NOTES:

DO NOT SCALE FROM THIS DRAWING. ALL DIMENSIONS TO BE CHECKED ON SITE. ALL OMISSIONS AND DISCREPANCIES TO BE REPORTED TO THE ARCHITECT IMMEDIATELY.

🟦 + 5.10m
🟦 + 6.03m
🟦 + 6.33m
🟦 + 7.03m
🟧 ramped area
🟥 stepped area

Revision description	Date	Check	Rev

SQUIRE & PARTNERS

77 Wicklow Street London WC1X 9JY
T: 020 7278 5555 F: 020 7239 0495

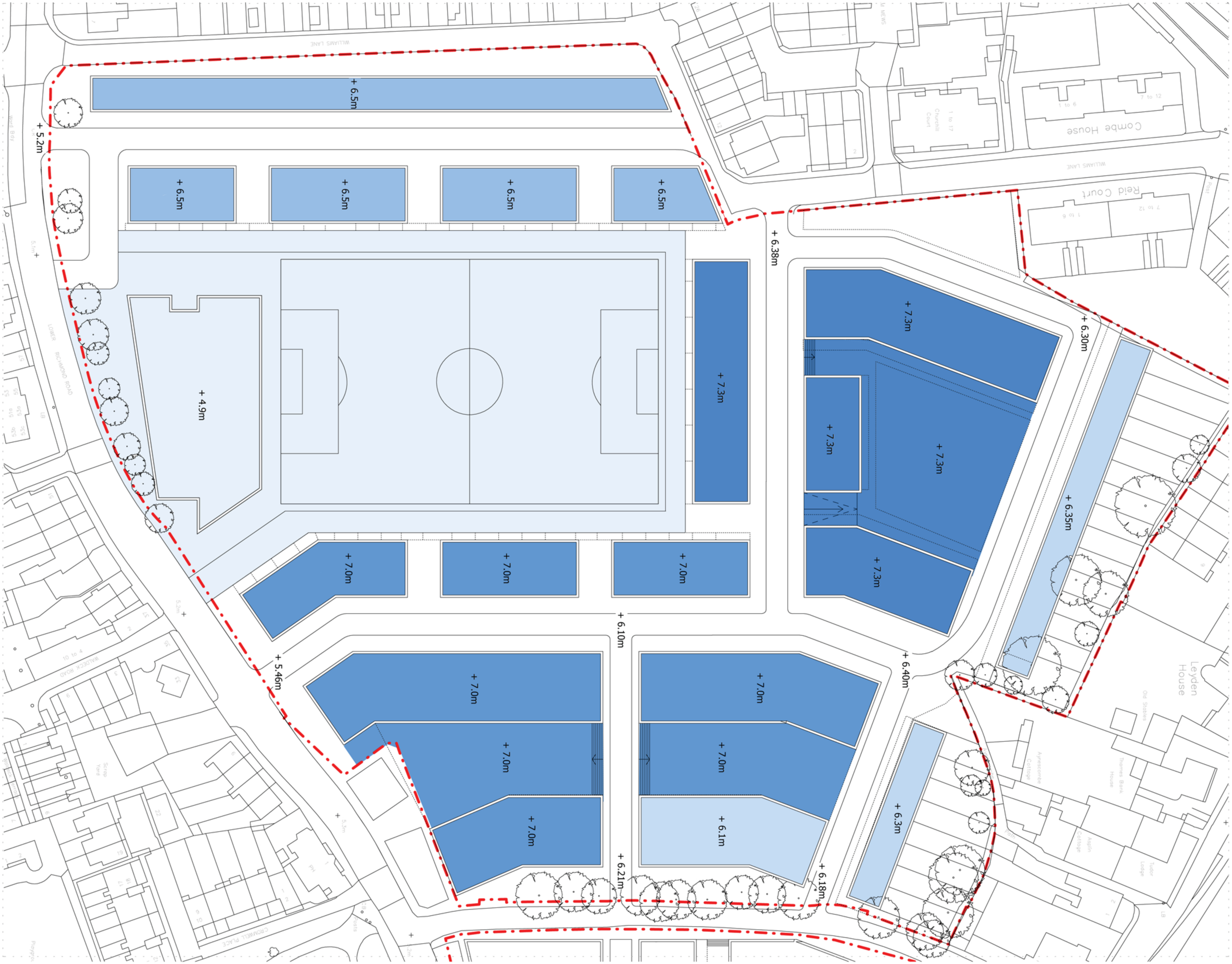
info@squireandpartners.com
www.squireandpartners.com

Project
Stag Brewery
Richmond

Drawing
Levels

Drawn	Date	Scale
JDa	08/16/16	1 : 500 @ A1 @ A3

Job Number	Drawing number	Revision
16019	G100_P_L	



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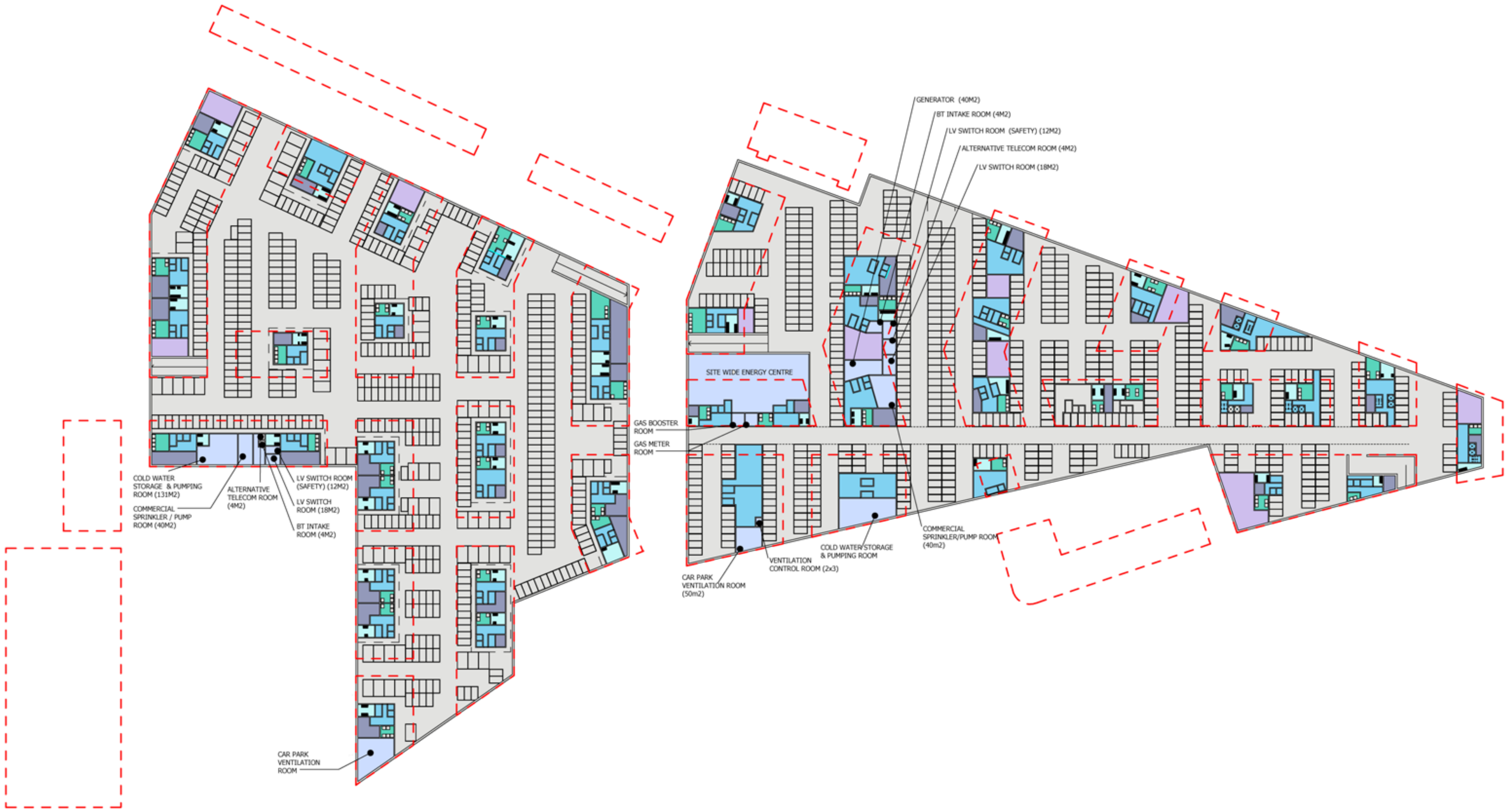
Project
Stag Brewery
Richmond

Drawing
Levels Phase 02

Drawn	Date	Scale
RKL	08/16/16	1 : 500 @ A1 @ A3

Job Number	Drawing number	Revision
16019	G100_P_L_02	



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- ■ Car Parking
- ■ Bike Store
- ■ Core
- ■ Refuse Store
- ■ Store
- ■ Allocated Plant Space
- ■ Un-allocated Space

Phase 1a

451 units

600 parking spaces

361 required to meet 80% of units

Phase 2

521 units

576 parking spaces

417 required to meet 80% of units

Revision description	Date	Check	Rev

SQUIRE & PARTNERS

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Project
Stag Brewery
Richmond

Drawing
Basement Plan

Drawn	Date	Scale
RKL	10/13/16	1 : 1000 @ A1 1 : 2000 @ A3

Job Number	Drawing number	Revision
16019	G100_P_B_001	

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- 🟪 1 Bed
- 🟪 2 Bed
- 🟪 3 Bed
- 🟪 4 Bed
- ⬜ House
- ⬜ Hotel
- 🟨 Residential Lobby
- 🟧 Retail/Restaurant
- 🟦 Office
- 🟩 Cinema/Gym
- 🟥 Community
- 🟦 School
- 🟥 Health Centre

Revision description	Date	Check	Rev

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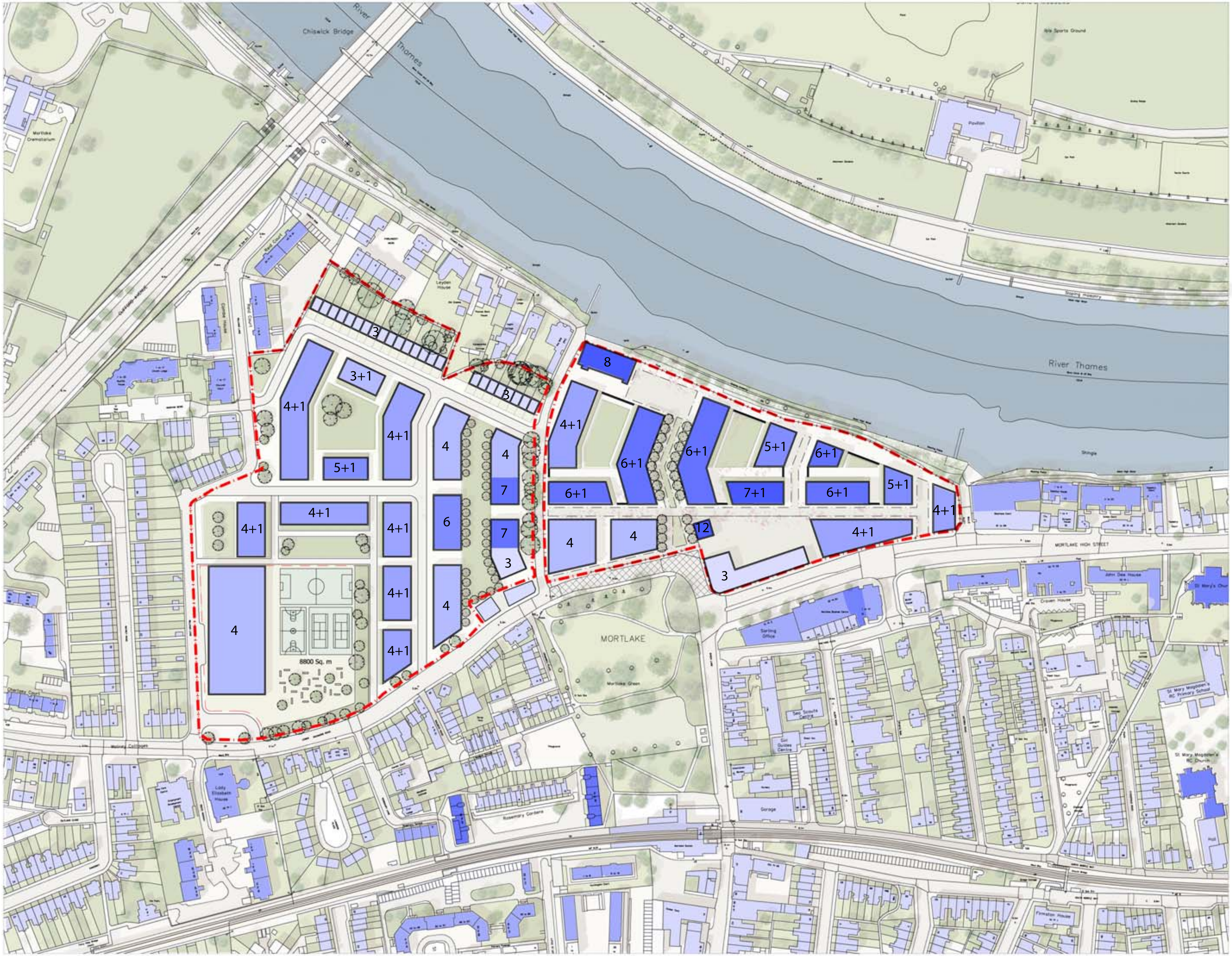
Project
Stag Brewery
Richmond

Drawing
Site plan
Ground

Drawn	Date	Scale
JB	06/08/16	1 : 1250 @ A1 1 : 2500 @ A3

Job Number	Drawing number	Revision
16019	G100_P_00_001	



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77 Wicklow Street London WC1X 9JY
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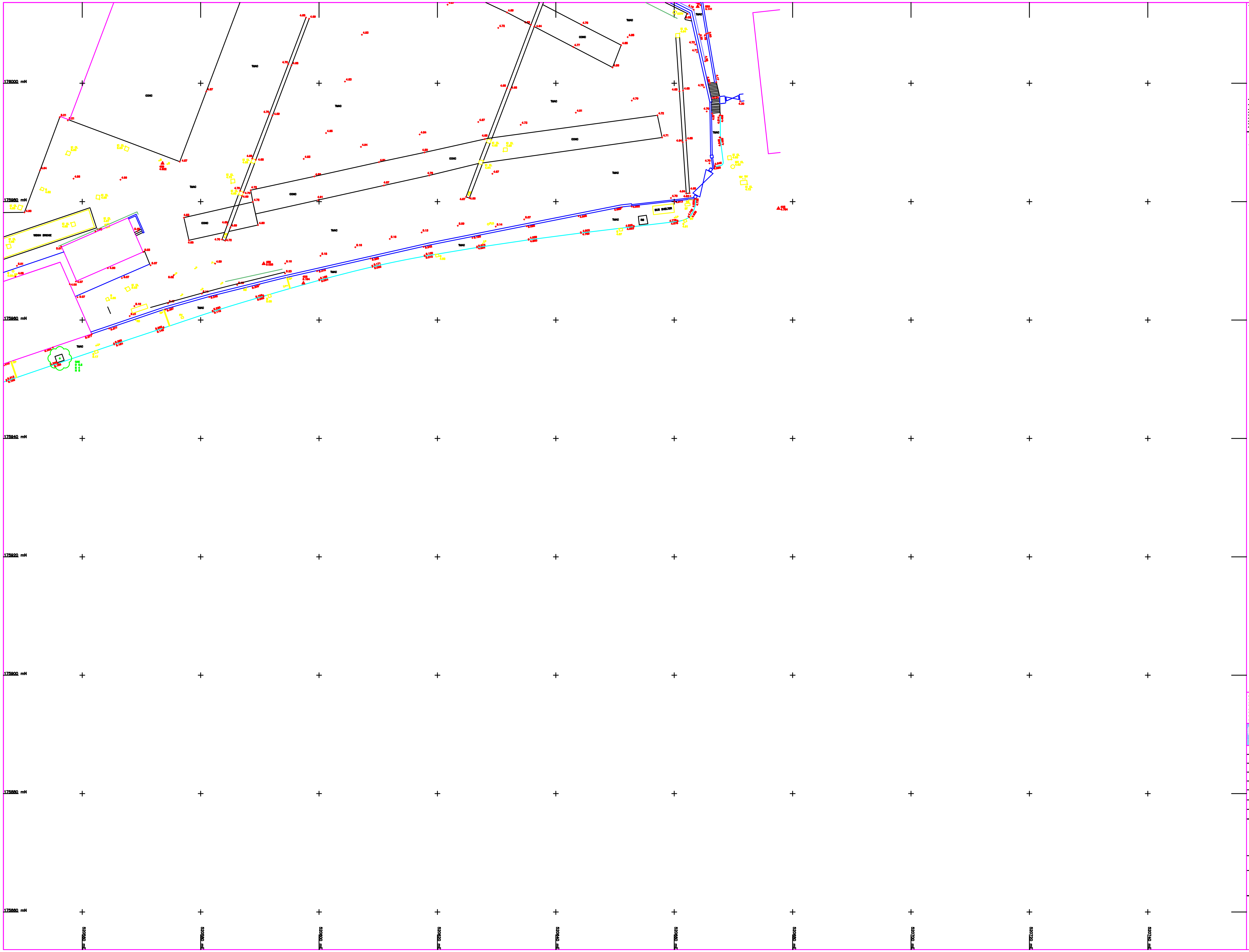
info@squireandpartners.com
www.squireandpartners.com

Project
The Stag Brewery
Lower Richmond Road
London, SW14 7ET

Drawing
Ground Floor Plan

Drawn	Date	Scale
RKL	04/10/16	1: 1250@A1 1: 2500@A3

Job number	Drawing number	Revision
16019	G100_P_00_002	-



ABBREVIATIONS

AB	Air Brick	DH	Duct Height	PRF	Post & Rail Fence
B	Bollard or Bottom Heights	DP	Down Pipe	PWF	Post & Wire Fence
BB	Belisha Beacon	ECB	Electricity Control Box	R	Render
BD	Back Drop	ELEC	Electricity	RAD	Radiator
BH	Borehole or Beam Height	EP	Electricity Pole	RE	Rodding Eye
BL	Bed Level	FB	Flower Bed	RG	Rough Ground
BP	Brick Paviors	FH	Fire Hydrant	RS	Road Sign
BRW	Brick Retaining Wall	FL	Floor Level	RSJ	Rolled Steel Joist
BS	Bus Stop	G	Gully	RWP	Rain Water Pipe
BT	British Telecom	GV	Gas Valve	S	Spread or Stone
BTCB	BT Control Box	H	Height in Metres	SC	Stop Cock
BW	Brick Wall	H	Window Head Height	SL	Soffit Level or Skylight
BWF	Barbed Wire Fence	HT	Height	SP	Arch Springer Height
C	Window Cill Height	IC	Inspection Cover	SPS	Stone Paving Slabs
CB	Control Box	IL	Invert Level	SW	Stone Wall
CBF	Close Boarded Fence	IRF	Iron Railing Fence	TCSU	Traffic Control
CBW	Concrete Block Wall	IWF	Interwoven Fence	T	Top Heights
CCB	Cable TV Control Box	KO	Kerb Outlet	TL	Traffic Light
CIF	Corrugated Iron Fence	L	Light	TP	Telephone Pole
CL	Cover Level	LP	Lamp Post	TPS	Tactile Paving Slabs
CLF	Chain Link Fence	MH	Manhole	UTL	Unable To Lift
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CSU	Ceiling Slopes Up	PF	Picket Fence	WMF	Wire Mesh Fence
CTV	Cable Television	PIT	Trial Pit	WPF	Wooden Panel Fence
CW	Concrete Wall	PL	Pavement Light	WV	Water Valve
D	Diameter or Doors	PM	Parking Meter	⌀	Diameter

Top
Banks
Bottom
Drop Kerbs
Overhead Detail
Change in Elevation
Fences
Overhead Cables
Change in Surface
Edge of Vegetation

3.28 Floor to Ceiling Height
3.28 F False Ceiling Height
Gate
▲ Survey Station
Foul Water Sewer
Surface Water Sewer
Combined Sewer

LEVEL NOTE.

ALL CO-ORDINATES RELATE TO THE ORDNANCE SURVEY GRID AND DATUM VIA GPS OBSERVATIONS.

COORDINATE SCHEDULE

STN.	EASTINGS	NORTHINGS	LEVEL
201	520279.961	175984.234	5.643
202	520321.005	175988.056	5.346
203	520380.387	175941.525	5.288
204	520389.464	175957.753	5.545
205	520389.086	176012.623	6.289
206	520379.889	176056.686	5.986
208	520351.138	176070.262	6.086
209	520303.963	176070.610	6.145
210	520287.205	176089.537	6.389
211	520259.686	176115.078	6.372
212	520218.796	176134.053	6.143
213	520186.411	176104.284	6.353
214	520175.823	176101.770	6.311
215	520177.734	176078.914	6.321
216	520188.051	176033.523	6.464
217	520218.131	176043.307	6.483
218	520238.014	176053.586	6.468
219	520282.168	176059.823	6.213
220	520275.355	176020.408	6.198
221	520273.767	175981.680	6.080
222	520286.324	175941.854	5.720
223	520277.219	175905.474	5.825
250	520320.707	175950.084	5.901
251	520384.330	175950.455	5.730
252	520365.507	175985.968	5.980
253	520380.776	176022.976	6.208
254	520358.348	176061.077	6.086
255	520315.588	176056.950	6.132
301	520227.716	176084.157	6.943
302	520258.796	176088.969	6.606
303	520272.082	176074.309	6.424
305	520323.991	175920.164	5.805
401	520396.521	176116.986	4.949
402	520443.418	176102.928	4.587
403	520627.255	176067.856	4.939
404	520609.247	176042.762	4.170
405	520677.612	175978.840	4.784
406	520697.370	175966.227	5.184
407	520504.049	175925.935	5.355
408	520468.901	175984.673	4.889
409	520418.876	175942.069	4.944
450	520413.404	175967.033	5.187
451	520434.051	176001.282	5.863
452	520411.684	176036.866	6.127
453	520436.636	176052.402	5.854
454	520433.282	176077.582	5.776
455	520456.772	176090.583	5.717
456	520531.508	176057.938	5.273
457	520594.329	176034.163	4.874
458	520590.656	175969.506	5.025
459	520573.565	175968.470	4.922
460	520533.524	175966.884	5.044
461	520506.851	175968.653	5.116
470	520475.765	175975.347	5.218
471	520400.730	175954.903	5.630
500	520192.288	176007.820	6.379
550	520663.972	176012.958	4.141

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THE SURVEY ASSOCIATION

Revisions	Date

Date	JULY 2015	Drawn	LJC
Scale A0@	1:200	Checked	CPM
Dwg. No.	915213-7	Job No.	915213

Client

GERALD EVE
LLP

Dwg. Title
LAND SURVEY

Project Title
STAG BREWERY,
MORTLAKE

apr services
land, building surveys & 3d laser scanning

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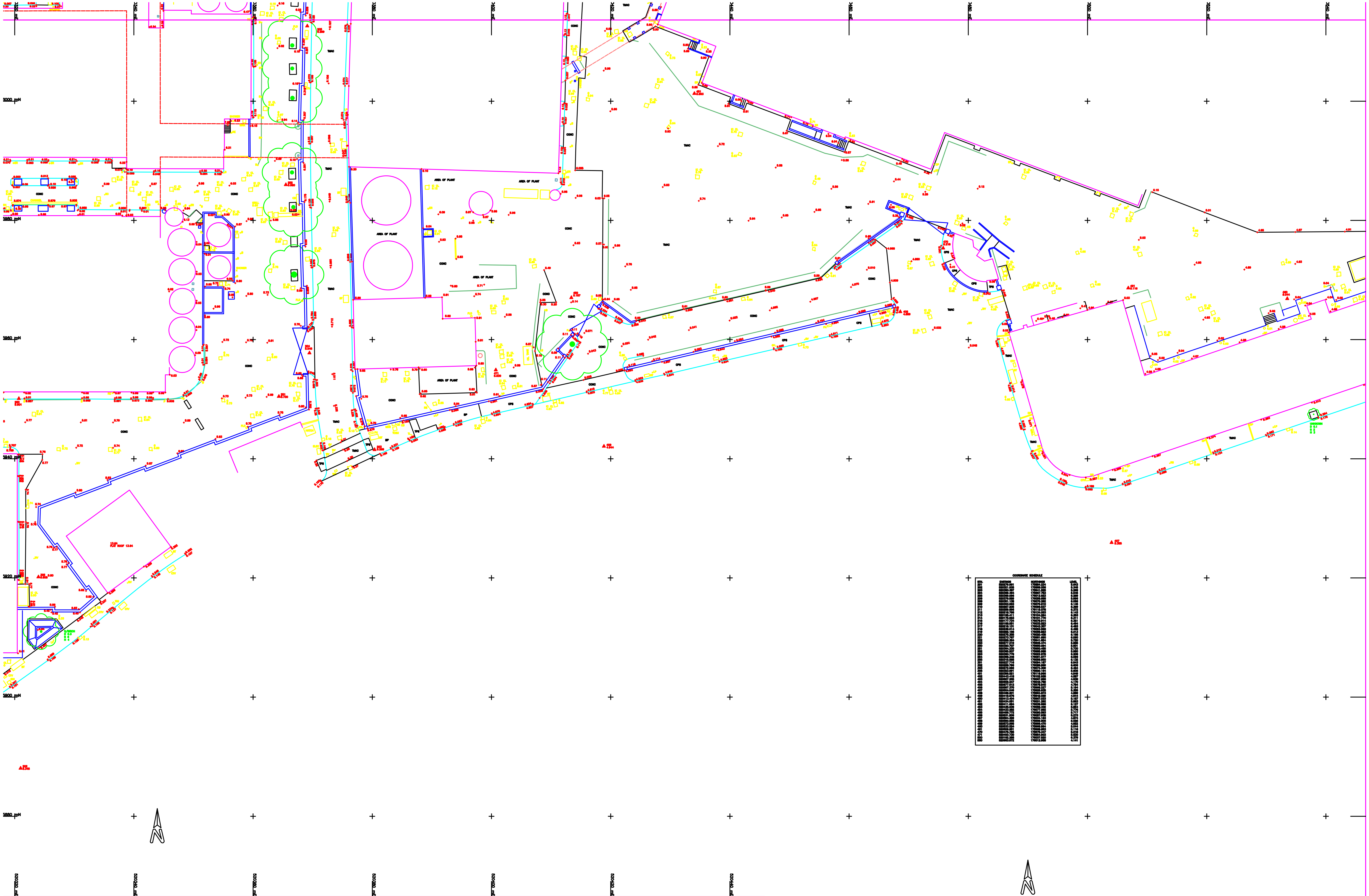
www.aprservices.net
Area Offices in:
Salisbury and Plymouth



Date	JULY 2015	Drawn	LJC
Scale A0@	1:200	Checked	CPM
Dwg. No.	915213–5	Job No.	915213

lient
GERALD EVE
LLP

wg. Title
LAND SURVEY

roject Title
STAG BREWERY,
MORTLAKE

Revisions | Date

LEVEL NOTE.
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ISO 9001 :2008

THE SURVEY
ASSOCIATION

ABBREVIATIONS

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land, building surveys & 3d laser scanning

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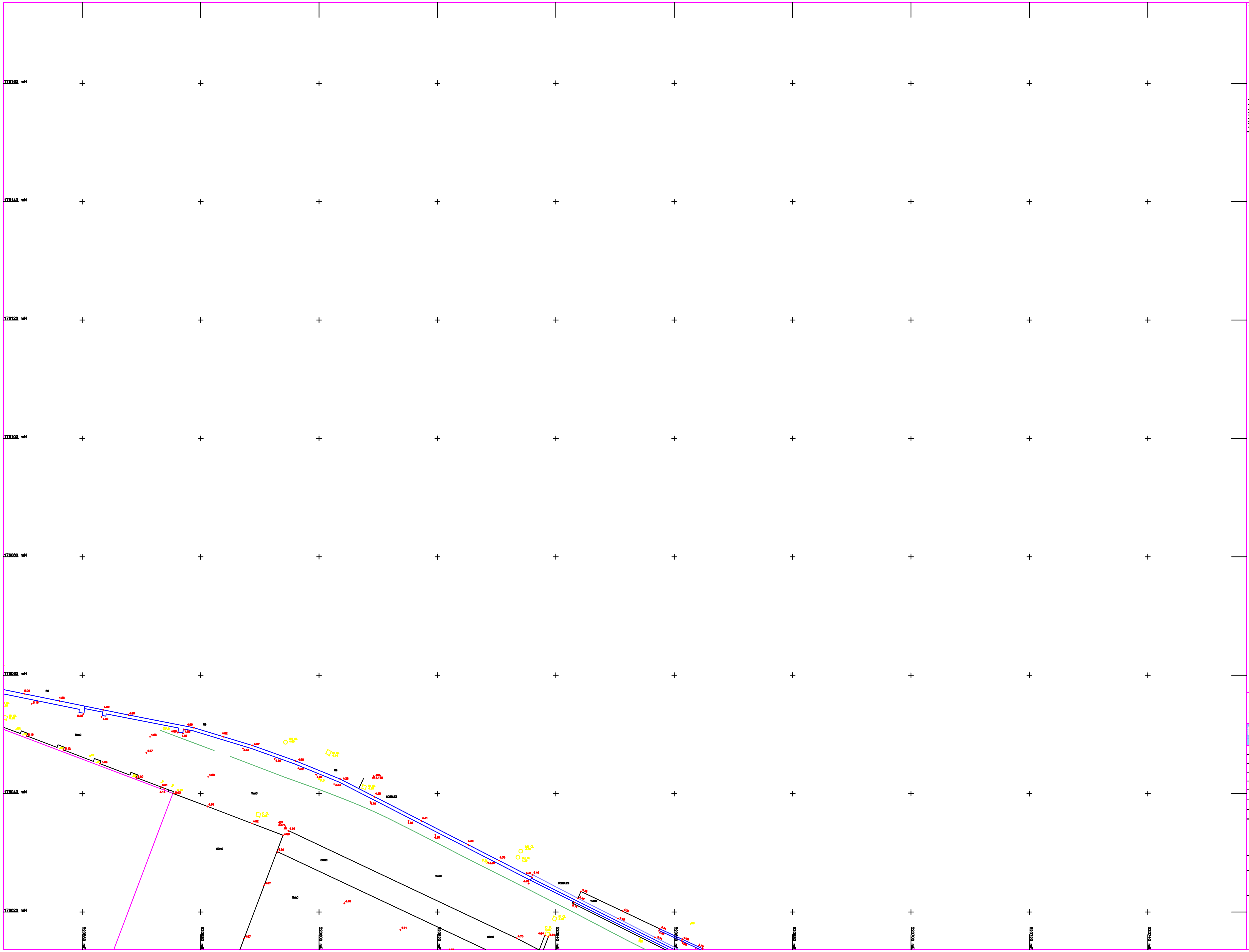

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Top
Banks
Bottom
Drop Kerbs
Overhead Detail
Change in Elevation
Fences
Overhead Cables
Change in Surface
Edge of Vegetation

3.20 Floor to Ceiling Height
3.20 F False Ceiling Height
Gate
▲ Survey Station
Foul Water Sewer
Surface Water Sewer
Combined Sewer

LEVEL NOTE.

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208	520351.138	176070.282	6.086
209	520303.963	176070.610	6.145
210	520287.205	176099.537	6.399
211	520259.696	176115.078	6.372
212	520218.798	176134.053	6.143
213	520195.411	176104.284	6.353
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THE SURVEY ASSOCIATION

Revisions	Date

Date	JULY 2015	Drawn	LJC
Scale A0@	1:200	Checked	CPM
Dwg. No.	915213-6	Job No.	915213

Client
GERALD EVE
LLP

Dwg. Title
LAND SURVEY

Project Title
STAG BREWERY,
MORTLAKE

apr services
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Client

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LLP

Dwg. Title
LAND SURVEY

Project Title
STAG BREWERY,
MORTLAKE

Date	JULY 2015	Drawn	LJC
Scale A0@	1:200	Checked	CPM
Dwg. No.	915213–4	Job No.	915213

Revisions | Date

LEVEL NOTE.

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ISO 9001 :2008

THE SURVEY ASSOCIATION

ABBREVIATIONS

AB	Air Brick	CR	Arch Crown Height	L	Light	SP	Arch Springer Height
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Top
Banks
Bottom
Drop Kerbs
Overhead Detail
Change in Elevation
Fences
Overhead Cables
Change in Surface
Edge of Vegetation

3.25 Floor to Ceiling Height
3.25 F False Ceiling Height
Gate
Survey Station
Foul Water Sewer
Surface Water Sewer
Combined Sewer

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COORDINATE SCHEDULE

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255	520315.588	176056.950	6.132
301	520227.716	176084.187	6.943
302	520258.796	176089.969	6.606
303	520272.092	176074.309	6.424
305	520323.991	175920.164	5.806
401	520396.521	176116.966	4.949
402	520443.418	176102.926	4.587
403	520527.255	176067.686	4.939
404	520609.247	176042.762	4.170
405	520677.612	175978.840	4.784
406	520587.370	175966.227	5.194
407	520504.049	175925.935	5.355
408	520469.601	175964.673	4.869
409	520418.876	175942.069	4.944
450	520413.404	175967.033	5.187
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452	520411.684	176036.886	6.127
453	520436.636	176052.402	5.854
454	520433.282	176077.582	5.776
455	520456.772	176080.583	5.717
456	520531.506	176057.938	5.273
457	520594.329	176034.163	4.874
458	520580.656	175969.506	5.025
459	520573.565	175986.470	4.922
460	520533.524	175996.864	5.044
461	520506.851	175968.653	5.116
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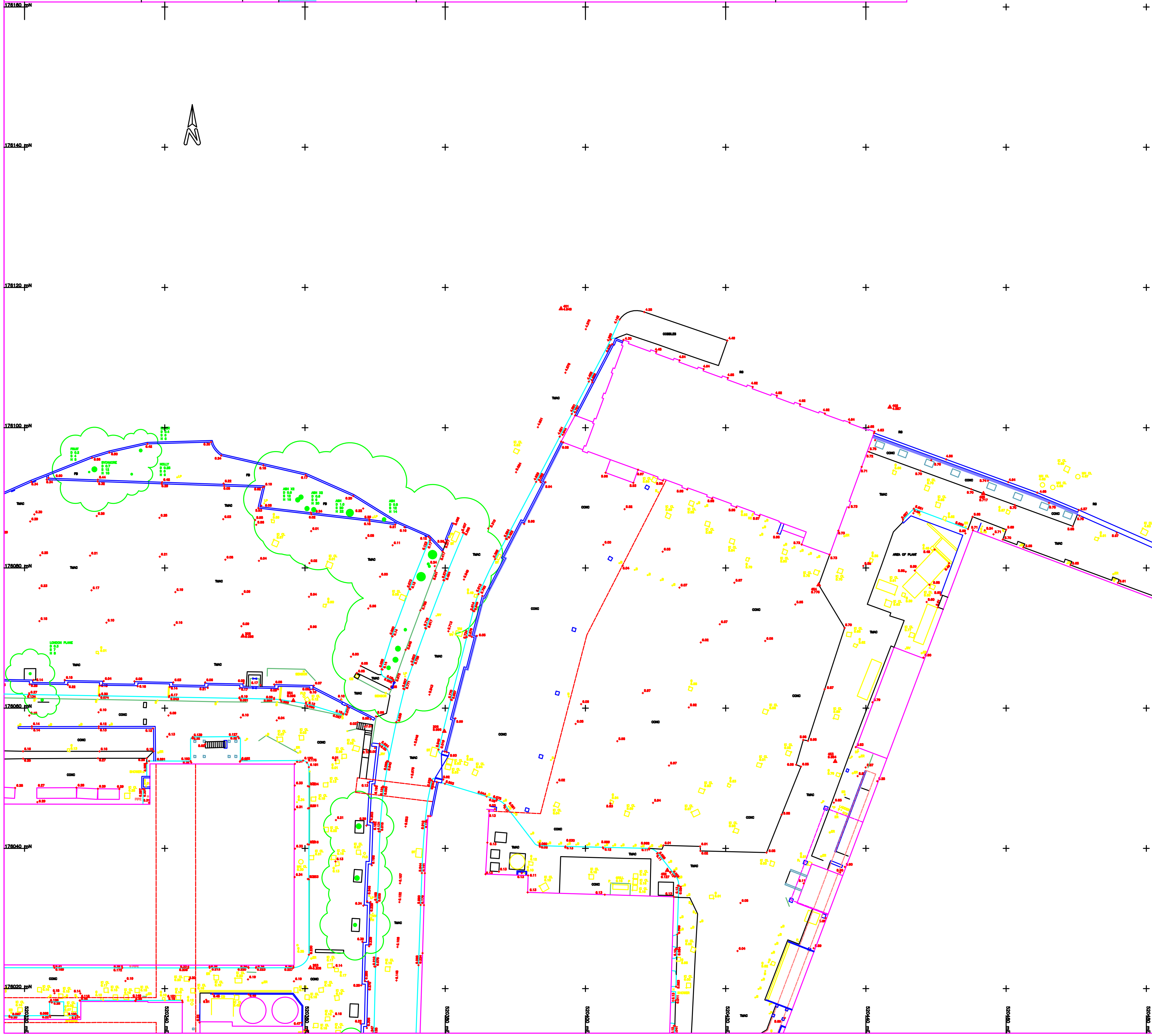
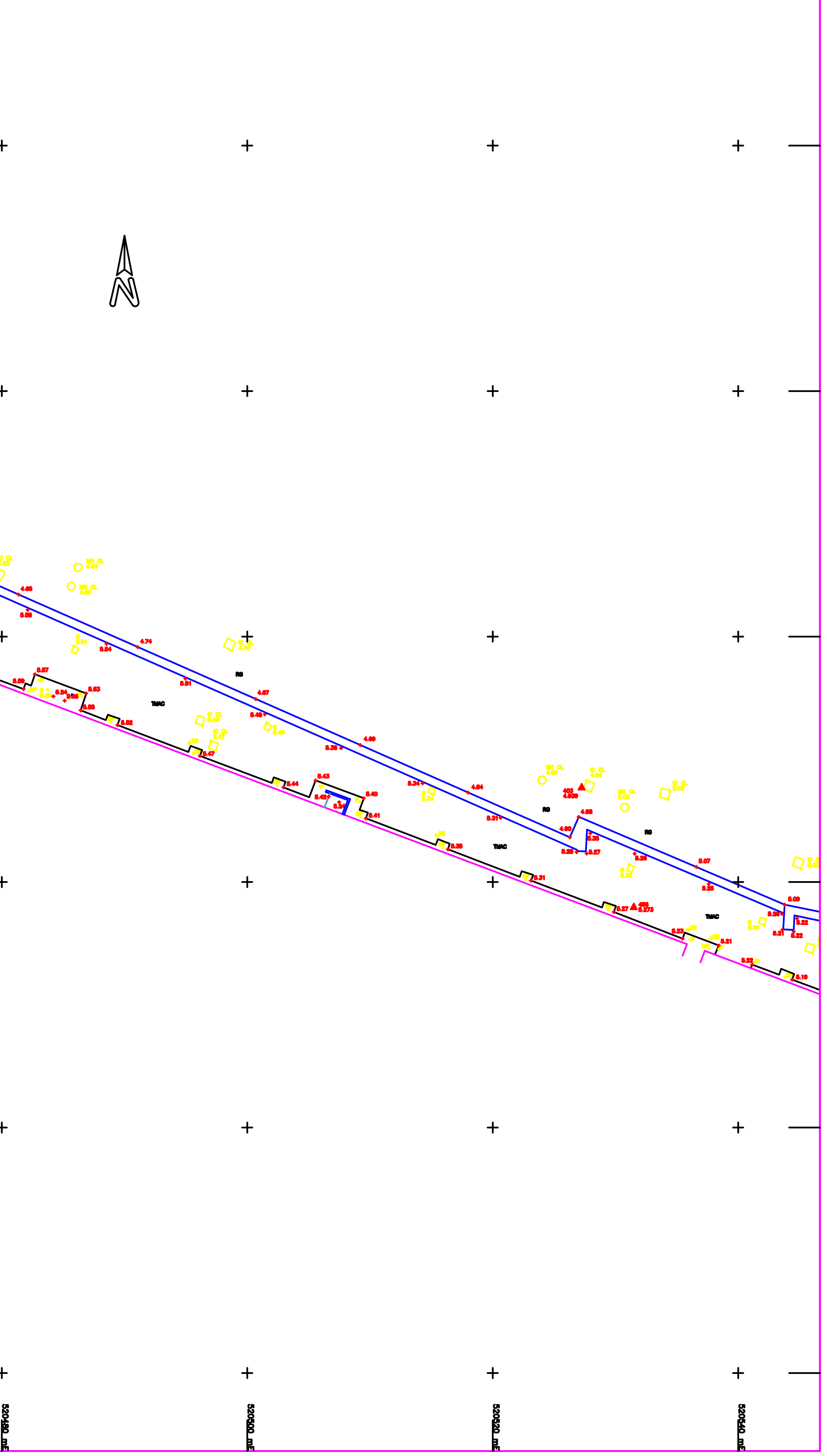




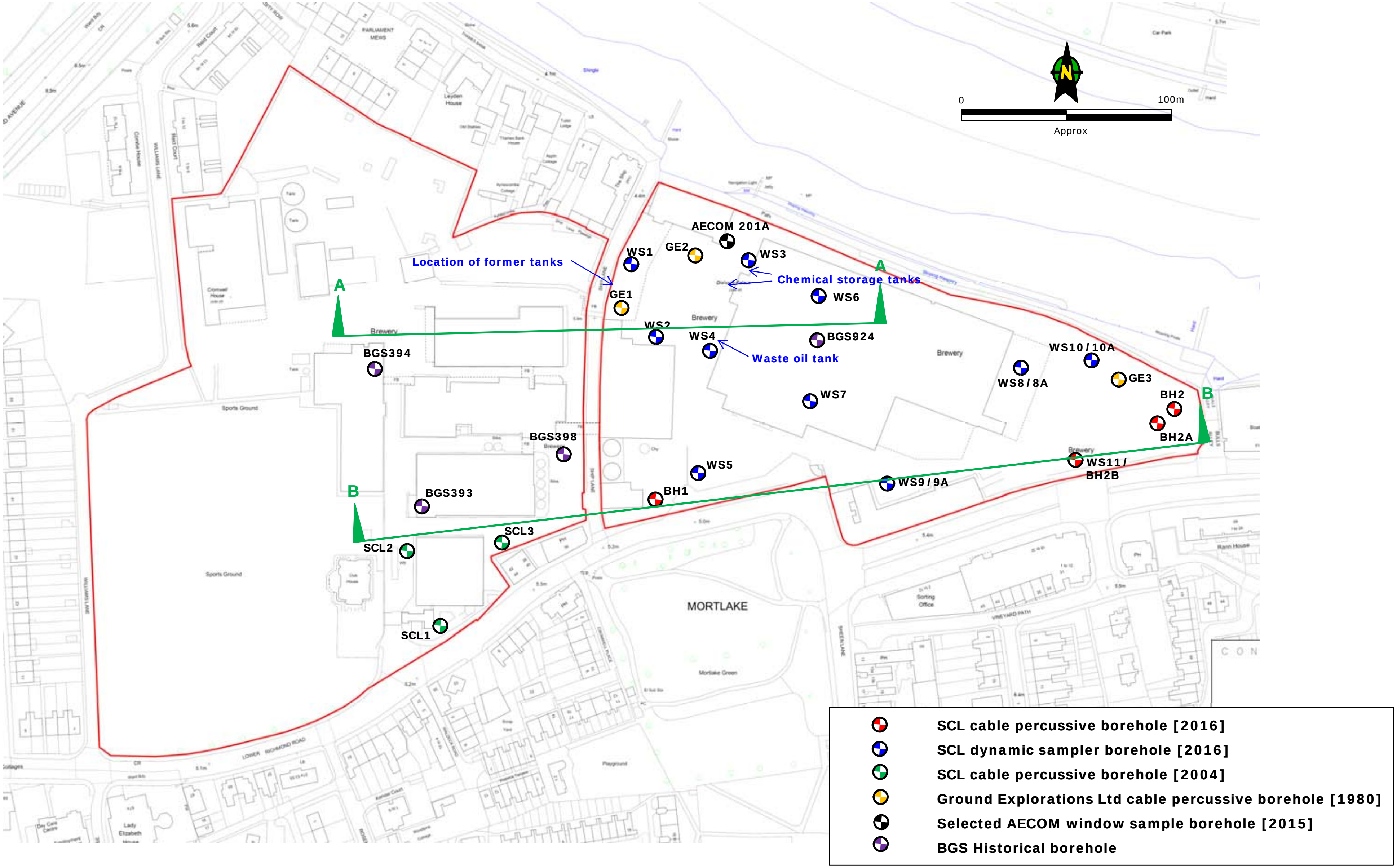
Site Location

Stag Brewery, Lower Richmond Road, Mortlake, London SW14 7ET

Report No:

10022/OT

Exploratory Hole Location Plan



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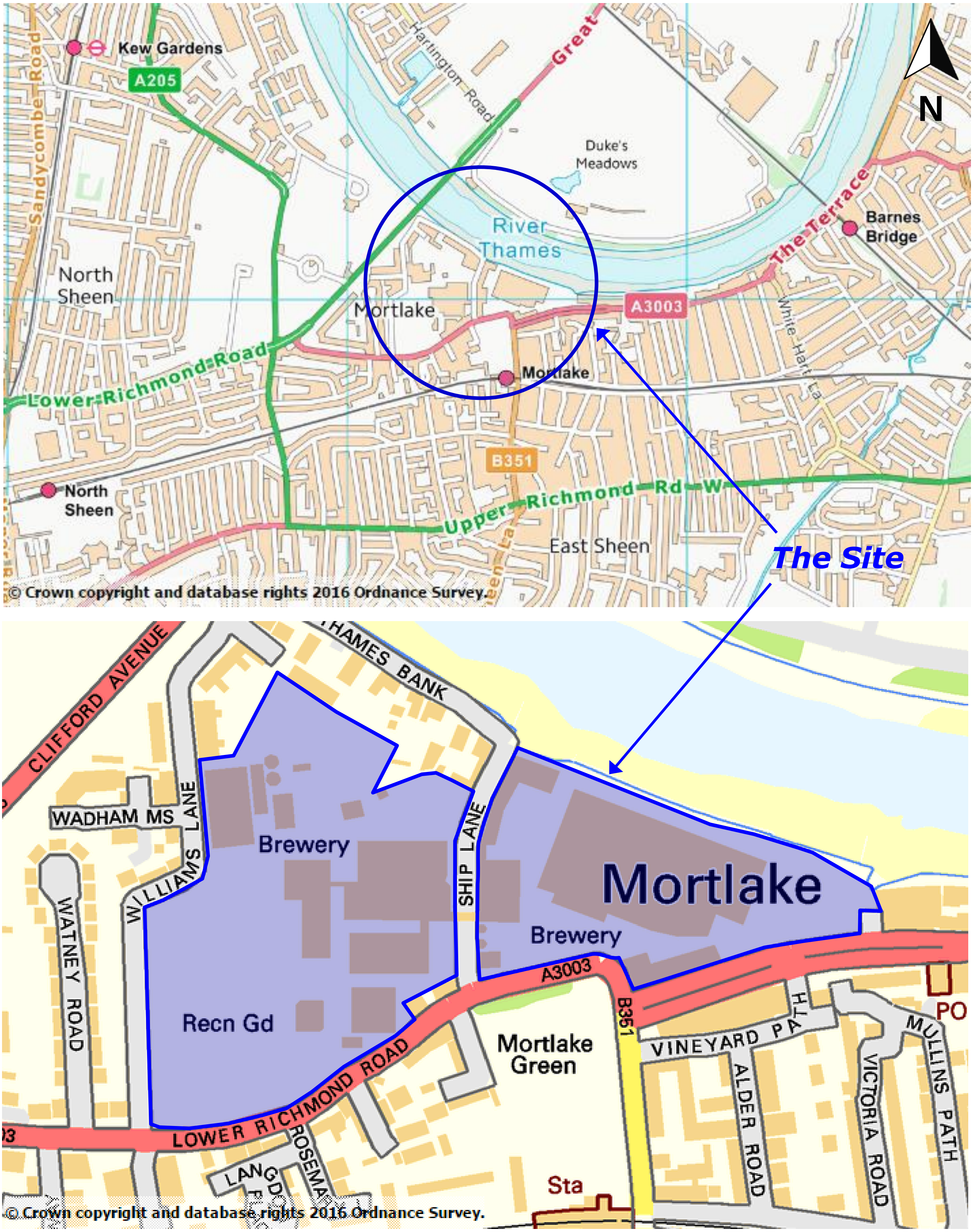
Site Location Plan



Approx NGR of site 520410E, 176030N

Soil Consultants

AECOM

STAG BREWERY MORTLAKE

Phase 2 Environmental Site Assessment Report

September 2015

47075502

Prepared for: AB InBev UK Limited

Prepared by: AECOM

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EXECUTIVE SUMMARY

AECOM Infrastructure & Environment UK Limited (AECOM) was appointed by AB In-bev UK Limited to undertake soil and groundwater quality monitoring at the Stag Brewery, Mortlake, London, SW14 7ET.

Site Characterisation Scope: The site investigation undertaken included the drilling of two boreholes with groundwater monitoring well installations to supplement the existing network of thirteen groundwater monitoring wells installed during previous phases of investigation. Twenty-eight soil bores were also drilled across the Site to provide a higher density of exploratory points, better understand the ground conditions and collect soil samples for laboratory chemical analysis.

Ground Conditions: The ground conditions at the site were assessed from twenty-eight soil bores were drilled using dynamic percussive drilling techniques to a maximum depth of 5.0m below ground level (bgl). The drilling work was undertaken between 20 and 28 August 2015. The deepening sequence of geology encountered in the site investigation includes Made Ground, superficial deposits of River Terrace Gravels and London Clay bedrock.

Made Ground is between 1.2m and 2.6m thick and comprised loose roadstone, red/yellow brick and concrete gravels, sand and gravels of flint and occasional reworked clay. Buried obstructions, thought to represent relict concrete slabs, were encountered at eleven locations.

The boundary between the River Terrace Deposits and London Clay was encountered at depths between 6.5 and 6.9m bgl. The London Clay was encountered to the maximum depth of drilling (7.0 bgl).

Groundwater: Groundwater elevation monitoring on 28 August 2015 indicated the groundwater to be between 3.57 and 5.14 mbgl. Groundwater flow direction is inferred to be west. The tidal effects of the River Thames were measured in three boreholes across the site by continuous monitoring over 2.5 days. The results indicated a maximum fluctuation of 60mm in a well 20m from the River Thames. However, no measurable effect on groundwater elevation was recorded on the two wells located 65m and 200m from the River Thames.

Soil Quality: No obvious visual or olfactory evidence of hydrocarbon contaminated soils was noted from the drilling arisings. Furthermore, only one result (2.1ppm) out of 113 screening tests performed was above the detection limit (<0.1ppm) of the Photo-Ionisation Detector (PID) equipment during soil headspace monitoring.

A total of 25 samples of Made Ground and 14 samples of natural ground were analysed at Alcontrol Laboratories for a suite of inorganic and organic chemical parameters. The results were compared to generic assessment criteria (GAC) suitable for three possible end uses: residential with gardens, residential without without gardens and commercial. The comparison indicated that the soil chemistry does not represent an unacceptable risk to human health regardless of the end use scenario.

Asbestos Containing Materials (ACMs): During the site investigation suspected ACMs were observed as fragmented tiles from one exploratory hole (BH4A between ground level and 1.3m bgl). A total of twenty-six samples of Made Ground were also visually screened at the analytical laboratory (by microscope) and asbestos fibres were observed in eight samples. Asbestos quantification analysis on the eight samples measured a concentration of ACMs <0.1% and below the hazardous waste criteria threshold.

Asbestos in soils is not considered an unacceptable risk for future residential and or commercial site use given the relatively low volumes measured in the samples. Future below ground works should consider the potential for asbestos to be present in Made Ground and appropriate standard construction controls adopted.

Groundwater Quality: During groundwater monitoring no obvious visual or olfactory indication of contamination was identified from the sampled groundwater. A total of fourteen groundwater samples were analysed at Alcontrol Laboratories for a suite of inorganic and organic chemical parameters. The results were compared to GAC protective of the adjacent River Thames (marine Environmental Quality Standards) and England Drinking Water Standards. The comparison indicated that the majority of chemical parameters were below the relevant GAC and, although some minor exceedances were measured at isolated locations, the groundwater quality is considered commensurate with that in an urban environment.

Conclusions: The site characterisation has not encountered soil and groundwater conditions that represent a constraint to redevelopment of the Site for mixed commercial and residential use above what would normally be expected from previously developed land.

The chemical analysis of the Site soils and groundwater has not identified concentrations that represent an environmental risk to human health or controlled waters. No environmental improvement works are considered necessary at the Site based on a mixed use development scheme.

It is likely that works to remove relict buried foundations and slabs will be required to allow construction of deep structures and foundations. Furthermore, it is unlikely that the physical composition of the existing shallow Made Ground soils will be of suitable composition for use in soft planted areas. Imported soils are therefore likely to be required for green open spaces and landscaping.

1. INTRODUCTION

1.1 General Introduction

This report presents the findings of a Phase 2 Environmental Site Assessment (ESA) at the Stag Brewery, Mortlake, London, SW14 7ET (the “Site”). A site location plan is presented in **Figure 1**.

The Stag Brewery has been used for the production and packaging of alcoholic beverages since the late 1850s. However, the Stag Brewery will cease manufacturing operations in 2015 and the site is to be divested for redevelopment.

1.2 Objectives

The objective of this report is to present an assessment of the environmental ground conditions at the Site. Specifically, the objectives are to:

1. Perform an environmental assessment of the site to evaluate the chemical status of the underlying soil and groundwater conditions. The results of this assessment will be used to refine the conceptual site model (CSM) and to evaluate the potential for plausible contaminant linkages and unacceptable environmental risk at the Site; and

2. Evaluate whether the soil and groundwater conditions represent a constraint to site redevelopment for mixed residential, retail and commercial uses and determine whether a contamination remediation and verification scheme will be required.

1.3 Scope of Work

A summary of the scope of work performed to meet the objectives of this study are set out below. The scope was designed following the review of existing Site information (**Section 2**) and based on the proposed site redevelopment for mixed uses. The rationale for each exploratory hole is provided in **Section 3.1**.

- The drilling of a borehole (BH201A) using rotary drilling techniques to 6.0m bgl adjacent to the Site boundary with the River Thames in the north of the Site.

- The drilling of two boreholes (BH203 & BH203A) using rotary drilling techniques in the east of the Site.

- The drilling of twenty-eight soil bores (BH2A to BH5A, BH7A to BH10A, BH201 to BH214A) using percussive drilling techniques to 5.0m bgl to provide shallow ground conditions assessment across the Site.

- Sampling and laboratory chemical analysis of soil samples from twenty-four boreholes for a suite of inorganic and organic chemical parameters.

- Installation of a groundwater monitoring well in the superficial gravels at BH201A and in the Made Ground at BH203 & BH203A.

- A return visit to monitor and sample groundwater from BH201A and the existing network of thirteen monitoring wells across the site.

- Laboratory chemical analysis of thirteen groundwater samples and one duplicate for a suite of inorganic and organic chemical parameters.

- Evaluation of the chemical soil and groundwater results by performing a generic quantitative risk assessment (GQRA) considering risks to human health and controlled waters.

The scope of work listed above was completed between 20 August and 21 September 2015.

2. PROJECT BACKGROUND

2.1 Site Location & Description

The site is located in Mortlake, London, SW14 7ET. The Site is centered at National Grid Reference 520360, 175990. A site location plan is presented in **Figure 1.**

The site covers a total area of 84,697m², which is divided between an East Site and West Site, separated by Ship Lane:

- East Site covers an area of 54,057m^2 and includes seven buildings, a trailer park with a weighbridge, a warehouse, an energy centre and storage blocks.
- West Site covers an area of 30,640m². The West Site comprises production buildings, workshop and stores, bulk gas storage, fabrication shop, ancillary plant, the former effluent plant, car park and Watney's sports ground.

The general site layout is shown on **Figure 2**.

2.2 Surrounding Land Use

Surrounding land uses are indicated on **Figure 2** and include the following:

- North: The River Thames is adjacent to the northern boundary of the East Site. Residential properties and a public house are located immediately north of the West Site between the site boundary and the River Thames.
- South: The A3003 (Lower Richmond Road) is adjacent to the southern Site boundary. Beyond this are residential and commercial properties, Mortlake Green and Mortlake Station. The Richmond Line of the London and South Western Railway runs east-west and is located approximately 100m south of the site at its closest point;
- East: The land use to the east mostly comprises residential properties with some commercial properties; and
- West: Residential properties are located adjacent to the western site boundary, with Clifford Avenue running south-west–north-east 115m from the site. Beyond this is Mortlake Crematorium and cemetery.

2.3 Site Topography

The site topography has been evaluated based on the topographic survey completed across the proposed development site in 2015[1].

The topographical survey has indicated the general current site elevations to be generally between 5.72m and 6.55m above Ordnance Datum (mAOD).

2.4 Previous Site Evaluation

AECOM completed a Phase 1 ESA (ESA) in July 2015. In preparation of the Phase 1 ESA, AECOM were provided with seven historical environmental assessment reports (see **Section**

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[1] Data provided by AB Inbev following survey of a specialist contractor (August 2015). Topographical Survey at Stag Brewery Mortlake.

8; **References**) completed between 1995 and 2012. Pertinent information extracted from the Phase 1 ESA and the historical reports is detailed below.

- The brewery has been present in East Site since at least 1868, with the remainder of the East Site occupied by residential properties. The brewery expanded or was redeveloped by 1896, replacing the residential houses. The brewery buildings are first shown in West Site in the mid- 1960s, at which time the whole of the East Site is developed with brewery buildings. Both sites are in their current 2015 layout by 2006.
- The Stag Brewery Site is underlain by Made Ground followed by Superficial Deposits (River Terrace Gravels) and by London Clay.
- Groundwater rests within the Superficial Deposits at depths between approximately 2.0m to 5.5m bgl. Groundwater is not abstracted for use within 230m of the Site and is not within a groundwater source protection zone.
- The River Thames, the Superficial Deposits and the residents located immediately south and west of the Site represent sensitive receptors.
- A network of thirteen boreholes with groundwater monitoring wells was installed across the Brewery between 1995 and 2003. Groundwater from these wells has been monitored and samples collected for laboratory analytical testing on four occasions between 2003 and 2012. Results of this monitoring have not identified unacceptable or widespread groundwater contamination at the Stag Brewery.
- Soil sampling from seven soil bores drilled in 2003 did not indicate elevated concentrations of metal and total petroleum hydrocarbon concentrations in soils.

Overall, the lack of widespread measurable chemical contamination in soil and groundwater beneath the Site suggested that there is not an unacceptable risk of adverse impact to human health, groundwater or the River Thames. However, localized areas of potential impact to chemical soil and groundwater quality could not be discounted. This Phase 2 ESA was therefore commissioned to further investigate the ground conditions beneath the Site with a higher density of exploratory boreholes and additional soil and groundwater chemical testing to update the site conceptual site model (CSM).

3. METHODOLOGY & APPROACH

3.1 Site Investigation Rationale

The evaluation of the existing environmental assessment data and CSM presented in the Phase 1 ESA has indicated that a higher density of exploratory holes is required on the Site to evaluate the current soil and groundwater conditions. In particular, the previous site assessment data was principally from the West Site, with limited information for the East Site. The rationale was therefore to determine:

- The nature and thickness of the Made Ground and the shallow geology across the East and West Site area; and
- Inspect and sample shallow soil and groundwater from across the site for laboratory chemical analysis.

An exploratory hole location plan is included as **Figure 3**. The rationale for the positioning of each exploratory hole is given in **Table 3.1**.

Table 3.1: Site Investigation Rationale

Investigation Location ID	Location and Rationale
BH2 (existing well) BH2A (proposed soil bore)	BH2A to be drilled adjacent to above ground heavy fuel oil storage tanks on the western edge of the East Site. Groundwater monitoring well BH2 is located approximately 1.0m from BH2A.
BH3 (existing well) BH3A (proposed soil bore)	BH3A to be drilled down topographic gradient of a diesel storage tank in the north of the West Site. Groundwater monitoring well BH3 is located approximately 1.0m from BH3A.
BH4 (existing well) BH4A (proposed soil bore)	BH4A and BH5A to be drilled in the contractors' storage area in the north of West Site. Groundwater monitoring wells BH4 and BH5 are located within approximately 1.0m from BH4A and BH5A respectively.
BH5 (existing well) BH5A (proposed soil bore)	
BH7 (existing well) BH7A (proposed soil bore)	BH7A to be drilled south of workshop building in west of the West Site in the area of tanker clean in place (CIP). Groundwater monitoring well BH7 is located approximately 1.0m from BH7A.
BH8 (existing well) BH8A (proposed soil bore)	BH8A to be drilled within the empty waste container and waste storage area in the west of the West Site. Groundwater monitoring well BH8A is located approximately 1.0m from BH8A.
BH9 (existing well) BH9A (proposed soil bore)	BH9A to be drilled adjacent to area of suspected trade drain leakage between the Brew House and Fermentation Block (eastern half of the West Site). Groundwater monitoring well BH9 is located approximately 1.0m from BH8A.
BH109 (existing well) BH109A (proposed soil bore)	BH9A to be drilled in a storage area for acids and alkalis to the north of the beer conditioning building (north-east of the West Site). Groundwater monitoring well BH109 is located approximately 1.0m from BH109A.

Table 3.1: Site Investigation Rationale

Investigation Location ID	Location and Rationale
BH201 & BH201A	BH201 & BH201A are adjacent to a former heavy fuel storage vault in the B Block building and also down-gradient of the Packaging Building (north-west corner of the East Site). This location is at the Site northern boundary and 20m from the River Thames. BH201 and BH201A represent two attempts to penetrate or avoid the obstruction. BH201A was able to reach the intended depth (6m bgl) and a well installed to monitor the groundwater quality.
BH202 & BH202A	To be drilled in the north of the East Site to provide general Site coverage. The presence of an obstruction at 1.8m bgl meant that the intended drilling depth and installation of a groundwater monitoring well in the superficial gravels could not be completed. BH202 and BH202A represent two attempts to penetrate or avoid the obstruction.
BH203 & BH203A	BH203 & BH203A were drilled in the east of East Site where vehicle maintenance and oil storage areas were historically located and to provide general Site coverage. The presence of an obstruction at 3.0m meant that the intended drilling depth and installation of a groundwater monitoring well in the superficial gravels could not be completed. BH203 and BH203A represent two attempts to penetrate or avoid the obstruction. Groundwater monitoring well were installed in both boreholes within the Made Ground.
BH204	To be drilled in the south of the East Site to provide general Site coverage south of the Packaging Building.
BH205	To be drilled in the east of the East Site to provide general Site coverage east of the Packaging Building.
BH206	To be drilled in the south-east of the East Site to provide general Site coverage south-east of the Packaging Building.
BH207	To be drilled on the south-western corner of the Packaging Building between the Power House chemical store (Area 13) and Packaging Waste Oil storage area (Area 14).
BH208 / BH208A	To be drilled to investigate the soil conditions within the Trailer Park immediately north of the Energy Block. BH208 and BH208A represent two attempts to penetrate or avoid an obstruction.
BH209	To be drilled in the south of the East Site to provide general Site coverage.
BH210	Targeted to investigate the soil conditions south of the operational area.
BH211	Targeted to investigate the soil conditions in the vicinity of the KG Slurry Tank and the remaining operational area.
BH212	To be drilled to investigate an oil storage area adjacent to the engineering workshop (north-west of West Site). Groundwater monitoring well BH112 is located approximately 2m from BH212.
BH213	To be drilled within contractors' storage area in the north of West Site.

Table 3.1: Site Investigation Rationale

Investigation Location ID	Location and Rationale
BH214 / BH214A	To be drilled in the north of the East Site to provide general Site coverage. The presence of an obstruction at 2.6m meant that the intended drilling depth and installation of a groundwater monitoring well in the superficial gravels could not be completed. BH214 and BH204A represent two attempts to penetrate or avoid the obstruction.

The exploratory investigation work was undertaken between 20 and 28 August 2015. The following methodology and approach was undertaken to meet the objectives of this study.

3.2 Health and Safety Planning

The site works were conducted in accordance with AECOM pre-determined health, safety and environment arrangements, standard operating procedures and method statements. A detailed site inspection was undertaken on 20 August 2015 by AECOM to select sampling locations and determine the most appropriate sequence of work.

A detailed survey of the buried services in the vicinity of the proposed exploratory locations was undertaken by a specialist contractor employed by Site Vision Surveys Limited the 20th of August 2015. This was undertaken with reference to Site supplied buried services and utility plans.

The 28 exploratory positions were also pre-excavated by hand to a minimum depth of 1.2m bgl as a secondary precaution and as a pre-drill check. No buried services were exposed in the hand excavated pits.

3.3 Hand Excavated Pits

The pre-drill pits were excavated at the 28 drilling locations using concrete coring or hand-held breaker to penetrate site hardstanding and then hand tools to a depth of 1.2m. These pits allowed environmental soil inspection, sampling and logging in the upper 1.2m of soil and also as a precautionary pre-drill check of the shallow subsurface for potential buried services.

The depths of twenty-three excavated positions were extended by drilling (see **Sections 3.5** & **3.6**). Hand pits BH201, BH202, BH208, BH7B failed to penetrate a shallow concrete slab obstructions at 0.8m bgl and was therefore unable to progress as a soil bore.

3.4 Soil Bores

Twenty-three soil bores (BH2A, BH3A, BH4A, BH5A, BH7A, BH8A, BH9A, BH109A, BH202A, BH203, BH203A, BH204, BH205, BH206, BH207, BH208A, BH209, BH210, BH211, BH212, BH213, BH214 and BH214A) were drilled using dynamic percussive drilling techniques to a maximum depth of 5.0m bgl. The boreholes were drilled at 100mm diameter and soil arisings were recovered in plastic lined cores for detailed inspection, logging and sampling.

On completion of the inspection and soil sampling the exploratory positions that had penetrated the full thickness of Made Ground were infilled with bentonite clay pellets and hydrated to seal the boreholes. Where the boreholes failed to penetrate the Made Ground, the boreholes were infilled with the excavated spoil in the general order of excavation. The site surfacing was reinstated to a similar condition to previous. The borehole logs are included in **Appendix B**.

3.5 Borehole Drilling & Well Construction

Borehole BH201A was drilled to a depth of 6.0m bgl using rotary techniques and a 350mm diameter auger. The monitoring well was constructed with 50mm diameter High Density Polyethylene (HDPE) monitoring standpipes. The well installation in BH201A has a screened section between 2.0m and 5.5m bgl designed to intersected the groundwater table in the Superficial gravels (at approximately 3.7m bgl) to allow for possible groundwater fluctuation across the well screen due to the tidal influence from the adjacent River Thames. The response zone annulus was filled with washed 4mm gravel and the annulus above the response zone sealed with bentonite pellets hydrated with site tap water. The well was completed with lockable headwork concreted into place flush with the surrounding ground surface. The borehole logs, including monitoring well construction details, is included in **Appendix B**.

BH203 was initially targeted to investigate soil and groundwater, however due to the presence of underground obstructions it was abandoned and location BH203A was selected. Another obstruction in BH203A was found. A groundwater monitoring well was installed in both boreholes within the Made Ground.

It was considered that Made Ground collapsed when the drilling augers were pulled from the excavations just before the insertion of the well pipe. Following the wells development, it was decided to exclude these wells from the monitoring stage as the excessive amount of sand and silt accumulated in both standpipes within a short period may influence the quality and representativeness of the groundwater samples.

3.6 Soil Logging & Sampling

The soil cores and excavated materials were logged by an experienced field geologist as drilling progressed. The logging was undertaken in general accordance with BS EN ISO14688, BS EN ISO14689 and BS5930:1999.

During logging the field geologist inspected the excavated for possible visual and olfactory indications of hydrocarbon contamination or discoloured/ stained soils. These observations (if any) are also presented on the exploratory borehole logs.

A portable monitoring instrument (Photo Ionisation Detector (PID)) was used to measure soil headspace for ionisable hydrocarbons. Soil samples were taken at regular intervals through the unsaturated soil profile, placed in sealed plastic bags, manipulated by hand and left for a short time (typically 5 minutes). The headspace above the soil in the bags was then tested for the presence of ionisable hydrocarbons using the PID (fitted with a 10.6 eV lamp and calibrated to isobutylene).

Soil samples were selected for laboratory testing at the discretion of the AECOM field engineer and based on the PID readings and site observations. Soil samples were transferred directly into laboratory-supplied containers and labelled for shipment, under chain of custody procedures. Soils containers were stored in cooler boxes containing ice packs to maintain low temperatures during storage and shipment to the laboratory.

3.7 Groundwater Monitoring

On 20 August 2015 AECOM completed an inspection of the existing monitoring well network to confirm the locations of the thirteen existing groundwater monitoring wells (BH2, BH3, BH4, BH5, BH7, BH8, BH9, BH10, BH104B, BH109, BH110, BH111 and BH112). Each of these thirteen wells was located and the headworks and standpipes intact. The inspection included the measurement of the groundwater level in the wells and comparison with the as-built borehole logs to determine the thickness of sediment in the well bases. This indicated significant sediment accumulations, up to 2.13m, in the wells that required de-silting followed by well development to determine whether the wells represented robust groundwater sampling locations.

On 24 and 25 August 2015 AECOM undertook the de-silting of all existing groundwater monitoring wells. Air lift surging technique was used to de-silt all monitoring wells. The monitoring wells were alternatively surged and pumped with air using a petrol operated compressor in combination with a peristaltic pump. In air surging, air was injected into the wells to lift the water to the surface. As the air bubbles rose, they created a surging effect that carried water and dislodged the sediments out of the well. As the groundwater reached the top of the casing, the air supply was shut off, allowing the aerated water column to fall. A peristaltic pump was used to pump each well periodically to remove the silt and sand deposits from the screen and bottom of the boreholes.

The desilting works were successful and further details are included in **Appendix A**. Following the desilting and purging, standing water levels ranging between 4.15m and 5.25m bgl were measured in the monitoring wells, with the exception of well BH112 which remained dry due to stiff mass of silt and sand deposits on the bottom of the well that could not be removed.

With the exception of BH9 where fast drawdown and slow recharge of groundwater was noted, all monitoring wells displayed slow drawdown and fast recharge. This, along with the amount of water available, suggested that the monitoring network was adequate to collect a good quality sample set from the saturated zone of the superficial deposits.

The groundwater was left to equilibrate for a period of three days following the successful de-silting and development the twelve existing wells and development of the new well (BH201A). AECOM then returned to the Site to install water level loggers in three monitoring wells (BH201A, BH4 and BH10). The loggers were left in the wells for 2.5 days (between 28 August and 31 August 2015) to measure potential tidal influences on groundwater elevation.

Level loggers were installed at the following locations:

- BH4: At the northern boundary of the West Site and approximately 65m from the River Thames;
- BH10: In the central portion of the West Site and approximately 200m from the River Thames); and
- BH201A: On the northern boundary of the East Site and approximately 20m from the River Thames.

These locations were selected to evaluate the tidal influence at variable distance from the River Thames and to provide good spatial representation across the Site. A barologger was installed in monitoring well BH2 for the entire period of tidal monitoring to enable data corrections to account for variations in barometric pressure. Graphs showing groundwater elevation versus time for each of the tidal monitoring locations are presented in the **Graphs Section**.

3.8 Groundwater Sampling

Groundwater monitoring and sampling was completed by an AECOM site engineer on 1st and 2nd September 2015 and six days following the well de-silting and development. Prior to purging and sampling, the groundwater levels and volumes of groundwater within the monitoring wells were established using an air/oil/water interface probe. Monitoring wells were purged of at least three well volumes or until groundwater parameters (pH, temperature, electrical conductivity, reduction-oxidation (redox) potential and dissolved oxygen content) had stabilised across at least three consecutive readings taken at intervals during purging. Purging and sampling was carried out using a dedicated low-flow sampling peristaltic pump and flow cell in order to provide accurate parameter measurements and to minimise groundwater agitation.

3.9 Environmental Laboratory Analysis

The soil and groundwater samples were shipped to ALcontrol Laboratories for chemical analysis. The analytical schedule of tests is included as **Table 3.9a** and **3.9b** and with details for each sample included in **Tables 1** and **2** appended to this report. The results of the laboratory analysis included on appended **Tables 3** and **4** attached with this report.

Table 3.9: Laboratory Soil Chemical Analysis

Analysis Suite	Made Ground	Superficial Deposits
Metals in solid samples	23	14
Hexavalent Chromium	23	14
PAH	23	14
TPH CWG	23	14
VOC MS	23	14
EPH CWG (Aliphatic)	23	14
EPH CWG (Aromatic)	23	14
GRO	23	14
pH	23	14
Total Organic Carbon	23	14
Total Sulphate	23	14
Easily Liberated Sulphide	22	14
Ammoniacal Nitrogen	22	14
Asbestos ID	21	3
Asbestos Quantification	10	1

Table 3.9: Laboratory Soil Chemical Analysis

Analysis Suite	Made Ground	Superficial Deposits
PCB 7 & WHO 12 (S) by GC MS	1	0

Metals suite (Arsenic, Boron, Cadmium, Chromium (III+VI), Copper, Lead, Mercury, Nickel, Selenium, Zinc).
EPH – Extractable Petroleum Hydrocarbons including aliphatic & aromatic carbon banded speciation.
VOC - Volatile Organic Compounds
PAH - Polycyclic Aromatic Hydrocarbons (PAHs).
PCB - Polychlorinated Biphenyls.
Asbestos (visual identification and quantification)

Table 3.9b: Laboratory Groundwater Chemical Analysis

Analysis Suite	Number of Samples
COD, unfiltered	14
Ammoniacal Nitrogen as N	14
Ammoniacal Nitrogen as NH4	14
Nitrate as NO3	14
Phosphate as PO4	14
Sulphate	14
Metals (suite of nine dissolved metals)	14
SVOC (W) by GC MS	13
VOC (W) by GC MS	14
pH Value	14
TPH CWG (W) by GC FID	14
TPH Total (Includes EPH Total and GRO Total)	14

The laboratory soil and groundwater certificates are included as **Appendices C**.

3.10 Screening Criteria

Analytical soil and groundwater data reported as part of this Environmental Assessment report have been evaluated by comparison against generic assessment criteria (GAC). The selected GAC are based on the receptor assumptions associated with the proposed site use and underlying ground conditions. These include the health of site occupants and controlled waters, which has been evaluated against a number of different end use scenarios:

- Residential with gardens,
- Residential without gardens; and
- Commercial

The main controlled water receptor is the River Thames, located immediately north of the East Site. Groundwater concentrations have therefore been compared to marine Environment Quality Standards (EQS) as a preference. Although not considered a suitable viable resource, given the limited thickness of the saturated aquifer, the groundwater in the River Terrace Gravel Formation has been compared to England Drinking Water Standards (EDWS).

GAC have been selected or derived by AECOM in accordance with the most recent UK regulatory guidance. For human health receptors, this comprises the EA's Contaminated Land Exposure Assessment (CLEA) methodology, most recently updated in January 2009. For controlled waters receptors, the prevailing technical guidance is the EA's Remedial Targets Methodology. Where criteria are unavailable based on these UK sources, they have been selected from reputable international and national agencies external to the UK. Such external sources have no Regulatory authority in the UK; however, since they are derived using risk-based techniques, they may be acceptable in the absence of UK guidelines.

In summary, analytical data have been screened against the criteria shown in **Table 3.10** and in order of preference.

Table 3.10: Summary of Adopted GAC

Human Health	Controlled Water
Defra C4SL 12/2014	Water Supply (Water Quality) Regulations 2010
AECOM (modified LQM/CIEH S4ULs)	Drinking Water Standards (UK, 2010)
AECOM (modified EIC)	Resource Protection Values (Scottish Environmental Protection Agency, 2013)
USEPA RSL	World Health Organisation (WHO) Drinking Water Guidelines (DWG) 2011
Dutch Serious 2009	PNEC (EU REACH) - Coastal
Dutch Intervention 2009	Groundwater Target Values (Water Framework Directive 2010 (England & Wales))
	PNEC (EU REACH) - Coastal
	New Hampshire DES (2009)
	California Draft health protective concentration
	USEPA RSL (tapwater)

4. SITE INVESTIGATION FINDINGS

4.1 Ground Conditions

The stratigraphy beneath the Site has been characterised in the 2003 CRA Baseline Soil and Groundwater Investigation and the previous Dames & Moore 1995 Ground Investigation. The geology encountered during the historical site investigations included a deepening sequence of Made Ground, Superficial Deposits and London Clay.

Table 4.1a summarises the stratigraphy encountered during the September 2015 investigation. **Table 4.1b** summarises the stratigraphy reported in the 2003 CRA Baseline Soil and Groundwater Investigation Report. Borehole logs of the September 2015 investigation are presented in **Appendix B** and borehole logs from the previous investigations are included in the Phase 1 ESA (**Reference 1 Section 8**).

Table 4.1a: Summary of Ground Conditions Encountered during the AECOM, September 2015 Investigation

Exploratory Hole	Depth to Bottom of Strata (m bgl)			Installation Strata	Date Completed
	Made Ground	Alluvium/ Superficial Deposits	London Clay		
BH2A	1.1	3.5*	-	None	25 August 2015
BH3A	1.5	3.0*	-	None	28 August 2015
BH4A	1.3	4*	-	None	27 August 2015
BH5A	1.8	3.0*	-	None	28 August 2015
BH7A/7B	1.2	3*	-	None	27 August 2015
BH8A	2.2	3.5*	-	None	26 August 2015
BH9A	3.3*	-	-	None	26 August 2015
BH109A	1.2	3.5*	-	None	28 August 2015
BH201/201A	1.9	5.1	6.0*	Superficial	24-25 August 2015
BH202 / BH202A	1.8*	-	-	None	24 August 2015
BH203 / BH203A	No recovery	No recovery	5*	None	20 August 2015
BH204	1.2	3.5*	-	None	21 August 2015
BH205	2.5	3.0*	-	None	21 August 2015
BH206	1.8*	-	-	None	21 August 2015
BH207	2.6	3.5*	-	None	25 August 2015
BH208 / BH208A	1.0	3.5*	-	None	25 August 2015
BH209	2.70	3.4*	-	None	25 August 2015
BH210	2.10	3.5*	-	None	26 August 2015
BH211	2.10	3.5*	-	None	26 August 2015
BH212	1.7	3.5*	-	None	27 August 2015

Table 4.1a: Summary of Ground Conditions Encountered during the AECOM, September 2015 Investigation

Exploratory Hole	Depth to Bottom of Strata (m bgl)			Installation Strata	Date Completed
	Made Ground	Alluvium/ Superficial Deposits	London Clay		
BH213	1.6	3.0*	-	None	27 August 2015
BH214 / BH214A	2.6*	-	-	None	25 August 2015

*Denotes full thickness of strata not penetrated.
- Strata not encountered.

The ground conditions encountered included:

- **Made Ground**: Where full penetrated, the thickness of Made Ground measured in the AECOM soil bores ranged between 1.2m and 2.6m.

- An extended thickness of made ground were measured at four locations where full penetration of Made Ground was not possible due to the presence of buried obstructions. These positions included BH9A, BH202/ BH202A, BH206 and BH214/214A. The obstructions ranged in depth from 1.8m to 3.3m bgl.

- Buried hardstandings, which were penetrated, were encountered at:
  - BH201: Concrete slab of unknown thickness at 0.7m bgl;
  - BH202: Concrete slab of unknown thickness at 0.8m bgl;
  - BH202A: Concrete slab of unknown thickness at 1.8m bgl;
  - BH203: A 0.1m thick concrete slab between 0.9m and 1.0m followed by another concrete slab of unknown thickness at 3.0m bgl;
  - BH203A: A 0.1m thick concrete slab between 0.9m and 1.0m followed by another 0.1m thick concrete slab between 3.5m and 3.6m;
  - BH206: Concrete slab of unknown thickness at 1.8m bgl;
  - BH208: Concrete slab of unknown thickness at 0.8m bgl;
  - BH214: Concrete slab of unknown thickness at 2.6m bgl;
  - BH214A: Concrete slab of unknown thickness at 2.0m bgl;
  - BH7B: Concrete slab of unknown thickness at 0.6m bgl; and
  - BH9A: Concrete slab of unknown thickness at 3.3m bgl.

- A layer of surface concrete / tarmac hardstanding was encountered at all locations with the exception of BH4A and BH5A AECOM soil bore locations (Note: two attempts at drilling were undertaken at six positions: BH7A/B, BH201/A, BH202/A, BH203/A, BH208/A and BH214/A). The underlying Made Ground generally comprised loose roadstone, red/yellow brick and concrete gravels, sand and gravels of flint and occasional reworked clay.

- **Superficial Deposits**: Generally comprising clayey, silty sand with varying gravel content with areas of soft, brown, sandy clay. The full thickness (3.2m) of the superficial deposits was proven in one AECOM 2015 botehole (BH201A) and the base of this stratum measured at 5.1m bgl.
- **London Clay**: Grey to brown clay. The top of the London Clay was encountered at 5.1m in one AECOM borehole (BH201A).

Table 4.1b: Summary of Ground Conditions Reported in the CRA, 2003 Soil & Groundwater Baseline Report

Exploratory Hole	Depth to Bottom of Strata (m bgl)			Installation Strata	Date Completed
	Made Ground	Alluvium/ Superficial Deposits	London Clay		
BH2	0.25	6.6	6.8*	Superficial	09 October 2003
BH3	0.3	6.5	6.6*	Superficial	05 October 2003
BH4	0.2	6.6	6.7*	Superficial	06 October 2003
BH5	0.5	6.9	7.0*	Superficial	05 October 2003
BH7	0.6	6.6	6.7*	Superficial	06 October 2003
BH8	0.4	7.2*	-	Superficial	06 October 2003
BH9	2.2*	-	-	Made Ground	06 October 2003
BH10	0.35	6.9	7.0*	Superficial	06 October 2003

It is noted that the Made Ground encountered during the August 2015 investigation is thicker than that reported in the 2003 baseline investigation. During the 2015 investigation works, soil cores were collected in plastic liners which allow an accurate logging of the soil. During the 2003 baseline investigation a rotary auger drilling technique was used to extract soils to the ground surface on the auger flights. This method is a less accurate sampling and logging methodology. The thicknesses of Made Ground reported in the 2015 investigation are therefore considered to be more accurate.

The base of the superficial deposits were encountered in six baseline investigation locations (2003) and to depths between 6.5m and 6.9m (with the exception of BH8, where the base of the superficial deposit was not fully penetrated by 7.2m bgl; the full depth of this borehole).

The top of the London Clay was encountered at depths between and 6.5 and 6.9m bgl at six baseline investigation locations and to a maximum depth of 7.0m bgl. The full thickness of London Clay was not proven during the investigations.

4.2 Field Observations

Visual and olfactory observations of note were made at the following borehole locations:

- Contractor Storage area, north portion of the West Site:

\- BH4A, Possible asbestos fragments were noted in the Made Ground between ground level and 1.3m bgl.

- The Waste Storage area located in the west of the West Site:

- BH8A, Black ash was noted in the Made Ground between 0.4m and 0.8m bgl with PID readings of 2.1 parts per million (ppm) at 0.5m bgl and <0.1ppm at 1.0m bgl.

During groundwater purging and sampling no measurable free phase product was identified. In addition, no oily sheen or staining was observed and no hydrocarbon odours detected. The following visual and olfactory observations of note were made at BH9:

PID measurements of ionisable hydrocarbons were taken from soils at regular intervals during drilling. In total, 113 soil headspace measurements were undertaken. In 112 of the 113 measurements the result was less than the limit of detection of the PID (<0.1 parts per million (ppm)). One headspace measurement of 2.1ppm was measured from soil sampled from BH8A (0.5m bgl).

4.3 Hydrogeology

Groundwater Elevations

During drilling, water strikes were encountered at two of the nine locations at depths of 2.2m bgl (3.70m Above Ordnance Datum (AOD)) in BH9A and 3.7m bgl (2.27m AOD) in BH201A.

Groundwater elevation measurements from the thirteen wells located on the Site was undertaken on 28th August 2015 between 12.25pm and 13.10pm to reliably estimate the groundwater flow direction and to minimise the potential influence of the River Thames tidal effect. **Table 3** indicates groundwater level measurement data.

A static perched water level was measured at 1.75m bgl (4.025m AOD) at BH9.

Static groundwater levels within the superficial deposits were measured between 3.586m bgl in BH201A (5.575m AOD) and 5.14m bgl (6.49m AOD) at BH3.

The groundwater elevation trend from five groundwater monitoring rounds completed between 2003 and 2015 is included as appended **Graph 1**. The graph indicates that groundwater elevations are relatively consistent during the five monitoring rounds.

Groundwater Flow Direction

Inferred groundwater flow contours for the superficial aquifer beneath the site, based on the results of this 2015 monitoring round, are presented as **Figure 4**. The elevated groundwater levels in BH9 have been omitted from the groundwater contour evaluation as this installation is indicative of perched water in the Made Ground.

The 2015 monitoring results indicate the inferred groundwater flow direction to be to the west.

Tidal Effects on Groundwater Elevation

Following the groundwater elevation monitoring, three pressure transducers were installed in monitoring wells BH4, BH10 and BH201A to continuously measure groundwater elevations within the superficial deposits for a period of approximately 2.5 days and assess the tidal influence of the River Thames on the groundwater levels beneath the Site. The results are included on Graphs xxx to xxx appended to this report.

The assessment of the transducers data indicates that only the groundwater levels of the northern boundary of the East Site, represented by BH201A, is moderately affected by the tidal influence of the River Thames with daily fluctuations ranging from approximately 40 to 60mm with a peak of approximately 120mm during the early hours of the 31st of August possibly due to rainfall. This monitoring well is located approximately 20m from the southern bank of the River Thames.

In the monitoring well BH4 located approximately 65m from the southern bank of the River Thames along the northern boundary of the West Site, the tidal effect appears to be time lagged from BH201A due to the distance from the river but not significant. The groundwater level fluctuations in this area are comparable to those detected 150m further south within the central portion of the site represented by BH10.

It is noted that from the visual inspection of the River Thames in proximity of the site, the banks are constructed with concrete and stone blocks.

5. LABORATORY QA/QC

5.1 Quality Control

The majority of laboratory analytical techniques undertaken are certified by the United Kingdom Accreditation Service (UKAS). The range of accredited analyses offered by the selected sub-contract laboratory (ALcontrol) is considered to be as comprehensive as is available from commercial laboratories in the UK. UKAS and the Environment Agency's Monitoring Certification Scheme (MCERTS) status for all analyses undertaken is shown on the laboratory certificates presented in **Appendix C**.

5.2 Duplicate Analysis

One duplicate groundwater sample was collected during the September 2015 sampling event from BH4 and labelled DUP01. The duplicate was tested for the same analytical suite as the primary sample and for QA/QC purposes.

The evaluation of the duplicate samples is based on the Relative Percent Difference (RPD), which is defined as:

RPD = 100 x (|X1 - X2|/(X1 + X2))

where X1 and X2 are the values of the concentration obtained for an analyte X in the duplicate sample, and |X1-X2| is the absolute difference of X1 and X2.

Relative percentage differences (RPDs) have been calculated for chemical concentrations recorded above the method detection limits between a primary sample from BH4 and a duplicate sample (DUP01). The 'limits' of ±25% for inorganic analysis and ±100% for organic analyses are based on AECOM's experience from a large number of projects and should be viewed as a guideline for the expected RPD values in a water matrix. These guideline limits should be used with caution with laboratory results within ten-times the laboratory method detection limit (MDL). The RPD assessment is presented in **Table 11**.

- Elevated RPDs for inorganics were observed for copper (40%) and selenium (43%) above the guideline value of 25% for organic parameters. The elevated RPDs for these two parameters are not a significant concern given that the other eight metal parameters were within the acceptable range. In the remainder of the report the higher concentrations from either the primary or duplicate sample from BH4 will be used.
- The calculated RPDs for the remaining inorganics analysis were in the range 0 to 11% which is within the acceptable range.
- RPD assessment for the organics analysis was not possible given the results were below the analytical method detection limits.

5.3 Conclusion

The laboratory analytical results are considered suitable for review based on the sampling methodologies described in **Section 3.8**, the laboratory accreditation and the results of the RPD assessment.

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6. GENERIC QUANTITATIVE RISK ASSESSMENT

6.1 Stage 2 Generic Assessment

Given that the final development scheme is not yet finalized, AECOM have elected screening criteria based on three possible end uses: residential without gardens, residential with gardens and commercial.

The most sensitive controlled waters receptor is considered to be the River Thames, which flows along the northern site boundary in a west to east direction and the Secondary A Aquifer within the underlying River Terrace Deposits. Further details of the selected generic assessment criteria (GAC) are given in **Section 3.10**.

6.2 Soil

6.2.1 Heavy Metals

A total of 37 soil samples were analysed for a suite of eleven metals. The results are included in appended **Table 4**. A summary of the GAC exceedances is presented in the following Table and discussed below.

Analyte	Number of detects	GAC (mg/kg)			Range in Detected Conc. (mg/kg)	Number of GAC Exceedences			Location with Maximum Conc.
		Human Health - Res. Without Gardens	Human Health - Res. With Gardens	Human Health - Commerc.		Human Health - Res. Without Gardens	Human Health - Res. With Gardens	Human Health - Commerc.	
Arsenic	37	40	37	640	9.55 to 94	1	1	0	BH7A; 0.7m
Lead	37	310	200	2300	5.73 to 2,910	2	6	1	BH213, 0.6m

The concentrations of cadmium, chromium (III+VI), copper, mercury, nickel, selenium, zinc and hexavalent chromium were measured at concentration below the GAC for the three land use scenarios and are therefore not considered to represent an unacceptable risk to human health.

The detected concentrations of arsenic in the 37 samples tested ranged between 9.55mg/kg and 94mg/kg. None of these concentrations exceeded the human health GAC for a commercial end use. The measured concentration from BH7A (94mg/kg; 0.7m bgl) exceeded the GACs for both residential with and without gardens scenarios. The average arsenic concentration from the 37 samples is 19mg/kg and well below the GAC for the possible end use scenarios. Arsenic is therefore not considered to represent an unacceptable risk to human health regardless of the end use.

The detected concentrations of lead in the 37 samples tested ranged between 5.73mg/kg and 2,910mg/kg. The measured concentration from BH213 (2,910mg/kg; 0.6m bgl) exceeded the GACs for commercial use. The measured concentrations from BH208 at 0.8m, BH212 at 0.6m bgl, and BH4A at 0.9m bgl exceeded the GAC for residential with gardens and the samples from BH213 at 0.6m bgl and BH7A at 0.7m bgl exceeded the GAC for residential without gardens. The average lead concentration from the 37 samples is 156mg/kg and well below the GAC for the three possible end use scenarios.

6.2.2 Total Petroleum Hydrocarbons, BTEX and MTBE

A total of 37 soil samples were analysed for total petroleum hydrocarbons (TPH), BTEX and MTBE. TPH data were reported with a carbon banded aliphatic/aromatic split to enable risk assessment following the Criteria Working Group (CWG) methodology. The results are included in appended **Table 5.**

No TPH, BTEX and MTBE were detected at concentrations in excess of human health GAC for the three end use scenarios in in the 37 soil samples from the Site.

6.2.3 Poly-cyclic Aromatic Hydrocarbons

A total of 37 soil samples were analysed for the presence of poly-cyclic aromatic hydrocarbons (PAHs). The results are included in appended **Table 5**.

The suite of PAH tests included twenty-one parameters. The PAH detections in the remaining thirty-seven samples were below the GAC for all proposed end uses with the exception of coal tar.

The detected concentrations of coal tar in the 37 samples tested ranged between <0.015mg/kg and 1.47mg/kg. None of these concentrations exceeded the human health GAC for a commercial end use.

The measured concentration from BH4A (1.47mg/kg; 0.9m bgl) exceeded the GACs for both residential with and without gardens scenarios. In addition, the concentration from two further samples from BH212 (1.05mg/kg; 0.6m) and BH7A (1.05mg/kg; 0.7m bgl) exceeded the GAC for residential without gardens end use. The average coal tar concentration from the 37 samples is 0.24mg/kg and well below the GAC for the possible end use scenarios. Coal tar is therefore not measured at unacceptable concentration widespread across the site and is not considered to represent an unacceptable risk to human health regardless of the end use.

6.2.4 Volatile Organic Compounds

A total of 37 soil samples were analysed for a suite of sixty-four volatile organic compounds (VOCs) parameters. The results are included in appended **Table 6**. No VOCs were detected at concentrations in excess of the MDL in the 37 soil samples analysed for these compounds.

It is noted that the MDLs for chloromethane, vinyl chloride, trichloroethene, 1,2-dichloroethane, 1,2,3-trichloropropane and 1,2-dibromo-3-chloropropane exceed GACs for human health in a residential scenario. Given that VOCs have not been measured at concentration below the MDL in the 37 samples, it is considered unlikely that these parameters represent an unacceptable risk or environmental concern.

6.2.5 Polychlorinated biphenyl (PCB)

One soil sample was analysed for the presence of a suite of Poly-Chlorinated Biphenyls (PCBs). The results are included in appended **Table 5**. No PCB compounds were detected at concentrations in excess of the MDL in the sample analysed for these compounds.

The laboratory MDLs for pentachlorobiphenyl, 3,3,4,4,5- (PCB 126) and hexachlorobiphenyl, 3,3,4,4,5,5- (PCB 169) exceed the associate human health residential GACs. Given that none of the PCB congeners in the suite of parameters have been measured at concentration above the MDL in this sample, it is considered unlikely that these parameters represent an unacceptable risk or environmental concern.

6.2.6 Asbestos

A total of twenty-six samples of Made Ground were visually assessed at the laboratory for the presence of ACMs. The results are included in appended **Table 5**. Asbestos was visually identified (by microscope) in eight samples, including:

- BH2A (0.5m to 1.0m bgl): Amosite trace detected (loose fibres in soil);
- BH4A (0.9m bgl): Amosite and Chrysotile detected (loose fibres in soil);
- BH201A (0.7m bgl): Amosite detected;
- BH203A (0.5m bgl): Soil containing loose fibres and debris of asbestos bitumen;
- BH207 (0.7m bgl): Chrysotile detected (loose fibres in soil);
- BH208 (0.8m bgl): Chrysotile detected (loose fibres in soil);
- BH209 (0.5m bgl): Chrysotile detected (loose fibres in soil); and
- BH210 (0.8m bgl): Amosite detected.

Further quantification testing was undertaken in the laboratory on the eight samples. This quantification test indicates that the visually identified ACMs were below the hazardous waste threshold limit of <0.1% volume in the samples.

During the intrusive works, possible asbestos fragments were noted in the Made Ground of location BH4A between ground level and 1.3m bgl. There is no prescribed human health value for asbestos concentrations in soils in the UK. The system for evaluation is site-specific and dependent on site use and receptor. It is usually preferred that soils containing asbestos remain sealed in the ground and future disturbance controlled by code of construction practices.

Overall we consider that asbestos in soils is not presently an unacceptable risk for future residential and or commercial site use given the relatively low volumes measured in the samples. Future below ground works should consider the potential for asbestos to be present in Made Ground and appropriate standard construction controls adopted.

6.2.7 Miscellaneous Inorganic Compounds

A total of 37 soil samples were analysed for the presence of sulphide, sulphate, ammoniacal nitrogen as NH4 and pH. The results are included in appended **Table 4**.

None of these parameters were measured at concentrations that exceed the human health GAC for the three end use scenarios.

6.3 Groundwater

Groundwater analytical data from the 2015 sampling round are presented in **Tables 7** to **10** alongside the GAC used for generic risk assessment screening purposes.

The GAC used for protection of controlled waters in this assessment have been selected as England and Wales Environmental Quality Standards (EQSs) appropriate for protection of the River Thames. Where EQSs are not available drinking water standards (DWSs) from the UK or World Health Organisation have been selected.

Exceedances of GAC are summarised below.

6.3.1 Metals

A total of fourteen groundwater samples were analysed for metals. The results are included in appended **Table 7**. A summary of the results is in the following Table and discussed below.

Analyte	Number of detections	GAC (µg/l)		Range in Detected Concentrations (µg/l)	Average concentration	Number of GAC Exceedences		Location with Maximum Concentration
		Controlled Waters DWS	Controlled Waters EQS			Controlled Waters DWS	Controlled Waters EQS	
Arsenic	14	10	25	3.79 - 45.4	17	8	3	BH7
Cadmium	14	5	0.2	<0.1 - 0.228	0.063	0	1	BH9
Chromium (III+VI)	14	50	0.6	1.21 - 7.52	3.1	0	14	BH9
Cobalt	14	6	3	0.262 - 11.8	3.6	3	6	BH201A
Copper	13	2000	5	0.939 - 61.3	5.5	0	1	BH9
Lead	12	25	7.2	0.028 - 22.8	1.7	--	1	BH9
Manganese	14	50	--	7.19 - 2270	691	11	0	BH111
Selenium	14	10	--	0.781 – 13.2	4.1	1	0	BH110
Silver	0	94	0.5	<1.5	<1.5	0	13	Not detected
Thallium	0	0.2	--	<0.96	<0.96	13	0	Not detected
Zinc	14	6000	40	1.27 - 280	30	0	1	BH9

The groundwater sampled from BH9 is from perched water within Made Ground and is therefore not representative of the groundwater in the underlying superficial aquifer. A total of seven of the eighteen metals exceeded the EQS and three metals exceeded the DWS in the groundwater sample from BH9. The concentrations from BH9 are omitted from the discussion below.

The concentrations of silver and thallium were below the laboratory MDL in the fourteen samples tested. However, the laboratory MDL is marginally higher than the applicable EQS and DWS.

The concentrations of cadmium, chromium, copper, lead, silver and zinc were below the drinking water standards in the fourteen samples tested. Furthermore, the concentration of manganese, selenium and thallium were below the EQS in the fourteen samples tested.

The measured concentrations of arsenic exceeded the EQS in three samples and the DWS in eight samples of the fourteen samples tested. The average concentration from the fourteen samples is 17µg/l and exceeds the DWS, but is below the EQS.

The measured concentrations of cadmium exceeded the EQS in one (BH9 (0.228µg/l) of the fourteen samples tested. The average cadmium concentration from the fourteen samples is 0.063 µg/l and is below the EQS. None of the measured concentrations of cadmium exceed the DWS.

The measured concentrations of chromium (III & VI) exceeded the EQS in the fourteen samples tested, but did not exceed the DWS. The EQS GAC considers that the chromium detected is the more toxic chromium VI. However, the results of the analysis of soils have not detected chromium IV above the laboratory MDL in the 37 soils tested. The chromium detected in groundwater is therefore likely to be the less toxic chromium III. The application of the EQS is therefore over-conservative. In addition, the chromium concentrations are below the DWS.

The measured concentrations of cobalt exceeded the EQS in six (BH109, BH110, BH201A, BH5, BH7, BH9) of the fourteen samples tested. The measured concentrations of cobalt also exceeded the DWS in three (BH109, BH201A and BH9) of the fourteen samples tested. The average cobalt concentration from the fourteen samples is 3.6µg/l and is below the DWS (6µg/l) but exceeds the EQS (3µg/l).

EQS are not available for selenium and therefore the DWS have been adopted. The detected concentration of selenium exceeded the DWS in the groundwater sample collected from BH110. The average selenium concentration (4.1µg/l) is below the DWS (10µg/l).

The measured concentrations of manganese exceeded the DWS in eleven of the fourteen samples tested. The average concentration from the fourteen samples is 691µg/l and exceeds the DWS (50 µg/l).

The measured concentration of metals exceeded the DWS and EQS in groundwater from across the site. However, the measured concentrations are variable and in many cases are within one order of magnitude of the screening criteria. AECOM considers the metal concentrations detected to be representative of the quality of urban groundwater in a shallow perched aquifer.

The sensitivity of this aquifer is further reduced given that the aquifer does not represent a significant resource and is not within a source protection zone for an abstraction for potable use. In addition, the selected DWS GAC are applicable for groundwater at the consumers tap and after the necessary treatment for human consumption and the EQS are applicable for the quality at the receiving water. The use of these GAC is therefore considered conservative in this application.

6.3.2 Total Petroleum Hydrocarbons, BTEX and MTBE

A total of fourteen groundwater samples were analysed for TPH, BTEX and MTBE. The results are included in appended **Table 8**.

TPH was not measured above the laboratory MDL in eleven of fourteen samples tested. TPH was measured in samples from three monitoring wells (BH9, BH109 and BH111) at total TPH concentrations between 65.8µg/l and 1,430µg/l. DWS or EQS are not available for these compounds.

BTEX and MTBE concentrations were below the laboratory MDL in the fourteen samples tested and below the corresponding EQS and DWS.

6.3.3 Polycyclic Aromatic Hydrocarbons

A total of fourteen groundwater samples were analysed for a suite of 16 PAH compounds. The results are included in appended **Table 9** and summarized in the Table below.

Analyte	Number of detections	GAC (µg/l)		Range in Detected Concentrations (µg/l)	Number of GAC Exceedences		Location with Maximum Concentration
		Controlled Waters DWS	Controlled Waters EQS		Controlled Waters DWS	Controlled Waters EQS	
Anthracene	0	90	0.1	<1	--	13	All below MDL
Fluoranthene	1	4	0.1	<1 – 6.12	--	13	BH9
Benz(a)anthracene	0	0.1	--	<1	13	--	All below MDL
Chrysene	0	1	--	<1	2	--	BH9
Benzo(a) pyrene	1	0.01	0.05	<1 – 4.69	13	13	BH9
Dibenz(a,h)anthracene	0	0.01	--	<1	13	--	BH9
Benzo(b)&(k)fluoranthene	1	--	0.03	<2 – 8.42	--	13	BH9
PAHs (sum of 4)	1	0.1	--	<4 – 14.47	13	--	BH9
benzo(g,h,i)perylene + indeno(1,2,3-cd)pyrene	1	--	0.002	<2 – 6.05	--	13	BH9

The concentrations of PAHs in thirteen groundwater samples from the superficial River Gravels were below the laboratory MDL (<1 to <4 µg/l).

The MDL for six PAHs are above the EQS and four PAHs above the EQS. However, the lack of PAH detections above MDL indicate that this is not a significant concern..

One groundwater sample was from groundwater perched above a concrete slab and within the Made Ground at BH9. The concentrations of fluoranthene, benzo(a)pyrene, benzo(b)&(k)fluoranthene, PAHs (sum of 4) and benzo(g,h,i)perylene + indeno(1,2,3-cd)pyrene exceed the relevant EQS and/or DWS in groundwater sampled from location BH9. These exceedances are not considered a significant concern as the detected concentrations are representative of the perched water quality and none of these parameters are measured above the GAC in groundwater from the superficial River Gravels.

