filter Dia. Exposed (mm)
1028	1	MS90	100	5	22.5

Thermometer, Barometer, Timepiece	Flow (Hi)	Flow (Low)	HSE/NPL	Graticule Slide
WS83	FM375	FM162	312	SM754

Sample No.	Sample Location	Head No.	Pump No.	Time On (hh:mm)	Time Off (hh:mm)	Run Time (mins)	Start Flow (lmin-1)	Int Flow (lmin-1)	End Flow (lmin-1)	Calc. Volume (l)	Corr. Volume (l)	Fibres	Fields	Calc. Conc. (Fibres cm^{-3})	Report. Conc. (Fibres cm^{-3})
182918-13-1	On Operative Flore Pop moving contaminated land	388	416	11:41:00	12:38:00	57	2.0		2.0	114	114	3.0	100	0.013	<0.08

Test: Background (182918-13)

Number of samples being taken	4
Air sample results	All final results below 0.01 fibres per cc of air.
Stage Warning?	No
Analyst Signature	
Signature Date	Wednesday, 19th April, 2017 @ 13:47:39

Test: Background (182918-13) - Count Sheet

Lucion Report Number	Test Date	Sampled By	Counted By
182918-13	Wednesday, 19th April, 2017	Aaron Garnett	Aaron Garnett

T Cal (K)	T Site (C)	T Pcal (hPa)
293	24	1013

P Site (hPa)	Correction Required	Micro No.	Graticule Dia (µm)	Test Slide Result (Grid No.)	Filter Dia. Exposed (mm)
1028	1	MS90	100	5	22.5

Thermometer, Barometer, Timepiece	Flow (Hi)	Flow (Low)	HSE/NPL	Graticule Slide
WS83	FM375	FM162	312	SM754

Sample No.	Sample Location	Head No.	Pump No.	Time On (hh:mm)	Time Off (hh:mm)	Run Time (mins)	Start Flow (lmin-1)	Int Flow (lmin-1)	End Flow (lmin-1)	Calc. Volume (l)	Corr. Volume (l)	Fibres	Fields	Calc. Conc. (Fibres cm^{-3})	Report. Conc. (Fibres cm^{-3})
182918-13-1	within phase 2 perimeter	500	1873	11:00:00	12:00:00	60	8.0		8.0	480	480	3.0	200	0.002	<0.01
182918-13-2	within phase 2 perimeter	611	1657	11:00:00	12:00:00	60	8.0		8.0	480	480	3.0	200	0.002	<0.01
182918-13-3	within phase 2 perimeter	658	1873	12:02:00	13:02:00	60	8.0		8.0	480	480	2.0	200	0.001	<0.01
182918-13-4	within phase 2 perimeter	848	1657	12:03:00	13:03:00	60	8.0		8.0	480	480	2.0	200	0.001	<0.01

Test: Reassurance (182918-14)

Number of samples being taken	1
Air sample results	All final results below 0.01 fibres per cc of air.
Stage Warning?	No
Analyst Signature	
Signature Date	Wednesday, 19th April, 2017 @ 14:22:11

Test: Reassurance (182918-14) - Count Sheet

Lucion Report Number	Test Date	Sampled By	Counted By
182918-14	Wednesday, 19th April, 2017	Aaron Garnett	Aaron Garnett

T Cal (K)	T Site (C)	T Pcal (hPa)
293	24	1013

P Site (hPa)	Correction Required	Micro No.	Graticule Dia (µm)	Test Slide Result (Grid No.)	Filter Dia. Exposed (mm)
1028	1	MS90	100	5	22.5

Thermometer, Barometer, Timepiece	Flow (Hi)	Flow (Low)	HSE/NPL	Graticule Slide
WS83	FM375	FM162	312	SM754

Sample No.	Sample Location	Head No.	Pump No.	Time On (hh:mm)	Time Off (hh:mm)	Run Time (mins)	Start Flow (lmin-1)	Int Flow (lmin-1)	End Flow (lmin-1)	Calc. Volume (l)	Corr. Volume (l)	Fibres	Fields	Calc. Conc. (Fibres cm^{-3})	Report. Conc. (Fibres cm^{-3})
182918-14-1	West of perimeter adjacent DCU	660	1657	13:15:00	14:15:00	60	8.0		8.0	480	480	3.0	200	0.002	<0.01

Lucion Environmental

Lucion Environmental Ltd
Registered in England + Wales 6495874
VAT Registration Number 208156326

Asbestos Analyst's Certificate Report

Job Ref No: ***182918****, Cert Ref No:* ***30199****, Account Ref No:* ***17752****, Contract Ref No:* ***24293***

Nearest postcode is: RG30 3UR. Refer to notes for directions.



latlng: 51.425105,-0.996164



on site photo



general works area photo

Building	Level	Works-Area	Enclosure Used?	Certificate Issue Date
The Green Park Village	0	Phase 2	No	Thursday, 20th April, 2017

Overall Certificate Status	Passed Tests	Failed Tests	WARNINGS
PASSED	0	0	0

Head Office
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Intro

This certificate is for the attention of	**Martin Rutledge** **Berkeley Homes (Western) Limited** 200 Longwater Avenue Green Park Reading Berkshire RG2 6GB

Sampling & Evaluation Methods

In-house methods TOP02.08 & TOP02.09 in accordance with HSG 248 Asbestos - The Analyst's Guide to Sampling, Analysis and Clearance Procedures.