6.3.4 Volatile Organic Compounds and Semi-volatile Organic Compounds

A total of fourteen groundwater samples were analysed for a suite of sixty-five VOC and thirteen samples were analysed for a suite of sixty SVOC parameters. The results are included in appended **Table 10**.

VOCs have not been identified in excess of the MDL in ten of the fourteen samples tested. Chlorobenzene was measured in samples from four monitoring wells (BH111, BH201A, BH7 and BH9). These results are below the DWS (300 µg/l).

SVOCs have not been identified in excess of the MDL in ten of the fourteen samples tested. 1,1,1-trichloroethane, trihalomethanes, 4-methylphenol and carbon disulfide were measured in samples from three monitoring wells (BH4, BH9 and BH111). These results are below the available EQS and DWS.

The concentration of phenol in groundwater from BH9 (10.7µg/l) exceeded the EQS (7.7µg/l), but not the DWS (5,800µg/l).

The laboratory MDL for 24 VOC & SVOC parameters exceeded the relevant EQS and/or DWS. Given the lack of detections of VOC and SVOC parameters in groundwater, this is not considered to be a significant concern.

6.3.5 Miscellaneous Inorganic Compounds

The miscellaneous inorganic suite included nitrate (as NO3-), phosphate, ammoniacal nitrogen as N, ammoniacal nitrogen (as NH4), sulphate, COD and pH. The results are included in appended **Table 7**.

The groundwater pH at the Site ranged between 7.10 and 8.09 indicating slightly alkaline groundwater conditions.

Nitrate was not detected above the laboratory MDL (<0.3 mg/l) in two of the fourteen samples tested. The concentration of nitrate in twelve groundwater samples ranged between 0.94 and 21.9mg/l. The nitrate concentrations in these samples do not exceed the DWS (50 mg/l).

Phosphate was not detected above the laboratory MDL (<0.05 mg/l) in two of the fourteen samples tested. The concentration of phosphate in twelve groundwater samples ranged between 0.056 and 14.1mg/l. EQS or DWS are not available for this compound.

Sulphate was not detected above the laboratory MDL (<2 mg/l) in one of the fourteen samples tested. The concentration of sulphate in thirteen groundwater samples ranged between 37.5 and 457mg/l. EQS or DWS are not available for this compound.

Ammoniacal nitrogen was not detected above the laboratory MDL (<0.2 mg/l) in seven of the fourteen samples tested. The concentration of ammoniacal nitrogen in seven groundwater samples ranged between 0.508 and 5.66mg/l. The ammoniacal nitrogen concentration in six of these samples exceeded the DWS (0.389 mg/l). The most elevated concentration of ammoniacal nitrogen was measured in groundwater perched within the Made Ground at BH9. The average ammoniacal nitrogen concentration from groundwater sampled from the superficial River Gravels was 0.67mg/l and marginally exceeds the DWS.

COD was not detected above the laboratory MDL (<7 mg/l) in six of the fourteen samples tested. The concentration of COD in eight groundwater samples ranged between 8.09 and 3,330mg/l. EQS or DWS are not available for this compound.

7. CONCLUSIONS

7.1 General Site Description

This report presents the findings of a Phase 2 ESA at the Stag Brewery Mortlake facility, Mortlake, London, SW14 7ET. The Stag Brewery has been used for the production and packaging of alcoholic beverages since the late 1850s. However, the Stag Brewery will cease manufacturing operations in 2015 and the site is to be divested for redevelopment. The objective of this report is to present an assessment of the environmental ground conditions at the Site.

The site investigation undertaken included the drilling of two boreholes with a groundwater monitoring well installations to supplement the existing network of thirteen groundwater monitoring wells installed during previous phases of investigation. Twenty-eight soil bores were also drilled across the Site to provide a higher density of exploratory points, better understand the ground conditions and collect soil samples for laboratory chemical analysis.

7.2 Site Characterisation Findings

Ground Conditions

The ground conditions at the site were assessed from twenty-eight soil bores were drilled using dynamic percussive drilling techniques to a maximum depth of 5.0m bgl. The drilling work was undertaken between 20 and 28 August 2015. The deepening sequence of geology encountered in the site investigation includes Made Ground, superficial deposits of River Terrace Gravels and London Clay bedrock.

Made Ground is between 1.2m and 2.6m thick and comprised loose roadstone, red/yellow brick and concrete gravels, sand and gravels of flint and occasional reworked clay. Buried obstructions, thought to represent relict concrete slabs, were encountered at eleven locations.

The boundary between the River Terrace Deposits and London Clay was encountered at depths between 6.5 and 6.9m bgl. The London Clay was encountered to the maximum depth of drilling (7.0 bgl).

Hydrogeology

Groundwater elevation monitoring on 28 August 2015 indicated the groundwater to be between 3.57 and 5.14 mbgl. Groundwater flow direction is inferred to be west. The tidal effects of the River Thames were measured in three boreholes across the site by continuous monitoring over 2.5 days. The results indicated a maximum fluctuation of 60mm in a well 20m from the River Thames. However, no measurable effect on groundwater elevation was recorded on the two wells located 65m and 200m from the River Thames.

Soil Quality

No obvious visual or olfactory evidence of hydrocarbon contaminated soils was noted from the drilling arisings. Furthermore, only one result (2.1ppm) out of 113 screening tests performed was above the detection limit (<0.1ppm) of the Photo-Ionisation Detector (PID) equipment during soil headspace monitoring.

A total of 25 samples of Made Ground and 14 samples of natural ground were analysed at Alcontrol Laboratories for a suite of inorganic and organic chemical parameters. The results were compared to generic assessment criteria (GAC) suitable for thee end use scenarios: residential with gardens, residential without gardens and commercial. The comparison indicated that the soil chemistry does not represent an unacceptable risk to human health regardless of the end use scenario.

Asbestos Containing Materials (ACMs): During the site investigation suspected ACMs were observed as fragmented tiles from one exploratory hole (BH4A between ground level and 1.3m bgl). A total of twenty-six samples of Made Ground were also visually screened at the analytical laboratory and asbestos fibres were observed in eight samples. Asbestos quantification analysis on the eight samples measured a concentration of ACMs <0.1% and below hazardous waste criteria.

Overall we consider that asbestos in soils is not presently an unacceptable risk for future residential and or commercial site use given the relatively low volumes measured in the samples. Future below ground works should consider the potential for asbestos to be present in Made Ground and appropriate standard construction controls adopted.

Groundwater Quality

During groundwater monitoring no obvious visual or olfactory indication of contamination was identified from the sampled groundwater. A total of fourteen groundwater samples were analysed at Alcontrol Laboratories for a suite of inorganic and organic chemical parameters. The results were compared to GAC protective of the adjacent River Thames (marine Environmental Quality Standards) and England Drinking Water Standards. The comparison indicated that the majority of chemical parameters were below the relevant GAC and although some minor exceedances were measured at isolated locations, the groundwater quality is considered commensurate with that in an urban environment.

7.3 Conclusions

The site characterization has not encountered soil and groundwater conditions that represent a constraint to redevelopment of the Site for mixed commercial and residential use above what would normally be expected from previously developed land.

The chemical analysis of the Site soils and groundwater has not identified concentrations that represent an environmental risk to human health or controlled waters. No environmental improvement works are considered necessary at the Site based on a mixed use development scheme.

It is likely that works to remove relict buried foundations and slabs will be required to allow construction of deep structures and foundations. Furthermore, it is unlikely that the physical composition of the existing shallow Made Ground soils will be of suitable composition for use in soft planted areas. Imported soils are therefore likely to be required for soft planting and landscaping.

8. REFERENCES

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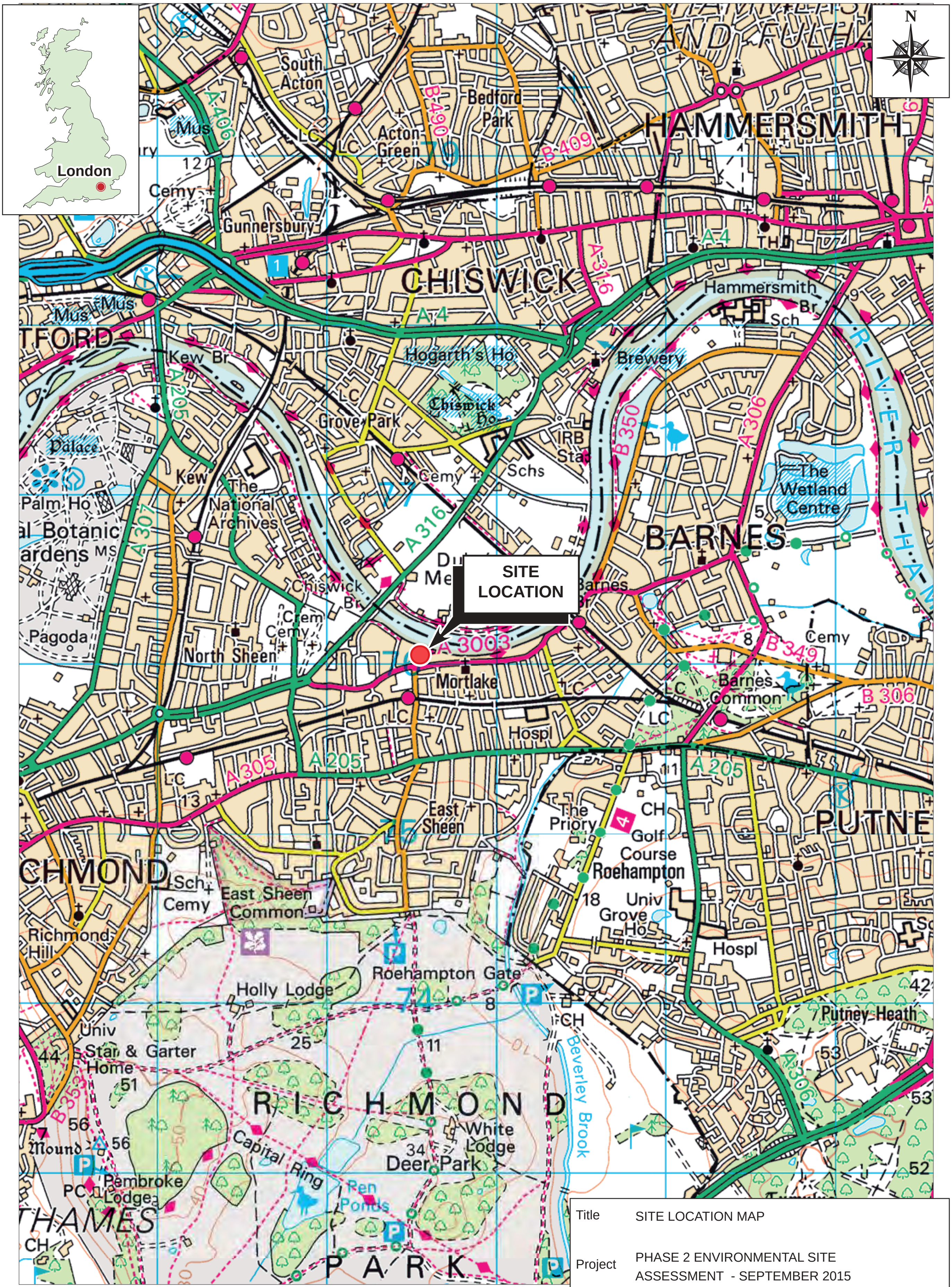
FIGURES



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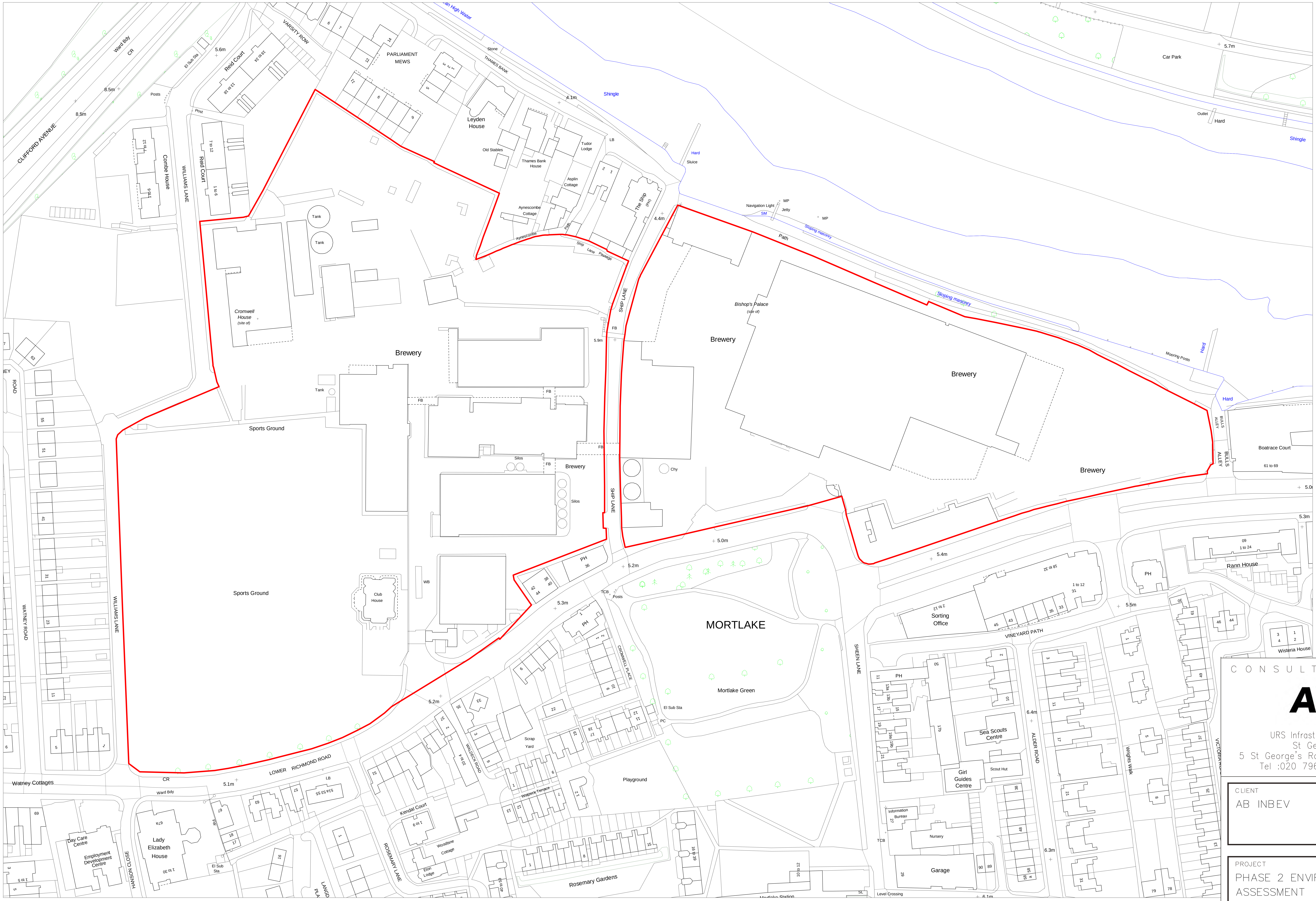
Promap®

0 1km
SCALE

Title	SITE LOCATION MAP
Project	PHASE 2 ENVIRONMENTAL SITE ASSESSMENT - SEPTEMBER 2015
Client	AB INBEV

AECOM

App'd: MM	Drawn: AM/LCS	Date: SEPT 2015
FINAL		Ref: MM/AM/WIMB
Scale: AS SHOWN		Job No: 47074683
Drg. Size: A4		FIGURE 1



🟥 SITE BOUNDARY

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PROMAP
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0 50 100 150m
APPROXIMATE SCALE

CONSULTING ENGINEERS

AECOM

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St George's House, 3rd Floor
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CLIENT
AB INBEV

PROJECT
PHASE 2 ENVIRONMENTAL SITE ASSESSMENT – SEPTEMBER 2015

DRAWING TITLE
FIGURE 2 – SITE LAYOUT PLAN

DRAWN	DESIGNED	CHECKED	APPROVED	DATE
LCS		MM	MM	SEPT 2015

SCALE	DRG No.	REV.
AS SHOWN	47074683	

AREA KEY

⊕ CRA, 2003 & DAMES & MOORE, 1995 GROUNDWATER MONITORING NETWORK

⊕ EXPLORATORY HOLE LOCATION - AECOM SEPTEMBER 2015

⊕ BH201A - ADDTIONAL GROUNDWATER WELL - AECOM 2015

BH2 BH3 BH4 BH5 BH7 BH8 BH9 BH10	CRA, 2003 LOCATION SUMMARY
BH104B BH109 BH110 BH111 BH112	DAMES & MOORE, 1995 LOCATION SUMMARY
BH2A BH3A BH4A BH5A BH7A BH8A BH9A BH109A BH201 BH201A BH202 BH202A BH203 BH203A BH204 BH205 BH206 BH207 BH208 BH208A BH209 BH210 BH211 BH212 BH213 BH214 BH214A	AECOM, 2015 LOCATION SUMMARY

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PROJECT
PHASE 2 ENVIRONMENTAL SITE ASSESSMENT – SEPTEMBER 2015

DRAWING TITLE
FIGURE 3 – EXPLORATORY HOLE PLAN

DRAWN	DESIGNED	CHECKED	APPROVED	DATE
AM/LCS		MM	MM	SEPT 2015

SCALE	DRG No.	REV.
AS SHOWN	47074683	

C O N S U L T I N G   E N G I N E E R S

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PHASE 2 ENVIRONMENTAL SITE ASSESSMENT – SEPTEMBER 2015

DRAWING TITLE
FIGURE 4 – GROUNDWATER CONTOUR PLAN, 28TH AUGUST 2015, FULL DIP ROUND

DRAWN	DESIGNED	CHECKED	APPROVED	DATE
LCS		MM	MM	SEPT 2015

SCALE	DRG. No.	REV.
AS SHOWN	47074683	

TABLES

Table 1 - Soil Sampling Schedule

Sample ID		BH109A	BH201A	BH201A	BH202A	BH203A	BH204	BH204	BH205	BH205	BH206	BH207	BH207
Depth		0.8	0.7	1.90 - 2.00	0.8	0.50	1.30	3.3	1.00	2.50	1.1	0.70	2.60 - 3.50
Sampling Date		28/08/2015	25/08/2015	25/08/2015	25/08/2015	20/08/2015	21/08/2015	21/08/2015	21/08/2015	21/08/2015	21/08/2015	25/08/2015	25/08/2015
Sample Description		MADE GROUND: Soft, dark brown, sandy, gravelly clay. Sand is fine to coarse. Gravel is fine to medium, angular to subangular of flint, crushed concrete and brick.	MADE GROUND: Brown/red/ yellow, gravelly, fine-coarse sand. Gravel is fine-coarse, angular-subangular of brick, flint and natural stone.	Light brown, dense, medium-fine SAND with occasional rounded flint.	MADE GROUND: Brown, gravelly, fine-coarse sand. Gravel is fine-medium, subangular-subrounded of concrete.	MADE GROUND: Very dense, sandy, angular to sub-angular gravel of brick, granite and concrete.	MADE GROUND: Very soft, brown/ red, very sandy clay. Sand is fine-coarse.	Brown, sandy, fine-medium, subangular-subrounded GRAVEL.	MADE GROUND: Very dense, brown, sandy, fine-medium, angular-subangular gravel of brick, concrete, flint, glass. Sand is fine-coarse.	MADE GROUND: Very dense, brown, sandy, fine-medium, angular-subangular gravel of brick, concrete, flint, glass. Sand is fine-coarse.	MADE GROUND: Soft brown sandy clay. Gravel is fine-medium, angular-subangular of brick and concrete.	MADE GROUND: Grey/red, dense, fine to coarse sand and gravel of concrete and brick.	Brown, dense, gravelly SAND. Gravel fine, occasionally medium of flint. Sand is fine to medium.
Scheduled Chem. Group	Total Analyses												
Metals in solid samples by OES	12	1	1	1	1	1	1	1	1	1	1	1	1
Hexavalent Chromium	12	1	1	1	1	1	1	1	1	1	1	1	1
PAH by GCMS	12	1	1	1	1	1	1	1	1	1	1	1	1
TPH CWG GC	12	1	1	1	1	1	1	1	1	1	1	1	1
VOC MS	12	1	1	1	1	1	1	1	1	1	1	1	1
EPH CWG (Aliphatic) GC	12	1	1	1	1	1	1	1	1	1	1	1	1
EPH CWG (Aromatic) GC	12	1	1	1	1	1	1	1	1	1	1	1	1
GRO by GC-FID	12	1	1	1	1	1	1	1	1	1	1	1	1
pH	12	1	1	1	1	1	1	1	1	1	1	1	1
Total Organic Carbon	12	1	1	1	1	1	1	1	1	1	1	1	1
Total Sulphate	12	1	1	1	1	1	1	1	1	1	1	1	1
Easily Liberated Sulphide	12	1	1	1	1	1	1	1	1	1	1	1	1
Ammonium Soil by Titration	12	1	1	1	1	1	1	1	1	1	1	1	1
Asbestos ID	10		1	1	1	1	1	1	1	1	1	1	
Asbestos Quant	6		1	1	1	1			1			1	
PCB 7 & WHO 12 (S) by GC MS	0												

Sample ID		BH208A	BH208A	BH209	BH209	BH210	BH210	BH211	BH211	BH212	BH212	BH213	BH213	BH214
Depth		0.8	1.1	0.5	2.70 - 3.40	0.8	2.20 - 2.80	0.7	2.2	0.6	1.80 - 2.50	0.6	1.70 - 2.00	0.85
Sampling Date		25/08/2015	25/08/2015	25/08/2015	25/08/2015	26/08/2015	26/08/2015	26/08/2015	26/08/2015	27/08/2015	27/08/2015	27/08/2015	27/08/2015	25/08/2015
Sample Description		MADE GROUND: Dark brown, slightly clayey, gravelly, fine to coarse sand. Gravel fine occasionally coarse, subangular to subrounded of brick and flint.	Medium density, brown, gravelly, fine to coarse SAND. Gravel is fine to medium, subangular to subrounded of flint.	MADE GROUND: Brown, grey/ black, gravelly, fine to coarse sand. Gravel is fine to coarse, angular to subangular of brick and concrete.	Brown, gravelly, fine to coarse SAND. Gravel is fine to medium, subangular to subrounded of flint. Very little gravel between 3.0 -3.2m.	MADE GROUND: Dense, brown, sandy, fine to coarse, subangular to rounded gravel of natural stones.	Brown, gravelly, fine to coarse SAND. Gravel is fine to medium to subrounded of flint. Becoming more gravelly with depth.	MADE GROUND: Brown, sandy, fine to coarse, subangular to rounded gravel of natural stone, wood and occasional brick. Becoming clayey with depth.	Brown, gravelly, fine to coarse SAND. Gravel is fine to medium, subangular to rounded of flint.	MADE GROUND: Pink / red, gravelly, fine to coarse sand. Gravel is fine to medium of flint with occasional coarse brick and crushed concrete.	Dense, brown, gravelly fine to coarse SAND. Gravel is fine to medium subangular to rounded. Becoming more gravelly with depth.	MADE GROUND: Brown / grey, slightly clayey, sandy, fine to coarse, angular to subangular gravel of brick, concrete, tile and plastic. Sand is fine to coarse.	Dense, brown, gravelly, fine to coarse SAND. Gravel is fine to medium, angular to subrounded of flint.	MADE GROUND: Light brown, dense gravelly sand. Sand is medium to coarse. Gravel is medium to coarse, subangular to subrounded of flint and concrete.
Scheduled Chem. Group	Total Analyses													
Metals in solid samples by OES	13	1	1	1	1	1	1	1	1	1	1	1	1	1
Hexavalent Chromium	13	1	1	1	1	1	1	1	1	1	1	1	1	1
PAH by GCMS	13	1	1	1	1	1	1	1	1	1	1	1	1	1
TPH CWG GC	13	1	1	1	1	1	1	1	1	1	1	1	1	1
VOC MS	13	1	1	1	1	1	1	1	1	1	1	1	1	1
EPH CWG (Aliphatic) GC	13	1	1	1	1	1	1	1	1	1	1	1	1	1
EPH CWG (Aromatic) GC	13	1	1	1	1	1	1	1	1	1	1	1	1	1
GRO by GC-FID	13	1	1	1	1	1	1	1	1	1	1	1	1	1
pH	13	1	1	1	1	1	1	1	1	1	1	1	1	1
Total Organic Carbon	13	1	1	1	1	1	1	1	1	1	1	1	1	1
Total Sulphate	13	1	1	1	1	1	1	1	1	1	1	1	1	1
Easily Liberated Sulphide	13	1	1	1	1	1	1	1	1	1	1	1	1	1
Ammonium Soil by Titration	13	1	1	1	1	1	1	1	1	1	1	1	1	1
Asbestos ID	6	1		1		1		1		1		1		
Asbestos Quant	3	1		1		1								
PCB 7 & WHO 12 (S) by GC MS	1	1												

Sample ID		BH2A	BH2A	BH3A	BH4A	BH4A	BH5A	BH5A	BH7A	BH7A	BH8A	BH8A	BH9A	BH9A
Depth		0.5	1.5	0.5	0.9	3.50 - 4.00	0.5	2.5-3	0.7	2.50 - 3.00	0.5	3.00 - 3.50	0.5	2.2-3.3
Sampling Date		25/08/2015	25/08/2015	28/08/2015	27/08/2015	27/08/2015	28/08/2015	28/08/2015	27/08/2015	27/08/2015	26/08/2015	26/08/2015	26/08/2015	26/08/2015
Sample Description		MADE GROUND: Brown sandy fine-medium angular gravel of flint and crushed concrete. Sand is fine-coarse.	Soft, brown, sandy clay.	MADE GROUND: Brown, gravelly, fine-coarse sand. Gravel is fine-medium, occasionally coarse, angular-subangular of brick, glass and concrete.	MADE GROUND: Brown, grey, slightly clayey, gravelly, fine-coarse sand. Gravel is fine-medium, angular-subangular of concrete, brick tile and rootlets.	Brown, very gravelly, fine-coarse SAND. Gravel is fine-medium, subangular-subrounded of flint.	MADE GROUND: Brown, slightly clayey, gravelly, fine-coarse sand. Gravel is fine-medium, occasionally coarse, subangular-subrounded of red brick.	Dense, brown, gravelly, fine-coarse SAND. Gravel is fine-medium, subangular-rounded of flint.	MADE GROUND: Soft, dark brown/grey, slightly gravelly, silty clay. Gravel is fine and subangular of red brick with fragments of wood.	Dense, brown, gravelly, fine-coarse SAND. Gravel content increases with depth. Gravel is fine-medium, subangular-subrounded of flint.	MADE GROUND: Black sand and gravel. Gravel is medium to coarse, angular to sub-rounded of flint. Sand is fine-coarse of ash.	Dense, brown, gravelly, fine-coarse SAND. Gravel is fine-medium subangular-rounded of flint.	MADE GROUND: Dense, brown, gravelly, fine-coarse sand. Gravel is fine-medium, subrounded-rounded of natural stone, becoming clayey with depth. Poor recovery.	MADE GROUND: Black, sandy, fine-medium, angular, red/grey gravel of flint and crushed concrete. Sand is fine-coarse.
Scheduled Chem. Group	Total Analyses													
Metals in solid samples by OES	13	1	1	1	1	1	1	1	1	1	1	1	1	1
Hexavalent Chromium	13	1	1	1	1	1	1	1	1	1	1	1	1	1
PAH by GCMS	13	1	1	1	1	1	1	1	1	1	1	1	1	1
TPH CWG GC	13	1	1	1	1	1	1	1	1	1	1	1	1	1
VOC MS	13	1	1	1	1	1	1	1	1	1	1	1	1	1
EPH CWG (Aliphatic) GC	13	1	1	1	1	1	1	1	1	1	1	1	1	1
EPH CWG (Aromatic) GC	13	1	1	1	1	1	1	1	1	1	1	1	1	1
GRO by GC-FID	13	1	1	1	1	1	1	1	1	1	1	1	1	1
pH	13	1	1	1	1	1	1	1	1	1	1	1	1	1
Total Organic Carbon	13	1	1	1	1	1	1	1	1	1	1	1	1	1
Total Sulphate	13	1	1	1	1	1	1	1	1	1	1	1	1	1
Easily Liberated Sulphide	13	1	1	1	1	1	1	1	1	1	1	1	1	1
Ammonium Soil by Titration	13	1	1	1	1	1	1	1	1	1	1	1	1	1
Asbestos ID	8	1		1	1		1	1	1		1		1	
Asbestos Quant	2	1			1									
PCB 7 & WHO 12 (S) by GC MS	0													

Table 2 - Groundwater Sampling Schedule

	Sample ID	BH2	BH3	BH4	BH5	BH7	BH8	BH9	BH10
	Sampling Date	02/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	02/09/2015	01/09/2015
Scheduled Chem. Group	Total Analyses								
Toxic 9 Metals Filtered (W)	7	1	1	1	1	1	1	1	1
COD, unfiltered	7	1	1	1	1	1	1	1	1
Ammoniacal Nitrogen as N	7	1	1	1	1	1	1	1	1
Ammoniacal Nitrogen as NH4	7	1	1	1	1	1	1	1	1
Nitrate as NO3	7	1	1	1	1	1	1	1	1
Phosphate (ortho) as PO4	7	1	1	1	1	1	1	1	1
Sulphate	7	1	1	1	1	1	1	1	1
Boron (diss.filt)	7	1	1	1	1	1	1	1	1
Metals Prep	7	1	1	1	1	1	1	1	1
VOC (W) by GC MS	7	1	1	1	1	1	1	1	1
pH Value	7	1	1	1	1	1	1	1	1
TPH Total (Includes EPH Total and GRO Total)	7	1	1	1	1	1	1	1	1
BTEX & MTBE	7	1	1	1	1	1	1	1	1

	Sample ID	BH104B	BH109	BH110	BH111	BH201A	DUP01 (BH4)
	Sampling Date	02/09/2015	01/09/2015	01/09/2015	01/09/2015	02/09/2015	01/09/2015
Scheduled Chem. Group	Total Analyses						
Toxic 9 Metals Filtered (W)	6	1	1	1	1	1	1
COD, unfiltered	6	1	1	1	1	1	1
Ammoniacal Nitrogen as N	6	1	1	1	1	1	1
Ammoniacal Nitrogen as NH4	6	1	1	1	1	1	1
Nitrate as NO3	6	1	1	1	1	1	1
Phosphate (ortho) as PO4	6	1	1	1	1	1	1
Sulphate	6	1	1	1	1	1	1
Boron (diss.filt)	6	1	1	1	1	1	1
Metals Prep	6	1	1	1	1	1	1
VOC (W) by GC MS	5	1	1	1	1	1	0
pH Value	6	1	1	1	1	1	1
TPH Total (Includes EPH Total and GRO Total)	6	1	1	1	1	1	1
BTEX & MTBE	6	1	1	1	1	1	1

Table 3 - Field Observations of Fluid Levels in Wells and Groundwater Quality

Well ID	Date	Depth to NAPL [m bgl]	Depth to Water (DTW) [m bgl]	Depth to Bottom (DTB) [m bgl]	Relative Elevation of Well Cover [m AOD]	Relative Elevation of Top of Well Casing [m AOD]	Relative Elevation of Water Level [m AOD]	O.d.P [mV]	Temperature [deg C]	pH	Conductivity [µS/cm@25C]	Dissolved Oxygen [%]	Sampling Method	Comments
BH2	Oct 2003 - 1st Round (BASELINE EVENT)	--	5.2	6.7	5.82	5.69	--	--	--	--	--	--	No Info. Provided.	Data from CRA 2003 borehole log. NVO.
	Dec 2005 - 2nd Round	--	4.18	6.88			--	--	--	--	--	--	HDPE Bailer	Good yield. Recovered purged water observed to be clear. NVO.
	Apr 2007 - Third Round	--	4.08	6.98			--	--	--	--	--	--	HDPE Bailer	Good yield. Recovered purged water observed to be clear with no streaks or odour. NVO.
	Sep 2012 - Fourth Round	--	4.4	6.84			--	--	--	--	--	--	HDPE Bailer	Dark brown for first 5L. Organic matter and orange colouring from 5L to 24L purge. Slight oil sheen noted.
	Sep 2015 - Fifth Round	--	4.121	6.764			1.569	-107.1	14.7	6.82	1609	0.374	Peristaltic Pump	Well de-silted. Light brown turning clear after approx. 3L. NVO.
BH3	Oct 2003 - 1st Round (BASELINE EVENT)	--	5.5	6.5	6.55	6.49	--	--	--	--	--	--	No Info. Provided.	Data from CRA 2003 borehole log. NVO.
	Dec 2005 - 2nd Round	--	5.27	6.18			--	--	--	--	--	--	HDPE Bailer	Good yield. Water brown in colour. Some very fine, white possibly living organisms noted. NVO.
	Apr 2007 - Third Round	--	4.91	5.94			--	--	--	--	--	--	HDPE Bailer	Good yield. Initially slightly grey in colour with small amount of organic matter. Cleared after initial 20L to become brown in colour. No streaks or odour.
	Sep 2012 - Fourth Round	--	5.23	5.38			--	--	--	--	--	--	HDPE Bailer	Dark brown/black purge water, lots of organic material in water. NVO.
	Sep 2015 - Fifth Round	--	5.14	6.035			1.35	-81	15.1	6.88	1449	0.946	Peristaltic Pump	Well de-silted. Light brown turning clear after approx. 1L. NVO.
BH4	Oct 2003 - 1st Round (BASELINE EVENT)	--	4.8	6.7	6.21	6.18	--	--	--	--	--	--	No Info. Provided.	Data from CRA 2003 borehole log. NVO.
	Dec 2005 - 2nd Round	--	4.96	6.31			--	--	--	--	--	--	HDPE Bailer	Good yield to final purge volume of 40L. No odour. Slight oily sheen on water surface.
	Apr 2007 - Third Round	--	4.72	6.23			--	--	--	--	--	--	HDPE Bailer	Good yield. NVO.
	Sep 2012 - Fourth Round	--	4.9	4.95			--	--	--	--	--	--	--	No sample obtainable - insufficient water volume.
	Sep 2015 - Fifth Round	--	4.83	6.169			1.35	32.8	15	6.6	522	5.61	Peristaltic Pump	Well de-silted. Light brown turning clear after approx. 0.5L. NVO.
BH5	Oct 2003 - 1st Round (BASELINE EVENT)	--	5	7	6.185	6.085	--	--	--	--	--	--	No Info. Provided.	Data from CRA 2003 borehole log. NVO.
	Dec 2005 - 2nd Round	--	4.94	6.47			--	--	--	--	--	--	HDPE Bailer	Good yield. NVO.
	Apr 2007 - Third Round	--	4.57	6.23			--	--	--	--	--	--	HDPE Bailer	Good yield. NVO.
	Sep 2012 - Fourth Round	--	Dry	4.87			--	--	--	--	--	--	--	No sample obtainable - insufficient water volume.
	Sep 2015 - Fifth Round	--	4.755	6.07			1.33	25.5	16.1	6.73	775	1.518	Peristaltic Pump	Well de-silted. Light brown turning clear after approx. 0.5L. NVO.
BH7	Oct 2003 - 1st Round (BASELINE EVENT)	--	5.3	6.7	6.45	6.425	--	--	--	--	--	--	No Info. Provided.	Data from CRA 2003 borehole log. NVO.
	Dec 2005 - 2nd Round	--	5.07	6.84			--	--	--	--	--	--	HDPE Bailer	Good yield. Clear grey water. NVO.
	Apr 2007 - Third Round	--	4.93	6.84			--	--	--	--	--	--	HDPE Bailer	Good yield.Clear grey water. NVO.
	Sep 2012 - Fourth Round	--	5.21	6.49			--	--	--	--	--	--	HDPE Bailer	No comments provided.
	Sep 2015 - Fifth Round	--	5.11	6.947			1.315	-98.6	16.8	7.09	1707	0.539	Peristaltic Pump	Well de-silted. Clear water NVO.

Table 3 - Field Observations of Fluid Levels in Wells and Groundwater Quality

Well ID	Date	Depth to NAPL [m bgl]	Depth to Water (DTW) [m bgl]	Depth to Bottom (DTB) [m bgl]	Relative Elevation of Well Cover [m AOD]	Relative Elevation of Top of Well Casing [m AOD]	Relative Elevation of Water Level [m AOD]	O.d.P [mV]	Temperature [deg C]	pH	Conductivity [µS/cm@25C]	Dissolved Oxygen [%]	Sampling Method	Comments
BH8	Oct 2003 - 1st Round (BASELINE EVENT)	--	4.9	7.2	6.2	6.155	--	--	--	--	--	--	No Info. Provided.	Data from CRA 2003 borehole log. NVO.
	Dec 2005 - 2nd Round	--	4.86	6.34			--	--	--	--	--	--	HDPE Bailer	Good yield. Slight oil streak observed on the water surface of the first 10L that were removed. No oil streaks were observed on the purge water removed thereafter.
	Apr 2007 - Third Round	--	4.88	6.39			--	--	--	--	--	--	HDPE Bailer	Good yield. NVO.
	Sep 2012 - Fourth Round	--	4.95	6.25			--	--	--	--	--	--	HDPE Bailer	No comments provided.
	Sep 2015 - Fifth Round	--	4.815	6.822			1.34	4.4	15.2	6.74	1350	1.793	Peristaltic Pump	Well de-silted. Clear water. NVO.
BH9	Oct 2003 - 1st Round (BASELINE EVENT)	--	1.9	2.2	5.9	5.775	--	--	--	--	--	--	No Info. Provided.	Data from CRA 2003 borehole log. NVO.
	Dec 2005 - 2nd Round	--	--	--			--	--	--	--	--	--	--	No information reported by CRA.
	Apr 2007 - Third Round	--	--	--			--	--	--	--	--	--	--	No information reported by CRA.
	Sep 2012 - Fourth Round	--	--	--			--	--	--	--	--	--	--	No information reported by CRA.
	Sep 2015 - Fifth Round	--	1.75	2.497			4.025	-138.7	24.5	7.45	1544	0.374	Peristatic Pump	Well de-silted. Black water turning grey after approx. 1L purge. Black sediments noted with organic odour. No sheen noted. Well turned dry after approx. 2L purge. Sample collected after approx. 50mins recharge. Shallow groundwater well within the Perched Water.
BH10	Oct 2003 - 1st Round (BASELINE EVENT)	--	5	7	5.94	5.835	--	--	--	--	--	--	No Info. Provided.	Data from CRA 2003 borehole log. NVO.
	Dec 2005 - 2nd Round	--	4.41	7.13			--	--	--	--	--	--	HDPE Bailer	Recovered purge water observed as grey and clear. NVO.
	Apr 2007 - Third Round	--	4.39	7.17			--	--	--	--	--	--	HDPE Bailer	Good yield.Clear grey groundwater. NVO.
	Sep 2012 - Fourth Round	--	4.96	5.53			--	--	--	--	--	--	HDPE Bailer	Continuous slight orange colour during purge. NVO.
	Sep 2015 - Fifth Round	--	4.277	7.031			1.558	24.6	15.5	6.8	748	0.55	Peristaltic Pump	Well de-silted. Light brown water turning clear after approx. 3L purge. NVO.
BH104B	Oct 2003 - 1st Round (BASELINE EVENT)	--	4	6	5.81	5.715	--	--	--	--	--	--	No Info. Provided.	Data from Dames & Moore 1995 borehole log. NVO.
	Dec 2005 - 2nd Round	--	4.13	5.09			--	--	--	--	--	--	HDPE Bailer	Good yield. Brown in colour. Some oily streaks were initially observed on surface water but cleared after 20L.
	Apr 2007 - Third Round	--	4.12	5.89			--	--	--	--	--	--	HDPE Bailer	Good yield. Brown in colour. NVO.
	Sep 2012 - Fourth Round	--	4.39	5.92			--	--	--	--	--	--	HDPE Bailer	Light orange in the first 2L of purge, clear thereafter to 14L. NVO.
	Sep 2015 - Fifth Round	--	4.141	4.931			1.574	-88.6	15.7	6.84	1153	1.067	Peristaltic Pump	Well de-silted. Clear water NVO.
BH109	Oct 2003 - 1st Round (BASELINE EVENT)	--	4.500	6	6.28	6.14	--	--	--	--	--	--	No Info. Provided.	Data from Dames & Moore 1995 borehole log. NVO.
	Dec 2005 - 2nd Round	--	--	--			--	--	--	--	--	--	--	No information reported by CRA.
	Apr 2007 - Third Round	--	4.400	6.18			--	--	--	--	--	--	--	No information reported by CRA.
	Sep 2012 - Fourth Round	--	--	--			--	--	--	--	--	--	--	No information reported by CRA.
	Sep 2015 - Fifth Round	--	4.507	6.142			1.633	-68.9	12.5	7.1	1409	4.686	Peristaltic Pump	Well de-silted. Light brown water turning clear after approx. 1.5L. NVO
BH110	Oct 2003 - 1st Round (BASELINE EVENT)	--	4.600	5.6	6.3	6.24	--	--	--	--	--	--	No Info. Provided.	Data from Dames & Moore 1995 borehole log. NVO.
	Dec 2005 - 2nd Round	--	4.880	5.52			--	--	--	--	--	--	HDPE Bailer	Good yield. Some very fine white possible live organisms observed. Pipe installation too marrow to use standard bailer. Sampled directly from HDPE pipe. No streaks or odour.
	Apr 2007 - Third Round	--	4.650	5.49			--	--	--	--	--	--	HDPE Bailer	Good yield. Initially slightly grey in colour with small amount of organic matter. Cleared after initial 30L to become brown in colour. NVO.
	Sep 2012 - Fourth Round	--	4.960	5.53			--	--	--	--	--	--	HDPE Bailer	Dark brown colour, clearing up throughout purge. NVO.
	Sep 2015 - Fifth Round	--	4.805	5.516			1.435	-18.4	17.2	6.99	1183	1.991	Peristaltic Pump	Well de-silted. Clear water NVO.

Table 3 - Field Observations of Fluid Levels in Wells and Groundwater Quality

Well ID	Date	Depth to NAPL [m bgl]	Depth to Water (DTW) [m bgl]	Depth to Bottom (DTB) [m bgl]	Relative Elevation of Well Cover [m AOD]	Relative Elevation of Top of Well Casing [m AOD]	Relative Elevation of Water Level [m AOD]	O.d.P [mV]	Temperature [deg C]	pH	Conductivity [µS/cm@25C]	Dissolved Oxygen [%]	Sampling Method	Comments
BH111	Oct 2003 - 1st Round (BASELINE EVENT)	--	4.900	7.6 (*)	6.45	6.41	--	--	--	--	--	--	No Info. Provided.	Data from Dames & Moore 1995 borehole log. NVO.
	Dec 2005 - 2nd Round	--	5.090	7.53			--	--	--	--	--	--	HDPE Bailer	Iniatial purged water recovered dark brown / black. Soon cleared on purging. Purged then left overnight before purging again. Total purged volume 150L. Some sand recovered from well during purging. NVO.
	Apr 2007 - Third Round	--	4.880	7.58			--	--	--	--	--	--	HDPE Bailer	Initial purged water recovered dark grey. Soon cleared on purging. NVO.
	Sep 2012 - Fourth Round	--	5.220	7.59			--	--	--	--	--	--	HDPE Bailer	Orange colour throghout purge. NVO.
	Sep 2015 - Fifth Round	--	5.097	7.653			1.313	-132.6	15.9	6.97	1486	0.44	Peristaltic Pump	Well de-silted. Clear water. NVO.
BH112	Oct 2003 - 1st Round (BASELINE EVENT)	--	Dry	3	6.35	6.305	--	--	--	--	--	--	No Info. Provided.	Data from Dames & Moore 1995 borehole log. NVO.
	Dec 2005 - 2nd Round	--	1.19	--			--	--	--	--	--	--	--	No information reported by CRA.
	Apr 2007 - Third Round	--	Dry	2.67			--	--	--	--	--	--	--	Well dry. Sample not collected.
	Sep 2012 - Fourth Round	--	--	--			--	--	--	--	--	--	--	Well not located.
	Sep 2015 - Fifth Round	--	Dry	2.766			--	--	--	--	--	--	--	Dry. NVO.
BH201A	Sep 2015	--	3.586	5.559	5.72	5.575	1.989	-52.7	15.7	7.14	900	0.638	Peristaltic Pump	Light brown water turning clear after approx. 2L purge. NVO.

Table 4 - Metals and Inorganics

						Location ID	BH201A	BH201A	BH202A	BH203A	BH204	BH204	BH205	BH205	BH206	BH207	BH207	BH208A	BH208A	BH209	BH209	BH210	BH210	BH211	BH211	BH212	BH212	BH213	BH213	BH214	BH2A	BH2A	BH3A	BH4A	BH4A	BH5A	BH5A	BH7A	BH7A	BH8A	BH8A	BH9A	BH9A
						Sample Depth	0.7	1.9-2	0.8	0.5	1.3	3.3	1	2.5	1.1	0.7	2.6-3.5	0.8	1.1	0.5	2.7-3.4	0.8	2.2-2.8	0.7	2.2	0.6	1.8-2.5	0.6	1.7-2	0.85	0.5	1.5	0.5	0.9	3.5-4	0.5	2.5-3	0.7	2.5-3	0.5	3-3.5	0.5	2.2-3.3
						Sample Date	25/08/2015	25/08/2015	25/08/2015	20/08/2015	21/08/2015	21/08/2015	21/08/2015	21/08/2015	21/08/2015	25/08/2015	25/08/2015	25/08/2015	25/08/2015	25/08/2015	25/08/2015	26/08/2015	26/08/2015	26/08/2015	26/08/2015	27/08/2015	27/08/2015	27/08/2015	27/08/2015	25/08/2015	25/08/2015	25/08/2015	28/08/2015	27/08/2015	27/08/2015	28/08/2015	28/08/2015	27/08/2015	27/08/2015	26/08/2015	26/08/2015	26/08/2015	26/08/2015
Chemical Gr	Chemical Name	Unit	EQL	GAC_HH_COM/IND_SAND_1.45-3.48%TOC	GAC_HH_RES+PL_SAND_1.45-3.48%TOC	GAC_HH_RES-PL_SAND_1.45-3.48%TOC																																					
Metals	Arsenic	mg/kg	0.6	640#5	*37#5*	40#5	15	14.5	9.55	12.1	10.9	30	13.7	21.8	19.9	17.8	16.3	16.6	16.6	12.7	13.4	23.6	20.2	11.8	19.5	19.2	18.8	19.1	19.1	11.8	14.5	11.6	18.9	14.2	21.4	19.1	22.4	*94*	16.4	13.7	14.7	16.5	15.5
	Cadmium	mg/kg	0.02	190#5	*11#5*	85#5	0.35	0.255	0.227	0.29	0.21	0.319	0.414	0.263	0.324	0.609	0.377	0.377	0.328	0.378	0.308	0.449	0.341	0.347	0.391	1.44	0.393	0.547	0.389	0.265	0.289	0.219	0.475	0.603	0.385	1.13	0.533	2.03	0.325	0.344	0.338	0.395	0.378
	Chromium (III+VI)	mg/kg	0.9				17.2	15.4	10.4	31.2	17.4	15.2	20	20.6	21.9	15.9	16.8	18.5	18.8	20.4	17.6	25.9	16.6	17	24.1	6.94	16.9	17.1	20.2	18.5	16.7	25.8	19.5	16.9	21.5	25.4	21.6	28.7	16.5	13.9	19.1	18.9	21.1
	Copper	mg/kg	1.4	68000#5	*2400#5*	7100#5	22.6	2.33	6.09	35.3	8.93	3.08	25.8	4.42	12.8	48	6.14	66.5	8.23	54.3	3.25	31.2	5.29	9.01	6.47	13.9	4.3	29.6	6.42	19.8	41	9.74	49.3	31.4	6.36	28	3.56	82.3	4.42	80.7	5.98	8.36	12
	Lead	mg/kg	0.7	2300#4	*200#4*	310#4	151	5.8	13.2	59.6	10.6	6.08	96.4	10.2	39.4	*264*	8.15	*251*	19.7	140	8.4	32.7	5.73	44.5	7.8	*271*	5.92	*2910*	6.91	38.9	191	16.9	178	*309*	8.03	85.7	9.05	*468*	5.77	41.4	6.89	12.4	23.7
	Mercury	mg/kg	0.14	1100#5	*40#5*	56#5	0.289	<0.14	<0.14	<0.14	<0.14	<0.14	0.162	<0.14	<0.14	0.487	<0.14	0.608	<0.14	<0.14	<0.14	<0.14	<0.14	0.152	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	0.493	<0.14	0.151	<0.14	<0.14	1.9	<0.14	0.702	<0.14	<0.14	<0.14	<0.14	<0.14
	Nickel	mg/kg	0.2	980#5	*130#5*	180#5	17.9	14.8	12.2	38.2	16.5	21.8	17.4	20	22.4	18	18.5	19.3	17.1	18.7	20.3	24.5	21.2	16.5	22.6	6.81	19.2	14.7	22	16.6	17.9	21.4	29.2	15.6	24.2	17.1	20.7	36	19.4	37.6	18.8	23.6	20.7
	Selenium	mg/kg	1	12000#5	*250#5*	430#5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Zinc	mg/kg	1.9	730000#5	*3700#5*	40000#5	50	19.7	25.3	96.4	44.4	25.3	93	28.2	54.2	131	25.9	69.9	35.6	118	22.7	43.4	21.9	41.3	28.4	276	23.4	906	26.2	58.5	63.9	47.4	89.3	217	28.5	101	28.6	1640	20.8	24.4	25.5	34.5	62.4
	Chromium (hexavalent)	mg/kg	0.6	33#5	*6#5*	6#5	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Inorganics	Sulphate	mg/kg	48				<48	<48	<48	8120	4280	2040	3750	883	573	<48	<48	<48	<48	<48	<48	481	<48	545	88.2	1090	49.6	7440	80.7	<48	<48	<48	579	841	63.9	356	95.9	601	74.7	775	80.9	212	1040
	Moisture	%					14	3.8	9.9	11	16	7.2	8.8	5.2	12	14	7.7	17	11	9.4	6	13	6.9	12	8.9	7	5.7	17	6.5	8	15	15	6.3	7.1	4.4	7	5.8	28	4.8	17	9.5	7.3	14
	Ammoniacal Nitrogen as NH4	mg/kg	15				<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	45.6	<15	<15	<15	18.2	<15	<15	<15	<15	<15	<15	<15	23.8	<15	27.7	<15	35.3	15.8	18.4	18.4	<15	71.4
	Easily Liberated Sulphide (Moisture C	mg/kg	15				<15	<15	<15	20	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	40.4	<15	<15	252
	pH (Lab)	pH_Units	1				9.32	8.74	11	11.7	9.55	8.43	11.3	9.88	8.95	9	8.36	8.77	8.17	12	10.9	9.67	8.35	10.3	8.66	8.95	7.72	8.04	7.84	12	10.6	8.45	8.22	7.92	8.01	7.86	7.86	7.67	8.01	8.38	7.66	10.2	11.2

Comments

GAC: Generic Assessment Criteria

(blank): No assessment criteria available

- : Not analysed

#1 USEPA RSL

#2 Dutch Serious 2009

#3 Dutch Intervention 2009

#4 Defra C4SL 12/2014

#5 AECOM (modified LQM/CIEH S4ULs)

#6 AECOM (modified EIC)

Key

XXX	Exceedance of HH Soil. Commercial/Industrial. Sand. TOC >=1.45 to <3.48%
XXX	Exceedance of HH Soil. Residential with Plant Uptake. Sand. TOC >=1.45 to <3.48%
XXX	Exceedance of HH Soil. Residential without Plant Uptake. Sand. TOC >=1.45 to <3.48%

Table 5 - TPH, BTEX, Oxygenates, Chlorinated Hydrocarbons, PAHs, PCBs, Hydrogenated Benzenes, Hydrogenated Hydrocarbons, Solvents, Organics, Other and Asbestos Concentrations in Soils

						Location ID	BH201A	BH201A	BH202A	BH203A	BH204	BH204	BH205	BH205	BH206	BH207	BH207	BH208A	BH208A	BH209	BH209	BH210	BH210	BH211	BH211	BH212	BH212	BH213	BH213	BH214	BH2A	BH2A	BH3A	BH4A	BH4A	BH5A	BH5A	BH7A	BH7A	BH8A	BH8A	BH9A	BH9A
						Sample Depth	0.7	1.9-2	0.8	0.5	1.3	3.3	1	2.5	1.1	0.7	2.6-3.5	0.8	1.1	0.5	2.7-3.4	0.8	2.2-2.8	0.7	2.2	0.6	1.8-2.5	0.6	1.7-2	0.85	0.5	1.5	0.5	0.9	3.5-4	0.5	2.5-3	0.7	2.5-3	0.5	3-3.5	0.5	2.2-3.3
						Sample Date	25/08/2015	25/08/2015	25/08/2015	20/08/2015	21/08/2015	21/08/2015	21/08/2015	21/08/2015	21/08/2015	25/08/2015	25/08/2015	25/08/2015	25/08/2015	25/08/2015	25/08/2015	26/08/2015	26/08/2015	26/08/2015	26/08/2015	27/08/2015	27/08/2015	27/08/2015	27/08/2015	25/08/2015	25/08/2015	25/08/2015	28/08/2015	27/08/2015	27/08/2015	28/08/2015	28/08/2015	27/08/2015	27/08/2015	26/08/2015	26/08/2015	26/08/2015	26/08/2015
Chemical Gr	Chemical Name	Unit	EQL	GAC_HH_COM/IND_SAND_1.45-3.48%TOC	GAC_HH_RES+PL_SAND_1.45-3.48%TOC	GAC_HH_RES-PL_SAND_1.45-3.48%TOC																																					
TPH	GRO >C5-C12	mg/kg	0.04				<0.044	<0.044	<0.044	<0.044	<0.044	<0.044	0.243	<0.044	<0.044	<0.044	<0.044	<0.044	<0.044	<0.044	<0.044	<0.044	<0.044	5.16	<0.044	<0.044	<0.044	<0.044	<0.044	0.05	<0.044	<0.044	<0.044	<0.044	<0.044	<0.044	<0.044	<0.044	<0.044	<0.044	<0.044	0.178	0.106
	>C5-C6 Aliphatics	mg/kg	0.01	3300#5	*34#5*	34#5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	>C6-C8 Aliphatics	mg/kg	0.01	9200#5	*93#5*	93#5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0129	<0.01	<0.01	<0.01	<0.01	0.0312	<0.01	<0.01	<0.01	<0.01	<0.01	0.0342	<0.01	<0.01	<0.01	<0.01	<0.01	0.012	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0145	<0.01	<0.01	0.0197
	>C8-C10 Aliphatics	mg/kg	0.01	2500#5	*26#5*	26#5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0259	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.01	0.0131	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0109	<0.01	0.0119	0.022
	>C10-C12 Aliphatics	mg/kg	0.01	12000#5	*130#5*	130#5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0939	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	2.06	<0.01	<0.01	<0.01	<0.01	<0.01	0.013	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0874	0.0255
	>C12-C16 Aliphatics	mg/kg	0.1	66000#5	*1000#5*	1000#5	<0.1	<0.1	<0.1	2.5	0.48	0.808	5.15	0.466	0.337	0.682	<0.1	0.876	<0.1	5.72	<0.1	<0.1	<0.1	15.1	<0.1	<0.1	<0.1	<0.1	<0.1	4.97	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.555	<0.1	<0.1	1.29
	>C16-C21 Aliphatics	mg/kg	0.1				<0.1	<0.1	<0.1	9.99	<0.1	<0.1	30	<0.1	<0.1	6.7	<0.1	1.2	<0.1	29.7	<0.1	3.15	<0.1	23.2	<0.1	<0.1	<0.1	<0.1	<0.1	20.7	0.177	<0.1	3.14	1.68	<0.1	0.234	<0.1	<0.1	<0.1	1.23	<0.1	<0.1	3.06
	>C16-C35 Aliphatics	mg/kg		1.6E6#5	*64000#5*	64000#5	<0.2	<0.2	14.35	107.49	<0.2	<0.2	150	<0.2	1.71	21.5	<0.2	5.03	<0.2	128.6	0.9	21.75	<0.2	80.5	<0.2	<0.2	<0.2	6.11	<0.2	120.7	2.277	<0.2	12.93	56.18	<0.2	6.894	<0.2	21.95	<0.2	7.06	<0.2	<0.2	9.75
	>C21-C35 Aliphatics	mg/kg	0.1				<0.1	<0.1	14.3	97.5	<0.1	<0.1	120	<0.1	1.66	14.8	<0.1	3.83	<0.1	98.9	0.85	18.6	<0.1	57.3	<0.1	<0.1	<0.1	6.06	<0.1	100	2.1	<0.1	9.79	54.5	<0.1	6.66	<0.1	21.9	<0.1	5.83	<0.1	<0.1	6.69
	>C35-C44 Aliphatics	mg/kg	0.1	1.6E6#5	*64000#5*	64000#5	<0.1	<0.1	<0.1	70	<0.1	<0.1	39.4	<0.1	<0.1	4.24	<0.1	<0.1	<0.1	39.1	<0.1	1.92	<0.1	10.6	<0.1	<0.1	<0.1	<0.1	<0.1	28.4	<0.1	<0.1	3.03	32.4	<0.1	0.968	<0.1	5.13	<0.1	0.567	<0.1	<0.1	<0.1
	>C12-C44 Aliphatics	mg/kg	0.1				<0.1	<0.1	14.3	180	0.48	0.808	195	0.466	2	26.4	<0.1	5.9	<0.1	173	0.85	23.7	<0.1	106	<0.1	<0.1	<0.1	6.06	<0.1	154	2.28	<0.1	15.9	88.5	<0.1	7.86	<0.1	27	<0.1	8.18	<0.1	<0.1	11
	>EC5-EC7 Aromatics	mg/kg	0.01	23000#5	*100#5*	250#5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	>EC7-EC8 Aromatics	mg/kg	0.01	58000#5	*230#5*	690#5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	>EC8-EC10 Aromatics	mg/kg	0.01	4300#5	*41#5*	45#5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0291	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.671	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0151
	>EC10-EC12 Aromatics	mg/kg	0.01	19000#5	*140#5*	240#5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0626	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.38	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0583	0.0174
	>EC12-EC16 Aromatics	mg/kg	0.1	37000#5	*320#5*	1800#5	0.792	<0.1	<0.1	1.61	0.486	0.402	4.43	0.519	<0.1	0.705	<0.1	1.56	<0.1	1.65	<0.1	<0.1	<0.1	4.15	<0.1	<0.1	<0.1	2.15	<0.1	1.5	0.511	1.7	0.714	1.61	<0.1	0.358	<0.1	1.92	<0.1	<0.1	<0.1	<0.1	2.81
	>EC16-EC21 Aromatics	mg/kg	0.1	28000#5	*540#5*	1900#5	2.79	<0.1	<0.1	6.76	<0.1	<0.1	21.9	<0.1	<0.1	3.83	<0.1	3.21	<0.1	17.8	<0.1	<0.1	<0.1	10.5	<0.1	0.496	<0.1	10.6	<0.1	10.6	1.86	1.41	4.78	17.1	<0.1	2.62	<0.1	8.47	<0.1	<0.1	<0.1	<0.1	19.4
	>EC21-EC35 Aromatics	mg/kg	0.1	28000#5	*1500#5*	1900#5	8.85	<0.1	3.8	78.3	0.269	0.462	75.1	0.693	3.46	20	<0.1	11.2	<0.1	71	0.961	4.96	<0.1	26.6	<0.1	4.6	<0.1	31.1	<0.1	50.3	9.32	6.2	24.7	74.7	<0.1	16.1	<0.1	70	<0.1	<0.1	<0.1	<0.1	66.3
	>EC35-EC44 Aromatics	mg/kg	0.1	28000#5	*1500#5*	1900#5	3.15	<0.1	1.07	118	<0.1	<0.1	55.1	<0.1	<0.1	16.6	<0.1	3.99	<0.1	39.9	<0.1	1.4	<0.1	10.5	<0.1	<0.1	<0.1	10.9	<0.1	33.3	4.61	4	12.7	37.3	<0.1	8.05	<0.1	28.5	<0.1	<0.1	<0.1	<0.1	16.4
	>EC40-EC44 Aromatics	mg/kg	0.1				1.14	<0.1	<0.1	46.4	<0.1	<0.1	25.3	<0.1	<0.1	7.78	<0.1	1.48	<0.1	17.4	<0.1	<0.1	<0.1	3.89	<0.1	<0.1	<0.1	3.97	<0.1	14.8	1.93	1.7	5.16	14.2	<0.1	2.87	<0.1	10.5	<0.1	<0.1	<0.1	<0.1	5.98
	>EC12-EC44 Aromatics	mg/kg	0.1				15.6	<0.1	4.86	205	0.755	0.864	156	1.21	3.46	41.1	<0.1	19.9	<0.1	130	0.961	6.36	<0.1	51.9	<0.1	5.1	<0.1	54.8	<0.1	95.6	16.3	13.3	42.9	131	<0.1	27.1	<0.1	109	<0.1	<0.1	<0.1	<0.1	105
	>C5-C44 Aliphatics & Aromatics	mg/kg	0.1				15.6	<0.1	19.1	385	1.23	1.68	352	1.68	5.47	67.5	<0.1	25.9	<0.1	304	1.82	30	<0.1	163	<0.1	5.1	<0.1	60.9	<0.1	250	18.6	13.3	58.9	219	<0.1	35	<0.1	136	<0.1	8.22	<0.1	0.111	116
BTEX	Benzene	mg/kg	0.01	24#5	*0.12#5*	0.25#5	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.01	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.01	<0.009	<0.01	<0.009	<0.009	<0.009
	Toluene	mg/kg	0	58000#5	*230#5*	710#5	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.007 - 0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.07 - 0.0024	<0.002	<0.002	<0.002
	Ethylbenzene	mg/kg	0	6200#5	*55#5*	70#5	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0445 - 0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	Xylene (m & p)	mg/kg	0.01				<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.01 - 0.0075	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
	Xylene Total	mg/kg	0.01	2500#1	*3.4#3*	3.4#3	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009
	Xylene (o)	mg/kg	0	7200#5	*64#5*	74#5	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	Total BTEX	mg/kg	0.02				<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024
Oxygenates	MTBE	mg/kg	0.01	5740#6	*35.3#6*	40.5#6	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Tert Amyl Methyl Ether	mg/kg	0.01				<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.1	<0.01	<0.01	<0.01
Chlorinated H	Chloromethane	mg/kg	0.01	0.573#6	*0.0036#6*	0.00446#6	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.007*	*<0.07*	*<0.007*	*<0.07*	*<0.007*	*<0.007*	*<0.007*
	Vinyl chloride	mg/kg	0.01	0.04#5	*0.00037#5*	0.0004#5	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*	*<0.006*
	Chloroethane	mg/kg	0.01	640#6	*4.22#6*	5.12#6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.1	<0.01	<0.01	<0.01
	1,1-dichloroethene	mg/kg	0.01	22.6#6	*0.153#6*	0.184#6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.1	<0.01	<0.01	<0.01
	Dichloromethane	mg/kg	0.01	162#6	*0.608#6*	1.16#6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.1	<0.01	<0.01	<0.01
	trans-1,2-dichloroethene	mg/kg	0.01	18.9#6	*0.126#6*	0.127#6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.1	<0.01	<0.01	<0.01
	1,1-dichloroethane	mg/kg	0.01	208#6	*1.41#6*	1.7#6	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.08	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.08	<0.008	<0.08	<0.008	<0.008	<0.008
	cis-1,2-dichloroethene	mg/kg	0.01	11.3#6	*0.0699#6*	0.0854#6	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.06	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.06	<0.006	<0.06	<0.006	<0.006	<0.006
	Chloroform	mg/kg	0.01	81#5	*0.68#5*	0.75#5	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.08	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.08	<0.008	<0.08	<0.008	<0.008	<0.008
	1,1,1-trichloroethane	mg/kg	0.01	640#5	*6.6#5*	6.7#5	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.07	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.07	<0.007	<0.07	<0.007	<0.007	<0.007
	Carbon tetrachloride	mg/kg	0.01	3#5	*0.021#5*	0.021#5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Trichloroethene	mg/kg	0.01	1.2#5	*0.013#5*	0.013#5	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	*0.254*	*0.0181*	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009
	1,1,2-trichloroethane	mg/kg	0.01	89.7#6	*0.552#6*	0.755#6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.1	<0.01	<0.01	<0.01
	Tetrachloroethene	mg/kg	0.01	19#5	*0.14#5*	0.14#5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.005	<0.005	<0.005
	Sum of PCE and TCE	mg/kg					<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	0.279	0.0206	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.14	<0.014	<0.14	<0.014	<0.014	<0.014
	TCE+DCE+VC	mg/kg					<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	0.414	0.0341	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.41	<0.041	<0.41	<0.041	<0.041	<0.041
	PCE+TCE+DCE+VC	mg/kg					<0.046	<0.046	<0.046	<0.046	<0.046	<0.046	<0.046	<0.046	<0.046	<0.046	<0.046	0.439	0.0366	<0.046	<0.046	<0.046	<0.046	<0.046	<0.046	<0.046	<0.046	<0.046	<0.046	<0.046	<0.046	<0.046	<0.046	<0.046	<0.046	<0.046	<0.046	<0.46	<0.046	<0.46	<0.046	<0.046	<0.046
PAH	Naphthalene	mg/kg	0.01	220#5	*2.1#5*	2.1#5	0.013 - 0.038	<0.009	<0.009	0.013 - 0.010	<0.009	<0.009	0.173 - 0.196	<0.009	<0.009	0.013 - 0.04	<0.009	0.13 - 0.018	<0.009	0.013 - 0.044	<0.009	<0.009	<0.009	0.013 - 0.053	<0.009	<0.009	<0.009	0.013 - 0.027	<0.009	0.013 - 0.021	0.013 - 0.028	<0.009	0.013 - 0.034	0.013 - 0.05	<0.009	0.013 - 0.015	<0.009	0.13 - 0.069	<0.009	0.13 - 0.111	<0.009	<0.009	0.013 - 0.0327
	Acenaphthylene	mg/kg	0.01	90000#5	*400#5*	3300#5	0.0574	<0.012	<0.012	<0.012	<0.012	<0.012	0.0453	<0.012	<0.012	0.0486	<0.012	<0.012	<0.012	0.0566	<0.012	<0.012	<0.012	0.0148	<0.012	0.0205	<0.012	0.0278	<0.012	0.0171	<0.012	<0.012	0.0299	0.083	<0.012	0.0289	<0.012	0.0843	<0.012	0.016	<0.012	<0.012	0.015
	Acenaphthene	mg/kg	0.01	90000#5	*480#5*	3300#5	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	0.0732	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	0.0606	<0.008	<0.008	<0.008	0.0481	<0.008	<0.008	<0.008	0.0159	<0.008	0.0505	<0.008	<0.008	<0.008	0.0418	<0.008	0.00932	<0.008	0.0115	<0.008	<0.008	<0.008	<0.008	0.011
	Fluorene	mg/kg	0.01	66000#5	*390#5*	3200#5	0.0183	<0.01	<0.01	<0.01	<0.01	<0.01	0.0796	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0479	<0.01	<0.01	<0.01	0.0486	<0.01	<0.01	<0.01	0.0121	<0.01	0.0387	<0.01	<0.01	<0.01	0.0482	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0546
	Phenanthrene	mg/kg	0.02	22000#5	*220#5*	1400#5	0.512	<0.015	<0.015	0.16	<0.015	<0.015	0.811	<0.015	0.0284	0.223	<0.015	0.128	<0.015	1.3	<0.015	0.0277	<0.015	0.352	<0.015	0.218	<0.015	0.329	<0.015	1.01	0.119	<0.015	0.188	1.19	<0.015	0.147	<0.015	0.307	<0.015	0.215	<0.015	<0.015	0.36
	Anthracene	mg/kg	0.02	530000#5	*5300#5*	34000#5	0.0982	<0.016	<0.016	0.041	<0.016	<0.016	0.179	<0.016	<0.016	0.0506	<0.016	0.0199	<0.016	0.258	<0.016	<0.016	<0.016	0.0788	<0.016	0.0859	<0.016	0.0718	<0.016	0.184	<0.016	<0.016	0.036	0.317	<0.016	0.0399	<0.016	0.107	<0.016	0.0332	<0.016	<0.016	0.105
	Fluoranthene	mg/kg	0.02	23000#5	*560#5*	1600#5	0.835	<0.017	<0.017	0.429	<0.017	<0.017	1.31	<0.017	0.0473	0.592	<0.017	0.137	<0.017	2.18	<0.017	0.047	<0.017	0.389	<0.017	1.27	<0.017	0.82	<0.017	1.57	0.0893	<0.017	0.445	2.5	<0.017	0.417	<0.017	0.967	<0.017	0.237	<0.017	<0.017	0.4
	Pyrene	mg/kg	0.02	54000#5	*1200#5*	3700#5	0.682	<0.015	<0.015	0.412	<0.015	<0.015	1.51	<0.015	0.0532	0.534	<0.015	0.118	<0.015	1.89	<0.015	0.0436	<0.015	0.317	<0.015	0.975	<0.015	0.729	<0.015	1.26	0.0839	<0.015	0.384	2.09	<0.015	0.359	0.0298	0.971	<0.015	0.186	<0.015	0.0167	0.317
	Benz(a)anthracene	mg/kg	0.01	170#5	*11#5*	14#5	0.401	<0.014	<0.014	0.192	<0.014	<0.014	1.06	<0.014	<0.014	0.419	<0.014	0.0873	<0.014	1.06	<0.014	0.0481	<0.014	0.174	<0.014	0.927	<0.014	0.449	<0.014	0.66	0.0909	<0.014	0.245	1.32	<0.014	0.227	<0.014	0.63	<0.014	0.128	<0.014	0.0247	0.283
	Chrysene	mg/kg	0.01	350#5	*22#5*	31#5	0.382	<0.01	<0.01	0.194	<0.01	<0.01	0.976	<0.01	0.0163	0.414	<0.01	0.0863	<0.01	0.988	<0.01	0.0285	<0.01	0.151	<0.01	0.908	<0.01	0.414	<0.01	0.608	0.103	<0.01	0.291	1.06	<0.01	0.236	0.0245	0.684	<0.01	0.137	<0.01	<0.01	0.218
	Benzo(a) pyrene	mg/kg	0.02	36#5	*2.7#5*	3.2#5	0.357	<0.015	<0.015	0.203	<0.015	<0.015	0.97	<0.015	0.0382	0.632	<0.015	0.0594	<0.015	0.837	<0.015	0.03	<0.015	0.147	<0.015	1.05	<0.015	0.485	<0.015	0.545	0.0834	<0.015	0.289	1.47	<0.015	0.26	<0.015	1.05	<0.015	0.122	<0.015	0.0182	0.259
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.02	510#5	*36#5*	45#5	0.192	<0.018	<0.018	0.124	<0.018	<0.018	0.543	<0.018	0.029	0.408	<0.018	0.0306	<0.018	0.547	<0.018	<0.018	<0.018	0.0775	<0.018	0.668	<0.018	0.27	<0.018	0.297	0.0481	<0.018	0.21	0.787	<0.018	0.156	<0.018	0.975	<0.018	0.0766	<0.018	<0.018	0.121
	Dibenz(a,h)anthracene	mg/kg	0.02	3.6#5	*0.28#5*	0.32#5	0.0606	<0.023	<0.023	0.0327	<0.023	<0.023	0.186	<0.023	<0.023	0.124	`	<0.023	<0.023	0.151	<0.023	<0.023	<0.023	<0.023	<0.023	0.195	<0.023	0.0732	<0.023	0.0882	<0.023	<0.023	0.0634	0.216	<0.023	0.0468	<0.023	0.269	<0.023	<0.023	<0.023	<0.023	0.0404
	Benzo(g,h,i)perylene	mg/kg	0.02	4000#5	*340#5*	360#5	0.233	<0.024	<0.024	0.142	<0.024	<0.024	0.676	<0.024	0.0301	0.521	<0.024	0.0442	<0.024	0.556	<0.024	0.0286	<0.024	0.105	<0.024	0.755	<0.024	0.358	<0.024	0.385	0.0682	<0.024	0.245	0.967	<0.024	0.196	<0.024	1.16	<0.024	0.108	<0.024	<0.024	0.144
	Benzo(b)fluoranthene	mg/kg	0.02	45#5	*3.3#5*	4#5	0.47	<0.015	<0.015	0.206	<0.015	<0.015	1.3	<0.015	0.0377	0.805	<0.015	0.0973	<0.015	1.25	<0.015	0.0388	<0.015	0.199	<0.015	1.46	<0.015	0.588	<0.015	0.715	0.135	<0.015	0.459	1.7	<0.015	0.391	0.0235	1.93	<0.015	0.193	<0.015	0.0246	0.306
	Benzo(k)fluoranthene	mg/kg	0.01	1200#5	*92#5*	110#5	0.192	<0.014	<0.014	0.103	<0.014	<0.014	0.546	<0.014	0.0197	0.281	<0.014	0.0345	<0.014	0.434	<0.014	0.0181	<0.014	0.0907	<0.014	0.503	<0.014	0.255	<0.014	0.287	0.0553	<0.014	0.134	0.609	<0.014	0.132	<0.014	0.724	<0.014	0.0599	<0.014	<0.014	0.108
	Benzo(b)&(k)fluoranthene	mg/kg					0.662	<0.029	<0.029	0.309	<0.029	<0.029	1.846	<0.029	0.0574	1.086	<0.029	0.1318	<0.029	1.684	<0.029	0.0569	<0.029	0.2897	<0.029	1.963	<0.029	0.843	<0.029	1.002	0.1903	<0.029	0.593	2.309	<0.029	0.523	0.0305	2.654	<0.029	0.2529	<0.029	0.0316	0.414
	PAHs (sum of 4)	mg/kg					1.087	<0.071	<0.071	0.575	<0.071	<0.071	3.065	<0.071	0.1165	2.015	<0.071	0.2066	<0.071	2.787	<0.071	0.0945	<0.071	0.4722	<0.071	3.386	<0.071	1.471	<0.071	1.684	0.3066	<0.071	1.048	4.063	<0.071	0.875	0.0515	4.789	<0.071	0.4375	<0.071	0.0526	0.679
	PAH 16 Total	mg/kg	0.12				4.53	<0.118	<0.118	2.25	<0.118	<0.118	10.4	<0.118	0.3	5.09	<0.118	0.861	<0.118	11.6	<0.118	0.311	<0.118	2.25	<0.118	9.03	<0.118	4.92	<0.118	7.74	0.905	<0.118	3.05	14.5	<0.118	2.66	<0.118	9.95	<0.118	1.62	<0.118	<0.118	2.78
	benzo(g,h,i)perylene + indeno(1,2,3-	mg/kg					0.425	<0.042	<0.042	0.266	<0.042	<0.042	1.219	<0.042	0.0591	0.929	<0.042	0.0748	<0.042	1.103	<0.042	0.0376	<0.042	0.1825	<0.042	1.423	<0.042	0.628	<0.042	0.682	0.1163	<0.042	0.455	1.754	<0.042	0.352	<0.042	2.135	<0.042	0.1846	<0.042	<0.042	0.265
	Coal Tar (Bap as surrogate marker)	mg/kg		15#5	*0.98#5*	1.2#5	0.357	<0.015	<0.015	0.203	<0.015	<0.015	0.97	<0.015	0.0382	0.632	<0.015	0.0594	<0.015	0.837	<0.015	0.03	<0.015	0.147	<0.015	*1.05*	<0.015	0.485	<0.015	0.545	0.0834	<0.015	0.289	*1.47*	<0.015	0.26	<0.015	*1.05*	<0.015	0.122	<0.015	0.0182	0.259
PCBs	Tetrachlorobiphenyl, 3,3,4,4- (PCB 7	mg/kg	0	0.16#1	*0.037#1*	0.037#1	-	-	-	-	-	-	-	-	-	-	-	<0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tetrachlorobiphenyl, 3,4,4,5- (PCB 8	mg/kg	0	0.053#1	*0.012#1*	0.012#1	-	-	-	-	-	-	-	-	-	-	-	<0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Pentachlorobiphenyl, 2,3,3,4,4- (PCE	mg/kg	0	0.53#1	*0.12#1*	0.12#1	-	-	-	-	-	-	-	-	-	-	-	<0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Pentachlorobiphenyl, 2,3,4,4,5- (PCE	mg/kg	0	0.53#1	*0.12#1*	0.12#1	-	-	-	-	-	-	-	-	-	-	-	<0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PCB 118	mg/kg	0	0.53#1	*0.12#1*	0.12#1	-	-	-	-	-	-	-	-	-	-	-	<0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Pentachlorobiphenyl, 2,3,4,4,5- (PCE	mg/kg	0	0.53#1	*0.12#1*	0.12#1	-	-	-	-	-	-	-	-	-	-	-	<0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Pentachlorobiphenyl, 3,3,4,4,5- (PCE	mg/kg	0	0.00016#1	*0.000037#1*	0.000037#1	-	-	-	-	-	-	-	-	-	-	-	*<0.003*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Hexachlorobiphenyl, 2,3,3,4,4,5- (PC	mg/kg	0	0.53#1	*0.12#1*	0.12#1	-	-	-	-	-	-	-	-	-	-	-	<0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Hexachlorobiphenyl, 2,3,3,4,4,5- (PC	mg/kg	0	0.53#1	*0.12#1*	0.12#1	-	-	-	-	-	-	-	-	-	-	-	<0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Hexachlorobiphenyl, 2,3,4,4,5,5- (PC	mg/kg	0	0.53#1	*0.12#1*	0.12#1	-	-	-	-	-	-	-	-	-	-	-	<0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Hexachlorobiphenyl, 3,3,4,4,5,5- (PC	mg/kg	0	0.00053#1	*0.00012#1*	0.00012#1	-	-	-	-	-	-	-	-	-	-	-	*<0.003*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heptachlorobiphenyl, 2,3,3,4,4,5,5- (	mg/kg	0	0.53#1	*0.12#1*	0.12#1	-	-	-	-	-	-	-	-	-	-	-	<0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total PCB WHO 12	mg/kg	0.04				-	-	-	-	-	-	-	-	-	-	-	<0.036	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PCB 28	mg/kg	0				-	-	-	-	-	-	-	-	-	-	-	<0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PCB 52	mg/kg	0				-	-	-	-	-	-	-	-	-	-	-	<0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PCB 101	mg/kg	0				-	-	-	-	-	-	-	-	-	-	-	<0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PCB 138	mg/kg	0				-	-	-	-	-	-	-	-	-	-	-	<0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PCB 153	mg/kg	0				-	-	-	-	-	-	-	-	-	-	-	<0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PCB 180	mg/kg	0				-	-	-	-	-	-	-	-	-	-	-	<0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total PCB 7 Congeners	mg/kg	0.02		*0.2#3*	0.2#3	-	-	-	-	-	-	-	-	-	-	-	<0.021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Halogenated	Chlorobenzene	mg/kg	0.01	59#5	*0.38#5*	0.38#5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	0.0955	<0.05	<0.005	<0.005	<0.005
	Bromobenzene	mg/kg	0.01	105#6	*0.75#6*	0.892#6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.1	<0.01	<0.01	<0.01
	2-chlorotoluene	mg/kg	0.01	23000#1	*1600#1*	1600#1	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.09	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.09	<0.009	<0.09	<0.009	<0.009	<0.009
	4-chlorotoluene	mg/kg	0.01	23000#1	*1600#1*	1600#1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.1	<0.01	<0.01	<0.01
	1,3-dichlorobenzene	mg/kg	0.01	34#5	*0.37#5*	0.38#5	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.08	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.08	<0.008	<0.08	<0.008	<0.008	<0.008
	1,4-dichlorobenzene	mg/kg	0.01	4800#5	*52#5*	52#5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.005	<0.005	<0.005
	1,2-dichlorobenzene	mg/kg	0.01	2200#5	*20#5*	20#5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.1	<0.01	<0.01	<0.01
	1,2,4-trichlorobenzene	mg/kg	0.02	240#5	*2.3#5*	2.3#5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.2	<0.02	<0.2	<0.02	<0.02	<0.02
	1,2,3-trichlorobenzene	mg/kg	0.02	110#5	*1.3#5*	1.3#5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.2	<0.02	<0.2	<0.02	<0.02	<0.02
Halogenated	Dichlorodifluoromethane	mg/kg	0.01	370#1	*87#1*	87#1	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.06	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.06	<0.006	<0.06	<0.006	<0.006	<0.006
	Bromomethane	mg/kg	0.01	30#1	*6.8#1*	6.8#1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Trichlorofluoromethane	mg/kg	0.01	3100#1	*730#1*	730#1	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.06	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
	1,2-dibromoethane	mg/kg	0.01	0.16#1	*0.036#1*	0.036#1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Solvents	Carbon disulfide	mg/kg	0.01	11#5	*0.11#5*	0.11#5	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.07	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.07	<0.007	<0.07	<0.007	<0.007	<0.007
Organics	TOC	%	0.2				1.21	<0.2	0.274	0.396	0.266	<0.2	0.627	<0.2	0.522	1.96	0.785	3.76	0.461	0.615	<0.2	0.358	<0.2	<0.2	<0.2	<0.2	<0.2	2.07	<0.2	0.216	1.89	0.248	1.52	2.08	<0.2	1.33	<0.2	3.51	<0.2	19.1	<0.2	<0.2	0.443
Other	Waste Limit, Total	%	0.1				-	-	-	-	-	-	-	-	-	<0.1	-	<0.1	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos	Amosite Asbestos	-					1	0	0	0	0	0	1	0	0	0	-	0	-	0	0	1	-	0	-	0	-	0	-	0	0	-	0	1	-	0	0	0	-	0	-	0	-
	Chrysotile Asbestos	-					0	0	0	1	0	0	0	0	0	1	-	1	-	1	0	0	-	0	-	0	-	0	-	0	0	-	0	1	-	0	0	0	-	0	-	0	-
	Crocidoilite Asbestos	-					0	0	0	0	0	0	0	0	0	0	-	0	-	0	0	0	-	0	-	0	-	0	-	0	0	-	0	0	-	0	0	0	-	0	-	0	-
	Additional Asbestos Components (Us	-					-	-	-	1	-	-	1	-	-	1	-	1	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
	Fibrous Actinolite	-					0	0	0	0	0	0	0	0	0	0	-	0	-	0	0	0	-	0	-	0	-	0	-	0	0	-	0	0	-	0	0	0	-	0	-	0	-
	Fibrous Anthophyllite	-					0	0	0	0	0	0	0	0	0	0	-	0	-	0	0	0	-	0	-	0	-	0	-	0	0	-	0	0	-	0	0	0	-	0	-	0	-
	Fibrous Tremolite	-					0	0	0	0	0	0	0	0	0	0	-	0	-	0	0	0	-	0	-	0	-	0	-	0	0	-	0	0	-	0	0	0	-	0	-	0	-
	Non-Asbestos Fibre	-					0	0	0	0	0	0	0	0	0	0	-	0	-	0	0	0	-	1	-	0	-	0	-	0	0	-	0	0	-	0	0	0	-	0	-	0	-

Comments
GAC: Generic Assessment Criteria
(blank): No assessment criteria available
 - : Not analysed

#1 USEPA RSL
#2 Dutch Serious 2009
#3 Dutch Intervention 2009
#4 Defra C4SL 12/2014
#5 AECOM (modified LQM/CIEH S4ULs)
#6 AECOM (modified EIC)

Key

XXX	Exceedance of HH Soil. Commercial/Industrial. Sand. TOC >=1.45 to <3.48%
XXX	Exceedance of HH Soil. Residential with Plant Uptake. Sand. TOC >=1.45 to <3.48%
XXX	Exceedance of HH Soil. Residential without Plant Uptake. Sand. TOC >=1.45 to <3.48%

Table 6 - VOC Concentrations in Soils

						Location ID	BH201A	BH201A	BH202A	BH203A	BH204	BH204	BH205	BH205	BH206	BH207	BH207	BH208A	BH208A	BH209	BH209	BH210	BH210	BH211	BH211	BH212	BH212	BH213	BH213	BH214	BH2A	BH2A	BH3A	BH4A	BH4A	BH5A	BH5A	BH7A	BH7A	BH8A	BH8A	BH9A	BH9A
						Sample Depth	0.7	1.9-2	0.8	0.5	1.3	3.3	1	2.5	1.1	0.7	2.6-3.5	0.8	1.1	0.5	2.7-3.4	0.8	2.2-2.8	0.7	2.2	0.6	1.8-2.5	0.6	1.7-2	0.85	0.5	1.5	0.5	0.9	3.5-4	0.5	2.5-3	0.7	2.5-3	0.5	3-3.5	0.5	2.2-3.3
						Sample Date	25/08/2015	25/08/2015	25/08/2015	20/08/2015	21/08/2015	21/08/2015	21/08/2015	21/08/2015	21/08/2015	25/08/2015	25/08/2015	25/08/2015	25/08/2015	25/08/2015	25/08/2015	26/08/2015	26/08/2015	26/08/2015	26/08/2015	27/08/2015	27/08/2015	27/08/2015	27/08/2015	25/08/2015	25/08/2015	25/08/2015	28/08/2015	27/08/2015	27/08/2015	28/08/2015	28/08/2015	27/08/2015	27/08/2015	26/08/2015	26/08/2015	26/08/2015	26/08/2015
Chemical Gr	Chemical Name	Unit	EQL	GAC_HH_COM/IND_SAND_1.45-3.48%TOC	GAC_HH_RES+PL_SAND_1.45-3.48%TOC	GAC_HH_RES-PL_SAND_1.45-3.48%TOC																																					
VOC	2,2-dichloropropane	mg/kg	0.01				<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Bromochloromethane	mg/kg	0.01	630#1	*150#1*	150#1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	1,1-dichloropropene	mg/kg	0.01				<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	1,2-dichloroethane	mg/kg	0.01	0.42#5	*0.0041#5*	0.0044#5	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*
	1,2-dichloropropane	mg/kg	0.01	2.65#6	*0.0146#6*	0.0172#6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Dibromomethane	mg/kg	0.01	98#1	*23#1*	23#1	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.09	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.09	<0.009	<0.09	<0.009	<0.009	<0.009
	Bromodichloromethane	mg/kg	0.01	1.3#1	*0.29#1*	0.29#1	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.07	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.07	<0.007	<0.07	<0.007	<0.007	<0.007
	cis-1,3-dichloropropene	mg/kg	0.01				<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.1	<0.01	<0.01	<0.01
	trans-1,3-dichloropropene	mg/kg	0.01				<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.1	<0.01	<0.01	<0.01
	1,3-dichloropropane	mg/kg	0.01	23000#1	*1600#1*	1600#1	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.07	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.07	<0.007	<0.07	<0.007	<0.007	<0.007
	Chlorodibromomethane	mg/kg	0.01	3.2#1	*0.73#1*	0.73#1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.1	<0.01	<0.01	<0.01
	1,1,1,2-tetrachloroethane	mg/kg	0.01	120#5	*1.2#5*	1.3#5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.1	<0.01	<0.01	<0.01
	Styrene	mg/kg	0.01	3550#6	*13.4#6*	29.5#6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.1	<0.01	<0.01	<0.01
	Bromoform	mg/kg	0.01	730#6	*3#6*	4.55#6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.1	<0.01	<0.01	<0.01
	Isopropylbenzene	mg/kg	0.01	1540#6	*9.87#6*	10.1#6	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.005	<0.005	<0.005
	1,1,2,2-tetrachloroethane	mg/kg	0.01	260#5	*1.9#5*	2.9#5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.1	<0.01	<0.01	<0.01
	1,2,3-trichloropropane	mg/kg	0.02	0.11#1	*0.0051#1*	0.0051#1	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*	*<0.016*
	n-propylbenzene	mg/kg	0.01	4530#6	*32.4#6*	34.4#6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.1	<0.01	<0.01	<0.01
	1,3,5-trimethylbenzene	mg/kg	0.01	12000#1	*780#1*	780#1	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.08	`	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.08	<0.008	<0.08	<0.008	<0.008	<0.008
	tert-butylbenzene	mg/kg	0.01	120000#1	*7800#1*	7800#1	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.14	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.14	<0.014	<0.14	<0.014	<0.014	<0.014
	1,2,4-trimethylbenzene	mg/kg	0.01	46.6#6	*0.335#6*	0.411#6	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.09	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.09	<0.009	<0.09	<0.009	<0.009	<0.009
	sec-butylbenzene	mg/kg	0.01	120000#1	*7800#1*	7800#1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.1	<0.01	<0.01	<0.01
	p-isopropyltoluene	mg/kg	0.01				<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.1	<0.01	<0.01	<0.01
	n-butylbenzene	mg/kg	0.01	58000#1	*3900#1*	3900#1	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.11	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.11	<0.011	<0.11	<0.011	<0.011	<0.011
	1,2-dibromo-3-chloropropane	mg/kg	0.01	0.064#1	*0.0053#1*	0.0053#1	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*	*<0.014*
	Hexachlorobutadiene	mg/kg	0.02	33#5	*0.26#5*	0.27#5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.2	<0.02	<0.2	<0.02	<0.02	<0.02
	1,2-Dichloroethene	mg/kg			*0.2#3*	0.2#3	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.16	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.16	<0.016	<0.16	<0.016	<0.016	<0.016
	Trihalomethanes	mg/kg					<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.35	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.35	<0.035	<0.35	<0.035	<0.035	<0.035

Comments

GAC: Generic Assessment Criteria
(blank): No assessment criteria available
- : Not analysed

#1 USEPA RSL
#2 Dutch Serious 2009
#3 Dutch Intervention 2009
#4 Defra C4SL 12/2014
#5 AECOM (modified LQM/CIEH S4ULs)
#6 AECOM (modified EIC)

Key

XXX	Exceedance of HH Soil. Commercial/Industrial. Sand. TOC >=1.45 to <3.48%
XXX	Exceedance of HH Soil. Residential with Plant Uptake. Sand. TOC >=1.45 to <3.48%
XXX	Exceedance of HH Soil. Residential without Plant Uptake. Sand. TOC >=1.45 to <3.48%

Table 7 - Metals and Inorganics Concentrations in Groundwater

					Well ID	BH2	BH3	BH4	BH5	BH7	BH8	BH9	BH10	BH104B	BH109	BH110	BH111	BH201A	DUP01 (BH4)
					Date Sampled	02/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	02/09/2015	01/09/2015	02/09/2015	01/09/2015	01/09/2015	01/09/2015	02/09/2015	01/09/2015
Analyte		Units	EQL	DWS GAC	EQS Coastal GAC														
Metals	Antimony (Filtered)	µg/L	0.16	**5#1**		0.171	0.415	0.36	<0.16	0.681	0.726	2.06	0.27	0.172	0.64	0.464	0.199	0.306	0.816
	Arsenic (Filtered)	µg/L	0.12	**10#1**	*25#4*	***39.4***	7.32	5.08	5.12	***45.4***	**15.7**	**14.4**	3.79	**17.3**	***32.6***	**14**	**22**	6.51	4.8
	Barium (Filtered)	µg/L	0.03	**700#3**		116	64.2	22.1	47.9	73.4	83.4	39.9	15.4	66	18.2	40.7	104	79.1	21.4
	Beryllium (Filtered)	µg/L	0.07	**25#5**		<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
	Boron (Filtered)	µg/L	9.4	**1000#1**	*7000#7*	133	152	52.7	99.2	138	130	27.8	82.3	140	107	137	65.1	106	52.2
	Cadmium (Filtered)	µg/L	0.1	**5#1**	*0.2#4*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	*0.228*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chromium (III+VI) (Filtered)	µg/L	0.22	**50#1**	*0.6#4*	*2.23*	*3.62*	*1.53*	*2.26*	*5.24*	*3.98*	*7.52*	*1.21*	*1.71*	*3.56*	*3.44*	*3.75*	*2.27*	*1.22*
	Cobalt (Filtered)	µg/L	0.06	**6#5**	*3#7*	0.3	2.33	0.594	*3.15*	*3.29*	2.77	***9.27***	0.337	1.25	***9.39***	*4.36*	1.79	***11.8***	0.262
	Copper (Filtered)	µg/L	0.85	**2000#1**	*5#4*	1.95	1.13	0.939	1.09	1.59	1.4	*61.3*	1.16	1.74	1.26	1.29	<0.85	1.08	1.13
	Lead (Filtered)	µg/L	0.02	**25#1**	*7.2#4*	0.059	0.034	0.066	0.057	0.072	0.033	*22.8*	<0.02	0.057	0.085	0.04	<0.02	0.098	0.028
	Manganese (Filtered)	µg/L	0.04	**50#1**		**772**	**91.2**	8.89	**860**	**1200**	**169**	**983**	23	**665**	**1320**	**126**	**2270**	**1180**	7.19
	Mercury (Filtered)	µg/L	0.01	**1#1**	*0.05#4*	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0171	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Nickel (Filtered)	µg/L	0.15	**20#1**	*20#4*	6.63	6.92	1.77	5.5	8.43	7.03	12.3	2.26	8.43	11	6.1	3.85	18.4	1.81
	Selenium (Filtered)	µg/L	0.39	**10#1**		9.71	9.06	0.781	1.67	1.13	1.92	1.87	1.86	7.19	3	**13.2**	2.87	1.76	0.897
	Silver	µg/L	1.5	**94#5**	*0.5#7*	*<1.5*	*<1.5*	*<1.5*	*<1.5*	*<1.5*	*<1.5*	*<1.5*	*<1.5*	*<1.5*	*<1.5*	*<1.5*	*<1.5*	*<1.5*	*<1.5*
	Thallium (Filtered)	µg/L	0.96	**0.2#5**		**<0.96**	**<0.96**	**<0.96**	**<0.96**	**<0.96**	**<0.96**	**<0.96**	**<0.96**	**<0.96**	**<0.96**	**<0.96**	**<0.96**	**<0.96**	**<0.96**
	Vanadium (Filtered)	µg/L	0.24	**86#5**	*100#7*	0.657	1.56	1.61	1.33	2.35	1.56	7.67	0.759	0.67	1.57	1.33	1.07	0.941	1.45
	Zinc (Filtered)	µg/L	0.41	**6000#5**	*40#4*	15.7	8.79	12.6	5.59	11.2	9.92	*280*	1.27	11.9	27.4	4.62	6	17.5	5.01
Inorganics	Nitrate (as NO3-)	mg/L	0.3	**50#1**		<0.3	5.18	21.5	6.42	0.926	4.42	<0.3	18.7	2.01	0.942	5.64	0.94	9.17	21.9
	ORTHOPHOSPHATE (PO4-P)	mg/L	0.05			<0.05	0.465	7.3	1.55	0.07	0.302	14.1	4.46	<0.05	0.297	0.216	<0.05	0.056	7.28
	Ammoniacal Nitrogen as N	mg/L	0.2	**0.389#1**		0.268	<0.2	<0.2	**0.508**	**0.707**	**0.619**	**5.66**	<0.2	<0.2	**1.23**	<0.2	**4.74**	<0.2	<0.2
	Ammonium as NH4 BRE	mg/L	0.3			0.345	<0.3	<0.3	0.653	0.909	0.796	7.28	<0.3	<0.3	1.58	<0.3	6.09	<0.3	<0.3
	Sulphate (soluble)	mg/l	2			457	57.4	43	79.9	74.5	61.6	<2	70.1	287	75	55.2	37.5	82.2	42.3
	COD	mg/L	7			<7	<7	8.09	21.2	10.1	10.5	3330	<7	7.65	190	<7	43.5	<7	<7
	pH (Lab)	pH_Units	1			7.59	7.45	7.1	7.39	7.9	7.38	7.55	7.56	7.22	7.49	7.52	7.32	8.09	7.14

Notes:

GAC	Generic Assessment Criteria
DWS	UK Drinking Water Standards
EQS Coastal	Environmental Water Quality Standard - Coastal Waters
EQL	Estimated Quantitation Limit
░	Laboratory Method Detection Limit is greater than GAC
▓	GAC Exceedance

#1 WS Regs 2010 (Eng/Wal)
#2 WHO Petroleum In DW 2008
#3 WHO DWG 2011
#4 WFD EQS 2010 Coastal (Eng/Wal)
#5 USEPA RSL (tapwater)
#6 SEPA WAT-SG-53 Marine EQS - MAC - 2013
#7 SEPA WAT-SG-53 Marine EQS - AA - 2013
#8 PNEC (EU REACH) - Coastal
#9 New Hampshire DES (2009)
#10 California Draft health protective concentration
#11 Calc WHO

Table 8 - TPH, BTEX, MTBE and TAME Concentrations in Groundwater

				Well ID	BH2	BH3	BH4	BH5	BH7	BH8	BH9	BH10	BH104B	BH109	BH110	BH111	BH201A	DUP01 (BH4)
				Date Sampled	02/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	02/09/2015	01/09/2015	02/09/2015	01/09/2015	01/09/2015	01/09/2015	02/09/2015	01/09/2015
Analyte		Units	EQL	DWS GAC														
TPH	GRO >C5-C10	µg/L	10		<10	<10	<10	<10	<10	<10	281	<10	<10	<10	<10	<10	<10	<10
	EPH >C6-C10	µg/L	100		<100	<100	<100	<100	<100	<100	<100	-	<100	<100	<100	<100	<100	<100
	EPH >C6-C40	µg/L	100		<100	<100	<100	<100	<100	<100	1430	<100	<100	159	<100	<100	<100	<100
	EPH >C10-C40	µg/L	46		<46	<46	<46	<46	<46	<46	1430	<46	<46	159	<46	65.8	<46	<46
	>C12-C16 Aliphatics	µg/L	10	**300**[#2]	-	<10	<10	<10	-	<10	-	-	-	<10	<10	<10	-	<10
	>C16-C21 Aliphatics	µg/L	10	**300**[#2]	-	<10	<10	<10	-	<10	-	-	-	<10	<10	<10	-	<10
	>C16-C35 Aliphatics	µg/L	-		-	<20	<20	<20	-	<20	-	-	-	<20	<20	<20	-	<20
	>C21-C35 Aliphatics	µg/L	10	**300**[#2]	-	<10	<10	<10	-	<10	-	-	-	<10	<10	<10	-	<10
	>C12-C35 Aliphatics	µg/L	10		-	<10	<10	<10	-	<10	-	-	-	<10	<10	<10	-	<10
	>EC12-EC16 Aromatics	µg/L	10	**90**[#2]	-	<10	<10	<10	-	<10	-	-	-	<10	<10	<10	-	<10
	>EC16-EC21 Aromatics	µg/L	10	**90**[#2]	-	<10	<10	<10	-	<10	-	-	-	<10	<10	<10	-	<10
	>EC21-EC35 Aromatics	µg/L	10	**90**[#2]	-	<10	<10	<10	-	<10	-	-	-	<10	<10	<10	-	<10
	>EC12-EC35 Aromatics	µg/L	10		-	<10	<10	<10	-	<10	-	-	-	<10	<10	<10	-	<10
	>C5-C35 Aliphatics & Aromatics	µg/L	10		-	<10	<10	<10	-	<10	-	-	-	<10	<10	<10	-	<10
BTEX	Benzene	µg/L	1	**1**[#1]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Toluene	µg/L	1	**700**[#3]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Ethylbenzene	µg/L	1	**300**[#3]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Xylene (m & p)	µg/L	1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Xylene Total	µg/L	-	**500**[#3]	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Xylene (o)	µg/L	1	**9.99000000000018E11**[#1]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Total BTEX	µg/L	28		<28	<28	<28	<28	<28	<28	<28	<28	<28	<28	<28	<28	<28	<28
Oxygenates	MTBE	µg/L	1	**900**[#11]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Tert Amyl Methyl Ether	µg/L	1	**140**[#9]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Notes:

GAC	Generic Assessment Criteria
DWS	UK Drinking Water Standards
EQL	Estimated Quantitation Limit

#1 WS Regs 2010 (Eng/Wal)
#2 WHO Petroleum In DW 2008
#3 WHO DWG 2011
#4 WFD EQS 2010 Coastal (Eng/Wal)
#5 USEPA RSL (tapwater)
#6 SEPA WAT-SG-53 Marine EQS - MAC - 2013
#7 SEPA WAT-SG-53 Marine EQS - AA - 2013
#8 PNEC (EU REACH) - Coastal
#9 New Hampshire DES (2009)
#10 California Draft health protective concentration
#11 Calc WHO

Table 9 - PAH Concentrations in Groundwater

				Well ID	**BH2**	**BH3**	**BH4**	**BH5**	**BH7**	**BH8**	**BH9**	**BH10**	**BH104B**	**BH109**	**BH110**	**BH111**	**BH201A**	**DUP01 (BH4)**
				Date Sampled	**02/09/2015**	**01/09/2015**	**01/09/2015**	**01/09/2015**	**01/09/2015**	**01/09/2015**	**02/09/2015**	**01/09/2015**	**02/09/2015**	**01/09/2015**	**01/09/2015**	**01/09/2015**	**02/09/2015**	**01/09/2015**
Analyte	**Units**	**EQL**	**DWS GAC**	**EQS Coastal GAC**														
Naphthalene	µg/L	1	**6#11**	*1.2#4*	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Acenaphthylene	µg/L	1	**18#11**		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
Acenaphthene	µg/L	1	**18#11**		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
Fluorene	µg/L	1	**12#11**		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
Phenanthrene	µg/L	1	**4#11**		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
Anthracene	µg/L	1	**90#11**	*0.1#4*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<4*	*<1*	*<1*	*<2*	*<1*	*<1*	*<1*	-
Fluoranthene	µg/L	1	**4#11**	*0.1#4*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	***6.12***	*<1*	*<1*	*<2*	*<1*	*<1*	*<1*	-
Pyrene	µg/L	1	**9#11**		<1	<1	<1	<1	<1	<1	4.78	<1	<1	<2	<1	<1	<1	-
Benz(a)anthracene	µg/L	1	**0.1#11**		**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<4**	**<1**	**<1**	**<2**	**<1**	**<1**	**<1**	-
Chrysene	µg/L	1	**1#11**		<1	<1	<1	<1	<1	<1	**<4**	<1	<1	**<2**	<1	<1	<1	-
Benzo(a) pyrene	µg/L	1	**0.01#1**	*0.05#4*	***<1***	***<1***	***<1***	***<1***	***<1***	***<1***	***4.69***	***<1***	***<1***	***<2***	***<1***	***<1***	***<1***	-
Indeno(1,2,3-c,d)pyrene	µg/L	1	**9.99000000000029E11#1**		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
Dibenz(a,h)anthracene	µg/L	1	**0.01#11**		**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<4**	**<1**	**<1**	**<2**	**<1**	**<1**	**<1**	-
Benzo(g,h,i)perylene	µg/L	1	**9.99000000000029E11#1**		<1	<1	<1	<1	<1	<1	4.05	<1	<1	<2	<1	<1	<1	-
Benzo(b)fluoranthene	µg/L	1	**9.99000000000029E11#1**		<1	<1	<1	<1	<1	<1	6.42	<1	<1	<2	<1	<1	<1	-
Benzo(k)fluoranthene	µg/L	1	**9.99000000000029E11#1**		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
Benzo(b)&(k)fluoranthene	µg/L	-		*0.03#4*	*<2*	*<2*	*<2*	*<2*	*<2*	*<2*	*8.42*	*<2*	*<2*	*<4*	*<2*	*<2*	*<2*	-
PAHs (sum of 4)	µg/L	-	**0.1#1**		**<4**	**<4**	**<4**	**<4**	**<4**	**<4**	**14.47**	**<4**	**<4**	**<8**	**<4**	**<4**	**<4**	-
benzo(g,h,i)perylene + indeno(1,2,3-cd)pyrene	µg/L	-		*0.002#4*	*<2*	*<2*	*<2*	*<2*	*<2*	*<2*	*6.05*	*<2*	*<2*	*<4*	*<2*	*<2*	*<2*	-
Coal Tar (Bap as surrogate marker)	µg/L	-			<1	<1	<1	<1	<1	<1	4.69	<1	<1	<2	<1	<1	<1	-

Notes:

Generic Assessment Criteria	GAC
UK Drinking Water Standards	DWS
Environmental Water Quality Standard - Coastal Waters	EQS Coastal
Estimated Quantitation Limit	EQL
Laboratory Method Detection Limit is greater than GAC	░
GAC Exceedance	▓

#1 WS Regs 2010 (Eng/Wal)
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#7 SEPA WAT-SG-53 Marine EQS - AA - 2013
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#9 New Hampshire DES (2009)
#10 California Draft health protective concentration
#11 Calc WHO

Table 10 - VOCs and SVOCs Concentrations in Groundwater

					Well ID	BH2	BH3	BH4	BH5	BH7	BH8	BH9	BH10	BH104B	BH109	BH110	BH111	BH201A	DUP01 (BH4)
					Date Sampled	02/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	02/09/2015	01/09/2015	02/09/2015	01/09/2015	01/09/2015	01/09/2015	02/09/2015	01/09/2015
Analyte		Units	EQL	DWS GAC	EQS Coastal GAC														
VOC	2,2-dichloropropane	µg/L	1			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Bromochloromethane	µg/L	1	**83#5**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,1-dichloropropene	µg/L	1			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,2-dichloroethane	µg/L	1	**3#1**	*10#4*	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,2-dichloropropane	µg/L	1	**0.1#1**		**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
	Dibromomethane	µg/L	1	**8#5**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Bromodichloromethane	µg/L	1	**0.13#5**		**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
	cis-1,3-dichloropropene	µg/L	1			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	trans-1,3-dichloropropene	µg/L	1			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,3-dichloropropane	µg/L	1	**0.1#1**		**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
	Chlorodibromomethane	µg/L	1	**9.99000000000015E11 #1**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,1,1,2-tetrachloroethane	µg/L	1	**0.57#5**		**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
	Styrene	µg/L	1	**20#3**	*50#7*	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Bromoform	µg/L	1	**9.99000000000015E11**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Isopropylbenzene	µg/L	1	**450#5**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,1,2,2-tetrachloroethane	µg/L	1	**0.076#5**		**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
	1,2,3-trichloropropane	µg/L	1	**0.00075#5**		**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
	n-propylbenzene	µg/L	1	**660#5**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,3,5-trimethylbenzene	µg/L	1	**120#5**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	tert-butylbenzene	µg/L	1	**690#5**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,2,4-trimethylbenzene	µg/L	1	**15#5**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	sec-butylbenzene	µg/L	1	**2000#5**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	p-isopropyltoluene	µg/L	1			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	n-butylbenzene	µg/L	1	**1000#5**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,2-dibromo-3-chloropropane	µg/L	1	**0.1#1**		**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
	Hexachlorobutadiene	µg/L	1	**0.6#3**	*0.1#4*	***<1***	***<1***	***<1***	***<1***	***<1***	***<1***	***<1***	***<1***	***<1***	***<1***	***<1***	***<1***	***<1***	***<1***
	1,2-Dichloroethene	µg/L		**50#3**		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Trihalomethanes	µg/L		**100#1**		<4	<4	3.07	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	2.91
SVOC	2-methylnaphthalene	µg/L	1	**24#3**		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	4-bromophenyl phenyl ether	µg/L	1			<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	4-chlorophenyl phenyl ether	µg/L	1			<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	Azobenzene	µg/L	1	**0.12#5**		**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<4**	**<1**	**<1**	**<2**	**<1**	**<1**	**<1**	-
	Bis(2-chloroethoxy) methane	µg/L	1	**59#5**		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	Bis(2-chloroethyl)ether	µg/L	1	**0.014#5**		**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<4**	**<1**	**<1**	**<2**	**<1**	**<1**	**<1**	-
	Carbazole	µg/L	1			<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	Dibenzofuran	µg/L	1	**7.9#5**		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	Hexachlorocyclopentadiene	µg/L	1	**31#5**		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	Hexachloroethane	µg/L	1	**0.9#5**		**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<4**	**<1**	**<1**	**<2**	**<1**	**<1**	**<1**	-
Chlorinated Hydrocarbons	Chloromethane	µg/L	1	**20#3**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Vinyl chloride	µg/L	1	**0.5#1**		**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
	Chloroethane	µg/L	1	**21000#5**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,1-dichloroethene	µg/L	1	**30#3**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Dichloromethane	µg/L	3	**20#3**	*20#4*	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
	trans-1,2-dichloroethene	µg/L	1	**360#5**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,1-dichloroethane	µg/L	1	**2.7#5**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	cis-1,2-dichloroethene	µg/L	1	**36#5**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Chloroform	µg/L	1	**.99000000000015E11#**	*2.5#4*	<1	<1	1.57	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.41
	1,1,1-trichloroethane	µg/L	1	**2000#3**	*100#4*	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Carbon tetrachloride	µg/L	1	**3#1**	*12#4*	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Trichloroethene	µg/L	1	**.99000000000017E11#**	*10#4*	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,1,2-trichloroethane	µg/L	1	**0.28#5**	*300#4*	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
	Tetrachloroethene	µg/L	1	**.99000000000017E11#**	*10#4*	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Sum of PCE and TCE	µg/L		**10#1**		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	TCE+DCE+VC	µg/L				<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
	PCE+TCE+DCE+VC	µg/L				<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6

Table 10 - VOCs and SVOCs Concentrations in Groundwater

					Well ID	BH2	BH3	BH4	BH5	BH7	BH8	BH9	BH10	BH104B	BH109	BH110	BH111	BH201A	DUP01 (BH4)
					Date Sampled	02/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	02/09/2015	01/09/2015	02/09/2015	01/09/2015	01/09/2015	01/09/2015	02/09/2015	01/09/2015
Analyte		Units	EQL	DWS GAC	EQS Coastal GAC														
Phenolics	2-methylphenol	µg/L	1	**930#5**		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	2-nitrophenol	µg/L	1			<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	2,4-dimethylphenol	µg/L	1	**360#5**		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	4-chloro-3-methylphenol	µg/L	1	**1400#5**	*40#4*	<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	4-methylphenol	µg/L	1	**1900#5**		<1	<1	<1	<1	<1	<1	172	<1	<1	<2	<1	5.42	<1	-
	4-nitrophenol	µg/L	1			<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	Phenol	µg/L	1	**5800#5**	*7.7#4*	<1	<1	<1	<1	<1	<1	*10.7*	<1	<1	<2	<1	<1	<1	-
	2-chloronaphthalene	µg/L	1	**750#5**		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
Amino Aliphatics	N-nitrosodi-n-propylamine	µg/L	1	**0.011#5**		**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<4**	**<1**	**<1**	**<2**	**<1**	**<1**	**<1**	-
Anilines	2-nitroaniline	µg/L	1	**190#5**		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	3-nitroaniline	µg/L	1			<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	4-chloroaniline	µg/L	1	**0.36#5**		**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<4**	**<1**	**<1**	**<2**	**<1**	**<1**	**<1**	-
	4-nitroaniline	µg/L	1	**3.8#5**		<1	<1	<1	<1	<1	<1	**<4**	<1	<1	<2	<1	<1	<1	-
Explosives	2,4-Dinitrotoluene	µg/L	1	**0.24#5**		**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<4**	**<1**	**<1**	**<2**	**<1**	**<1**	**<1**	-
	2,6-dinitrotoluene	µg/L	1	**0.048#5**		**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<4**	**<1**	**<1**	**<2**	**<1**	**<1**	**<1**	-
	Nitrobenzene	µg/L	1	**0.14#5**		**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<4**	**<1**	**<1**	**<2**	**<1**	**<1**	**<1**	-
Halogenated Benzenes	1,3,5-Trichlorobenzene	µg/L	1			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Chlorobenzene	µg/L	1	**300#3**		1.7	<1	<1	<1	1.77	<1	1.89	<1	<1	<1	<1	<1	1.8	<1
	Bromobenzene	µg/L	1	**62#5**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	2-chlorotoluene	µg/L	1	**240#5**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	4-chlorotoluene	µg/L	1	**250#5**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,3-dichlorobenzene	µg/L	1			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,4-dichlorobenzene	µg/L	1	**300#3**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,2-dichlorobenzene	µg/L	1	**1000#3**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,2,4-trichlorobenzene	µg/L	1	**1.1#5**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,2,3-trichlorobenzene	µg/L	1	**7#5**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Hexachlorobenzene	µg/L	1	**1#3**	*0.01#4*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	***<4***	*<1*	*<1*	***<2***	*<1*	*<1*	*<1*	-
Halogenated Hydrocarbons	Dichlorodifluoromethane	µg/L	1	**200#5**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Bromomethane	µg/L	1	**7.5#5**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Trichlorofluoromethane	µg/L	1	**1100#5**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,2-dibromoethane	µg/L	1	**0.1#1**		**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
Halogenated Phenols	2-chlorophenol	µg/L	1	**0.1#3**	*50#4*	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<4**	**<1**	**<1**	**<2**	**<1**	**<1**	**<1**	-
	2,4-dichlorophenol	µg/L	1	**0.3#3**	*20#4*	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<4**	**<1**	**<1**	**<2**	**<1**	**<1**	**<1**	-
	2,4,5-trichlorophenol	µg/L	1	**9#3**		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	2,4,6-trichlorophenol	µg/L	1	**200#3**		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	Pentachlorophenol	µg/L	1	**9#3**	*0.4#4*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<4*	*<1*	*<1*	*<2*	*<1*	*<1*	*<1*	-

Table 10 - VOCs and SVOCs Concentrations in Groundwater

					Well ID	BH2	BH3	BH4	BH5	BH7	BH8	BH9	BH10	BH104B	BH109	BH110	BH111	BH201A	DUP01 (BH4)
					Date Sampled	02/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	02/09/2015	01/09/2015	02/09/2015	01/09/2015	01/09/2015	01/09/2015	02/09/2015	01/09/2015
Analyte		Units	EQL	DWS GAC	EQS Coastal GAC														
Phthalates	Bis(2-ethylhexyl) phthalate	µg/L	2	**8#3**	*1.3#4*	*<2*	*<2*	*<2*	*<2*	*<2*	*<2*	*<8*	*<2*	*<2*	*<4*	*<2*	*<2*	*<2*	-
	Butyl benzyl phthalate	µg/L	1	**16#5**	*20#7*	<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	Di-n-butyl phthalate	µg/L	1	**900#5**	*8#7*	<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	Di-n-octyl phthalate	µg/L	5	**200#5**	*20#7*	<5	<5	<5	<5	<5	<5	<20	<5	<5	<10	<5	<5	<5	-
	Diethylphthalate	µg/L	1	**15000#5**	*200#7*	<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
	Dimethyl phthalate	µg/L	1		*800#7*	<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-
Solvents	Carbon disulfide	µg/L	1	**810#5**		<1	<1	<1	<1	<1	<1	2.28	<1	<1	<1	<1	<1	<1	<1
	Isophorone	µg/L	1	**78#5**		<1	<1	<1	<1	<1	<1	<4	<1	<1	<2	<1	<1	<1	-

Notes:

GAC	Generic Assessment Criteria
DWS	UK Drinking Water Standards
EQS Coastal	Environmental Water Quality Standard - Coastal Waters
EQL	Estimated Quantitation Limit
░	Laboratory Method Detection Limit is greater than GAC
▓	GAC Exceedance

#1 WS Regs 2010 (Eng/Wal)
#2 WHO Petroleum In DW 2008
#3 WHO DWG 2011
#4 WFD EQS 2010 Coastal (Eng/Wal)
#5 USEPA RSL (tapwater)
#6 SEPA WAT-SG-53 Marine EQS - MAC - 2013
#7 SEPA WAT-SG-53 Marine EQS - AA - 2013
#8 PNEC (EU REACH) - Coastal
#9 New Hampshire DES (2009)
#10 California Draft health protective concentration
#11 Calc WHO

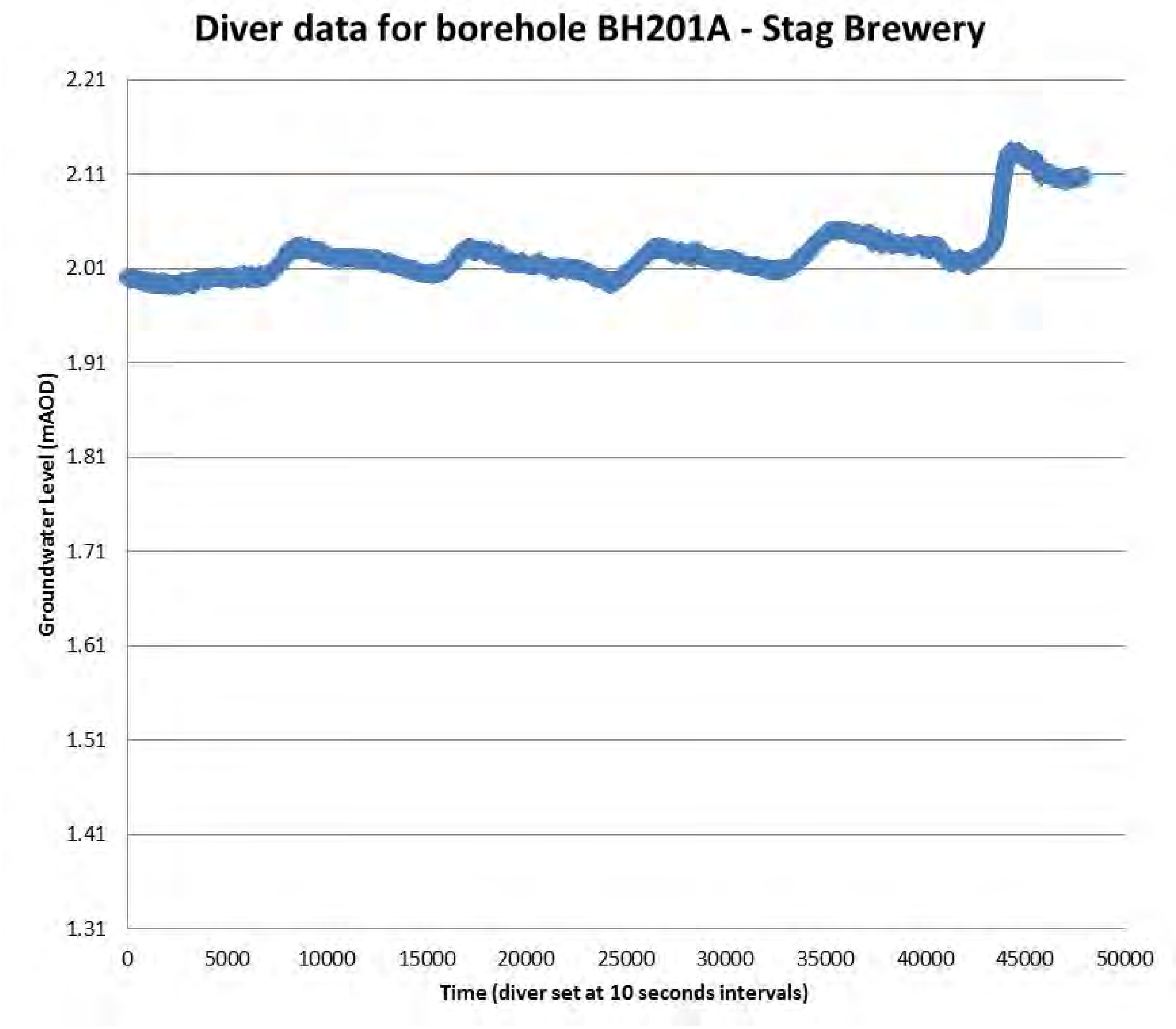
Table 11 - Field Duplicate QA Check

			Well ID	BH4	DUP01	RPD
			Date Sampled	01/09/2015	01/09/2015	
Method Type	Analyte	Units	EQL			
EPH by GC-FID	>C10-C40	µg/l		<46	<46	0
GRO by Headspace GC-FID	>C5-C10	µg/l		<10	<10	0
	MTBE	µg/l		<1	<1	0
	Benzene	µg/l		<1	<1	0
	Toluene	µg/l		<1	<1	0
	Ethylbenzene	µg/l		<1	<1	0
	Xylene (m & p)	µg/l		<1	<1	0
	Xylene (o)	µg/l		<1	<1	0
Metals by ICP-OES	Arsenic (Filtered)	µg/l		52.7	52.2	0
	Boron (Filtered)	µg/l		<0.1	<0.1	0
	Cadmium (Filtered)	µg/l		1.53	1.22	11
	Chromium (III+VI) (Filtered)	µg/l		0.939	1.13	9
	Copper (Filtered)	µg/l		0.066	0.028	40
	Lead (Filtered)	µg/l		<0.01	<0.01	0
	Mercury (Filtered)	µg/l		1.77	1.81	1
	Nickel (Filtered)	µg/l		0.781	0.897	7
	Selenium (Filtered)	µg/l		12.6	5.01	43
	Zinc (Filtered)	µg/l		21.5	21.9	1
pH by Metrohm	pH (Lab)	-		7.1	7.14	0
SO4, Cl, NO3, NO2, PO4, Amm N2, Thiocyanate, He...	Nitrate (as NO3-)	mg/l		7.3	7.28	0
	ORTHOPHOSPHATE (PO4-P)	mg/l		<0.2	<0.2	0
	Ammoniacal Nitrogen as N	mg/l		<0.3	<0.3	0
	Ammonium as NH4 BRE	mg/l		43	42.3	1
	Sulphate (soluble)	µg/l		28.2	28.4	0

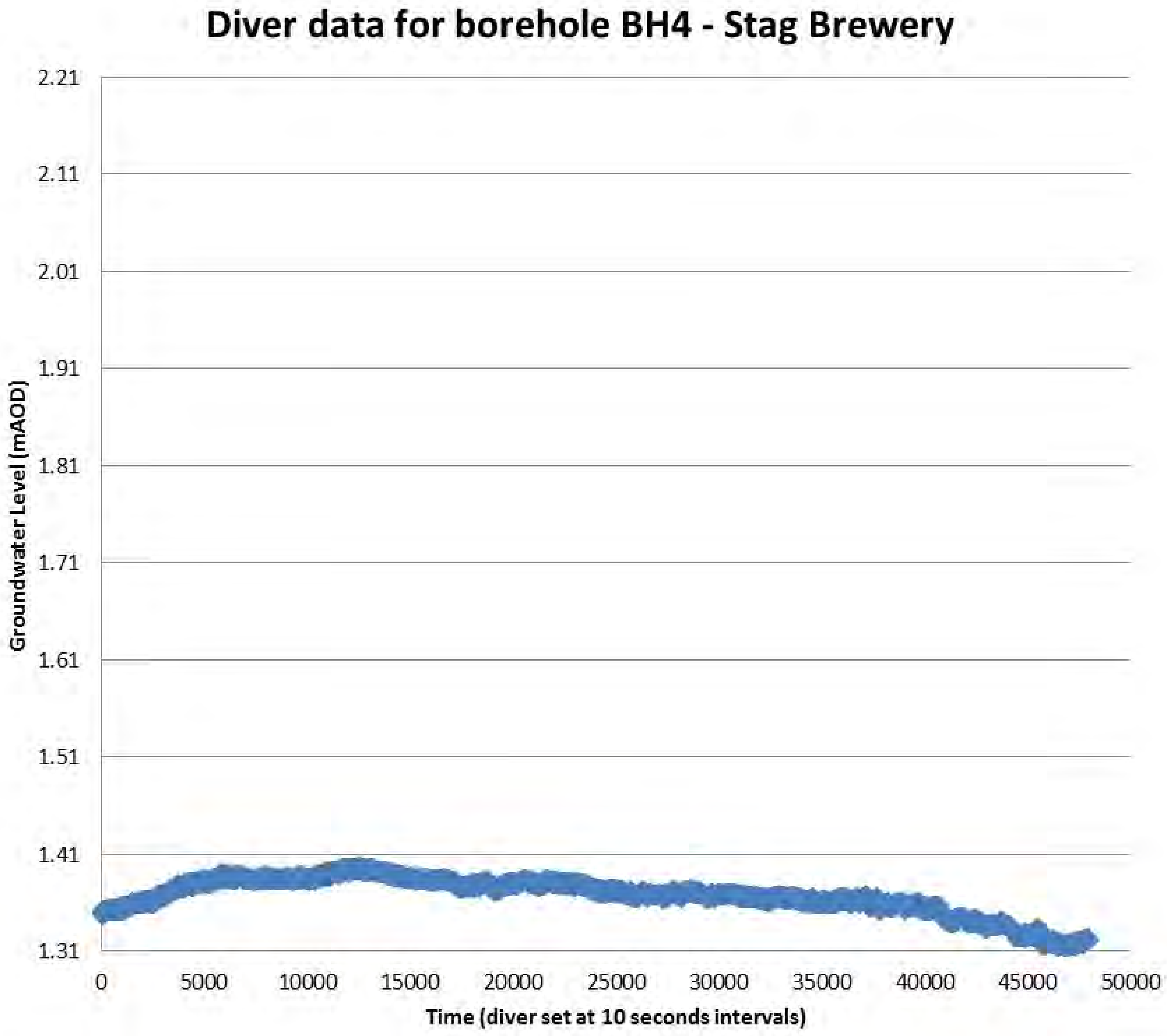
*RPDs have only been considered where a concentration is greater than 1 times the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 100 (1-10 x EQL); 50 (10-20 x EQL); 30 (> 20 x EQL))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

GRAPHS

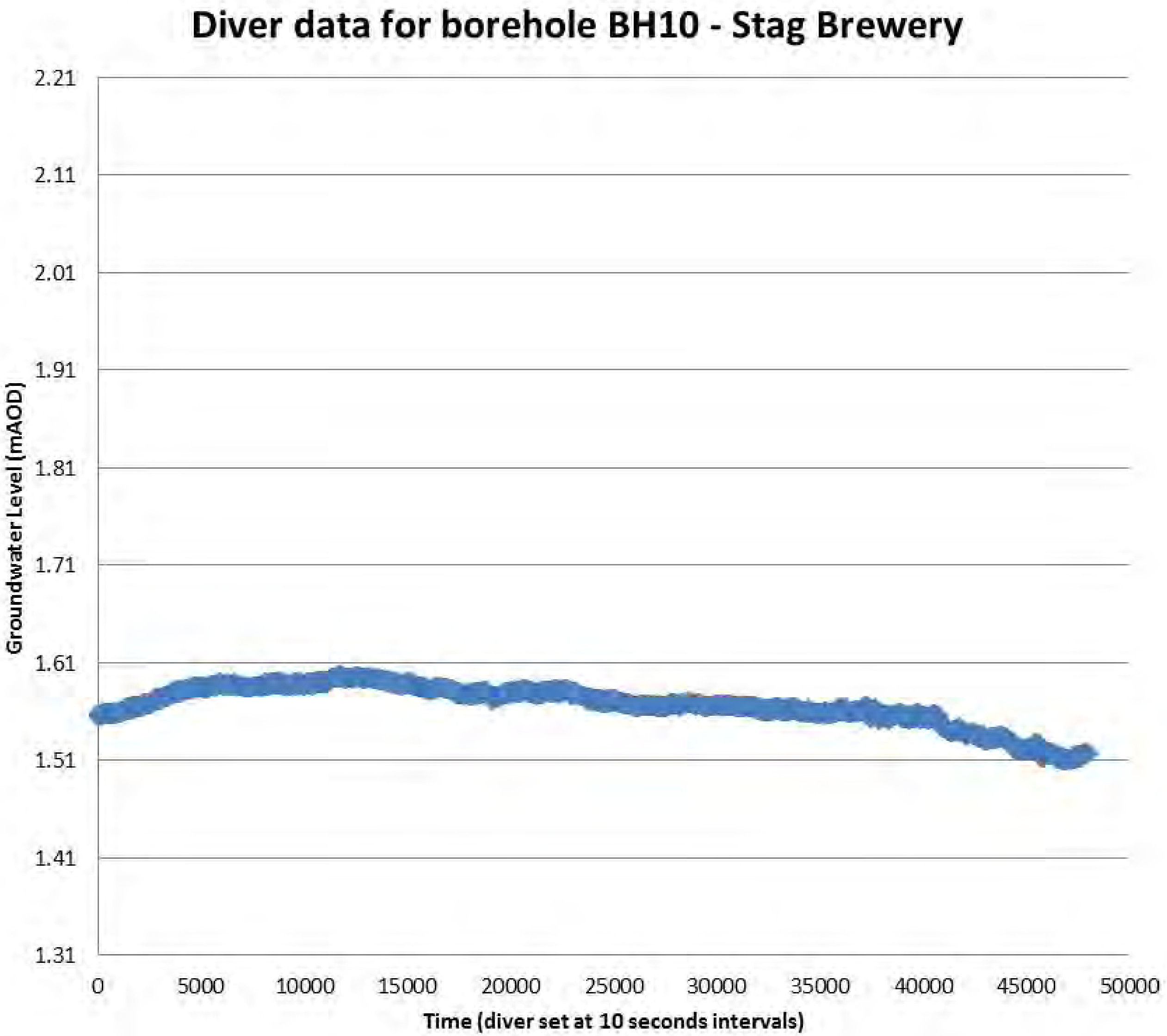
GRAPH 1


Diver data for borehole BH201A - Stag Brewery
Groundwater Level (mAOD)
2.21
2.11
2.01
1.91
1.81
1.71
1.61
1.51
1.41
1.31
0
5000
10000
15000
20000
25000
30000
35000
40000
45000
50000
Time (diver set at 10 seconds intervals)

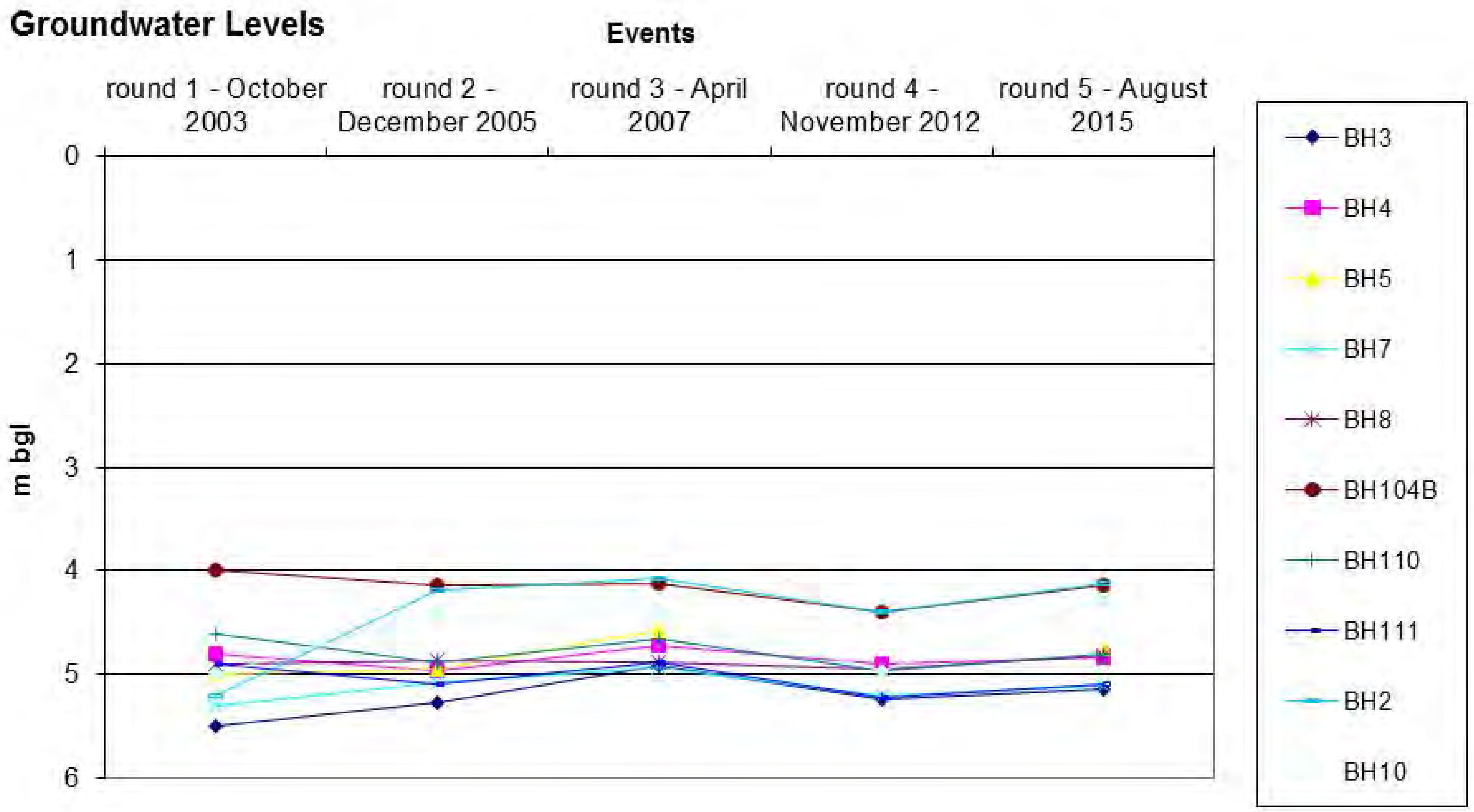
GRAPH 2


Diver data for borehole BH4 - Stag Brewery
Groundwater Level (mAOD)
2.21
2.11
2.01
1.91
1.81
1.71
1.61
1.51
1.41
1.31
0
5000
10000
15000
20000
25000
30000
35000
40000
45000
50000
Time (diver set at 10 seconds intervals)

GRAPH 3


Diver data for borehole BH10 - Stag Brewery
Groundwater Level (mAOD)
2.21
2.11
2.01
1.91
1.81
1.71
1.61
1.51
1.41
1.31
0
5000
10000
15000
20000
25000
30000
35000
40000
45000
50000
Time (diver set at 10 seconds intervals)

GRAPH 4


Groundwater Levels
Events
round 1 - October 2003
round 2 - December 2005
round 3 - April 2007
round 4 - November 2012
round 5 - August 2015
m bgl
0
1
2
3
4
5
6
BH3
BH4
BH5
BH7
BH8
BH104B
BH110
BH111
BH2
BH10

APPENDIX A – DE-SILTING & DEVELOPMENT OF EXISTING MONITORING WELLS

DE-SILTING OF MONITORING WELLS

The review of the historical information in the previous SPMP reports between October 2003 and November 2012 indicated the depths of four groundwater monitoring wells to have decreased due to accumulation of sand and silt in the standpipes. The changes in depth are presented in **Table A1.**

Table A1 – Changes in Wells Depths

Well ID	Dip Round 1 October 2003 [m bgl]	Dip Round 2 December 2005 [m bgl]	Dip Round 3 April 2007 [m bgl]	Dip Round 4 November 2012 [m bgl]	Change in Depth [m]
BH3	6.60	6.18	5.94	5.38	-1.22
BH4	6.70	6.31	6.23	4.95	-1.75
BH5	7.00	6.47	6.23	4.87	-2.13
BH10	7.13	7.13	7.13	5.53	-1.47

On 24 and 25 August 2015 AECOM undertook the de-silting of the thirteen existing groundwater monitoring wells: BH2, BH3, BH4, BH5, BH7, BH8, BH9, BH10, BH104B, BH109, BH110, BH111 and BH112.

Air lift surging techniques were used to de-silt the thirteen monitoring wells. The monitoring wells were alternatively surged and pumped with air using a compressor in combination with a peristaltic pump. Air is injected into the base of the silted wells and the air bubbles created a surging effect that carries water and dislodged sediments upwards and out of the well. As the groundwater reaches the top of the casing, the air supply is shut off, allowing the aerated water column to fall. A peristaltic pump is then used to pump the well to remove the silt and sand deposits from the screen from the base of the wells.

A summary of the results of the de-silting works is in **Table A2.**

Table A2: De-silting of Groundwater Monitoring Wells (AECOM, 24-25 August 2015)

Well ID	Well Screen Interval [m bgl] (Formation)	Standing Water Level [m bgl]	Initial Depth to Bottom of Well [m bgl]	Final Depth to Bottom of Well After De-silting [m bgl]	Comments
BH2	3.0 – 6.8 (Gravel)	4.150	6.540	6.800	Good recharge. 2 litres of sludge / silt removed and the well returned to its as constructed depth.
BH3	2.5 – 6.5 (Sand)	5.250	5.130	6.095	Initially dry. Organic material removed. Good recharge thereafter.
BH4	2.5 – 6.7m (Sand)	4.895	4.090	6.190	Initially dry. Organic material removed. Good groundwater recharge thereafter.
BH5	3.0 – 7.0m (Sand)	4.840	4.750	6.100	Initially dry. Organic material removed. Good recharge thereafter.
BH7	2.5 – 6.7m (*) (Sand)	5.140	6.470	7.150	Good recharge. 3 litres of sludge / silt removed.

Table A2: De-silting of Groundwater Monitoring Wells (AECOM, 24-25 August 2015)

Well ID	Well Screen Interval [m bgl] (Formation)	Standing Water Level [m bgl]	Initial Depth to Bottom of Well [m bgl]	Final Depth to Bottom of Well After De-silting [m bgl]	Comments
BH8	3.0 – 7.2m (Sand)	4.875	6.240	6.900	Good recharge. 1.5 litres of sludge / silt removed.
BH9	No information available. (**)	Dry	2.360	2.650	Initially dry. Very little sludge removed. Recharges slowly.
BH10	3.0 – 7.0m (Sand)	4.375	5.015	7.035	Good recharge. Silty sludge removed. Well returned to its as constructed depth.
BH104B	1.0 – 6.0m (MG + sandy Clay+Sand)	4.190	4.880	4.980	Good recharge. Very little sludge removed.
BH109	1.0 – 6.0m (sandy Clay + Sand)	4.550	6.130	6.150	Good recharge. 1 litre of sand / sludge removed.
BH110	0.8 – 5.70m (MG + Sand + Gravel)	4.855	4.750	5.530	Initially dry. Silty sludge removed. Good groundwater recharge thereafter.
BH111	1.0 – 7.6m (MG + Sand)	5.150	7.470	7.657	Good recharge. Well returned to its as constructed depth.
BH112	1.0 – 3.0m (MG+Grave)	Dry	2.680	2.780	Well found dry. Very little sludge removed. Remaining deposits could not be removed as very compacted.

MG – Made Ground

m bgl – metres below ground level

(*) Well Assumed deeper. Original CRA, 2003 BH7 borehole log indicates 6.70m bgl as the final depth to installation but the well measurements carried out in August 2015 indicate that the depth to bottom of this well reached 7.150m bgl. During the September 2015 groundwater monitoring event this was measured to 6.947m bgl as a result of further silt deposited after the de-silting event.

(**) Based on the original CRA, 2003 borehole log, no monitoring well was installed within the Made Ground in this location. However, analyses of groundwater samples were carried out. Following the initial AECOM July 2015 site walkover, a 50mm well standpipe was noted within a steel cover flush to the ground. Based on the review of the historical groundwater monitoring reports and September 2015 dipping activities, BH9 is considered complete with a groundwater monitoring installation. No information on the well screen interval is available for review.

The volume of groundwater/silt/sand sludge removed from the wells was between 1.5 and 50 litres. Following the purging, standing water levels ranging between 4.150m and 5.250m bgl were measured in the monitoring wells, with the exception of well BH112 which remained dry. The post-desilting and development water column thicknesses for monitoring and sampling ranged between 0.675m (BH110) and 2.660m (BH10).

No historical information is reported to detail the construction of the monitoring well at BH9. However, the drilling of BH9A, immediately adjacent to BH9, recorded an obstruction at 3.3m bgl, thought to represent a relict concrete slab. This is consistent with the drilling refusal reported on the BH9 at 2.2m bgl. It is therefore considered that BH9 is installed within the Made Ground and groundwater samples collected from this location are representative of perched water. With the exception of BH9, where fast drawdown and slow recharge of the perched groundwater was noted, the monitoring wells displayed relatively slow drawdown and rapid recharge. This, along with the amount of water available, suggested that the monitoring network is suitable for monitoring and sampling from the superficial aquifer beneath the Site.

APPENDIX B – EXPLORATORY HOLE LOGS

Borehole Log

Project Name and Site Location		Client		BOREHOLE No
Stag Brewery, Mortlake, London SW14		AB Inbev		**BH109A**
Job No 47075502	Date Start Date 28-08-15 End Date 28-08-15	Ground Level (m)	Co-Ordinates ()	
Contractor ESL		Method / Plant Used Concrete Corer and Premier Rig.		Sheet 1 of 1

STRATA

Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thickness)	DESCRIPTION	COMMENTS	Installation
					(0.35) 0.35	CONCRETE		☒ ■
0.5		<0.1		☒	(0.35) 0.70	MADE GROUND: Brown, grey, sandy, fine to coarse, angular to subagular gravel. Sand is fine to coarse. Gravel is concrete, red and yellow brick and natural stone.	Dry NVO	■
1.0	☒ BH109A_0.8	<0.1			(0.50) 1.20	Soft, dark brown, sandy, gravelly clay. Sand is fine to coarse. Gravel is fine to medium, angular to subangular of flint.	Damp NVO	■
1.5		<0.1			(0.70) 1.90	Brown, sandy, slightly gravelly CLAY. Sand is fine to coarse. Gravel is fine to medium subrounded of flint.	Damp NVO	■
2.0		<0.1			2.10	Brown, sandy fine to medium, subrounded to subangular GRAVEL of flint. Sand is fine to coarse.	Damp NVO	■
2.5		<0.1			(0.70) 2.80	Brown, grey, slightly gravelly, fine to coarse SAND. Gravel is fine, subrounded of flint.	Damp NVO	■
3.0		<0.1			(0.70) 3.50	Brown/orange, gravelly, fine to coarse SAND. Gravel is fine to medium, subangular to subrounded of flint.	Damp NVO	■
3.5		<0.1				Borehole terminated at 3.5m bgl.		

Backfill

- ☒ Cement seal
- ■ Bentonite Fill

Sample Details

- ☒ Small disturbed sample

Legend

Concrete	☒ Made Ground
Sandy gravelly CLAY	Sandy Gravel
Gravelly Sand	
▼ Groundwater Table	Groundwater Strike

GENERAL REMARKS

NVO - No visual or Olfactory Evidence of Contamination.
m bgl - meters below ground level.
Hand pitted to 1.2mbgl

Logged By	CG	Approved By	MM

Borehole Log

Project Name and Site Location Stag Brewery, Mortlake, London SW14		Client AB Inbev		BOREHOLE No **BH201**
Job No 47075502	Date Start Date 20-08-15 End Date 20-08-15	Ground Level (m)	Co-Ordinates ()	
Contractor ESL		Method / Plant Used Concrete Corer.		Sheet 1 of 1

Depth BGL	Sample / Test Details	PID (ppm)	Water	STRATA				
				Legend	Depth (Thick-ness)	DESCRIPTION	COMMENTS	Installation
					0.25	TARMAC over CONCRETE		▨
0.5				☒	(0.45) 0.70	MADE GROUND: Dense, sandy, fine-medium, angular-subangular gravel of brick and concrete. Sand is fine to coarse.	Dry NVO.	▨
						Borehole terminated at 0.7m bgl due to refusal on concrete.		

Backfill	Sample Details	Legend		GENERAL REMARKS
☒ Cement seal		☐ Ashphalt	☒ Made Ground	NVO - No visual or Olfactory Evidence of Contamination. m bgl - meters below ground level. Hand pitted to 0.7mbgl
		▼ Groundwater Table	▽ Groundwater Strike	

		Logged By CG	Approved By MM

Borehole Log

Project Name and Site Location	Client	BOREHOLE No
Stag Brewery, Mortlake, London SW14	AB Inbev	**BH201A**

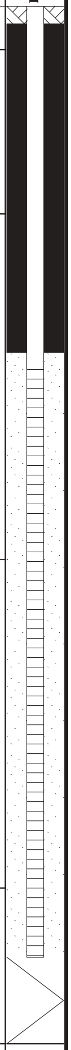
Job No	Date	Ground Level (m)	Co-Ordinates ()
47075502	Start Date 24-08-15 End Date 25-08-15		

Contractor	Method / Plant Used	Sheet
ESL	Concrete Corer and Solid Stem Auger.	1 of 1

STRATA

Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thickness)	DESCRIPTION	COMMENTS
					0.25	TARMAC over CONCRETE	
0.5 1.0	☒ BH201A_0.7	<0.1 <0.1		☒	(0.95) 1.20	MADE GROUND: Brown/red/ yellow, gravelly, fine-coarse sand. Gravel is fine-coarse, angular-subangular of brick, flint and natural stone.	Damp NVO
1.5 2.0 2.5 3.0	☒ BH201A_1.9-2.0	<0.1 <0.1 <0.1 <0.1		⋅	(2.00) 3.20	Light brown, dense, medium-fine SAND with occasional rounded flint.	Dry NVO
3.5 4.0 4.5 5.0		<0.1	1	☒	(1.90) 5.10	SAND and GRAVEL. Gravel is medium-coarse flint. Sand is fine-coarse dense light brown.	Wet from 3.7mbgl NVO
5.5 6.0				☰	(0.90) 6.00	Grey, mottled dark brown, possibly stiff CLAY (LONDON CLAY).	Dry, NVO.
						Borehole terminated at 6.0m bgl.	

Installation



Backfill

- ▨ Cement seal riser
- ▮ Bentonite seal riser
- ▥ Filter pack riser
- ▦ Filter pack screen
- ▷ Hole Collapse

Sample Details

- ☒ Small disturbed sample

Legend

☐ Ashphalt	☒ Made Ground
⋅ Sand	☒ Silty/clayey PEAT
☰ Clay	
▼ Groundwater Table	1 Groundwater Strike

GENERAL REMARKS

NVO - No visual or Olfactory Evidence of Contamination.
m bgl - meters below ground level.
Hand pitted to 1.2mbgl

		Logged By	CG/MM	Approved By	GM

Borehole Log

Project Name and Site Location	Client	BOREHOLE No
Stag Brewery, Mortlake, London SW14	AB Inbev	**BH202**

Job No	Date	Ground Level (m)	Co-Ordinates ()
47075502	Start Date 24-08-15 End Date 24-08-15		

Contractor	Method / Plant Used	Sheet
ESL	Concrete Corer.	1 of 1

STRATA

Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thickness)	DESCRIPTION	COMMENTS	Installation
					0.25	TARMAC over CONCRETE		☒
0.5		<0.1		☒	(0.35) 0.60	MADE GROUND: Grey, dense, sand and gravel of concrete. Sand is fine-coarse. Gravel is fine-medium, angular-subangular.	Dry NVO	■
				☒	0.80	MADE GROUND: Brown, sandy, fine-medium, angular-subangular gravel of concrete. Sand is fine-coarse.	Dry NVO	■
						Borehole terminated at 0.8m bgl due to refusal on concrete.		

Backfill	Sample Details	Legend	
☒ Cement seal		☐ Ashphalt	☒ Made Ground
■ Bentonite Fill		▼ Groundwater Table	▽ Groundwater Strike

GENERAL REMARKS

NVO - No visual or Olfactory Evidence of Contamination.
m bgl - meters below ground level.
Hand pitted to 1.2mbgl

		Logged By	CG	Approved By	MM

Borehole Log

Project Name and Site Location	Client	BOREHOLE No
Stag Brewery, Mortlake, London SW14	AB Inbev	**BH202A**

Job No	Date	Ground Level (m)	Co-Ordinates ()
47075502	Start Date 24-08-15 End Date 24-08-15		

Contractor	Method / Plant Used	Sheet
ESL	Concrete Corer and Solid Stem Auger.	1 of 1

STRATA

Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thickness)	DESCRIPTION	COMMENTS	Installation
					0.25	TARMAC over CONCRETE		▨
0.5		<0.1		☒	(0.35) 0.60	MADE GROUND: Grey, sandy, fine-medium, angular-subangular gravel of concrete. Sand is fine-coarse.	Wet NVO	■
1.0	☒ BH202A_0.8	<0.1		☒	(1.20)	MADE GROUND: Brown, gravelly, fine-coarse sand. Gravel is fine-medium, subangular-subrounded of concrete.	Dry NVO	■
1.5		<0.1		☒	1.80			■
						Borehole terminated at 1.8m bgl due to refusal on concrete.		

Backfill	Sample Details	Legend	GENERAL REMARKS
▨ Cement seal ■ Bentonite Fill	☒ Small disturbed sample	☐ Ashphalt ☒ Made Ground ▼ Groundwater Table ▽ Groundwater Strike	NVO - No visual or Olfactory Evidence of Contamination. m bgl - meters below ground level. Hand pitted to 1.2mbgl

		Logged By	CG	Approved By	MM

AECOM

Borehole Log

Project Name and Site Location Stag Brewery, Mortlake, London SW14	Client AB Inbev		BOREHOLE No **BH203**
Job No 47075502	Date Start Date 20-08-15 End Date 20-08-15	Ground Level (m)	Co-Ordinates ()
Contractor ESL	Method / Plant Used Concrete Corer and Solid Stem Auger.		Sheet 1 of 1

STRATA

Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thickness)	DESCRIPTION	COMMENTS
					0.20	TARMAC over CONCRETE	
0.5		<0.1		☒	(0.70) 0.90	MADE GROUND: Very dense, sandy, fine-medium, angular-subangular gravel of yellow and red brick, granite and concrete.	Dry NVO
					1.00	Concrete / possible granite slab.	
					(2.00) 3.00	No recovery.	
						Borehole terminated at 3.0m bgl due to refusal on concrete.	

Backfill	Sample Details	Legend	GENERAL REMARKS
▧ Cement seal riser ▮ Bentonite seal riser ▥ Filter pack riser ▤ Filter pack screen		☐ Ashphalt ☒ Made Ground ▼ Groundwater Table ▽ Groundwater Strike	NVO - No visual or Olfactory Evidence of Contamination. m bgl - meters below ground level. Hand pitted to 1.2mbgl

Logged By	CG	Approved By	MM

Borehole Log

Project Name and Site Location	Client	BOREHOLE No
Stag Brewery, Mortlake, London SW14	AB Inbev	**BH203A**

Job No	Date	Ground Level (m)	Co-Ordinates ()
47075502	Start Date 20-08-15 End Date 20-08-15		

Contractor	Method / Plant Used	Sheet
ESL	Concrete Corer and Solid Stem Auger.	1 of 1

STRATA

Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thickness)	DESCRIPTION	COMMENTS
					0.20	TARMAC over CONCRETE	
0.5	☒ BH203A_0.5	<0.1		☒	(0.70) 0.90	MADE GROUND: Very dense, sandy, angular to sub-angular gravel of brick, granite and concrete.	Dry NVO
1.0		<0.1		▨	1.00	Concrete / granite slab. No recovery.	Damp, NVO.
1.5		<0.1					
2.0		<0.1					
2.5		<0.1			(2.50)		
3.0							
3.5				▨	3.50 3.60	Concrete / granite slab. No recovery.	Damp, NVO.
4.0							
4.5					(1.20) 4.80		
5.0				⊟	5.00	Possibly CLAY (no recovery).	Wet. NVO.
						Borehole terminated at 5.0m bgl.	

Installation

Backfill	Sample Details	Legend	
▧ Cement seal riser	☒ Small disturbed sample	☐ Ashphalt	☒ Made Ground
▮ Bentonite seal riser		▨ Concrete	⊟ Clay
▥ Filter pack riser		▼ Groundwater Table	▽ Groundwater Strike
⊞ Filter pack screen			

GENERAL REMARKS

NVO - No visual or Olfactory Evidence of Contamination.
m bgl - meters below ground level.
Hand pitted to 1.2mbgl

		Logged By	CG	Approved By	MM

Borehole Log

Project Name and Site Location		Client		BOREHOLE No
Stag Brewery, Mortlake, London SW14		AB Inbev		**BH204**
Job No 47075502	Date Start Date 21-08-15 End Date 21-08-15	Ground Level (m)	Co-Ordinates ()	
Contractor ESL		Method / Plant Used Concrete Corer and Premier Rig.		Sheet 1 of 1

STRATA

Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thickness)	DESCRIPTION	COMMENTS	Installation
					0.28	TARMAC over CONCRETE	Dry NVO	☒ ■
				☒	0.40	MADE GROUND: Pea shingle.	Dry NVO	■
0.5				▨	0.70	CONCRETE	Dry NVO	■
		<0.1		☒	0.80	MADE GROUND: Red bricks.	Dry NVO	■
1.0				☒	(0.40) 1.20	MADE GROUND: Brown/ red, sandy, fine-medium, angular-subangular brick gravel.	Dry NVO	■
	☒ BH204_1.3	<0.1		☒	1.50	MADE GROUND: Very soft, brown/ red, very sandy clay. Sand is fine-coarse.	Dry NVO	■
1.5 2.0 2.5		<0.1		☒	(1.50) 3.00	MADE GROUND: Dark grey/ black, sandy, fine-medium, angular-subangular gravel of flint. Sand is fine-coarse.	Dry NVO	■
3.0		<0.1		☐	3.20	Orange/ yellow, fine-coarse SAND.	Dry NVO	■
	☒ BH204_3.3	<0.1		○	3.50	Brown, sandy, fine-medium, subangular-subrounded GRAVEL.	Damp NVO	■
3.5						Borehole terminated at 3.5m bgl.		

Backfill

☒ Cement seal

■ Bentonite Fill

Sample Details

☒ Small disturbed sample

Legend

☐ Ashphalt

☒ Made Ground

▨ Concrete

☐ Sand

○ Sandy Gravel

▼ Groundwater Table

▽ Groundwater Strike

GENERAL REMARKS

NVO - No visual or Olfactory Evidence of Contamination.
m bgl - meters below ground level.
Hand pitted to 1.2mbgl

Logged By	CG	Approved By	MM

AECOM

Borehole Log

Project Name and Site Location		Client		BOREHOLE No
Stag Brewery, Mortlake, London SW14		AB Inbev		BH205
Job No 47075502	Date Start Date 21-08-15 End Date 21-08-15	Ground Level (m)	Co-Ordinates ()	
Contractor ESL		Method / Plant Used Concrete Corer and Premier Rig.		Sheet 1 of 1

Depth BGL	Sample / Test Details	PID (ppm)	Water	STRATA Legend	STRATA Depth (Thickness)	STRATA DESCRIPTION	STRATA COMMENTS	Installation
				▨	0.27	CONCRETE		☒
0.5		<0.1		☒	(0.53) 0.80	MADE GROUND: Grey, dense, fine to coarse sand and gravel of concrete.	Dry NVO	■
1.0 1.5 2.0	☒ BH205_1.0	<0.1 <0.1		☒	(1.70) 2.50	MADE GROUND: Very dense, brown, sandy, fine-medium, angular-subangular gravel of brick, concrete, flint, glass. Sand is fine-coarse. Little ricovery.	Dry NVO	■
2.5 3.0	☒ BH205_2.5	<0.1 <0.1		○	(0.50) 3.00	Brown/ orange, gravelly, fine-coarse SAND. Gravel is fine-medium, subangular-subrounded, becoming more gravelly with depth. Little recovery.	Dry NVO	■
						Borehole terminated at 3.0m bgl.		

Backfill

☒ Cement seal

■ Bentonite Fill

Sample Details

☒ Small disturbed sample

Legend

▨ Concrete	☒ Made Ground
○ Gravelly Sand	
▼ Groundwater Table	▽ Groundwater Strike

GENERAL REMARKS

NVO - No visual or Olfactory Evidence of Contamination.
m bgl - meters below ground level.
Hand pitted to 1.2mbgl

		Logged By CG	Approved By MM

Borehole Log

Project Name and Site Location	Client	BOREHOLE No
Stag Brewery, Mortlake, London SW14	AB Inbev	**BH206**

Job No	Date	Ground Level (m)	Co-Ordinates ()
47075502	Start Date 21-08-15 End Date 21-08-15		

Contractor	Method / Plant Used	Sheet
ESL	Concrete Corer and Premier Rig.	1 of 1

Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thickness)	DESCRIPTION	COMMENTS	Installation
					0.20	TARMAC over CONCRETE		☒
0.5				☒	(0.80) 1.00	MADE GROUND: Grey, dense, fine to coarse sand and gravel of concrete.	Dry, NVO.	■
1.0	☒ BH206_1.1	<0.1		☒	(0.80) 1.80	MADE GROUND: Soft brown sandy clay. Gravel is fine-medium, angular-subangular of brick and concrete.	Dry, NVO.	■
1.5		<0.1						
						Borehole terminated at 1.8m bgl due to refusal on concrete.		

Backfill	Sample Details	Legend	GENERAL REMARKS
☒ Cement seal ■ Bentonite Fill	☒ Small disturbed sample	☐ Ashphalt ☒ Made Ground ▼ Groundwater Table ▽ Groundwater Strike	NVO - No visual or Olfactory Evidence of Contamination. m bgl - meters below ground level. Hand pitted to 1.2mbgl

		Logged By	CG	Approved By	MM

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Borehole Log

Project Name and Site Location	Client	BOREHOLE No
Stag Brewery, Mortlake, London SW14	AB Inbev	**BH207**

Job No	Date	Ground Level (m)	Co-Ordinates ()
47075502	Start Date 25-08-15 End Date 25-08-15		

Contractor	Method / Plant Used	Sheet
ESL	Concrete Corer and Premier Rig.	1 of 1

STRATA

Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thickness)	DESCRIPTION	COMMENTS	Installation
					0.20	TARMAC		☒
				☒	(0.90) 1.10	MADE GROUND: Grey/red, dense, fine to coarse sand and gravel of concrete and brick.	Dry, NVO.	■
0.5		<0.1						
	☒ BH207_0.7							
1.0								
					(1.50) 2.60	Soft, gravelly, brown CLAY. Gravel is fine-medium, subangular-subrounded of flint. (Possibly reworked)	Dry, NVO.	■
		<0.1						
1.5								
		<0.1						
2.0								
2.5		<0.1						
	☒ BH207_2.6-3.5				(0.90) 3.50	Brown, dense, gravelly SAND. Gravel fine, occasionally medium of flint. Sand is fine to medium.	Dry, NVO.	■
		<0.1						
3.0								
3.5		<0.1						
						Borehole terminated at 3.5m bgl.		

Backfill

☒ Cement seal

■ Bentonite Fill

Sample Details

☒ Small disturbed sample

Legend

☐ Ashphalt

☒ Made Ground

Gravelly Clay

Gravelly Sand

▼ Groundwater Table

Groundwater Strike

GENERAL REMARKS

NVO - No visual or Olfactory Evidence of Contamination.
m bgl - meters below ground level.
Hand pitted to 1.2mbgl

		Logged By	CG	Approved By	MM

Borehole Log

Project Name and Site Location Stag Brewery, Mortlake, London SW14		Client AB Inbev		BOREHOLE No **BH208**
Job No 47075502	Date Start Date 25-08-15 End Date 25-08-15	Ground Level (m)	Co-Ordinates ()	
Contractor ESL		Method / Plant Used Concrete Corer.		Sheet 1 of 1

Depth BGL	Sample / Test Details	PID (ppm)	Water	STRATA				
				Legend	Depth (Thickness)	DESCRIPTION	COMMENTS	Installation
				▒	0.25	CONCRETE		☒ ■
0.5		<0.1		☒	(0.55) 0.80	MADE GROUND: Brown, sandy, medium gravel of concrete, brick and flint.	Dry, NVO.	■
						Borehole terminated at 0.8m bgl due to refusal on concrete.		

Backfill

☒ Cement seal

■ Bentonite Fill

Sample Details

Legend

▒ Concrete	☒ Made Ground
▼ Groundwater Table	▽ Groundwater Strike

GENERAL REMARKS

NVO - No visual or Olfactory Evidence of Contamination.
m bgl - meters below ground level.
Hand pitted to 1.2mbgl

Logged By	CG	Approved By	MM

AECOM

Borehole Log

Project Name and Site Location Stag Brewery, Mortlake, London SW14		Client AB Inbev	BOREHOLE No **BH208A**
Job No 47075502	Date Start Date 25-08-15 End Date 25-08-15	Ground Level (m)	Co-Ordinates ()
Contractor ESL		Method / Plant Used Concrete Corer and Premier Rig.	Sheet 1 of 1

STRATA

Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thick-ness)	DESCRIPTION	COMMENTS	Installation
				▨	0.25	CONCRETE		☒
0.5		<0.1		☒	0.50	MADE GROUND: Fine to medium, angular to subangular concrete gravel.	Dry NVO	■
1.0	BH208A_0.8 BH208A_1.1	<0.1		☒	(0.50) 1.00	MADE GROUND: Dark brown, slightly clayey, gravelly, fine to coarse sand. Gravel fine occasionally coarse, subangular to subrounded of brick and flint.	Dry NVO	■
1.5 2.0 2.5 3.0		<0.1 <0.1 <0.1 <0.1		○	(2.50) 3.50	Medium density, brown, gravelly, fine to coarse SAND. Gravel is fine to medium, subangular to subrounded of flint. Very sandy between 1.5m and 1.9m.	Dry NVO	■
3.5						Borehole terminated at 3.5m bgl.		

Backfill	Sample Details	Legend		GENERAL REMARKS
☒ Cement seal	☒ Small disturbed sample	▨ Concrete	☒ Made Ground	NVO - No visual or Olfactory Evidence of Contamination. m bgl - meters below ground level. Hand pitted to 1.2mbgl
■ Bentonite Fill		○ Gravelly Sand		
		▼ Groundwater Table	▽ Groundwater Strike	

		Logged By CG	Approved By MM

Borehole Log

Project Name and Site Location		Client		BOREHOLE No
Stag Brewery, Mortlake, London SW14		AB Inbev		**BH209**
Job No 47075502	Date Start Date 25-08-15 End Date 25-08-15	Ground Level (m)	Co-Ordinates ()	
Contractor ESL		Method / Plant Used Concrete Corer and Premier Rig.		Sheet 1 of 1

Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thickness)	DESCRIPTION	COMMENTS	Installation
				⊡	0.27	CONCRETE		☒
0.5	☒ BH209_0.5	<0.1		☒	(2.43) 2.70	MADE GROUND: Brown, grey/ black, gravelly, fine to coarse sand. Gravel is fine to coarse, angular to subangular of brick and concrete. Becoming	Dry NVO	■
1.0		<0.1						
1.5								
2.0								
2.5								
	☒ BH209_2.7-3.4	<0.1		○	(0.70) 3.40	Brown, gravelly, fine to coarse SAND. Gravel is fine to medium, subangular to subrounded of flint. Very little gravel between 3.0 -3.2m. Poor recovery between 1.2m - 3.4m. Driller noted it becoming dense at 2.7m.	Dry NVO	■
3.0								
						Borehole terminated at 3.4m bgl.		

Backfill	Sample Details	Legend		GENERAL REMARKS
☒ Cement seal	☒ Small disturbed sample	⊡ Concrete	☒ Made Ground	NVO - No visual or Olfactory Evidence of Contamination. m bgl - meters below ground level. Hand pitted to 1.2mbgl
■ Bentonite Fill		○ Gravelly Sand		
		▼ Groundwater Table	▽ Groundwater Strike	

		Logged By	CG	Approved By	MM

AECOM

Borehole Log

Project Name and Site Location Stag Brewery, Mortlake, London SW14		Client AB Inbev	BOREHOLE No **BH210**
Job No 47075502	Date Start Date 26-08-15 End Date 26-08-15	Ground Level (m)	Co-Ordinates ()
Contractor ESL		Method / Plant Used Concrete Corer and Premier Rig.	Sheet 1 of 1

STRATA

Legend	Depth (Thickness)	DESCRIPTION	COMMENTS	Installation
Concrete	0.30	CONCRETE		☒
Made Ground	(0.90) 1.20	MADE GROUND: Dense, brown, sandy, fine to coarse, subangular to rounded gravel of natural stones.	Dry NVO	■
Sandy Clay	(0.90) 2.10	Soft, brown, sandy CLAY (possibly reworked clay).	Dry NVO	■
Gravelly Sand	(1.40) 3.50	Brown, gravelly, fine to coarse SAND. Gravel is fine to medium to subrounded of flint. Becoming more gravelly with depth.	Dry NVO	■
		Borehole terminated at 3.5m bgl.		

Depth BGL	Sample / Test Details	PID (ppm)	Water
0.5		<0.1	
	☒ BH210_0.8		
1.0			
		<0.1	
1.5			
2.0		<0.1	
	☒ BH210_2.2-2.8	<0.1	
2.5			
		<0.1	
3.0			
3.5		<0.1	

Backfill

☒ Cement seal

■ Bentonite Fill

Sample Details

☒ Small disturbed sample

Legend

Concrete	Made Ground
Sandy Clay	Gravelly Sand
▼ Groundwater Table	Groundwater Strike

GENERAL REMARKS

NVO - No visual or Olfactory Evidence of Contamination.
m bgl - meters below ground level.
Hand pitted to 1.2mbgl

Logged By	CG	Approved By	MM

Borehole Log

Project Name and Site Location	Client	BOREHOLE No
Stag Brewery, Mortlake, London SW14	AB Inbev	**BH211**

Job No	Date	Ground Level (m)	Co-Ordinates ()
47075502	Start Date 26-08-15 End Date 26-08-15		

Contractor	Method / Plant Used	Sheet
ESL	Concrete Corer and Premier Rig.	1 of 1

Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thickness)	DESCRIPTION	COMMENTS	Installation
					0.25	CONCRETE		▨
0.5 1.0	BH211_0.7	<0.1		☒	(1.25) 1.50	MADE GROUND: Brown, sandy, fine to coarse, subangular to rounded gravel of natural stone, wood and occasional brick. Becoming clayey with depth.	Dry NVO	■
1.5 2.0		<0.1			(0.60) 2.10	Soft, brown, grey, sandy, gravelly CLAY. Gravel is fine to medium, subangular to angular and subrounded of flint. Sand is fine to coarse. (possibly reworked clay)	Dry NVO	■
	BH211_2.2	<0.1 <0.1			(1.40) 3.50	Brown, gravelly, fine to coarse SAND. Gravel is fine to medium, subangular to rounded of flint. Becoming more gravelly with depth.	Dry NVO	■
						Borehole terminated at 3.5m bgl.		

Backfill	Sample Details	Legend		GENERAL REMARKS
☒ Cement seal	☒ Small disturbed sample	Concrete	☒ Made Ground	NVO - No visual or Olfactory Evidence of Contamination. m bgl - meters below ground level. Hand pitted to 1.2mbgl
■ Bentonite Fill		Gravelly Sandy Clay	Gravelly Sand	
		▼ Groundwater Table	Groundwater Strike	

		Logged By	CG	Approved By	MM

Borehole Log

Project Name and Site Location Stag Brewery, Mortlake, London SW14		Client AB Inbev	BOREHOLE No **BH212**
Job No 47075502	Date Start Date 27-08-15 End Date 27-08-15	Ground Level (m)	Co-Ordinates ()
Contractor ESL	Method / Plant Used Concrete Corer and Premier Rig.		Sheet 1 of 1

STRATA

Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thickness)	DESCRIPTION	COMMENTS	Installation
				▨	0.30	CONCRETE		▨ / ■
0.5	☒ BH212_0.6	<0.1		☒		MADE GROUND: Pink / red, gravelly, fine to coarse sand. Gravel is fine to medium of flint with occasional coarse brick and crushed concrete.	Dry NVO	■
1.0		<0.1		☒	(1.40)			■
1.5		<0.1		☒	1.70			■
	☒ BH212_1.8-2.5	<0.1		○		Dense, brown, gravelly fine to coarse SAND. Gravel is fine to medium subangular to rounded. Becoming more gravelly with depth.	Dry NVO	■
2.0				○				■
2.5		<0.1		○	(1.80)			■
3.0		<0.1		○				■
3.5		<0.1		○	3.50			■
						Borehole terminated at 3.5m bgl.		

Backfill	Sample Details	Legend		GENERAL REMARKS
☒ Cement seal	☒ Small disturbed sample	▨ Concrete	☒ Made Ground	NVO - No visual or Olfactory Evidence of Contamination. m bgl - meters below ground level. Hand pitted to 1.2mbgl
■ Bentonite Fill		○ Gravelly Sand		
		▼ Groundwater Table	▽ Groundwater Strike	

Logged By	CG	Approved By	MM

Borehole Log

Project Name and Site Location	Client	BOREHOLE No
Stag Brewery, Mortlake, London SW14	AB Inbev	**BH213**

Job No	Date	Ground Level (m)	Co-Ordinates ()
47075502	Start Date 27-08-15 End Date 27-08-15		

Contractor	Method / Plant Used	Sheet
ESL	Concrete Corer and Premier Rig.	1 of 1

Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thickness)	DESCRIPTION	COMMENTS	Installation
					0.24	CONCRETE		☒
0.5	BH213_0.6	<0.1		☒	(0.76) 1.00	MADE GROUND: Brown / grey, slightly clayey, sandy, fine to coarse, angular to subangular gravel of brick, concrete, tile and plastic. Sand is fine to coarse.	Damp NVO	■
1.0		<0.1			(0.60) 1.60	Soft brown grey slightly gravelly CLAY. (Possibly reworked clay)		■
1.5								
2.0	BH213_1.7-2.0	<0.1			(1.40) 3.00	Dense, brown, gravelly, fine to coarse SAND. Gravel is fine to medium, angular to subrounded of flint. Occasional sand and gravel pockets throughout.	Damp NVO	■
2.5		<0.1						
3.0		<0.1				Borehole terminated at 3.0m bgl.		

Backfill

☒ Cement seal

■ Bentonite Fill

Sample Details

☒ Small disturbed sample

Legend

Concrete	☒ Made Ground
Gravelly Clay	Gravelly Sand
▼ Groundwater Table	Groundwater Strike

GENERAL REMARKS

NVO - No visual or Olfactory Evidence of Contamination.
m bgl - meters below ground level.
Hand pitted to 1.2mbgl

Logged By	CG	Approved By	MM

TE_08.02.10 STAG LOGS - FULL.GPJ AGS3_ALL.GDT 22/9/15

Borehole Log

Project Name and Site Location Stag Brewery, Mortlake, London SW14		Client AB Inbev		BOREHOLE No **BH214**
Job No 47075502	Date Start Date 25-08-15 End Date 25-08-15	Ground Level (m)	Co-Ordinates ()	
Contractor ESL		Method / Plant Used Concrete Corer and Solid Stem Auger.		Sheet 1 of 1

Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thickness)	DESCRIPTION	COMMENTS	Installation
					0.05	TARMAC		
					0.20	CONCRETE		
0.5				☒	(0.60) 0.80	MADE GROUND: Light brown, dense, sandy gravel. Sand is medium to coarse. Gravel is medium to coarse, subangular to subrounded of flint and concrete.	Dry NVO	■
1.0 1.5 2.0 2.5	☒ BH214_0.85	<0.1		☒	(1.80) 2.60	MADE GROUND: Light brown, dense gravelly sand. Sand is medium to coarse. Gravel is medium to coarse, subangular to subrounded of flint and concrete.	Dry NVO	■
						Borehole terminated at 2.6m bgl due to refusal on concrete.		

Backfill	Sample Details	Legend		GENERAL REMARKS
☒ Cement seal ■ Bentonite Fill	☒ Small disturbed sample	☐ Ashphalt ☒ Made Ground ▼ Groundwater Table	▨ Concrete ▽ Groundwater Strike	NVO - No visual or Olfactory Evidence of Contamination. m bgl - meters below ground level. Hand pitted to 1.2mbgl

		Logged By MM	Approved By GM

Borehole Log

Project Name and Site Location	Client	BOREHOLE No
Stag Brewery, Mortlake, London SW14	AB Inbev	**BH214A**

Job No	Date	Ground Level (m)	Co-Ordinates ()
47075502	Start Date 25-08-15 End Date 25-08-15		

Contractor	Method / Plant Used	Sheet
ESL	Concrete Corer and Solid Stem Auger.	1 of 1

STRATA

Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thickness)	DESCRIPTION	COMMENTS	Installation
				☐	0.05	TARMAC		▨
				▨	0.20	CONCRETE		■
0.5				☒	(0.60) 0.80	MADE GROUND: Light brown, dense, sandy gravel. Sand is medium to coarse. Gravel is medium to coarse, subangular to subrounded of flint and concrete.	Dry NVO	■
1.0 1.5 2.0				☒	(1.20) 2.00	MADE GROUND: Light brown, dense gravelly sand. Sand is medium to coarse. Gravel is medium to coarse, subangular to subrounded of flint and concrete.	Dry NVO	■
						Borehole terminated at 2.0m bgl due to refusal on concrete.		

Backfill	Sample Details	Legend	GENERAL REMARKS
☒ Cement seal ■ Bentonite Fill		☐ Ashphalt ▨ Concrete ☒ Made Ground ▼ Groundwater Table ▽ Groundwater Strike	NVO - No visual or Olfactory Evidence of Contamination. m bgl - meters below ground level. Hand pitted to 1.2mbgl

		Logged By	Approved By
		MM	GM

Borehole Log

Project Name and Site Location	Client	BOREHOLE No
Stag Brewery, Mortlake, London SW14	AB Inbev	**BH2A**

Job No	Date	Ground Level (m)	Co-Ordinates ()
47075502	Start Date 25-08-15 End Date 25-08-15		

Contractor	Method / Plant Used	Sheet
ESL	Concrete Corer and Premier Rig.	1 of 1

Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thickness)	DESCRIPTION	COMMENTS	Installation
					0.25	CONCRETE		☒
0.5	☒ BH2A_0.5	<0.1			(0.55) 0.80	MADE GROUND: Brown sandy fine-medium angular gravel of flint and crushed concrete. Sand is fine-coarse.	Dry NVO	■
1.0		<0.1			1.10	CONCRETE	Dry NVO	■
1.5 2.0	☒ BH2A_1.5	<0.1 <0.1			(1.40) 2.50	Soft, brown, sandy CLAY. (Possibly reworked clay)	Dry NVO	■
2.5 3.0		<0.1 <0.1			(1.00) 3.50	Dense, brown, gravelly, fine-coarse SAND. Gravel is fine-medium, subangular-subrounded of flint.	Dry NVO	■
3.5						Borehole terminated at 3.5m bgl.		

Backfill

☒ Cement seal

■ Bentonite Fill

Sample Details

☒ Small disturbed sample

Legend

Concrete

☒ Made Ground

Sandy Clay

Gravelly Sand

▼ Groundwater Table

Groundwater Strike

GENERAL REMARKS

NVO - No visual or Olfactory Evidence of Contamination.
m bgl - meters below ground level.
Hand pitted to 1.2mbgl

		Logged By	CG	Approved By	MM

Borehole Log

Project Name and Site Location		Client		BOREHOLE No
Stag Brewery, Mortlake, London SW14		AB Inbev		**BH3A**
Job No 47075502	Date Start Date 28-08-15 End Date 28-08-15	Ground Level (m)	Co-Ordinates ()	
Contractor ESL		Method / Plant Used Concrete Corer and Premier Rig.		Sheet 1 of 1

STRATA

Depth BGL	Sample / Test Details	PID (ppm)	Water
0.5	☒ BH3A_0.5	<0.1	
1.0		<0.1	
1.5		<0.1	
2.0		<0.1	
2.5		<0.1	
3.0		<0.1	

Legend	Depth (Thickness)	DESCRIPTION	COMMENTS	Installation
	0.25	CONCRETE.		☒
☒	(1.25) 1.50	MADE GROUND: Brown, gravelly, fine-coarse sand. Gravel is fine-medium, occasionally coarse, angular-subangular of brick, glass and concrete.	Dry NVO	■
	(0.50) 2.00	Dense, brown, sandy, fine-medium, subangular-subrounded GRAVEL of flint. Sand is fine-coarse.	Dry NVO	■
	(1.00) 3.00	Dense, brown, gravelly, fine-coarse SAND. Gravel is subangular-subrounded fine-coarse of flint.	Dry NVO	■
		Borehole terminated at 3.0m bgl.		

Backfill	Sample Details	Legend		GENERAL REMARKS
☒ Cement seal	☒ Small disturbed sample	Concrete	☒ Made Ground	NVO - No visual or Olfactory Evidence of Contamination. m bgl - meters below ground level. Hand pitted to 1.2mbgl
■ Bentonite Fill		Sandy Gravel	Gravelly Sand	
		▼ Groundwater Table	Groundwater Strike	

		Logged By	CG	Approved By	MM

AECOM

Borehole Log

Project Name and Site Location			Client	BOREHOLE No
Stag Brewery, Mortlake, London SW14			AB Inbev	**BH4A**
Job No 47075502	Date Start Date 27-08-15 End Date 27-08-15	Ground Level (m)	Co-Ordinates ()	
Contractor ESL		Method / Plant Used Concrete Corer and Premier Rig.		Sheet 1 of 1

Depth BGL	Sample / Test Details	PID (ppm)	Water
0.5		<0.1	
	☒ BH4A_0.9		
1.0		<0.1	
1.5		<0.1	
2.0		<0.1	
2.5		<0.1	
3.0		<0.1	
3.5	☒ BH4A_3.5-4.0	<0.1	
4.0		<0.1	

STRATA

Legend	Depth (Thickness)	DESCRIPTION	COMMENTS	Installation
☒	(1.30) 1.30	MADE GROUND: Brown, grey, slightly clayey, gravelly, fine-coarse sand. Gravel is fine-medium, angular-subangular of concrete, brick tile and rootlets.	Dry. Possible asbestos fragments.	☒ ■
○	(2.70) 4.00	Brown, very gravelly, fine-coarse SAND. Gravel is fine-medium, subangular-subrounded of flint.	Dry NVO	■
		Borehole terminated at 4.0m bgl.		

Backfill	Sample Details	Legend		GENERAL REMARKS
☒ Cement seal ■ Bentonite Fill	☒ Small disturbed sample	☒ Made Ground ▼ Groundwater Table	○ Gravelly Sand ▽ Groundwater Strike	NVO - No visual or Olfactory Evidence of Contamination. m bgl - meters below ground level. Hand pitted to 1.2mbgl

		Logged By	CG	Approved By	MM

Borehole Log

Project Name and Site Location	Client	BOREHOLE No
Stag Brewery, Mortlake, London SW14	AB Inbev	**BH5A**

Job No	Date	Ground Level (m)	Co-Ordinates ()
47075502	Start Date 28-08-15 End Date 28-08-15		

Contractor	Method / Plant Used	Sheet
ESL	Concrete Corer and Premier Rig.	1 of 1

Depth BGL	Sample / Test Details	PID (ppm)	Water	STRATA: Legend	STRATA: Depth (Thickness)	STRATA: DESCRIPTION	STRATA: COMMENTS	Installation
				☒	0.10	MADE GROUND: Pea gravel.		▨
0.5	☒ BH5A_0.5	<0.1		☒		MADE GROUND: Brown, slightly clayey, gravelly, fine-coarse sand. Gravel is fine-medium, occasionally coarse, subangular-subrounded of red brick.	Dry NVO	■
1.0		<0.1		☒	(1.70)			■
1.5		<0.1		☒	1.80			■
2.0		<0.1		○		Dense, brown, gravelly, fine-coarse SAND. Gravel is fine-medium, subangular-rounded of flint.	Dry NVO	■
2.5		<0.1		○	(1.20)			■
3.0		<0.1		○	3.00			■
						Borehole terminated at 3.0m bgl.		

Backfill	Sample Details	Legend	
☒ Cement seal	☒ Small disturbed sample	☒ Made Ground	○ Gravelly Sand
■ Bentonite Fill		▼ Groundwater Table	▽ Groundwater Strike

GENERAL REMARKS

NVO - No visual or Olfactory Evidence of Contamination.
m bgl - meters below ground level.
Hand pitted to 1.2mbgl

		Logged By	CG	Approved By	MM

Borehole Log

Project Name and Site Location	Client	BOREHOLE No
Stag Brewery, Mortlake, London SW14	AB Inbev	**BH7A**

Job No	Date	Ground Level (m)	Co-Ordinates ()
47075502	Start Date 27-08-15 End Date 27-08-15		

Contractor	Method / Plant Used	Sheet
ESL	Concrete Corer and Premier Rig.	1 of 1

Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend (STRATA)	Depth (Thickness) (STRATA)	DESCRIPTION (STRATA)	COMMENTS (STRATA)	Installation (STRATA)
0.5					(0.55) 0.55	CONCRETE		▨
1.0	☒ BH7A_0.7	<0.1		☒	(0.65) 1.20	MADE GROUND: Soft, dark brown/grey, slightly gravelly, silty clay. Gravel is fine and subangular of red brick with fragments of wood.	Damp NVO	■
1.5		<0.1			1.50	Brown, slightly gravelly CLAY. Gravel is medium to coarse of flint.	Dry NVO	■
2.0		<0.1				Dense, brown, gravelly, fine-coarse SAND. Gravel content increases with depth. Gravel is fine-medium, subangular-subrounded of flint.	Dry NVO	■
2.5	☒ BH7A_2.5-3.0	<0.1			(1.50)			■
3.0		<0.1			3.00			■
						Borehole terminated at 3.0m bgl.		

Backfill
☒ Cement seal
■ Bentonite Fill

Sample Details
☒ Small disturbed sample

Legend
Concrete	☒ Made Ground
Gravelly Clay	Gravelly Sand
▼ Groundwater Table	Groundwater Strike

GENERAL REMARKS
NVO - No visual or Olfactory Evidence of Contamination.
m bgl - meters below ground level.
Hand pitted to 1.2mbgl

Logged By	CG	Approved By	MM

AECOM

Borehole Log

Project Name and Site Location Stag Brewery, Mortlake, London SW14		Client AB Inbev	BOREHOLE No **BH7B**
Job No 47075502	Date Start Date 27-08-15 End Date 27-08-15	Ground Level (m)	Co-Ordinates ()
Contractor ESL		Method / Plant Used Concrete Corer.	Sheet 1 of 1

Depth BGL	Sample / Test Details	PID (ppm)	Water	STRATA Legend	Depth (Thickness)	DESCRIPTION	COMMENTS	Installation
				▒	0.20	CONCRETE		☒
0.5				☒	0.30	MADE GROUND: Brown, sandy, fine-medium, angular-subangular gravel of flint and concrete. Sand is fine-coarse.	Dry NVO	☒
				▒	0.60	CONCRETE with rebar. Borehole terminated at 0.6m bgl due to refusal on concrete.		☒

Backfill	Sample Details	Legend	GENERAL REMARKS
☒ Cement seal		▒ Concrete ☒ Made Ground ▼ Groundwater Table ▽ Groundwater Strike	NVO - No visual or Olfactory Evidence of Contamination. m bgl - meters below ground level. Hand pitted to 0.6mbgl

	Logged By	CG	Approved By MM

Borehole Log

Project Name and Site Location	Client	BOREHOLE No
Stag Brewery, Mortlake, London SW14	AB Inbev	**BH8A**

Job No	Date	Ground Level (m)	Co-Ordinates ()
47075502	Start Date 26-08-15 End Date 26-08-15		

Contractor	Method / Plant Used	Sheet
ESL	Concrete Corer and Premier Rig.	1 of 1

Depth BGL	Sample / Test Details	PID (ppm)	Water
0.5	☒ BH8A	2.1	
1.0		<0.1	
1.5		<0.1	
2.0		<0.1	
		<0.1	
3.0	☒ BH8A_3.0-3.5	<0.1	
3.5		<0.1	

STRATA

Legend	Depth (Thick-ness)	DESCRIPTION	COMMENTS	Installation
▨	0.20	CONCRETE		☒
☒	0.40	MADE GROUND: Grey, sandy, fine-medium gravel of concrete.	Dry NVO	■
☒	(0.40) 0.80	MADE GROUND: Black sand and gravel. Gravel is medium to coarse, angular to sub-rounded of flint. Sand is fine-coarse of ash.	Dry. Black ash noted.	■
	(1.40) 2.20	Soft, brown/ grey, sandy, gravelly CLAY. (Possibly reworked clay).	Dry NVO	■
	(1.30) 3.50	Dense, brown, gravelly, fine-coarse SAND. Gravel is fine-medium subangular-rounded of flint.	Dry NVO	■
		Borehole termonated at 3.0m bgl.		

Backfill

☒ Cement seal

■ Bentonite Fill

Sample Details

☒ Small disturbed sample

Legend

▨ Concrete	☒ Made Ground
Gravelly Sandy Clay	Gravelly Sand
▼ Groundwater Table	▽ Groundwater Strike

GENERAL REMARKS

NVO - No visual or Olfactory Evidence of Contamination.
m bgl - meters below ground level.
Hand pitted to 1.2mbgl

		Logged By	CG	Approved By	MM

Borehole Log

Project Name and Site Location	Client	BOREHOLE No
Stag Brewery, Mortlake, London SW14	AB Inbev	**BH9A**

Job No	Date	Ground Level (m)	Co-Ordinates ()
47075502	Start Date 26-08-15 End Date 26-08-15		

Contractor	Method / Plant Used	Sheet
ESL	Concrete Corer and Premier Rig.	1 of 1

Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thickness)	DESCRIPTION	COMMENTS	Installation
				▨	0.30	CONCRETE		☒
0.5 1.0 1.5 2.0	☒ BH9A_0.5	<0.1 <0.1		☒	(1.90) 2.20	MADE GROUND: Dense, brown, gravelly, fine-coarse sand. Gravel is fine-medium, subrounded-rounded of natural stone, becoming clayey with depth. Poor recovery.	Dry NVO	■
2.5 3.0	☒ BH9A_2.2-3.3		▽1 ▼	☒	(1.10) 3.30	MADE GROUND: Black, sandy, fine-medium, angular, red/grey gravel of flint and crushed concrete. Sand is fine-coarse. Poor recovery.	Wet NVO	■
						Borehole terminated at 3.3m bgl due to refusal on concrete.		

Backfill

☒ Cement seal

■ Bentonite Fill

Sample Details

☒ Small disturbed sample

Legend

▨ Concrete

☒ Made Ground

▼ Groundwater Table

▽ 1 Groundwater Strike

GENERAL REMARKS

NVO - No visual or Olfactory Evidence of Contamination.
m bgl - meters below ground level.
Hand pitted to 1.2mbgl

		Logged By	CG	Approved By	MM

APPENDIX C – LABORATORY CERTIFICATE

ALcontrol Laboratories

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: mkt@alcontrol.com
Website: www.alcontrol.com

AECOM
St. George's House
2nd Floor
5 St. George's Road
Wimbledon
Greater London
SW19 4DR

Attention: Gary Marshall

CERTIFICATE OF ANALYSIS

Date:	08 September 2015
Customer:	H_URS_WIM
Sample Delivery Group (SDG):	150822-16
Your Reference:	
Location:	Stag Brewery
Report No:	328751

We received 8 samples on Saturday August 22, 2015 and 6 of these samples were scheduled for analysis which was completed on Monday September 07, 2015. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Approved By:

Sonia McWhan

Operations Manager

mCERTS
THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

ilac-MRA

UKAS TESTING
1291

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
11942793	BH204		1.30	21/08/2015
11942794	BH204		1.80	21/08/2015
11942796	BH204		3.30	21/08/2015
11942797	BH205		1.00	21/08/2015
11942798	BH205		2.50	21/08/2015
11942799	BH206		1.10	21/08/2015
11942791	BH203A		0.50	20/08/2015
11942792	BH203A		2.50	21/08/2015

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 150822-16
Job: H_URS_WIM-273
Client Reference:

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

Order Number:
Report Number: 328751
Superseded Report:

SOLID

Results Legend

X **Test**

N **No Determination Possible**

	Lab Sample No(s)		11942793			11942796			11942797			11942798			11942799			11942791		
	Customer Sample Reference		BH204			BH204			BH205			BH205			BH206			BH203A		
	AGS Reference																			
	Depth (m)		1.30			3.30			1.00			2.50			1.10			0.50		
	Container		250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)
Ammonium Soil by Titration	All	NDPs: 0 Tests: 6		X			X			X			X			X			X	
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 6		X			X			X			X			X			X	
Asbestos Quant. - Waste Limit	All	NDPs: 0 Tests: 2								X									X	
Easily Liberated Sulphide	All	NDPs: 0 Tests: 6		X			X			X			X			X			X	
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 6	X			X			X			X			X			X		
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 6	X			X			X			X			X			X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 6			X			X			X			X			X			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 6		X			X			X			X			X			X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 6	X			X			X			X			X			X		
PAH by GCMS	All	NDPs: 0 Tests: 6	X			X			X			X			X			X		
pH	All	NDPs: 0 Tests: 6		X			X			X			X			X			X	
Sample description	All	NDPs: 0 Tests: 5	X			X			X			X						X		
Total Organic Carbon	All	NDPs: 0 Tests: 6	X			X			X			X			X			X		
Total Sulphate	All	NDPs: 0 Tests: 6	X			X			X			X			X			X		
TPH CWG GC (S)	All	NDPs: 0 Tests: 6	X			X			X			X			X			X		

CERTIFICATE OF ANALYSIS

SDG: 150822-16
Job: H_URS_WIM-273
Client Reference:

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

Order Number:
Report Number: 328751
Superseded Report:

SOLID

Results Legend

X	**Test**
N	**No Determination Possible**

	Lab Sample No(s)		11942793	11942796	11942797	11942798	11942799	11942791
	Customer Sample Reference		BH204	BH204	BH205	BH205	BH206	BH203A
	AGS Reference							
	Depth (m)		1.30	3.30	1.00	2.50	1.10	0.50
	Container		250g Amber Jar (AL 400g Tub (ALE214) 60g VOC (ALE215)	250g Amber Jar (AL 400g Tub (ALE214) 60g VOC (ALE215)	250g Amber Jar (AL 400g Tub (ALE214) 60g VOC (ALE215)	250g Amber Jar (AL 400g Tub (ALE214) 60g VOC (ALE215)	250g Amber Jar (AL 400g Tub (ALE214) 60g VOC (ALE215)	250g Amber Jar (AL 400g Tub (ALE214) 60g VOC (ALE215)
VOC MS (S)	All	NDPs: 0 Tests: 6	X	X	X	X	X	X

SDG:	150822-16	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	328751
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Grain size	Inclusions	Inclusions 2
11942793	BH204	1.30	Dark Brown	Sandy Clay	0.1 - 2 mm	Stones	Vegetation
11942796	BH204	3.30	Light Brown	Loamy Sand	0.1 - 2 mm	Stones	Vegetation
11942797	BH205	1.00	Light Brown	Sandy Loam	0.1 - 2 mm	Brick	Stones
11942798	BH205	2.50	Light Brown	Loamy Sand	0.1 - 2 mm	Stones	Vegetation
11942799	BH206	1.10	Dark Brown	Sandy Clay Loam	0.1 - 2 mm	Brick	Stones
11942791	BH203A	0.50	Light Brown	Sandy Loam	0.1 - 2 mm	Brick	Stones

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

ALcontrol Laboratories

Validated

CERTIFICATE OF ANALYSIS

SDG:	150822-16	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	328751
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Customer Sample R	BH204	BH204	BH205	BH205	BH206	BH203A
		Depth (m)	1.30	3.30	1.00	2.50	1.10	0.50
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
		Date Sampled	21/08/2015	21/08/2015	21/08/2015	21/08/2015	21/08/2015	20/08/2015
		Sampled Time	.	.	.	.	.	.
		Date Received	22/08/2015	22/08/2015	22/08/2015	22/08/2015	22/08/2015	22/08/2015
		SDG Ref	150822-16	150822-16	150822-16	150822-16	150822-16	150822-16
		Lab Sample No.(s)	11942793	11942796	11942797	11942798	11942799	11942791
		AGS Reference						
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	16	7.2	8.8	5.2	12	11
Exchangeable Ammonia as NH4	<15 mg/kg	TM024	<15 M	<15 M	<15 M	<15 M	<15 M	<15 M
Organic Carbon, Total	<0.2 %	TM132	0.266 M	<0.2 M	0.627 M	<0.2 M	0.522 M	0.396 M
pH	1 pH Units	TM133	9.55 M	8.43 M	11.3 M	9.88 M	8.95 M	11.7 M
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #
Sulphide, Easily liberated	<15 mg/kg	TM180	<15 #	<15 #	<15 #	<15 #	<15 #	20 #
Arsenic	<0.6 mg/kg	TM181	10.9 M	30 M	13.7 M	21.8 M	19.9 M	12.1 M
Cadmium	<0.02 mg/kg	TM181	0.21 M	0.319 M	0.414 M	0.263 M	0.324 M	0.29 M
Chromium	<0.9 mg/kg	TM181	17.4 M	15.2 M	20 M	20.6 M	21.9 M	31.2 M
Copper	<1.4 mg/kg	TM181	8.93 M	3.08 M	25.8 M	4.42 M	12.8 M	35.3 M
Lead	<0.7 mg/kg	TM181	10.6 M	6.08 M	96.4 M	10.2 M	39.4 M	59.6 M
Mercury	<0.14 mg/kg	TM181	<0.14 M	<0.14 M	0.162 M	<0.14 M	<0.14 M	<0.14 M
Nickel	<0.2 mg/kg	TM181	16.5 M	21.8 M	17.4 M	20 M	22.4 M	38.2 M
Selenium	<1 mg/kg	TM181	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Zinc	<1.9 mg/kg	TM181	44.4 M	25.3 M	93 M	28.2 M	54.2 M	96.4 M
Sulphate, Total	<48 mg/kg	TM221	4280 M	2040 M	3750 M	883 M	573 M	8120 M

CERTIFICATE OF ANALYSIS

SDG: 150822-16
Job: H_URS_WIM-273
Client Reference:
Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall
Order Number:
Report Number: 328751
Superseded Report:

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample R			BH204	BH204	BH205	BH205	BH206	BH203A
Depth (m)			1.30	3.30	1.00	2.50	1.10	0.50
Sample Type			Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
Date Sampled			21/08/2015	21/08/2015	21/08/2015	21/08/2015	21/08/2015	20/08/2015
Sampled Time			.	.	.	.	.	.
Date Received			22/08/2015	22/08/2015	22/08/2015	22/08/2015	22/08/2015	22/08/2015
SDG Ref			150822-16	150822-16	150822-16	150822-16	150822-16	150822-16
Lab Sample No.(s)			11942793	11942796	11942797	11942798	11942799	11942791
AGS Reference								
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	106	103	104	102	104	104
Acenaphthene-d10 % recovery**	%	TM218	103	102	103	102	105	105
Phenanthrene-d10 % recovery**	%	TM218	104	102	105	101	107	107
Chrysene-d12 % recovery**	%	TM218	96.7	99.7	112	101	98.9	101
Perylene-d12 % recovery**	%	TM218	104	99.7	110	102	105	107
Naphthalene	<9 µg/kg	TM218	<9 M	<9 M	173 M	<9 M	<9 M	10.3 M
Acenaphthylene	<12 µg/kg	TM218	<12 M	<12 M	45.3 M	<12 M	<12 M	<12 M
Acenaphthene	<8 µg/kg	TM218	<8 M	<8 M	73.2 M	<8 M	<8 M	<8 M
Fluorene	<10 µg/kg	TM218	<10 M	<10 M	79.6 M	<10 M	<10 M	<10 M
Phenanthrene	<15 µg/kg	TM218	<15 M	<15 M	811 M	<15 M	28.4 M	160 M
Anthracene	<16 µg/kg	TM218	<16 M	<16 M	179 M	<16 M	<16 M	41 M
Fluoranthene	<17 µg/kg	TM218	<17 M	<17 M	1310 M	<17 M	47.3 M	429 M
Pyrene	<15 µg/kg	TM218	<15 M	<15 M	1510 M	<15 M	53.2 M	412 M
Benz(a)anthracene	<14 µg/kg	TM218	<14 M	<14 M	1060 M	<14 M	<14 M	192 M
Chrysene	<10 µg/kg	TM218	<10 M	<10 M	976 M	<10 M	16.3 M	194 M
Benzo(b)fluoranthene	<15 µg/kg	TM218	<15 M	<15 M	1300 M	<15 M	37.7 M	206 M
Benzo(k)fluoranthene	<14 µg/kg	TM218	<14 M	<14 M	546 M	<14 M	19.7 M	103 M
Benzo(a)pyrene	<15 µg/kg	TM218	<15 M	<15 M	970 M	<15 M	38.2 M	203 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	<18 M	<18 M	543 M	<18 M	29 M	124 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23 M	<23 M	186 M	<23 M	<23 M	32.7 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218	<24 M	<24 M	676 M	<24 M	30.1 M	142 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	<118	<118	10400	<118	300	2250

CERTIFICATE OF ANALYSIS

SDG: 150822-16
Job: H_URS_WIM-273
Client Reference:
Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall
Order Number:
Report Number: 328751
Superseded Report:

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample R			BH204	BH204	BH205	BH205	BH206	BH203A
Depth (m)			1.30	3.30	1.00	2.50	1.10	0.50
Sample Type			Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
Date Sampled			21/08/2015	21/08/2015	21/08/2015	21/08/2015	21/08/2015	20/08/2015
Sampled Time			.	.	.	.	.	.
Date Received			22/08/2015	22/08/2015	22/08/2015	22/08/2015	22/08/2015	22/08/2015
SDG Ref			150822-16	150822-16	150822-16	150822-16	150822-16	150822-16
Lab Sample No.(s)			11942793	11942796	11942797	11942798	11942799	11942791
AGS Reference								
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	74	96	72	98	80	73
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	<44 M	<44 M	243 M	<44 M	<44 M	<44 M
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
Benzene	<10 µg/kg	TM089	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Toluene	<2 µg/kg	TM089	<2 M	<2 M	5.4 M	<2 M	<2 M	<2 M
Ethylbenzene	<3 µg/kg	TM089	<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
m,p-Xylene	<6 µg/kg	TM089	<6 M	<6 M	7.55 M	<6 M	<6 M	<6 M
o-Xylene	<3 µg/kg	TM089	<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9	<9	<9	<9	<9	<9
sum of detected BTEX by GC	<24 µg/kg	TM089	<24	<24	<24	<24	<24	<24
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/kg	TM089	<10	<10	12.9	<10	<10	<10
Aliphatics >C8-C10	<10 µg/kg	TM089	<10	<10	25.9	<10	<10	<10
Aliphatics >C10-C12	<10 µg/kg	TM089	<10	<10	93.9	<10	<10	<10
Aliphatics >C12-C16	<100 µg/kg	TM173	480	808	5150	466	337	2500
Aliphatics >C16-C21	<100 µg/kg	TM173	<100	<100	30000	<100	<100	9990
Aliphatics >C21-C35	<100 µg/kg	TM173	<100	<100	120000	<100	1660	97500
Aliphatics >C35-C44	<100 µg/kg	TM173	<100	<100	39400	<100	<100	70000
Total Aliphatics >C12-C44	<100 µg/kg	TM173	480	808	195000	466	2000	180000
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10	<10	29.1	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10	<10	62.6	<10	<10	<10
Aromatics >EC12-EC16	<100 µg/kg	TM173	486	402	4430	519	<100	1610
Aromatics >EC16-EC21	<100 µg/kg	TM173	<100	<100	21900	<100	<100	6760
Aromatics >EC21-EC35	<100 µg/kg	TM173	269	462	75100	693	3460	78300
Aromatics >EC35-EC44	<100 µg/kg	TM173	<100	<100	55100	<100	<100	118000
Aromatics >EC40-EC44	<100 µg/kg	TM173	<100	<100	25300	<100	<100	46400
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	755	864	156000	1210	3460	205000
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	1230	1680	352000	1680	5470	385000

CERTIFICATE OF ANALYSIS

SDG:	150822-16	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	328751
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
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1-5&+§@	Sample deviation (see appendix)

		Customer Sample R	BH204	BH204	BH205	BH205	BH206	BH203A
		Depth (m)	1.30	3.30	1.00	2.50	1.10	0.50
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
		Date Sampled	21/08/2015	21/08/2015	21/08/2015	21/08/2015	21/08/2015	20/08/2015
		Sampled Time	.	.	.	.	.	.
		Date Received	22/08/2015	22/08/2015	22/08/2015	22/08/2015	22/08/2015	22/08/2015
		SDG Ref	150822-16	150822-16	150822-16	150822-16	150822-16	150822-16
		Lab Sample No.(s)	11942793	11942796	11942797	11942798	11942799	11942791
		AGS Reference						
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	117	102	96.6	98.9	116	71.6
Toluene-d8**	%	TM116	99.6	99.9	91.2	97.9	101	87.7
4-Bromofluorobenzene**	%	TM116	101	101	77.1	101	90.4	70.8
Dichlorodifluoromethane	<6 µg/kg	TM116	<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
Chloromethane	<7 µg/kg	TM116	<7 #	<7 #	<7 #	<7 #	<7 #	<7 #
Vinyl Chloride	<6 µg/kg	TM116	<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
Bromomethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Chloroethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Trichlorofluorormethane	<6 µg/kg	TM116	<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
1,1-Dichloroethene	<10 µg/kg	TM116	<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
Carbon Disulphide	<7 µg/kg	TM116	<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
Dichloromethane	<10 µg/kg	TM116	<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
trans-1,2-Dichloroethene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,1-Dichloroethane	<8 µg/kg	TM116	<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
cis-1,2-Dichloroethene	<6 µg/kg	TM116	<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
2,2-Dichloropropane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Bromochloromethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Chloroform	<8 µg/kg	TM116	<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
1,1,1-Trichloroethane	<7 µg/kg	TM116	<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
1,1-Dichloropropene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Carbontetrachloride	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,2-Dichloroethane	<5 µg/kg	TM116	<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
Benzene	<9 µg/kg	TM116	<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
Trichloroethene	<9 µg/kg	TM116	<9 #	<9 #	<9 #	<9 #	<9 #	<9 #
1,2-Dichloropropane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Dibromomethane	<9 µg/kg	TM116	<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
Bromodichloromethane	<7 µg/kg	TM116	<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
cis-1,3-Dichloropropene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Toluene	<7 µg/kg	TM116	<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
trans-1,3-Dichloropropene	<10 µg/kg	TM116	<10	<10	<10	<10	<10	<10
1,1,2-Trichloroethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M

CERTIFICATE OF ANALYSIS

SDG: 150822-16
Job: H_URS_WIM-273
Client Reference:

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

Order Number:
Report Number: 328751
Superseded Report:

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

Customer Sample R			BH204	BH204	BH205	BH205	BH206	BH203A
Depth (m)			1.30	3.30	1.00	2.50	1.10	0.50
Sample Type			Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
Date Sampled			21/08/2015	21/08/2015	21/08/2015	21/08/2015	21/08/2015	20/08/2015
Sampled Time			.	.	.	.	.	.
Date Received			22/08/2015	22/08/2015	22/08/2015	22/08/2015	22/08/2015	22/08/2015
SDG Ref			150822-16	150822-16	150822-16	150822-16	150822-16	150822-16
Lab Sample No.(s)			11942793	11942796	11942797	11942798	11942799	11942791
AGS Reference								
Component	**LOD/Units**	**Method**						
1,3-Dichloropropane	<7 µg/kg	TM116	<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
Tetrachloroethene	<5 µg/kg	TM116	<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
Dibromochloromethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,2-Dibromoethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Chlorobenzene	<5 µg/kg	TM116	<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Ethylbenzene	<4 µg/kg	TM116	<4 M	<4 M	<4 M	<4 M	<4 M	<4 M
p/m-Xylene	<10 µg/kg	TM116	<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
o-Xylene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Styrene	<10 µg/kg	TM116	<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
Bromoform	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Isopropylbenzene	<5 µg/kg	TM116	<5 #	<5 #	<5 #	<5 #	<5 #	<5 #
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,2,3-Trichloropropane	<16 µg/kg	TM116	<16 M	<16 M	<16 M	<16 M	<16 M	<16 M
Bromobenzene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Propylbenzene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
2-Chlorotoluene	<9 µg/kg	TM116	<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
1,3,5-Trimethylbenzene	<8 µg/kg	TM116	<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
4-Chlorotoluene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
tert-Butylbenzene	<14 µg/kg	TM116	<14 M	<14 M	<14 M	<14 M	<14 M	<14 M
1,2,4-Trimethylbenzene	<9 µg/kg	TM116	<9 #	<9 #	<9 #	<9 #	<9 #	<9 #
sec-Butylbenzene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
4-Isopropyltoluene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,3-Dichlorobenzene	<8 µg/kg	TM116	<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
1,4-Dichlorobenzene	<5 µg/kg	TM116	<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
n-Butylbenzene	<11 µg/kg	TM116	<11	<11	<11	<11	<11	<11
1,2-Dichlorobenzene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116	<14 M	<14 M	<14 M	<14 M	<14 M	<14 M
Tert-amyl methyl ether	<10 µg/kg	TM116	<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
1,2,4-Trichlorobenzene	<20 µg/kg	TM116	<20	<20	<20	<20	<20	<20
Hexachlorobutadiene	<20 µg/kg	TM116	<20	<20	<20	<20	<20	<20
Naphthalene	<13 µg/kg	TM116	<13 M	<13 M	196 M	<13 M	<13 M	<13 M

CERTIFICATE OF ANALYSIS

SDG:	150822-16	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	328751
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Customer Sample R	BH204	BH204	BH205	BH205	BH206	BH203A
		Depth (m)	1.30	3.30	1.00	2.50	1.10	0.50
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
		Date Sampled	21/08/2015	21/08/2015	21/08/2015	21/08/2015	21/08/2015	20/08/2015
		Sampled Time	.	.	.	.	.	.
		Date Received	22/08/2015	22/08/2015	22/08/2015	22/08/2015	22/08/2015	22/08/2015
		SDG Ref	150822-16	150822-16	150822-16	150822-16	150822-16	150822-16
		Lab Sample No.(s)	11942793	11942796	11942797	11942798	11942799	11942791
		AGS Reference						
Component	**LOD/Units**	**Method**						
1,2,3-Trichlorobenzene	<20 µg/kg	TM116	<20 #	<20 #	<20 #	<20 #	<20 #	<20 #