Notes: The samples referred to in this report will be retained for 6 months unless requested otherwise. Unless otherwise stated, there are no departures from the sampling and evaluation methods specified. Results detailed in this report relate only to the time, and corresponding conditions prevailing, when the sampling and examination were undertaken.

Notes to Test Accuracy

Airflow measured on site is recorded against a correction chart. Flow meters are calibrated against a UKAS certified master flow meter accurate to ±0.5%. In accordance with HSG248, if the combined effect of ambient temperature and pressure between calibration and sampling location exceeds 5% a correction is applied to the air sample volume. The calculated fibre concentration is given for each air sample taken. Where the corresponding reported fibre concentration is preceded by "<", the lower limit of quantification (LOQ) of the method has not been reached. For a 480 litre air sample with 200 graticule areas counted, the (LOQ) of this method is 0.010 fibres per cubic centimetre of air; samples of less volume/graticules will be reported to a lower LOQ (refer count sheet). While counting randomly distributed fibres, an expected degree of variation of 1.5 standard deviations from the mean count may occur. At clearance indicator level (0.01 fibres per cubic centimetre of air) a 480-litre air sample yielding a count of 20 fibres over 200 fields would have an expected standard deviation of ±8 fibres.

Sampling

When testing within an Enclosure and conducting a 4-Stage Clearance - the number of samples (Ns) is calculated by A1/3-1. Where enclosure is less than 3m in height: A is denoted by area. Where enclosure is greater than 3m in height: A is denoted by volume/3. Refer air sampling and fibre counting sheet.

When testing within a decontamination unit (DCU) - where the combined floor area of shower and dirty areas is less than 10m2; 1 air test has been carried out. During this test the door between these areas has been propped open. For combined floor areas exceeding 10m2 a sample in each area (i.e. shower and dirty end) will be taken.

For tests other than those associated with 4-Stage Clearance testing the analyst will apply the principles of current HSE guidance and experience combined with situational circumstances.

Where a photograph of the completed decontamination unit certificate appears in this report the analyst has completed an abridged report to be left inside the DCU; this abridged report should not be used in lieu of this comprehensive report.

Where sampling plans have been supplied; please note these are not to scale.

Where a sample filter has been deemed uncountable or biased the analyst will record this as "uncountable" in the count-sheet.

Field Blanks - Where site sampling and counting is carried out in a field laboratory a field blank is carried out by the analyst prior to the start of sampling and counting. The field blank constitutes a filter taken from a loaded but unused filter head that is mounted in the usual way and assigned a sample number which is recorded on the slide and the count sheet. Following sampling and analysis of the air tests, the results shall be assessed; where low counts (<0.01 fcm-^{3}) are obtained from some of the field samples, analysis of the field blank will not be necessary. Where elevated counts (>0.01 fcm-^{3}) are obtained on all field samples, then the field blank must be counted to exclude the possibility of contamination.

Disclaimers

Any opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This certificate is valid only when it bears the signature of an authorised member of Lucion personnel. Please note the witnessing of smoke tests is outwith the scope of UKAS accreditation.

Representatives Signature - The signatory on report acknowledgement agrees to findings of this report being accurate and correct and Lucion Environmental Ltd issuing this report to the email address held on record for the job and does not require a copy of this report to be left on site. Furthermore Lucion Environmental Ltd cannot be held responsible for any actions undertaken following the issue of this report.

This certificate *may* be part of a series of works and should be read in conjunction with the Asbestos Analyst's Job Summary Report.

Report Contents

Test: Personal (182918-15) . . . 5
Sample: Phase 2 (182918-15-1) . . . 6
Test: Background (182918-16) . . . 7
Sample: Adjacent to perimeter (182918-16-1) . . . 9
Sample: Adjacent to Perimeter (182918-16-2) . . . 9
Sample: Adjacent to perimeter (182918-16-3) . . . 9
Sample: Adjacent to perimeter (182918-16-4) . . . 9
Sample: Adjacent to perimeter (182918-16-5) . . . 9
Sample: Adjacent to perimeter (182918-16-6) . . . 9
Sample: Adjacent to perimeter (182918-16-7) . . . 9
Sample: Field Blank (182918-16-8) . . . 9

Test: Personal (182918-15)