Asbestos Identification - Soil

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH204 1.30 SOLID 21/08/2015 00:00:00 22/08/2015 16:18:39 150822-16 11942793 TM048	24/08/2015	Chris Swindells	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH204 3.30 SOLID 21/08/2015 00:00:00 22/08/2015 16:12:02 150822-16 11942796 TM048	24/08/2015	Chris Swindells	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH205 1.00 SOLID 21/08/2015 00:00:00 22/08/2015 16:24:15 150822-16 11942797 TM048	24/08/2015	Chris Swindells	Loose fibres in soil	Trace (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH205 2.50 SOLID 21/08/2015 00:00:00 22/08/2015 15:28:37 150822-16 11942798 TM048	24/08/2015	Chris Swindells	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH206 1.10 SOLID 21/08/2015 00:00:00 22/08/2015 15:33:31 150822-16 11942799 TM048	24/08/2015	Chris Swindells	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Validated

CERTIFICATE OF ANALYSIS

SDG:	150822-16	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	328751
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH203A 0.50 SOLID 20/08/2015 00:00:00 24/08/2015 07:59:04 150822-16 11942791 TM048	25/08/15	Martin Cotterell	Soil containing loose fibres and debris typical of asbestos bitumen	Not Detected (#)	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

SDG:	150822-16	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	328751
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Asbestos Quantification - Waste Limit

		Additional Asbestos Components (Using TM048)	Analysts Comments	Waste Limit, Total - %
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH205 1.00 SOLID 21/08/2015 00:00:00 27/08/2015 15:58:07 150822-16 11942797 TM 304	Chrysotile (#)	Loose fibres in soil	<0.1 (#)
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH203A 0.50 SOLID 20/08/2015 00:00:00 03/09/2015 06:41:42 150822-16 11942791 TM 304	None (#)	N/C	<0.1 (#)

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
ASB_PREP				
PM001		Preparation of Samples for Metals Analysis		
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material		
TM 304				
TM024	Method 4500A & B, AWWA/APHA, 20th Ed., 1999	Determination of Exchangeable Ammonium and Ammoniacal Nitrogen as N by titration on solids		
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material		
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)		
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS		
TM132	In - house Method	ELTRA CS800 Operators Guide		
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter		
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser		
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID		
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique		
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES		
TM218	Microwave extraction – EPA method 3546	Microwave extraction - EPA method 3546		
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid extractable Sulphate in Soils by IRIS Emission Spectrometer		

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

SDG: 150822-16
Job: H_URS_WIM-273
Client Reference:
Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall
Order Number:
Report Number: 328751
Superseded Report:

Test Completion Dates

Lab Sample No(s)	11942793	11942796	11942797	11942798	11942799	11942791
Customer Sample Ref.	BH204	BH204	BH205	BH205	BH206	BH203A
AGS Ref.						
Depth	1.30	3.30	1.00	2.50	1.10	0.50
Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Ammonium Soil by Titration	26-Aug-2015	26-Aug-2015	26-Aug-2015	26-Aug-2015	26-Aug-2015	26-Aug-2015
Asbestos ID in Solid Samples	24-Aug-2015	24-Aug-2015	24-Aug-2015	24-Aug-2015	24-Aug-2015	25-Aug-2015
Asbestos Quant. - Waste Limit			03-Sep-2015			07-Sep-2015
Easily Liberated Sulphide	27-Aug-2015	28-Aug-2015	27-Aug-2015	27-Aug-2015	27-Aug-2015	27-Aug-2015
EPH CWG (Aliphatic) GC (S)	28-Aug-2015	28-Aug-2015	03-Sep-2015	28-Aug-2015	28-Aug-2015	03-Sep-2015
EPH CWG (Aromatic) GC (S)	28-Aug-2015	28-Aug-2015	03-Sep-2015	28-Aug-2015	28-Aug-2015	03-Sep-2015
GRO by GC-FID (S)	29-Aug-2015	29-Aug-2015	29-Aug-2015	29-Aug-2015	29-Aug-2015	29-Aug-2015
Hexavalent Chromium (s)	25-Aug-2015	25-Aug-2015	25-Aug-2015	25-Aug-2015	25-Aug-2015	25-Aug-2015
Metals in solid samples by OES	26-Aug-2015	25-Aug-2015	25-Aug-2015	25-Aug-2015	25-Aug-2015	25-Aug-2015
PAH by GCMS	26-Aug-2015	25-Aug-2015	25-Aug-2015	25-Aug-2015	25-Aug-2015	25-Aug-2015
pH	02-Sep-2015	02-Sep-2015	02-Sep-2015	02-Sep-2015	02-Sep-2015	02-Sep-2015
Sample description	24-Aug-2015	22-Aug-2015	22-Aug-2015	22-Aug-2015	22-Aug-2015	22-Aug-2015
Total Organic Carbon	01-Sep-2015	01-Sep-2015	02-Sep-2015	01-Sep-2015	01-Sep-2015	02-Sep-2015
Total Sulphate	28-Aug-2015	28-Aug-2015	28-Aug-2015	28-Aug-2015	28-Aug-2015	28-Aug-2015
TPH CWG GC (S)	29-Aug-2015	29-Aug-2015	03-Sep-2015	29-Aug-2015	29-Aug-2015	03-Sep-2015
VOC MS (S)	26-Aug-2015	26-Aug-2015	26-Aug-2015	26-Aug-2015	26-Aug-2015	26-Aug-2015

ASSOCIATED AQC DATA

Ammonium Soil by Titration

Component	Method Code	QC 1157
Exchangeable Ammonium as NH4	TM024	**93.03** 79.30 : 104.61

Easily Liberated Sulphide

Component	Method Code	QC 1159	QC 1129
Easily Liberated Sulphide	TM180	**106.83** 49.14 : 123.89	**95.34** 49.14 : 123.89

EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 1124	QC 1179
Total Aliphatics >C12-C35	TM173	**98.33** 71.67 : 116.67	**92.29** 68.25 : 114.73

EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 1124	QC 1179
Total Aromatics >EC12-EC35	TM173	**84.0** 59.92 : 107.95	**82.0** 60.67 : 124.27

GRO by GC-FID (S)

Component	Method Code	QC 1197
Benzene by GC (Moisture Corrected)	TM089	**96.0** 82.67 : 117.96
Ethylbenzene by GC (Moisture Corrected)	TM089	**90.0** 80.45 : 118.61
m & p Xylene by GC (Moisture Corrected)	TM089	**89.75** 79.25 : 119.43
MTBE GC-FID (Moisture Corrected)	TM089	**99.0** 79.10 : 122.51
o Xylene by GC (Moisture Corrected)	TM089	**90.5** 80.03 : 117.19
QC	TM089	**107.33** 75.74 : 124.65
Toluene by GC (Moisture Corrected)	TM089	**94.0** 82.06 : 117.54

Hexavalent Chromium (s)

Component	Method Code	QC 1111	QC 1157
Hexavalent Chromium	TM151	**98.0** 92.20 : 106.60	**98.0** 92.20 : 106.60

Metals in solid samples by OES

Component	Method Code	QC 1164	QC 1154	QC 1117
Aluminium	TM181	**120.77** 86.49 : 129.71	**94.62** 86.49 : 129.71	**102.31** 86.49 : 129.71
Antimony	TM181	**100.0** 77.50 : 122.50	**92.83** 77.50 : 122.50	**108.96** 77.50 : 122.50
Arsenic	TM181	**95.58** 82.63 : 117.37	**85.93** 82.63 : 117.37	**106.19** 82.63 : 117.37
Barium	TM181	**100.0** 79.45 : 120.55	**92.48** 79.45 : 120.55	**102.26** 79.45 : 120.55
Beryllium	TM181	**101.71** 85.92 : 121.27	**92.09** 85.92 : 121.27	**104.96** 85.92 : 121.27
Boron	TM181	**132.82** 77.41 : 143.83	**93.13** 77.41 : 143.83	**105.34** 77.41 : 143.83
Cadmium	TM181	**93.78** 81.95 : 118.05	**88.57** 81.95 : 118.05	**105.04** 81.95 : 118.05
Chromium	TM181	**100.39** 81.29 : 118.71	**88.24** 81.29 : 118.71	**96.47** 81.29 : 118.71
Cobalt	TM181	**97.5** 83.86 : 116.14	**88.0** 83.86 : 116.14	**103.5** 83.86 : 116.14
Copper	TM181	**101.22** 78.57 : 121.43	**92.7** 78.57 : 121.43	**106.49** 78.57 : 121.43
Iron	TM181	**107.59** 87.50 : 122.82	**95.86** 87.50 : 122.82	**102.07** 87.50 : 122.82
Lead	TM181	**88.19** 74.18 : 117.25	**90.94** 74.18 : 117.25	**98.82** 74.18 : 117.25
Manganese	TM181	**104.2** 82.91 : 117.09	**95.2** 82.91 : 117.09	**100.0** 82.91 : 117.09
Mercury	TM181	**92.46** 81.99 : 118.01	**87.6** 81.99 : 118.01	**105.03** 81.99 : 118.01
Molybdenum	TM181	**96.97** 81.45 : 118.55	**92.04** 81.45 : 118.55	**110.19** 81.45 : 118.55
Nickel	TM181	**100.0** 79.64 : 120.36	**90.7** 79.64 : 120.36	**104.65** 79.64 : 120.36
Phosphorus	TM181	**99.7** 81.03 : 118.97	**91.21** 81.03 : 118.97	**100.15** 81.03 : 118.97
Selenium	TM181	**104.79** 87.05 : 121.93	**95.73** 87.05 : 121.93	**114.87** 87.05 : 121.93
Strontium	TM181	**105.75** 83.64 : 116.36	**89.27** 83.64 : 116.36	**99.23** 83.64 : 116.36
Thallium	TM181	**93.37** 77.50 : 122.50	**84.25** 77.50 : 122.50	**97.84** 77.50 : 122.50
Tin	TM181	**97.67** 78.30 : 113.98	**96.01** 78.30 : 113.98	**111.3** 78.30 : 113.98
Titanium	TM181	**121.88** 71.02 : 128.98	**99.22** 71.02 : 128.98	**103.91** 71.02 : 128.98

Metals in solid samples by OES

		QC 1164	QC 1154	QC 1117
Vanadium	TM181	**103.82** 86.61 : 113.39	**91.18** 86.61 : 113.39	**102.94** 86.61 : 113.39
Zinc	TM181	**99.51** 90.81 : 120.30	**91.88** 90.81 : 120.30	**108.12** 90.81 : 120.30

PAH by GCMS

Component	**Method Code**	QC 1112	QC 1121	QC 1102
Acenaphthene	TM218	**99.5** 70.00 : 130.00	**97.0** 76.50 : 121.50	**97.5** 76.50 : 121.50
Acenaphthylene	TM218	**87.5** 70.00 : 130.00	**89.0** 73.50 : 118.50	**90.0** 73.50 : 118.50
Anthracene	TM218	**93.0** 70.00 : 130.00	**93.0** 74.25 : 117.75	**96.0** 74.25 : 117.75
Benz(a)anthracene	TM218	**97.0** 70.00 : 130.00	**108.5** 82.07 : 118.33	**101.0** 82.07 : 118.33
Benzo(a)pyrene	TM218	**98.5** 70.00 : 130.00	**101.5** 79.75 : 116.97	**105.5** 79.75 : 116.97
Benzo(b)fluoranthene	TM218	**98.5** 70.00 : 130.00	**101.0** 82.41 : 117.15	**101.0** 82.41 : 117.15
Benzo(ghi)perylene	TM218	**94.5** 70.00 : 130.00	**107.5** 77.09 : 114.38	**96.0** 77.09 : 114.38
Benzo(k)fluoranthene	TM218	**95.0** 70.00 : 130.00	**100.5** 81.43 : 115.17	**100.5** 81.43 : 115.17
Chrysene	TM218	**95.0** 70.00 : 130.00	**104.0** 82.50 : 113.51	**97.0** 82.50 : 113.51
Dibenzo(ah)anthracene	TM218	**95.0** 70.00 : 130.00	**106.0** 81.00 : 120.00	**98.0** 81.00 : 120.00
Fluoranthene	TM218	**97.0** 70.00 : 130.00	**96.0** 78.67 : 117.61	**96.5** 78.67 : 117.61
Fluorene	TM218	**98.0** 70.00 : 130.00	**93.5** 76.50 : 121.50	**95.5** 76.50 : 121.50
Indeno(123cd)pyrene	TM218	**92.5** 70.00 : 130.00	**104.0** 79.19 : 117.60	**96.0** 79.19 : 117.60
Naphthalene	TM218	**96.0** 70.00 : 130.00	**91.0** 77.00 : 117.50	**94.5** 77.00 : 117.50
Phenanthrene	TM218	**98.5** 70.00 : 130.00	**95.5** 75.00 : 123.00	**98.0** 75.00 : 123.00
Pyrene	TM218	**95.5** 70.00 : 130.00	**94.0** 77.82 : 116.98	**95.0** 77.82 : 116.98

pH

Component	**Method Code**	QC 1188	QC 1135
pH	TM133	**100.5** 96.22 : 103.78	**99.75** 97.19 : 102.81

Total Organic Carbon

Total Organic Carbon

Component	Method Code	QC 1110	QC 1121
Total Organic Carbon	TM132	**98.63** 88.82 : 111.18	**94.06** 89.40 : 103.09

Total Sulphate

Component	Method Code	QC 1128
Total Sulphate	TM221	**112.12** 78.49 : 121.51

VOC MS (S)

Component	Method Code	QC 1125	QC 1180
1,1,1,2-tetrachloroethane	TM116	**101.8** 83.24 : 124.28	**100.6** 83.24 : 124.28
1,1,1-Trichloroethane	TM116	**88.8** 81.77 : 121.07	**107.6** 81.77 : 121.07
1,1,2-Trichloroethane	TM116	**97.0** 79.24 : 112.23	**94.6** 79.24 : 112.23
1,1-Dichloroethane	TM116	**91.6** 72.58 : 116.06	**107.4** 72.58 : 116.06
1,2-Dichloroethane	TM116	**94.8** 77.50 : 122.50	**109.8** 77.50 : 122.50
1,4-Dichlorobenzene	TM116	**88.0** 73.23 : 116.39	**97.4** 73.23 : 116.39
2-Chlorotoluene	TM116	**88.4** 69.22 : 110.64	**93.0** 69.22 : 110.64
4-Chlorotoluene	TM116	**86.2** 68.57 : 106.26	**92.0** 68.57 : 106.26
Benzene	TM116	**95.4** 84.33 : 124.27	**107.2** 84.33 : 124.27
Carbon Disulphide	TM116	**98.6** 77.20 : 122.80	**110.4** 77.20 : 122.80
Carbontetrachloride	TM116	**100.2** 84.20 : 119.90	**107.6** 84.20 : 119.90
Chlorobenzene	TM116	**103.4** 85.28 : 129.96	**106.4** 85.28 : 129.96
Chloroform	TM116	**92.4** 82.73 : 119.72	**106.8** 82.73 : 119.72
Chloromethane	TM116	**128.8** 55.16 : 145.46	**122.4** 55.16 : 145.46
Cis-1,2-Dichloroethene	TM116	**96.4** 73.56 : 118.93	**107.4** 73.56 : 118.93
Dibromomethane	TM116	**95.2** 73.40 : 116.60	**92.0** 73.40 : 116.60
Dichloromethane	TM116	**94.8** 76.16 : 121.98	**107.4** 76.16 : 121.98

VOC MS (S)

		QC 1125	QC 1180
Ethylbenzene	TM116	**94.0** 80.07 : 125.98	**103.0** 80.07 : 125.98
Hexachlorobutadiene	TM116	**68.8** 30.92 : 132.28	**120.0** 30.92 : 132.28
Isopropylbenzene	TM116	**82.2** 69.27 : 125.32	**102.8** 69.27 : 125.32
Naphthalene	TM116	**110.0** 79.15 : 121.98	**102.2** 79.15 : 121.98
o-Xylene	TM116	**86.8** 75.46 : 111.52	**88.2** 75.46 : 111.52
p/m-Xylene	TM116	**94.9** 76.97 : 121.75	**101.0** 76.97 : 121.75
Sec-Butylbenzene	TM116	**74.6** 49.27 : 129.90	**108.8** 49.27 : 129.90
Tetrachloroethene	TM116	**106.2** 87.96 : 133.65	**113.6** 87.96 : 133.65
Toluene	TM116	**92.6** 79.23 : 114.58	**103.2** 79.23 : 114.58
Trichloroethene	TM116	**91.8** 84.09 : 114.24	**100.8** 84.09 : 114.24
Trichlorofluoromethane	TM116	**90.8** 76.22 : 114.82	**107.0** 76.22 : 114.82
Vinyl Chloride	TM116	**77.8** 59.68 : 118.68	**97.4** 59.68 : 118.68

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

CERTIFICATE OF ANALYSIS

SDG: 150822-16
Job: H_URS_WIM-273
Client Reference:

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

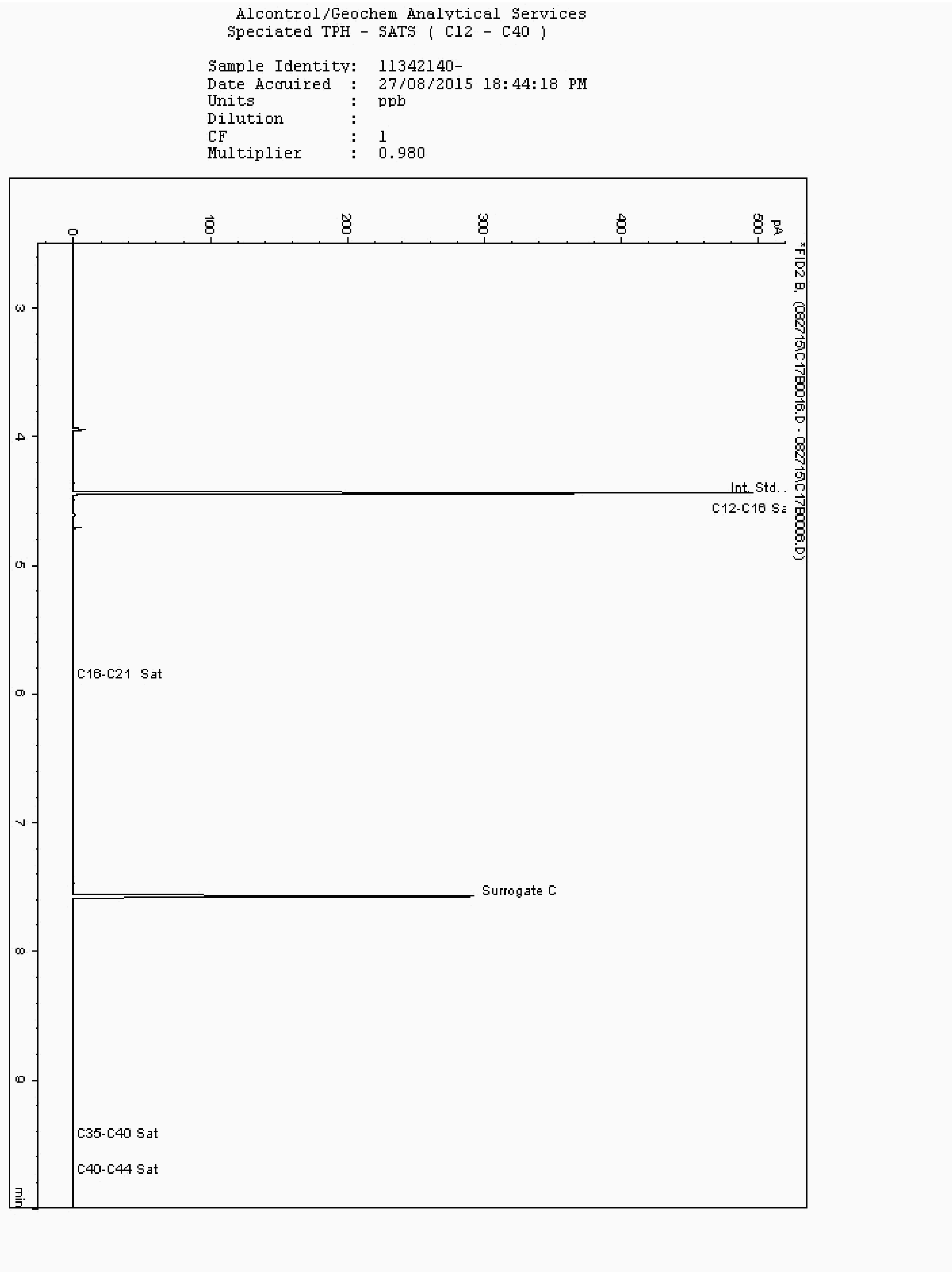
Order Number:
Report Number: 328751
Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 11954758
Sample ID : BH204

Depth : 3.30



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Alcontrol/Geochem Analytical Services
Speciated TPH - SATS ( C12 - C40 )

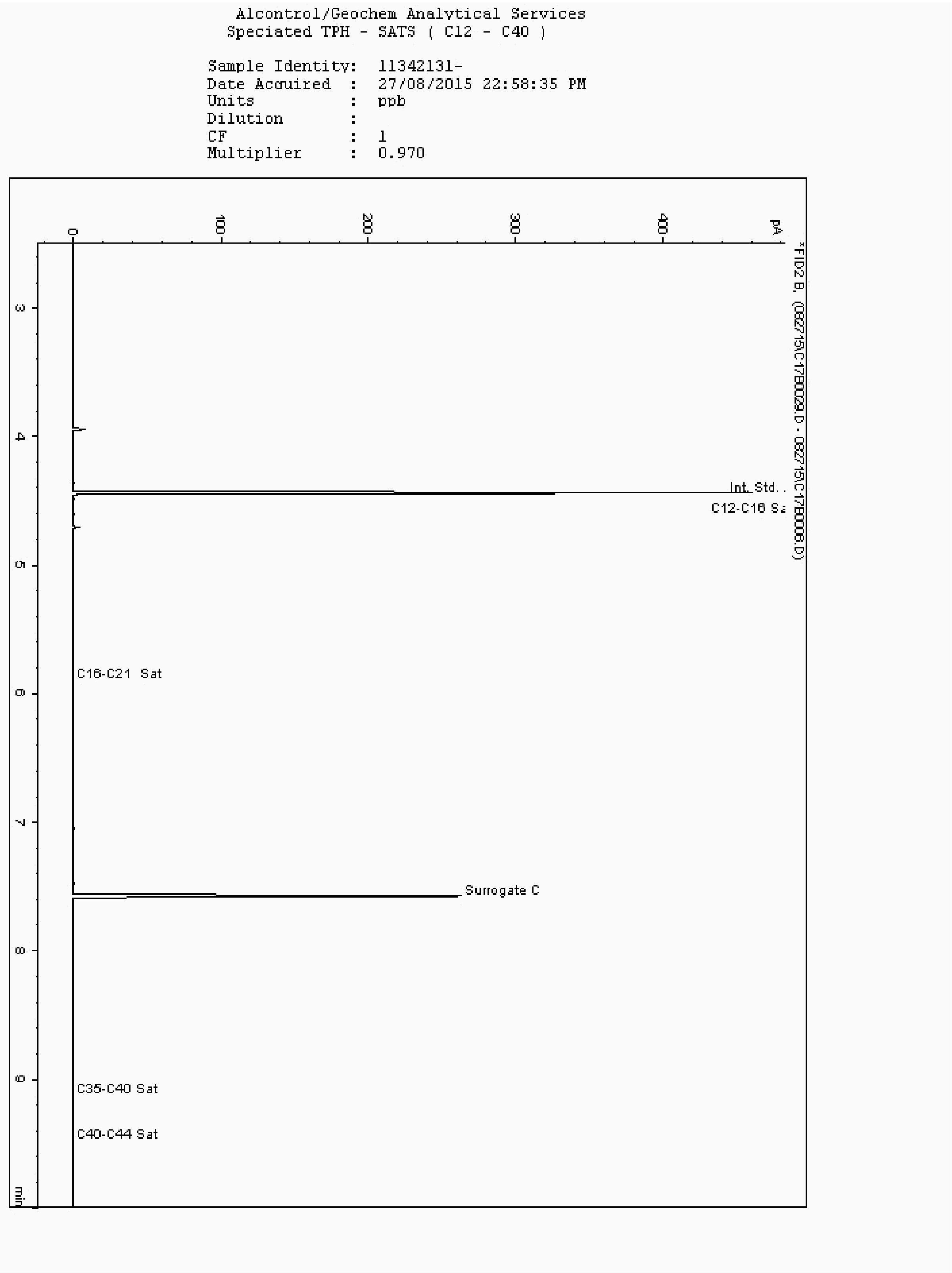
Sample Identity:  11342140-
Date Acquired  :  27/08/2015 18:44:18 PM
Units          :  ppb
Dilution       :
CF             :  1
Multiplier     :  0.980
```

CERTIFICATE OF ANALYSIS

SDG:	150822-16	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	328751
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	EPH CWG (Aliphatic) GC (S)	**Sample No :**	11954791	**Depth :**	1.30
		Sample ID :	BH204		



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Alcontrol/Geochem Analytical Services
Speciated TPH - SATS ( C12 - C40 )

Sample Identity:  11342131-
Date Acquired  :  27/08/2015 22:58:35 PM
Units          :  ppb
Dilution       :
CF             :  1
Multiplier     :  0.970
```

SDG: 150822-16
Job: H_URS_WIM-273
Client Reference:

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

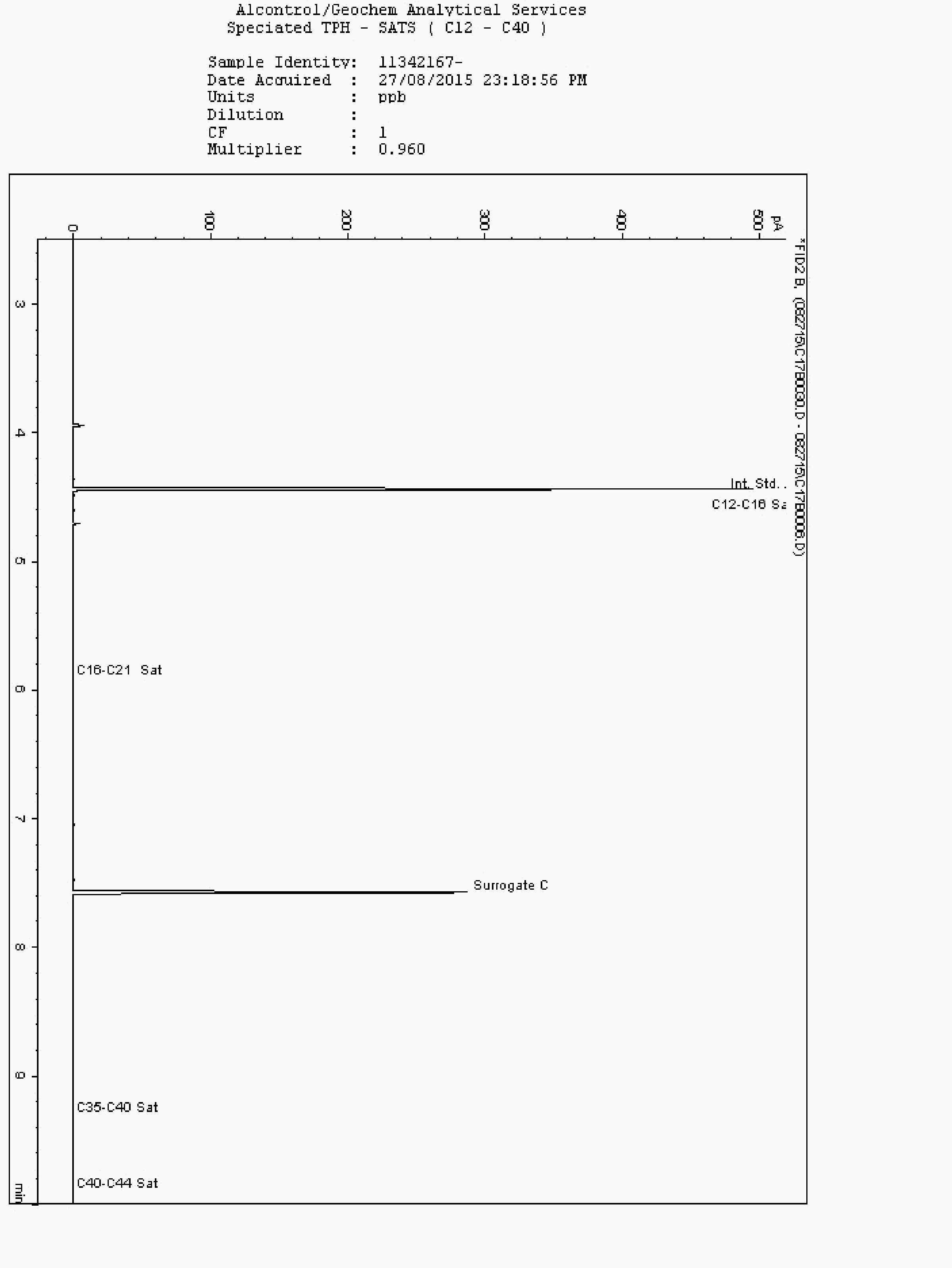
Order Number:
Report Number: 328751
Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 11956254
Sample ID : BH206

Depth : 1.10



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Alcontrol/Geochem Analytical Services
Speciated TPH - SATS ( C12 - C40 )

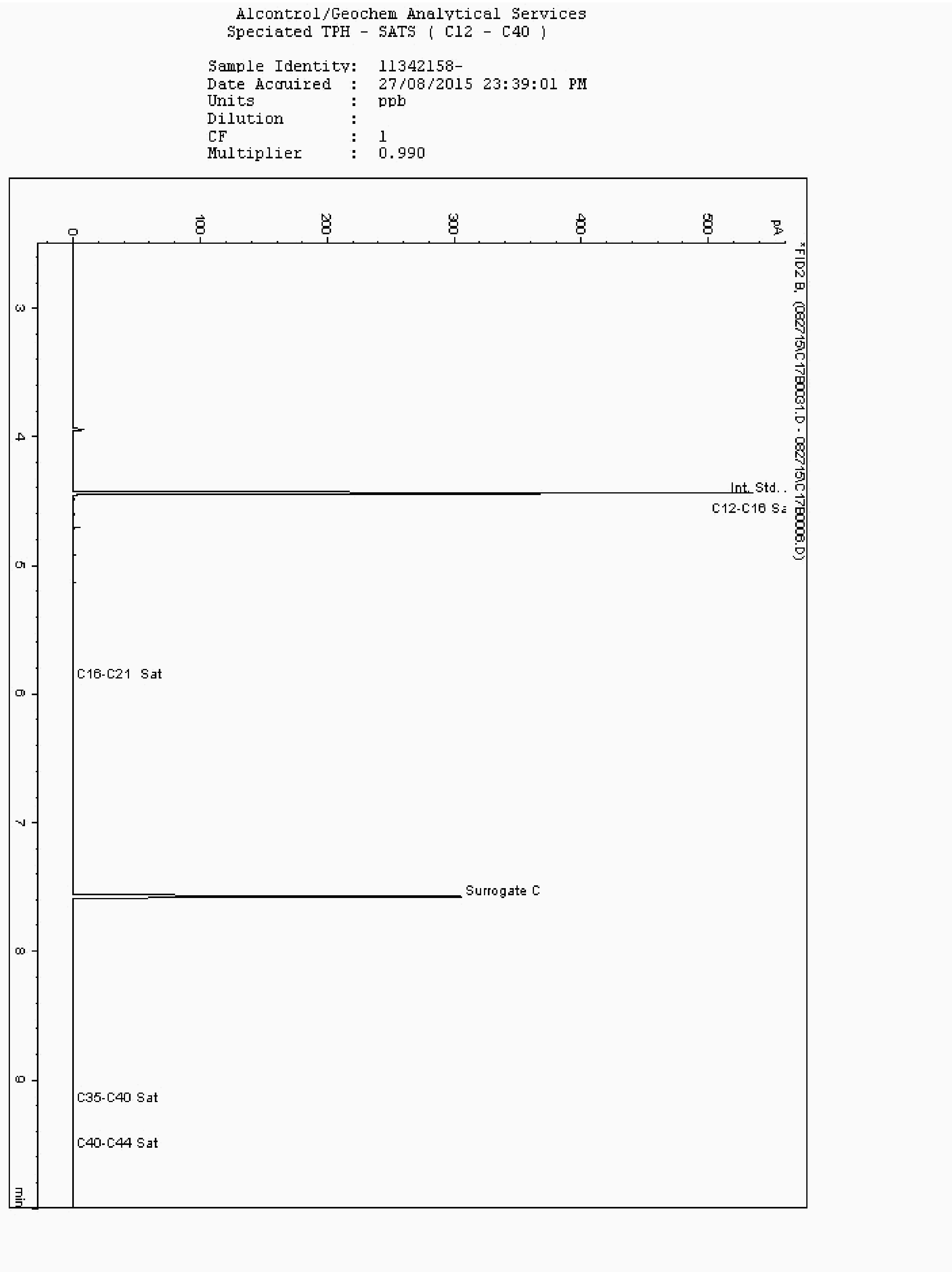
Sample Identity:  11342167-
Date Acquired  :  27/08/2015 23:18:56 PM
Units          :  ppb
Dilution       :
CF             :  1
Multiplier     :  0.960
```

CERTIFICATE OF ANALYSIS

SDG:	150822-16	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	328751
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	EPH CWG (Aliphatic) GC (S)	**Sample No :**	11956372	**Depth :**	2.50
		Sample ID :	BH205		



```
Alcontrol/Geochem Analytical Services
  Speciated TPH - SATS ( C12 - C40 )

Sample Identity:  11342158-
Date Acquired  :  27/08/2015 23:39:01 PM
Units          :  ppb
Dilution       :
CF             :  1
Multiplier     :  0.990
```

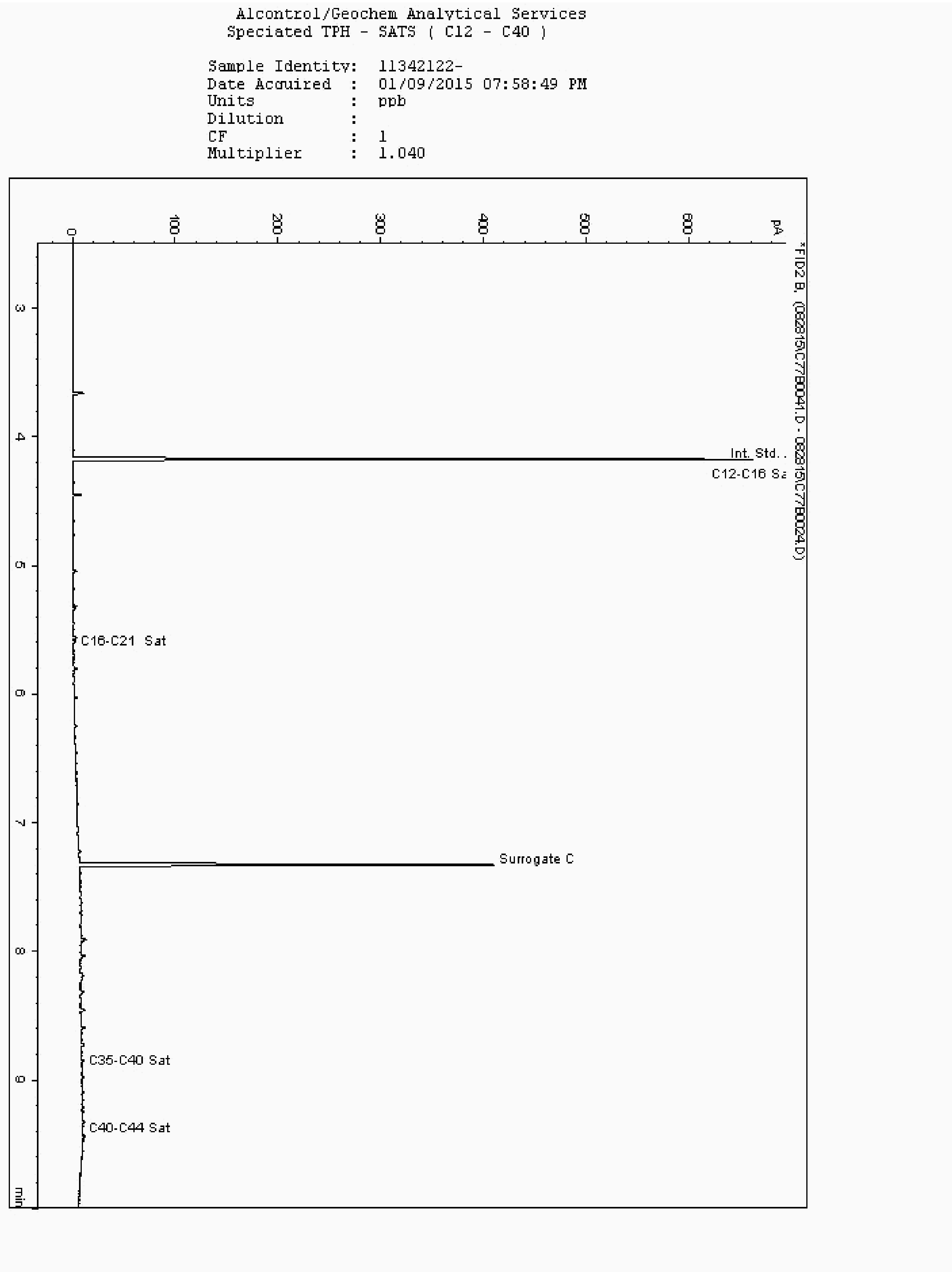
Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 11959414

Sample ID : BH203A

Depth : 0.50



```
Alcontrol/Geochem Analytical Services
Speciated TPH - SATS ( C12 - C40 )

Sample Identity:  11342122-
Date Acquired  :  01/09/2015 07:58:49 PM
Units          :  ppb
Dilution       :
CF             :  1
Multiplier     :  1.040
```

SDG: 150822-16
Job: H_URS_WIM-273
Client Reference:

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

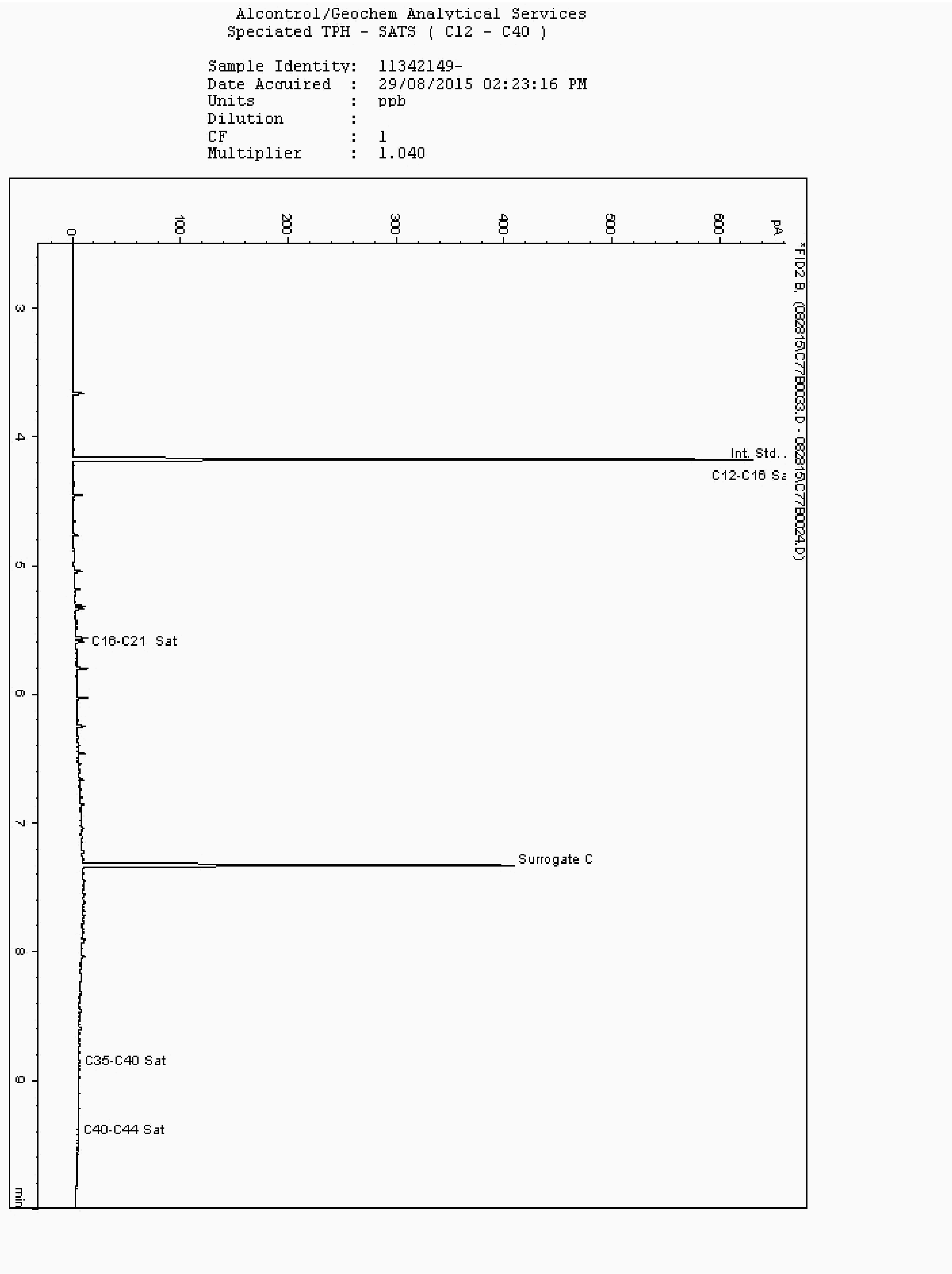
Order Number:
Report Number: 328751
Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 11959467
Sample ID : BH205

Depth : 1.00



```
Alcontrol/Geochem Analytical Services
Speciated TPH - SATS ( C12 - C40 )

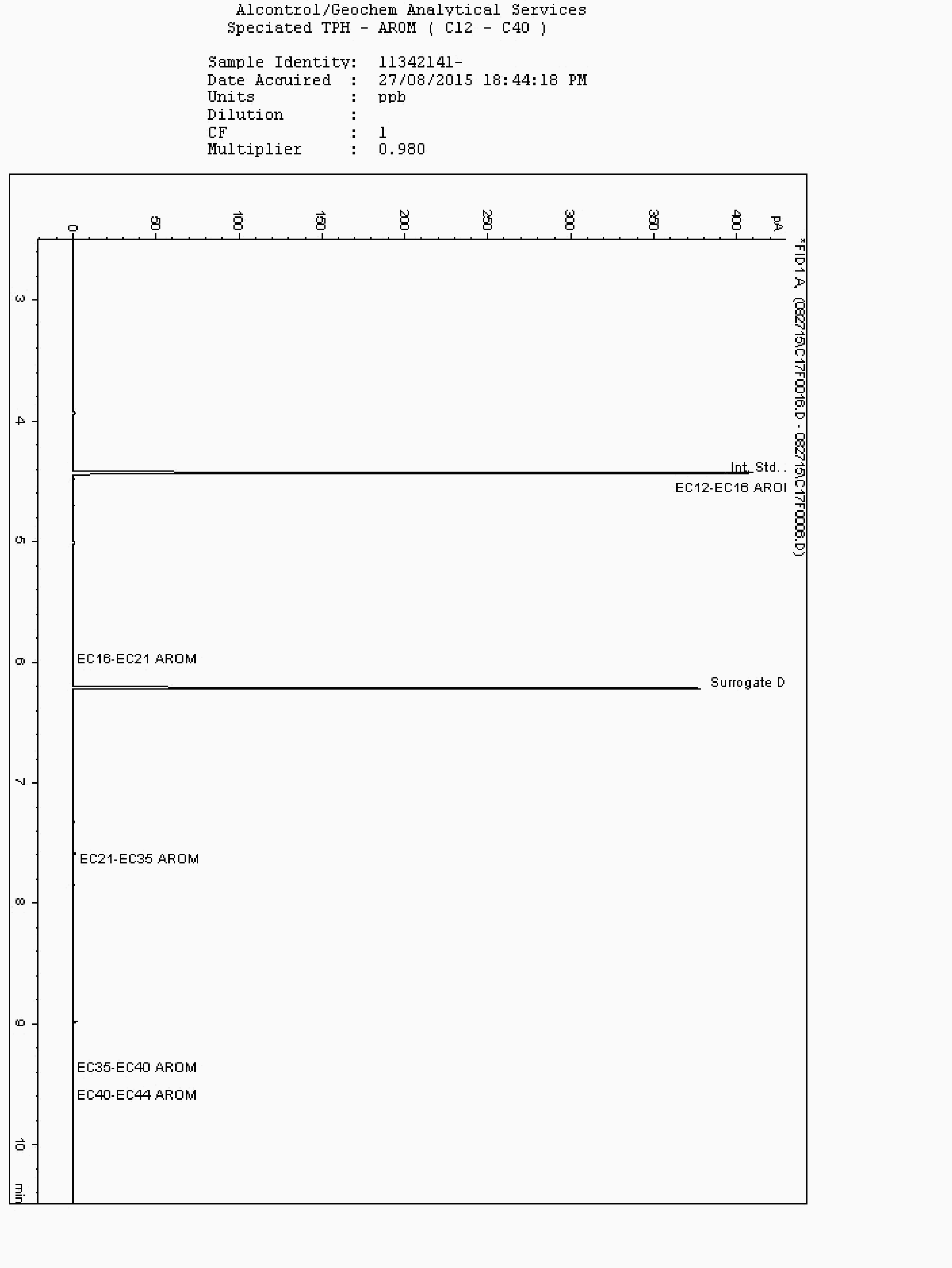
Sample Identity:  11342149-
Date Acquired  :  29/08/2015 02:23:16 PM
Units          :  ppb
Dilution       :
CF             :  1
Multiplier     :  1.040
```

CERTIFICATE OF ANALYSIS

SDG: 150822-16
Job: H_URS_WIM-273
Client Reference:
Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall
Order Number:
Report Number: 328751
Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S)
Sample No : 11954758
Sample ID : BH204
Depth : 3.30



Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

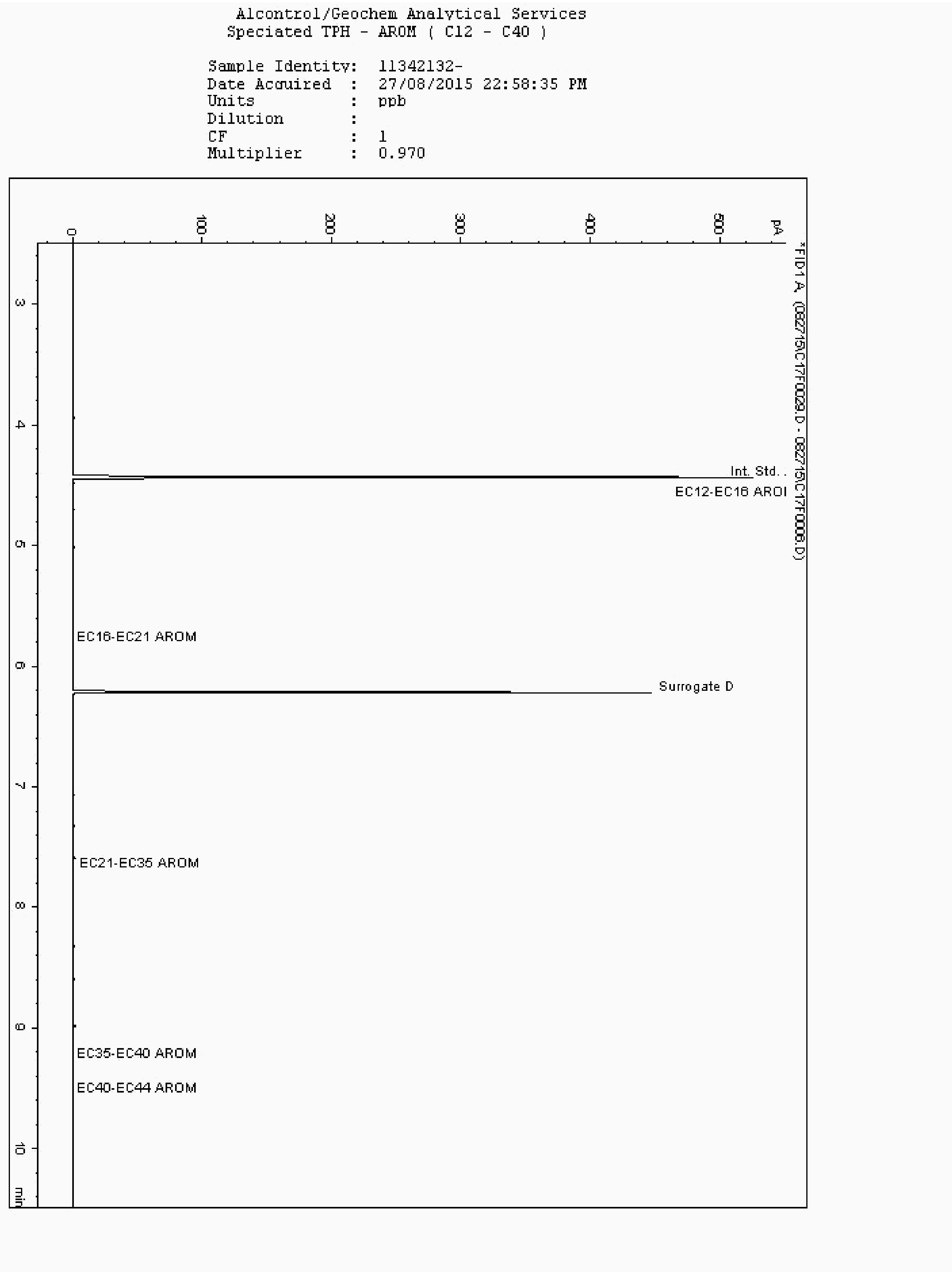
```
Sample Identity:  11342141-
Date Acquired  :  27/08/2015 18:44:18 PM
Units          :  ppb
Dilution       :
CF             :  1
Multiplier     :  0.980
```

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S)

Sample No : 11954791
Sample ID : BH204

Depth : 1.30



```
Alcontrol/Geochem Analytical Services
Speciated TPH - AROM ( C12 - C40 )

Sample Identity:  11342132-
Date Acquired  :  27/08/2015 22:58:35 PM
Units          :  ppb
Dilution       :
CF             :  1
Multiplier     :  0.970
```

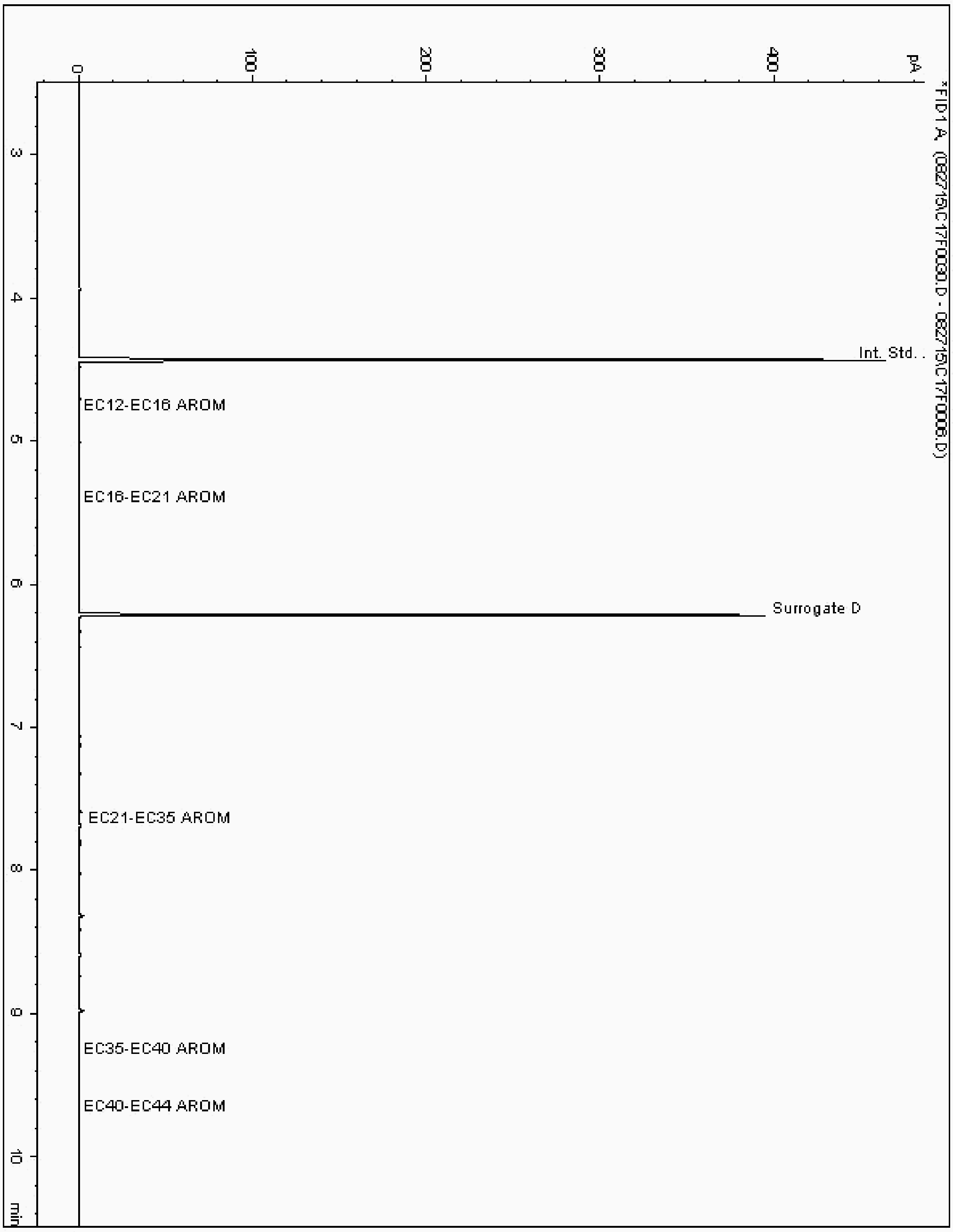
SDG:	150822-16	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	328751
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	EPH CWG (Aromatic) GC (S)	**Sample No :**	11956254	**Depth :**	1.10
		Sample ID :	BH206		

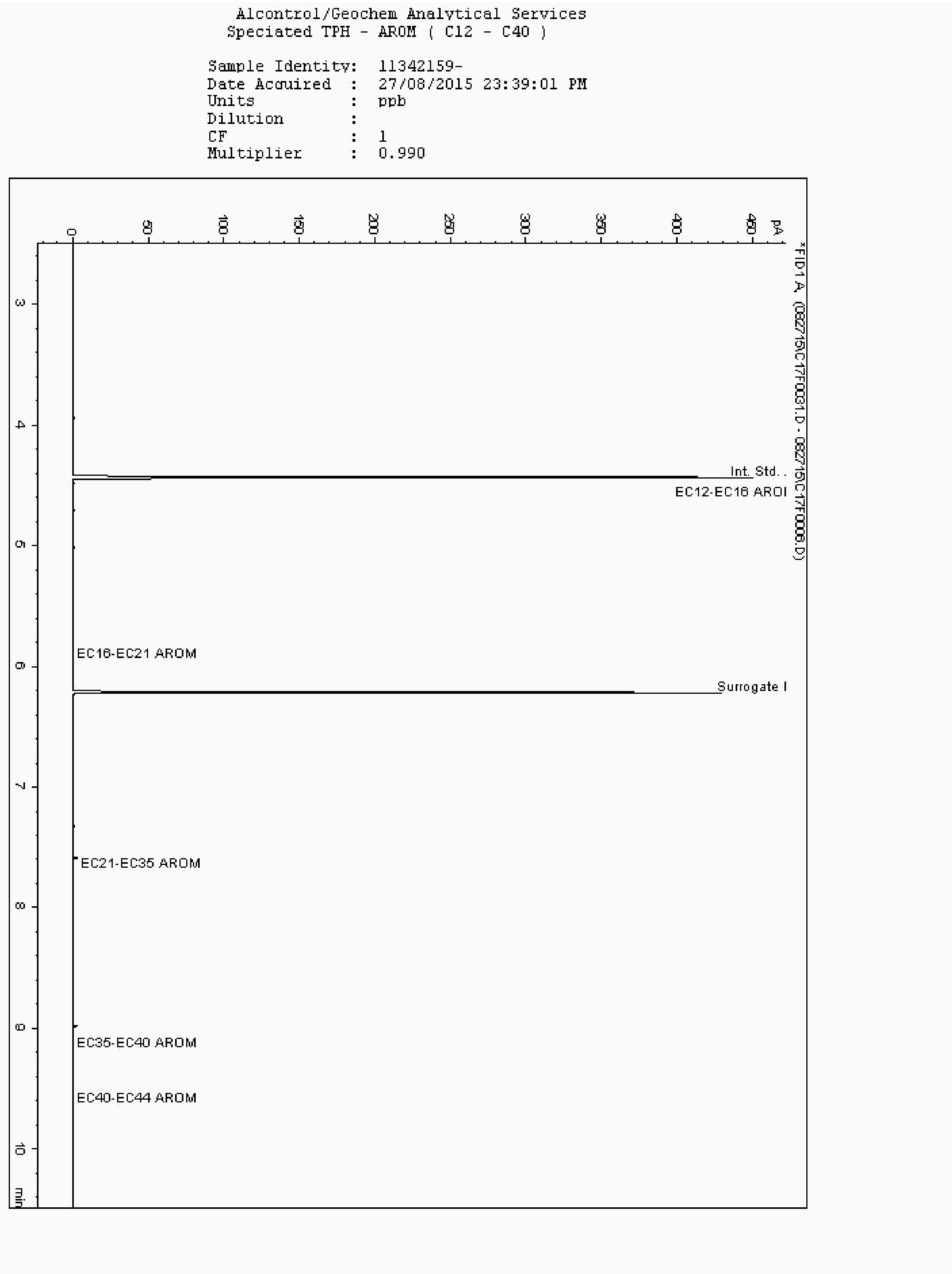
```
Alcontrol/Geochem Analytical Services
Speciated TPH - AROM ( C12 - C40 )

Sample Identity:  11342168-
Date Acquired   :  27/08/2015 23:18:56 PM
Units           :  ppb
Dilution        :
CF              :  1
Multiplier      :  0.960
```



Chromatogram

Analysis: EPH CWG (Aromatic) GC (S)
Sample No : 11956372
Sample ID : BH205
Depth : 2.50



```
Alcontrol/Geochem Analytical Services
Speciated TPH - AROM ( C12 - C40 )

Sample Identity:  11342159-
Date Acquired   :  27/08/2015 23:39:01 PM
Units           :  ppb
Dilution        :
CF              :  1
Multiplier      :  0.990
```

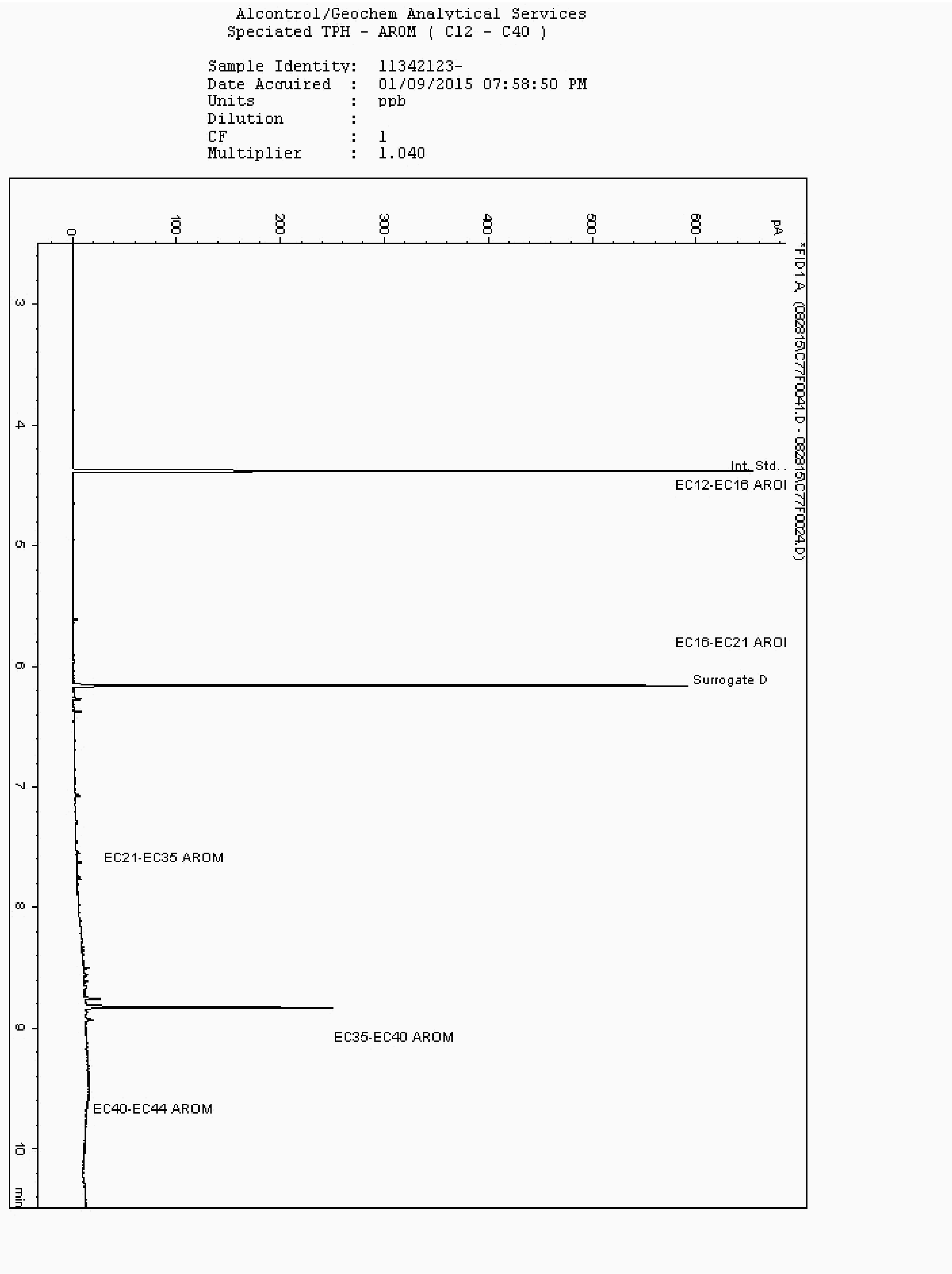
Chromatogram

Analysis: EPH CWG (Aromatic) GC (S)

Sample No : 11959414

Sample ID : BH203A

Depth : 0.50



```
Alcontrol/Geochem Analytical Services
Speciated TPH - AROM ( C12 - C40 )

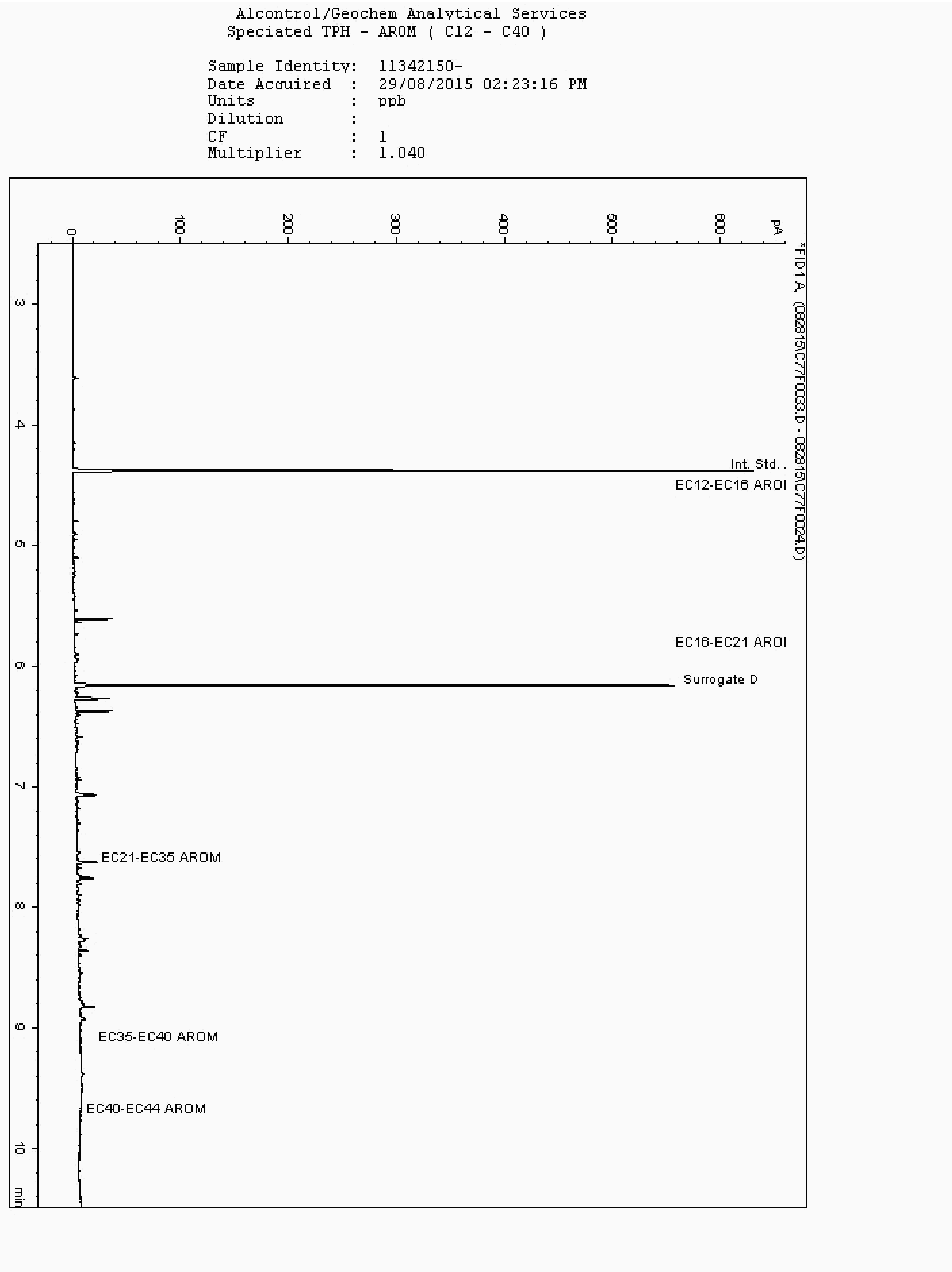
Sample Identity:  11342123-
Date Acquired  :  01/09/2015 07:58:50 PM
Units          :  ppb
Dilution       :
CF             :  1
Multiplier     :  1.040
```

CERTIFICATE OF ANALYSIS

SDG: 150822-16
Job: H_URS_WIM-273
Client Reference:
Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall
Order Number:
Report Number: 328751
Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S)
Sample No : 11959467
Sample ID : BH205
Depth : 1.00



```
Alcontrol/Geochem Analytical Services
Speciated TPH - AROM ( C12 - C40 )

Sample Identity:  11342150-
Date Acquired  :  29/08/2015 02:23:16 PM
Units          :  ppb
Dilution       :
CF             :  1
Multiplier     :  1.040
```

CERTIFICATE OF ANALYSIS

Validated

SDG:	150822-16	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	328751
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

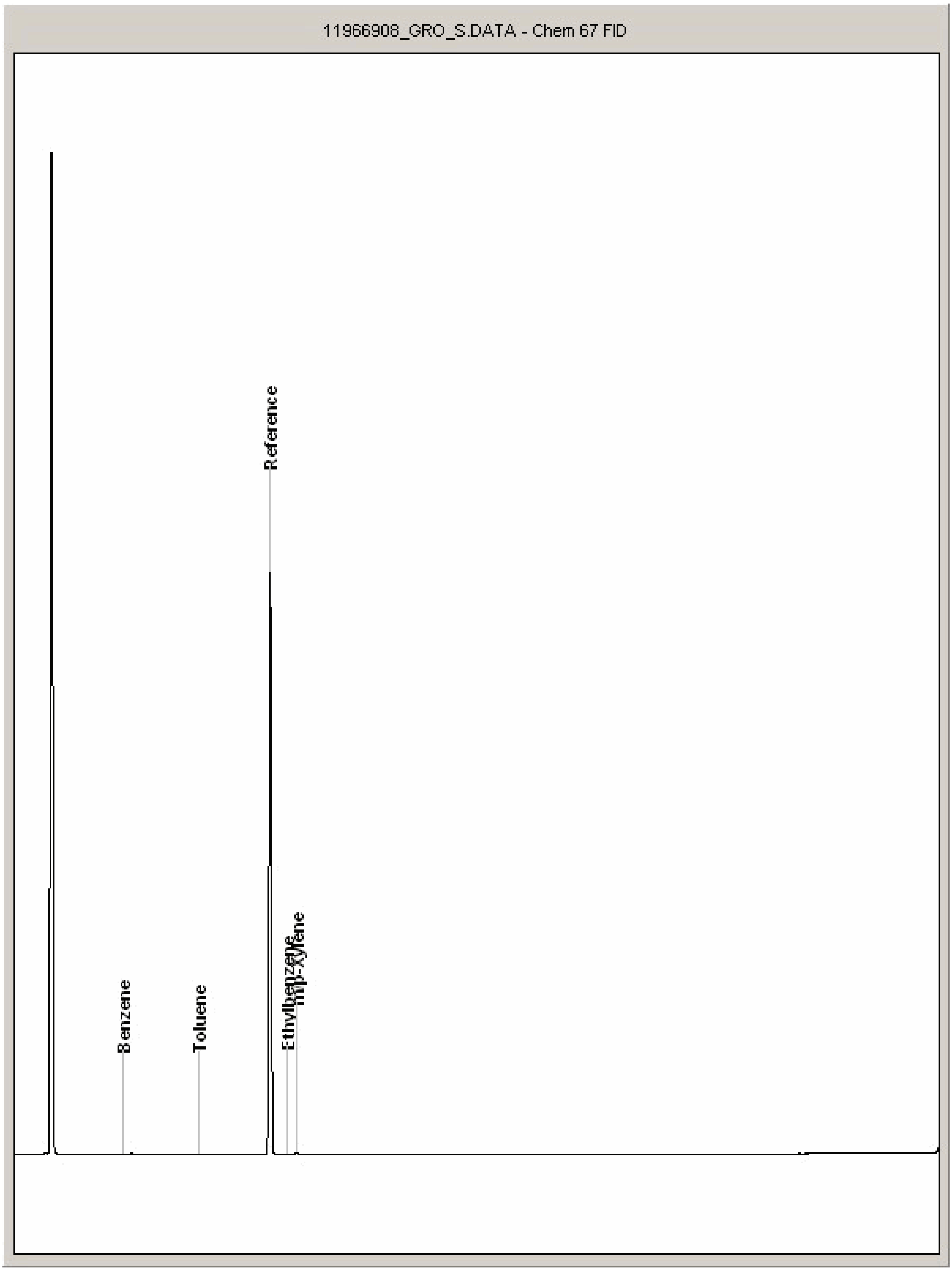
Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 11966908

Sample ID : BH206

Depth : 1.10

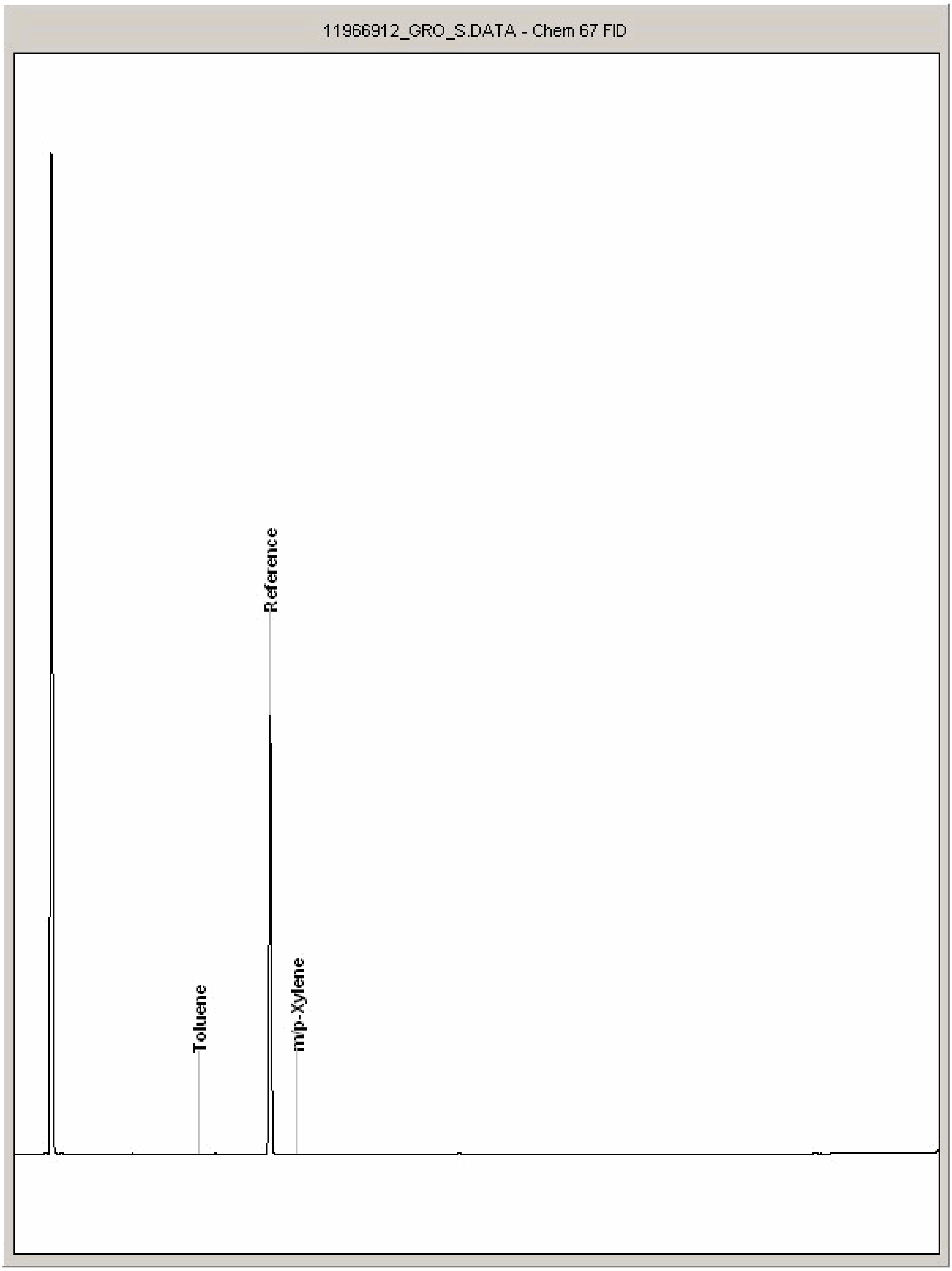


Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 11966912
Sample ID : BH203A

Depth : 0.50



CERTIFICATE OF ANALYSIS

SDG: 150822-16
Job: H_URS_WIM-273
Client Reference:

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

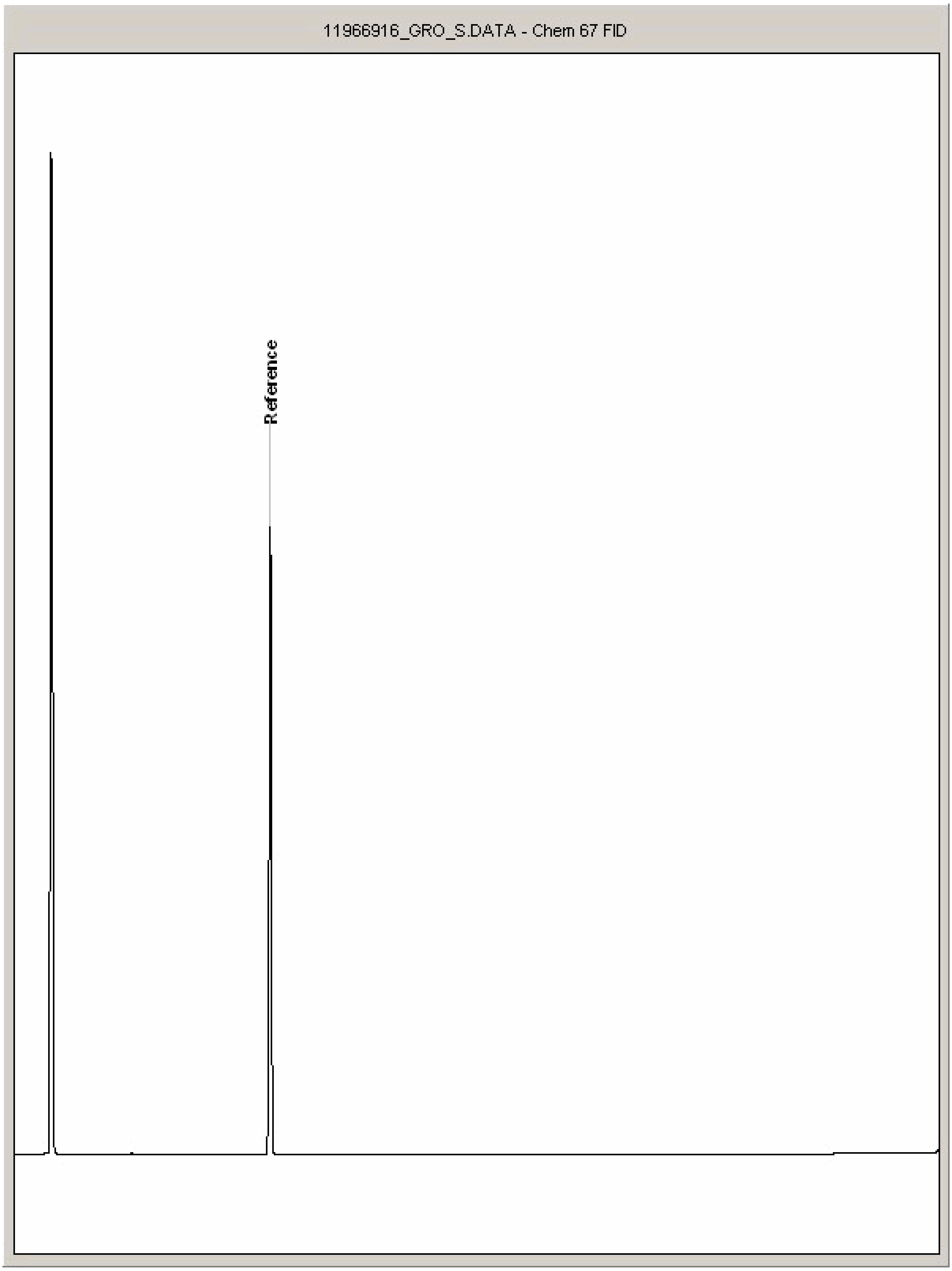
Order Number:
Report Number: 328751
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 11966916
Sample ID : BH205

Depth : 2.50



SDG: 150822-16
Job: H_URS_WIM-273
Client Reference:

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

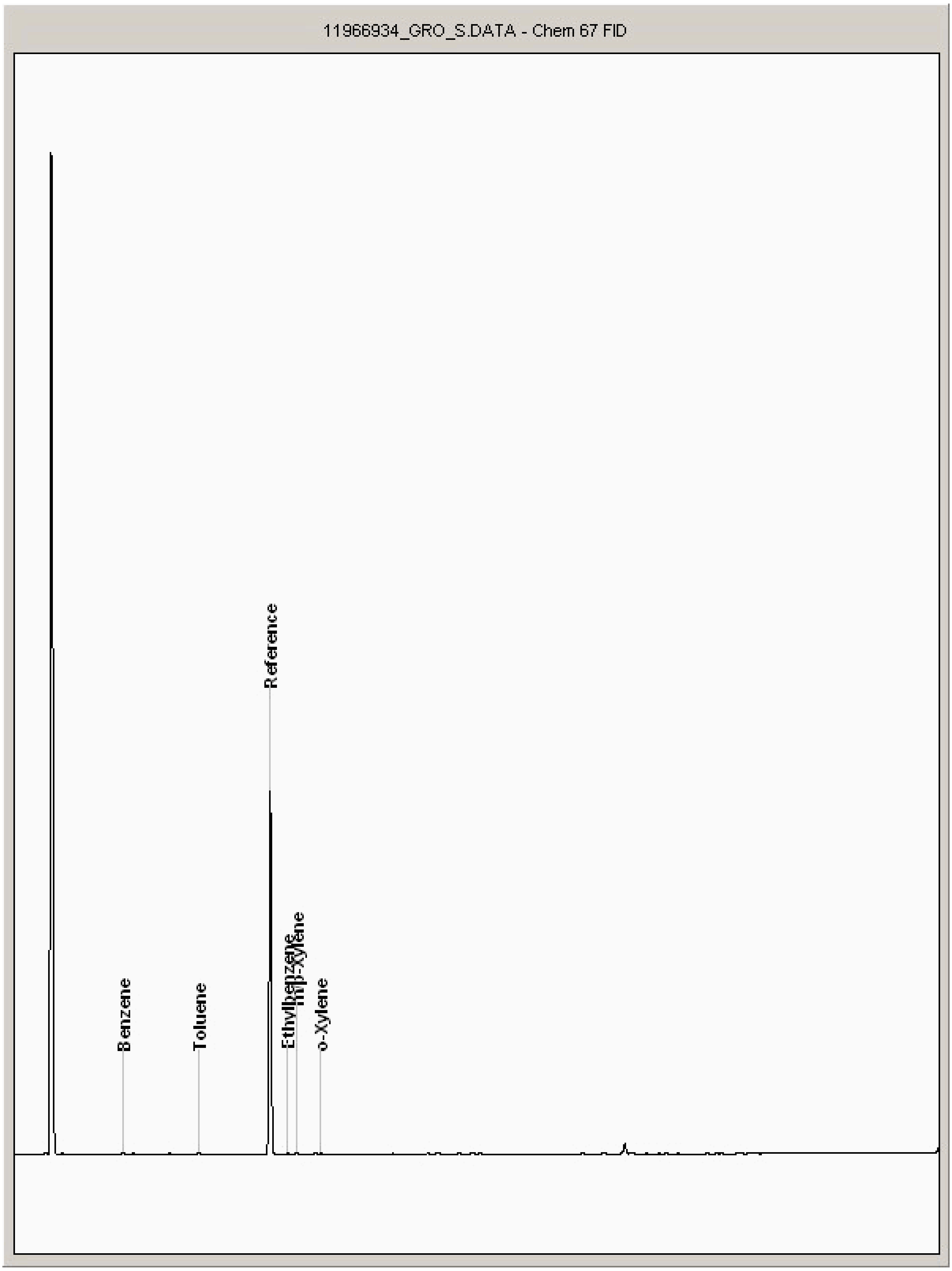
Order Number:
Report Number: 328751
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 11966934
Sample ID : BH205

Depth : 1.00

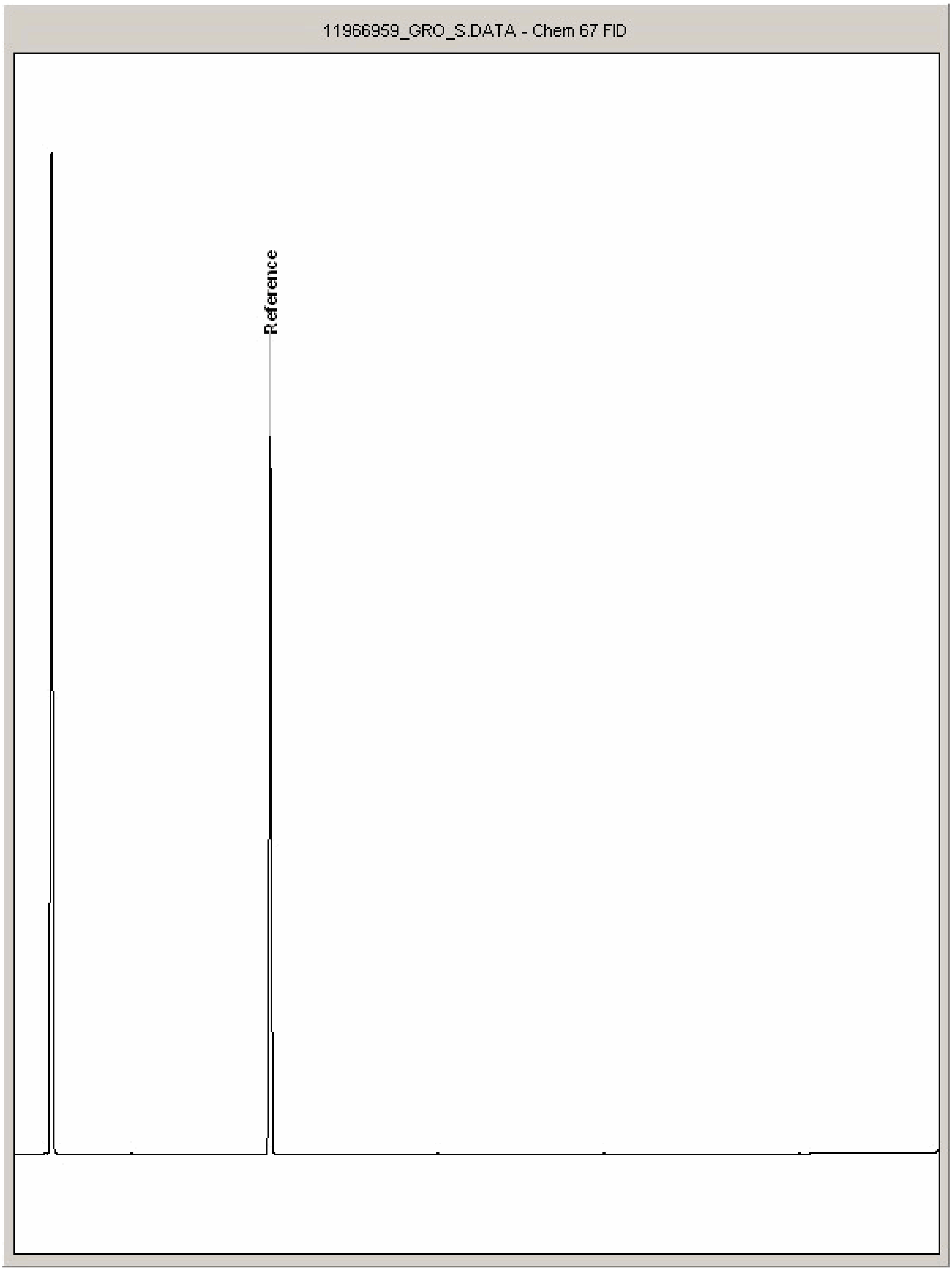


Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 11966959
Sample ID : BH204

Depth : 3.30

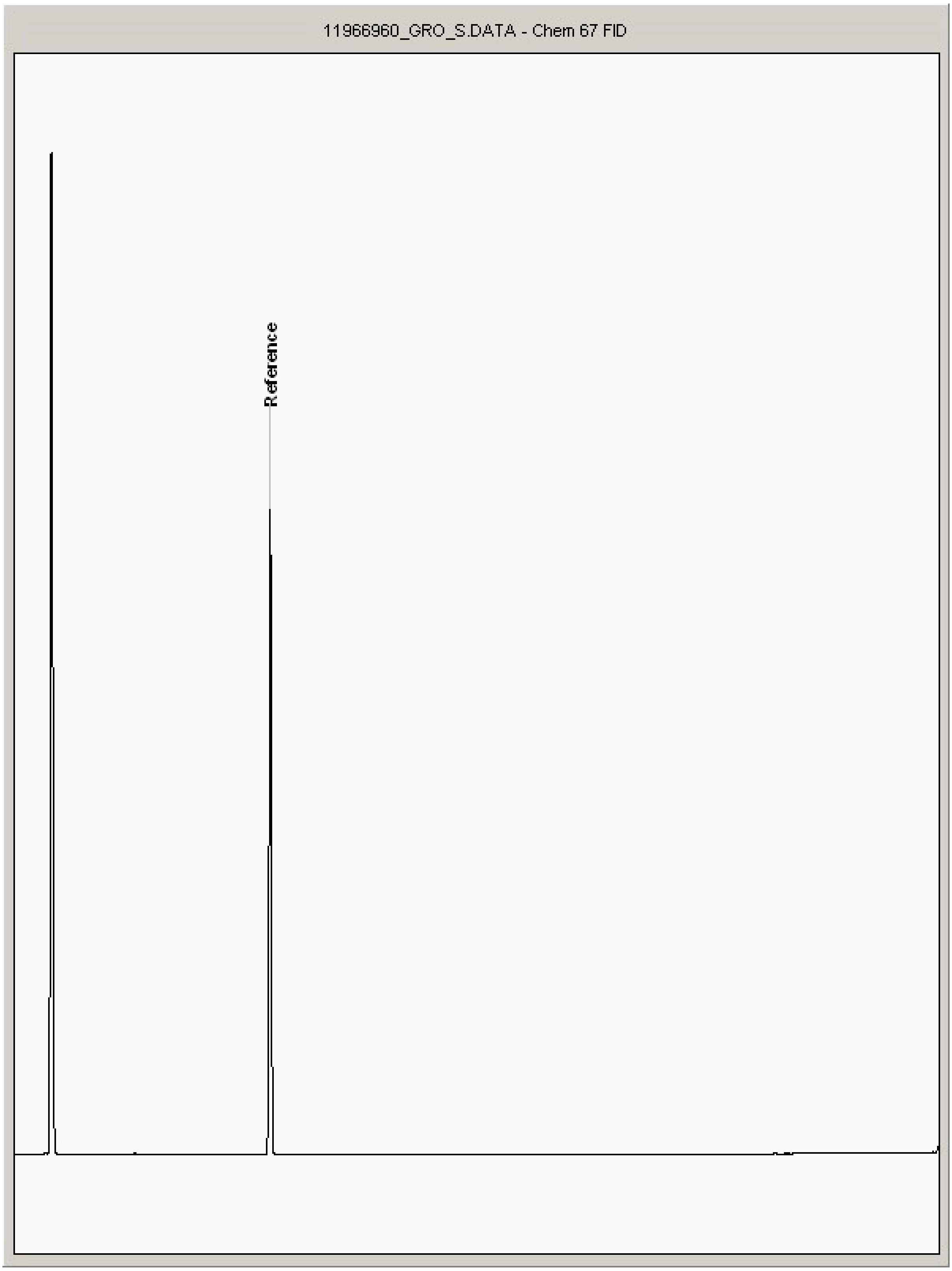


CERTIFICATE OF ANALYSIS

SDG:	150822-16	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	328751
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	GRO by GC-FID (S)	**Sample No :**	11966960	**Depth :**	1.30
		Sample ID :	BH204		



Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA Leach tests, flash point, ammonium as NH4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for both soil jars, tubs and volatile jars. All waters and vials will be discarded 10 days after the analysis is completed (e-mailed). All material removed during an asbestos containing material screen and analysed for the presence of asbestos will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be screened in house for the presence of large asbestos containing material fragments/pieces. If no asbestos containing material is found this will be reported as 'no asbestos containing material detected'. If asbestos containing material is detected it will be removed and analysed by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If asbestos containing material is present no further analysis will be undertaken. At no point is the fibre content of the soil sample determined.

7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample -similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule or recorded on the log sheet.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.

12. Results relate only to the items tested

13. **Surrogate recoveries** -Most of our organic methods include surrogates, the recovery of which is monitored and reported. For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 -130 %.

14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors
employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 14).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not
accredited.

19. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

20. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

23. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials -whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute themajor part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

24. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C4 -C10 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENT EXTRACTABLE MATTER	D&C	DCM	SOXTHERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
THIN LAYER CHROMATOGRAPHY	D&C	DCM	SOXTHERM	IATROSCAN
ELEMENTAL SULPHUR	D&C	DCM	SOXTHERM	HPLC
PHENOLS BY GCMS	WET	DCM	SOXTHERM	GC-MS
HERBICIDES	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
PESTICIDES	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
EPH (DRO)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (MIN OIL)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (CLEANED UP)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH CWG BY GC	D&C	HEXANE:ACETONE	END OVER END	GC-FID
PCB TOT / PCB CON	D&C	HEXANE:ACETONE	END OVER END	GC-MS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANE:ACETONE	MICROWAVE TM218.	GC-MS
C8-C40 (C6-C40) EZ FLASH	WET	HEXANE:ACETONE	SHAKER	GC-EZ
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANE:ACETONE	SHAKER	GC-EZ
SEMI VOLATILE ORGANIC COMPOUNDS	WET	DCM:ACETONE	SONICATE	GC-MS

LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAH MS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
EPH	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
PCB 7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
PCB TOTAL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
SVOC	DCM	LIQUID/LIQUID SHAKE	GCMS
FREE SULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PEST OCP/OPP	DCM	LIQUID/LIQUID SHAKE	GCMS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GCMS
PHENOLS MS	DCM	SOLID PHASE EXTRACTION	GCMS
TPH by INFRARED (IR)	TCE	LIQUID/LIQUID SHAKE	HPLC
MINERAL OIL by IR	TCE	LIQUID/LIQUID SHAKE	HPLC
GLYCOLS	NONE	DIRECT INJECTION	GCMS

Identification of Asbestos in Bulk Materials

The results for asbestos identification for soil samples are obtained from possible Asbestos Containing Material, removed during the 'Screening of soils for Asbestos Containing Materials', which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: -
Trace -Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in MDHS 100.

The identification of asbestos containing materials falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Last Updated : 2010/09/08

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICS and SVOC TICS.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. Results relate only to the items tested.

12. LODs for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

Sample Deviations

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
5	**Samples exceeded holding time before presevation was performed**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than:
- Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

SDG: 150826-58
Job: H_URS_WIM-273
Client Reference:
Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall
Order No.:
Report No:

Asbestos Identification

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH201A NS Z 0.70 SOLID 25/08/2015 00:00:00 27/08/2015 13:33:29 150826-58 11963169 TM048 11351888	3/9/15	Kevin Hughes	Loose fibres in soil	Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH201A NS Z 1.90 - 2.00 SOLID 25/08/2015 00:00:00 27/08/2015 13:47:50 150826-58 11963171 TM048 11351923	3/9/15	Kevin Hughes	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH202A NS Z 0.80 SOLID 25/08/2015 00:00:00 27/08/2015 13:38:24 150826-58 11963170 TM048 11351909	3/9/15	Kevin Hughes	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH207 NS Z 0.70 SOLID 25/08/2015 00:00:00 27/08/2015 14:00:07 150826-58 11963172 TM048 11351937	3/9/15	Kevin Hughes	Loose fibres in soil	Not Detected	Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH208A NS Z 0.80 SOLID 25/08/2015 00:00:00 27/08/2015 11:24:24 150826-58 11963174 TM048 11351964	3/9/15	Kevin Hughes	Loose fibres in soil	Not Detected	Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

Preliminary

ALcontrol Laboratories Analytical Services

SDG:	150826-58	**Customer:**	AECOM
Job:	H_URS_WIM-273	**Attention:**	Gary Marshall
Client Reference:		**Order No.:**	
Location:	Stag Brewery	**Report No:**	

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH209 NS Z 0.50 SOLID 25/08/2015 00:00:00 28/08/2015 12:31:33 150826-58 11963177 TM048 11351994	3/9/15	Kevin Hughes	Loose fibres in soil	Not Detected	Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH2A NS Z 0.50 SOLID 25/08/2015 00:00:00 28/08/2015 12:46:35 150826-58 11963166 TM048 11351834	3/9/15	Kevin Hughes	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

ALcontrol Laboratories

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AECOM
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2nd Floor
5 St. George's Road
Wimbledon
Greater London
SW19 4DR

Attention: Gary Marshall

PRELIMINARY/INTERIM REPORT

Date:	09 September 2015
Customer:	H_URS_WIM
Sample Delivery Group (SDG):	150828-41
Your Reference:	
Location:	Stag Brewery
Report No:	329009

We received 4 samples on Friday August 28, 2015 and 4 of these samples were scheduled for analysis which was completed on Wednesday September 09, 2015. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

This is a preliminary report which has not had final authorisation.

Approved By:

mCERTS
THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

ilac-MRA

UKAS TESTING
1291

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Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No.

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
11977605	BH4A		0.90	27/08/2015
11977606	BH4A		3.50 - 4.00	27/08/2015
11977603	BH7A		0.70	27/08/2015
11977604	BH7A		2.50 - 3.00	27/08/2015

Only received samples which have had analysis scheduled will be shown on the following pages.

PRELIMINARY/INTERIM REPORT

SDG: 150828-41
Job: H_URS_WIM-273
Client Reference:

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

Order Number:
Report Number: 329009
Superseded Report:

SOLID

Results Legend

X **Test**

N **No Determination Possible**

Lab Sample No(s)			11977605			11977606			11977603			11977604		
Customer Sample Reference			BH4A			BH4A			BH7A			BH7A		
AGS Reference														
Depth (m)			0.90			3.50 - 4.00			0.70			2.50 - 3.00		
Container			250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)
Ammonium Soil by Titration	All	NDPs: 0 Tests: 4		X			X			X			X	
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 2		X						X				
Asbestos Quant. - Waste Limit	All	NDPs: 0 Tests: 1		X										
Easily Liberated Sulphide	All	NDPs: 0 Tests: 4		X			X			X			X	
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 4	X			X			X			X		
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 4	X			X			X			X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 4			X			X			X			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 4		X			X			X			X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 4	X			X			X			X		
PAH by GCMS	All	NDPs: 0 Tests: 4	X			X			X			X		
pH	All	NDPs: 0 Tests: 4		X			X			X			X	
Sample description	All	NDPs: 0 Tests: 4	X			X			X			X		
Total Organic Carbon	All	NDPs: 0 Tests: 4	X			X			X			X		
Total Sulphate	All	NDPs: 0 Tests: 4	X			X			X			X		
TPH CWG GC (S)	All	NDPs: 0 Tests: 4	X			X			X			X		

PRELIMINARY/INTERIM REPORT

SDG: 150828-41
Job: H_URS_WIM-273
Client Reference:
Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall
Order Number:
Report Number: 329009
Superseded Report:

SOLID

Results Legend

- X **Test**
- N **No Determination Possible**

Lab Sample No(s)			11977605			11977606			11977603			11977604		
Customer Sample Reference			BH4A			BH4A			BH7A			BH7A		
AGS Reference														
Depth (m)			0.90			3.50 - 4.00			0.70			2.50 - 3.00		
Container			250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)
VOC MS (S)	All	NDPs: 0 Tests: 4			X			X			X			X

Sample Descriptions

Grain Sizes

very fine	<0.063mm	**fine**	0.063mm - 0.1mm	**medium**	0.1mm - 2mm	**coarse**	2mm - 10mm	**very coarse**	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Grain size	Inclusions	Inclusions 2
11977605	BH4A	0.90	Dark Brown	Sand	0.1 - 2 mm	Brick	Concrete/Aggregate
11977606	BH4A	3.50 - 4.00	Light Brown	Sand	0.1 - 2 mm	Stones	None
11977603	BH7A	0.70	Dark Brown	Sandy Clay Loam	0.1 - 2 mm	Brick	Stones
11977604	BH7A	2.50 - 3.00	Light Brown	Sand	0.1 - 2 mm	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

PRELIMINARY/INTERIM REPORT

SDG: 150828-41
Job: H_URS_WIM-273
Client Reference:
Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall
Order Number:
Report Number: 329009
Superseded Report:

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

Component	LOD/Units	Method						
		Customer Sample R	BH4A	BH4A	BH7A	BH7A		
		Depth (m)	0.90	3.50 - 4.00	0.70	2.50 - 3.00		
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
		Date Sampled	27/08/2015	27/08/2015	27/08/2015	27/08/2015		
		Sampled Time	00:00:00	.	.	.		
		Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
		SDG Ref	150828-41	150828-41	150828-41	150828-41		
		Lab Sample No.(s)	11977605	11977606	11977603	11977604		
		AGS Reference						
Moisture Content Ratio (% of as received sample)	%	PM024	7.1	4.4	28	4.8		
Exchangeable Ammonia as NH4	<15 mg/kg	TM024	23.8 M	<15 M	35.3 M	15.8 M		
Organic Carbon, Total	<0.2 %	TM132	2.08 M	<0.2 M	3.51 M	<0.2 M		
pH	1 pH Units	TM133	7.92 M	8.01 M	7.67 M	8.01 M		
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6 #	<0.6 #	<0.6 #	<0.6 #		
Sulphide, Easily liberated	<15 mg/kg	TM180	<15 ♦ #	<15 ♦ #	<15 ♦ #	<15 ♦ #		
Arsenic	<0.6 mg/kg	TM181	14.2 M	21.4 M	94 M	16.4 M		
Cadmium	<0.02 mg/kg	TM181	0.603 M	0.385 M	2.03 M	0.325 M		
Chromium	<0.9 mg/kg	TM181	16.9 M	21.5 M	28.7 M	16.5 M		
Copper	<1.4 mg/kg	TM181	31.4 M	6.36 M	82.3 M	4.42 M		
Lead	<0.7 mg/kg	TM181	309 M	8.03 M	468 M	5.77 M		
Mercury	<0.14 mg/kg	TM181	<0.14 M	<0.14 M	0.702 M	<0.14 M		
Nickel	<0.2 mg/kg	TM181	15.6 M	24.2 M	36 M	19.4 M		
Selenium	<1 mg/kg	TM181	<1 #	<1 #	<1 #	<1 #		
Zinc	<1.9 mg/kg	TM181	217 M	28.5 M	1640 M	20.8 M		
Sulphate, Total	<48 mg/kg	TM221	841 M	63.9 M	601 M	74.7 M		

Preliminary

PRELIMINARY/INTERIM REPORT

SDG:	150828-41	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329009
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Customer Sample R	BH4A	BH4A	BH7A	BH7A		
		Depth (m)	0.90	3.50 - 4.00	0.70	2.50 - 3.00		
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
		Date Sampled	27/08/2015	27/08/2015	27/08/2015	27/08/2015		
		Sampled Time	00:00:00	.	.	.		
		Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
		SDG Ref	150828-41	150828-41	150828-41	150828-41		
		Lab Sample No.(s)	11977605	11977606	11977603	11977604		
		AGS Reference						
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	97.2	92.6	104	92.3		
Acenaphthene-d10 % recovery**	%	TM218	98.5	92.1	104	91.4		
Phenanthrene-d10 % recovery**	%	TM218	99	89.7	104	89.4		
Chrysene-d12 % recovery**	%	TM218	93.5	79.4	94.8	80.1		
Perylene-d12 % recovery**	%	TM218	102	86.9	101	88.5		
Naphthalene	<9 µg/kg	TM218	56 M	<9 M	69.9 M	<9 M		
Acenaphthylene	<12 µg/kg	TM218	83 M	<12 M	84.3 M	<12 M		
Acenaphthene	<8 µg/kg	TM218	41.8 M	<8 M	11.5 M	<8 M		
Fluorene	<10 µg/kg	TM218	48.2 M	<10 M	<10 M	<10 M		
Phenanthrene	<15 µg/kg	TM218	1190 M	<15 M	307 M	<15 M		
Anthracene	<16 µg/kg	TM218	317 M	<16 M	107 M	<16 M		
Fluoranthene	<17 µg/kg	TM218	2500 M	<17 M	967 M	<17 M		
Pyrene	<15 µg/kg	TM218	2090 M	<15 M	971 M	<15 M		
Benz(a)anthracene	<14 µg/kg	TM218	1320 M	<14 M	630 M	<14 M		
Chrysene	<10 µg/kg	TM218	1060 M	<10 M	684 M	<10 M		
Benzo(b)fluoranthene	<15 µg/kg	TM218	1700 M	<15 M	1930 M	<15 M		
Benzo(k)fluoranthene	<14 µg/kg	TM218	609 M	<14 M	724 M	<14 M		
Benzo(a)pyrene	<15 µg/kg	TM218	1470 M	<15 M	1050 M	<15 M		
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	787 M	<18 M	975 M	<18 M		
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	216 M	<23 M	269 M	<23 M		
Benzo(g,h,i)perylene	<24 µg/kg	TM218	967 M	<24 M	1160 M	<24 M		
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	14500	<118	9950	<118		

SDG:	150828-41	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329009
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Customer Sample R	BH4A	BH4A	BH7A	BH7A		
		Depth (m)	0.90	3.50 - 4.00	0.70	2.50 - 3.00		
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
		Date Sampled	27/08/2015	27/08/2015	27/08/2015	27/08/2015		
		Sampled Time	00:00:00	.	.	.		
		Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
		SDG Ref	150828-41	150828-41	150828-41	150828-41		
		Lab Sample No.(s)	11977605	11977606	11977603	11977604		
		AGS Reference						
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	74	117	28	129		
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	<44 M	<44 M	<44 M	<44 M		
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 M	<5 M	<5 M	<5 M		
Benzene	<10 µg/kg	TM089	<10 M	<10 M	<10 M	<10 M		
Toluene	<2 µg/kg	TM089	<2 M	<2 M	<2 M	<2 M		
Ethylbenzene	<3 µg/kg	TM089	<3 M	<3 M	<3 M	<3 M		
m,p-Xylene	<6 µg/kg	TM089	<6 M	<6 M	<6 M	<6 M		
o-Xylene	<3 µg/kg	TM089	<3 M	<3 M	<3 M	<3 M		
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9	<9	<9	<9		
sum of detected BTEX by GC	<24 µg/kg	TM089	<24	<24	<24	<24		
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	<10	<10	<10		
Aliphatics >C6-C8	<10 µg/kg	TM089	<10	<10	<10	<10		
Aliphatics >C8-C10	<10 µg/kg	TM089	<10	<10	<10	<10		
Aliphatics >C10-C12	<10 µg/kg	TM089	<10	<10	<10	<10		
Aliphatics >C12-C16	<100 µg/kg	TM173	<100	<100	<100	<100		
Aliphatics >C16-C21	<100 µg/kg	TM173	1680	<100	<100	<100		
Aliphatics >C21-C35	<100 µg/kg	TM173	54500	<100	21900	<100		
Aliphatics >C35-C44	<100 µg/kg	TM173	32400	<100	5130	<100		
Total Aliphatics >C12-C44	<100 µg/kg	TM173	88500	<100	27000	<100		
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10	<10	<10		
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	<10	<10	<10		
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10	<10	<10	<10		
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10	<10	<10	<10		
Aromatics >EC12-EC16	<100 µg/kg	TM173	1610	<100	1920	<100		
Aromatics >EC16-EC21	<100 µg/kg	TM173	17100	<100	8470	<100		
Aromatics >EC21-EC35	<100 µg/kg	TM173	74700	<100	70000	<100		
Aromatics >EC35-EC44	<100 µg/kg	TM173	37300	<100	28500	<100		
Aromatics >EC40-EC44	<100 µg/kg	TM173	14200	<100	10500	<100		
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	131000	<100	109000	<100		
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	219000	<100	136000	<100		

PRELIMINARY/INTERIM REPORT

SDG:	150828-41	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329009
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

Customer Sample R	BH4A	BH4A	BH7A	BH7A		
Depth (m)	0.90	3.50 - 4.00	0.70	2.50 - 3.00		
Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
Date Sampled	27/08/2015	27/08/2015	27/08/2015	27/08/2015		
Sampled Time	00:00:00	.	.	.		
Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
SDG Ref	150828-41	150828-41	150828-41	150828-41		
Lab Sample No.(s)	11977605	11977606	11977603	11977604		
AGS Reference						

Component	LOD/Units	Method						
Dibromofluoromethane**	%	TM116	120	103	112	124		
Toluene-d8**	%	TM116	98.1	103	99.5	110		
4-Bromofluorobenzene**	%	TM116	69.9	94.2	74.1	106		
Dichlorodifluoromethane	<6 µg/kg	TM116	<6 M	<6 M	<60 M	<6 M		
Chloromethane	<7 µg/kg	TM116	<7 #	<7 #	<70 #	<7 #		
Vinyl Chloride	<6 µg/kg	TM116	<6 M	<6 M	<60 M	<6 M		
Bromomethane	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M		
Chloroethane	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M		
Trichlorofluorormethane	<6 µg/kg	TM116	<6 M	<6 M	<60 M	<6 M		
1,1-Dichloroethene	<10 µg/kg	TM116	<10 #	<10 #	<100 #	<10 #		
Carbon Disulphide	<7 µg/kg	TM116	<7 M	<7 M	<70 M	<7 M		
Dichloromethane	<10 µg/kg	TM116	<10 #	<10 #	<100 #	<10 #		
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M		
trans-1,2-Dichloroethene	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M		
1,1-Dichloroethane	<8 µg/kg	TM116	<8 M	<8 M	<80 M	<8 M		
cis-1,2-Dichloroethene	<6 µg/kg	TM116	<6 M	<6 M	<60 M	<6 M		
2,2-Dichloropropane	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M		
Bromochloromethane	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M		
Chloroform	<8 µg/kg	TM116	<8 M	<8 M	<80 M	<8 M		
1,1,1-Trichloroethane	<7 µg/kg	TM116	<7 M	<7 M	<70 M	<7 M		
1,1-Dichloropropene	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M		
Carbontetrachloride	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M		
1,2-Dichloroethane	<5 µg/kg	TM116	<5 M	<5 M	<50 M	<5 M		
Benzene	<9 µg/kg	TM116	<9 M	<9 M	<90 M	<9 M		
Trichloroethene	<9 µg/kg	TM116	<9 #	<9 #	<90 #	<9 #		
1,2-Dichloropropane	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M		
Dibromomethane	<9 µg/kg	TM116	<9 M	<9 M	<90 M	<9 M		
Bromodichloromethane	<7 µg/kg	TM116	<7 M	<7 M	<70 M	<7 M		
cis-1,3-Dichloropropene	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M		
Toluene	<7 µg/kg	TM116	<7 M	<7 M	<70 M	<7 M		
trans-1,3-Dichloropropene	<10 µg/kg	TM116	<10	<10	<100	<10		
1,1,2-Trichloroethane	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M		

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

Customer Sample R			BH4A	BH4A	BH7A	BH7A		
Depth (m)			0.90	3.50 - 4.00	0.70	2.50 - 3.00		
Sample Type			Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
Date Sampled			27/08/2015	27/08/2015	27/08/2015	27/08/2015		
Sampled Time			00:00:00	.	.	.		
Date Received			28/08/2015	28/08/2015	28/08/2015	28/08/2015		
SDG Ref			150828-41	150828-41	150828-41	150828-41		
Lab Sample No.(s)			11977605	11977606	11977603	11977604		
AGS Reference								
Component	**LOD/Units**	**Method**						
1,3-Dichloropropane	<7 µg/kg	TM116	<7 M	<7 M	<70 M	<7 M		
Tetrachloroethene	<5 µg/kg	TM116	<5 M	<5 M	<50 M	<5 M		
Dibromochloromethane	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M		
1,2-Dibromoethane	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M		
Chlorobenzene	<5 µg/kg	TM116	<5 M	<5 M	<50 M	95.5 M		
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M		
Ethylbenzene	<4 µg/kg	TM116	<4 M	<4 M	<40 M	<4 M		
p/m-Xylene	<10 µg/kg	TM116	<10 #	<10 #	<100 #	<10 #		
o-Xylene	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M		
Styrene	<10 µg/kg	TM116	<10 #	<10 #	<100 #	<10 #		
Bromoform	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M		
Isopropylbenzene	<5 µg/kg	TM116	<5 #	<5 #	<50 #	<5 #		
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M		
1,2,3-Trichloropropane	<16 µg/kg	TM116	<16 M	<16 M	<160 M	<16 M		
Bromobenzene	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M		
Propylbenzene	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M		
2-Chlorotoluene	<9 µg/kg	TM116	<9 M	<9 M	<90 M	<9 M		
1,3,5-Trimethylbenzene	<8 µg/kg	TM116	<8 M	<8 M	<80 M	<8 M		
4-Chlorotoluene	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M		
tert-Butylbenzene	<14 µg/kg	TM116	<14 M	<14 M	<140 M	<14 M		
1,2,4-Trimethylbenzene	<9 µg/kg	TM116	<9 #	<9 #	<90 #	<9 #		
sec-Butylbenzene	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M		
4-Isopropyltoluene	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M		
1,3-Dichlorobenzene	<8 µg/kg	TM116	<8 M	<8 M	<80 M	<8 M		
1,4-Dichlorobenzene	<5 µg/kg	TM116	<5 M	<5 M	<50 M	<5 M		
n-Butylbenzene	<11 µg/kg	TM116	<11	<11	<110	<11		
1,2-Dichlorobenzene	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M		
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116	<14 M	<14 M	<140 M	<14 M		
Tert-amyl methyl ether	<10 µg/kg	TM116	<10 #	<10 #	<100 #	<10 #		
1,2,4-Trichlorobenzene	<20 µg/kg	TM116	<20	<20	<200	<20		
Hexachlorobutadiene	<20 µg/kg	TM116	<20	<20	<200	<20		
Naphthalene	<13 µg/kg	TM116	<13 M	<13 M	<130 M	<13 M		

PRELIMINARY/INTERIM REPORT

SDG:	150828-41	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329009
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Customer Sample R	BH4A	BH4A	BH7A	BH7A		
		Depth (m)	0.90	3.50 - 4.00	0.70	2.50 - 3.00		
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
		Date Sampled	27/08/2015	27/08/2015	27/08/2015	27/08/2015		
		Sampled Time	00:00:00	.	.	.		
		Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
		SDG Ref	150828-41	150828-41	150828-41	150828-41		
		Lab Sample No.(s)	11977605	11977606	11977603	11977604		
		AGS Reference						
Component	**LOD/Units**	**Method**						
1,2,3-Trichlorobenzene	<20 µg/kg	TM116	<20 #	<20 #	<200 #	<20 #		

Asbestos Identification - Soil

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH4A 0.90 SOLID 27/08/2015 00:00:00 28/08/2015 18:57:49 150828-41 11977605 TM048	3/9/15	Rebecca Rawlings	Loose fibres in soil	Detected (#)	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH7A 0.70 SOLID 27/08/2015 00:00:00 28/08/2015 19:05:13 150828-41 11977603 TM048	4/9/15	Kevin Hughes	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

SDG:	150828-41	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329009
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
ASB_PREP				
PM001		Preparation of Samples for Metals Analysis		
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material		
TM 304				
TM024	Method 4500A & B, AWWA/APHA, 20th Ed., 1999	Determination of Exchangeable Ammonium and Ammoniacal Nitrogen as N by titration on solids		
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material		
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)		
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS		
TM132	In - house Method	ELTRA CS800 Operators Guide		
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter		
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser		
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID		
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique		
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES		
TM218	Microwave extraction – EPA method 3546	Microwave extraction - EPA method 3546		
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid extractable Sulphate in Soils by IRIS Emission Spectrometer		

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

SDG:	150828-41	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329009
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	11977605	11977606	11977603	11977604
Customer Sample Ref.	BH4A	BH4A	BH7A	BH7A
AGS Ref.				
Depth	0.90	3.50 - 4.00	0.70	2.50 - 3.00
Type	SOLID	SOLID	SOLID	SOLID
Ammonium Soil by Titration	09-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015
Asbestos ID in Solid Samples	04-Sep-2015		04-Sep-2015	
Easily Liberated Sulphide	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015
EPH CWG (Aliphatic) GC (S)	04-Sep-2015	03-Sep-2015	04-Sep-2015	03-Sep-2015
EPH CWG (Aromatic) GC (S)	04-Sep-2015	03-Sep-2015	04-Sep-2015	03-Sep-2015
GRO by GC-FID (S)	04-Sep-2015	04-Sep-2015	03-Sep-2015	04-Sep-2015
Hexavalent Chromium (s)	07-Sep-2015	07-Sep-2015	07-Sep-2015	07-Sep-2015
Metals in solid samples by OES	04-Sep-2015	04-Sep-2015	04-Sep-2015	04-Sep-2015
PAH by GCMS	03-Sep-2015	03-Sep-2015	03-Sep-2015	03-Sep-2015
pH	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015
Sample description	28-Aug-2015	29-Aug-2015	28-Aug-2015	29-Aug-2015
Total Organic Carbon	07-Sep-2015	03-Sep-2015	07-Sep-2015	03-Sep-2015
Total Sulphate	04-Sep-2015	07-Sep-2015	04-Sep-2015	07-Sep-2015
TPH CWG GC (S)	04-Sep-2015	04-Sep-2015	04-Sep-2015	04-Sep-2015
VOC MS (S)	02-Sep-2015	02-Sep-2015	03-Sep-2015	03-Sep-2015

ASSOCIATED AQC DATA

Ammonium Soil by Titration

Component	Method Code	QC 1292	QC 1205
Exchangeable Ammonium as NH4	TM024	**86.07** 79.30 : 104.61	**98.01** 79.30 : 104.61

Easily Liberated Sulphide

Component	Method Code	QC 1219	QC 1231
Easily Liberated Sulphide	TM180	**93.21** 49.14 : 123.89	**94.71** 49.14 : 123.89

EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 1182	QC 1194
Total Aliphatics >C12-C35	TM173	**85.21** 62.50 : 112.50	**87.08** 70.80 : 111.51

EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 1182	QC 1194
Total Aromatics >EC12-EC35	TM173	**82.67** 60.62 : 126.95	**82.67** 65.21 : 121.32

GRO by GC-FID (S)

Component	Method Code	QC 1173	QC 1290
Benzene by GC (Moisture Corrected)	TM089	**95.0** 76.33 : 121.87	**100.0** 76.23 : 120.71
Ethylbenzene by GC (Moisture Corrected)	TM089	**99.0** 75.73 : 123.83	**100.5** 73.32 : 122.02
m & p Xylene by GC (Moisture Corrected)	TM089	**97.5** 75.52 : 120.32	**100.75** 72.90 : 122.64
MTBE GC-FID (Moisture Corrected)	TM089	**94.0** 77.89 : 119.70	**101.0** 72.17 : 124.81
o Xylene by GC (Moisture Corrected)	TM089	**93.5** 74.15 : 124.59	**100.5** 71.65 : 124.40
QC	TM089	**99.2** 62.31 : 122.61	**105.5** 55.00 : 145.00
Toluene by GC (Moisture Corrected)	TM089	**93.5** 77.91 : 122.33	**100.5** 74.60 : 120.38

Hexavalent Chromium (s)

Component	Method Code	QC 1285
Hexavalent Chromium	TM151	**102.0** 92.20 : 106.60

Metals in solid samples by OES

Component	Method Code	QC 1206	QC 1292
Aluminium	TM181	**99.23** 86.49 : 129.71	**108.46** 86.49 : 129.71
Antimony	TM181	**94.27** 77.50 : 122.50	**95.34** 77.50 : 122.50
Arsenic	TM181	**92.92** 82.63 : 117.37	**92.92** 82.63 : 117.37
Barium	TM181	**96.24** 79.45 : 120.55	**99.25** 79.45 : 120.55
Beryllium	TM181	**98.91** 85.92 : 121.27	**100.31** 85.92 : 121.27
Boron	TM181	**105.34** 77.41 : 143.83	**109.92** 77.41 : 143.83
Cadmium	TM181	**95.8** 81.95 : 118.05	**95.63** 81.95 : 118.05
Chromium	TM181	**93.33** 81.29 : 118.71	**96.47** 81.29 : 118.71
Cobalt	TM181	**95.83** 83.86 : 116.14	**96.67** 83.86 : 116.14
Copper	TM181	**97.7** 78.57 : 121.43	**98.51** 78.57 : 121.43
Iron	TM181	**95.86** 87.50 : 122.82	**101.38** 87.50 : 122.82
Lead	TM181	**93.7** 74.18 : 117.25	**92.91** 74.18 : 117.25
Manganese	TM181	**100.0** 82.91 : 117.09	**100.0** 82.91 : 117.09
Mercury	TM181	**94.3** 81.99 : 118.01	**93.47** 81.99 : 118.01
Molybdenum	TM181	**92.2** 81.45 : 118.55	**92.36** 81.45 : 118.55
Nickel	TM181	**95.93** 79.64 : 120.36	**97.67** 79.64 : 120.36
Phosphorus	TM181	**97.76** 81.03 : 118.97	**97.32** 81.03 : 118.97
Selenium	TM181	**105.3** 87.05 : 121.93	**105.47** 87.05 : 121.93
Strontium	TM181	**98.08** 83.64 : 116.36	**98.47** 83.64 : 116.36
Thallium	TM181	**87.56** 77.50 : 122.50	**91.38** 77.50 : 122.50
Tin	TM181	**92.03** 78.30 : 113.98	**92.69** 78.30 : 113.98
Titanium	TM181	**103.91** 71.02 : 128.98	**103.13** 71.02 : 128.98

Metals in solid samples by OES

		QC 1206	QC 1292
Vanadium	TM181	**93.53** 86.61 : 113.39	**95.0** 86.61 : 113.39
Zinc	TM181	**97.73** 89.82 : 114.54	**98.05** 89.82 : 114.54

PAH by GCMS

Component	**Method Code**	QC 1122	QC 1106
Acenaphthene	TM218	**88.5** 78.75 : 116.25	**91.5** 78.84 : 114.36
Acenaphthylene	TM218	**85.0** 76.45 : 110.05	**85.5** 65.50 : 119.50
Anthracene	TM218	**87.5** 67.15 : 124.45	**91.0** 75.54 : 110.88
Benz(a)anthracene	TM218	**95.5** 82.00 : 127.00	**97.5** 78.02 : 127.38
Benzo(a)pyrene	TM218	**97.5** 75.60 : 124.20	**99.5** 79.21 : 128.01
Benzo(b)fluoranthene	TM218	**97.5** 81.20 : 121.77	**96.0** 86.21 : 131.42
Benzo(ghi)perylene	TM218	**96.5** 77.49 : 119.12	**95.0** 80.11 : 120.52
Benzo(k)fluoranthene	TM218	**94.5** 83.50 : 116.50	**97.0** 78.77 : 120.72
Chrysene	TM218	**93.0** 78.35 : 114.42	**94.5** 78.77 : 118.99
Dibenzo(ah)anthracene	TM218	**94.0** 77.15 : 122.45	**93.5** 76.39 : 122.63
Fluoranthene	TM218	**91.0** 79.08 : 114.40	**95.0** 77.25 : 117.75
Fluorene	TM218	**90.5** 79.03 : 113.38	**95.5** 79.28 : 117.35
Indeno(123cd)pyrene	TM218	**96.0** 75.65 : 125.15	**93.0** 78.87 : 122.50
Naphthalene	TM218	**92.0** 77.25 : 112.60	**93.0** 74.75 : 118.25
Phenanthrene	TM218	**90.5** 78.25 : 115.44	**95.0** 78.61 : 113.98
Pyrene	TM218	**90.0** 78.07 : 114.06	**94.0** 76.15 : 115.26

pH

Component	**Method Code**	QC 1218	QC 1227
pH	TM133	**100.25** 97.19 : 102.81	**100.5** 97.19 : 102.81

Total Organic Carbon

Total Organic Carbon

Component	Method Code	QC 1254	QC 1297
Total Organic Carbon	TM132	**100.46** 88.82 : 111.18	**97.72** 89.40 : 103.09

Total Sulphate

Component	Method Code	QC 1235	QC 1273
Total Sulphate	TM221	**102.27** 78.49 : 121.51	**103.79** 78.49 : 121.51

VOC MS (S)

Component	Method Code	QC 1128	QC 1175	QC 1164
1,1,1,2-tetrachloroethane	TM116	**95.6** 83.24 : 124.28	**102.6** 83.24 : 124.28	**105.6** 76.60 : 121.00
1,1,1-Trichloroethane	TM116	**100.8** 81.77 : 121.07	**102.4** 81.77 : 121.07	**101.0** 77.80 : 123.40
1,1,2-Trichloroethane	TM116	**100.4** 79.24 : 112.23	**94.2** 79.24 : 112.23	**92.6** 75.40 : 119.80
1,1-Dichloroethane	TM116	**103.0** 72.58 : 116.06	**106.6** 72.58 : 116.06	**106.8** 80.84 : 124.49
1,2-Dichloroethane	TM116	**118.8** 77.50 : 122.50	**112.0** 77.50 : 122.50	**108.2** 91.00 : 135.67
1,4-Dichlorobenzene	TM116	**96.2** 73.23 : 116.39	**95.4** 73.23 : 116.39	**102.4** 80.88 : 114.60
2-Chlorotoluene	TM116	**85.6** 69.22 : 110.64	**86.6** 69.22 : 110.64	**97.2** 74.00 : 117.20
4-Chlorotoluene	TM116	**89.0** 68.57 : 106.26	**87.4** 68.57 : 106.26	**93.4** 71.20 : 113.20
Benzene	TM116	**103.2** 84.33 : 124.27	**106.0** 84.33 : 124.27	**99.6** 79.60 : 125.20
Carbon Disulphide	TM116	**110.4** 77.20 : 122.80	**107.4** 77.20 : 122.80	**101.4** 74.91 : 122.14
Carbontetrachloride	TM116	**98.2** 84.20 : 119.90	**102.8** 84.20 : 119.90	**101.0** 76.80 : 121.20
Chlorobenzene	TM116	**102.4** 85.28 : 129.96	**103.2** 85.28 : 129.96	**102.4** 83.47 : 116.82
Chloroform	TM116	**108.2** 82.73 : 119.72	**106.6** 82.73 : 119.72	**107.0** 82.00 : 128.80
Chloromethane	TM116	**123.4** 55.16 : 145.46	**117.2** 55.16 : 145.46	**129.8** 74.62 : 135.86
Cis-1,2-Dichloroethene	TM116	**108.4** 73.56 : 118.93	**108.4** 73.56 : 118.93	**109.8** 81.20 : 128.00
Dibromomethane	TM116	**104.4** 73.40 : 116.60	**98.0** 73.40 : 116.60	**90.8** 73.40 : 116.60
Dichloromethane	TM116	**113.2** 76.16 : 121.98	**108.2** 76.16 : 121.98	**109.2** 86.60 : 137.00

VOC MS (S)

		QC 1128	QC 1175	QC 1164
Ethylbenzene	TM116	**94.0** 80.07 : 125.98	**99.2** 80.07 : 125.98	**95.4** 73.60 : 115.60
Hexachlorobutadiene	TM116	**69.0** 30.92 : 132.28	**89.2** 30.92 : 132.28	**70.2** 33.65 : 130.56
Isopropylbenzene	TM116	**82.6** 69.27 : 125.32	**92.6** 69.27 : 125.32	**93.4** 72.52 : 117.52
Naphthalene	TM116	**110.0** 79.15 : 121.98	**107.4** 79.15 : 121.98	**104.4** 83.23 : 126.48
o-Xylene	TM116	**77.6** 75.46 : 111.52	**84.8** 75.46 : 111.52	**93.4** 69.60 : 110.40
p/m-Xylene	TM116	**90.2** 76.97 : 121.75	**96.6** 76.97 : 121.75	**91.4** 71.30 : 112.70
Sec-Butylbenzene	TM116	**69.6** 49.27 : 129.90	**85.8** 49.27 : 129.90	**93.2** 59.20 : 125.20
Tetrachloroethene	TM116	**102.2** 87.96 : 133.65	**110.6** 87.96 : 133.65	**105.2** 85.92 : 127.92
Toluene	TM116	**99.0** 79.23 : 114.58	**100.6** 79.23 : 114.58	**89.6** 76.08 : 110.17
Trichloroethene	TM116	**94.6** 84.09 : 114.24	**98.4** 84.09 : 114.24	**98.6** 78.17 : 121.37
Trichlorofluoromethane	TM116	**107.4** 76.22 : 114.82	**104.4** 76.22 : 114.82	**109.6** 83.78 : 132.82
Vinyl Chloride	TM116	**98.2** 59.68 : 118.68	**100.8** 59.68 : 118.68	**104.0** 66.81 : 138.46

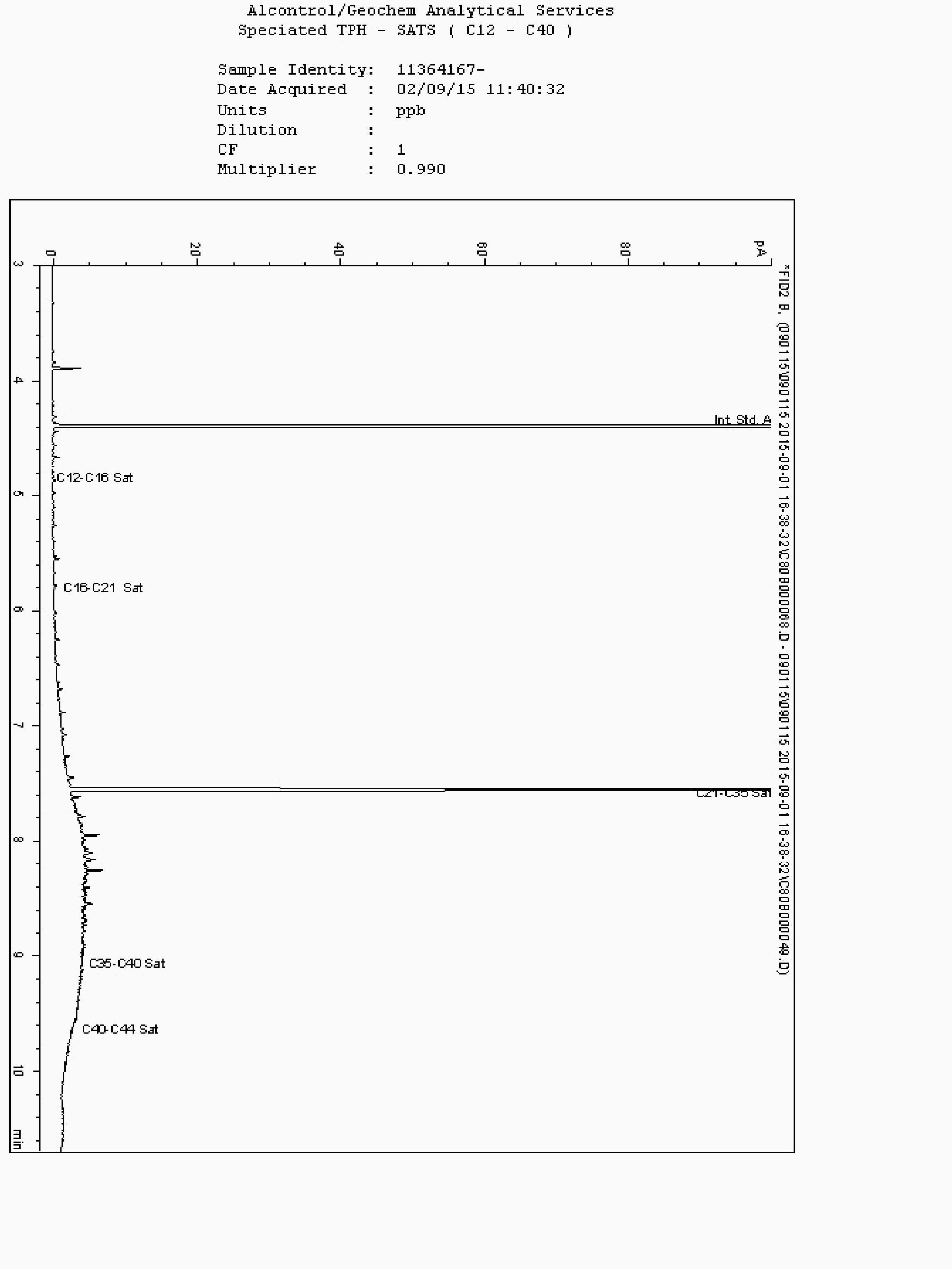
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

PRELIMINARY/INTERIM REPORT

SDG:	150828-41	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329009
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	EPH CWG (Aliphatic) GC (S)	**Sample No :**	11981792	**Depth :**	0.90
		Sample ID :	BH4A		



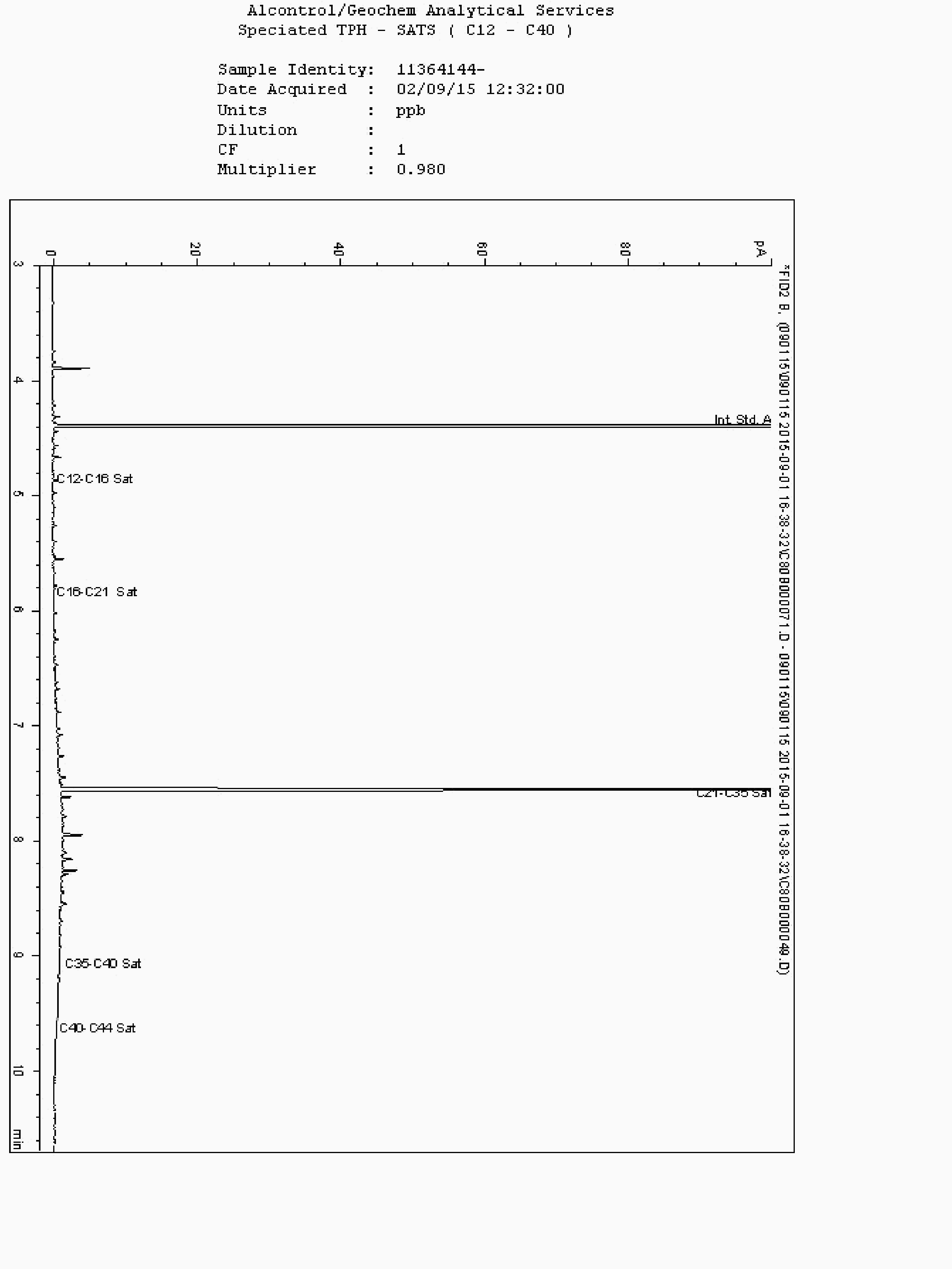
Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

```
Sample Identity: 11364167-
Date Acquired  : 02/09/15 11:40:32
Units          : ppb
Dilution       :
CF             : 1
Multiplier     : 0.990
```

SDG:	150828-41	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329009
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	EPH CWG (Aliphatic) GC (S)	**Sample No :**	11981802	**Depth :**	0.70
		Sample ID :	BH7A		



Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

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Sample Identity:  11364144-
Date Acquired  :  02/09/15 12:32:00
Units          :  ppb
Dilution       :
CF             :  1
Multiplier     :  0.980
```
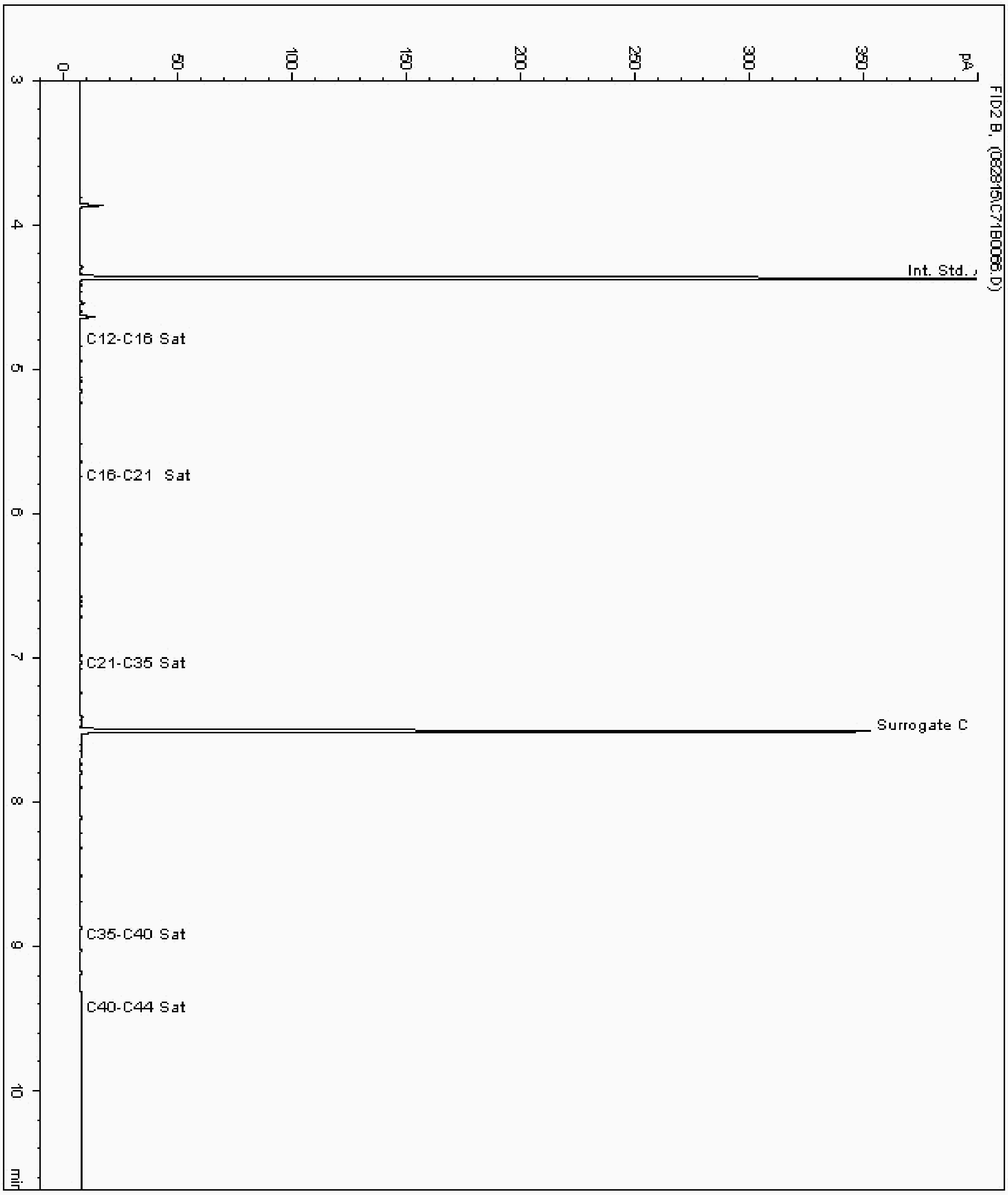

PRELIMINARY/INTERIM REPORT

SDG:	150828-41	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329009
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	EPH CWG (Aliphatic) GC (S)	**Sample No :**	11983540	**Depth :**	2.50 - 3.00
		Sample ID :	BH7A		

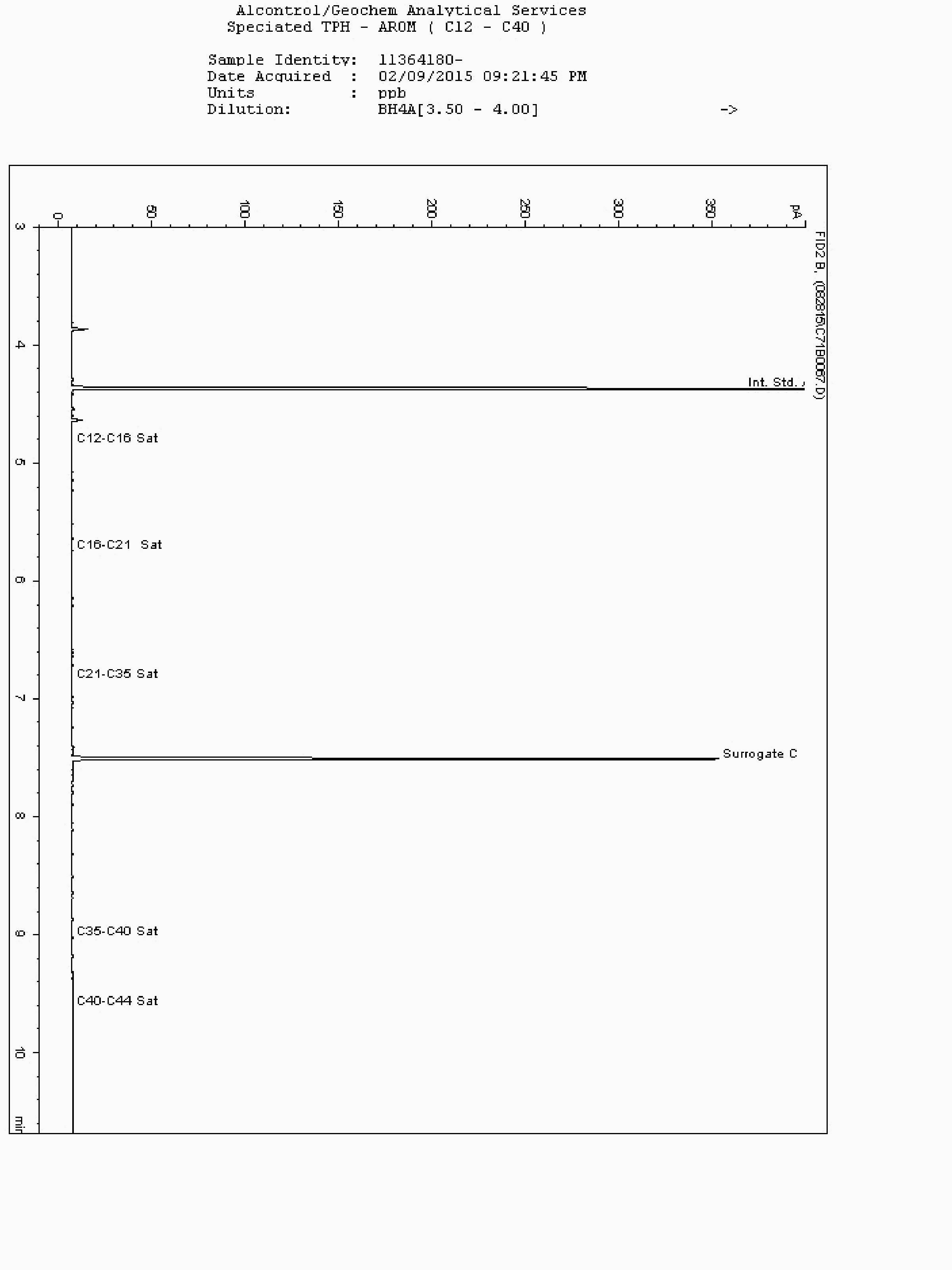
```
   Alcontrol/Geochem Analytical Services
 Speciated TPH - AROM ( C12 - C40 )

Sample Identity:  11364157-
Date Acquired  :  02/09/2015 09:01:53 PM
Units          :  ppb
Dilution:         BH7A[2.50 - 3.00]                ->
```



SDG:	150828-41	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329009
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	EPH CWG (Aliphatic) GC (S)	**Sample No :**	11983599	**Depth :**	3.50 - 4.00
		Sample ID :	BH4A		

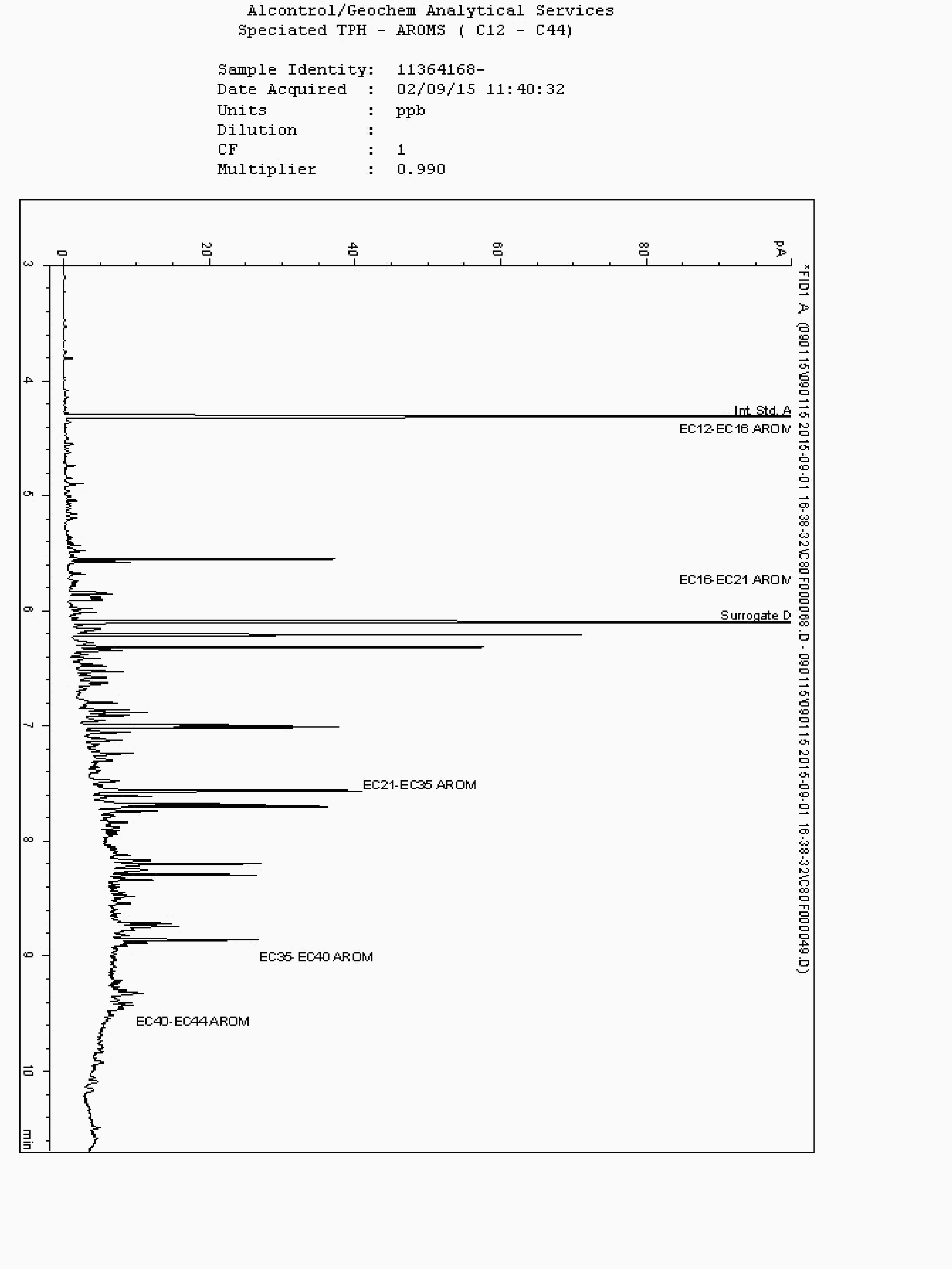


```
      Alcontrol/Geochem Analytical Services
    Speciated TPH - AROM ( C12 - C40 )

  Sample Identity:  11364180-
  Date Acquired  :  02/09/2015 09:21:45 PM
  Units          :  ppb
  Dilution:         BH4A[3.50 - 4.00]              ->
```

SDG:	150828-41	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329009
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	EPH CWG (Aromatic) GC (S)	**Sample No :**	11981792	**Depth :**	0.90
		Sample ID :	BH4A		



```
Alcontrol/Geochem Analytical Services
Speciated TPH - AROMS ( C12 - C44)

Sample Identity:  11364168-
Date Acquired   :  02/09/15 11:40:32
Units           :  ppb
Dilution        :
CF              :  1
Multiplier      :  0.990
```

SDG:	150828-41	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329009
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

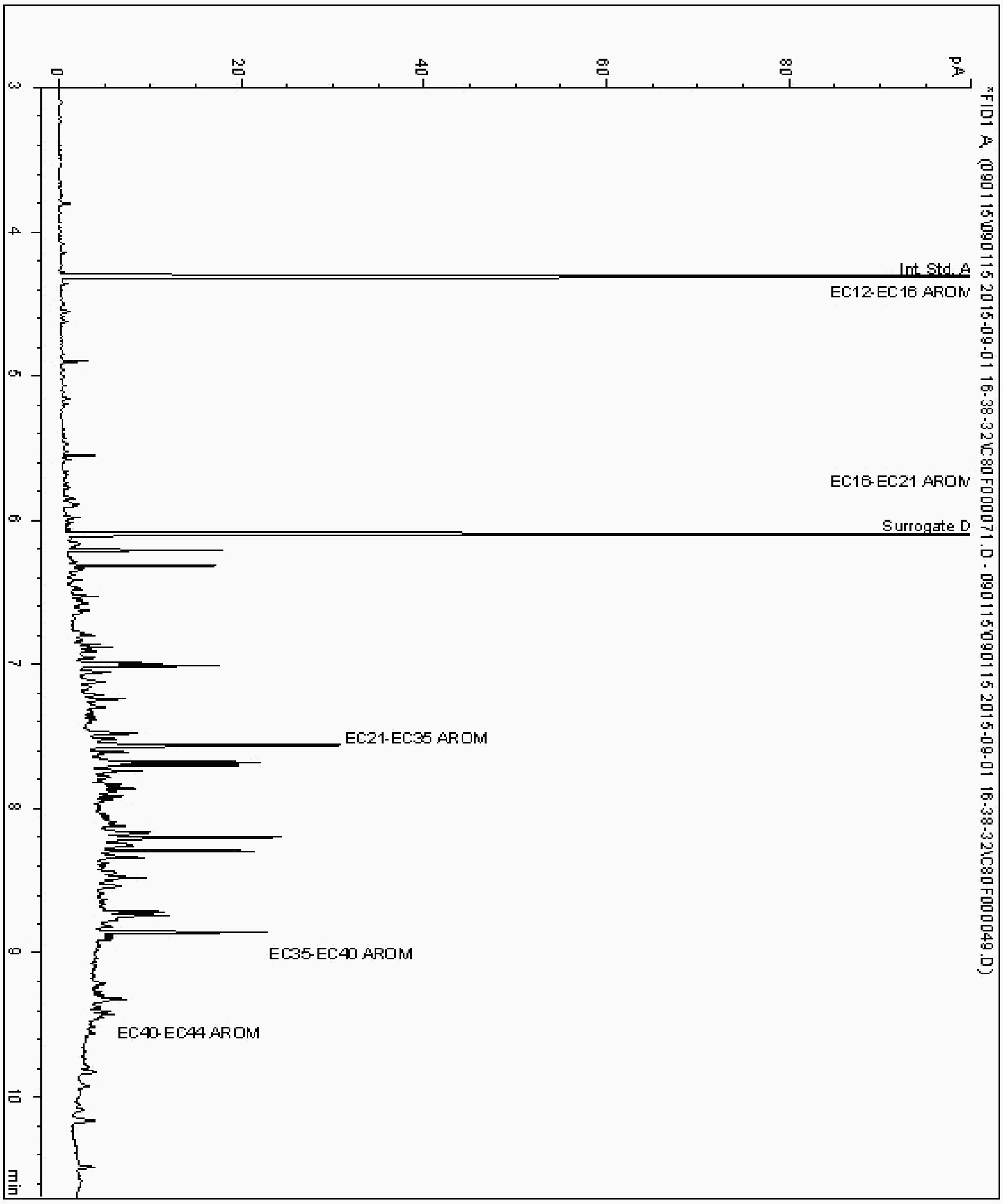
Analysis: EPH CWG (Aromatic) GC (S)

Sample No : 11981802

Sample ID : BH7A

Depth : 0.70

```
Alcontrol/Geochem Analytical Services
Speciated TPH - AROMS ( C12 - C44)

Sample Identity:  11364145-
Date Acquired  :  02/09/15 12:32:00
Units          :  ppb
Dilution       :
CF             :  1
Multiplier     :  0.980
```

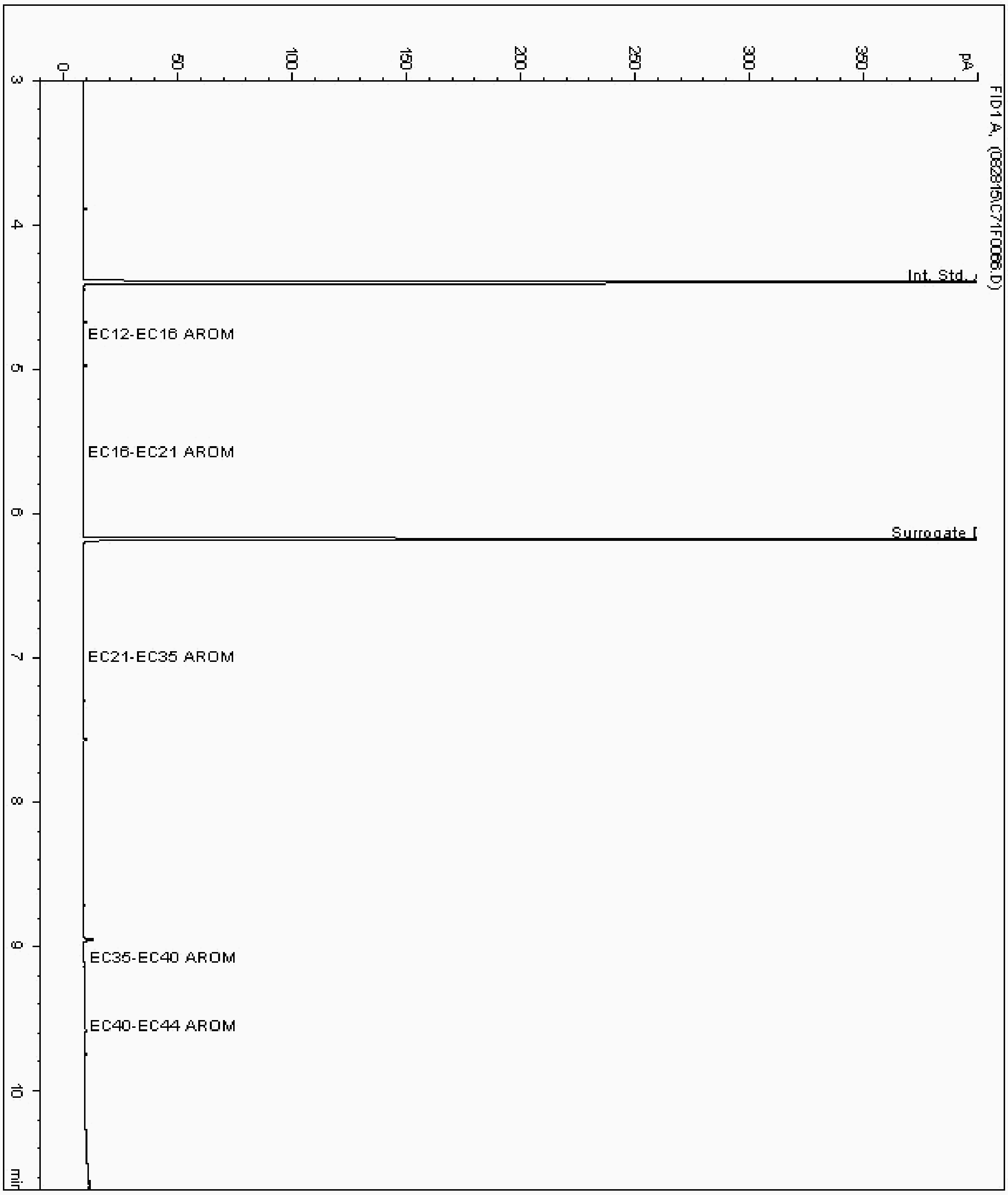


SDG:	150828-41	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329009
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	EPH CWG (Aromatic) GC (S)	**Sample No :**	11983540	**Depth :**	2.50 - 3.00
		Sample ID :	BH7A		

```
         Alcontrol/Geochem Analytical Services
       Speciated TPH - AROM ( C12 - C40 )

    Sample Identity:  11364158-
    Date Acquired  :  02/09/2015 09:01:53 PM
    Units          :  ppb
    Dilution:         BH7A[2.50 - 3.00]                ->
```



SDG: 150828-41
Job: H_URS_WIM-273
Client Reference:

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

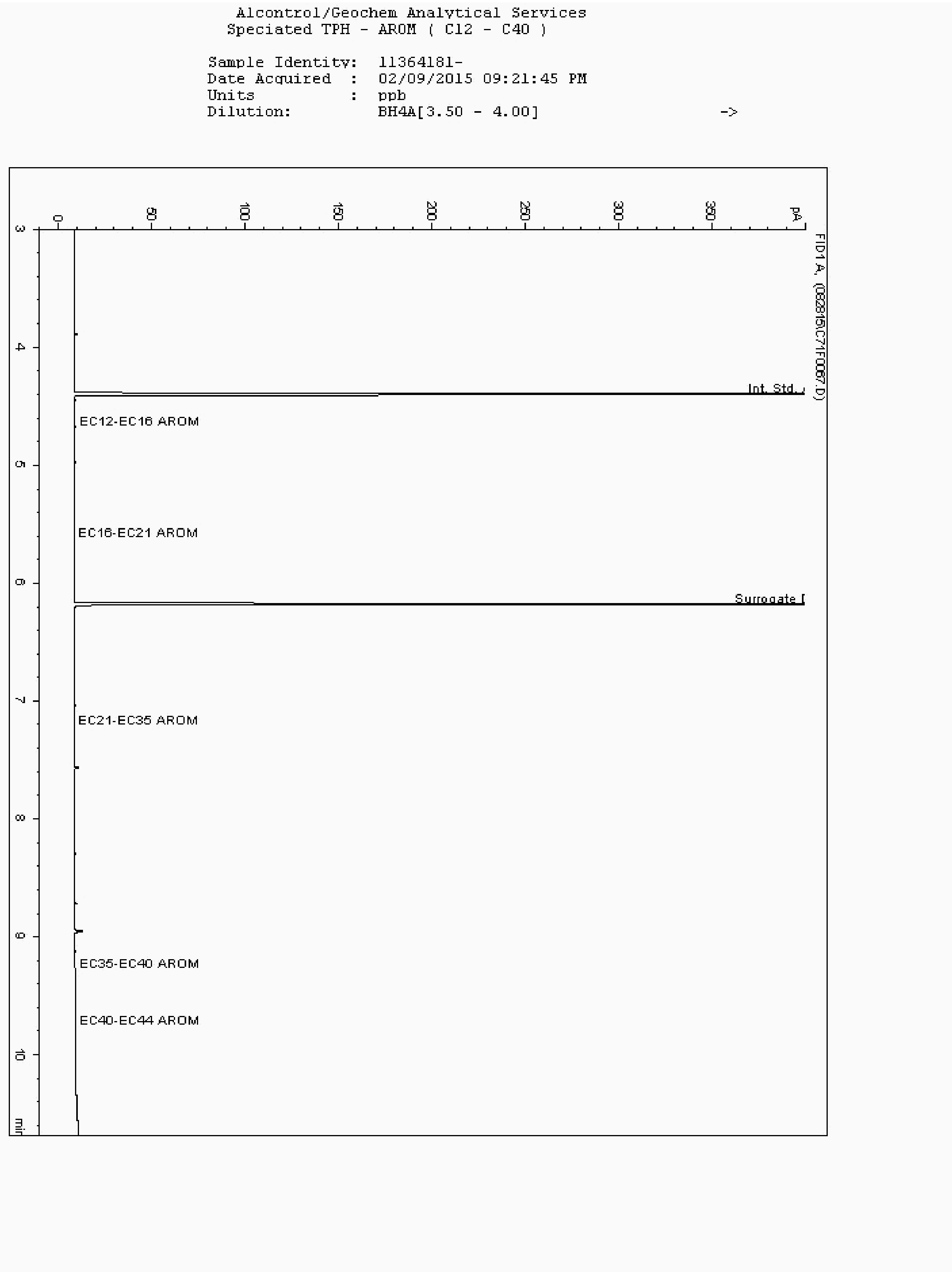
Order Number:
Report Number: 329009
Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S)

Sample No : 11983599
Sample ID : BH4A

Depth : 3.50 - 4.00

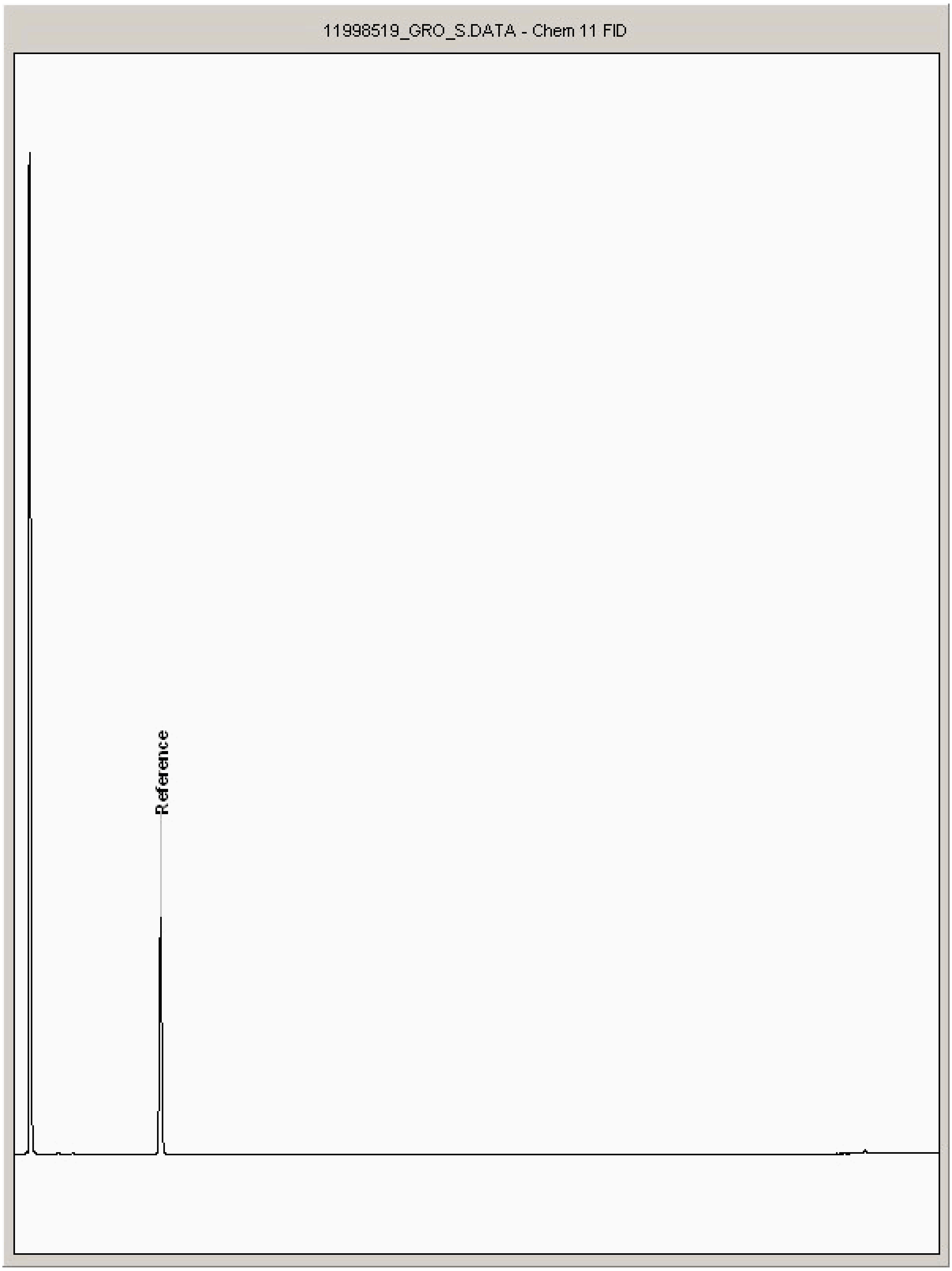


```
Alcontrol/Geochem Analytical Services
Speciated TPH - AROM ( C12 - C40 )

Sample Identity:  11364181-
Date Acquired  :  02/09/2015 09:21:45 PM
Units          :  ppb
Dilution:         BH4A[3.50 - 4.00]                ->
```

SDG:	150828-41	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329009
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

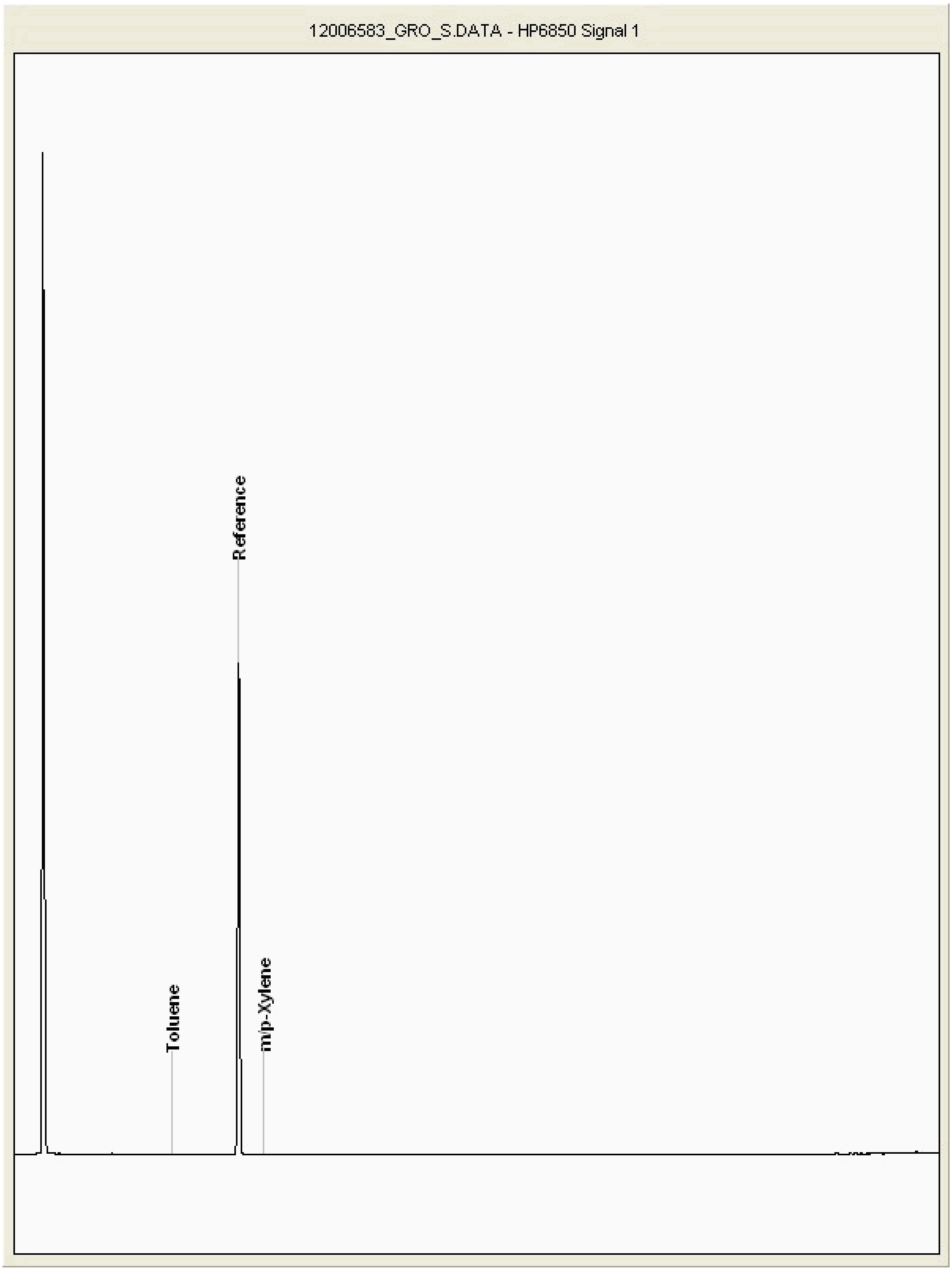
Chromatogram

Analysis:	GRO by GC-FID (S)	**Sample No :**	11998519	**Depth :**	0.70
		Sample ID :	BH7A		



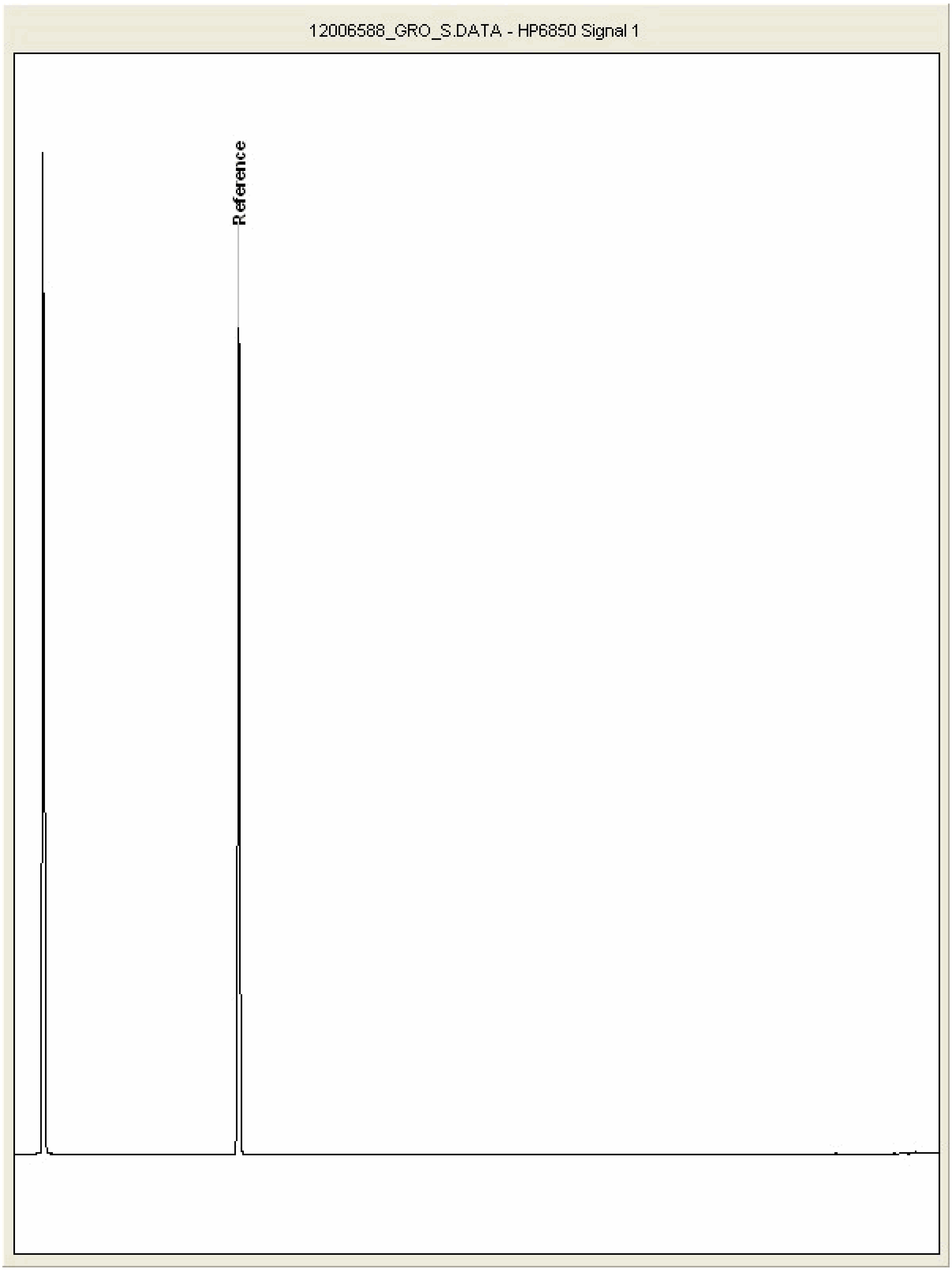
Chromatogram

Analysis: GRO by GC-FID (S)
Sample No : 12006583
Sample ID : BH4A
Depth : 0.90



Chromatogram

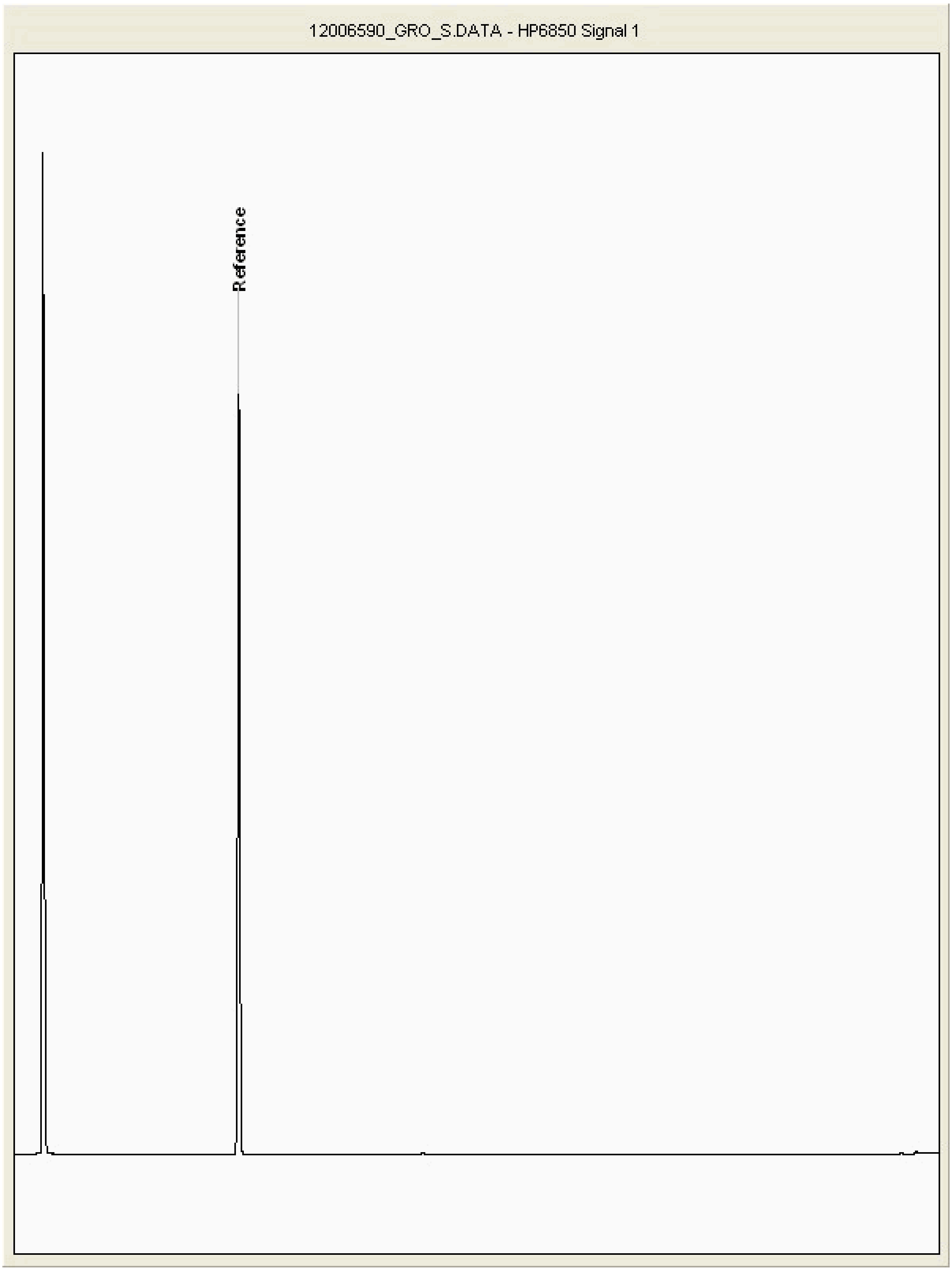
Analysis:	GRO by GC-FID (S)	**Sample No :**	12006588	**Depth :**	2.50 - 3.00
		Sample ID :	BH7A		



SDG:	150828-41	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329009
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	GRO by GC-FID (S)	**Sample No :**	12006590	**Depth :**	3.50 - 4.00
		Sample ID :	BH4A		



Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA Leach tests, flash point, ammonium as NH4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for both soil jars, tubs and volatile jars. All waters and vials will be discarded 10 days after the analysis is completed (e-mailed). All material removed during an asbestos containing material screen and analysed for the presence of asbestos will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be screened in house for the presence of large asbestos containing material fragments/pieces. If no asbestos containing material is found this will be reported as 'no asbestos containing material detected'. If asbestos containing material is detected it will be removed and analysed by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If asbestos containing material is present no further analysis will be undertaken. At no point is the fibre content of the soil sample determined.

7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample -similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule or recorded on the log sheet.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.

12. Results relate only to the items tested

13. **Surrogate recoveries** -Most of our organic methods include surrogates, the recovery of which is monitored and reported. For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 -130 %.

14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 14).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not accredited.

19. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

20. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

23. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials -whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute themajor part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

24. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C4 -C10 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENT EXTRACTABLE MATTER	D&C	DCM	SOXTHERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
THIN LAYER CHROMATOGRAPHY	D&C	DCM	SOXTHERM	IATROSCAN
ELEMENTAL SULPHUR	D&C	DCM	SOXTHERM	HPLC
PHENOLS BY GCMS	WET	DCM	SOXTHERM	GC-MS
HERBICIDES	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
PESTICIDES	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
EPH (DRO)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (MIN OIL)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (CLEANED UP)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH CWG BY GC	D&C	HEXANE:ACETONE	END OVER END	GC-FID
PCB TOT / PCB CON	D&C	HEXANE:ACETONE	END OVER END	GC-MS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANE:ACETONE	MICROWAVE TM218.	GC-MS
C8-C40 (C6-C40) EZ FLASH	WET	HEXANE:ACETONE	SHAKER	GC-EZ
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANE:ACETONE	SHAKER	GC-EZ
SEMI VOLATILE ORGANIC COMPOUNDS	WET	DCM:ACETONE	SONICATE	GC-MS

LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAH MS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
EPH	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
PCB 7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
PCB TOTAL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
SVOC	DCM	LIQUID/LIQUID SHAKE	GC MS
FREE SULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PEST OCP/OPP	DCM	LIQUID/LIQUID SHAKE	GC MS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GC MS
PHENOLS MS	DCM	SOLID PHASE EXTRACTION	GC MS
TPH by INFRARED (IR)	TCE	LIQUID/LIQUID SHAKE	HPLC
MINERAL OIL by IR	TCE	LIQUID/LIQUID SHAKE	HPLC
GLYCOLS	NONE	DIRECT INJECTION	GC MS

Identification of Asbestos in Bulk Materials

The results for asbestos identification for soil samples are obtained from possible Asbestos Containing Material, removed during the 'Screening of soils for Asbestos Containing Materials', which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: -
Trace -Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in MDHS 100.

The identification of asbestos containing materials falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICS and SVOC TICS.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. Results relate only to the items tested.

12. LODs for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

Sample Deviations

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
5	**Samples exceeded holding time before presevation was performed**
§	**Sampled on date not provided**
•	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than:
- Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

ALcontrol Laboratories

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Greater London
SW19 4DR

Attention: Gary Marshall

PRELIMINARY/INTERIM REPORT

Date:	09 September 2015
Customer:	H_URS_WIM
Sample Delivery Group (SDG):	150828-44
Your Reference:	
Location:	Stag Brewery
Report No:	329060

We received 4 samples on Friday August 28, 2015 and 4 of these samples were scheduled for analysis which was completed on Wednesday September 09, 2015. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

This is a preliminary report which has not had final authorisation.

Approved By:

mCERTS
THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

ilac-MRA

UKAS TESTING
1291

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Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No.

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
11977692	BH210		0.80	26/08/2015
11977693	BH210		2.20 - 2.80	26/08/2015
11977694	BH211		0.70	26/08/2015
11977695	BH211		2.20	26/08/2015

Only received samples which have had analysis scheduled will be shown on the following pages.

PRELIMINARY/INTERIM REPORT

SDG: 150828-44
Job: H_URS_WIM-273
Client Reference:
Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall
Order Number:
Report Number: 329060
Superseded Report:

SOLID

Results Legend

X **Test**

N **No Determination Possible**

Lab Sample No(s)			11977692			11977693			11977694			11977695		
Customer Sample Reference			BH210			BH210			BH211			BH211		
AGS Reference														
Depth (m)			0.80			2.20 - 2.80			0.70			2.20		
Container			250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)
Ammonium Soil by Titration	All	NDPs: 0 Tests: 4		X			X			X			X	
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 2		X						X				
Asbestos Quant. - Waste Limit	All	NDPs: 0 Tests: 1		X										
Easily Liberated Sulphide	All	NDPs: 0 Tests: 4		X			X			X			X	
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 4	X			X			X			X		
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 4	X			X			X			X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 4			X			X			X			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 4		X			X			X			X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 4	X			X			X			X		
PAH by GCMS	All	NDPs: 0 Tests: 4	X			X			X			X		
pH	All	NDPs: 0 Tests: 4		X			X			X			X	
Sample description	All	NDPs: 0 Tests: 4	X			X			X			X		
Total Organic Carbon	All	NDPs: 0 Tests: 4	X			X			X			X		
Total Sulphate	All	NDPs: 0 Tests: 4	X			X			X			X		
TPH CWG GC (S)	All	NDPs: 0 Tests: 4	X			X			X			X		

PRELIMINARY/INTERIM REPORT

SDG: 150828-44
Job: H_URS_WIM-273
Client Reference:

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

Order Number:
Report Number: 329060
Superseded Report:

SOLID

Results Legend

- X **Test**
- N **No Determination Possible**

Lab Sample No(s)			11977692			11977693			11977694			11977695		
Customer Sample Reference			BH210			BH210			BH211			BH211		
AGS Reference														
Depth (m)			0.80			2.20 - 2.80			0.70			2.20		
Container			250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)
VOC MS (S)	All	NDPs: 0 Tests: 4			X			X			X			X

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Grain size	Inclusions	Inclusions 2
11977692	BH210	0.80	Dark Brown	Sandy Clay Loam	0.1 - 2 mm	Stones	None
11977693	BH210	2.20 - 2.80	Light Brown	Loamy Sand	0.1 - 2 mm	Vegetation	Stones
11977694	BH211	0.70	Dark Brown	Sandy Clay Loam	0.1 - 2 mm	Stones	Vegetation
11977695	BH211	2.20	Light Brown	Loamy Sand	0.1 - 2 mm	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

ALcontrol Laboratories

Preliminary

PRELIMINARY/INTERIM REPORT

SDG:	150828-44	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329060
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Customer Sample R	BH210	BH210	BH211	BH211		
		Depth (m)	0.80	2.20 - 2.80	0.70	2.20		
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
		Date Sampled	26/08/2015	26/08/2015	26/08/2015	26/08/2015		
		Sampled Time	.	.	.	.		
		Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
		SDG Ref	150828-44	150828-44	150828-44	150828-44		
		Lab Sample No.(s)	11977692	11977693	11977694	11977695		
		AGS Reference						
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	13	6.9	12	8.9		
Exchangeable Ammonia as NH4	<15 mg/kg	TM024	45.6 M	<15 M	<15 M	<15 M		
Organic Carbon, Total	<0.2 %	TM132	0.358 M	<0.2 M	<0.2 M	<0.2 M		
pH	1 pH Units	TM133	9.67 M	8.35 M	10.3 M	8.66 M		
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6 #	<0.6 #	<0.6 #	<0.6 #		
Sulphide, Easily liberated	<15 mg/kg	TM180	<15 ♦ #	<15 ♦ #	<15 ♦ #	<15 ♦ #		
Arsenic	<0.6 mg/kg	TM181	23.6 M	20.2 M	11.8 M	19.5 M		
Cadmium	<0.02 mg/kg	TM181	0.449 M	0.341 M	0.347 M	0.391 M		
Chromium	<0.9 mg/kg	TM181	25.9 M	16.6 M	17 M	24.1 M		
Copper	<1.4 mg/kg	TM181	31.2 M	5.29 M	9.01 M	6.47 M		
Lead	<0.7 mg/kg	TM181	32.7 M	5.73 M	44.5 M	7.8 M		
Mercury	<0.14 mg/kg	TM181	<0.14 M	<0.14 M	0.152 M	<0.14 M		
Nickel	<0.2 mg/kg	TM181	24.5 M	21.2 M	16.5 M	22.6 M		
Selenium	<1 mg/kg	TM181	<1 #	<1 #	<1 #	<1 #		
Zinc	<1.9 mg/kg	TM181	43.4 M	21.9 M	41.3 M	28.4 M		
Sulphate, Total	<48 mg/kg	TM221	481 M	<48 M	545 M	88.2 M		

PRELIMINARY/INTERIM REPORT

SDG: 150828-44
Job: H_URS_WIM-273
Client Reference:

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

Order Number:
Report Number: 329060
Superseded Report:

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Customer Sample R	BH210	BH210	BH211	BH211		
		Depth (m)	0.80	2.20 - 2.80	0.70	2.20		
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
		Date Sampled	26/08/2015	26/08/2015	26/08/2015	26/08/2015		
		Sampled Time	.	.	.	.		
		Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
		SDG Ref	150828-44	150828-44	150828-44	150828-44		
		Lab Sample No.(s)	11977692	11977693	11977694	11977695		
		AGS Reference						
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	103	102	97.1	95.7		
Acenaphthene-d10 % recovery**	%	TM218	98.9	94.5	95.1	96.4		
Phenanthrene-d10 % recovery**	%	TM218	95.9	94.2	92.9	96.8		
Chrysene-d12 % recovery**	%	TM218	92.5	78.5	92	88.1		
Perylene-d12 % recovery**	%	TM218	94.6	86.2	97	95.7		
Naphthalene	<9 µg/kg	TM218	<9 M	<9 M	53.8 M	<9 M		
Acenaphthylene	<12 µg/kg	TM218	<12 M	<12 M	14.8 M	<12 M		
Acenaphthene	<8 µg/kg	TM218	<8 M	<8 M	48.1 M	<8 M		
Fluorene	<10 µg/kg	TM218	<10 M	<10 M	48.6 M	<10 M		
Phenanthrene	<15 µg/kg	TM218	27.7 M	<15 M	352 M	<15 M		
Anthracene	<16 µg/kg	TM218	<16 M	<16 M	78.8 M	<16 M		
Fluoranthene	<17 µg/kg	TM218	47 M	<17 M	389 M	<17 M		
Pyrene	<15 µg/kg	TM218	43.6 M	<15 M	317 M	<15 M		
Benz(a)anthracene	<14 µg/kg	TM218	48.1 M	<14 M	174 M	<14 M		
Chrysene	<10 µg/kg	TM218	28.5 M	<10 M	151 M	<10 M		
Benzo(b)fluoranthene	<15 µg/kg	TM218	38.8 M	<15 M	199 M	<15 M		
Benzo(k)fluoranthene	<14 µg/kg	TM218	18.1 M	<14 M	90.7 M	<14 M		
Benzo(a)pyrene	<15 µg/kg	TM218	30 M	<15 M	147 M	<15 M		
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	<18 M	<18 M	77.5 M	<18 M		
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23 M	<23 M	<23 M	<23 M		
Benzo(g,h,i)perylene	<24 µg/kg	TM218	28.6 M	<24 M	105 M	<24 M		
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	311	<118	2250	<118		

PRELIMINARY/INTERIM REPORT

SDG:	150828-44	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329060
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

Customer Sample R	BH210	BH210	BH211	BH211		
Depth (m)	0.80	2.20 - 2.80	0.70	2.20		
Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
Date Sampled	26/08/2015	26/08/2015	26/08/2015	26/08/2015		
Sampled Time	.	.	.	.		
Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
SDG Ref	150828-44	150828-44	150828-44	150828-44		
Lab Sample No.(s)	11977692	11977693	11977694	11977695		
AGS Reference						

Component	LOD/Units	Method						
GRO Surrogate % recovery**	%	TM089	105	119	109	110		
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	<44 M	<44 M	5160 M	<44 M		
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 M	<5 M	<5 M	<5 M		
Benzene	<10 µg/kg	TM089	<10 M	<10 M	<10 M	<10 M		
Toluene	<2 µg/kg	TM089	<2 M	<2 M	<2 M	<2 M		
Ethylbenzene	<3 µg/kg	TM089	<3 M	<3 M	<3 M	<3 M		
m,p-Xylene	<6 µg/kg	TM089	<6 M	<6 M	<6 M	<6 M		
o-Xylene	<3 µg/kg	TM089	<3 M	<3 M	<3 M	<3 M		
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9	<9	<9	<9		
sum of detected BTEX by GC	<24 µg/kg	TM089	<24	<24	<24	<24		
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	<10	<10	<10		
Aliphatics >C6-C8	<10 µg/kg	TM089	<10	<10	34.2	<10		
Aliphatics >C8-C10	<10 µg/kg	TM089	<10	<10	1010	13.1		
Aliphatics >C10-C12	<10 µg/kg	TM089	<10	<10	2060	<10		
Aliphatics >C12-C16	<100 µg/kg	TM173	<100	<100	15100	<100		
Aliphatics >C16-C21	<100 µg/kg	TM173	3150	<100	23200	<100		
Aliphatics >C21-C35	<100 µg/kg	TM173	18600	<100	57300	<100		
Aliphatics >C35-C44	<100 µg/kg	TM173	1920	<100	10600	<100		
Total Aliphatics >C12-C44	<100 µg/kg	TM173	23700	<100	106000	<100		
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10	<10	<10		
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	<10	<10	<10		
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10	<10	671	<10		
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10	<10	1380	<10		
Aromatics >EC12-EC16	<100 µg/kg	TM173	<100	<100	4150	<100		
Aromatics >EC16-EC21	<100 µg/kg	TM173	<100	<100	10500	<100		
Aromatics >EC21-EC35	<100 µg/kg	TM173	4960	<100	26600	<100		
Aromatics >EC35-EC44	<100 µg/kg	TM173	1400	<100	10500	<100		
Aromatics >EC40-EC44	<100 µg/kg	TM173	<100	<100	3890	<100		
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	6360	<100	51900	<100		
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	30000	<100	163000	<100		

SDG:	150828-44	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329060
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Customer Sample R	BH210	BH210	BH211	BH211		
		Depth (m)	0.80	2.20 - 2.80	0.70	2.20		
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
		Date Sampled	26/08/2015	26/08/2015	26/08/2015	26/08/2015		
		Sampled Time	.	.	.	.		
		Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
		SDG Ref	150828-44	150828-44	150828-44	150828-44		
		Lab Sample No.(s)	11977692	11977693	11977694	11977695		
		AGS Reference						
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	130	119	128	123		
Toluene-d8**	%	TM116	102	111	103	111		
4-Bromofluorobenzene**	%	TM116	89.8	102	94.5	102		
Dichlorodifluoromethane	<6 µg/kg	TM116	<6 M	<6 M	<6 M	<6 M		
Chloromethane	<7 µg/kg	TM116	<7 #	<7 #	<7 #	<7 #		
Vinyl Chloride	<6 µg/kg	TM116	<6 M	<6 M	<6 M	<6 M		
Bromomethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
Chloroethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
Trichlorofluorormethane	<6 µg/kg	TM116	<6 M	<6 M	<6 M	<6 M		
1,1-Dichloroethene	<10 µg/kg	TM116	<10 #	<10 #	<10 #	<10 #		
Carbon Disulphide	<7 µg/kg	TM116	<7 M	<7 M	<7 M	<7 M		
Dichloromethane	<10 µg/kg	TM116	<10 #	<10 #	<10 #	<10 #		
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
trans-1,2-Dichloroethene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
1,1-Dichloroethane	<8 µg/kg	TM116	<8 M	<8 M	<8 M	<8 M		
cis-1,2-Dichloroethene	<6 µg/kg	TM116	<6 M	<6 M	<6 M	<6 M		
2,2-Dichloropropane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
Bromochloromethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
Chloroform	<8 µg/kg	TM116	<8 M	<8 M	<8 M	<8 M		
1,1,1-Trichloroethane	<7 µg/kg	TM116	<7 M	<7 M	<7 M	<7 M		
1,1-Dichloropropene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
Carbontetrachloride	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
1,2-Dichloroethane	<5 µg/kg	TM116	<5 M	<5 M	<5 M	<5 M		
Benzene	<9 µg/kg	TM116	<9 M	<9 M	<9 M	<9 M		
Trichloroethene	<9 µg/kg	TM116	<9 #	<9 #	<9 #	<9 #		
1,2-Dichloropropane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
Dibromomethane	<9 µg/kg	TM116	<9 M	<9 M	<9 M	<9 M		
Bromodichloromethane	<7 µg/kg	TM116	<7 M	<7 M	<7 M	<7 M		
cis-1,3-Dichloropropene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
Toluene	<7 µg/kg	TM116	<7 M	<7 M	<7 M	<7 M		
trans-1,3-Dichloropropene	<10 µg/kg	TM116	<10	<10	<10	<10		
1,1,2-Trichloroethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		

SDG: 150828-44
Job: H_URS_WIM-273
Client Reference:
Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall
Order Number:
Report Number: 329060
Superseded Report:

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

Customer Sample R			BH210	BH210	BH211	BH211		
Depth (m)			0.80	2.20 - 2.80	0.70	2.20		
Sample Type			Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
Date Sampled			26/08/2015	26/08/2015	26/08/2015	26/08/2015		
Sampled Time			.	.	.	.		
Date Received			28/08/2015	28/08/2015	28/08/2015	28/08/2015		
SDG Ref			150828-44	150828-44	150828-44	150828-44		
Lab Sample No.(s)			11977692	11977693	11977694	11977695		
AGS Reference								
Component	**LOD/Units**	**Method**						
1,3-Dichloropropane	<7 µg/kg	TM116	<7 M	<7 M	<7 M	<7 M		
Tetrachloroethene	<5 µg/kg	TM116	<5 M	<5 M	<5 M	<5 M		
Dibromochloromethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
1,2-Dibromoethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
Chlorobenzene	<5 µg/kg	TM116	<5 M	<5 M	<5 M	<5 M		
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
Ethylbenzene	<4 µg/kg	TM116	<4 M	<4 M	<4 M	<4 M		
p/m-Xylene	<10 µg/kg	TM116	<10 #	<10 #	<10 #	<10 #		
o-Xylene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
Styrene	<10 µg/kg	TM116	<10 #	<10 #	<10 #	<10 #		
Bromoform	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
Isopropylbenzene	<5 µg/kg	TM116	<5 #	<5 #	<5 #	<5 #		
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
1,2,3-Trichloropropane	<16 µg/kg	TM116	<16 M	<16 M	<16 M	<16 M		
Bromobenzene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
Propylbenzene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
2-Chlorotoluene	<9 µg/kg	TM116	<9 M	<9 M	<9 M	<9 M		
1,3,5-Trimethylbenzene	<8 µg/kg	TM116	<8 M	<8 M	<8 M	<8 M		
4-Chlorotoluene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
tert-Butylbenzene	<14 µg/kg	TM116	<14 M	<14 M	<14 M	<14 M		
1,2,4-Trimethylbenzene	<9 µg/kg	TM116	<9 #	<9 #	<9 #	<9 #		
sec-Butylbenzene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
4-Isopropyltoluene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
1,3-Dichlorobenzene	<8 µg/kg	TM116	<8 M	<8 M	<8 M	<8 M		
1,4-Dichlorobenzene	<5 µg/kg	TM116	<5 M	<5 M	<5 M	<5 M		
n-Butylbenzene	<11 µg/kg	TM116	<11	<11	<11	<11		
1,2-Dichlorobenzene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116	<14 M	<14 M	<14 M	<14 M		
Tert-amyl methyl ether	<10 µg/kg	TM116	<10 #	<10 #	<10 #	<10 #		
1,2,4-Trichlorobenzene	<20 µg/kg	TM116	<20	<20	<20	<20		
Hexachlorobutadiene	<20 µg/kg	TM116	<20	<20	<20	<20		
Naphthalene	<13 µg/kg	TM116	<13 M	<13 M	<13 M	<13 M		

Preliminary

PRELIMINARY/INTERIM REPORT

SDG:	150828-44	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329060
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Customer Sample R	BH210	BH210	BH211	BH211		
		Depth (m)	0.80	2.20 - 2.80	0.70	2.20		
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
		Date Sampled	26/08/2015	26/08/2015	26/08/2015	26/08/2015		
		Sampled Time	.	.	.	.		
		Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
		SDG Ref	150828-44	150828-44	150828-44	150828-44		
		Lab Sample No.(s)	11977692	11977693	11977694	11977695		
		AGS Reference						
Component	**LOD/Units**	**Method**						
1,2,3-Trichlorobenzene	<20 µg/kg	TM116	<20 #	<20 #	<20 #	<20 #		

Asbestos Identification - Soil

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH210 0.80 SOLID 26/08/2015 00:00:00 29/08/2015 10:30:50 150828-44 11977692 TM048	03/09/2015	Rebecca Rawlings	Loose fibres in soil	Trace (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH211 0.70 SOLID 26/08/2015 00:00:00 29/08/2015 10:17:28 150828-44 11977694 TM048	03/09/2015	Rebecca Rawlings	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
ASB_PREP				
PM001		Preparation of Samples for Metals Analysis		
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material		
TM 304				
TM024	Method 4500A & B, AWWA/APHA, 20th Ed., 1999	Determination of Exchangeable Ammonium and Ammoniacal Nitrogen as N by titration on solids		
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material		
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)		
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS		
TM132	In - house Method	ELTRA CS800 Operators Guide		
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter		
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser		
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID		
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique		
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES		
TM218	Microwave extraction – EPA method 3546	Microwave extraction - EPA method 3546		
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid extractable Sulphate in Soils by IRIS Emission Spectrometer		

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

Test Completion Dates

Lab Sample No(s)	11977692	11977693	11977694	11977695
Customer Sample Ref.	BH210	BH210	BH211	BH211
AGS Ref.				
Depth	0.80	2.20 - 2.80	0.70	2.20
Type	SOLID	SOLID	SOLID	SOLID
Ammonium Soil by Titration	09-Sep-2015	08-Sep-2015	09-Sep-2015	08-Sep-2015
Asbestos ID in Solid Samples	03-Sep-2015		03-Sep-2015	
Easily Liberated Sulphide	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015
EPH CWG (Aliphatic) GC (S)	04-Sep-2015	03-Sep-2015	04-Sep-2015	03-Sep-2015
EPH CWG (Aromatic) GC (S)	04-Sep-2015	03-Sep-2015	04-Sep-2015	03-Sep-2015
GRO by GC-FID (S)	04-Sep-2015	02-Sep-2015	07-Sep-2015	02-Sep-2015
Hexavalent Chromium (s)	07-Sep-2015	07-Sep-2015	07-Sep-2015	07-Sep-2015
Metals in solid samples by OES	04-Sep-2015	04-Sep-2015	04-Sep-2015	04-Sep-2015
PAH by GCMS	03-Sep-2015	03-Sep-2015	03-Sep-2015	03-Sep-2015
pH	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015
Sample description	29-Aug-2015	28-Aug-2015	29-Aug-2015	28-Aug-2015
Total Organic Carbon	07-Sep-2015	07-Sep-2015	07-Sep-2015	07-Sep-2015
Total Sulphate	08-Sep-2015	04-Sep-2015	07-Sep-2015	04-Sep-2015
TPH CWG GC (S)	04-Sep-2015	03-Sep-2015	07-Sep-2015	03-Sep-2015
VOC MS (S)	02-Sep-2015	02-Sep-2015	02-Sep-2015	02-Sep-2015

SDG:	150828-44	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329060
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

ASSOCIATED AQC DATA

Ammonium Soil by Titration

Component	Method Code	QC 1292	QC 1205
Exchangeable Ammonium as NH4	TM024	**86.07** 79.30 : 104.61	**98.01** 79.30 : 104.61

Easily Liberated Sulphide

Component	Method Code	QC 1219	QC 1231
Easily Liberated Sulphide	TM180	**93.21** 49.14 : 123.89	**94.71** 49.14 : 123.89

EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 1165	QC 1197
Total Aliphatics >C12-C35	TM173	**97.92** 69.19 : 111.75	**92.08** 71.67 : 116.67

EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 1197
Total Aromatics >EC12-EC35	TM173	**85.33** 59.92 : 107.95

GRO by GC-FID (S)

Component	Method Code	QC 1100	QC 1290	QC 1294
Benzene by GC (Moisture Corrected)	TM089	**110.0** 82.67 : 117.96	**100.0** 76.23 : 120.71	**101.5** 79.00 : 121.00
Ethylbenzene by GC (Moisture Corrected)	TM089	**110.5** 80.45 : 118.61	**100.5** 73.32 : 122.02	**104.0** 79.00 : 121.00
m & p Xylene by GC (Moisture Corrected)	TM089	**110.0** 79.25 : 119.43	**100.75** 72.90 : 122.64	**104.25** 79.00 : 121.00
MTBE GC-FID (Moisture Corrected)	TM089	**114.5** 79.10 : 122.51	**101.0** 72.17 : 124.81	**106.5** 74.48 : 125.29
o Xylene by GC (Moisture Corrected)	TM089	**111.5** 80.03 : 117.19	**100.5** 71.65 : 124.40	**104.5** 79.00 : 121.00
QC	TM089	**102.79** 75.74 : 124.65	**105.5** 55.00 : 145.00	**98.6** 73.70 : 123.60
Toluene by GC (Moisture Corrected)	TM089	**110.5** 82.06 : 117.54	**100.5** 74.60 : 120.38	**102.5** 79.00 : 121.00

Hexavalent Chromium (s)

Component	Method Code	QC 1299	QC 1285
Hexavalent Chromium	TM151	**100.0** 92.20 : 106.60	**102.0** 92.20 : 106.60

Metals in solid samples by OES

Component	Method Code	QC 1206	QC 1292
Aluminium	TM181	**99.23** 86.49 : 129.71	**108.46** 86.49 : 129.71
Antimony	TM181	**94.27** 77.50 : 122.50	**95.34** 77.50 : 122.50
Arsenic	TM181	**92.92** 82.63 : 117.37	**92.92** 82.63 : 117.37
Barium	TM181	**96.24** 79.45 : 120.55	**99.25** 79.45 : 120.55
Beryllium	TM181	**98.91** 85.92 : 121.27	**100.31** 85.92 : 121.27
Boron	TM181	**105.34** 77.41 : 143.83	**109.92** 77.41 : 143.83
Cadmium	TM181	**95.8** 81.95 : 118.05	**95.63** 81.95 : 118.05
Chromium	TM181	**93.33** 81.29 : 118.71	**96.47** 81.29 : 118.71
Cobalt	TM181	**95.83** 83.86 : 116.14	**96.67** 83.86 : 116.14
Copper	TM181	**97.7** 78.57 : 121.43	**98.51** 78.57 : 121.43
Iron	TM181	**95.86** 87.50 : 122.82	**101.38** 87.50 : 122.82
Lead	TM181	**93.7** 74.18 : 117.25	**92.91** 74.18 : 117.25
Manganese	TM181	**100.0** 82.91 : 117.09	**100.0** 82.91 : 117.09
Mercury	TM181	**94.3** 81.99 : 118.01	**93.47** 81.99 : 118.01
Molybdenum	TM181	**92.2** 81.45 : 118.55	**92.36** 81.45 : 118.55
Nickel	TM181	**95.93** 79.64 : 120.36	**97.67** 79.64 : 120.36
Phosphorus	TM181	**97.76** 81.03 : 118.97	**97.32** 81.03 : 118.97
Selenium	TM181	**105.3** 87.05 : 121.93	**105.47** 87.05 : 121.93
Strontium	TM181	**98.08** 83.64 : 116.36	**98.47** 83.64 : 116.36
Thallium	TM181	**87.56** 77.50 : 122.50	**91.38** 77.50 : 122.50
Tin	TM181	**92.03** 78.30 : 113.98	**92.69** 78.30 : 113.98
Titanium	TM181	**103.91** 71.02 : 128.98	**103.13** 71.02 : 128.98

Metals in solid samples by OES

		QC 1206	QC 1292
Vanadium	TM181	**93.53** 86.61 : 113.39	**95.0** 86.61 : 113.39
Zinc	TM181	**97.73** 89.82 : 114.54	**98.05** 89.82 : 114.54