Number of samples being taken	1
RPE used for works	Sundstrom SR100 P3 filter
Description of works / product removed	Soil moving
Asbestos Contractor	Wooldridge
Air sample results	All air samples gave results below 0.01 fibres per cc of air.
Stage Warning?	No
Analyst Signature	
Signature Date	Thursday, 20th April, 2017 @ 11:31:50
Additional notes	satisfactory
Additional Photo 1	
Additional Photo 2	

Airtests

Test: Personal (182918-15) - Count Sheet

Lucion Report Number	Test Date	Sampled By	Counted By
182918-15	Thursday, 20th April, 2017	Mohammad Khan	Mohammad Khan

T Cal (K)	T Site (C)	T Pcal (hPa)
293	8	1013

P Site (hPa)	Correction Required	Micro No.	Graticule Dia (µm)	Test Slide Result (Grid No.)	Filter Dia. Exposed (mm)
1030	1	MS059	100	5	22.5

Thermometer, Barometer, Timepiece	Flow (Hi)	Flow (Low)	HSE/NPL	Graticule Slide
WS80	FM111	FM190	222	SM748

Sample No.	Sample Location	Head No.	Pump No.	Time On (hh:mm)	Time Off (hh:mm)	Run Time (mins)	Start Flow (lmin-1)	Int Flow (lmin-1)	End Flow (lmin-1)	Calc. Volume (l)	Corr. Volume (l)	Fibres	Fields	Calc. Conc. (Fibres cm^{-3})	Report. Conc. (Fibres cm^{-3})
182918-15-1	Phase 2	80	20	09:07:00	11:00:00	113	2.0		2.0	226	226	3.0	200	0.003	<0.02

Test: Background (182918-16)

Number of samples being taken	8
Air sample results	All air samples gave results below 0.01 fibres per cc of air.
Stage Warning?	No
Analyst Signature	
Signature Date	Thursday, 20th April, 2017 @ 12:25:27
Additional notes	satisfactory
Additional Photo 1	
Additional Photo 2	

table continued from previous page

Additional Photo 3	
Additional Photo 4	

Airtests

Test: Background (182918-16) - Count Sheet

Lucion Report Number	Test Date	Sampled By	Counted By
182918-16	Thursday, 20th April, 2017	Mohammad Khan	Mohammad Khan

T Cal (K)	T Site (C)	T Pcal (hPa)
293	8	1013

P Site (hPa)	Correction Required	Micro No.	Graticule Dia (µm)	Test Slide Result (Grid No.)	Filter Dia. Exposed (mm)
1030	1	MS059	100	5	22.5

Thermometer, Barometer, Timepiece	Flow (Hi)	Flow (Low)	HSE/NPL	Graticule Slide
WS80	FM111	FM190	222	SM748

Sample No.	Sample Location	Head No.	Pump No.	Time On (hh:mm)	Time Off (hh:mm)	Run Time (mins)	Start Flow (lmin-1)	Int Flow (lmin-1)	End Flow (lmin-1)	Calc. Volume (l)	Corr. Volume (l)	Fibres	Fields	Calc. Conc. (Fibres cm^{-3})	Report. Conc. (Fibres cm^{-3})
182918-16-1	Adjacent to perimeter	635	1709	09:14:00	10:21:00	67	8.0		8.0	536	536	2.0	179	0.001	<0.01
182918-16-2	Adjacent to Perimeter	324	1716	09:15:00	10:19:00	64	8.0		8.0	512	512	1.5	188	0.001	<0.01
182918-16-3	Adjacent to perimeter	450	1908	09:15:00	10:20:00	65	8.0		8.0	520	520	3.0	185	0.002	<0.01
182918-16-4	Adjacent to perimeter	530	1721	09:21:00	10:25:00	64	8.0		8.0	512	512	2.5	188	0.001	<0.01
182918-16-5	Adjacent to perimeter	30	1908	10:50:00	11:54:00	64	8.0		8.0	512	512	3.0	188	0.002	<0.01
182918-16-6	Adjacent to perimeter	530	1716	10:51:00	11:54:00	63	8.0		8.0	504	504	1.0	190	0.001	<0.01
182918-16-7	Adjacent to perimeter	635	1709	10:51:00	11:55:00	64	8.0		8.0	512	512	2.5	188	0.001	<0.01
182918-16-8	Field Blank	535										0.0	100		



Wooldridge

WOOLDRIDGE GROUP

LEGEND

KEY MAP



Green Park
Reading RG30 3UR
Phase 5A

SCALE	SHEET NUMBER
1:500@A1	107
PLOT DATE	
23May2017	
FILE NAME	
Phase2B Membrane May 2017.dwg	

Table A8 1: Photographic Record during Phase 2B Asbestos Works

	
Plate 1: Evidence of asbestos (AIB) debris at the surface	Plate 2: Asbestos skip stored in the area
	
Plate 3: Membrane extents following visual delineation	Plate 4: Membrane extents following visual delineation
	
Plate 5: Membrane extents following visual delineation	Plate 6: Membrane extents following visual delineation