PAH by GCMS

Component	**Method Code**	QC 1134	QC 1154	QC 1106
Acenaphthene	TM218	**88.5** 78.41 : 114.87	**92.0** 77.34 : 118.20	**91.5** 78.84 : 114.36
Acenaphthylene	TM218	**80.5** 72.38 : 111.60	**86.5** 62.65 : 116.35	**85.5** 65.50 : 119.50
Anthracene	TM218	**89.5** 72.78 : 117.53	**89.5** 73.54 : 114.21	**91.0** 75.54 : 110.88
Benz(a)anthracene	TM218	**88.0** 79.50 : 130.50	**102.5** 74.99 : 132.24	**97.5** 78.02 : 127.38
Benzo(a)pyrene	TM218	**91.0** 79.50 : 130.50	**102.0** 80.75 : 127.25	**99.5** 79.21 : 128.01
Benzo(b)fluoranthene	TM218	**87.5** 78.10 : 127.57	**99.5** 75.84 : 127.12	**96.0** 86.21 : 131.42
Benzo(ghi)perylene	TM218	**95.0** 81.67 : 122.61	**97.0** 74.74 : 124.03	**95.0** 80.11 : 120.52
Benzo(k)fluoranthene	TM218	**97.0** 81.20 : 118.10	**98.0** 80.00 : 125.00	**97.0** 78.77 : 120.72
Chrysene	TM218	**94.5** 80.60 : 117.80	**98.0** 77.24 : 120.84	**94.5** 78.77 : 118.99
Dibenzo(ah)anthracene	TM218	**104.0** 77.93 : 124.42	**96.5** 76.00 : 122.50	**93.5** 76.39 : 122.63
Fluoranthene	TM218	**91.5** 80.39 : 114.39	**92.5** 78.51 : 118.75	**95.0** 77.25 : 117.75
Fluorene	TM218	**92.0** 79.50 : 118.50	**93.0** 76.95 : 117.18	**95.5** 79.28 : 117.35
Indeno(123cd)pyrene	TM218	**100.0** 80.30 : 128.30	**98.5** 75.34 : 127.46	**93.0** 78.87 : 122.50
Naphthalene	TM218	**97.5** 82.25 : 118.25	**95.0** 76.24 : 112.91	**93.0** 74.75 : 118.25
Phenanthrene	TM218	**95.5** 71.53 : 114.48	**93.5** 76.49 : 119.30	**95.0** 78.61 : 113.98
Pyrene	TM218	**91.5** 79.12 : 114.39	**91.0** 78.25 : 118.17	**94.0** 76.15 : 115.26

pH

Component	**Method Code**	QC 1218	QC 1227
pH	TM133	**100.25** 97.19 : 102.81	**100.5** 97.19 : 102.81

Total Organic Carbon

Total Organic Carbon

Component	Method Code	QC 1245	QC 1297
Total Organic Carbon	TM132	**98.17** 89.40 : 103.09	**97.72** 89.40 : 103.09

Total Sulphate

Component	Method Code	QC 1235	QC 1273	QC 1292
Total Sulphate	TM221	**102.27** 78.49 : 121.51	**103.79** 78.49 : 121.51	**99.24** 78.49 : 121.51

VOC MS (S)

Component	Method Code	QC 1172	QC 1128
1,1,1,2-tetrachloroethane	TM116	**101.0** 76.60 : 121.00	**95.6** 83.24 : 124.28
1,1,1-Trichloroethane	TM116	**96.2** 77.80 : 123.40	**100.8** 81.77 : 121.07
1,1,2-Trichloroethane	TM116	**90.6** 75.40 : 119.80	**100.4** 79.24 : 112.23
1,1-Dichloroethane	TM116	**99.8** 80.84 : 124.49	**103.0** 72.58 : 116.06
1,2-Dichloroethane	TM116	**104.8** 91.00 : 135.67	**118.8** 77.50 : 122.50
1,4-Dichlorobenzene	TM116	**105.6** 80.88 : 114.60	**96.2** 73.23 : 116.39
2-Chlorotoluene	TM116	**94.2** 74.00 : 117.20	**85.6** 69.22 : 110.64
4-Chlorotoluene	TM116	**90.2** 71.20 : 113.20	**89.0** 68.57 : 106.26
Benzene	TM116	**97.6** 79.60 : 125.20	**103.2** 84.33 : 124.27
Carbon Disulphide	TM116	**99.4** 74.91 : 122.14	**110.4** 77.20 : 122.80
Carbontetrachloride	TM116	**100.2** 76.80 : 121.20	**98.2** 84.20 : 119.90
Chlorobenzene	TM116	**102.0** 83.47 : 116.82	**102.4** 85.28 : 129.96
Chloroform	TM116	**98.4** 82.00 : 128.80	**108.2** 82.73 : 119.72
Chloromethane	TM116	**117.2** 74.62 : 135.86	**123.4** 55.16 : 145.46
Cis-1,2-Dichloroethene	TM116	**103.6** 81.20 : 128.00	**108.4** 73.56 : 118.93
Dibromomethane	TM116	**88.4** 73.40 : 116.60	**104.4** 73.40 : 116.60
Dichloromethane	TM116	**101.6** 86.60 : 137.00	**113.2** 76.16 : 121.98

VOC MS (S)

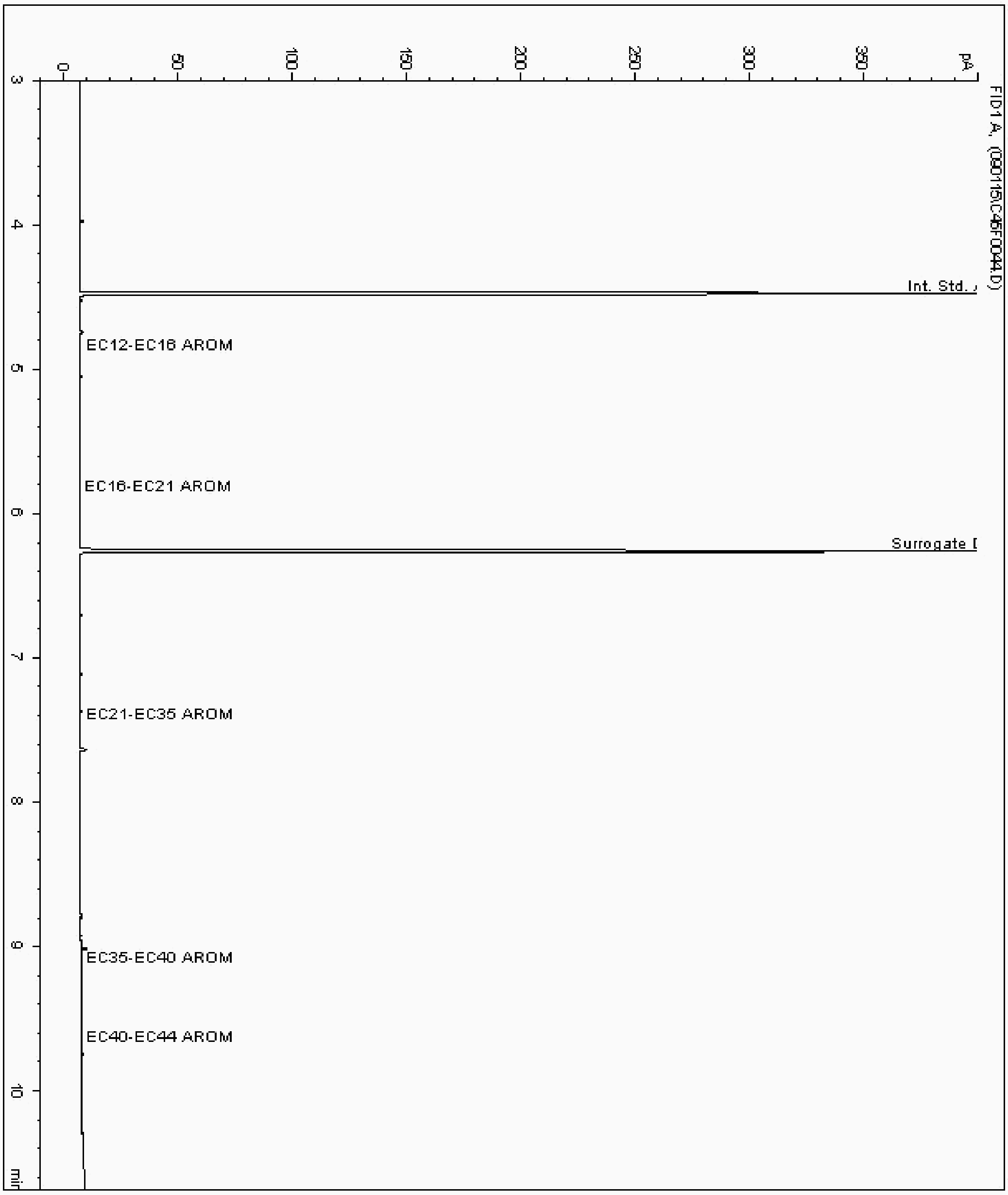
		QC 1172	QC 1128
Ethylbenzene	TM116	**96.6** 73.60 : 115.60	**94.0** 80.07 : 125.98
Hexachlorobutadiene	TM116	**114.0** 33.65 : 130.56	**69.0** 30.92 : 132.28
Isopropylbenzene	TM116	**92.0** 72.52 : 117.52	**82.6** 69.27 : 125.32
Naphthalene	TM116	**107.0** 83.23 : 126.48	**110.0** 79.15 : 121.98
o-Xylene	TM116	**92.4** 69.60 : 110.40	**77.6** 75.46 : 111.52
p/m-Xylene	TM116	**94.1** 71.30 : 112.70	**90.2** 76.97 : 121.75
Sec-Butylbenzene	TM116	**116.4** 59.20 : 125.20	**69.6** 49.27 : 129.90
Tetrachloroethene	TM116	**104.6** 85.92 : 127.92	**102.2** 87.96 : 133.65
Toluene	TM116	**90.2** 76.08 : 110.17	**99.0** 79.23 : 114.58
Trichloroethene	TM116	**96.4** 78.17 : 121.37	**94.6** 84.09 : 114.24
Trichlorofluoromethane	TM116	**102.2** 83.78 : 132.82	**107.4** 76.22 : 114.82
Vinyl Chloride	TM116	**94.6** 66.81 : 138.46	**98.2** 59.68 : 118.68

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S)
Sample No : 11980752
Sample ID : BH210
Depth : 2.20 - 2.80

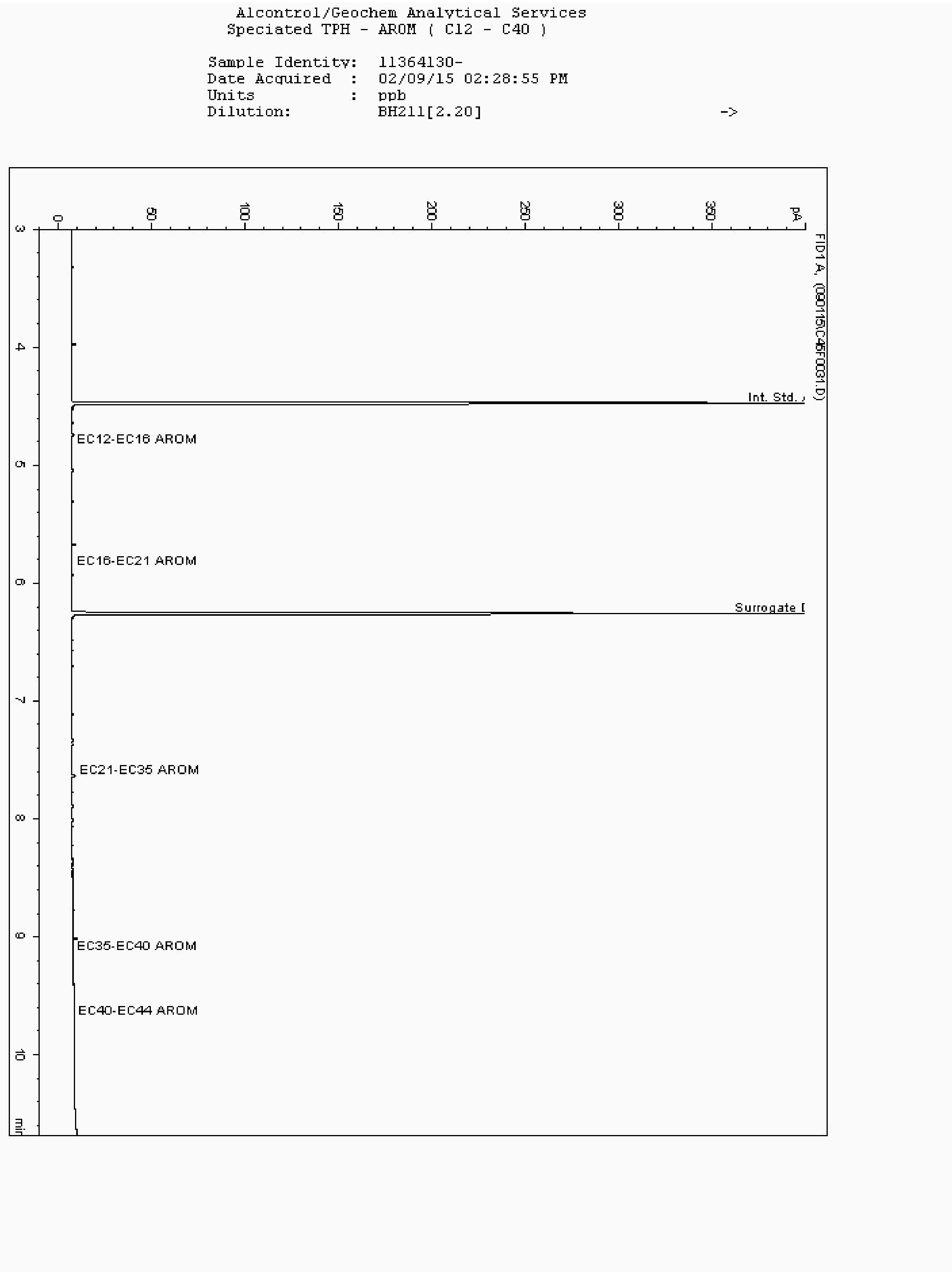
```
   Alcontrol/Geochem Analytical Services
 Speciated TPH - AROM ( C12 - C40 )

Sample Identity:  11364106-
Date Acquired   :  02/09/15 06:29:40 PM
Units           :  ppb
Dilution:          BH210[2.20 - 2.80]                ->
```



SDG:	150828-44	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329060
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	EPH CWG (Aliphatic) GC (S)	**Sample No :**	11980788	**Depth :**	2.20
		Sample ID :	BH211		



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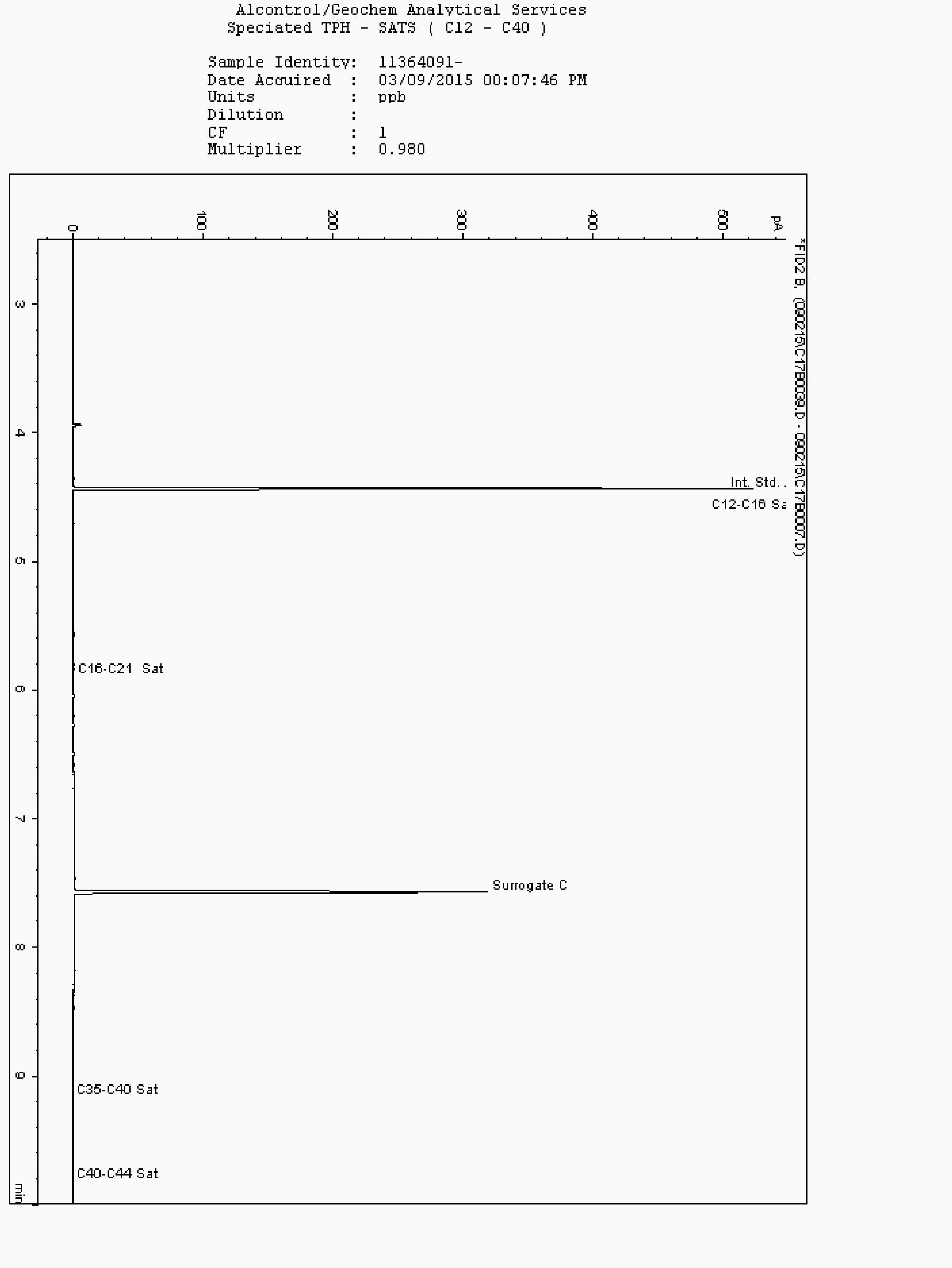
Alcontrol/Geochem Analytical Services
Speciated TPH - AROM ( C12 - C40 )

Sample Identity:  11364130-
Date Acquired  :  02/09/15 02:28:55 PM
Units          :  ppb
Dilution:         BH211[2.20]                      ->
```

SDG:	150828-44	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329060
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	EPH CWG (Aliphatic) GC (S)	**Sample No :**	11982958	**Depth :**	0.80
		Sample ID :	BH210		



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Alcontrol/Geochem Analytical Services
Speciated TPH - SATS ( C12 - C40 )

Sample Identity:  11364091-
Date Acquired  :  03/09/2015 00:07:46 PM
Units          :  ppb
Dilution       :
CF             :  1
Multiplier     :  0.980
```
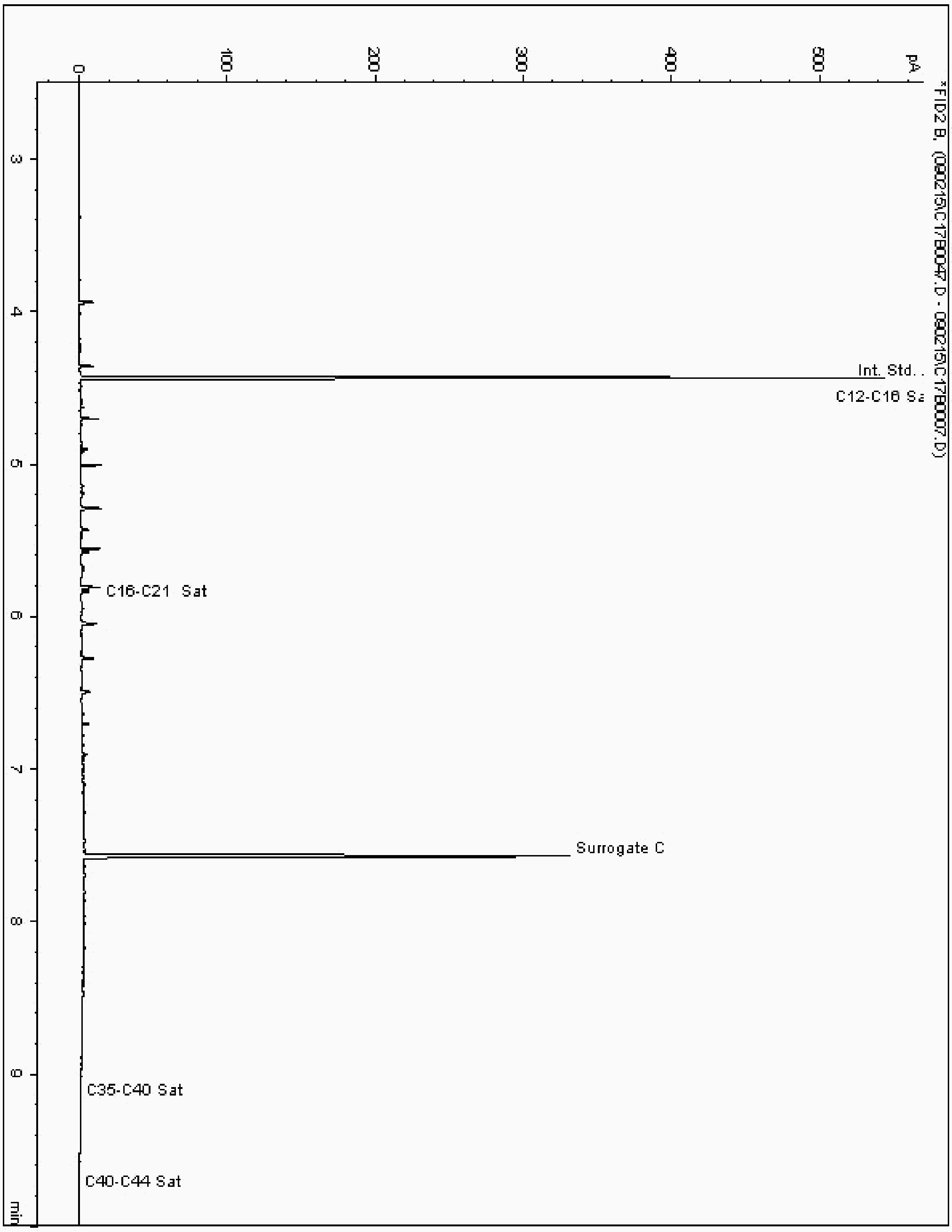

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S)
Sample No : 11983028
Sample ID : BH211
Depth : 0.70

```
Alcontrol/Geochem Analytical Services
Speciated TPH - SATS ( C12 - C40 )

Sample Identity:  11364117-
Date Acquired  :  03/09/2015 02:19:12 PM
Units          :  ppb
Dilution       :
CF             :  1
Multiplier     :  0.960
```



SDG: 150828-44
Job: H_URS_WIM-273
Client Reference:

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

Order Number:
Report Number: 329060
Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S)

Sample No : 11980752
Sample ID : BH210

Depth : 2.20 - 2.80

```
   Alcontrol/Geochem Analytical Services
 Speciated TPH - SATS ( C12 - C40 )

Sample Identity:  11364107-
Date Acquired  :  02/09/15 06:29:40 PM
Units          :  ppb
Dilution:         BH210[2.20 - 2.80]             ->
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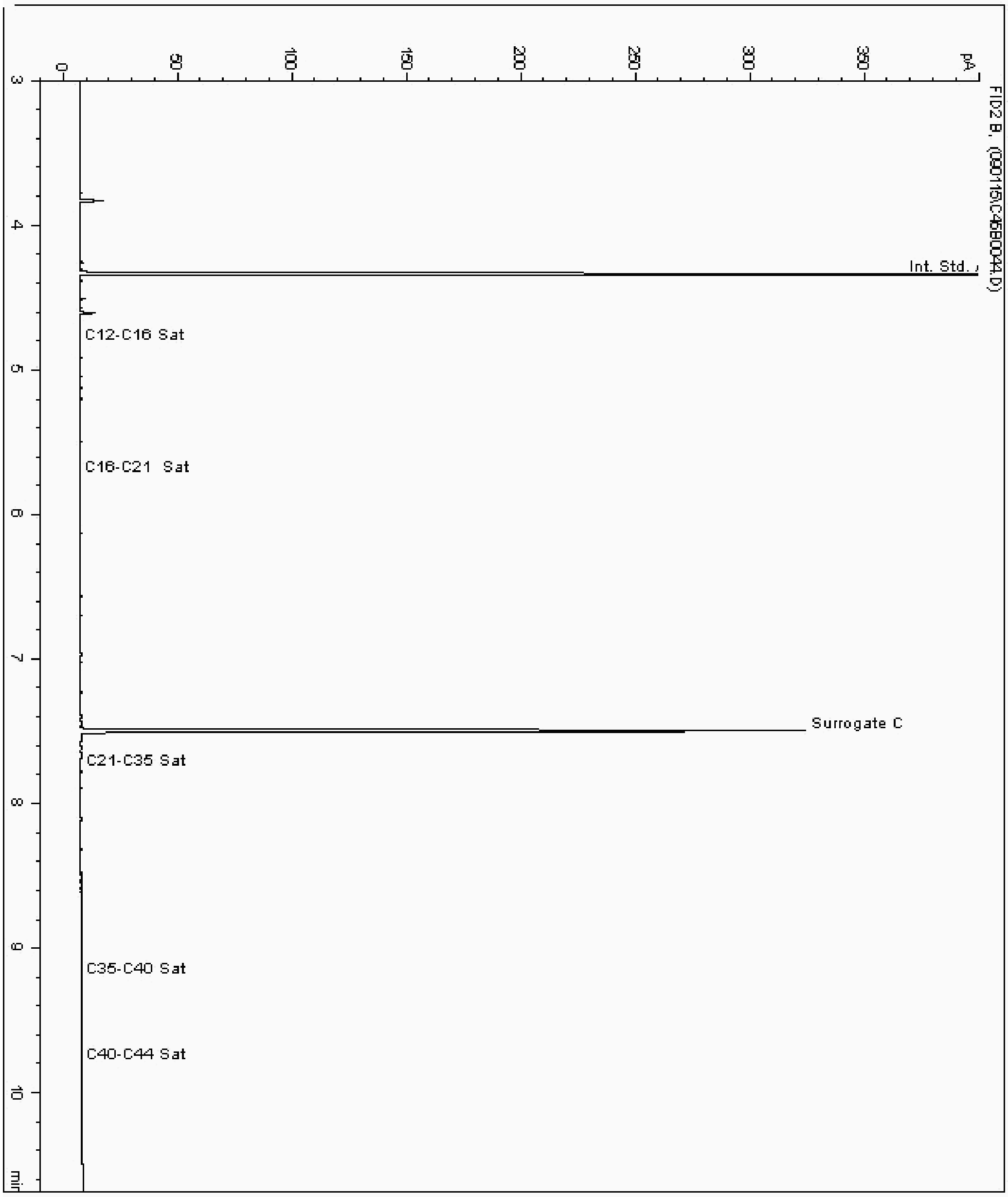


SDG: 150828-44
Job: H_URS_WIM-273
Client Reference:

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

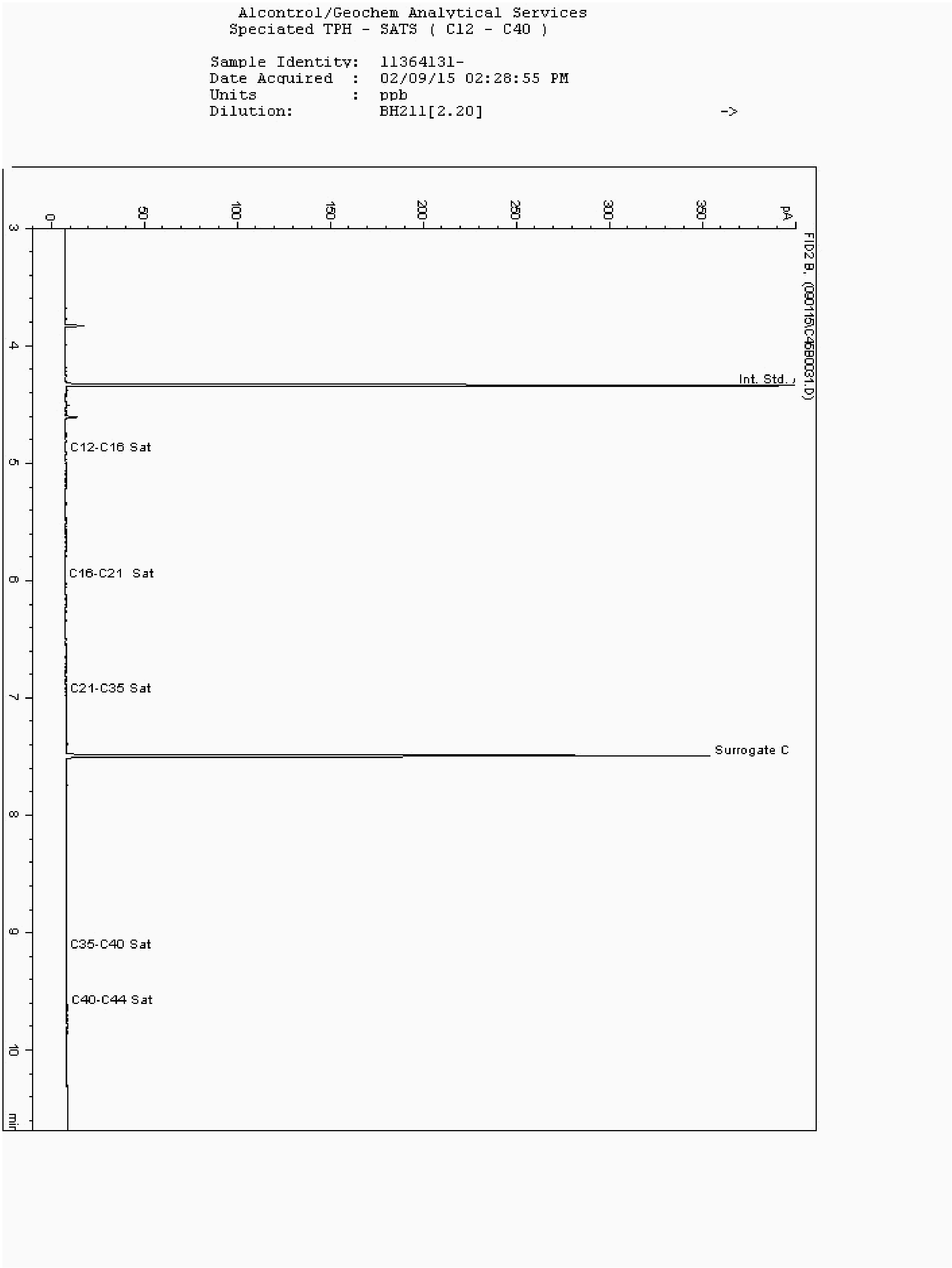
Order Number:
Report Number: 329060
Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S)

Sample No : 11980788
Sample ID : BH211

Depth : 2.20



```
Alcontrol/Geochem Analytical Services
Speciated TPH - SATS ( C12 - C40 )

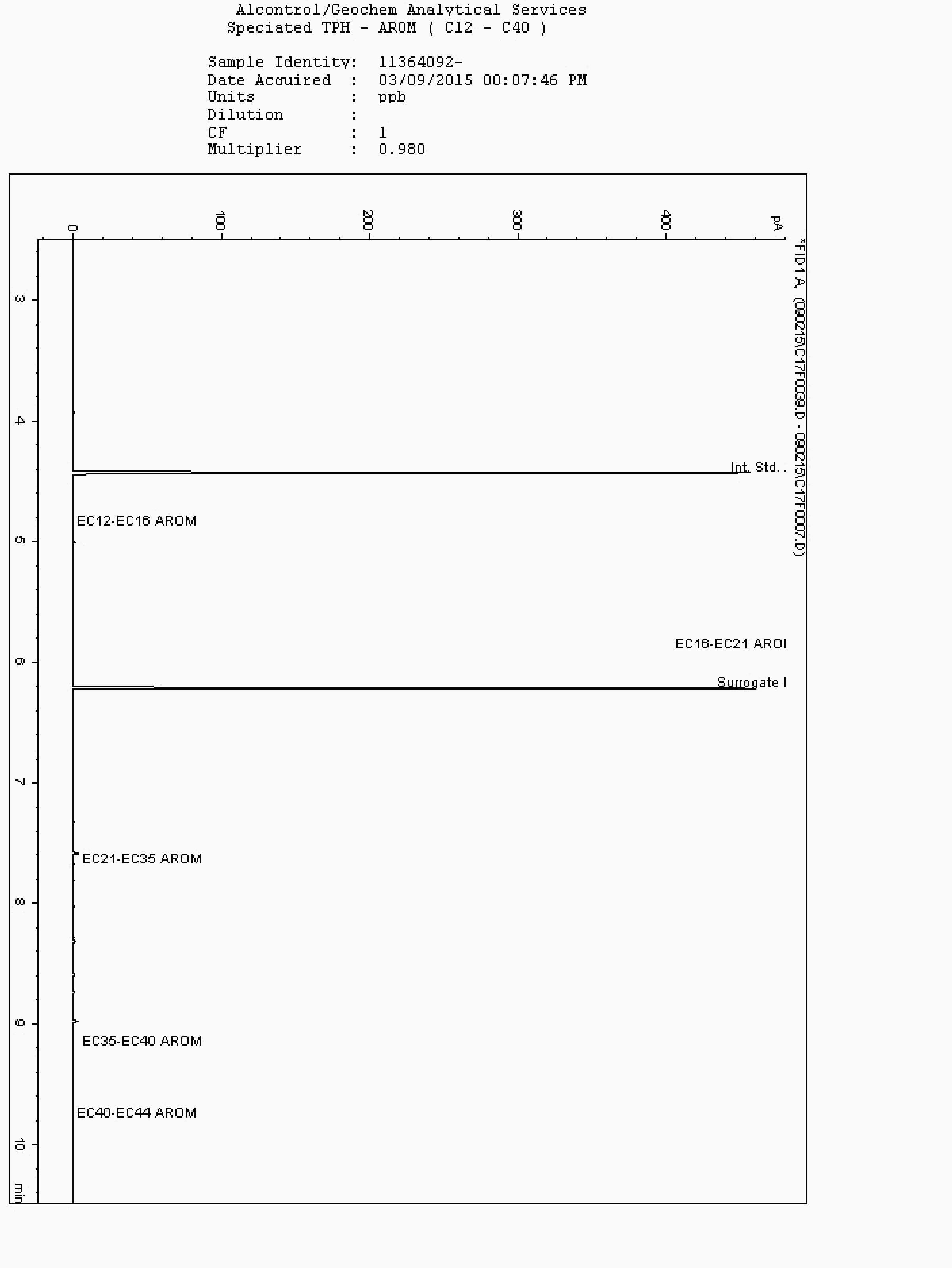
Sample Identity:  11364131-
Date Acquired  :  02/09/15 02:28:55 PM
Units          :  ppb
Dilution:         BH211[2.20]                    ->
```

PRELIMINARY/INTERIM REPORT

SDG: 150828-44
Job: H_URS_WIM-273
Client Reference:
Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall
Order Number:
Report Number: 329060
Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S)
Sample No : 11982958
Sample ID : BH210
Depth : 0.80



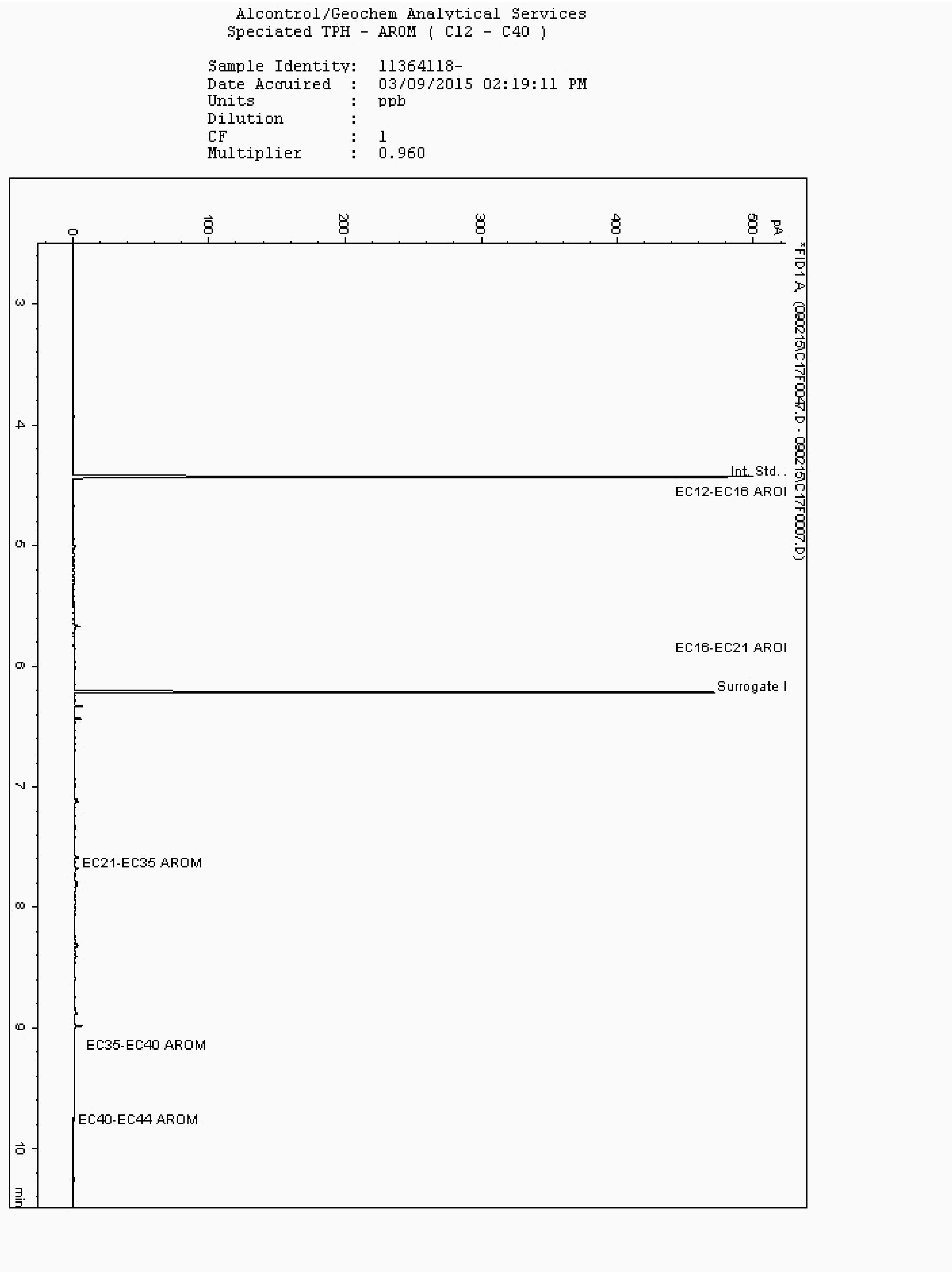
```
Alcontrol/Geochem Analytical Services
 Speciated TPH - AROM ( C12 - C40 )

Sample Identity:  11364092-
Date Acquired  :  03/09/2015 00:07:46 PM
Units          :  ppb
Dilution       :
CF             :  1
Multiplier     :  0.980
```

SDG:	150828-44	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329060
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	EPH CWG (Aromatic) GC (S)	**Sample No :**	11983028	**Depth :**	0.70
		Sample ID :	BH211		

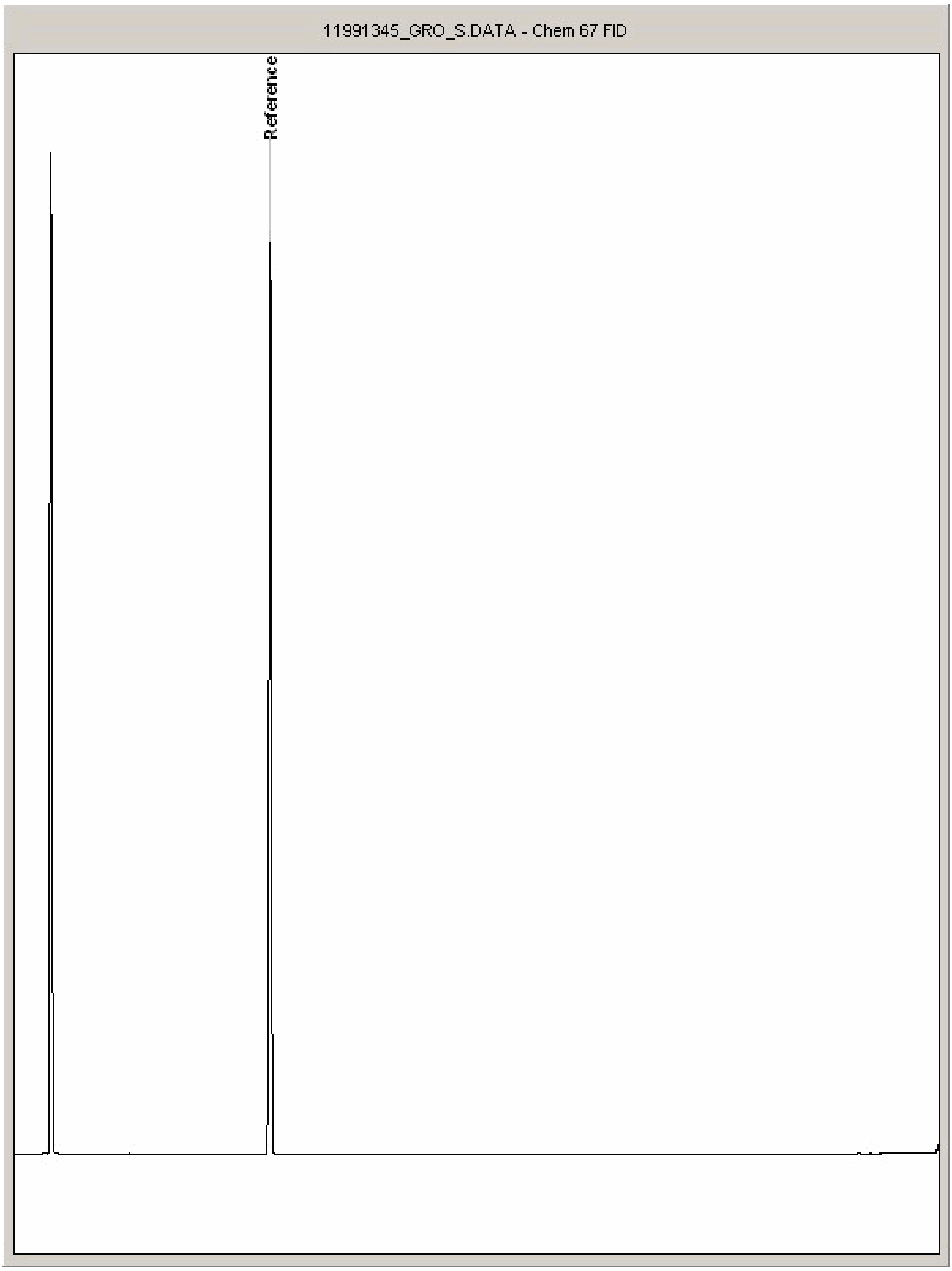


```
Alcontrol/Geochem Analytical Services
Speciated TPH - AROM ( C12 - C40 )

Sample Identity:  11364118-
Date Acquired  :  03/09/2015 02:19:11 PM
Units          :  ppb
Dilution       :
CF             :  1
Multiplier     :  0.960
```

Chromatogram

Analysis:	GRO by GC-FID (S)	**Sample No :**	11991345	**Depth :**	2.20 - 2.80
		Sample ID :	BH210		



PRELIMINARY/INTERIM REPORT

SDG: 150828-44
Job: H_URS_WIM-273
Client Reference:

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

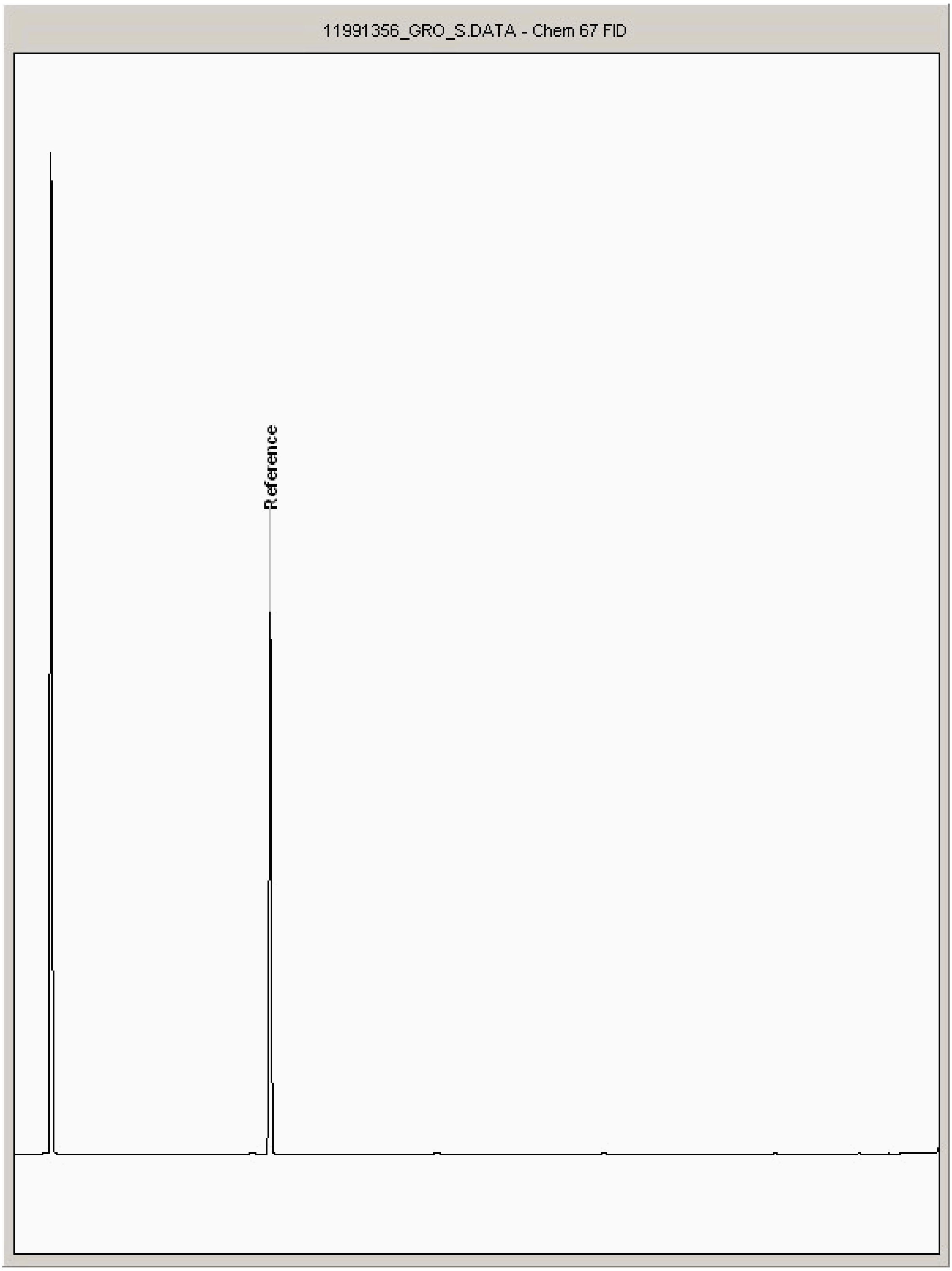
Order Number:
Report Number: 329060
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 11991356
Sample ID : BH211

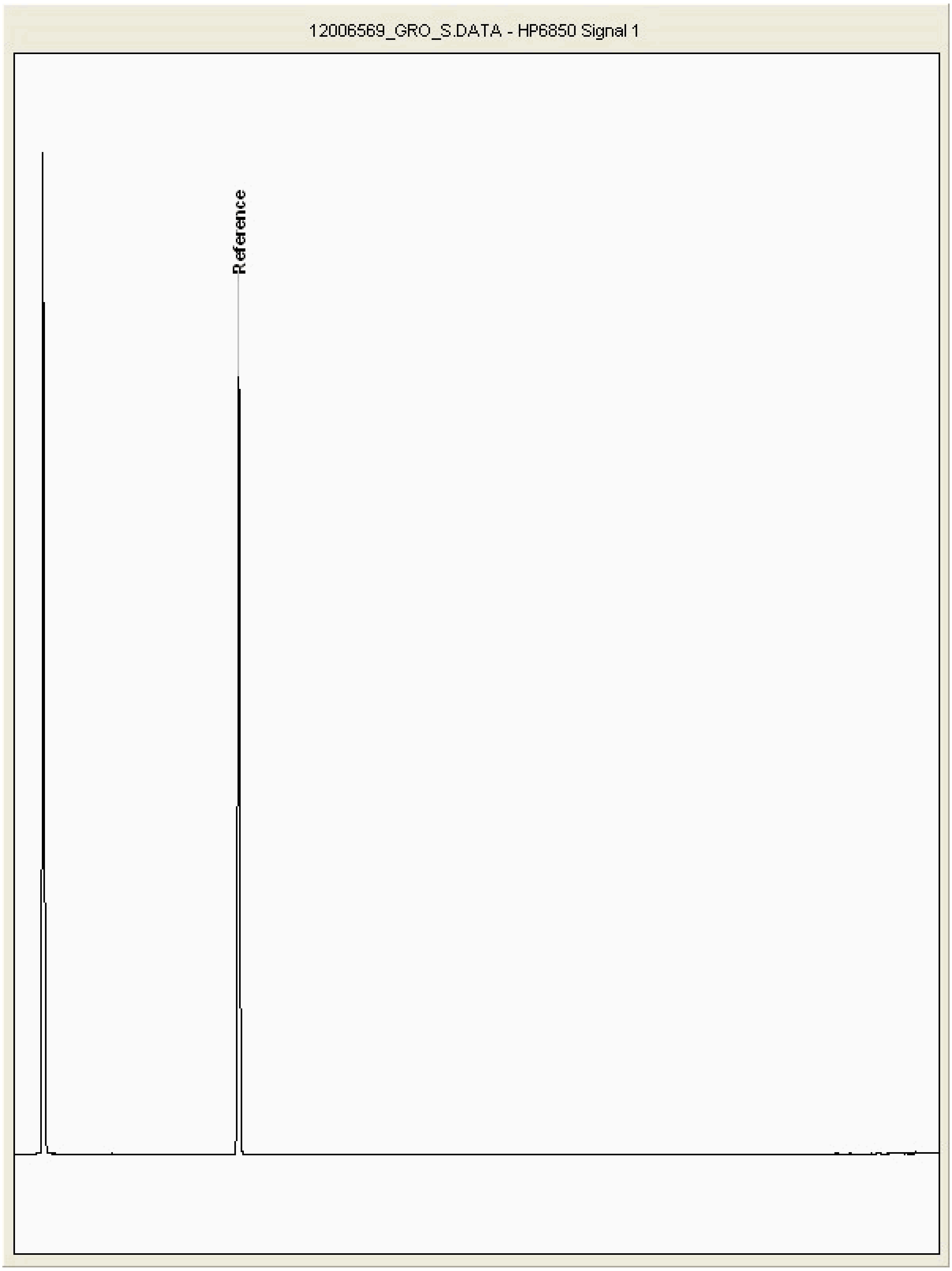
Depth : 2.20



SDG:	150828-44	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329060
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	GRO by GC-FID (S)	**Sample No :**	12006569	**Depth :**	0.80
		Sample ID :	BH210		

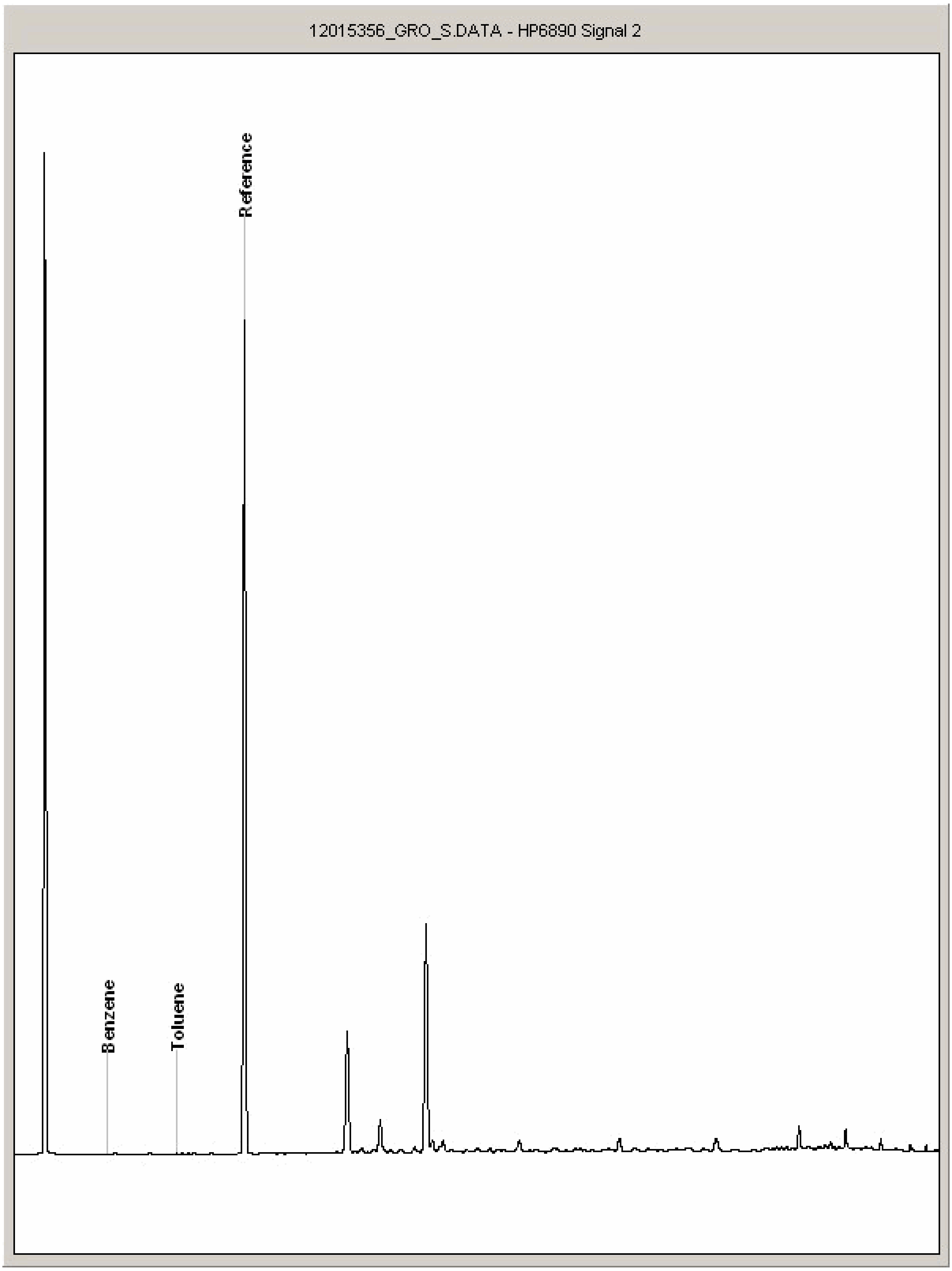


Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 12015356
Sample ID : BH211

Depth : 0.70



Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA Leach tests, flash point, ammonium as NH4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for both soil jars, tubs and volatile jars. All waters and vials will be discarded 10 days after the analysis is completed (e-mailed). All material removed during an asbestos containing material screen and analysed for the presence of asbestos will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be screened in house for the presence of large asbestos containing material fragments/pieces. If no asbestos containing material is found this will be reported as 'no asbestos containing material detected'. If asbestos containing material is detected it will be removed and analysed by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If asbestos containing material is present no further analysis will be undertaken. At no point is the fibre content of the soil sample determined.

7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample -similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule or recorded on the log sheet.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.

12. Results relate only to the items tested

13. **Surrogate recoveries** -Most of our organic methods include surrogates, the recovery of which is monitored and reported. For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 -130 %.

14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors
employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 14).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not
accredited.

19. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

20. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

23. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials -whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute themajor part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

24. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C4 -C10 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENT EXTRACTABLE MATTER	D&C	DCM	SOXTHERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
THIN LAYER CHROMATOGRAPHY	D&C	DCM	SOXTHERM	IATROSCAN
ELEMENTAL SULPHUR	D&C	DCM	SOXTHERM	HPLC
PHENOLS BY GCMS	WET	DCM	SOXTHERM	GC-MS
HERBICIDES	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
PESTICIDES	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
EPH (DRO)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (MIN OIL)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (CLEANED UP)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH CWG BY GC	D&C	HEXANE:ACETONE	END OVER END	GC-FID
PCB TOT / PCB CON	D&C	HEXANE:ACETONE	END OVER END	GC-MS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANE:ACETONE	MICROWAVE TM218.	GC-MS
C8-C40 (C6-C40) EZ FLASH	WET	HEXANE:ACETONE	SHAKER	GC-EZ
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANE:ACETONE	SHAKER	GC-EZ
SEMI VOLATILE ORGANIC COMPOUNDS	WET	DCM:ACETONE	SONICATE	GC-MS

LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAH MS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
EPH	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
PCB 7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
PCB TOTAL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
SVOC	DCM	LIQUID/LIQUID SHAKE	GCMS
FREE SULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PEST OCP/OPP	DCM	LIQUID/LIQUID SHAKE	GCMS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GCMS
PHENOLS MS	DCM	SOLID PHASE EXTRACTION	GCMS
TPH by INFRARED (IR)	TCE	LIQUID/LIQUID SHAKE	HPLC
MINERAL OIL by IR	TCE	LIQUID/LIQUID SHAKE	HPLC
GLYCOLS	NONE	DIRECT INJECTION	GCMS

Identification of Asbestos in Bulk Materials

The results for asbestos identification for soil samples are obtained from possible Asbestos Containing Material, removed during the 'Screening of soils for Asbestos Containing Materials', which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: -
Trace -Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in MDHS 100.

The identification of asbestos containing materials falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Last Updated : 2010/09/08

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICS and SVOC TICS.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. Results relate only to the items tested.

12. LODs for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

Sample Deviations

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
5	**Samples exceeded holding time before presevation was performed**
§	**Sampled on date not provided**
•	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

ALcontrol Laboratories

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AECOM
St. George's House
2nd Floor
5 St. George's Road
Wimbledon
Greater London
SW19 4DR

Attention: Gary Marshall

CERTIFICATE OF ANALYSIS

Date:	09 September 2015
Customer:	H_URS_WIM
Sample Delivery Group (SDG):	150828-48
Your Reference:	
Location:	Stag Brewery
Report No:	329008

We received 4 samples on Friday August 28, 2015 and 4 of these samples were scheduled for analysis which was completed on Wednesday September 09, 2015. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Approved By:

Sonia McWhan
Operations Manager

mCERTS
THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

ilac-MRA

UKAS
TESTING
1291

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
11977832	BH212		0.60	27/08/2015
11977833	BH212		1.80 - 2.50	27/08/2015
11977835	BH213		0.60	27/08/2015
11977837	BH213		1.70 - 2.00	27/08/2015

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 150828-48
Job: H_URS_WIM-273
Client Reference:

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

Order Number:
Report Number: 329008
Superseded Report:

SOLID

Results Legend

X **Test**

N **No Determination Possible**

Lab Sample No(s)			11977832			11977833			11977835			11977837		
Customer Sample Reference			BH212			BH212			BH213			BH213		
AGS Reference														
Depth (m)			0.60			1.80 - 2.50			0.60			1.70 - 2.00		
Container			250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)
Ammonium Soil by Titration	All	NDPs: 0 Tests: 4		X			X			X			X	
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 2		X						X				
Easily Liberated Sulphide	All	NDPs: 0 Tests: 4		X			X			X			X	
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 4	X			X			X			X		
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 4	X			X			X			X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 4			X			X			X			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 4		X			X			X			X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 4	X			X			X			X		
PAH by GCMS	All	NDPs: 0 Tests: 4	X			X			X			X		
pH	All	NDPs: 0 Tests: 4		X			X			X			X	
Sample description	All	NDPs: 0 Tests: 4	X			X			X			X		
Total Organic Carbon	All	NDPs: 0 Tests: 4	X			X			X			X		
Total Sulphate	All	NDPs: 0 Tests: 4	X			X			X			X		
TPH CWG GC (S)	All	NDPs: 0 Tests: 4	X			X			X			X		
VOC MS (S)	All	NDPs: 0 Tests: 4			X			X			X			X

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Grain size	Inclusions	Inclusions 2
11977832	BH212	0.60	Dark Brown	Sandy Loam	0.1 - 2 mm	Stones	None
11977833	BH212	1.80 - 2.50	Light Brown	Sand	0.1 - 2 mm	Stones	None
11977835	BH213	0.60	Dark Brown	Sandy Clay Loam	0.1 - 2 mm	Stones	Tile/Insulation Board
11977837	BH213	1.70 - 2.00	Light Brown	Sand	0.1 - 2 mm	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG:	150828-48	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329008
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

Customer Sample R	BH212	BH212	BH213	BH213		
Depth (m)	0.60	1.80 - 2.50	0.60	1.70 - 2.00		
Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
Date Sampled	27/08/2015	27/08/2015	27/08/2015	27/08/2015		
Sampled Time	00:00:00	00:00:00	00:00:00	00:00:00		
Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
SDG Ref	150828-48	150828-48	150828-48	150828-48		
Lab Sample No.(s)	11977832	11977833	11977835	11977837		
AGS Reference						

Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	7	5.7	17	6.5		
Exchangeable Ammonia as NH4	<15 mg/kg	TM024	18.2 M	<15 M	<15 M	<15 M		
Organic Carbon, Total	<0.2 %	TM132	<0.2 M	<0.2 M	2.07 M	<0.2 M		
pH	1 pH Units	TM133	8.95 M	7.72 M	8.04 M	7.84 M		
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6 #	<0.6 #	<0.6 #	<0.6 #		
Sulphide, Easily liberated	<15 mg/kg	TM180	<15 ♦ #	<15 ♦ #	<15 ♦ #	<15 ♦ #		
Arsenic	<0.6 mg/kg	TM181	19.2 M	18.8 M	19.1 M	19.1 M		
Cadmium	<0.02 mg/kg	TM181	1.44 M	0.393 M	0.547 M	0.389 M		
Chromium	<0.9 mg/kg	TM181	6.94 M	16.9 M	17.1 M	20.2 M		
Copper	<1.4 mg/kg	TM181	13.9 M	4.3 M	29.6 M	6.42 M		
Lead	<0.7 mg/kg	TM181	271 M	5.92 M	2910 M	6.91 M		
Mercury	<0.14 mg/kg	TM181	<0.14 M	<0.14 M	<0.14 M	<0.14 M		
Nickel	<0.2 mg/kg	TM181	6.81 M	19.2 M	14.7 M	22 M		
Selenium	<1 mg/kg	TM181	<1 #	<1 #	<1 #	<1 #		
Zinc	<1.9 mg/kg	TM181	276 M	23.4 M	906 M	26.2 M		
Sulphate, Total	<48 mg/kg	TM221	1090 M	49.6 M	7440 M	80.7 M		

CERTIFICATE OF ANALYSIS

SDG: 150828-48
Job: H_URS_WIM-273
Client Reference:

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

Order Number:
Report Number: 329008
Superseded Report:

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Customer Sample R	BH212	BH212	BH213	BH213		
		Depth (m)	0.60	1.80 - 2.50	0.60	1.70 - 2.00		
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
		Date Sampled	27/08/2015	27/08/2015	27/08/2015	27/08/2015		
		Sampled Time	00:00:00	00:00:00	00:00:00	00:00:00		
		Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
		SDG Ref	150828-48	150828-48	150828-48	150828-48		
		Lab Sample No.(s)	11977832	11977833	11977835	11977837		
		AGS Reference						
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	97.6	94.5	98.6	96.2		
Acenaphthene-d10 % recovery**	%	TM218	94.2	90.6	95	92.2		
Phenanthrene-d10 % recovery**	%	TM218	91.1	87.3	91.2	89.6		
Chrysene-d12 % recovery**	%	TM218	91.4	77.2	90.4	79		
Perylene-d12 % recovery**	%	TM218	97.3	78.4	95.7	80.7		
Naphthalene	<9 µg/kg	TM218	<9 M	<9 M	27.4 M	<9 M		
Acenaphthylene	<12 µg/kg	TM218	20.5 M	<12 M	27.8 M	<12 M		
Acenaphthene	<8 µg/kg	TM218	<8 M	<8 M	15.9 M	<8 M		
Fluorene	<10 µg/kg	TM218	<10 M	<10 M	12.1 M	<10 M		
Phenanthrene	<15 µg/kg	TM218	218 M	<15 M	329 M	<15 M		
Anthracene	<16 µg/kg	TM218	85.9 M	<16 M	71.8 M	<16 M		
Fluoranthene	<17 µg/kg	TM218	1270 M	<17 M	820 M	<17 M		
Pyrene	<15 µg/kg	TM218	975 M	<15 M	729 M	<15 M		
Benz(a)anthracene	<14 µg/kg	TM218	927 M	<14 M	449 M	<14 M		
Chrysene	<10 µg/kg	TM218	908 M	<10 M	414 M	<10 M		
Benzo(b)fluoranthene	<15 µg/kg	TM218	1460 M	<15 M	588 M	<15 M		
Benzo(k)fluoranthene	<14 µg/kg	TM218	503 M	<14 M	255 M	<14 M		
Benzo(a)pyrene	<15 µg/kg	TM218	1050 M	<15 M	485 M	<15 M		
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	668 M	<18 M	270 M	<18 M		
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	195 M	<23 M	73.2 M	<23 M		
Benzo(g,h,i)perylene	<24 µg/kg	TM218	755 M	<24 M	358 M	<24 M		
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	9030	<118	4920	<118		

CERTIFICATE OF ANALYSIS

SDG:	150828-48	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329008
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Customer Sample R	BH212	BH212	BH213	BH213		
		Depth (m)	0.60	1.80 - 2.50	0.60	1.70 - 2.00		
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
		Date Sampled	27/08/2015	27/08/2015	27/08/2015	27/08/2015		
		Sampled Time	00:00:00	00:00:00	00:00:00	00:00:00		
		Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
		SDG Ref	150828-48	150828-48	150828-48	150828-48		
		Lab Sample No.(s)	11977832	11977833	11977835	11977837		
		AGS Reference						
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	114	127	76	110		
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	<44 M	<44 M	<44 M	<44 M		
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 M	<5 M	<5 M	<5 M		
Benzene	<10 µg/kg	TM089	<10 M	<10 M	<10 M	<10 M		
Toluene	<2 µg/kg	TM089	<2 M	<2 M	<2 M	<2 M		
Ethylbenzene	<3 µg/kg	TM089	<3 M	<3 M	<3 M	<3 M		
m,p-Xylene	<6 µg/kg	TM089	<6 M	<6 M	<6 M	<6 M		
o-Xylene	<3 µg/kg	TM089	<3 M	<3 M	<3 M	<3 M		
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9	<9	<9	<9		
sum of detected BTEX by GC	<24 µg/kg	TM089	<24	<24	<24	<24		
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	<10	<10	<10		
Aliphatics >C6-C8	<10 µg/kg	TM089	<10	<10	<10	<10		
Aliphatics >C8-C10	<10 µg/kg	TM089	<10	<10	<10	<10		
Aliphatics >C10-C12	<10 µg/kg	TM089	<10	<10	<10	<10		
Aliphatics >C12-C16	<100 µg/kg	TM173	<100	<100	<100	<100		
Aliphatics >C16-C21	<100 µg/kg	TM173	<100	<100	<100	<100		
Aliphatics >C21-C35	<100 µg/kg	TM173	<100	<100	6060	<100		
Aliphatics >C35-C44	<100 µg/kg	TM173	<100	<100	<100	<100		
Total Aliphatics >C12-C44	<100 µg/kg	TM173	<100	<100	6060	<100		
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10	<10	<10		
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	<10	<10	<10		
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10	<10	<10	<10		
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10	<10	<10	<10		
Aromatics >EC12-EC16	<100 µg/kg	TM173	<100	<100	2150	<100		
Aromatics >EC16-EC21	<100 µg/kg	TM173	496	<100	10600	<100		
Aromatics >EC21-EC35	<100 µg/kg	TM173	4600	<100	31100	<100		
Aromatics >EC35-EC44	<100 µg/kg	TM173	<100	<100	10900	<100		
Aromatics >EC40-EC44	<100 µg/kg	TM173	<100	<100	3970	<100		
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	5100	<100	54800	<100		
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	5100	<100	60900	<100		

CERTIFICATE OF ANALYSIS

SDG: 150828-48
Job: H_URS_WIM-273
Client Reference:

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

Order Number:
Report Number: 329008
Superseded Report:

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Customer Sample R	BH212	BH212	BH213	BH213		
		Depth (m)	0.60	1.80 - 2.50	0.60	1.70 - 2.00		
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
		Date Sampled	27/08/2015	27/08/2015	27/08/2015	27/08/2015		
		Sampled Time	00:00:00	00:00:00	00:00:00	00:00:00		
		Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
		SDG Ref	150828-48	150828-48	150828-48	150828-48		
		Lab Sample No.(s)	11977832	11977833	11977835	11977837		
		AGS Reference						
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	114	124	121	116		
Toluene-d8**	%	TM116	102	111	108	110		
4-Bromofluorobenzene**	%	TM116	94.1	105	85.4	104		
Dichlorodifluoromethane	<6 µg/kg	TM116	<6 M	<6 M	<6 M	<6 M		
Chloromethane	<7 µg/kg	TM116	<7 #	<7 #	<7 #	<7 #		
Vinyl Chloride	<6 µg/kg	TM116	<6 M	<6 M	<6 M	<6 M		
Bromomethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
Chloroethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
Trichlorofluorormethane	<6 µg/kg	TM116	<6 M	<6 M	<6 M	<6 M		
1,1-Dichloroethene	<10 µg/kg	TM116	<10 #	<10 #	<10 #	<10 #		
Carbon Disulphide	<7 µg/kg	TM116	<7 M	<7 M	<7 M	<7 M		
Dichloromethane	<10 µg/kg	TM116	<10 #	<10 #	<10 #	<10 #		
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
trans-1,2-Dichloroethene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
1,1-Dichloroethane	<8 µg/kg	TM116	<8 M	<8 M	<8 M	<8 M		
cis-1,2-Dichloroethene	<6 µg/kg	TM116	<6 M	<6 M	<6 M	<6 M		
2,2-Dichloropropane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
Bromochloromethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
Chloroform	<8 µg/kg	TM116	<8 M	<8 M	<8 M	<8 M		
1,1,1-Trichloroethane	<7 µg/kg	TM116	<7 M	<7 M	<7 M	<7 M		
1,1-Dichloropropene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
Carbontetrachloride	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
1,2-Dichloroethane	<5 µg/kg	TM116	<5 M	<5 M	<5 M	<5 M		
Benzene	<9 µg/kg	TM116	<9 M	<9 M	<9 M	<9 M		
Trichloroethene	<9 µg/kg	TM116	<9 #	<9 #	<9 #	<9 #		
1,2-Dichloropropane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
Dibromomethane	<9 µg/kg	TM116	<9 M	<9 M	<9 M	<9 M		
Bromodichloromethane	<7 µg/kg	TM116	<7 M	<7 M	<7 M	<7 M		
cis-1,3-Dichloropropene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
Toluene	<7 µg/kg	TM116	<7 M	<7 M	<7 M	<7 M		
trans-1,3-Dichloropropene	<10 µg/kg	TM116	<10	<10	<10	<10		
1,1,2-Trichloroethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		

Validated

CERTIFICATE OF ANALYSIS

SDG:	150828-48	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329008
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Customer Sample R	BH212	BH212	BH213	BH213		
		Depth (m)	0.60	1.80 - 2.50	0.60	1.70 - 2.00		
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
		Date Sampled	27/08/2015	27/08/2015	27/08/2015	27/08/2015		
		Sampled Time	00:00:00	00:00:00	00:00:00	00:00:00		
		Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
		SDG Ref	150828-48	150828-48	150828-48	150828-48		
		Lab Sample No.(s)	11977832	11977833	11977835	11977837		
		AGS Reference						
Component	**LOD/Units**	**Method**						
1,3-Dichloropropane	<7 µg/kg	TM116	<7 M	<7 M	<7 M	<7 M		
Tetrachloroethene	<5 µg/kg	TM116	<5 M	<5 M	<5 M	<5 M		
Dibromochloromethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
1,2-Dibromoethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
Chlorobenzene	<5 µg/kg	TM116	<5 M	<5 M	<5 M	<5 M		
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
Ethylbenzene	<4 µg/kg	TM116	<4 M	<4 M	<4 M	<4 M		
p/m-Xylene	<10 µg/kg	TM116	<10 #	<10 #	<10 #	<10 #		
o-Xylene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
Styrene	<10 µg/kg	TM116	<10 #	<10 #	<10 #	<10 #		
Bromoform	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
Isopropylbenzene	<5 µg/kg	TM116	<5 #	<5 #	<5 #	<5 #		
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
1,2,3-Trichloropropane	<16 µg/kg	TM116	<16 M	<16 M	<16 M	<16 M		
Bromobenzene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
Propylbenzene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
2-Chlorotoluene	<9 µg/kg	TM116	<9 M	<9 M	<9 M	<9 M		
1,3,5-Trimethylbenzene	<8 µg/kg	TM116	<8 M	<8 M	<8 M	<8 M		
4-Chlorotoluene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
tert-Butylbenzene	<14 µg/kg	TM116	<14 M	<14 M	<14 M	<14 M		
1,2,4-Trimethylbenzene	<9 µg/kg	TM116	<9 #	<9 #	<9 #	<9 #		
sec-Butylbenzene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
4-Isopropyltoluene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
1,3-Dichlorobenzene	<8 µg/kg	TM116	<8 M	<8 M	<8 M	<8 M		
1,4-Dichlorobenzene	<5 µg/kg	TM116	<5 M	<5 M	<5 M	<5 M		
n-Butylbenzene	<11 µg/kg	TM116	<11	<11	<11	<11		
1,2-Dichlorobenzene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M		
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116	<14 M	<14 M	<14 M	<14 M		
Tert-amyl methyl ether	<10 µg/kg	TM116	<10 #	<10 #	<10 #	<10 #		
1,2,4-Trichlorobenzene	<20 µg/kg	TM116	<20	<20	<20	<20		
Hexachlorobutadiene	<20 µg/kg	TM116	<20	<20	<20	<20		
Naphthalene	<13 µg/kg	TM116	<13 M	<13 M	<13 M	<13 M		

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Customer Sample R	BH212	BH212	BH213	BH213		
		Depth (m)	0.60	1.80 - 2.50	0.60	1.70 - 2.00		
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
		Date Sampled	27/08/2015	27/08/2015	27/08/2015	27/08/2015		
		Sampled Time	00:00:00	00:00:00	00:00:00	00:00:00		
		Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
		SDG Ref	150828-48	150828-48	150828-48	150828-48		
		Lab Sample No.(s)	11977832	11977833	11977835	11977837		
		AGS Reference						
Component	**LOD/Units**	**Method**						
1,2,3-Trichlorobenzene	<20 μg/kg	TM116	<20 #	<20 #	<20 #	<20 #		

Asbestos Identification - Soil

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH212 0.60 SOLID 27/08/2015 00:00:00 29/08/2015 13:54:20 150828-48 11977832 TM048	03/09/2015	Rebecca Rawlings	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH213 0.60 SOLID 27/08/2015 00:00:00 29/08/2015 13:59:40 150828-48 11977835 TM048	03/09/2015	Rebecca Rawlings	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

SDG:	150828-48	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329008
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
ASB_PREP				
PM001		Preparation of Samples for Metals Analysis		
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material		
TM024	Method 4500A & B, AWWA/APHA, 20th Ed., 1999	Determination of Exchangeable Ammonium and Ammoniacal Nitrogen as N by titration on solids		
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material		
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)		
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS		
TM132	In - house Method	ELTRA CS800 Operators Guide		
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter		
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser		
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID		
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique		
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES		
TM218	Microwave extraction – EPA method 3546	Microwave extraction - EPA method 3546		
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid extractable Sulphate in Soils by IRIS Emission Spectrometer		

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

Test Completion Dates

Lab Sample No(s)	11977832	11977833	11977835	11977837
Customer Sample Ref.	BH212	BH212	BH213	BH213
AGS Ref.				
Depth	0.60	1.80 - 2.50	0.60	1.70 - 2.00
Type	SOLID	SOLID	SOLID	SOLID
Ammonium Soil by Titration	08-Sep-2015	08-Sep-2015	09-Sep-2015	08-Sep-2015
Asbestos ID in Solid Samples	03-Sep-2015		03-Sep-2015	
Easily Liberated Sulphide	08-Sep-2015	07-Sep-2015	08-Sep-2015	08-Sep-2015
EPH CWG (Aliphatic) GC (S)	04-Sep-2015	03-Sep-2015	04-Sep-2015	03-Sep-2015
EPH CWG (Aromatic) GC (S)	04-Sep-2015	03-Sep-2015	04-Sep-2015	03-Sep-2015
GRO by GC-FID (S)	04-Sep-2015	02-Sep-2015	02-Sep-2015	02-Sep-2015
Hexavalent Chromium (s)	07-Sep-2015	07-Sep-2015	07-Sep-2015	07-Sep-2015
Metals in solid samples by OES	04-Sep-2015	04-Sep-2015	04-Sep-2015	04-Sep-2015
PAH by GCMS	03-Sep-2015	03-Sep-2015	03-Sep-2015	03-Sep-2015
pH	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015
Sample description	29-Aug-2015	28-Aug-2015	29-Aug-2015	28-Aug-2015
Total Organic Carbon	07-Sep-2015	03-Sep-2015	07-Sep-2015	03-Sep-2015
Total Sulphate	04-Sep-2015	07-Sep-2015	04-Sep-2015	07-Sep-2015
TPH CWG GC (S)	04-Sep-2015	03-Sep-2015	04-Sep-2015	03-Sep-2015
VOC MS (S)	02-Sep-2015	02-Sep-2015	02-Sep-2015	02-Sep-2015

ASSOCIATED AQC DATA

Ammonium Soil by Titration

Component	Method Code	QC 1292	QC 1205
Exchangeable Ammonium as NH4	TM024	**86.07** 79.30 : 104.61	**98.01** 79.30 : 104.61

Easily Liberated Sulphide

Component	Method Code	QC 1262	QC 1219
Easily Liberated Sulphide	TM180	**88.38** 49.14 : 123.89	**93.21** 49.14 : 123.89

EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 1165	QC 1197
Total Aliphatics >C12-C35	TM173	**97.92** 69.19 : 111.75	**92.08** 71.67 : 116.67

EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 1197
Total Aromatics >EC12-EC35	TM173	**85.33** 59.92 : 107.95

GRO by GC-FID (S)

Component	Method Code	QC 1100	QC 1232
Benzene by GC (Moisture Corrected)	TM089	**110.0** 82.67 : 117.96	**104.0** 76.33 : 121.87
Ethylbenzene by GC (Moisture Corrected)	TM089	**110.5** 80.45 : 118.61	**105.5** 75.73 : 123.83
m & p Xylene by GC (Moisture Corrected)	TM089	**110.0** 79.25 : 119.43	**104.5** 75.52 : 120.32
MTBE GC-FID (Moisture Corrected)	TM089	**114.5** 79.10 : 122.51	**101.5** 77.89 : 119.70
o Xylene by GC (Moisture Corrected)	TM089	**111.5** 80.03 : 117.19	**100.0** 74.15 : 124.59
QC	TM089	**102.79** 75.74 : 124.65	**101.18** 62.31 : 122.61
Toluene by GC (Moisture Corrected)	TM089	**110.5** 82.06 : 117.54	**101.0** 77.91 : 122.33

Hexavalent Chromium (s)

Component	**Method Code**	QC 1299	QC 1285
Hexavalent Chromium	TM151	**100.0** 92.20 : 106.60	**102.0** 92.20 : 106.60

Metals in solid samples by OES

Component	**Method Code**	QC 1235	QC 1206
Aluminium	TM181	**98.46** 86.49 : 129.71	**99.23** 86.49 : 129.71
Antimony	TM181	**97.13** 77.50 : 122.50	**94.27** 77.50 : 122.50
Arsenic	TM181	**92.92** 82.63 : 117.37	**92.92** 82.63 : 117.37
Barium	TM181	**95.49** 79.45 : 120.55	**96.24** 79.45 : 120.55
Beryllium	TM181	**100.47** 85.92 : 121.27	**98.91** 85.92 : 121.27
Boron	TM181	**99.24** 77.41 : 143.83	**105.34** 77.41 : 143.83
Cadmium	TM181	**96.47** 81.95 : 118.05	**95.8** 81.95 : 118.05
Chromium	TM181	**93.73** 81.29 : 118.71	**93.33** 81.29 : 118.71
Cobalt	TM181	**96.5** 83.86 : 116.14	**95.83** 83.86 : 116.14
Copper	TM181	**99.46** 78.57 : 121.43	**97.7** 78.57 : 121.43
Iron	TM181	**97.24** 87.50 : 122.82	**95.86** 87.50 : 122.82
Lead	TM181	**94.09** 74.18 : 117.25	**93.7** 74.18 : 117.25
Manganese	TM181	**100.0** 82.91 : 117.09	**100.0** 82.91 : 117.09
Mercury	TM181	**92.46** 81.99 : 118.01	**94.3** 81.99 : 118.01
Molybdenum	TM181	**93.79** 81.45 : 118.55	**92.2** 81.45 : 118.55
Nickel	TM181	**95.93** 79.64 : 120.36	**95.93** 79.64 : 120.36
Phosphorus	TM181	**98.21** 81.03 : 118.97	**97.76** 81.03 : 118.97
Selenium	TM181	**108.21** 87.05 : 121.93	**105.3** 87.05 : 121.93
Strontium	TM181	**96.55** 83.64 : 116.36	**98.08** 83.64 : 116.36
Thallium	TM181	**88.72** 77.50 : 122.50	**87.56** 77.50 : 122.50
Tin	TM181	**92.69** 78.30 : 113.98	**92.03** 78.30 : 113.98
Titanium	TM181	**97.66** 71.02 : 128.98	**103.91** 71.02 : 128.98

Metals in solid samples by OES

		QC 1235	QC 1206
Vanadium	TM181	**93.53** 86.61 : 113.39	**93.53** 86.61 : 113.39
Zinc	TM181	**98.05** 89.82 : 114.54	**97.73** 89.82 : 114.54

PAH by GCMS

Component	**Method Code**	QC 1154	QC 1196
Acenaphthene	TM218	**92.0** 77.34 : 118.20	**89.5** 78.75 : 116.25
Acenaphthylene	TM218	**86.5** 62.65 : 116.35	**85.5** 76.45 : 110.05
Anthracene	TM218	**89.5** 73.54 : 114.21	**89.0** 67.15 : 124.45
Benz(a)anthracene	TM218	**102.5** 74.99 : 132.24	**97.5** 82.00 : 127.00
Benzo(a)pyrene	TM218	**102.0** 80.75 : 127.25	**99.5** 75.60 : 124.20
Benzo(b)fluoranthene	TM218	**99.5** 75.84 : 127.12	**99.0** 81.20 : 121.77
Benzo(ghi)perylene	TM218	**97.0** 74.74 : 124.03	**96.0** 77.49 : 119.12
Benzo(k)fluoranthene	TM218	**98.0** 80.00 : 125.00	**96.5** 83.50 : 116.50
Chrysene	TM218	**98.0** 77.24 : 120.84	**95.5** 78.35 : 114.42
Dibenzo(ah)anthracene	TM218	**96.5** 76.00 : 122.50	**95.0** 77.15 : 122.45
Fluoranthene	TM218	**92.5** 78.51 : 118.75	**92.5** 79.08 : 114.40
Fluorene	TM218	**93.0** 76.95 : 117.18	**91.5** 79.03 : 113.38
Indeno(123cd)pyrene	TM218	**98.5** 75.34 : 127.46	**96.5** 75.65 : 125.15
Naphthalene	TM218	**95.0** 76.24 : 112.91	**92.5** 77.25 : 112.60
Phenanthrene	TM218	**93.5** 76.49 : 119.30	**92.0** 78.25 : 115.44
Pyrene	TM218	**91.0** 78.25 : 118.17	**91.0** 78.07 : 114.06

pH

Component	**Method Code**	QC 1218	QC 1227
pH	TM133	**100.25** 97.19 : 102.81	**100.5** 97.19 : 102.81

Total Organic Carbon

Total Organic Carbon

Component	Method Code	QC 1254	QC 1297
Total Organic Carbon	TM132	**100.46** 88.82 : 111.18	**97.72** 89.40 : 103.09

Total Sulphate

Component	Method Code	QC 1235	QC 1273
Total Sulphate	TM221	**102.27** 78.49 : 121.51	**103.79** 78.49 : 121.51

VOC MS (S)

Component	Method Code	QC 1172	QC 1128
1,1,1,2-tetrachloroethane	TM116	**101.0** 76.60 : 121.00	**95.6** 83.24 : 124.28
1,1,1-Trichloroethane	TM116	**96.2** 77.80 : 123.40	**100.8** 81.77 : 121.07
1,1,2-Trichloroethane	TM116	**90.6** 75.40 : 119.80	**100.4** 79.24 : 112.23
1,1-Dichloroethane	TM116	**99.8** 80.84 : 124.49	**103.0** 72.58 : 116.06
1,2-Dichloroethane	TM116	**104.8** 91.00 : 135.67	**118.8** 77.50 : 122.50
1,4-Dichlorobenzene	TM116	**105.6** 80.88 : 114.60	**96.2** 73.23 : 116.39
2-Chlorotoluene	TM116	**94.2** 74.00 : 117.20	**85.6** 69.22 : 110.64
4-Chlorotoluene	TM116	**90.2** 71.20 : 113.20	**89.0** 68.57 : 106.26
Benzene	TM116	**97.6** 79.60 : 125.20	**103.2** 84.33 : 124.27
Carbon Disulphide	TM116	**99.4** 74.91 : 122.14	**110.4** 77.20 : 122.80
Carbontetrachloride	TM116	**100.2** 76.80 : 121.20	**98.2** 84.20 : 119.90
Chlorobenzene	TM116	**102.0** 83.47 : 116.82	**102.4** 85.28 : 129.96
Chloroform	TM116	**98.4** 82.00 : 128.80	**108.2** 82.73 : 119.72
Chloromethane	TM116	**117.2** 74.62 : 135.86	**123.4** 55.16 : 145.46
Cis-1,2-Dichloroethene	TM116	**103.6** 81.20 : 128.00	**108.4** 73.56 : 118.93
Dibromomethane	TM116	**88.4** 73.40 : 116.60	**104.4** 73.40 : 116.60
Dichloromethane	TM116	**101.6** 86.60 : 137.00	**113.2** 76.16 : 121.98

VOC MS (S)

		QC 1172	QC 1128
Ethylbenzene	TM116	**96.6** 73.60 : 115.60	**94.0** 80.07 : 125.98
Hexachlorobutadiene	TM116	**114.0** 33.65 : 130.56	**69.0** 30.92 : 132.28
Isopropylbenzene	TM116	**92.0** 72.52 : 117.52	**82.6** 69.27 : 125.32
Naphthalene	TM116	**107.0** 83.23 : 126.48	**110.0** 79.15 : 121.98
o-Xylene	TM116	**92.4** 69.60 : 110.40	**77.6** 75.46 : 111.52
p/m-Xylene	TM116	**94.1** 71.30 : 112.70	**90.2** 76.97 : 121.75
Sec-Butylbenzene	TM116	**116.4** 59.20 : 125.20	**69.6** 49.27 : 129.90
Tetrachloroethene	TM116	**104.6** 85.92 : 127.92	**102.2** 87.96 : 133.65
Toluene	TM116	**90.2** 76.08 : 110.17	**99.0** 79.23 : 114.58
Trichloroethene	TM116	**96.4** 78.17 : 121.37	**94.6** 84.09 : 114.24
Trichlorofluoromethane	TM116	**102.2** 83.78 : 132.82	**107.4** 76.22 : 114.82
Vinyl Chloride	TM116	**94.6** 66.81 : 138.46	**98.2** 59.68 : 118.68

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

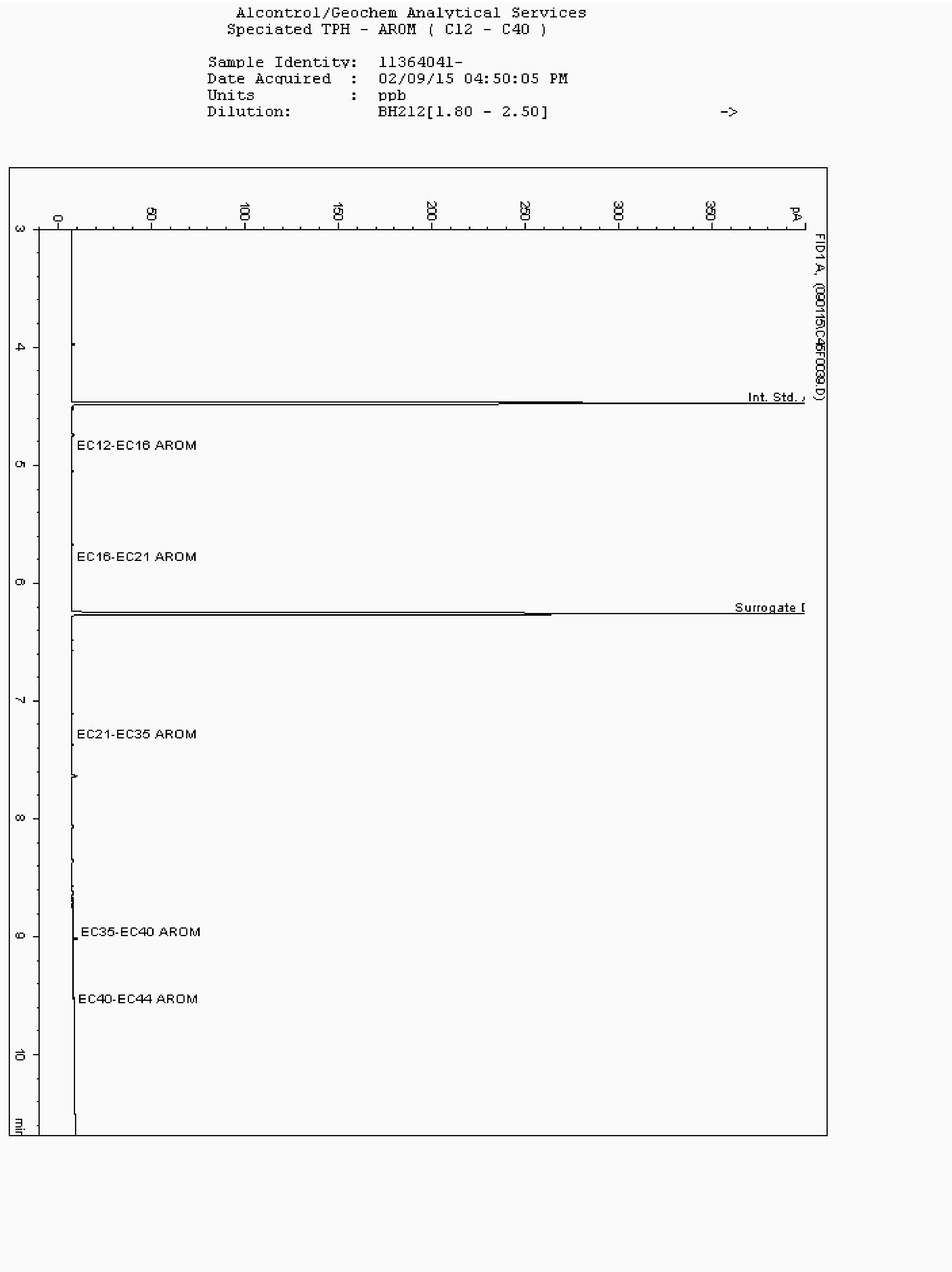
Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 11980853

Sample ID : BH212

Depth : 1.80 - 2.50

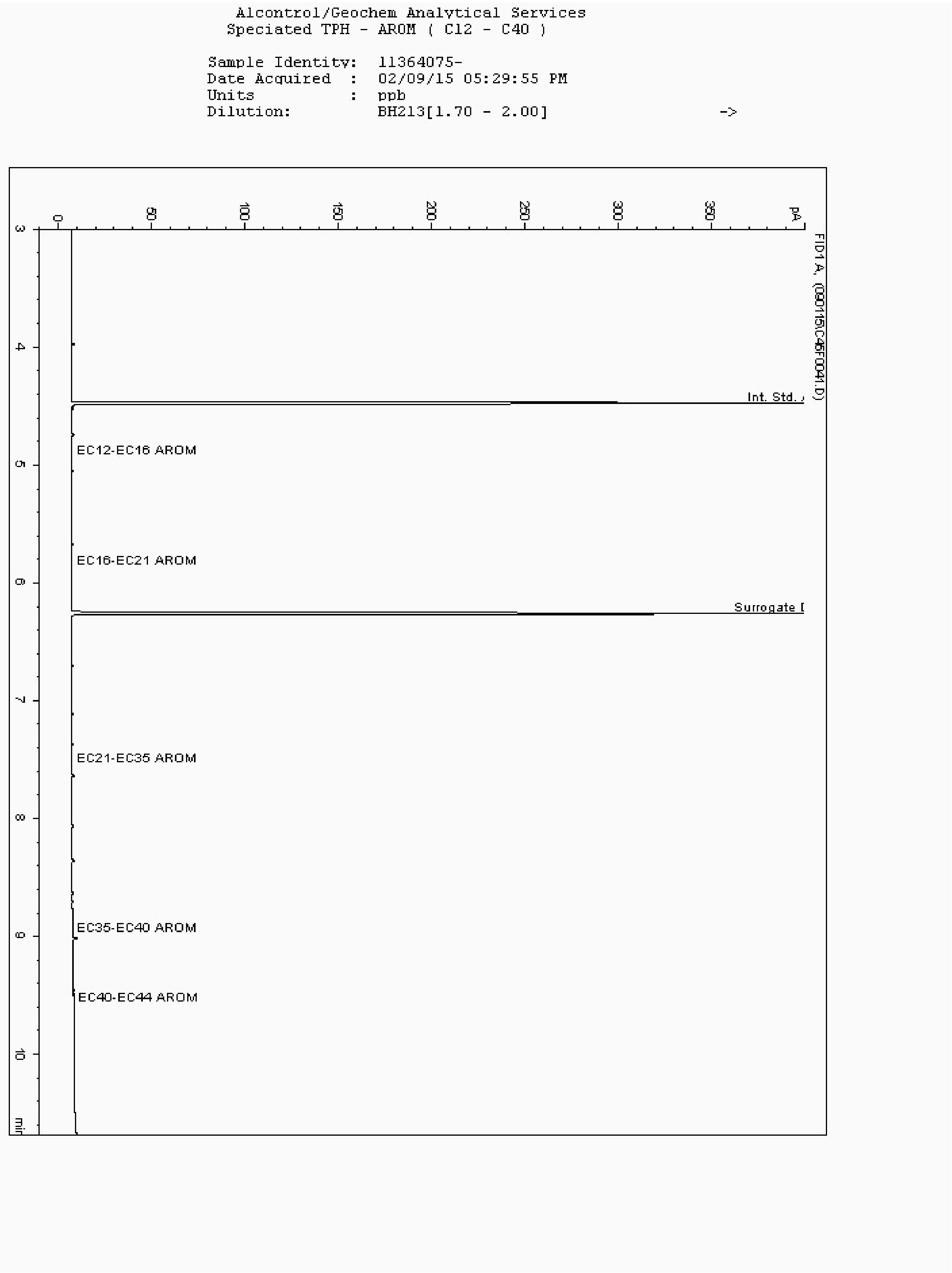


```
Alcontrol/Geochem Analytical Services
 Speciated TPH - AROM ( C12 - C40 )

Sample Identity:  11364041-
Date Acquired  :  02/09/15 04:50:05 PM
Units          :  ppb
Dilution:         BH212[1.80 - 2.50]               ->
```

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S)
Sample No : 11980893
Sample ID : BH213
Depth : 1.70 - 2.00



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Alcontrol/Geochem Analytical Services
Speciated TPH - AROM ( C12 - C40 )

Sample Identity:  11364075-
Date Acquired  :  02/09/15 05:29:55 PM
Units          :  ppb
Dilution:         BH213[1.70 - 2.00]              ->
```

ALcontrol Laboratories

Validated

CERTIFICATE OF ANALYSIS

SDG: 150828-48
Job: H_URS_WIM-273
Client Reference:

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

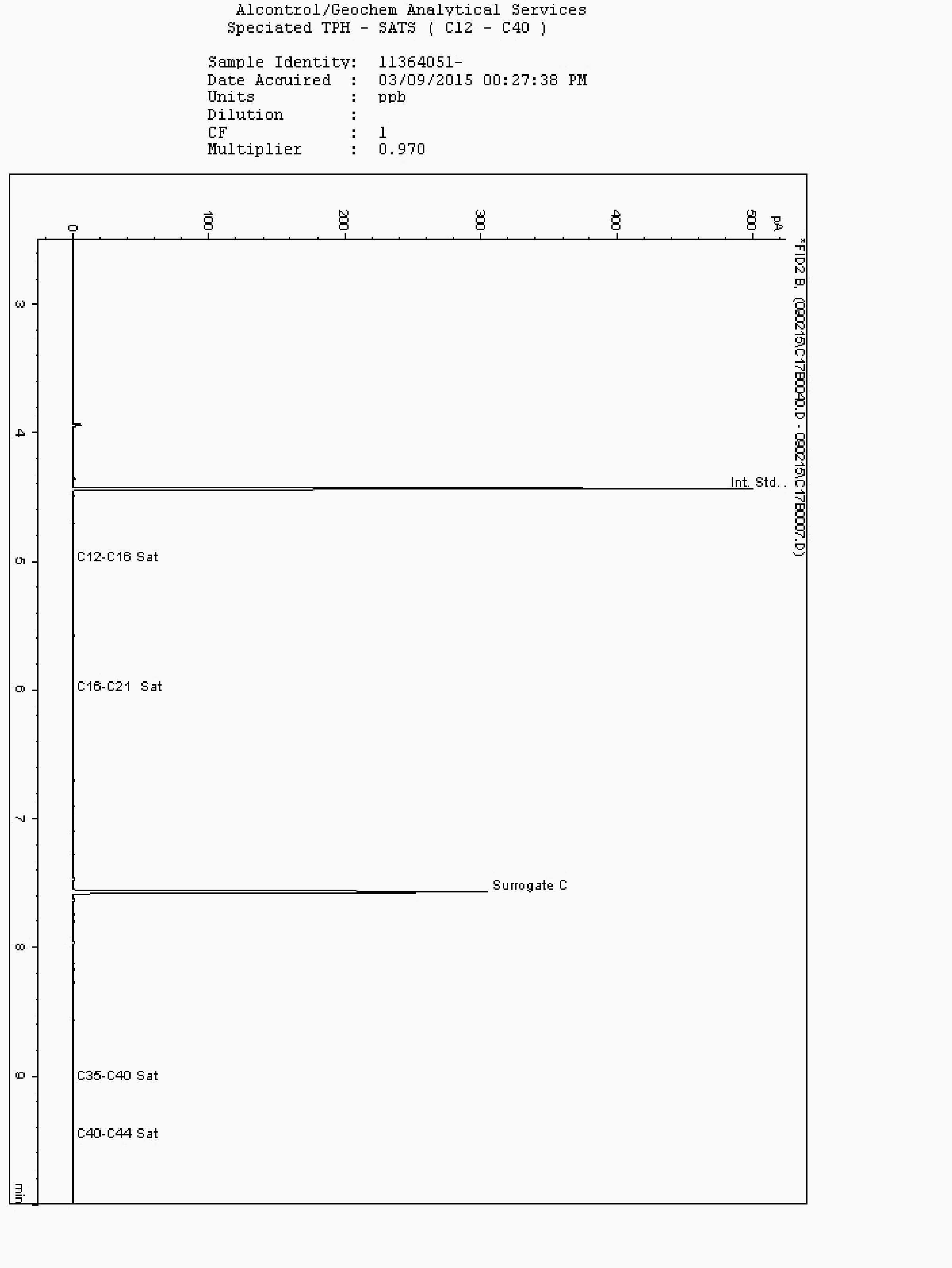
Order Number:
Report Number: 329008
Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 11984526
Sample ID : BH213

Depth : 0.60



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Alcontrol/Geochem Analytical Services
Speciated TPH - SATS ( C12 - C40 )

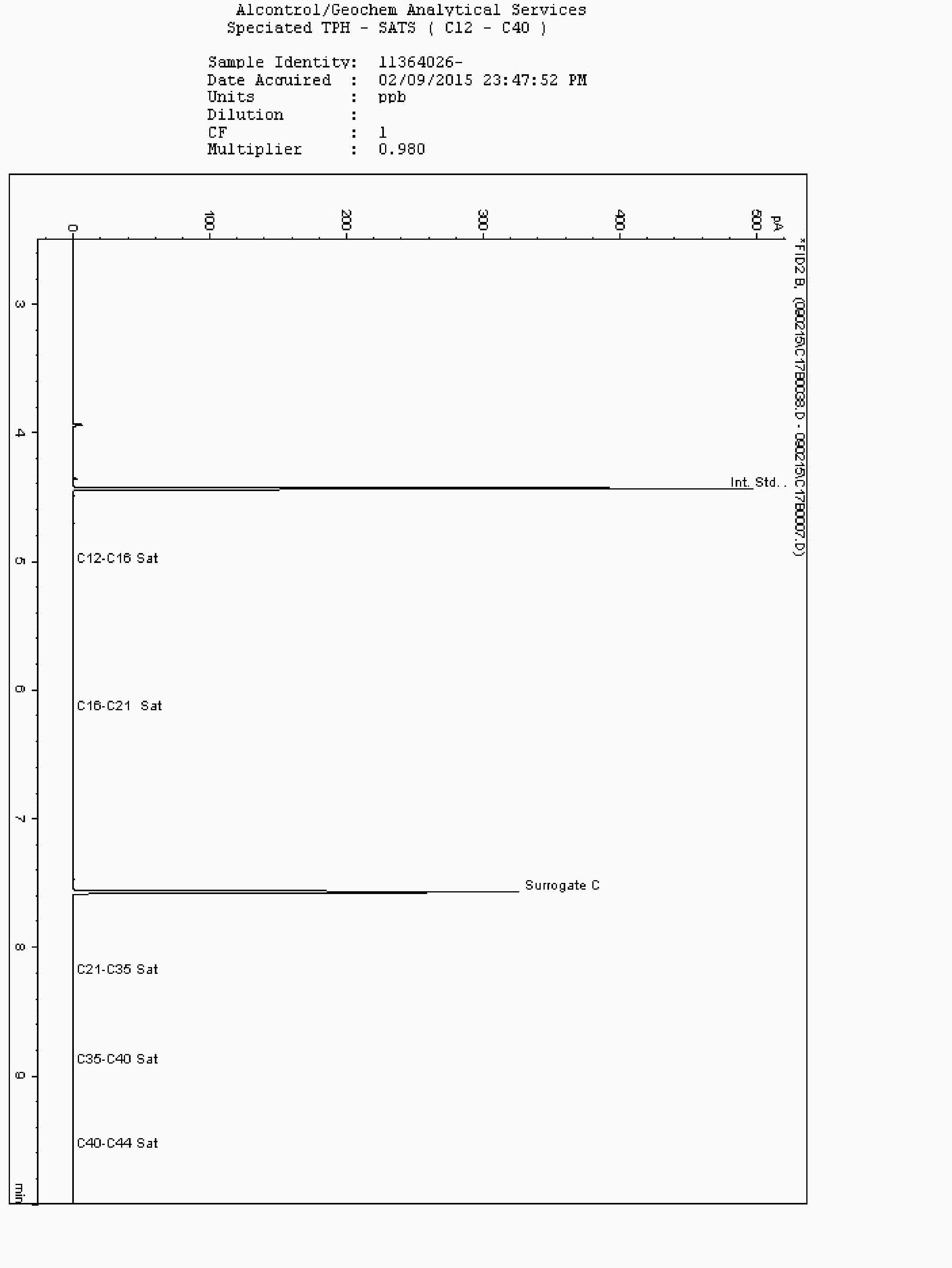
Sample Identity:  11364051-
Date Acquired  :  03/09/2015 00:27:38 PM
Units          :  ppb
Dilution       :
CF             :  1
Multiplier     :  0.970
```

CERTIFICATE OF ANALYSIS

SDG:	150828-48	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329008
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	EPH CWG (Aliphatic) GC (S)	**Sample No :**	11984654	**Depth :**	0.60
		Sample ID :	BH212		



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Alcontrol/Geochem Analytical Services
Speciated TPH - SATS ( C12 - C40 )

Sample Identity:  11364026-
Date Acquired  :  02/09/2015 23:47:52 PM
Units          :  ppb
Dilution       :
CF             :  1
Multiplier     :  0.980
```

Chromatogram

Analysis:	EPH CWG (Aromatic) GC (S)	**Sample No :**	11980853	**Depth :**	1.80 - 2.50
		Sample ID :	BH212		

```
Alcontrol/Geochem Analytical Services
Speciated TPH - SATS ( C12 - C40 )

Sample Identity:  11364042-
Date Acquired  :  02/09/15 04:50:05 PM
Units          :  ppb
Dilution:         BH212[1.80 - 2.50]             ->
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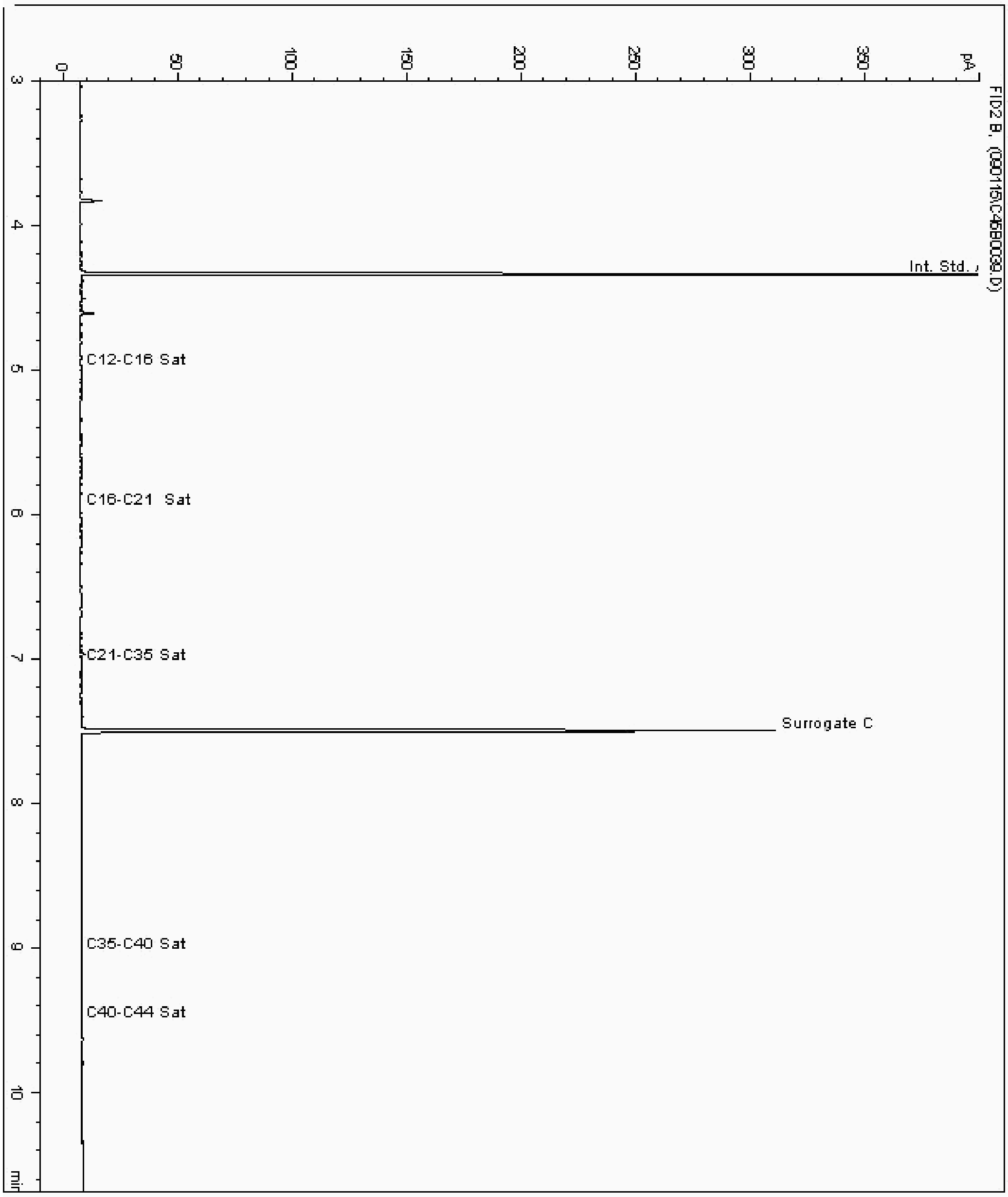
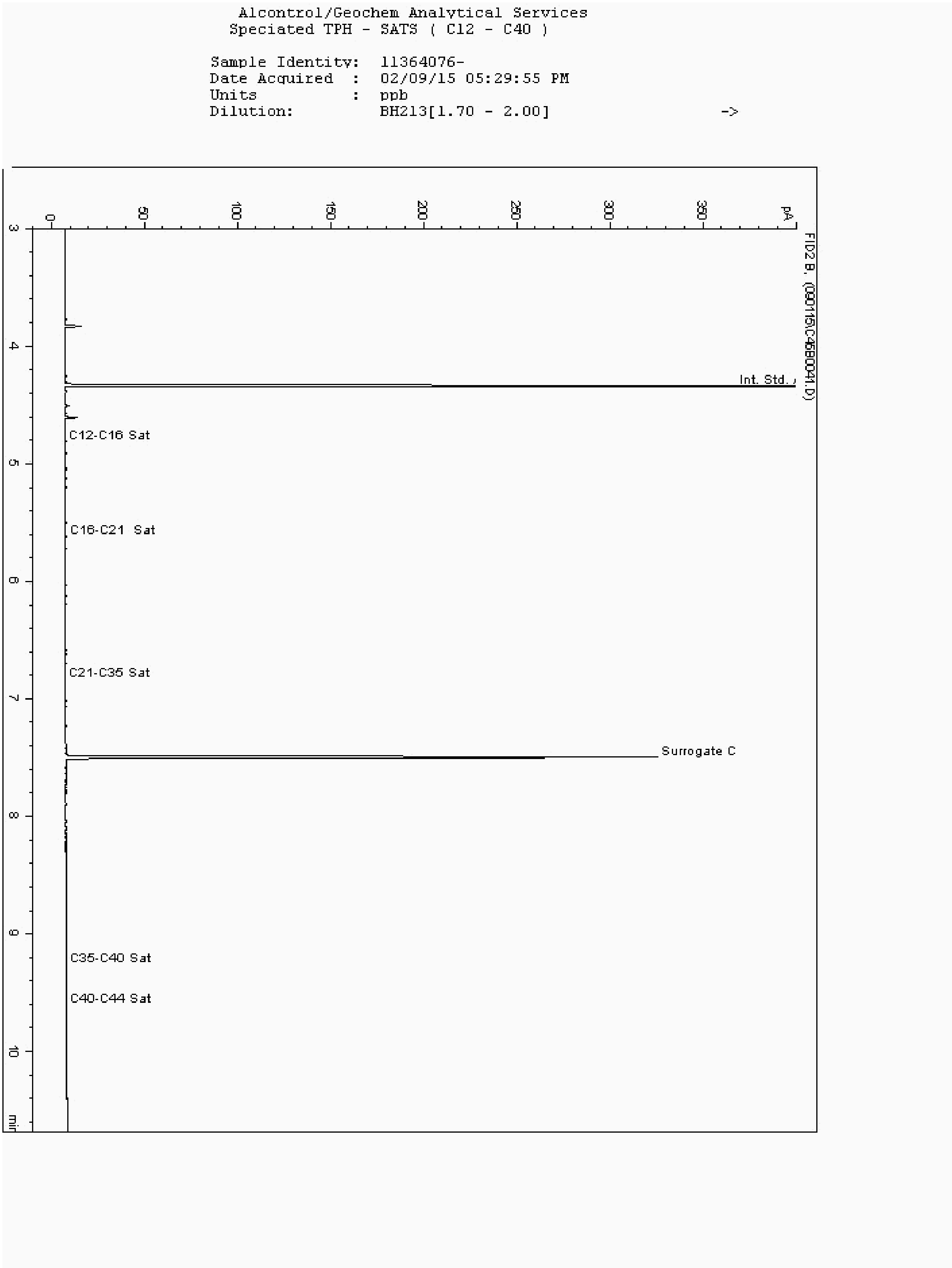


CERTIFICATE OF ANALYSIS

SDG:	150828-48	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329008
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	EPH CWG (Aromatic) GC (S)	**Sample No :**	11980893	**Depth :**	1.70 - 2.00
		Sample ID :	BH213		



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        Alcontrol/Geochem Analytical Services
      Speciated TPH - SATS ( C12 - C40 )

    Sample Identity:  11364076-
    Date Acquired  :  02/09/15 05:29:55 PM
    Units          :  ppb
    Dilution:         BH213[1.70 - 2.00]              ->
```
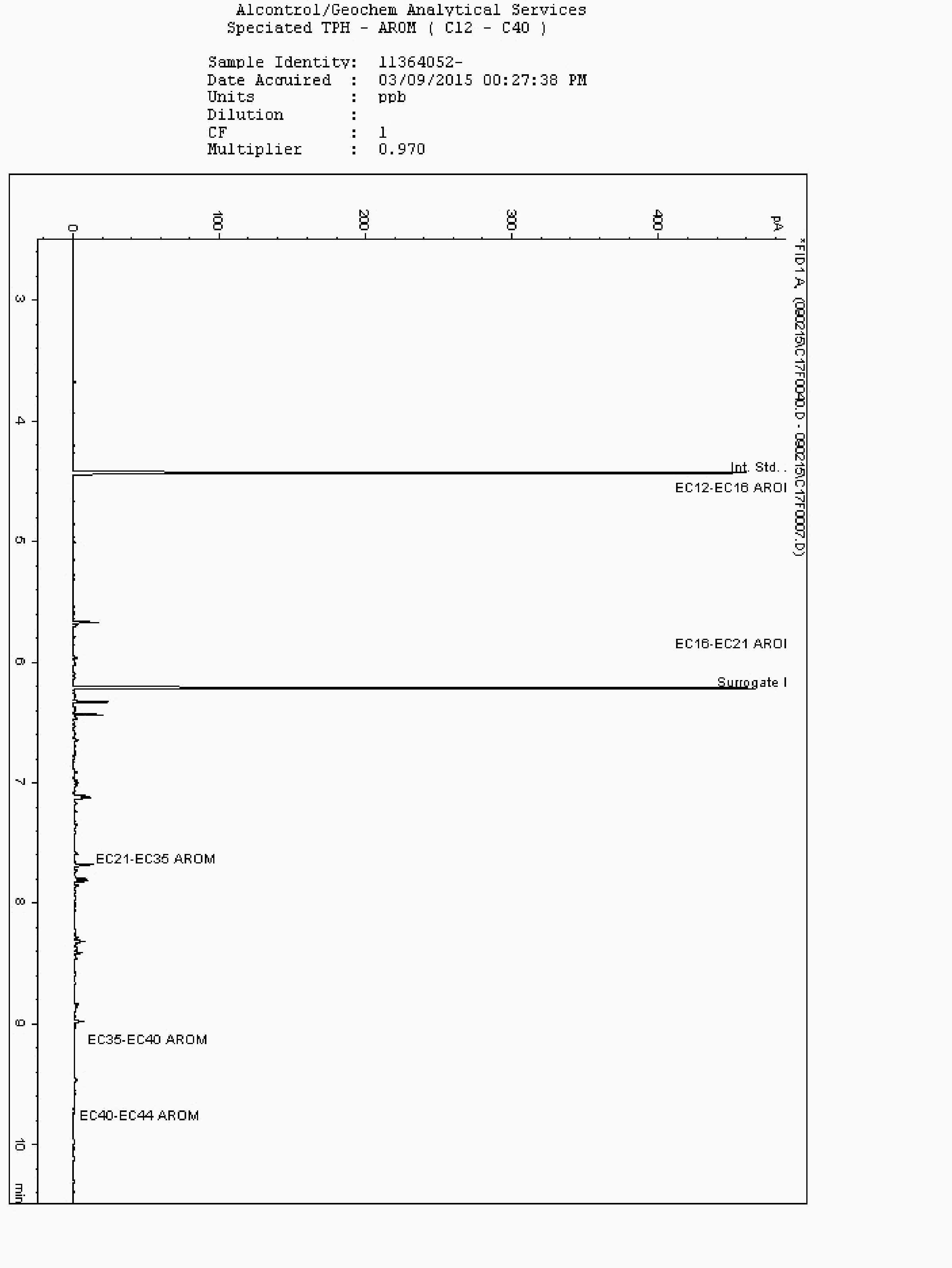

Chromatogram

Analysis:	EPH CWG (Aromatic) GC (S)	**Sample No :**	11984526	**Depth :**	0.60
		Sample ID :	BH213		



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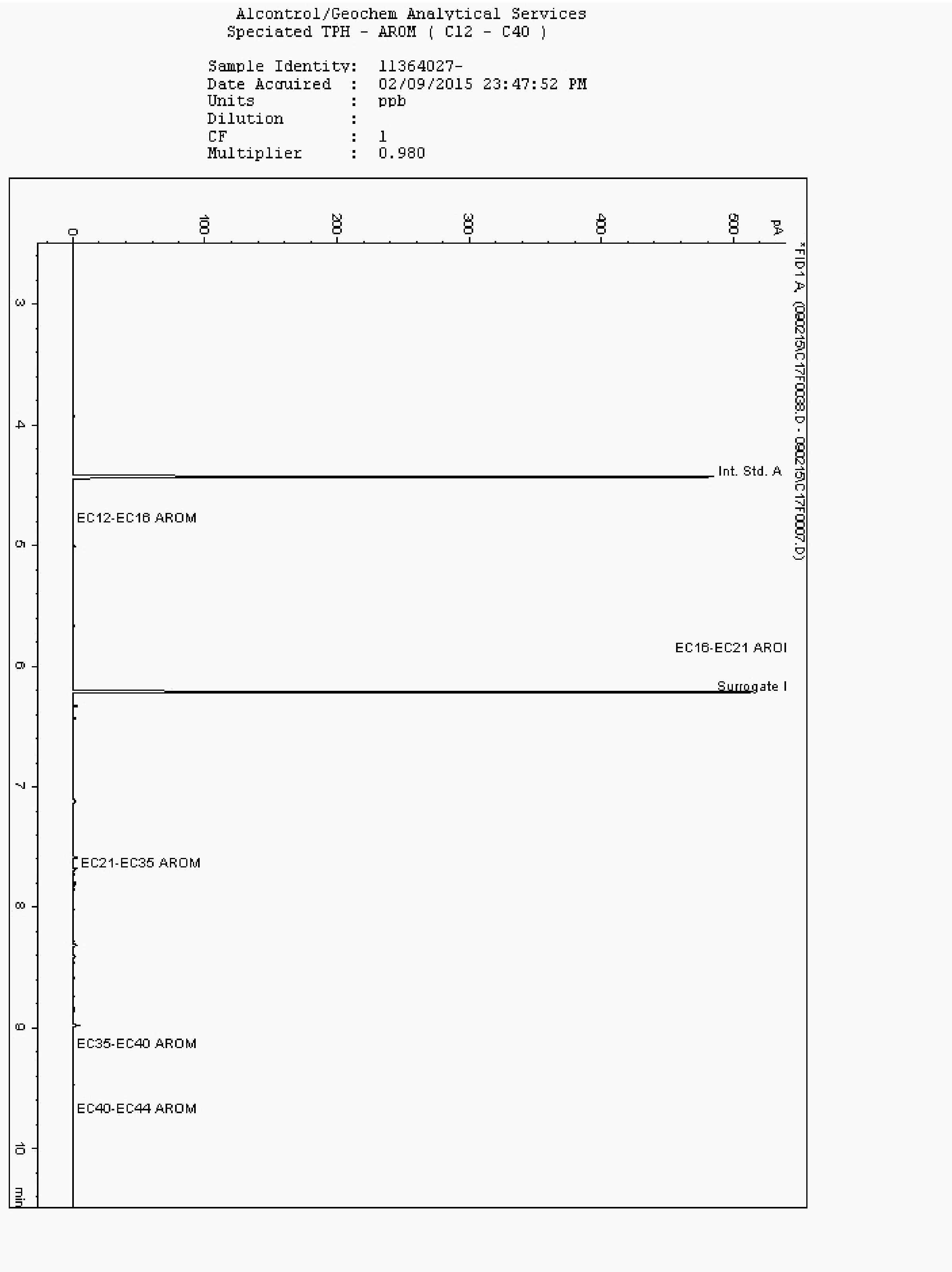
Alcontrol/Geochem Analytical Services
Speciated TPH - AROM ( C12 - C40 )

Sample Identity:  11364052-
Date Acquired  :  03/09/2015 00:27:38 PM
Units          :  ppb
Dilution       :
CF             :  1
Multiplier     :  0.970
```

SDG:	150828-48	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329008
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	EPH CWG (Aromatic) GC (S)	**Sample No :**	11984654	**Depth :**	0.60
		Sample ID :	BH212		



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Alcontrol/Geochem Analytical Services
Speciated TPH - AROM ( C12 - C40 )

Sample Identity:  11364027-
Date Acquired  :  02/09/2015 23:47:52 PM
Units          :  ppb
Dilution       :
CF             :  1
Multiplier     :  0.980
```
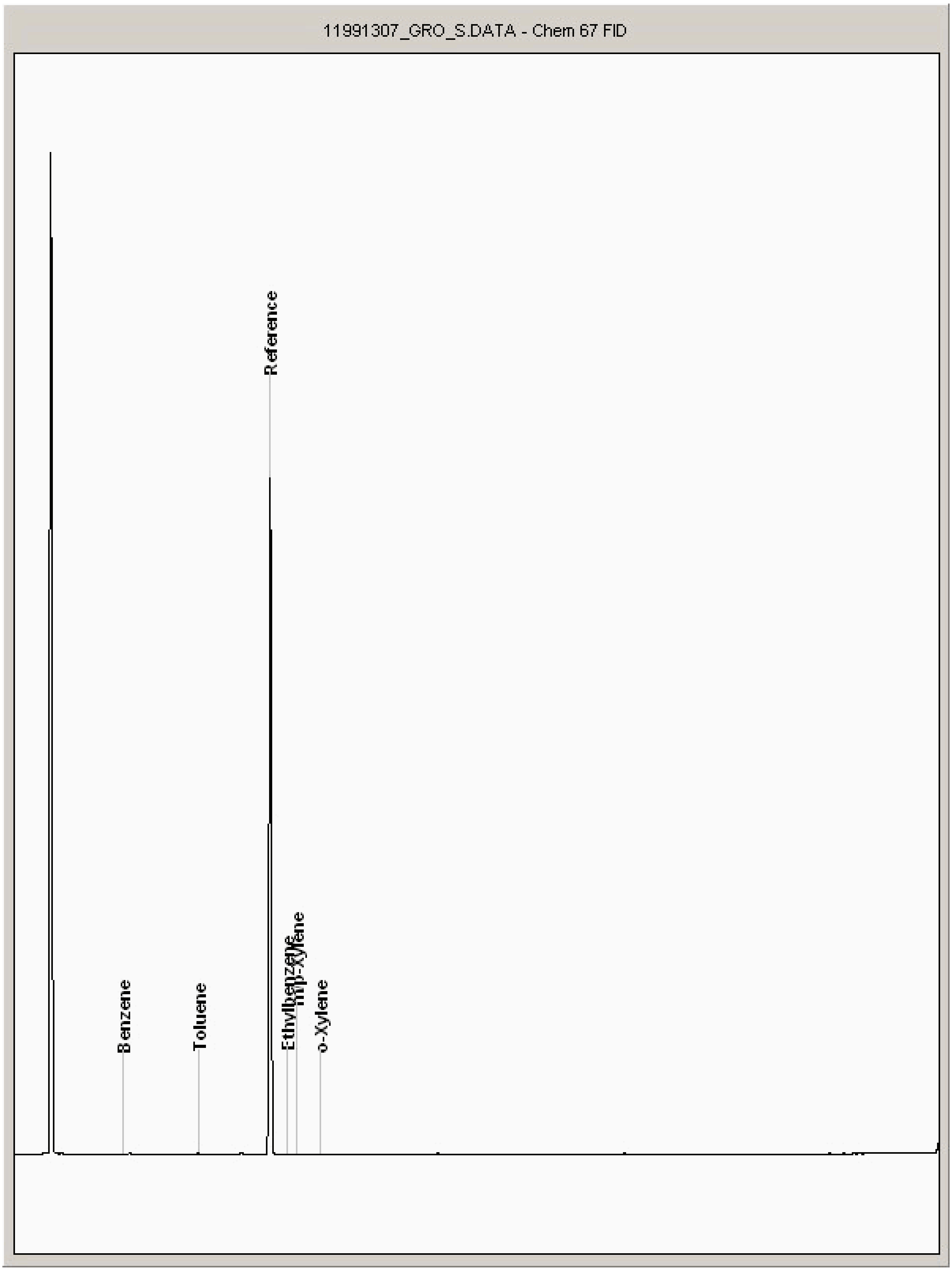

SDG:	150828-48	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329008
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

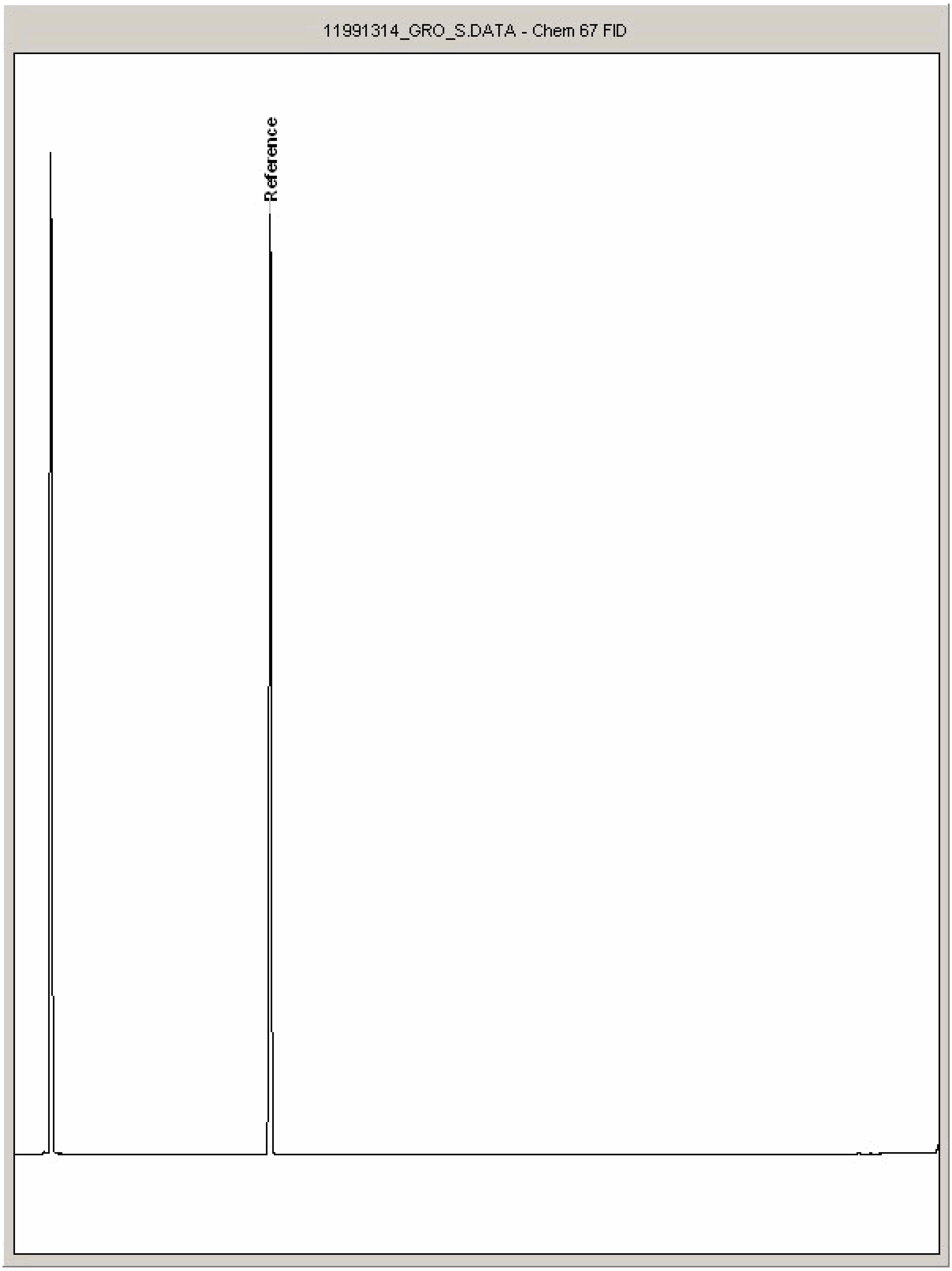
Analysis:	GRO by GC-FID (S)	**Sample No :**	11991307	**Depth :**	0.60
		Sample ID :	BH213		



SDG:	150828-48	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329008
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	GRO by GC-FID (S)	**Sample No :**	11991314	**Depth :**	1.80 - 2.50
		Sample ID :	BH212		

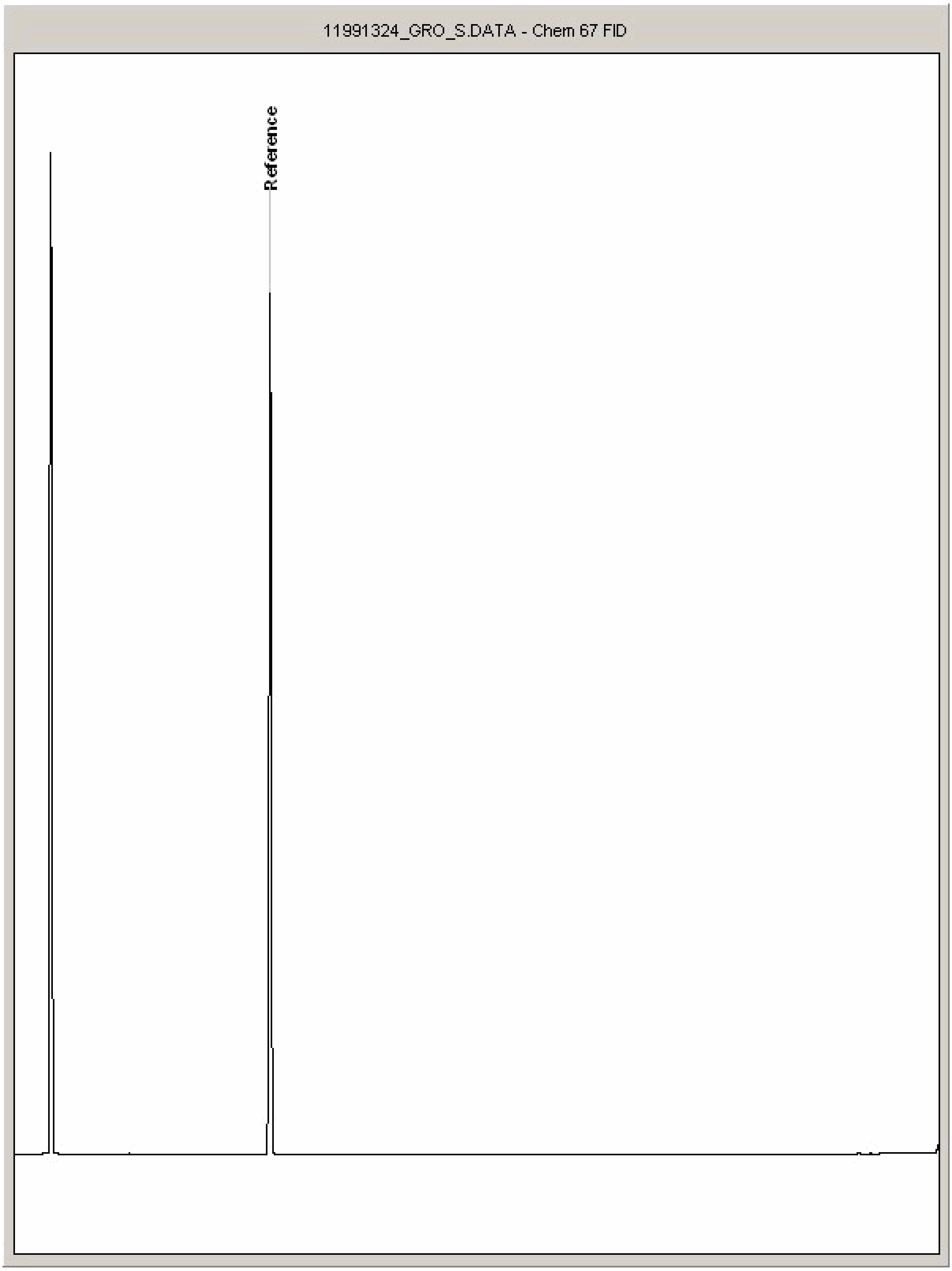


CERTIFICATE OF ANALYSIS

SDG:	150828-48	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329008
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

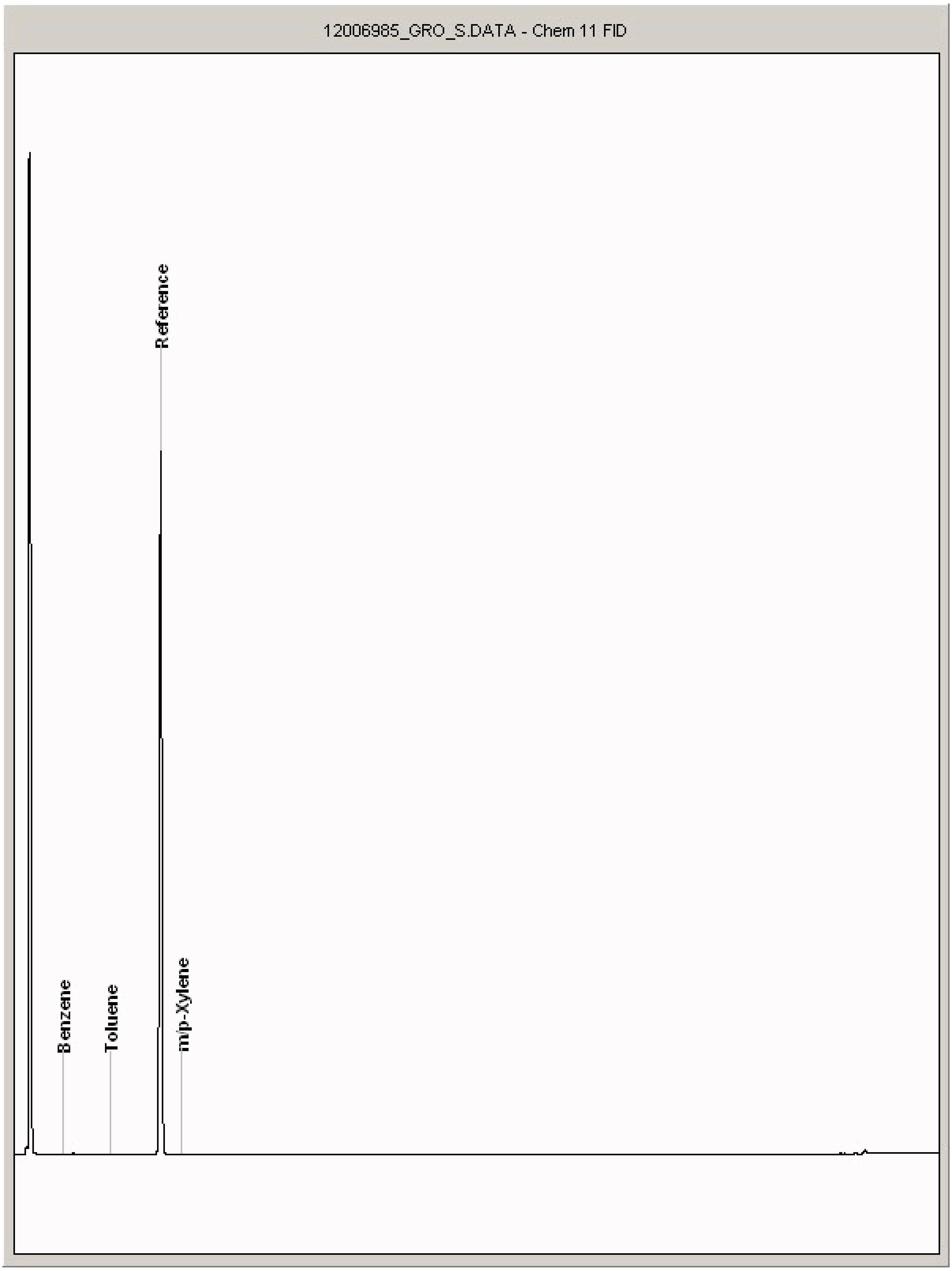
Analysis:	GRO by GC-FID (S)	**Sample No :**	11991324	**Depth :**	1.70 - 2.00
		Sample ID :	BH213		



SDG:	150828-48	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329008
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	GRO by GC-FID (S)	**Sample No :**	12006985	**Depth :**	0.60
		Sample ID :	BH212		



Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA Leach tests, flash point, ammonium as NH4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for both soil jars, tubs and volatile jars. All waters and vials will be discarded 10 days after the analysis is completed (e-mailed). All material removed during an asbestos containing material screen and analysed for the presence of asbestos will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be screened in house for the presence of large asbestos containing material fragments/pieces. If no asbestos containing material is found this will be reported as 'no asbestos containing material detected'. If asbestos containing material is detected it will be removed and analysed by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If asbestos containing material is present no further analysis will be undertaken. At no point is the fibre content of the soil sample determined.

7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample -similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule or recorded on the log sheet.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.

12. Results relate only to the items tested

13. **Surrogate recoveries** -Most of our organic methods include surrogates, the recovery of which is monitored and reported. For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 -130 %.

14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors
employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 14).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not
accredited.

19. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

20. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

23. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials -whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute themajor part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

24. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C4 -C10 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENT EXTRACTABLE MATTER	D&C	DCM	SOXTHERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
THIN LAYER CHROMATOGRAPHY	D&C	DCM	SOXTHERM	IATROSCAN
ELEMENTAL SULPHUR	D&C	DCM	SOXTHERM	HPLC
PHENOLS BY GCMS	WET	DCM	SOXTHERM	GC-MS
HERBICIDES	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
PESTICIDES	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
EPH (DRO)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (MIN OIL)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (CLEANED UP)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH CWG BY GC	D&C	HEXANE:ACETONE	END OVER END	GC-FID
PCB TOT / PCB CON	D&C	HEXANE:ACETONE	END OVER END	GC-MS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANE:ACETONE	MICROWAVE TM218.	GC-MS
C8-C40 (C6-C40) EZ FLASH	WET	HEXANE:ACETONE	SHAKER	GC-EZ
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANE:ACETONE	SHAKER	GC-EZ
SEMI VOLATILE ORGANIC COMPOUNDS	WET	DCM:ACETONE	SONICATE	GC-MS

LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAH MS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
EPH	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
PCB 7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
PCB TOTAL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
SVOC	DCM	LIQUID/LIQUID SHAKE	GCMS
FREE SULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PEST OCP/OPP	DCM	LIQUID/LIQUID SHAKE	GCMS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GCMS
PHENOLS MS	DCM	SOLID PHASE EXTRACTION	GCMS
TPH by INFRARED (IR)	TCE	LIQUID/LIQUID SHAKE	HPLC
MINERAL OIL by IR	TCE	LIQUID/LIQUID SHAKE	HPLC
GLYCOLS	NONE	DIRECT INJECTION	GCMS

Identification of Asbestos in Bulk Materials

The results for asbestos identification for soil samples are obtained from possible Asbestos Containing Material, removed during the 'Screening of soils for Asbestos Containing Materials', which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: -
Trace -Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in MDHS 100.

The identification of asbestos containing materials falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Last Updated : 2010/09/08

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICS and SVOC TICS.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. Results relate only to the items tested.

12. LODs for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

Sample Deviations

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
5	**Samples exceeded holding time before presevation was performed**
§	**Sampled on date not provided**
•	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than:
- Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

ALcontrol Laboratories

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AECOM
St. George's House
2nd Floor
5 St. George's Road
Wimbledon
Greater London
SW19 4DR

Attention: Gary Marshall

CERTIFICATE OF ANALYSIS

Date:	09 September 2015
Customer:	H_URS_WIM
Sample Delivery Group (SDG):	150828-57
Your Reference:	
Location:	Stag Brewery
Report No:	329023

We received 5 samples on Friday August 28, 2015 and 4 of these samples were scheduled for analysis which was completed on Wednesday September 09, 2015. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Approved By:

Sonia McWhan
Operations Manager

mCERTS
THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

ilac-MRA

UKAS TESTING
1291

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
11978081	BH8A		0.50	26/08/2015
11978082	BH8A		0.90	26/08/2015
11978083	BH8A		3.00 - 3.50	26/08/2015
11978079	BH9A		0.50	26/08/2015
11978080	BH9A		2.20 - 3.30	26/08/2015

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG:	150828-57	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329023
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

SOLID

Results Legend

- X **Test**
- N **No Determination Possible**

	Lab Sample No(s)		11978081			11978083			11978079			11978080		
	Customer Sample Reference		BH8A			BH8A			BH9A			BH9A		
	AGS Reference													
	Depth (m)		0.50			3.00 - 3.50			0.50			2.20 - 3.30		
	Container		250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)
Ammonium Soil by Titration	All	NDPs: 0 Tests: 4		X			X			X			X	
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 2		X						X				
Easily Liberated Sulphide	All	NDPs: 0 Tests: 4		X			X			X			X	
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 4	X			X			X			X		
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 4	X			X			X			X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 4			X			X			X			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 4		X			X			X			X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 4	X			X			X			X		
PAH by GCMS	All	NDPs: 0 Tests: 4	X			X			X			X		
pH	All	NDPs: 0 Tests: 4		X			X			X			X	
Sample description	All	NDPs: 0 Tests: 4	X			X			X			X		
Total Organic Carbon	All	NDPs: 0 Tests: 4	X			X			X			X		
Total Sulphate	All	NDPs: 0 Tests: 4	X			X			X			X		
TPH CWG GC (S)	All	NDPs: 0 Tests: 4	X			X			X			X		
VOC MS (S)	All	NDPs: 0 Tests: 4			X			X			X			X

SDG:	150828-57	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329023
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Sample Descriptions

Grain Sizes

very fine	<0.063mm	**fine**	0.063mm - 0.1mm	**medium**	0.1mm - 2mm	**coarse**	2mm - 10mm	**very coarse**	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Grain size	Inclusions	Inclusions 2
11978081	BH8A	0.50	Black	Sand	0.1 - 2 mm	Stones	None
11978083	BH8A	3.00 - 3.50	Light Brown	Sand	0.1 - 2 mm	Stones	None
11978079	BH9A	0.50	Light Brown	Sand	0.1 - 2 mm	Stones	None
11978080	BH9A	2.20 - 3.30	Dark Brown	Sandy Clay Loam	0.1 - 2 mm	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG:	150828-57	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329023
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Customer Sample R	BH8A	BH8A	BH9A	BH9A		
		Depth (m)	0.50	3.00 - 3.50	0.50	2.20 - 3.30		
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
		Date Sampled	26/08/2015	26/08/2015	26/08/2015	26/08/2015		
		Sampled Time	.	.	.	.		
		Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
		SDG Ref	150828-57	150828-57	150828-57	150828-57		
		Lab Sample No.(s)	11978081	11978083	11978079	11978080		
		AGS Reference						
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	17	9.5	7.3	14		
Exchangeable Ammonia as NH4	<15 mg/kg	TM024	<15 M	18.4 M	<15 M	71.4 M		
Organic Carbon, Total	<0.2 %	TM132	19.1 M	<0.2 M	<0.2 M	0.443 M		
pH	1 pH Units	TM133	8.38 M	7.66 M	10.2 M	11.2 M		
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6 #	<0.6 #	<0.6 #	<0.6 #		
Sulphide, Easily liberated	<15 mg/kg	TM180	40.4 ♦ #	<15 ♦ #	<15 ♦ #	252 ♦ #		
Arsenic	<0.6 mg/kg	TM181	13.7 M	14.7 M	16.5 M	15.5 M		
Cadmium	<0.02 mg/kg	TM181	0.344 M	0.338 M	0.395 M	0.378 M		
Chromium	<0.9 mg/kg	TM181	13.9 M	19.1 M	18.9 M	21.1 M		
Copper	<1.4 mg/kg	TM181	80.7 M	5.98 M	8.36 M	12 M		
Lead	<0.7 mg/kg	TM181	41.4 M	6.89 M	12.4 M	23.7 M		
Mercury	<0.14 mg/kg	TM181	<0.14 M	<0.14 M	<0.14 M	<0.14 M		
Nickel	<0.2 mg/kg	TM181	37.6 M	18.8 M	23.6 M	20.7 M		
Selenium	<1 mg/kg	TM181	<1 #	<1 #	<1 #	<1 #		
Zinc	<1.9 mg/kg	TM181	24.4 M	25.5 M	34.5 M	62.4 M		
Sulphate, Total	<48 mg/kg	TM221	775 M	80.9 M	212 M	1040 M		

Validated

CERTIFICATE OF ANALYSIS

SDG: 150828-57
Job: H_URS_WIM-273
Client Reference:

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

Order Number:
Report Number: 329023
Superseded Report:

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

Customer Sample R	BH8A	BH8A	BH9A	BH9A		
Depth (m)	0.50	3.00 - 3.50	0.50	2.20 - 3.30		
Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
Date Sampled	26/08/2015	26/08/2015	26/08/2015	26/08/2015		
Sampled Time	.	.	.	.		
Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
SDG Ref	150828-57	150828-57	150828-57	150828-57		
Lab Sample No.(s)	11978081	11978083	11978079	11978080		
AGS Reference						

Component	LOD/Units	Method	BH8A	BH8A	BH9A	BH9A		
Naphthalene-d8 % recovery**	%	TM218	122	101	99	95.4		
Acenaphthene-d10 % recovery**	%	TM218	124	97.4	98.4	94.8		
Phenanthrene-d10 % recovery**	%	TM218	118	93.6	96.9	93.4		
Chrysene-d12 % recovery**	%	TM218	99.3	83.8	92.1	84.9		
Perylene-d12 % recovery**	%	TM218	96.2	83.6	99	91.4		
Naphthalene	<9 µg/kg	TM218	111 M	<9 M	<9 M	32.7 M		
Acenaphthylene	<12 µg/kg	TM218	16 M	<12 M	<12 M	15 M		
Acenaphthene	<8 µg/kg	TM218	<8 M	<8 M	<8 M	11 M		
Fluorene	<10 µg/kg	TM218	<10 M	<10 M	<10 M	54.6 M		
Phenanthrene	<15 µg/kg	TM218	215 M	<15 M	<15 M	360 M		
Anthracene	<16 µg/kg	TM218	33.2 M	<16 M	<16 M	105 M		
Fluoranthene	<17 µg/kg	TM218	237 M	<17 M	<17 M	400 M		
Pyrene	<15 µg/kg	TM218	186 M	<15 M	16.7 M	317 M		
Benz(a)anthracene	<14 µg/kg	TM218	128 M	<14 M	24.7 M	283 M		
Chrysene	<10 µg/kg	TM218	137 M	<10 M	<10 M	218 M		
Benzo(b)fluoranthene	<15 µg/kg	TM218	193 M	<15 M	24.6 M	306 M		
Benzo(k)fluoranthene	<14 µg/kg	TM218	59.9 M	<14 M	<14 M	108 M		
Benzo(a)pyrene	<15 µg/kg	TM218	122 M	<15 M	18.2 M	259 M		
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	76.6 M	<18 M	<18 M	121 M		
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23 M	<23 M	<23 M	40.4 M		
Benzo(g,h,i)perylene	<24 µg/kg	TM218	108 M	<24 M	<24 M	144 M		
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	1620	<118	<118	2780		

CERTIFICATE OF ANALYSIS

SDG: 150828-57
Job: H_URS_WIM-273
Client Reference:
Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall
Order Number:
Report Number: 329023
Superseded Report:

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

Customer Sample R	BH8A	BH8A	BH9A	BH9A		
Depth (m)	0.50	3.00 - 3.50	0.50	2.20 - 3.30		
Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
Date Sampled	26/08/2015	26/08/2015	26/08/2015	26/08/2015		
Sampled Time	.	.	.	.		
Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
SDG Ref	150828-57	150828-57	150828-57	150828-57		
Lab Sample No.(s)	11978081	11978083	11978079	11978080		
AGS Reference						

Component	LOD/Units	Method						
GRO Surrogate % recovery**	%	TM089	72	107	113	97		
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	<44 M	<44 M	178 M	106 M		
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 M	<5 M	<5 M	<5 M		
Benzene	<10 µg/kg	TM089	<10 M	<10 M	<10 M	<10 M		
Toluene	<2 µg/kg	TM089	2.42 M	<2 M	<2 M	<2 M		
Ethylbenzene	<3 µg/kg	TM089	<3 M	<3 M	<3 M	<3 M		
m,p-Xylene	<6 µg/kg	TM089	<6 M	<6 M	<6 M	<6 M		
o-Xylene	<3 µg/kg	TM089	<3 M	<3 M	<3 M	<3 M		
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9	<9	<9	<9		
sum of detected BTEX by GC	<24 µg/kg	TM089	<24	<24	<24	<24		
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	<10	<10	<10		
Aliphatics >C6-C8	<10 µg/kg	TM089	14.5	<10	<10	19.7		
Aliphatics >C8-C10	<10 µg/kg	TM089	10.9	<10	11.9	22		
Aliphatics >C10-C12	<10 µg/kg	TM089	<10	<10	87.4	25.5		
Aliphatics >C12-C16	<100 µg/kg	TM173	555	<100	<100	1290		
Aliphatics >C16-C21	<100 µg/kg	TM173	1230	<100	<100	3060		
Aliphatics >C21-C35	<100 µg/kg	TM173	5830	<100	<100	6690		
Aliphatics >C35-C44	<100 µg/kg	TM173	567	<100	<100	<100		
Total Aliphatics >C12-C44	<100 µg/kg	TM173	8180	<100	<100	11000		
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10	<10	<10		
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	<10	<10	<10		
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10	<10	<10	15.1		
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10	<10	58.3	17.4		
Aromatics >EC12-EC16	<100 µg/kg	TM173	<100	<100	<100	2810		
Aromatics >EC16-EC21	<100 µg/kg	TM173	<100	<100	<100	19400		
Aromatics >EC21-EC35	<100 µg/kg	TM173	<100	<100	<100	66300		
Aromatics >EC35-EC44	<100 µg/kg	TM173	<100	<100	<100	16400		
Aromatics >EC40-EC44	<100 µg/kg	TM173	<100	<100	<100	5980		
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	<100	<100	<100	105000		
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	8220	<100	111	116000		

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Customer Sample R	BH8A	BH8A	BH9A	BH9A		
		Depth (m)	0.50	3.00 - 3.50	0.50	2.20 - 3.30		
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
		Date Sampled	26/08/2015	26/08/2015	26/08/2015	26/08/2015		
		Sampled Time	.	.	.	.		
		Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
		SDG Ref	150828-57	150828-57	150828-57	150828-57		
		Lab Sample No.(s)	11978081	11978083	11978079	11978080		
		AGS Reference						
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	114	109	120	112		
Toluene-d8**	%	TM116	102	101	102	102		
4-Bromofluorobenzene**	%	TM116	88.1	95	96.1	92.2		
Dichlorodifluoromethane	<6 µg/kg	TM116	<60 M	<6 M	<6 M	<6 M		
Chloromethane	<7 µg/kg	TM116	<70 #	<7 #	<7 #	<7 #		
Vinyl Chloride	<6 µg/kg	TM116	<60 M	<6 M	<6 M	<6 M		
Bromomethane	<10 µg/kg	TM116	<100 M	<10 M	<10 M	<10 M		
Chloroethane	<10 µg/kg	TM116	<100 M	<10 M	<10 M	<10 M		
Trichlorofluorormethane	<6 µg/kg	TM116	<60 M	<6 M	<6 M	<6 M		
1,1-Dichloroethene	<10 µg/kg	TM116	<100 #	<10 #	<10 #	<10 #		
Carbon Disulphide	<7 µg/kg	TM116	<70 M	<7 M	<7 M	<7 M		
Dichloromethane	<10 µg/kg	TM116	<100 #	<10 #	<10 #	<10 #		
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<100 M	<10 M	<10 M	<10 M		
trans-1,2-Dichloroethene	<10 µg/kg	TM116	<100 M	<10 M	<10 M	<10 M		
1,1-Dichloroethane	<8 µg/kg	TM116	<80 M	<8 M	<8 M	<8 M		
cis-1,2-Dichloroethene	<6 µg/kg	TM116	<60 M	<6 M	<6 M	<6 M		
2,2-Dichloropropane	<10 µg/kg	TM116	<100 M	<10 M	<10 M	<10 M		
Bromochloromethane	<10 µg/kg	TM116	<100 M	<10 M	<10 M	<10 M		
Chloroform	<8 µg/kg	TM116	<80 M	<8 M	<8 M	<8 M		
1,1,1-Trichloroethane	<7 µg/kg	TM116	<70 M	<7 M	<7 M	<7 M		
1,1-Dichloropropene	<10 µg/kg	TM116	<100 M	<10 M	<10 M	<10 M		
Carbontetrachloride	<10 µg/kg	TM116	<100 M	<10 M	<10 M	<10 M		
1,2-Dichloroethane	<5 µg/kg	TM116	<50 M	<5 M	<5 M	<5 M		
Benzene	<9 µg/kg	TM116	<90 M	<9 M	<9 M	<9 M		
Trichloroethene	<9 µg/kg	TM116	<90 #	<9 #	<9 #	<9 #		
1,2-Dichloropropane	<10 µg/kg	TM116	<100 M	<10 M	<10 M	<10 M		
Dibromomethane	<9 µg/kg	TM116	<90 M	<9 M	<9 M	<9 M		
Bromodichloromethane	<7 µg/kg	TM116	<70 M	<7 M	<7 M	<7 M		
cis-1,3-Dichloropropene	<10 µg/kg	TM116	<100 M	<10 M	<10 M	<10 M		
Toluene	<7 µg/kg	TM116	<70 M	<7 M	<7 M	<7 M		
trans-1,3-Dichloropropene	<10 µg/kg	TM116	<100	<10	<10	<10		
1,1,2-Trichloroethane	<10 µg/kg	TM116	<100 M	<10 M	<10 M	<10 M		

SDG:	150828-57	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329023
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Customer Sample R	BH8A	BH8A	BH9A	BH9A		
		Depth (m)	0.50	3.00 - 3.50	0.50	2.20 - 3.30		
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
		Date Sampled	26/08/2015	26/08/2015	26/08/2015	26/08/2015		
		Sampled Time	.	.	.	.		
		Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
		SDG Ref	150828-57	150828-57	150828-57	150828-57		
		Lab Sample No.(s)	11978081	11978083	11978079	11978080		
		AGS Reference						
Component	**LOD/Units**	**Method**						
1,3-Dichloropropane	<7 µg/kg	TM116	<70 M	<7 M	<7 M	<7 M		
Tetrachloroethene	<5 µg/kg	TM116	<50 M	<5 M	<5 M	<5 M		
Dibromochloromethane	<10 µg/kg	TM116	<100 M	<10 M	<10 M	<10 M		
1,2-Dibromoethane	<10 µg/kg	TM116	<100 M	<10 M	<10 M	<10 M		
Chlorobenzene	<5 µg/kg	TM116	<50 M	<5 M	<5 M	<5 M		
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<100 M	<10 M	<10 M	<10 M		
Ethylbenzene	<4 µg/kg	TM116	<40 M	<4 M	<4 M	<4 M		
p/m-Xylene	<10 µg/kg	TM116	<100 #	<10 #	<10 #	<10 #		
o-Xylene	<10 µg/kg	TM116	<100 M	<10 M	<10 M	<10 M		
Styrene	<10 µg/kg	TM116	<100 #	<10 #	<10 #	<10 #		
Bromoform	<10 µg/kg	TM116	<100 M	<10 M	<10 M	<10 M		
Isopropylbenzene	<5 µg/kg	TM116	<50 #	<5 #	<5 #	<5 #		
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<100 M	<10 M	<10 M	<10 M		
1,2,3-Trichloropropane	<16 µg/kg	TM116	<160 M	<16 M	<16 M	<16 M		
Bromobenzene	<10 µg/kg	TM116	<100 M	<10 M	<10 M	<10 M		
Propylbenzene	<10 µg/kg	TM116	<100 M	<10 M	<10 M	<10 M		
2-Chlorotoluene	<9 µg/kg	TM116	<90 M	<9 M	<9 M	<9 M		
1,3,5-Trimethylbenzene	<8 µg/kg	TM116	<80 M	<8 M	<8 M	<8 M		
4-Chlorotoluene	<10 µg/kg	TM116	<100 M	<10 M	<10 M	<10 M		
tert-Butylbenzene	<14 µg/kg	TM116	<140 M	<14 M	<14 M	<14 M		
1,2,4-Trimethylbenzene	<9 µg/kg	TM116	<90 #	<9 #	<9 #	<9 #		
sec-Butylbenzene	<10 µg/kg	TM116	<100 M	<10 M	<10 M	<10 M		
4-Isopropyltoluene	<10 µg/kg	TM116	<100 M	<10 M	<10 M	<10 M		
1,3-Dichlorobenzene	<8 µg/kg	TM116	<80 M	<8 M	<8 M	<8 M		
1,4-Dichlorobenzene	<5 µg/kg	TM116	<50 M	<5 M	<5 M	<5 M		
n-Butylbenzene	<11 µg/kg	TM116	<110	<11	<11	<11		
1,2-Dichlorobenzene	<10 µg/kg	TM116	<100 M	<10 M	<10 M	<10 M		
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116	<140 M	<14 M	<14 M	<14 M		
Tert-amyl methyl ether	<10 µg/kg	TM116	<100 #	<10 #	<10 #	<10 #		
1,2,4-Trichlorobenzene	<20 µg/kg	TM116	<200	<20	<20	<20		
Hexachlorobutadiene	<20 µg/kg	TM116	<200	<20	<20	<20		
Naphthalene	<13 µg/kg	TM116	<130 M	<13 M	<13 M	<13 M		

CERTIFICATE OF ANALYSIS

SDG:	150828-57	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329023
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Customer Sample R	BH8A	BH8A	BH9A	BH9A		
		Depth (m)	0.50	3.00 - 3.50	0.50	2.20 - 3.30		
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
		Date Sampled	26/08/2015	26/08/2015	26/08/2015	26/08/2015		
		Sampled Time	.	.	.	.		
		Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
		SDG Ref	150828-57	150828-57	150828-57	150828-57		
		Lab Sample No.(s)	11978081	11978083	11978079	11978080		
		AGS Reference						
Component	**LOD/Units**	**Method**						
1,2,3-Trichlorobenzene	<20 µg/kg	TM116	<200 #	<20 #	<20 #	<20 #		

SDG: 150828-57
Job: H_URS_WIM-273
Client Reference:
Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall
Order Number:
Report Number: 329023
Superseded Report:

Asbestos Identification - Soil

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH8A 0.50 SOLID 26/08/2015 00:00:00 01/09/2015 12:03:31 150828-57 11978081 TM048	4/9/15	Kevin Hughes	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH9A 0.50 SOLID 26/08/2015 00:00:00 01/09/2015 11:54:18 150828-57 11978079 TM048	4/9/15	Kevin Hughes	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

SDG:	150828-57	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329023
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample [1]	Surrogate Corrected
ASB_PREP				
PM001		Preparation of Samples for Metals Analysis		
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material		
TM024	Method 4500A & B, AWWA/APHA, 20th Ed., 1999	Determination of Exchangeable Ammonium and Ammoniacal Nitrogen as N by titration on solids		
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material		
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)		
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS		
TM132	In - house Method	ELTRA CS800 Operators Guide		
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter		
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser		
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID		
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique		
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES		
TM218	Microwave extraction – EPA method 3546	Microwave extraction - EPA method 3546		
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid extractable Sulphate in Soils by IRIS Emission Spectrometer		
TM243		Mixed Anions In Soils By Kone		

[1] Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

Test Completion Dates

Lab Sample No(s)	11978081	11978083	11978079	11978080
Customer Sample Ref.	BH8A	BH8A	BH9A	BH9A
AGS Ref.				
Depth	0.50	3.00 - 3.50	0.50	2.20 - 3.30
Type	SOLID	SOLID	SOLID	SOLID
Ammonium Soil by Titration	09-Sep-2015	08-Sep-2015	09-Sep-2015	08-Sep-2015
Asbestos ID in Solid Samples	04-Sep-2015		04-Sep-2015	
Easily Liberated Sulphide	08-Sep-2015	07-Sep-2015	08-Sep-2015	07-Sep-2015
EPH CWG (Aliphatic) GC (S)	04-Sep-2015	03-Sep-2015	04-Sep-2015	03-Sep-2015
EPH CWG (Aromatic) GC (S)	04-Sep-2015	03-Sep-2015	04-Sep-2015	03-Sep-2015
GRO by GC-FID (S)	02-Sep-2015	02-Sep-2015	03-Sep-2015	02-Sep-2015
Hexavalent Chromium (s)	07-Sep-2015	07-Sep-2015	07-Sep-2015	07-Sep-2015
Metals in solid samples by OES	04-Sep-2015	04-Sep-2015	04-Sep-2015	04-Sep-2015
PAH by GCMS	03-Sep-2015	03-Sep-2015	08-Sep-2015	04-Sep-2015
pH	08-Sep-2015	08-Sep-2015	08-Sep-2015	04-Sep-2015
Sample description	01-Sep-2015	29-Aug-2015	01-Sep-2015	29-Aug-2015
Total Organic Carbon	07-Sep-2015	03-Sep-2015	07-Sep-2015	03-Sep-2015
Total Sulphate	07-Sep-2015	07-Sep-2015	07-Sep-2015	04-Sep-2015
TPH CWG GC (S)	04-Sep-2015	03-Sep-2015	04-Sep-2015	03-Sep-2015
VOC MS (S)	03-Sep-2015	02-Sep-2015	02-Sep-2015	02-Sep-2015

ASSOCIATED AQC DATA

Ammonium Soil by Titration

Component	Method Code	QC 1292	QC 1205
Exchangeable Ammonium as NH4	TM024	**86.07** 79.30 : 104.61	**98.01** 79.30 : 104.61

Easily Liberated Sulphide

Component	Method Code	QC 1262	QC 1219
Easily Liberated Sulphide	TM180	**88.38** 49.14 : 123.89	**93.21** 49.14 : 123.89

EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 1182	QC 1194	QC 1146
Total Aliphatics >C12-C35	TM173	**85.21** 62.50 : 112.50	**87.08** 70.80 : 111.51	**90.21** 71.67 : 116.67

EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 1182	QC 1194	QC 1146
Total Aromatics >EC12-EC35	TM173	**82.67** 60.62 : 126.95	**82.67** 65.21 : 121.32	**83.33** 59.92 : 107.95

GRO by GC-FID (S)

Component	Method Code	QC 1105	QC 1173
Benzene by GC (Moisture Corrected)	TM089	**83.5** 79.00 : 121.00	**95.0** 76.33 : 121.87
Ethylbenzene by GC (Moisture Corrected)	TM089	**83.5** 79.00 : 121.00	**99.0** 75.73 : 123.83
m & p Xylene by GC (Moisture Corrected)	TM089	**83.75** 79.00 : 121.00	**97.5** 75.52 : 120.32
MTBE GC-FID (Moisture Corrected)	TM089	**85.5** 74.48 : 125.29	**94.0** 77.89 : 119.70
o Xylene by GC (Moisture Corrected)	TM089	**83.5** 79.00 : 121.00	**93.5** 74.15 : 124.59
QC	TM089	**112.68** 73.70 : 123.60	**99.2** 62.31 : 122.61
Toluene by GC (Moisture Corrected)	TM089	**83.5** 79.00 : 121.00	**93.5** 77.91 : 122.33

Hexavalent Chromium (s)

Component	Method Code	QC 1299	QC 1285
Hexavalent Chromium	TM151	**100.0** 92.20 : 106.60	**102.0** 92.20 : 106.60

Metals in solid samples by OES

Component	Method Code	QC 1272	QC 1286	QC 1235
Aluminium	TM181	**108.46** 86.49 : 129.71	**109.23** 86.49 : 129.71	**98.46** 86.49 : 129.71
Antimony	TM181	**98.92** 77.50 : 122.50	**98.21** 77.50 : 122.50	**97.13** 77.50 : 122.50
Arsenic	TM181	**94.69** 82.63 : 117.37	**93.81** 82.63 : 117.37	**92.92** 82.63 : 117.37
Barium	TM181	**99.25** 79.45 : 120.55	**99.25** 79.45 : 120.55	**95.49** 79.45 : 120.55
Beryllium	TM181	**101.09** 85.92 : 121.27	**101.24** 85.92 : 121.27	**100.47** 85.92 : 121.27
Boron	TM181	**112.21** 77.41 : 143.83	**115.27** 77.41 : 143.83	**99.24** 77.41 : 143.83
Cadmium	TM181	**97.65** 81.95 : 118.05	**97.31** 81.95 : 118.05	**96.47** 81.95 : 118.05
Chromium	TM181	**109.41** 81.29 : 118.71	**99.22** 81.29 : 118.71	**93.73** 81.29 : 118.71
Cobalt	TM181	**97.83** 83.86 : 116.14	**97.17** 83.86 : 116.14	**96.5** 83.86 : 116.14
Copper	TM181	**100.68** 78.57 : 121.43	**100.14** 78.57 : 121.43	**99.46** 78.57 : 121.43
Iron	TM181	**102.76** 87.50 : 122.82	**100.69** 87.50 : 122.82	**97.24** 87.50 : 122.82
Lead	TM181	**95.28** 74.18 : 117.25	**93.7** 74.18 : 117.25	**94.09** 74.18 : 117.25
Manganese	TM181	**100.0** 82.91 : 117.09	**100.0** 82.91 : 117.09	**100.0** 82.91 : 117.09
Mercury	TM181	**94.47** 81.99 : 118.01	**93.97** 81.99 : 118.01	**92.46** 81.99 : 118.01
Molybdenum	TM181	**100.64** 81.45 : 118.55	**94.75** 81.45 : 118.55	**93.79** 81.45 : 118.55
Nickel	TM181	**109.88** 79.64 : 120.36	**98.26** 79.64 : 120.36	**95.93** 79.64 : 120.36
Phosphorus	TM181	**99.11** 81.03 : 118.97	**97.91** 81.03 : 118.97	**98.21** 81.03 : 118.97
Selenium	TM181	**106.5** 87.05 : 121.93	**107.01** 87.05 : 121.93	**108.21** 87.05 : 121.93
Strontium	TM181	**102.3** 83.64 : 116.36	**102.68** 83.64 : 116.36	**96.55** 83.64 : 116.36
Thallium	TM181	**92.21** 77.50 : 122.50	**90.55** 77.50 : 122.50	**88.72** 77.50 : 122.50
Tin	TM181	**94.35** 78.30 : 113.98	**93.69** 78.30 : 113.98	**92.69** 78.30 : 113.98
Titanium	TM181	**103.91** 71.02 : 128.98	**103.13** 71.02 : 128.98	**97.66** 71.02 : 128.98

Metals in solid samples by OES

		QC 1272	QC 1286	QC 1235
Vanadium	TM181	**97.06** 86.61 : 113.39	**96.76** 86.61 : 113.39	**93.53** 86.61 : 113.39
Zinc	TM181	**100.97** 89.82 : 114.54	**100.32** 89.82 : 114.54	**98.05** 89.82 : 114.54

PAH by GCMS

Component	**Method Code**	QC 1191	QC 1196	QC 1106	QC 1137
Acenaphthene	TM218	**85.5** 70.00 : 130.00	**89.5** 78.75 : 116.25	**91.5** 78.84 : 114.36	**96.0** 78.84 : 114.36
Acenaphthylene	TM218	**78.0** 70.00 : 130.00	**85.5** 76.45 : 110.05	**85.5** 65.50 : 119.50	**90.0** 65.50 : 119.50
Anthracene	TM218	**79.0** 70.00 : 130.00	**89.0** 67.15 : 124.45	**91.0** 75.54 : 110.88	**97.5** 75.54 : 110.88
Benz(a)anthracene	TM218	**81.0** 70.00 : 130.00	**97.5** 82.00 : 127.00	**97.5** 78.02 : 127.38	**104.0** 78.02 : 127.38
Benzo(a)pyrene	TM218	**80.0** 70.00 : 130.00	**99.5** 75.60 : 124.20	**99.5** 79.21 : 128.01	**105.5** 79.21 : 128.01
Benzo(b)fluoranthene	TM218	**78.0** 70.00 : 130.00	**99.0** 81.20 : 121.77	**96.0** 86.21 : 131.42	**101.5** 86.21 : 131.42
Benzo(ghi)perylene	TM218	**83.0** 70.00 : 130.00	**96.0** 77.49 : 119.12	**95.0** 80.11 : 120.52	**100.0** 80.11 : 120.52
Benzo(k)fluoranthene	TM218	**79.0** 70.00 : 130.00	**96.5** 83.50 : 116.50	**97.0** 78.77 : 120.72	**103.0** 78.77 : 120.72
Chrysene	TM218	**77.5** 70.00 : 130.00	**95.5** 78.35 : 114.42	**94.5** 78.77 : 118.99	**100.5** 78.77 : 118.99
Dibenzo(ah)anthracene	TM218	**79.0** 70.00 : 130.00	**95.0** 77.15 : 122.45	**93.5** 76.39 : 122.63	**100.0** 76.39 : 122.63
Fluoranthene	TM218	**83.5** 70.00 : 130.00	**92.5** 79.08 : 114.40	**95.0** 77.25 : 117.75	**101.0** 77.25 : 117.75
Fluorene	TM218	**86.0** 70.00 : 130.00	**91.5** 79.03 : 113.38	**95.5** 79.28 : 117.35	**98.5** 79.28 : 117.35
Indeno(123cd)pyrene	TM218	**78.5** 70.00 : 130.00	**96.5** 75.65 : 125.15	**93.0** 78.87 : 122.50	**99.0** 78.87 : 122.50
Naphthalene	TM218	**91.5** 70.00 : 130.00	**92.5** 77.25 : 112.60	**93.0** 74.75 : 118.25	**95.0** 74.75 : 118.25
Phenanthrene	TM218	**84.0** 70.00 : 130.00	**92.0** 78.25 : 115.44	**95.0** 78.61 : 113.98	**100.5** 78.61 : 113.98
Pyrene	TM218	**82.5** 70.00 : 130.00	**91.0** 78.07 : 114.06	**94.0** 76.15 : 115.26	**99.5** 76.15 : 115.26

pH

Component	**Method Code**	QC 1208	QC 1218	QC 1227	QC 1293
pH	TM133	**100.13** 97.19 : 102.81	**100.25** 97.19 : 102.81	**100.5** 97.19 : 102.81	**100.63** 97.19 : 102.81

Total Organic Carbon

Total Organic Carbon

Component	Method Code	QC 1254	QC 1245
Total Organic Carbon	TM132	**100.46** 88.82 : 111.18	**98.17** 89.40 : 103.09

Total Sulphate

Component	Method Code	QC 1218	QC 1273
Total Sulphate	TM221	**115.15** 78.49 : 121.51	**103.79** 78.49 : 121.51

VOC MS (S)

Component	Method Code	QC 1128	QC 1175
1,1,1,2-tetrachloroethane	TM116	**95.6** 83.24 : 124.28	**102.6** 83.24 : 124.28
1,1,1-Trichloroethane	TM116	**100.8** 81.77 : 121.07	**102.4** 81.77 : 121.07
1,1,2-Trichloroethane	TM116	**100.4** 79.24 : 112.23	**94.2** 79.24 : 112.23
1,1-Dichloroethane	TM116	**103.0** 72.58 : 116.06	**106.6** 72.58 : 116.06
1,2-Dichloroethane	TM116	**118.8** 77.50 : 122.50	**112.0** 77.50 : 122.50
1,4-Dichlorobenzene	TM116	**96.2** 73.23 : 116.39	**95.4** 73.23 : 116.39
2-Chlorotoluene	TM116	**85.6** 69.22 : 110.64	**86.6** 69.22 : 110.64
4-Chlorotoluene	TM116	**89.0** 68.57 : 106.26	**87.4** 68.57 : 106.26
Benzene	TM116	**103.2** 84.33 : 124.27	**106.0** 84.33 : 124.27
Carbon Disulphide	TM116	**110.4** 77.20 : 122.80	**107.4** 77.20 : 122.80
Carbontetrachloride	TM116	**98.2** 84.20 : 119.90	**102.8** 84.20 : 119.90
Chlorobenzene	TM116	**102.4** 85.28 : 129.96	**103.2** 85.28 : 129.96
Chloroform	TM116	**108.2** 82.73 : 119.72	**106.6** 82.73 : 119.72
Chloromethane	TM116	**123.4** 55.16 : 145.46	**117.2** 55.16 : 145.46
Cis-1,2-Dichloroethene	TM116	**108.4** 73.56 : 118.93	**108.4** 73.56 : 118.93
Dibromomethane	TM116	**104.4** 73.40 : 116.60	**98.0** 73.40 : 116.60
Dichloromethane	TM116	**113.2** 76.16 : 121.98	**108.2** 76.16 : 121.98

VOC MS (S)

		QC 1128	QC 1175
Ethylbenzene	TM116	**94.0** 80.07 : 125.98	**99.2** 80.07 : 125.98
Hexachlorobutadiene	TM116	**69.0** 30.92 : 132.28	**89.2** 30.92 : 132.28
Isopropylbenzene	TM116	**82.6** 69.27 : 125.32	**92.6** 69.27 : 125.32
Naphthalene	TM116	**110.0** 79.15 : 121.98	**107.4** 79.15 : 121.98
o-Xylene	TM116	**77.6** 75.46 : 111.52	**84.8** 75.46 : 111.52
p/m-Xylene	TM116	**90.2** 76.97 : 121.75	**96.6** 76.97 : 121.75
Sec-Butylbenzene	TM116	**69.6** 49.27 : 129.90	**85.8** 49.27 : 129.90
Tetrachloroethene	TM116	**102.2** 87.96 : 133.65	**110.6** 87.96 : 133.65
Toluene	TM116	**99.0** 79.23 : 114.58	**100.6** 79.23 : 114.58
Trichloroethene	TM116	**94.6** 84.09 : 114.24	**98.4** 84.09 : 114.24
Trichlorofluoromethane	TM116	**107.4** 76.22 : 114.82	**104.4** 76.22 : 114.82
Vinyl Chloride	TM116	**98.2** 59.68 : 118.68	**100.8** 59.68 : 118.68

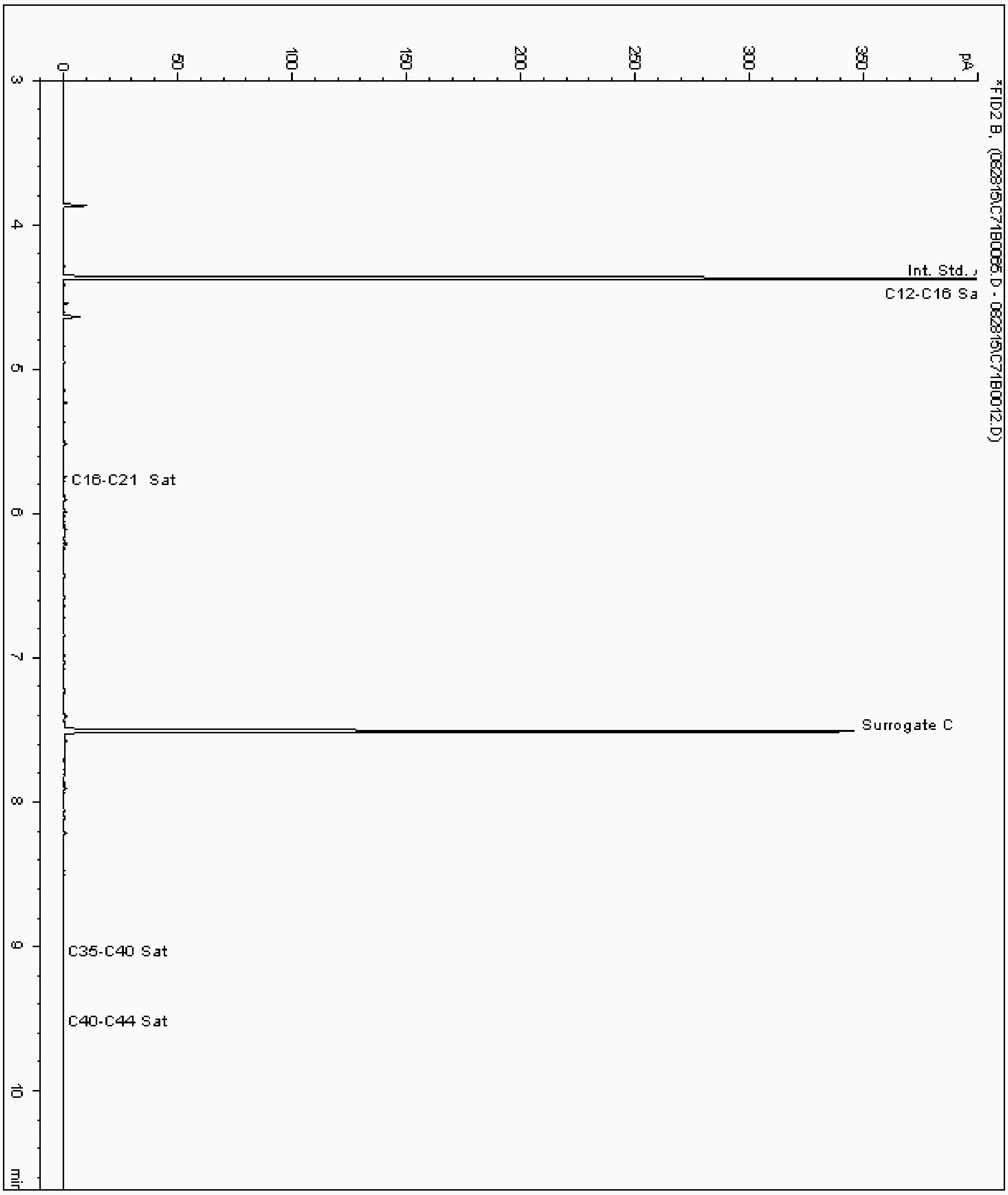
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S)
Sample No : 11982640
Sample ID : BH9A
Depth : 2.20 - 3.30

```
Alcontrol/Geochem Analytical Services
Speciated TPH - AROM ( C12 - C40 )

Sample Identity:   11364862-
Date Acquired  :   02/09/2015 08:42:03 PM
Units          :   ppb
Dilution:          BH9A[2.20 - 3.30]                ->
```

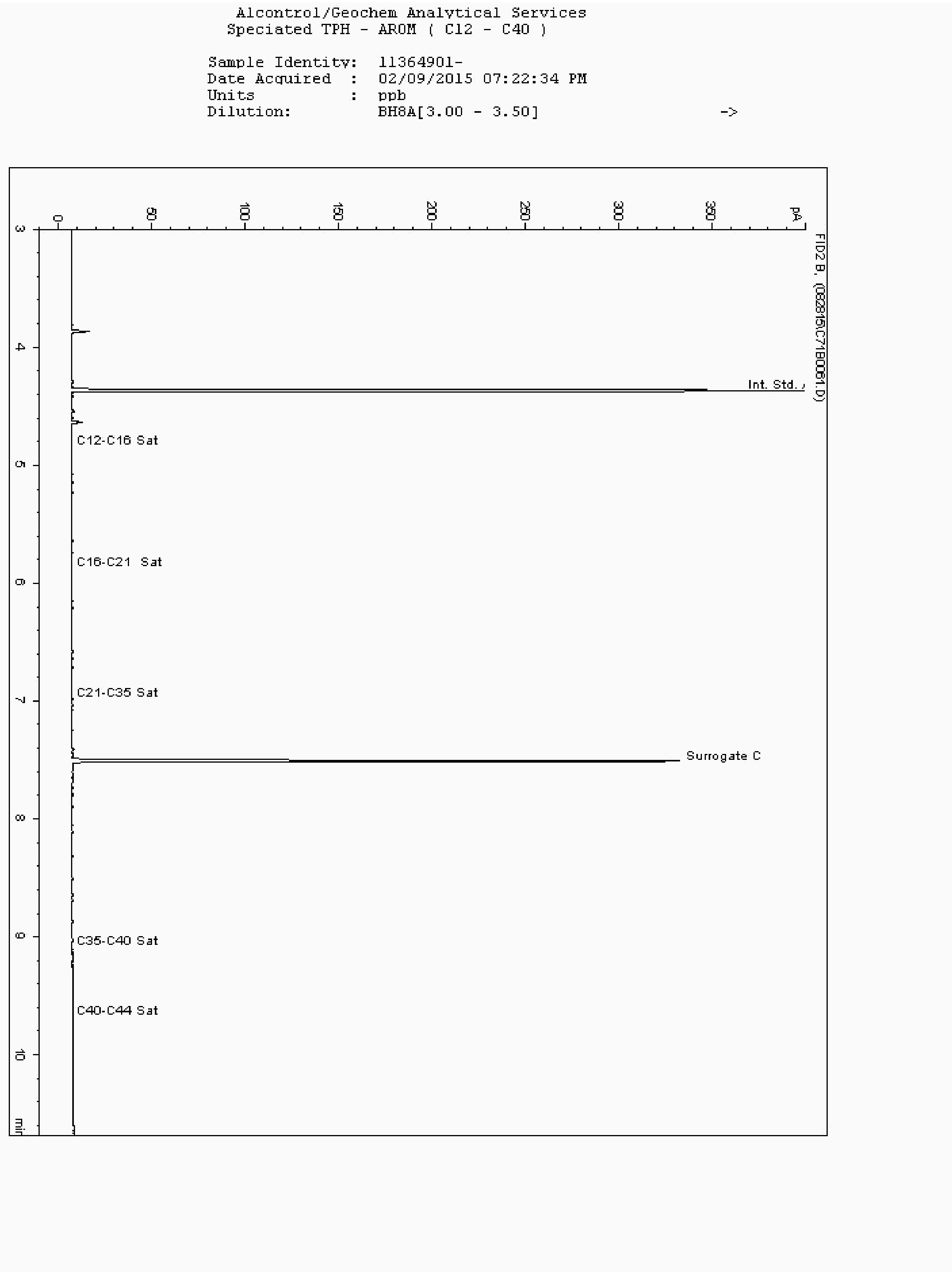


CERTIFICATE OF ANALYSIS

SDG:	150828-57	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329023
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	EPH CWG (Aliphatic) GC (S)	**Sample No :**	11982647	**Depth :**	3.00 - 3.50
		Sample ID :	BH8A		



```
        Alcontrol/Geochem Analytical Services
      Speciated TPH - AROM ( C12 - C40 )

    Sample Identity:  11364901-
    Date Acquired  :  02/09/2015 07:22:34 PM
    Units          :  ppb
    Dilution:         BH8A[3.00 - 3.50]               ->
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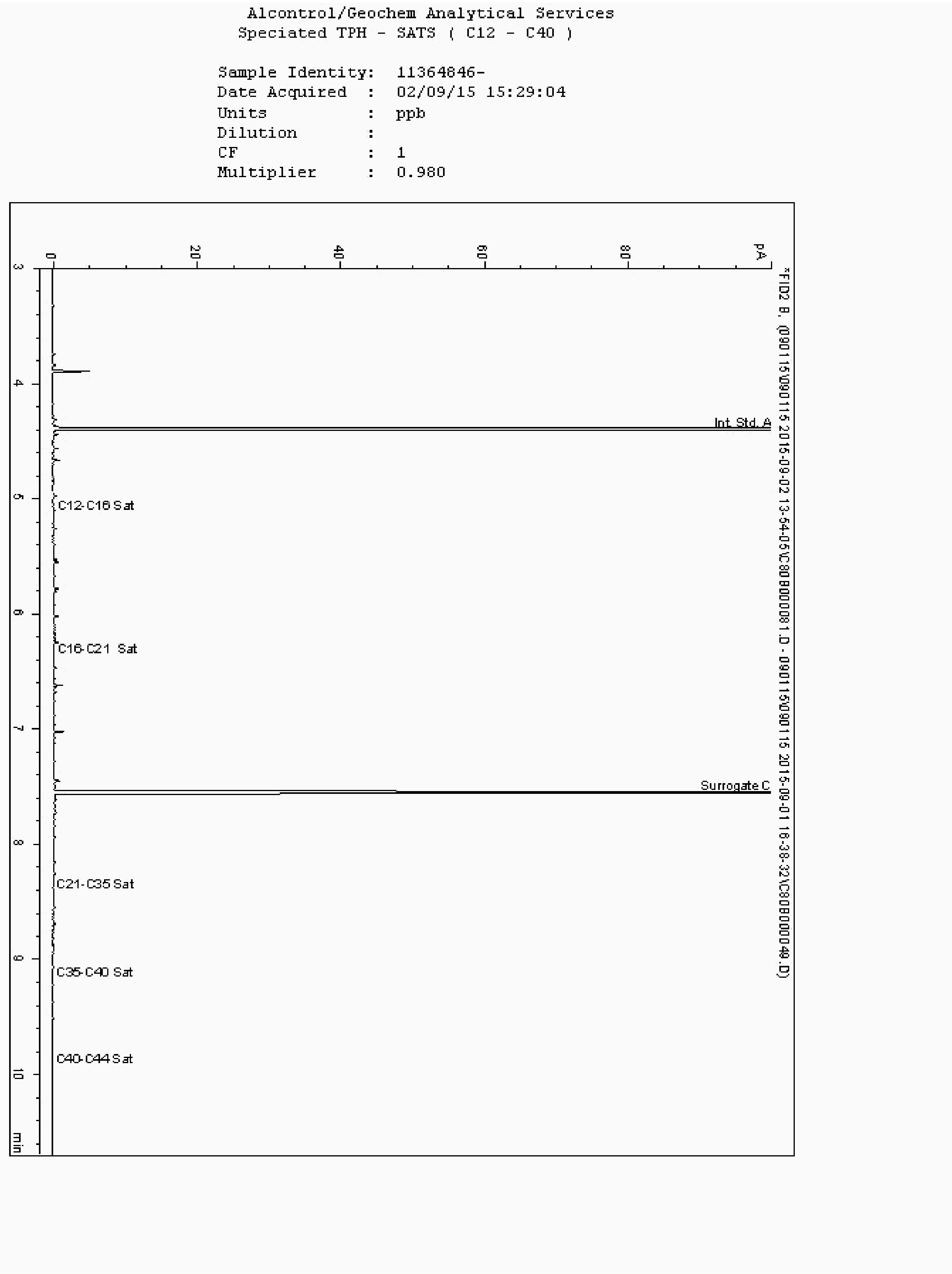
SDG:	150828-57	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329023
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	EPH CWG (Aliphatic) GC (S)	**Sample No :**	11989024	**Depth :**	0.50
		Sample ID :	BH9A		



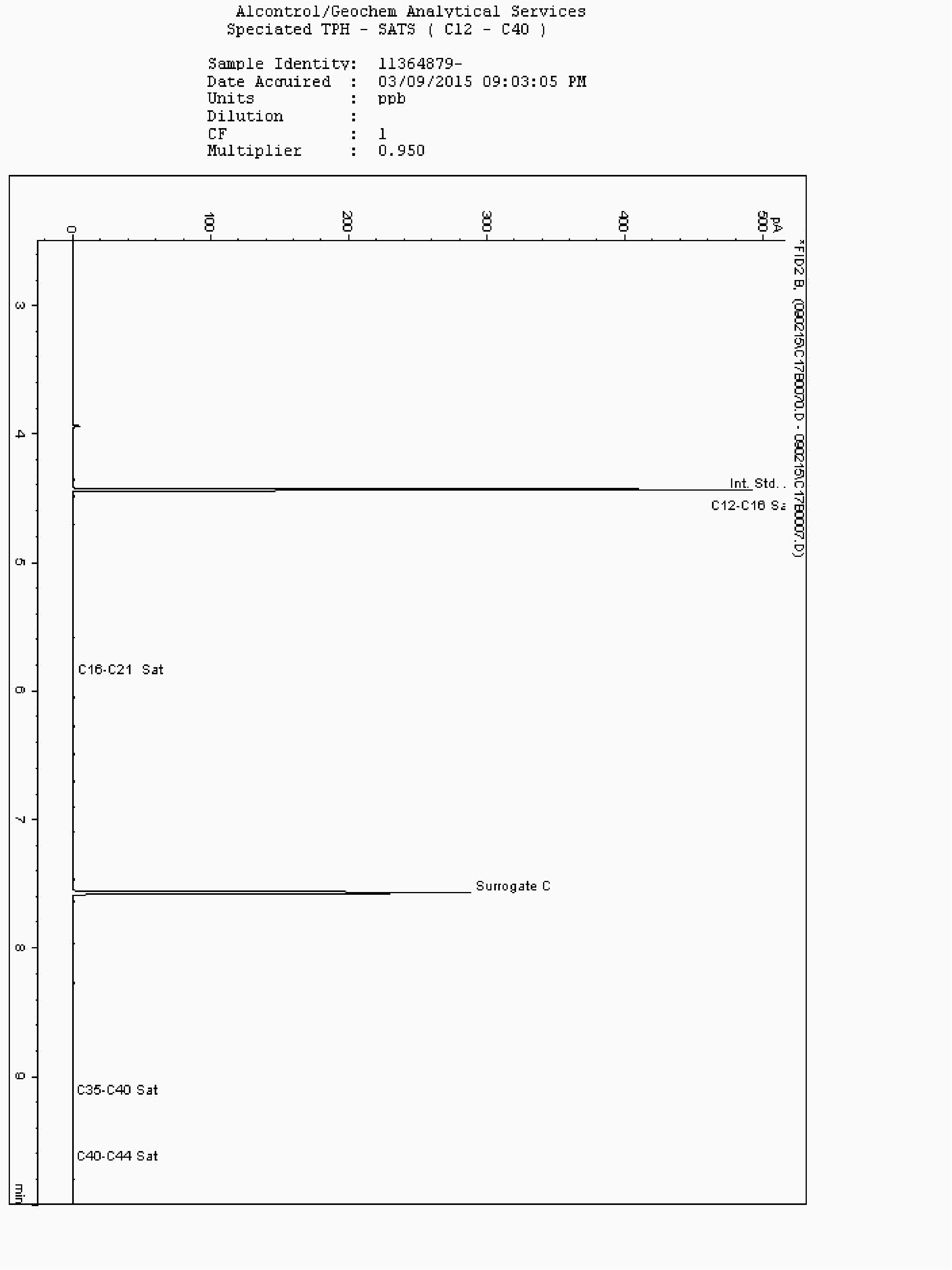
Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 11364846-
Date Acquired : 02/09/15 15:29:04
Units : ppb
Dilution :
CF : 1
Multiplier : 0.980

SDG: 150828-57
Job: H_URS_WIM-273
Client Reference:
Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall
Order Number:
Report Number: 329023
Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S)
Sample No : 11989052
Sample ID : BH8A
Depth : 0.50



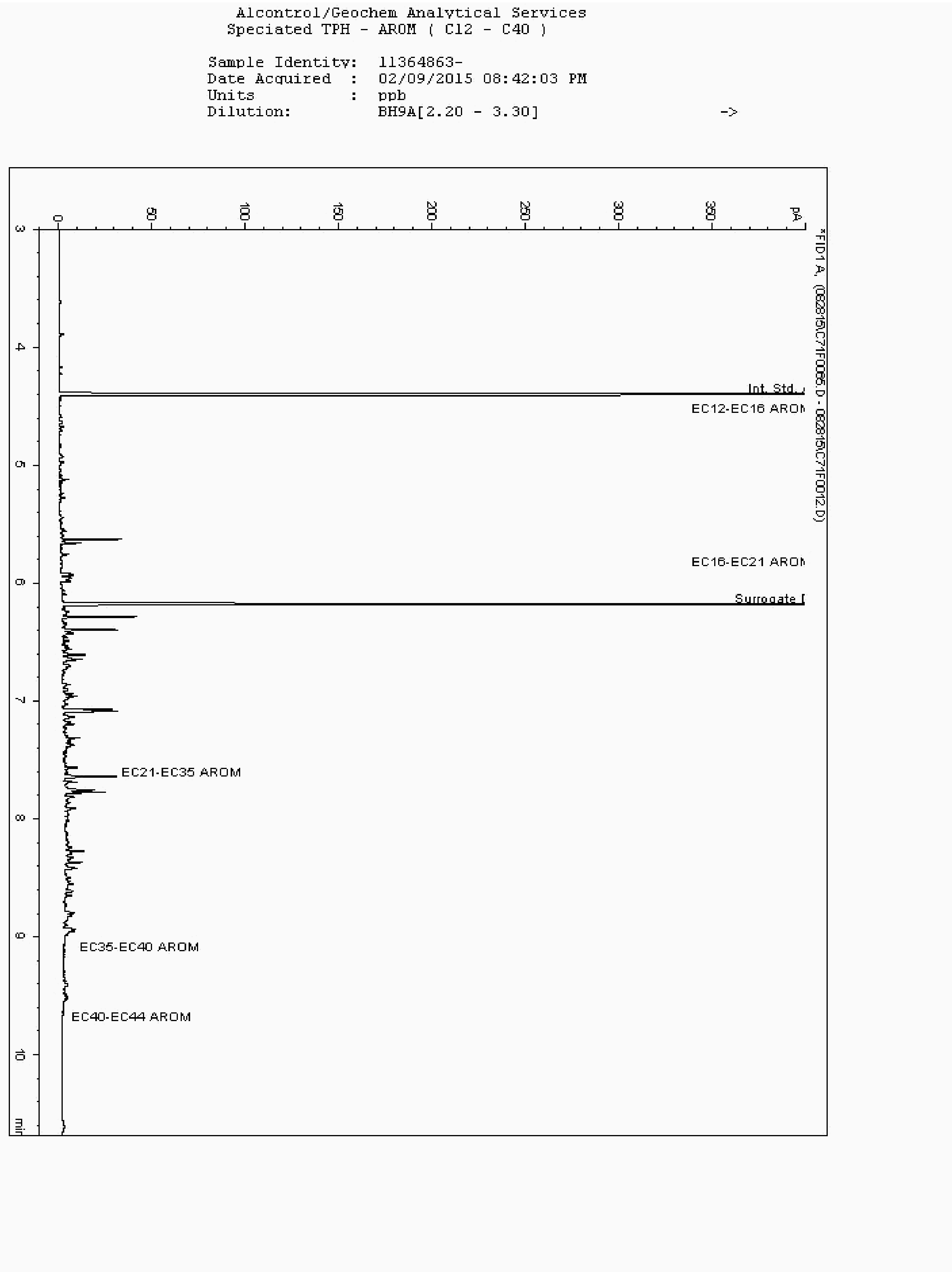
```
Alcontrol/Geochem Analytical Services
Speciated TPH - SATS ( C12 - C40 )

Sample Identity:  11364879-
Date Acquired  :  03/09/2015 09:03:05 PM
Units          :  ppb
Dilution       :
CF             :  1
Multiplier     :  0.950
```

SDG:	150828-57	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329023
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	EPH CWG (Aromatic) GC (S)	**Sample No :**	11982640	**Depth :**	2.20 - 3.30
		Sample ID :	BH9A		



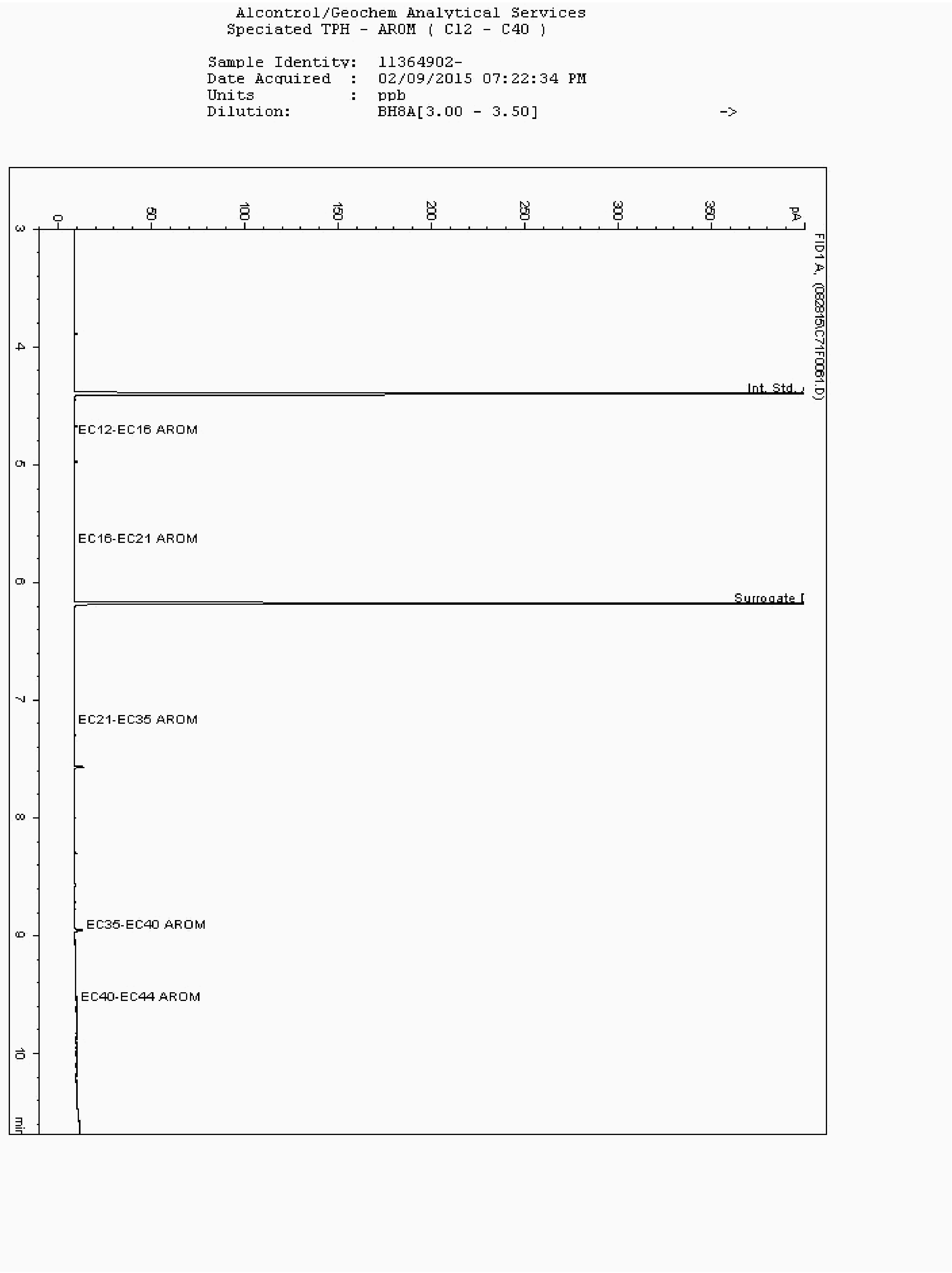
```
Alcontrol/Geochem Analytical Services
Speciated TPH - AROM ( C12 - C40 )

Sample Identity:   11364863-
Date Acquired  :   02/09/2015 08:42:03 PM
Units          :   ppb
Dilution:          BH9A[2.20 - 3.30]              ->
```

SDG:	150828-57	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329023
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	EPH CWG (Aromatic) GC (S)	**Sample No :**	11982647	**Depth :**	3.00 - 3.50
		Sample ID :	BH8A		



```
   Alcontrol/Geochem Analytical Services
 Speciated TPH - AROM ( C12 - C40 )

Sample Identity:  11364902-
Date Acquired   :  02/09/2015 07:22:34 PM
Units           :  ppb
Dilution:          BH8A[3.00 - 3.50]              ->
```

Chromatogram

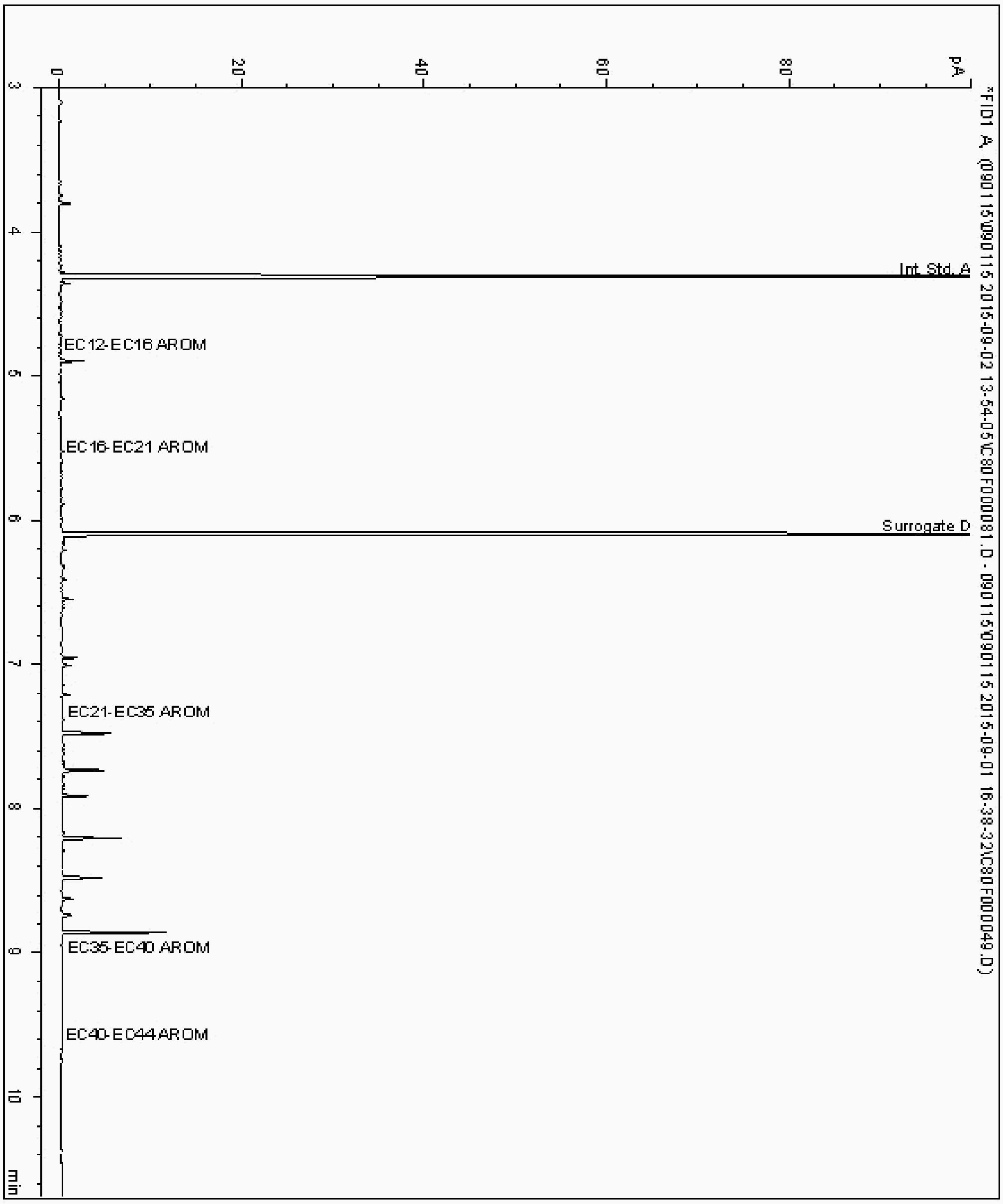
Analysis: EPH CWG (Aromatic) GC (S)

Sample No : 11989024
Sample ID : BH9A

Depth : 0.50

```
Alcontrol/Geochem Analytical Services
Speciated TPH - AROMS ( C12 - C44)

Sample Identity: 11364847-
Date Acquired  :  02/09/15 15:29:04
Units          :  ppb
Dilution       :
CF             :  1
Multiplier     :  0.980
```

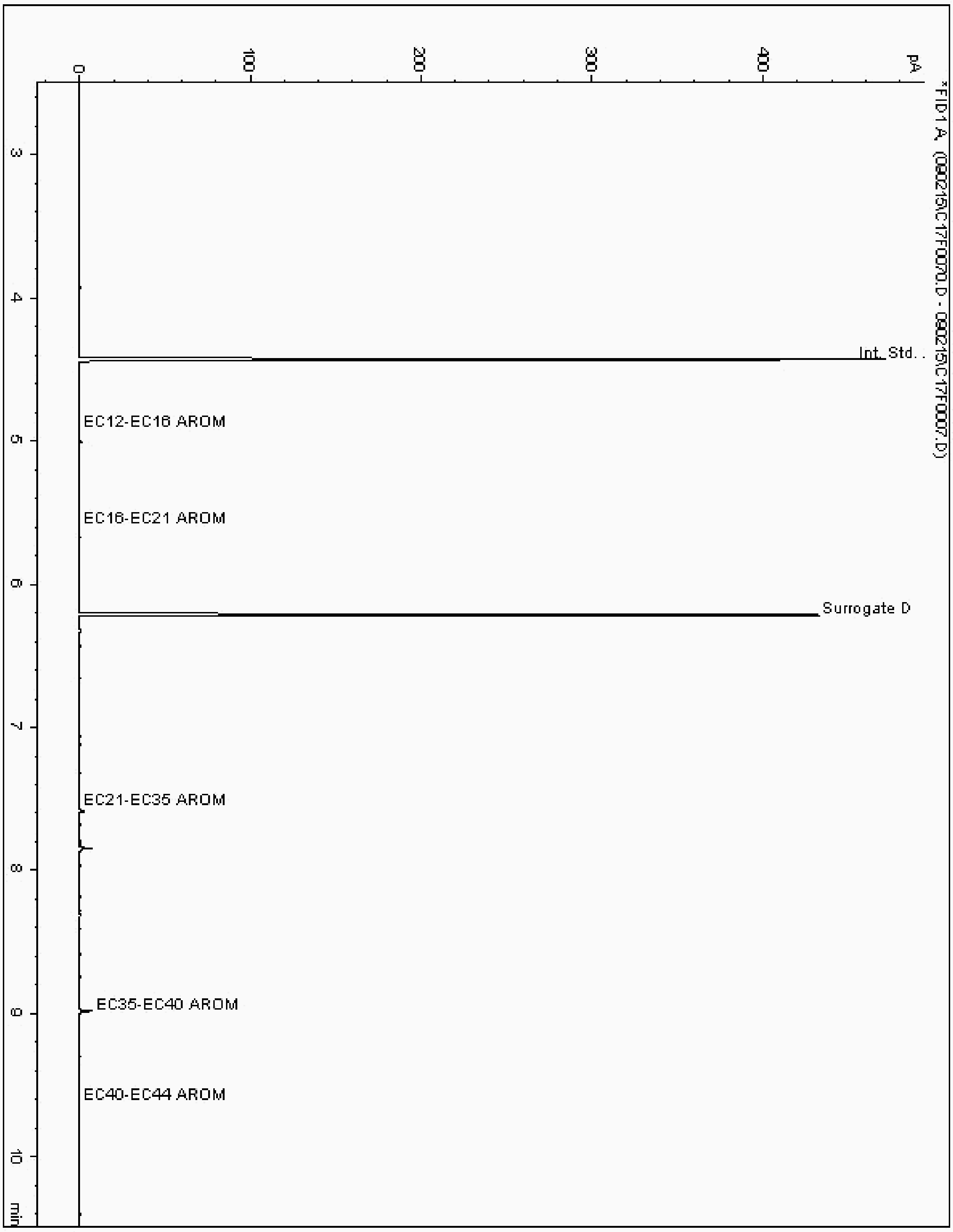


Chromatogram

Analysis:	EPH CWG (Aromatic) GC (S)	**Sample No :**	11989052	**Depth :**	0.50
		Sample ID :	BH8A		

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

```
Sample Identity:  11364880-
Date Acquired  :  03/09/2015 09:03:05 PM
Units          :  ppb
Dilution       :
CF             :  1
Multiplier     :  0.950
```

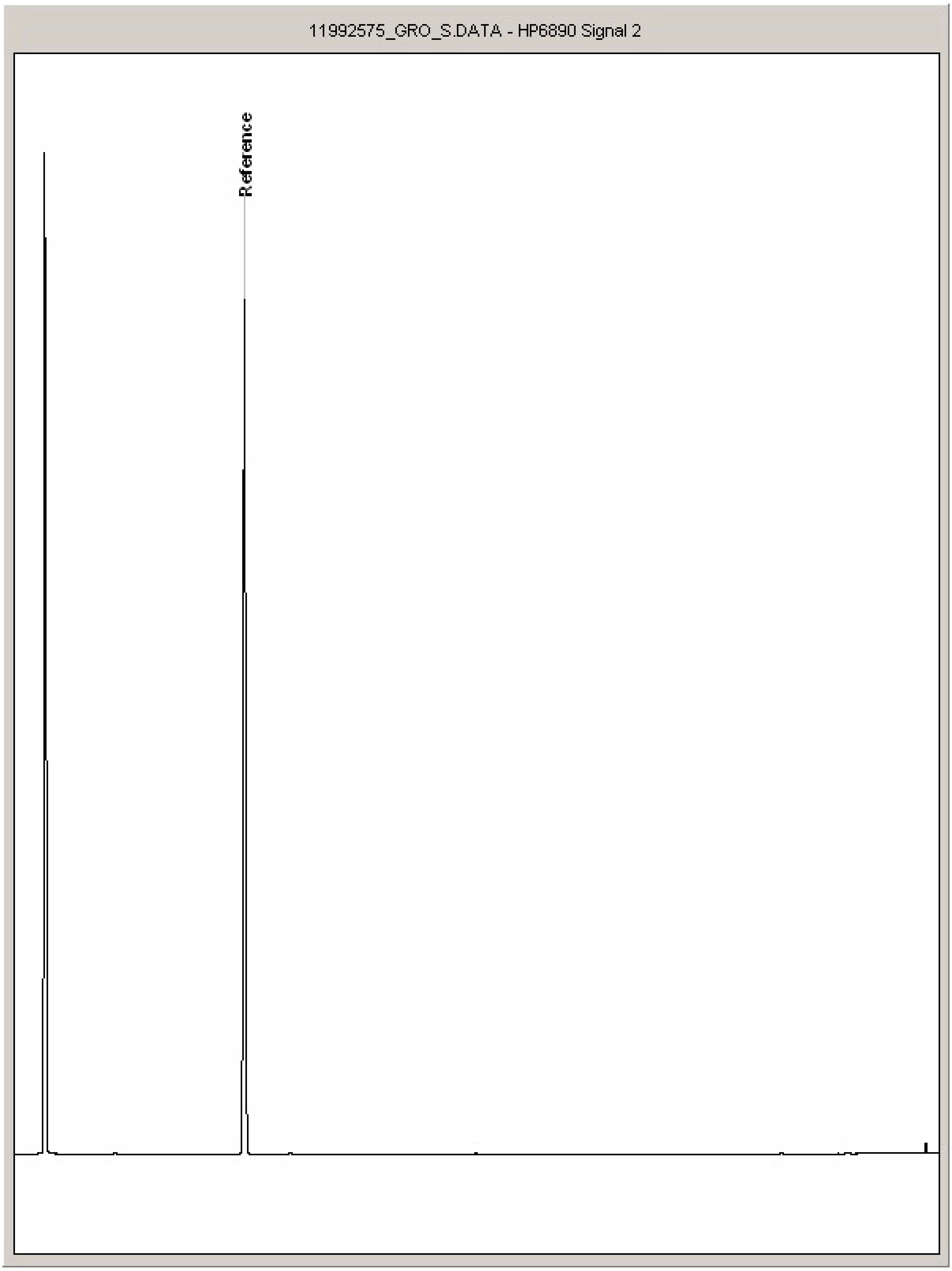


CERTIFICATE OF ANALYSIS

SDG:	150828-57	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329023
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	GRO by GC-FID (S)	**Sample No :**	11992575	**Depth :**	3.00 - 3.50
		Sample ID :	BH8A		

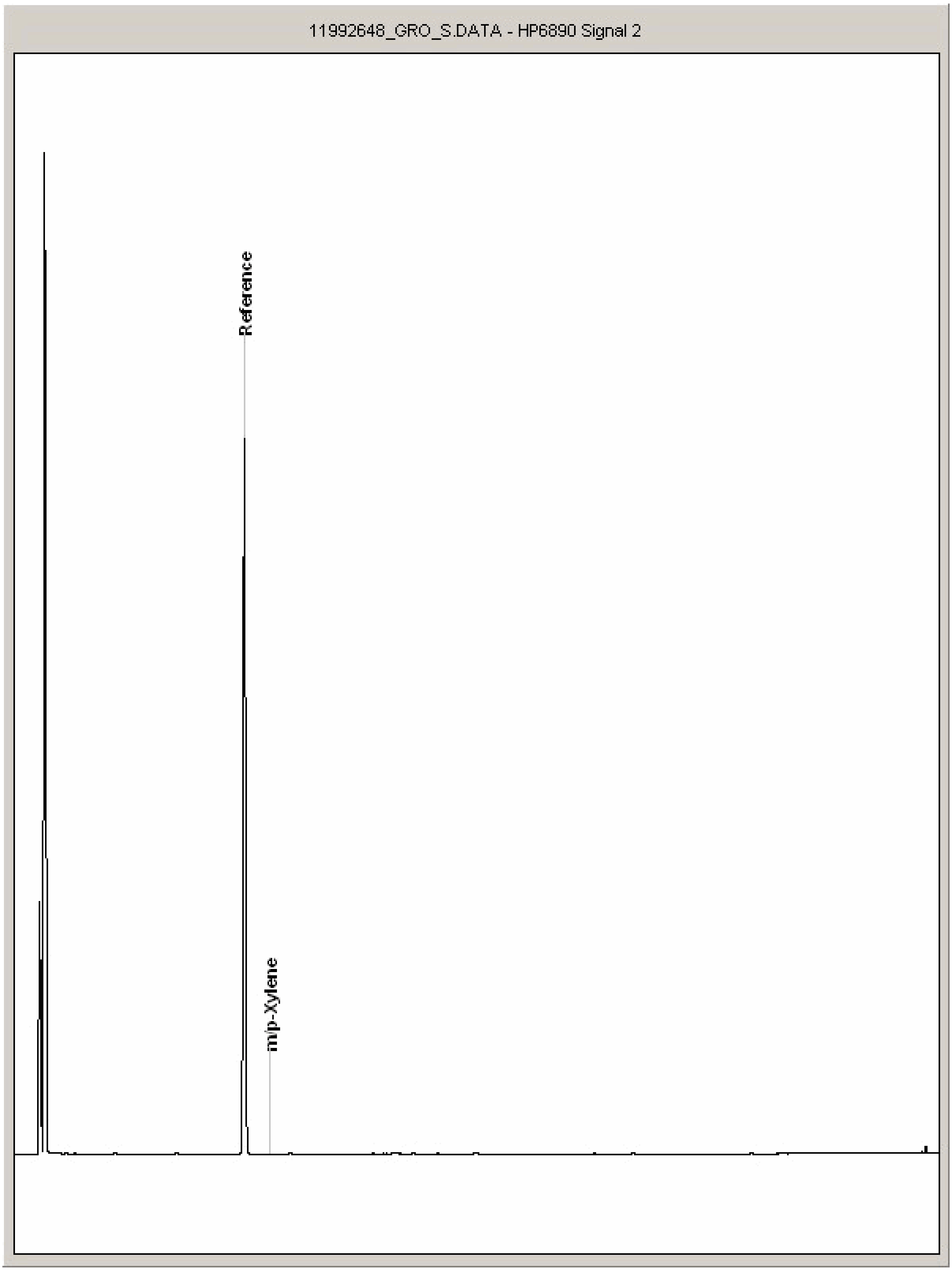


Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 11992648
Sample ID : BH9A

Depth : 2.20 - 3.30



SDG:	150828-57	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329023
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

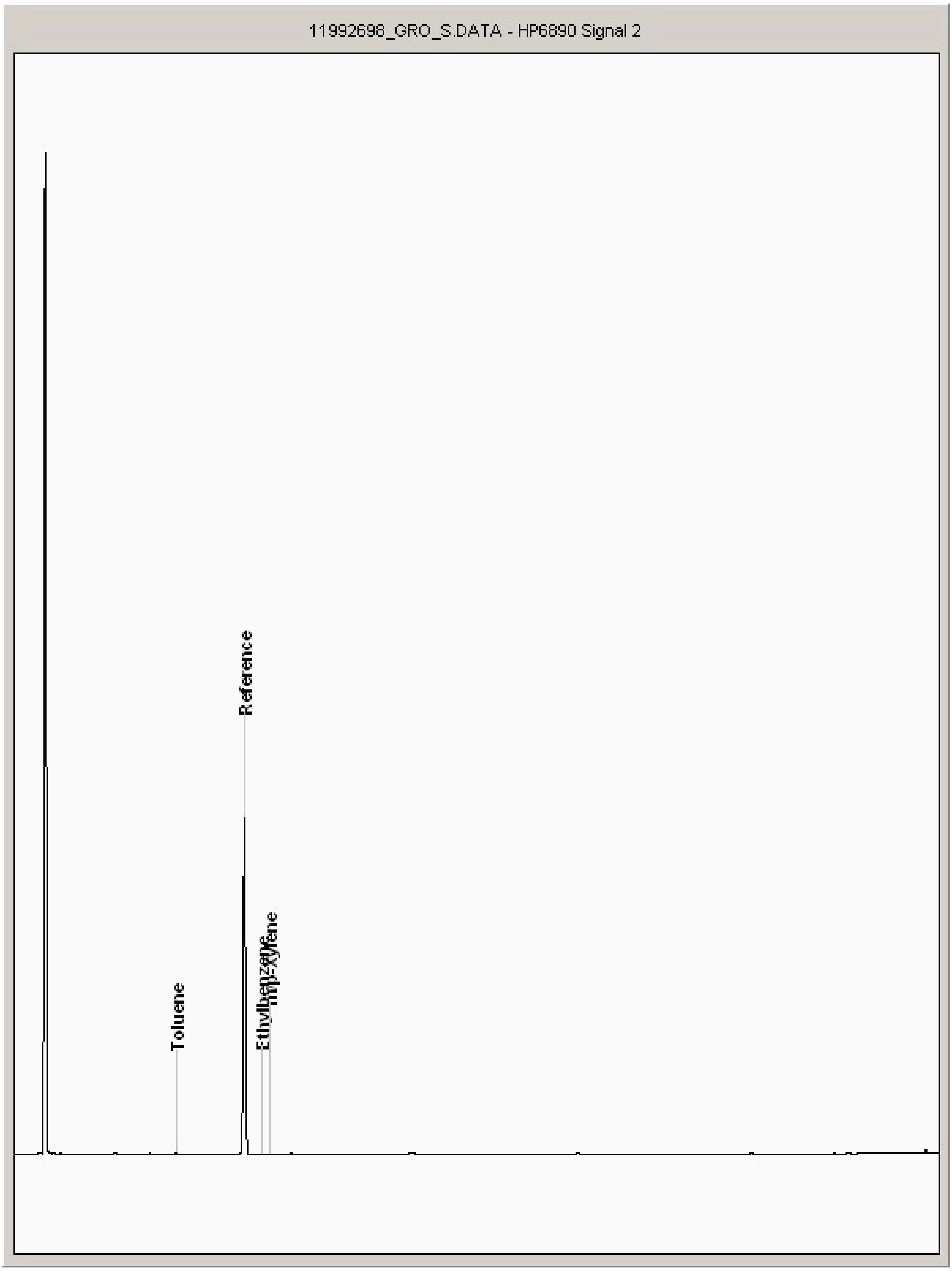
Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 11992698

Sample ID : BH8A

Depth : 0.50

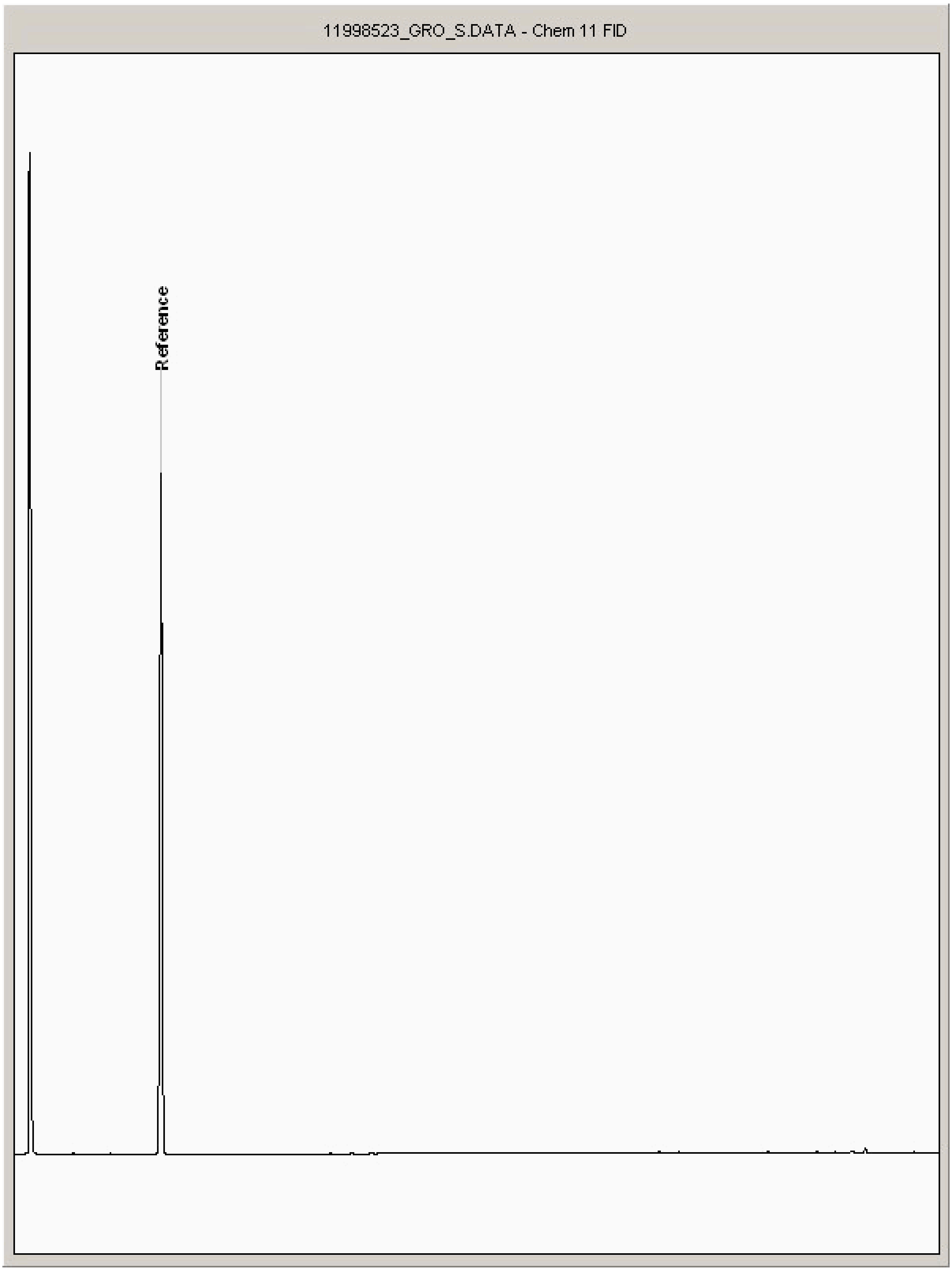


CERTIFICATE OF ANALYSIS

SDG:	150828-57	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329023
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	GRO by GC-FID (S)	**Sample No :**	11998523	**Depth :**	0.50
		Sample ID :	BH9A		



Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA Leach tests, flash point, ammonium as NH4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for both soil jars, tubs and volatile jars. All waters and vials will be discarded 10 days after the analysis is completed (e-mailed). All material removed during an asbestos containing material screen and analysed for the presence of asbestos will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be screened in house for the presence of large asbestos containing material fragments/pieces. If no asbestos containing material is found this will be reported as 'no asbestos containing material detected'. If asbestos containing material is detected it will be removed and analysed by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If asbestos containing material is present no further analysis will be undertaken. At no point is the fibre content of the soil sample determined.

7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample -similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule or recorded on the log sheet.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.

12. Results relate only to the items tested

13. **Surrogate recoveries** -Most of our organic methods include surrogates, the recovery of which is monitored and reported. For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 -130 %.

14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors
employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 14).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not
accredited.

19. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

20. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

23. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials -whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute themajor part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

24. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C4 -C10 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENT EXTRACTABLE MATTER	D&C	DCM	SOXTHERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
THIN LAYER CHROMATOGRAPHY	D&C	DCM	SOXTHERM	IATROSCAN
ELEMENTAL SULPHUR	D&C	DCM	SOXTHERM	HPLC
PHENOLS BY GCMS	WET	DCM	SOXTHERM	GC-MS
HERBICIDES	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
PESTICIDES	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
EPH (DRO)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (MIN OIL)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (CLEANED UP)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH CWG BY GC	D&C	HEXANE:ACETONE	END OVER END	GC-FID
PCB TOT / PCB CON	D&C	HEXANE:ACETONE	END OVER END	GC-MS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANE:ACETONE	MICROWAVE TM218.	GC-MS
C8-C40 (C6-C40) EZ FLASH	WET	HEXANE:ACETONE	SHAKER	GC-EZ
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANE:ACETONE	SHAKER	GC-EZ
SEMI VOLATILE ORGANIC COMPOUNDS	WET	DCM:ACETONE	SONICATE	GC-MS

LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAH MS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
EPH	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
PCB 7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
PCB TOTAL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
SVOC	DCM	LIQUID/LIQUID SHAKE	GCMS
FREE SULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PEST OCP/OPP	DCM	LIQUID/LIQUID SHAKE	GCMS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GCMS
PHENOLS MS	DCM	SOLID PHASE EXTRACTION	GCMS
TPH by INFRARED (IR)	TCE	LIQUID/LIQUID SHAKE	HPLC
MINERAL OIL by IR	TCE	LIQUID/LIQUID SHAKE	HPLC
GLYCOLS	NONE	DIRECT INJECTION	GCMS

Identification of Asbestos in Bulk Materials

The results for asbestos identification for soil samples are obtained from possible Asbestos Containing Material, removed during the 'Screening of soils for Asbestos Containing Materials', which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: -
Trace -Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in MDHS 100.

The identification of asbestos containing materials falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Last Updated : 2010/09/08

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICS and SVOC TICS.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. Results relate only to the items tested.

12. LODs for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

Sample Deviations

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
5	**Samples exceeded holding time before presevation was performed**
§	**Sampled on date not provided**
•	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than:
- Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

ALcontrol Laboratories

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AECOM
St. George's House
2nd Floor
5 St. George's Road
Wimbledon
Greater London
SW19 4DR

Attention: Gary Marshall

CERTIFICATE OF ANALYSIS

Date:	10 September 2015
Customer:	H_URS_WIM
Sample Delivery Group (SDG):	150829-68
Your Reference:	
Location:	Stag Brewery
Report No:	329373

We received 4 samples on Saturday August 29, 2015 and 4 of these samples were scheduled for analysis which was completed on Thursday September 10, 2015. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Approved By:

Sonia McWhan

Operations Manager

MCERTS
THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

ilac-MRA

UKAS TESTING
1291

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
11984669	BH3A		0.50	28/08/2015
11984670	BH3A		1.50 - 2.00	28/08/2015
11984671	BH5A		0.50	28/08/2015
11984672	BH5A		2.50 - 3.00	28/08/2015

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG:	150829-68	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329373
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

SOLID

Results Legend

X **Test**

N **No Determination Possible**

Lab Sample No(s)			11984669			11984670	11984671			11984672		
Customer Sample Reference			BH3A			BH3A	BH5A			BH5A		
AGS Reference												
Depth (m)			0.50			1.50 - 2.00	0.50			2.50 - 3.00		
Container			250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (AL	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)
Ammonium Soil by Titration	All	NDPs: 0 Tests: 3		X				X			X	
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 3		X				X			X	
Easily Liberated Sulphide	All	NDPs: 0 Tests: 3		X				X			X	
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 3	X				X			X		
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 3	X				X			X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 3			X				X			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 3		X				X			X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 3	X				X			X		
PAH by GCMS	All	NDPs: 0 Tests: 3	X				X			X		
pH	All	NDPs: 0 Tests: 3		X				X			X	
Sample description	All	NDPs: 0 Tests: 4	X			X	X			X		
Total Organic Carbon	All	NDPs: 0 Tests: 3	X				X			X		
Total Sulphate	All	NDPs: 0 Tests: 3	X				X			X		
TPH CWG GC (S)	All	NDPs: 0 Tests: 3	X				X			X		
VOC MS (S)	All	NDPs: 0 Tests: 3			X				X			X

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Grain size	Inclusions	Inclusions 2
11984669	BH3A	0.50	Dark Brown	Sand	0.1 - 2 mm	Stones	None
11984670	BH3A	1.50 - 2.00	Dark Brown	Sandy Loam	0.1 - 2 mm	Stones	None
11984671	BH5A	0.50	Light Brown	Sand	0.1 - 2 mm	Stones	Vegetation
11984672	BH5A	2.50 - 3.00	Dark Brown	Sandy Loam	0.1 - 2 mm	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 150829-68
Job: H_URS_WIM-273
Client Reference:

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

Order Number:
Report Number: 329373
Superseded Report:

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Customer Sample R	BH3A	BH5A	BH5A			
		Depth (m)	0.50	0.50	2.50 - 3.00			
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid			
		Date Sampled	28/08/2015	28/08/2015	28/08/2015			
		Sampled Time	.	.	.			
		Date Received	29/08/2015	29/08/2015	29/08/2015			
		SDG Ref	150829-68	150829-68	150829-68			
		Lab Sample No.(s)	11984669	11984671	11984672			
		AGS Reference						
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	6.3	7	5.8			
Exchangeable Ammonia as NH4	<15 mg/kg	TM024	<15 M	27.7 M	<15 M			
Organic Carbon, Total	<0.2 %	TM132	1.52 M	1.33 M	<0.2 M			
pH	1 pH Units	TM133	8.22 M	7.86 M	7.86 M			
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6 #	<0.6 #	<0.6 #			
Sulphide, Easily liberated	<15 mg/kg	TM180	<15 & #	<15 & #	<15 & #			
Arsenic	<0.6 mg/kg	TM181	18.9 M	19.1 M	22.4 M			
Cadmium	<0.02 mg/kg	TM181	0.475 M	1.13 M	0.533 M			
Chromium	<0.9 mg/kg	TM181	19.5 M	25.4 M	21.6 M			
Copper	<1.4 mg/kg	TM181	49.3 M	28 M	3.56 M			
Lead	<0.7 mg/kg	TM181	178 M	85.7 M	9.05 M			
Mercury	<0.14 mg/kg	TM181	0.151 M	1.9 M	<0.14 M			
Nickel	<0.2 mg/kg	TM181	29.2 M	17.1 M	20.7 M			
Selenium	<1 mg/kg	TM181	<1 #	<1 #	<1 #			
Zinc	<1.9 mg/kg	TM181	89.3 M	101 M	28.6 M			
Sulphate, Total	<48 mg/kg	TM221	579 M	356 M	95.9 M			

CERTIFICATE OF ANALYSIS

SDG: 150829-68
Job: H_URS_WIM-273
Client Reference:
Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall
Order Number:
Report Number: 329373
Superseded Report:

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&◆§@	Sample deviation (see appendix)

		Customer Sample R	BH3A	BH5A	BH5A			
		Depth (m)	0.50	0.50	2.50 - 3.00			
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid			
		Date Sampled	28/08/2015	28/08/2015	28/08/2015			
		Sampled Time	.	.	.			
		Date Received	29/08/2015	29/08/2015	29/08/2015			
		SDG Ref	150829-68	150829-68	150829-68			
		Lab Sample No.(s)	11984669	11984671	11984672			
		AGS Reference						
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	95	96.9	97.3			
Acenaphthene-d10 % recovery**	%	TM218	90.7	92.6	96			
Phenanthrene-d10 % recovery**	%	TM218	89.2	90.5	94.6			
Chrysene-d12 % recovery**	%	TM218	83.6	85	86.6			
Perylene-d12 % recovery**	%	TM218	87.7	92.4	90.2			
Naphthalene	<9 µg/kg	TM218	34.7 M	15.9 M	<9 M			
Acenaphthylene	<12 µg/kg	TM218	29.9 M	28.9 M	<12 M			
Acenaphthene	<8 µg/kg	TM218	<8 M	9.32 M	<8 M			
Fluorene	<10 µg/kg	TM218	<10 M	<10 M	<10 M			
Phenanthrene	<15 µg/kg	TM218	188 M	147 M	<15 M			
Anthracene	<16 µg/kg	TM218	36 M	39.9 M	<16 M			
Fluoranthene	<17 µg/kg	TM218	445 M	417 M	<17 M			
Pyrene	<15 µg/kg	TM218	384 M	359 M	29.8 M			
Benz(a)anthracene	<14 µg/kg	TM218	245 M	227 M	<14 M			
Chrysene	<10 µg/kg	TM218	291 M	236 M	24.5 M			
Benzo(b)fluoranthene	<15 µg/kg	TM218	459 M	391 M	23.5 M			
Benzo(k)fluoranthene	<14 µg/kg	TM218	134 M	132 M	<14 M			
Benzo(a)pyrene	<15 µg/kg	TM218	289 M	260 M	<15 M			
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	210 M	156 M	<18 M			
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	63.4 M	46.8 M	<23 M			
Benzo(g,h,i)perylene	<24 µg/kg	TM218	245 M	196 M	<24 M			
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	3050	2660	<118			

Validated

CERTIFICATE OF ANALYSIS

SDG:	150829-68	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329373
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Customer Sample R	BH3A	BH5A	BH5A			
		Depth (m)	0.50	0.50	2.50 - 3.00			
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid			
		Date Sampled	28/08/2015	28/08/2015	28/08/2015			
		Sampled Time	.	.	.			
		Date Received	29/08/2015	29/08/2015	29/08/2015			
		SDG Ref	150829-68	150829-68	150829-68			
		Lab Sample No.(s)	11984669	11984671	11984672			
		AGS Reference						
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	69	72	99			
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	<44 M	<44 M	<44 M			
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5 M	<5 M	<5 M			
Benzene	<10 µg/kg	TM089	<10 M	<10 M	<10 M			
Toluene	<2 µg/kg	TM089	<2 M	<2 M	<2 M			
Ethylbenzene	<3 µg/kg	TM089	5.34 M	<3 M	<3 M			
m,p-Xylene	<6 µg/kg	TM089	<6 M	<6 M	<6 M			
o-Xylene	<3 µg/kg	TM089	<3 M	<3 M	<3 M			
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9	<9	<9			
sum of detected BTEX by GC	<24 µg/kg	TM089	<24	<24	<24			
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	<10	<10			
Aliphatics >C6-C8	<10 µg/kg	TM089	<10	<10	<10			
Aliphatics >C8-C10	<10 µg/kg	TM089	<10	<10	<10			
Aliphatics >C10-C12	<10 µg/kg	TM089	<10	<10	<10			
Aliphatics >C12-C16	<100 µg/kg	TM173	<100	<100	<100			
Aliphatics >C16-C21	<100 µg/kg	TM173	3140	234	<100			
Aliphatics >C21-C35	<100 µg/kg	TM173	9790	6660	<100			
Aliphatics >C35-C44	<100 µg/kg	TM173	3030	968	<100			
Total Aliphatics >C12-C44	<100 µg/kg	TM173	15900	7860	<100			
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10	<10			
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	<10	<10			
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10	<10	<10			
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10	<10	<10			
Aromatics >EC12-EC16	<100 µg/kg	TM173	714	358	<100			
Aromatics >EC16-EC21	<100 µg/kg	TM173	4780	2620	<100			
Aromatics >EC21-EC35	<100 µg/kg	TM173	24700	16100	<100			
Aromatics >EC35-EC44	<100 µg/kg	TM173	12700	8050	<100			
Aromatics >EC40-EC44	<100 µg/kg	TM173	5160	2870	<100			
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	42900	27100	<100			
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	58900	35000	<100			

CERTIFICATE OF ANALYSIS

SDG:	150829-68	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329373
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Customer Sample R	BH3A	BH5A	BH5A			
		Depth (m)	0.50	0.50	2.50 - 3.00			
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid			
		Date Sampled	28/08/2015	28/08/2015	28/08/2015			
		Sampled Time	.	.	.			
		Date Received	29/08/2015	29/08/2015	29/08/2015			
		SDG Ref	150829-68	150829-68	150829-68			
		Lab Sample No.(s)	11984669	11984671	11984672			
		AGS Reference						
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	116	122	120			
Toluene-d8**	%	TM116	104	103	113			
4-Bromofluorobenzene**	%	TM116	69.3	72.4	102			
Dichlorodifluoromethane	<6 µg/kg	TM116	<6 M	<6 M	<6 M			
Chloromethane	<7 µg/kg	TM116	<7 #	<7 #	<7 #			
Vinyl Chloride	<6 µg/kg	TM116	<6 M	<6 M	<6 M			
Bromomethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M			
Chloroethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M			
Trichlorofluorormethane	<6 µg/kg	TM116	<6 M	<6 M	<6 M			
1,1-Dichloroethene	<10 µg/kg	TM116	<10 #	<10 #	<10 #			
Carbon Disulphide	<7 µg/kg	TM116	<7 M	<7 M	<7 M			
Dichloromethane	<10 µg/kg	TM116	<10 #	<10 #	<10 #			
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 M	<10 M	<10 M			
trans-1,2-Dichloroethene	<10 µg/kg	TM116	<10 M	<10 M	<10 M			
1,1-Dichloroethane	<8 µg/kg	TM116	<8 M	<8 M	<8 M			
cis-1,2-Dichloroethene	<6 µg/kg	TM116	<6 M	<6 M	<6 M			
2,2-Dichloropropane	<10 µg/kg	TM116	<10 M	<10 M	<10 M			
Bromochloromethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M			
Chloroform	<8 µg/kg	TM116	<8 M	<8 M	<8 M			
1,1,1-Trichloroethane	<7 µg/kg	TM116	<7 M	<7 M	<7 M			
1,1-Dichloropropene	<10 µg/kg	TM116	<10 M	<10 M	<10 M			
Carbontetrachloride	<10 µg/kg	TM116	<10 M	<10 M	<10 M			
1,2-Dichloroethane	<5 µg/kg	TM116	<5 M	<5 M	<5 M			
Benzene	<9 µg/kg	TM116	<9 M	<9 M	<9 M			
Trichloroethene	<9 µg/kg	TM116	<9 #	<9 #	<9 #			
1,2-Dichloropropane	<10 µg/kg	TM116	<10 M	<10 M	<10 M			
Dibromomethane	<9 µg/kg	TM116	<9 M	<9 M	<9 M			
Bromodichloromethane	<7 µg/kg	TM116	<7 M	<7 M	<7 M			
cis-1,3-Dichloropropene	<10 µg/kg	TM116	<10 M	<10 M	<10 M			
Toluene	<7 µg/kg	TM116	<7 M	<7 M	<7 M			
trans-1,3-Dichloropropene	<10 µg/kg	TM116	<10	<10	<10			
1,1,2-Trichloroethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M			

ALcontrol Laboratories

Validated

CERTIFICATE OF ANALYSIS

SDG: 150829-68
Job: H_URS_WIM-273
Client Reference:

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

Order Number:
Report Number: 329373
Superseded Report:

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

Customer Sample R	BH3A	BH5A	BH5A			
Depth (m)	0.50	0.50	2.50 - 3.00			
Sample Type	Soil/Solid	Soil/Solid	Soil/Solid			
Date Sampled	28/08/2015	28/08/2015	28/08/2015			
Sampled Time	.	.	.			
Date Received	29/08/2015	29/08/2015	29/08/2015			
SDG Ref	150829-68	150829-68	150829-68			
Lab Sample No.(s)	11984669	11984671	11984672			
AGS Reference						

Component	LOD/Units	Method	BH3A	BH5A	BH5A			
1,3-Dichloropropane	<7 µg/kg	TM116	<7 M	<7 M	<7 M			
Tetrachloroethene	<5 µg/kg	TM116	<5 M	<5 M	<5 M			
Dibromochloromethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M			
1,2-Dibromoethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M			
Chlorobenzene	<5 µg/kg	TM116	<5 M	<5 M	<5 M			
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M			
Ethylbenzene	<4 µg/kg	TM116	4.45 M	<4 M	<4 M			
p/m-Xylene	<10 µg/kg	TM116	<10 #	<10 #	<10 #			
o-Xylene	<10 µg/kg	TM116	<10 M	<10 M	<10 M			
Styrene	<10 µg/kg	TM116	<10 #	<10 #	<10 #			
Bromoform	<10 µg/kg	TM116	<10 M	<10 M	<10 M			
Isopropylbenzene	<5 µg/kg	TM116	<5 #	<5 #	<5 #			
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M			
1,2,3-Trichloropropane	<16 µg/kg	TM116	<16 M	<16 M	<16 M			
Bromobenzene	<10 µg/kg	TM116	<10 M	<10 M	<10 M			
Propylbenzene	<10 µg/kg	TM116	<10 M	<10 M	<10 M			
2-Chlorotoluene	<9 µg/kg	TM116	<9 M	<9 M	<9 M			
1,3,5-Trimethylbenzene	<8 µg/kg	TM116	<8 M	<8 M	<8 M			
4-Chlorotoluene	<10 µg/kg	TM116	<10 M	<10 M	<10 M			
tert-Butylbenzene	<14 µg/kg	TM116	<14 M	<14 M	<14 M			
1,2,4-Trimethylbenzene	<9 µg/kg	TM116	<9 #	<9 #	<9 #			
sec-Butylbenzene	<10 µg/kg	TM116	<10 M	<10 M	<10 M			
4-Isopropyltoluene	<10 µg/kg	TM116	<10 M	<10 M	<10 M			
1,3-Dichlorobenzene	<8 µg/kg	TM116	<8 M	<8 M	<8 M			
1,4-Dichlorobenzene	<5 µg/kg	TM116	<5 M	<5 M	<5 M			
n-Butylbenzene	<11 µg/kg	TM116	<11	<11	<11			
1,2-Dichlorobenzene	<10 µg/kg	TM116	<10 M	<10 M	<10 M			
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116	<14 M	<14 M	<14 M			
Tert-amyl methyl ether	<10 µg/kg	TM116	<10 #	<10 #	<10 #			
1,2,4-Trichlorobenzene	<20 µg/kg	TM116	<20	<20	<20			
Hexachlorobutadiene	<20 µg/kg	TM116	<20	<20	<20			
Naphthalene	<13 µg/kg	TM116	<13 M	<13 M	<13 M			

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Customer Sample R	BH3A	BH5A	BH5A			
		Depth (m)	0.50	0.50	2.50 - 3.00			
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid			
		Date Sampled	28/08/2015	28/08/2015	28/08/2015			
		Sampled Time	.	.	.			
		Date Received	29/08/2015	29/08/2015	29/08/2015			
		SDG Ref	150829-68	150829-68	150829-68			
		Lab Sample No.(s)	11984669	11984671	11984672			
		AGS Reference						
Component	**LOD/Units**	**Method**						
1,2,3-Trichlorobenzene	<20 µg/kg	TM116	<20 #	<20 #	<20 #			

SDG: 150829-68
Job: H_URS_WIM-273
Client Reference:
Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall
Order Number:
Report Number: 329373
Superseded Report:

Asbestos Identification - Soil

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH3A 0.50 SOLID 28/08/2015 00:00:00 01/09/2015 10:13:47 150829-68 11984669 TM048	2/9/15	Kevin Hughes	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH5A 0.50 SOLID 28/08/2015 00:00:00 01/09/2015 10:15:44 150829-68 11984671 TM048	2/9/15	Kevin Hughes	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH5A 2.50 - 3.00 SOLID 28/08/2015 00:00:00 03/09/2015 03:31:51 150829-68 11984672 TM048	09/09/2015	Rebecca Rawlings	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
ASB_PREP				
PM001		Preparation of Samples for Metals Analysis		
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material		
TM024	Method 4500A & B, AWWA/APHA, 20th Ed., 1999	Determination of Exchangeable Ammonium and Ammoniacal Nitrogen as N by titration on solids		
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material		
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)		
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS		
TM132	In - house Method	ELTRA CS800 Operators Guide		
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter		
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser		
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID		
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique		
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES		
TM218	Microwave extraction – EPA method 3546	Microwave extraction - EPA method 3546		
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid extractable Sulphate in Soils by IRIS Emission Spectrometer		

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

Test Completion Dates

Lab Sample No(s)	11984669	11984670	11984671	11984672
Customer Sample Ref.	BH3A	BH3A	BH5A	BH5A
AGS Ref.				
Depth	0.50	1.50 - 2.00	0.50	2.50 - 3.00
Type	SOLID	SOLID	SOLID	SOLID
Ammonium Soil by Titration	09-Sep-2015		09-Sep-2015	09-Sep-2015
Asbestos ID in Solid Samples	02-Sep-2015		02-Sep-2015	09-Sep-2015
Easily Liberated Sulphide	08-Sep-2015		08-Sep-2015	08-Sep-2015
EPH CWG (Aliphatic) GC (S)	02-Sep-2015		02-Sep-2015	03-Sep-2015
EPH CWG (Aromatic) GC (S)	02-Sep-2015		02-Sep-2015	03-Sep-2015
GRO by GC-FID (S)	02-Sep-2015		02-Sep-2015	02-Sep-2015
Hexavalent Chromium (s)	04-Sep-2015		04-Sep-2015	10-Sep-2015
Metals in solid samples by OES	07-Sep-2015		07-Sep-2015	04-Sep-2015
PAH by GCMS	03-Sep-2015		03-Sep-2015	03-Sep-2015
pH	09-Sep-2015		09-Sep-2015	09-Sep-2015
Sample description	01-Sep-2015	29-Aug-2015	01-Sep-2015	29-Aug-2015
Total Organic Carbon	07-Sep-2015		10-Sep-2015	07-Sep-2015
Total Sulphate	04-Sep-2015		04-Sep-2015	04-Sep-2015
TPH CWG GC (S)	02-Sep-2015		02-Sep-2015	03-Sep-2015
VOC MS (S)	02-Sep-2015		02-Sep-2015	02-Sep-2015

ASSOCIATED AQC DATA

Ammonium Soil by Titration

Component	Method Code	QC 1205
Exchangeable Ammonium as NH4	TM024	**98.01** 79.30 : 104.61

Easily Liberated Sulphide

Component	Method Code	QC 1231
Easily Liberated Sulphide	TM180	**94.71** 49.14 : 123.89

EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 1182	QC 1194
Total Aliphatics >C12-C35	TM173	**85.21** 62.50 : 112.50	**87.08** 70.80 : 111.51

EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 1182	QC 1194
Total Aromatics >EC12-EC35	TM173	**82.67** 60.62 : 126.95	**82.67** 65.21 : 121.32

GRO by GC-FID (S)

Component	Method Code	QC 1141
Benzene by GC (Moisture Corrected)	TM089	**93.0** 76.33 : 121.87
Ethylbenzene by GC (Moisture Corrected)	TM089	**91.5** 75.73 : 123.83
m & p Xylene by GC (Moisture Corrected)	TM089	**92.0** 75.52 : 120.32
MTBE GC-FID (Moisture Corrected)	TM089	**95.0** 77.89 : 119.70
o Xylene by GC (Moisture Corrected)	TM089	**91.0** 74.15 : 124.59
QC	TM089	**93.51** 62.31 : 122.61
Toluene by GC (Moisture Corrected)	TM089	**92.0** 77.91 : 122.33

Hexavalent Chromium (s)

Component	Method Code	QC 1187	QC 1229
Hexavalent Chromium	TM151	**96.0** 92.20 : 106.60	**100.0** 92.20 : 106.60

Metals in solid samples by OES

Component	Method Code	QC 1293	QC 1251
Aluminium	TM181	**96.15** 86.49 : 129.71	**118.46** 86.49 : 129.71
Antimony	TM181	**95.34** 77.50 : 122.50	**94.62** 77.50 : 122.50
Arsenic	TM181	**90.27** 82.63 : 117.37	**95.58** 82.63 : 117.37
Barium	TM181	**100.75** 79.45 : 120.55	**100.75** 79.45 : 120.55
Beryllium	TM181	**98.76** 85.92 : 121.27	**101.55** 85.92 : 121.27
Boron	TM181	**88.55** 77.41 : 143.83	**129.01** 77.41 : 143.83
Cadmium	TM181	**93.28** 81.95 : 118.05	**94.29** 81.95 : 118.05
Chromium	TM181	**90.2** 81.29 : 118.71	**102.75** 81.29 : 118.71
Cobalt	TM181	**92.33** 83.86 : 116.14	**98.17** 83.86 : 116.14
Copper	TM181	**99.32** 78.57 : 121.43	**99.05** 78.57 : 121.43
Iron	TM181	**96.55** 87.50 : 122.82	**104.83** 87.50 : 122.82
Lead	TM181	**93.7** 74.18 : 117.25	**91.34** 74.18 : 117.25
Manganese	TM181	**98.0** 82.91 : 117.09	**103.4** 82.91 : 117.09
Mercury	TM181	**90.28** 81.99 : 118.01	**93.63** 81.99 : 118.01
Molybdenum	TM181	**91.24** 81.45 : 118.55	**91.88** 81.45 : 118.55
Nickel	TM181	**92.44** 79.64 : 120.36	**100.0** 79.64 : 120.36
Phosphorus	TM181	**94.34** 81.03 : 118.97	**97.32** 81.03 : 118.97
Selenium	TM181	**102.05** 87.05 : 121.93	**102.91** 87.05 : 121.93
Strontium	TM181	**90.04** 83.64 : 116.36	**103.07** 83.64 : 116.36
Thallium	TM181	**93.03** 77.50 : 122.50	**86.57** 77.50 : 122.50
Tin	TM181	**90.03** 78.30 : 113.98	**91.69** 78.30 : 113.98
Titanium	TM181	**90.63** 71.02 : 128.98	**114.06** 71.02 : 128.98

CERTIFICATE OF ANALYSIS

Metals in solid samples by OES

		QC 1293	QC 1251
Vanadium	TM181	**89.12** 86.61 : 113.39	**97.94** 86.61 : 113.39
Zinc	TM181	**95.29** 89.82 : 114.54	**101.14** 89.82 : 114.54

PAH by GCMS

Component	**Method Code**	QC 1179	QC 1161
Acenaphthene	TM218	**92.5** 79.96 : 117.68	**85.0** 76.50 : 121.50
Acenaphthylene	TM218	**87.0** 76.25 : 113.75	**84.5** 73.50 : 118.50
Anthracene	TM218	**92.0** 75.14 : 109.30	**86.0** 74.25 : 117.75
Benz(a)anthracene	TM218	**96.0** 82.90 : 120.19	**95.5** 82.07 : 118.33
Benzo(a)pyrene	TM218	**96.0** 82.80 : 121.21	**92.0** 79.75 : 116.97
Benzo(b)fluoranthene	TM218	**96.0** 81.11 : 119.79	**98.5** 82.41 : 117.15
Benzo(ghi)perylene	TM218	**88.5** 81.23 : 116.67	**89.0** 77.09 : 114.38
Benzo(k)fluoranthene	TM218	**92.0** 79.07 : 114.76	**95.5** 81.43 : 115.17
Chrysene	TM218	**93.5** 77.94 : 118.46	**94.5** 82.50 : 113.51
Dibenzo(ah)anthracene	TM218	**92.0** 79.94 : 120.03	**92.5** 81.00 : 120.00
Fluoranthene	TM218	**94.0** 77.89 : 110.15	**90.0** 78.67 : 117.61
Fluorene	TM218	**95.0** 80.93 : 113.54	**87.5** 76.50 : 121.50
Indeno(123cd)pyrene	TM218	**92.5** 80.37 : 120.17	**91.0** 79.19 : 117.60
Naphthalene	TM218	**94.5** 79.70 : 112.37	**90.0** 77.00 : 117.50
Phenanthrene	TM218	**95.0** 78.44 : 113.95	**88.5** 75.00 : 123.00
Pyrene	TM218	**92.0** 81.17 : 112.33	**88.0** 77.82 : 116.98

pH

Component	**Method Code**	QC 1220	QC 1256
pH	TM133	**101.39** 96.22 : 103.78	**100.88** 97.19 : 102.81

Total Organic Carbon

Total Organic Carbon

Component	Method Code	QC 1297	QC 1208	QC 1227
Total Organic Carbon	TM132	**97.72** 89.40 : 103.09	**99.54** 89.40 : 103.09	**95.89** 89.40 : 103.09

Total Sulphate

Component	Method Code	QC 1235	QC 1298
Total Sulphate	TM221	**102.27** 78.49 : 121.51	**117.42** 78.49 : 121.51

VOC MS (S)

Component	Method Code	QC 1154
1,1,1,2-tetrachloroethane	TM116	**105.0** 76.60 : 121.00
1,1,1-Trichloroethane	TM116	**102.2** 77.80 : 123.40
1,1,2-Trichloroethane	TM116	**94.4** 75.40 : 119.80
1,1-Dichloroethane	TM116	**107.0** 80.84 : 124.49
1,2-Dichloroethane	TM116	**109.4** 91.00 : 135.67
1,4-Dichlorobenzene	TM116	**105.4** 80.88 : 114.60
2-Chlorotoluene	TM116	**102.8** 74.00 : 117.20
4-Chlorotoluene	TM116	**97.2** 71.20 : 113.20
Benzene	TM116	**100.6** 79.60 : 125.20
Carbon Disulphide	TM116	**104.4** 74.91 : 122.14
Carbontetrachloride	TM116	**101.4** 76.80 : 121.20
Chlorobenzene	TM116	**103.4** 83.47 : 116.82
Chloroform	TM116	**108.0** 82.00 : 128.80
Chloromethane	TM116	**129.8** 74.62 : 135.86
Cis-1,2-Dichloroethene	TM116	**113.4** 81.20 : 128.00
Dibromomethane	TM116	**94.4** 73.40 : 116.60
Dichloromethane	TM116	**111.8** 86.60 : 137.00

VOC MS (S)

		QC 1154
Ethylbenzene	TM116	**97.8** 73.60 : 115.60
Hexachlorobutadiene	TM116	**86.2** 33.65 : 130.56
Isopropylbenzene	TM116	**101.0** 72.52 : 117.52
Naphthalene	TM116	**106.0** 83.23 : 126.48
o-Xylene	TM116	**92.2** 69.60 : 110.40
p/m-Xylene	TM116	**93.6** 71.30 : 112.70
Sec-Butylbenzene	TM116	**105.0** 59.20 : 125.20
Tetrachloroethene	TM116	**105.8** 85.92 : 127.92
Toluene	TM116	**92.6** 76.08 : 110.17
Trichloroethene	TM116	**101.2** 78.17 : 121.37
Trichlorofluoromethane	TM116	**109.0** 83.78 : 132.82
Vinyl Chloride	TM116	**101.6** 66.81 : 138.46

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

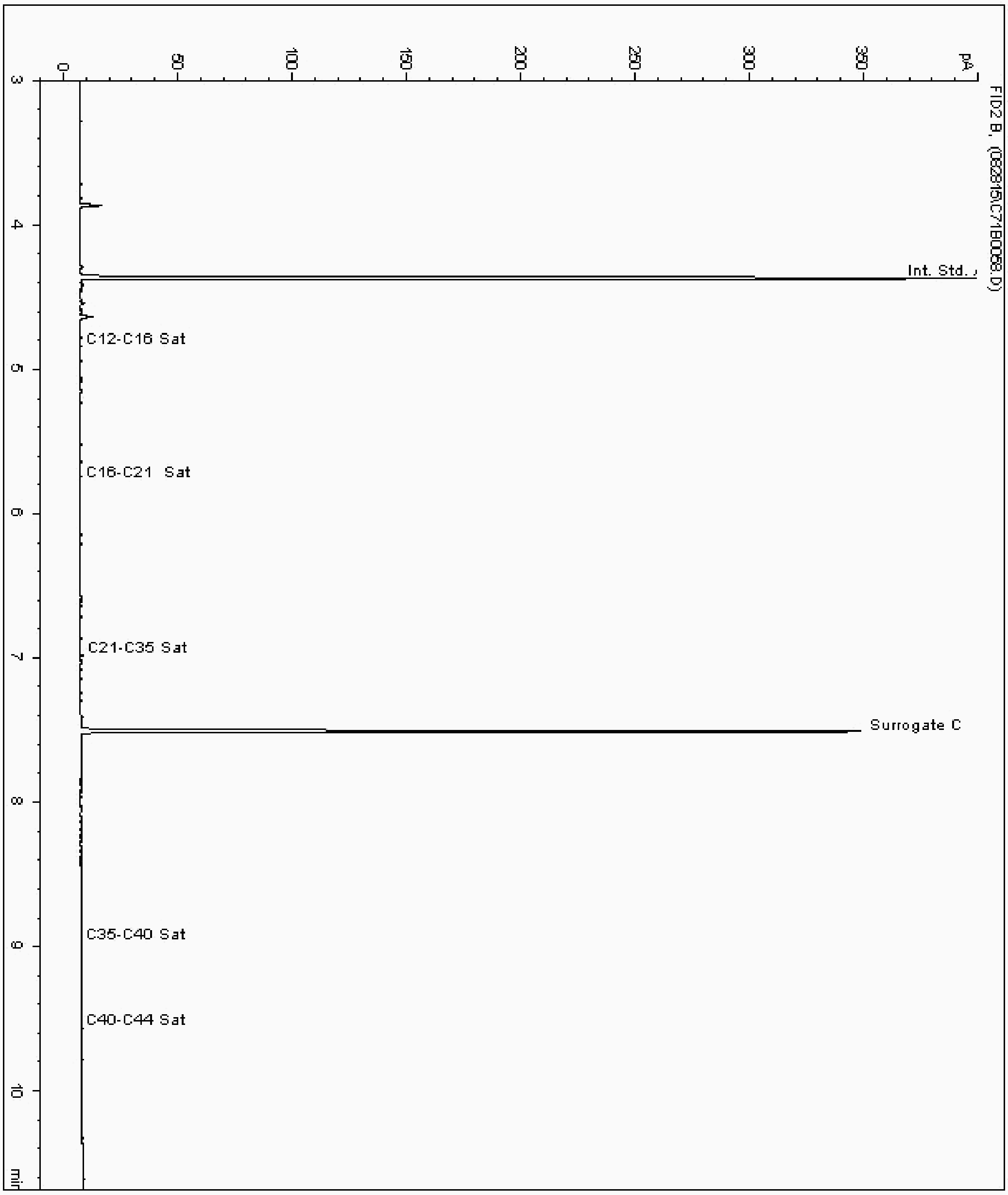
SDG:	150829-68	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329373
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	EPH CWG (Aliphatic) GC (S)	**Sample No :**	11985336	**Depth :**	2.50 - 3.00
		Sample ID :	BH5A		

```
     Alcontrol/Geochem Analytical Services
   Speciated TPH - AROM ( C12 - C40 )

 Sample Identity:   11368744-
 Date Acquired   :  02/09/2015 06:23:01 PM
 Units           :  ppb
 Dilution:          BH5A[2.50 - 3.00]                ->
```



Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S)
Sample No : 11987620
Sample ID : BH3A
Depth : 0.50

```
Alcontrol/Geochem Analytical Services
Speciated TPH - SATS ( C12 - C40 )

Sample Identity:  11368708-
Date Acquired   :  02/09/15 09:07:08
Units           :  ppb
Dilution        :
CF              :  1
Multiplier      :  0.950
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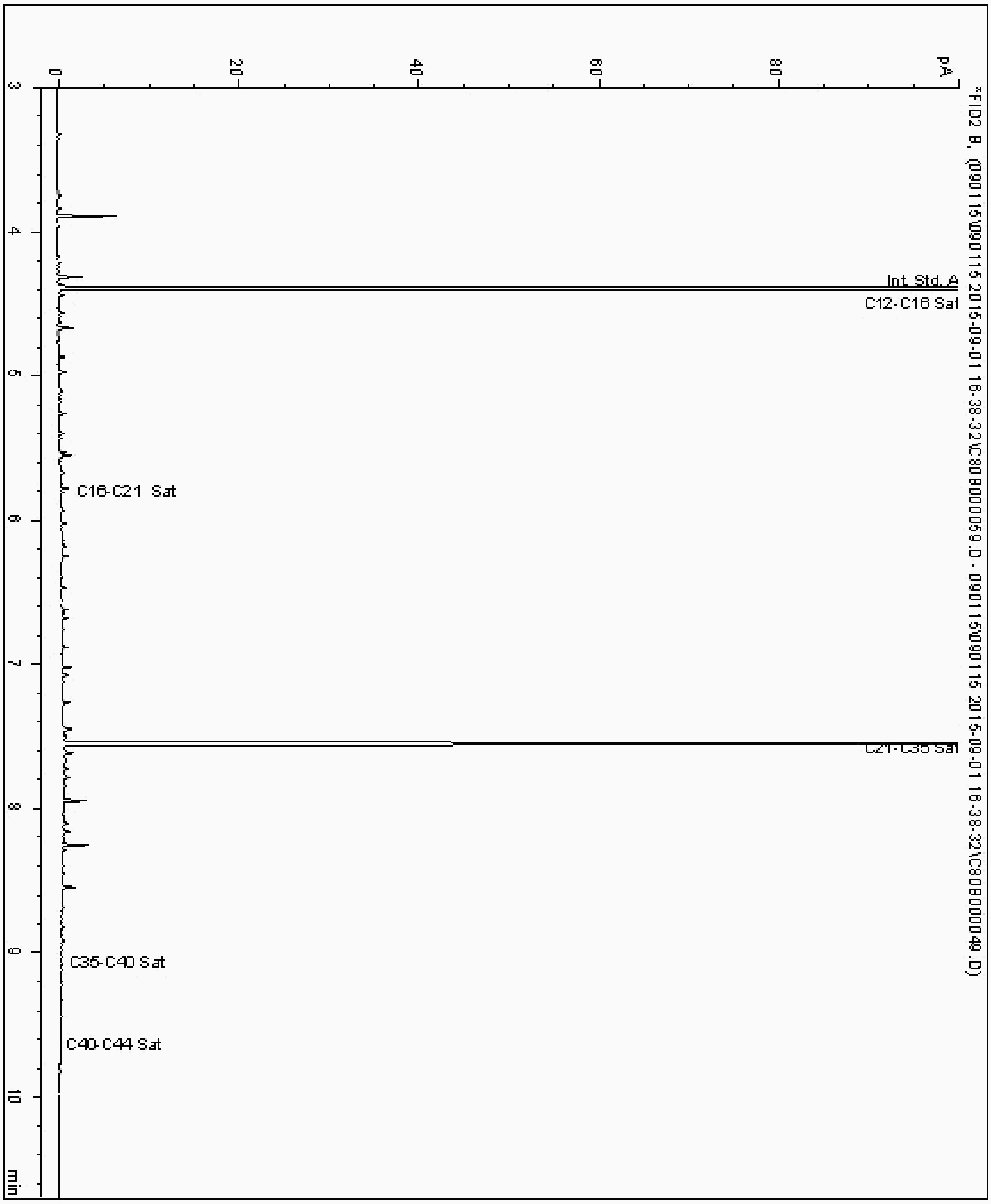


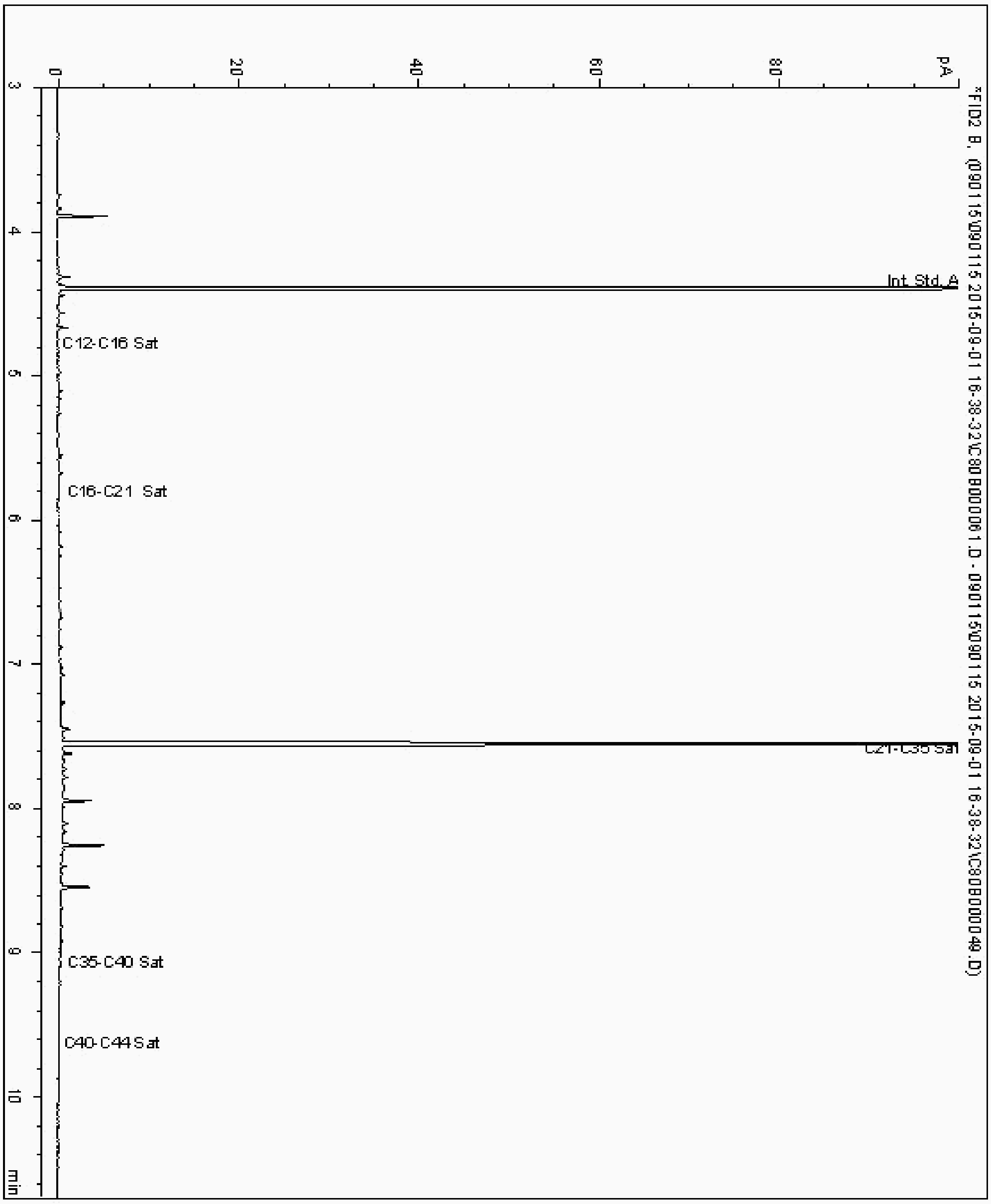
CERTIFICATE OF ANALYSIS

SDG:	150829-68	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329373
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	EPH CWG (Aliphatic) GC (S)	**Sample No :**	11988122	**Depth :**	0.50
		Sample ID :	BH5A		

```
Alcontrol/Geochem Analytical Services
Speciated TPH - SATS ( C12 - C40 )

Sample Identity:  11368731-
Date Acquired  :  02/09/15 09:38:12
Units          :  ppb
Dilution       :
CF             :  1
Multiplier     :  0.960
```

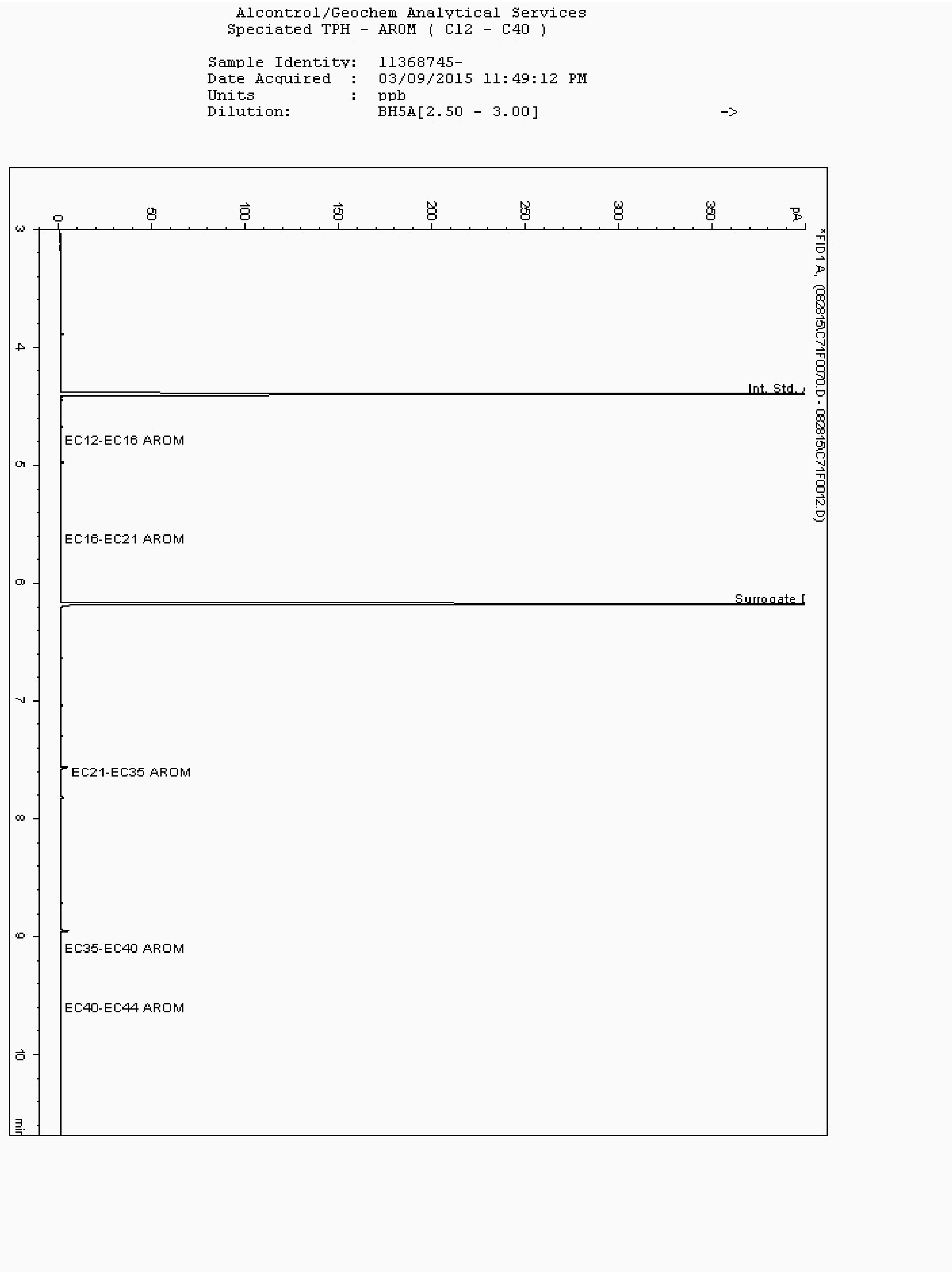


CERTIFICATE OF ANALYSIS

SDG:	150829-68	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329373
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	EPH CWG (Aromatic) GC (S)	**Sample No :**	11985336	**Depth :**	2.50 - 3.00
		Sample ID :	BH5A		



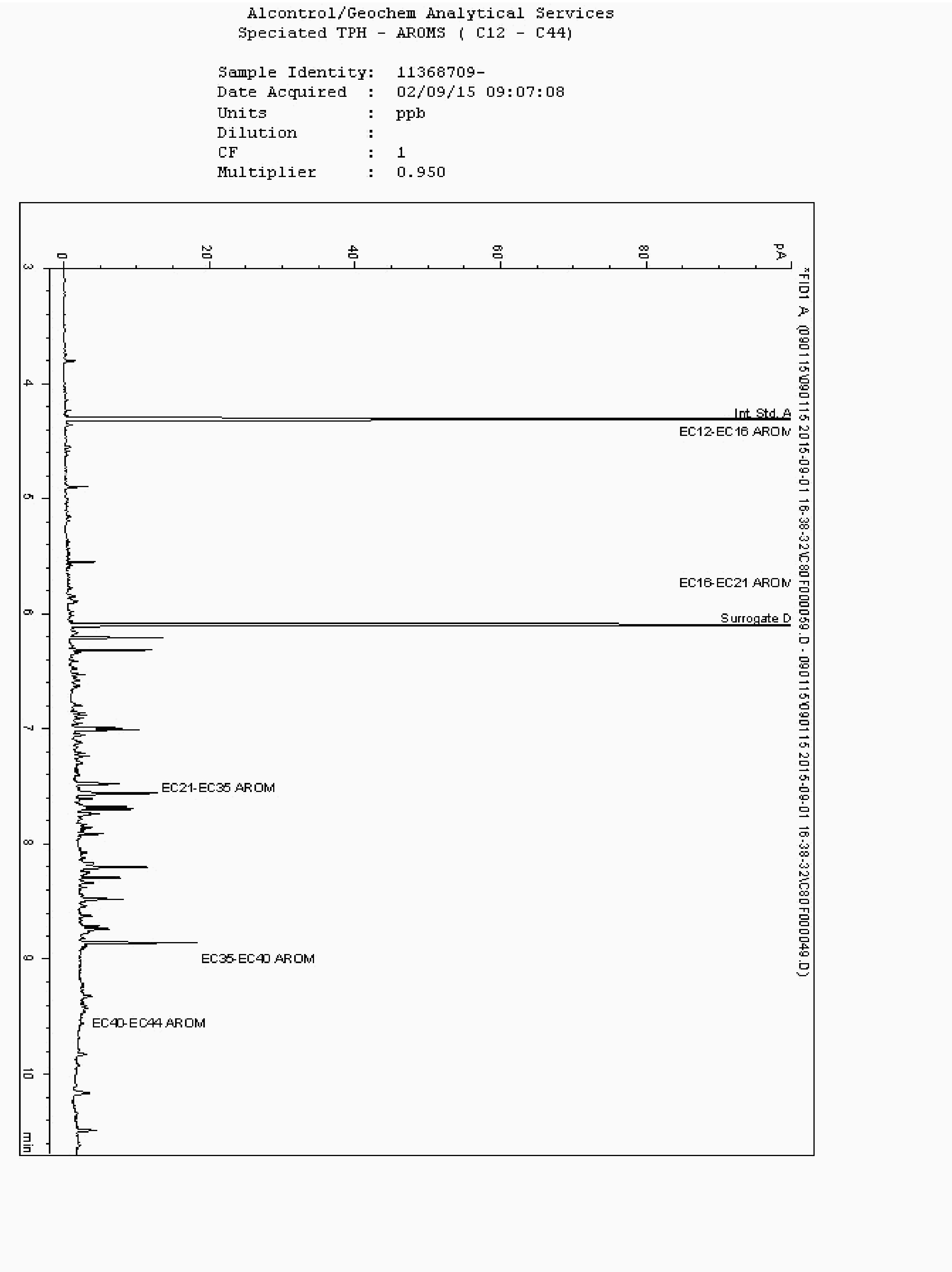
```
Alcontrol/Geochem Analytical Services
Speciated TPH - AROM ( C12 - C40 )

Sample Identity:   11368745-
Date Acquired  :   03/09/2015 11:49:12 PM
Units          :   ppb
Dilution:          BH5A[2.50 - 3.00]              ->
```

CERTIFICATE OF ANALYSIS

SDG:	150829-68	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329373
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	EPH CWG (Aromatic) GC (S)	**Sample No :**	11987620	**Depth :**	0.50
		Sample ID :	BH3A		

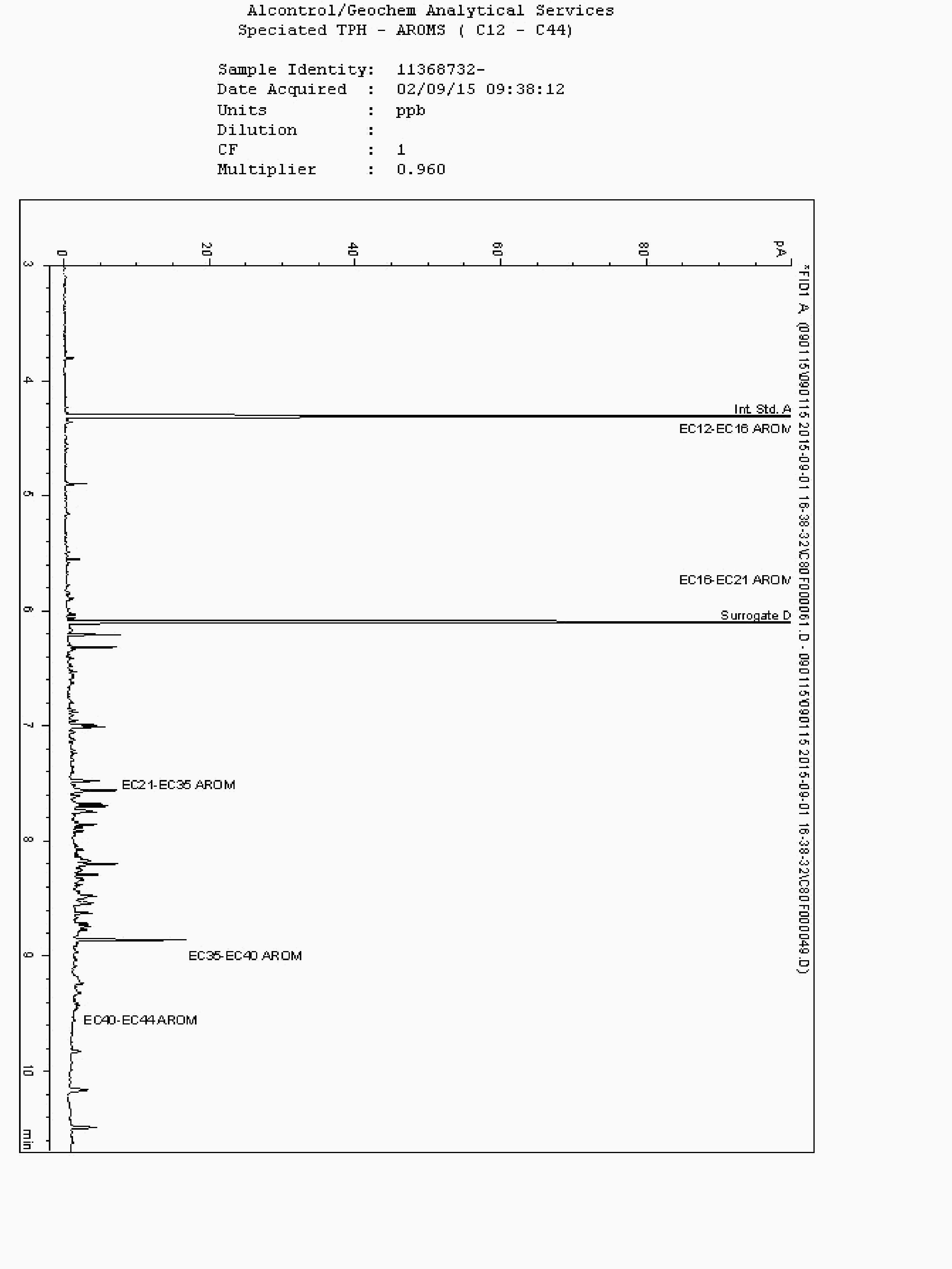


```
        Alcontrol/Geochem Analytical Services
       Speciated TPH - AROMS ( C12 - C44)

     Sample Identity:  11368709-
     Date Acquired   :  02/09/15 09:07:08
     Units           :  ppb
     Dilution        :
     CF              :  1
     Multiplier      :  0.950
```

SDG: 150829-68
Job: H_URS_WIM-273
Client Reference:
Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall
Order Number:
Report Number: 329373
Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S)
Sample No : 11988122
Sample ID : BH5A
Depth : 0.50

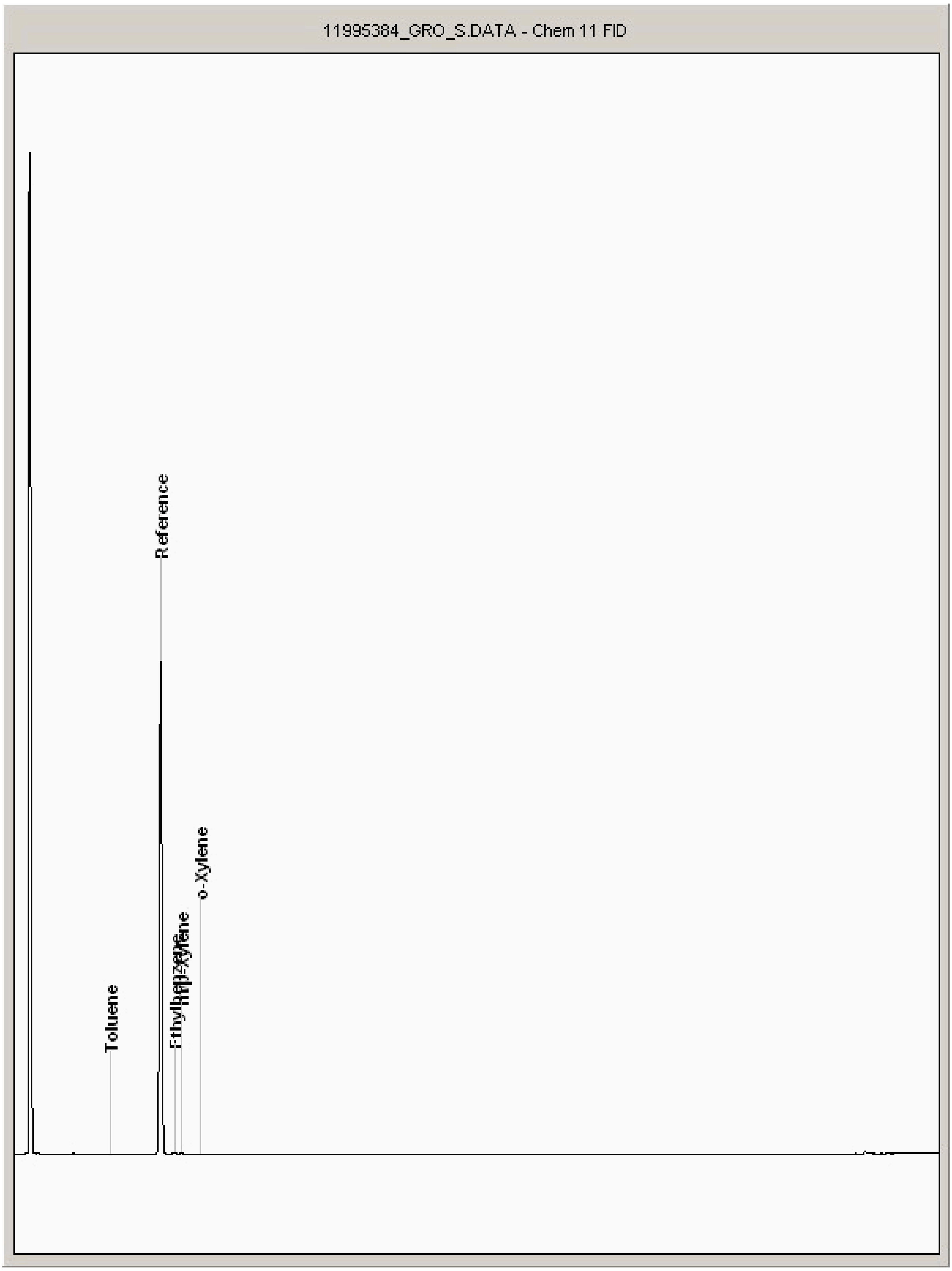


```
Alcontrol/Geochem Analytical Services
Speciated TPH - AROMS ( C12 - C44)

Sample Identity:  11368732-
Date Acquired  :  02/09/15 09:38:12
Units          :  ppb
Dilution       :
CF             :  1
Multiplier     :  0.960
```

SDG:	150829-68	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329373
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis:	GRO by GC-FID (S)	**Sample No :**	11995384	**Depth :**	0.50
		Sample ID :	BH3A		



SDG: 150829-68
Job: H_URS_WIM-273
Client Reference:

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

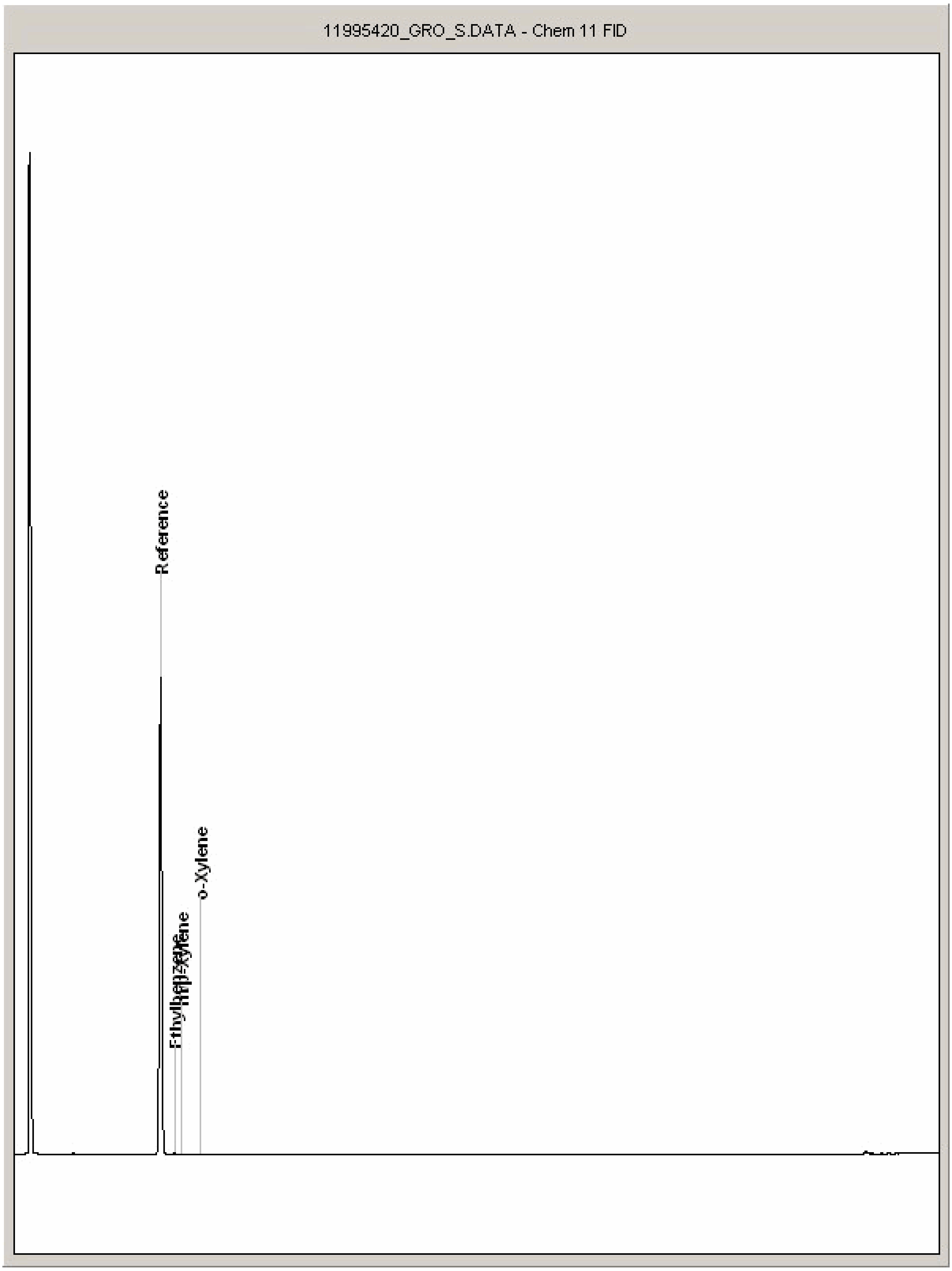
Order Number:
Report Number: 329373
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 11995420
Sample ID : BH5A

Depth : 0.50

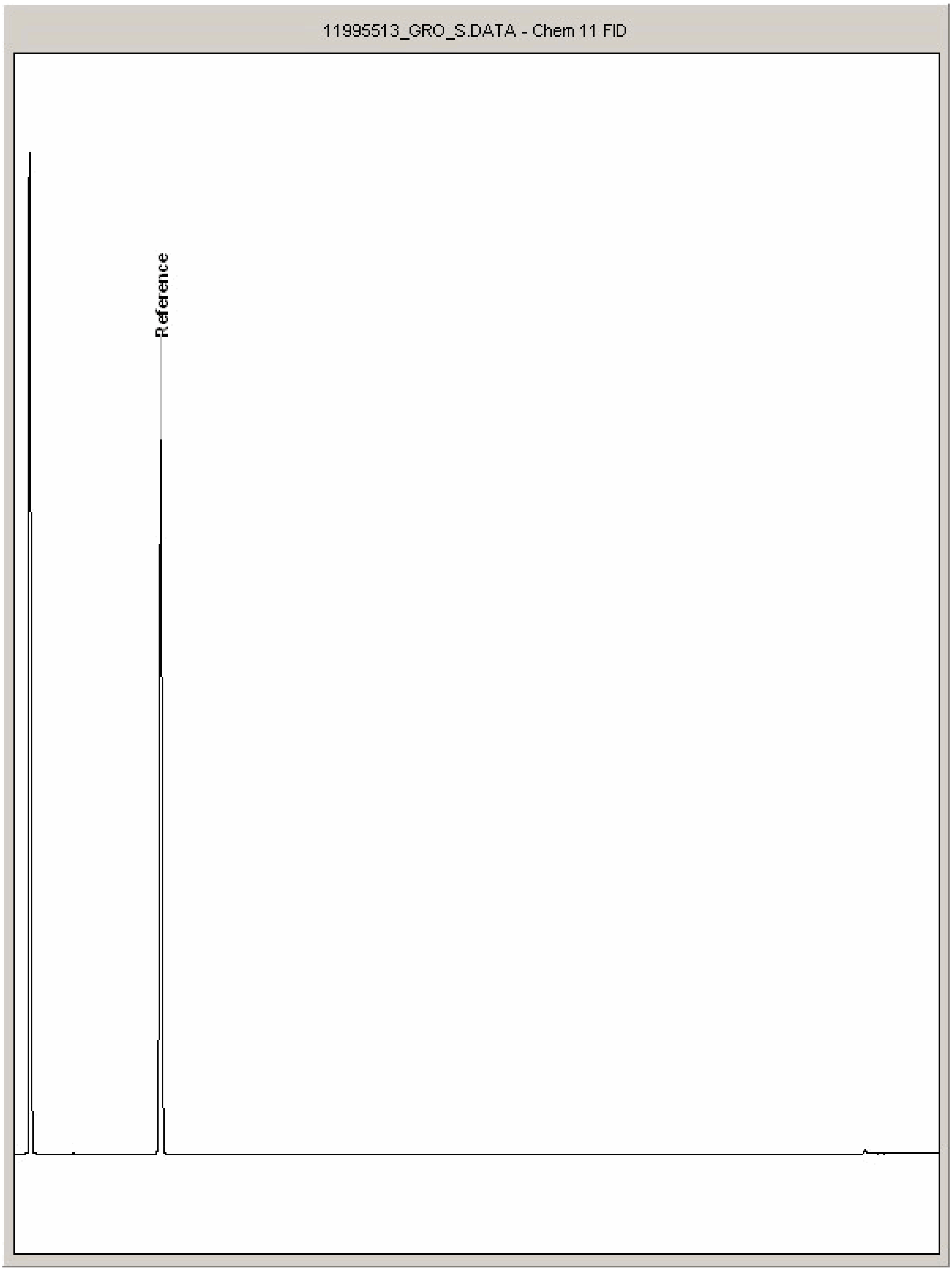


CERTIFICATE OF ANALYSIS

SDG: 150829-68
Job: H_URS_WIM-273
Client Reference:
Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall
Order Number:
Report Number: 329373
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (S)
Sample No : 11995513
Sample ID : BH5A
Depth : 2.50 - 3.00



Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA Leach tests, flash point, ammonium as NH4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for both soil jars, tubs and volatile jars. All waters and vials will be discarded 10 days after the analysis is completed (e-mailed). All material removed during an asbestos containing material screen and analysed for the presence of asbestos will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be screened in house for the presence of large asbestos containing material fragments/pieces. If no asbestos containing material is found this will be reported as 'no asbestos containing material detected'. If asbestos containing material is detected it will be removed and analysed by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If asbestos containing material is present no further analysis will be undertaken. At no point is the fibre content of the soil sample determined.

7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample -similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule or recorded on the log sheet.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.

12. Results relate only to the items tested

13. **Surrogate recoveries** -Most of our organic methods include surrogates, the recovery of which is monitored and reported. For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 -130 %.

14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 14).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not accredited.

19. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

20. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

23. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials -whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute themajor part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

24. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C4 -C10 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENT EXTRACTABLE MATTER	D&C	DCM	SOXTHERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
THIN LAYER CHROMATOGRAPHY	D&C	DCM	SOXTHERM	IATROSCAN
ELEMENTAL SULPHUR	D&C	DCM	SOXTHERM	HPLC
PHENOLS BY GCMS	WET	DCM	SOXTHERM	GC-MS
HERBICIDES	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
PESTICIDES	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
EPH (DRO)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (MIN OIL)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (CLEANED UP)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH CWG BY GC	D&C	HEXANE:ACETONE	END OVER END	GC-FID
PCB TOT / PCB CON	D&C	HEXANE:ACETONE	END OVER END	GC-MS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANE:ACETONE	MICROWAVE TM218.	GC-MS
C8-C40 (C6-C40) EZ FLASH	WET	HEXANE:ACETONE	SHAKER	GC-EZ
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANE:ACETONE	SHAKER	GC-EZ
SEMI VOLATILE ORGANIC COMPOUNDS	WET	DCM:ACETONE	SONICATE	GC-MS

LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAH MS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
EPH	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
PCB 7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
PCB TOTAL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
SVOC	DCM	LIQUID/LIQUID SHAKE	GCMS
FREE SULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PEST OCP/OPP	DCM	LIQUID/LIQUID SHAKE	GCMS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GCMS
PHENOLS MS	DCM	SOLID PHASE EXTRACTION	GCMS
TPH by INFRARED (IR)	TCE	LIQUID/LIQUID SHAKE	HPLC
MINERAL OIL by IR	TCE	LIQUID/LIQUID SHAKE	HPLC
GLYCOLS	NONE	DIRECT INJECTION	GCMS

Identification of Asbestos in Bulk Materials

The results for asbestos identification for soil samples are obtained from possible Asbestos Containing Material, removed during the 'Screening of soils for Asbestos Containing Materials', which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: -
Trace -Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in MDHS 100.

The identification of asbestos containing materials falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Last Updated : 2010/09/08

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICS and SVOC TICS.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. Results relate only to the items tested.

12. LODs for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

Sample Deviations

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
5	**Samples exceeded holding time before presevation was performed**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than:
- Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

ALcontrol Laboratories

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email: mkt@alcontrol.com
Website: www.alcontrol.com

AECOM
St. George's House
2nd Floor
5 St. George's Road
Wimbledon
Greater London
SW19 4DR

Attention: Gary Marshall

CERTIFICATE OF ANALYSIS

Date: 14 September 2015
Customer: H_URS_WIM
Sample Delivery Group (SDG): 150902-38
Your Reference:
Location: Stag Brewery
Report No: 329713

We received 8 samples on Wednesday September 02, 2015 and 8 of these samples were scheduled for analysis which was completed on Monday September 14, 2015. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Approved By:

Sonia McWhan
Operations Manager

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
11995368	BH3			01/09/2015
11995366	BH4			01/09/2015
11995367	BH5			01/09/2015
11995371	BH8			01/09/2015
11995370	BH109			01/09/2015
11995369	BH110			01/09/2015
11995372	BH111			01/09/2015
11995373	DUP01			01/09/2015

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 150902-38
Job: H_URS_WIM-273
Client Reference:
Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall
Order Number:
Report Number: 329713
Superseded Report:

LIQUID

Results Legend

X Test

N No Determination Possible

	Lab Sample No(s)		11995368							11995366							11995367							11995371							11995370							11995369				
	Customer Sample Reference		BH3							BH4							BH5							BH8							BH109							BH110				
	AGS Reference																																									
	Depth (m)																																									
	Container		0.5l glass bottle (AL	250ml BOD (ALE21	500ml Plastic (ALE2	Dissolved Metals Pr	H2SO4 (ALE244)	HNO3 Filtered (ALE	Vial (ALE297)	0.5l glass bottle (AL	250ml BOD (ALE21	500ml Plastic (ALE2	Dissolved Metals Pr	H2SO4 (ALE244)	HNO3 Filtered (ALE	Vial (ALE297)	0.5l glass bottle (AL	250ml BOD (ALE21	500ml Plastic (ALE2	Dissolved Metals Pr	H2SO4 (ALE244)	HNO3 Filtered (ALE	Vial (ALE297)	0.5l glass bottle (AL	250ml BOD (ALE21	500ml Plastic (ALE2	Dissolved Metals Pr	H2SO4 (ALE244)	HNO3 Filtered (ALE	Vial (ALE297)	0.5l glass bottle (AL	250ml BOD (ALE21	500ml Plastic (ALE2	Dissolved Metals Pr	H2SO4 (ALE244)	HNO3 Filtered (ALE	Vial (ALE297)	0.5l glass bottle (AL	250ml BOD (ALE21	500ml Plastic (ALE2	Dissolved Metals Pr	H2SO4 (ALE244)
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 8					X							X							X							X							X							X
Anions by Kone (w)	All	NDPs: 0 Tests: 8			X							X							X							X							X							X		
COD Unfiltered	All	NDPs: 0 Tests: 8		X							X							X							X							X							X			
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 8						X							X							X							X							X						
Dissolved W, Nb and Zr by ICP-MS	All	NDPs: 0 Tests: 8						X							X							X							X							X						
EPH (DRO) (C10-C40) Aqueous (W)	All	NDPs: 0 Tests: 8	X							X							X							X							X							X				
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 8	X							X							X							X							X							X				
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 8	X							X							X							X							X							X				
GRO by GC-FID (W)	All	NDPs: 0 Tests: 8							X							X							X							X							X					
Mercury Dissolved	All	NDPs: 0 Tests: 8				X							X							X							X							X							X	
pH Value	All	NDPs: 0 Tests: 8			X							X							X							X							X							X		
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 7	X							X							X							X							X							X				
Total EPH (aq)	All	NDPs: 0 Tests: 8	X							X							X							X							X							X				
TPH CWG (W)	All	NDPs: 0 Tests: 8	X							X							X							X							X							X				
VOC MS (W)	All	NDPs: 0 Tests: 8							X							X							X							X							X					

LIQUID

Results Legend

- X **Test**
- N **No Determination Possible**

Lab Sample No(s)			11995369							11995372							11995373	
Customer Sample Reference			BH110							BH111							DUP01	
AGS Reference																		
Depth (m)																		
Container			HNO3 Filtered (ALE	Vial (ALE297)	0.5l glass bottle (AL	250ml BOD (ALE21	500ml Plastic (ALE2	Dissolved Metals Pr	H2SO4 (ALE244)	HNO3 Filtered (ALE	Vial (ALE297)	0.5l glass bottle (AL	250ml BOD (ALE21	500ml Plastic (ALE2	Dissolved Metals Pr	H2SO4 (ALE244)	HNO3 Filtered (ALE	Vial (ALE297)
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 8							X							X		
Anions by Kone (w)	All	NDPs: 0 Tests: 8					X							X				
COD Unfiltered	All	NDPs: 0 Tests: 8				X							X					
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 8	X							X							X	
Dissolved W, Nb and Zr by ICP-MS	All	NDPs: 0 Tests: 8	X							X							X	
EPH (DRO) (C10-C40) Aqueous (W)	All	NDPs: 0 Tests: 8			X							X						
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 8			X							X						
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 8			X							X						
GRO by GC-FID (W)	All	NDPs: 0 Tests: 8		X							X							X
Mercury Dissolved	All	NDPs: 0 Tests: 8						X							X			
pH Value	All	NDPs: 0 Tests: 8					X							X				
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 7			X													
Total EPH (aq)	All	NDPs: 0 Tests: 8			X							X						
TPH CWG (W)	All	NDPs: 0 Tests: 8			X							X						
VOC MS (W)	All	NDPs: 0 Tests: 8		X							X							X

Validated

CERTIFICATE OF ANALYSIS

SDG: 150902-38
Job: H_URS_WIM-273
Client Reference:

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

Order Number:
Report Number: 329713
Superseded Report:

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&◆§@	Sample deviation (see appendix)

		Customer Sample R	BH3	BH4	BH5	BH8	BH109	BH110
		Depth (m)	.	.	.	.	.	.
		Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
		Date Sampled	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015
		Sampled Time	.	00:00:00	.	.	.	.
		Date Received	02/09/2015	02/09/2015	02/09/2015	02/09/2015	02/09/2015	02/09/2015
		SDG Ref	150902-38	150902-38	150902-38	150902-38	150902-38	150902-38
		Lab Sample No.(s)	11995368	11995366	11995367	11995371	11995370	11995369
		AGS Reference						
Component	**LOD/Units**	**Method**						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	<0.2 #	<0.2 #	0.508 #	0.619 #	1.23 #	<0.2 #
Ammoniacal Nitrogen as NH4	<0.3 mg/l	TM099	<0.3 #	<0.3 #	0.653 #	0.796 #	1.58 #	<0.3 #
COD, unfiltered	<7 mg/l	TM107	<7 #	8.09 #	21.2 #	10.5 #	190 #	<7 #
Antimony (diss.filt)	<0.16 µg/l	TM152	0.415	0.36	<0.16	0.726	0.64	0.464
Arsenic (diss.filt)	<0.12 µg/l	TM152	7.32 #	5.08 #	5.12 #	15.7 #	32.6 #	14 #
Barium (diss.filt)	<0.03 µg/l	TM152	64.2 #	22.1 #	47.9 #	83.4 #	18.2 #	40.7 #
Beryllium (diss.filt)	<0.07 µg/l	TM152	<0.07 #	<0.07 #	<0.07 #	<0.07 #	<0.07 #	<0.07 #
Boron (diss.filt)	<9.4 µg/l	TM152	152 #	52.7 #	99.2 #	130 #	107 #	137 #
Cadmium (diss.filt)	<0.1 µg/l	TM152	<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #
Chromium (diss.filt)	<0.22 µg/l	TM152	3.62 #	1.53 #	2.26 #	3.98 #	3.56 #	3.44 #
Cobalt (diss.filt)	<0.06 µg/l	TM152	2.33 #	0.594 #	3.15 #	2.77 #	9.39 #	4.36 #
Copper (diss.filt)	<0.85 µg/l	TM152	1.13 #	0.939 #	1.09 #	1.4 #	1.26 #	1.29 #
Lead (diss.filt)	<0.02 µg/l	TM152	0.034 #	0.066 #	0.057 #	0.033 #	0.085 #	0.04 #
Manganese (diss.filt)	<0.04 µg/l	TM152	91.2 #	8.89 #	860 #	169 #	1320 #	126 #
Nickel (diss.filt)	<0.15 µg/l	TM152	6.92 #	1.77 #	5.5 #	7.03 #	11 #	6.1 #
Selenium (diss.filt)	<0.39 µg/l	TM152	9.06 #	0.781 #	1.67 #	1.92 #	3 #	13.2 #
Thallium (diss.filt)	<0.96 µg/l	TM152	<0.96	<0.96	<0.96	<0.96	<0.96	<0.96
Vanadium (diss.filt)	<0.24 µg/l	TM152	1.56 #	1.61 #	1.33 #	1.56 #	1.57 #	1.33 #
Zinc (diss.filt)	<0.41 µg/l	TM152	8.79 #	12.6 #	5.59 #	9.92 #	27.4 #	4.62 #
EPH Range >C10 - C40 (aq)	<46 µg/l	TM172	<46 #	<46 #	<46 #	<46 #	159 #	<46 #
Total EPH (C6-C40) (aq)	<100 µg/l	TM172	<100	<100	<100	<100	159	<100
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01 #	<0.01 #	<0.01 #	<0.01 #	<0.01 #	<0.01 #
Sulphate	<2 mg/l	TM184	57.4 #	43 #	79.9 #	61.6 #	75 #	55.2 #
Phosphate (ortho) as PO4	<0.05 mg/l	TM184	0.465 #	7.3 #	1.55 #	0.302 #	0.297 #	0.216 #
Nitrate as NO3	<0.3 mg/l	TM184	5.18 #	21.5 #	6.42 #	4.42 #	0.942 #	5.64 #
pH	<1 pH Units	TM256	7.45 #	7.1 #	7.39 #	7.38 #	7.49 #	7.52 #
Silver (diss.filt)	<1.5 µg/l	TM283	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5

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CERTIFICATE OF ANALYSIS

SDG:	150902-38	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329713
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

Customer Sample R	BH111	DUP01
Depth (m)	.	.
Sample Type	Water(GW/SW)	Water(GW/SW)
Date Sampled	01/09/2015	01/09/2015
Sampled Time	.	.
Date Received	02/09/2015	02/09/2015
SDG Ref	150902-38	150902-38
Lab Sample No.(s)	11995372	11995373
AGS Reference		

Component	**LOD/Units**	**Method**	BH111	DUP01
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	4.74 #	<0.2 #
Ammoniacal Nitrogen as NH4	<0.3 mg/l	TM099	6.09 #	<0.3 #
COD, unfiltered	<7 mg/l	TM107	43.5 #	<7 #
Antimony (diss.filt)	<0.16 µg/l	TM152	0.199	0.816
Arsenic (diss.filt)	<0.12 µg/l	TM152	22 #	4.8 #
Barium (diss.filt)	<0.03 µg/l	TM152	104 #	21.4 #
Beryllium (diss.filt)	<0.07 µg/l	TM152	<0.07 #	<0.07 #
Boron (diss.filt)	<9.4 µg/l	TM152	65.1 #	52.2 #
Cadmium (diss.filt)	<0.1 µg/l	TM152	<0.1 #	<0.1 #
Chromium (diss.filt)	<0.22 µg/l	TM152	3.75 #	1.22 #
Cobalt (diss.filt)	<0.06 µg/l	TM152	1.79 #	0.262 #
Copper (diss.filt)	<0.85 µg/l	TM152	<0.85 #	1.13 #
Lead (diss.filt)	<0.02 µg/l	TM152	<0.02 #	0.028 #
Manganese (diss.filt)	<0.04 µg/l	TM152	2270 #	7.19 #
Nickel (diss.filt)	<0.15 µg/l	TM152	3.85 #	1.81 #
Selenium (diss.filt)	<0.39 µg/l	TM152	2.87 #	0.897 #
Thallium (diss.filt)	<0.96 µg/l	TM152	<0.96	<0.96
Vanadium (diss.filt)	<0.24 µg/l	TM152	1.07 #	1.45 #
Zinc (diss.filt)	<0.41 µg/l	TM152	6 #	5.01 #
EPH Range >C10 - C40 (aq)	<46 µg/l	TM172	65.8 #	<46 #
Total EPH (C6-C40) (aq)	<100 µg/l	TM172	<100	<100
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01 #	<0.01 #
Sulphate	<2 mg/l	TM184	37.5 #	42.3 #
Phosphate (ortho) as PO4	<0.05 mg/l	TM184	<0.05 #	7.28 #
Nitrate as NO3	<0.3 mg/l	TM184	0.94 #	21.9 #
pH	<1 pH Units	TM256	7.32 #	7.14 #
Silver (diss.filt)	<1.5 µg/l	TM283	<1.5	<1.5

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Customer Sample R	BH3	BH4	BH5	BH8	BH109	BH110
		Depth (m)	.	.	.	.	.	.
		Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
		Date Sampled	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015
		Sampled Time	.	00:00:00	.	.	.	.
		Date Received	02/09/2015	02/09/2015	02/09/2015	02/09/2015	02/09/2015	02/09/2015
		SDG Ref	150902-38	150902-38	150902-38	150902-38	150902-38	150902-38
		Lab Sample No.(s)	11995368	11995366	11995367	11995371	11995370	11995369
		AGS Reference						
Component	**LOD/Units**	**Method**						
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<1	<1	<1	<1	<2	<1
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
2-Chlorophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
2-Methylnaphthalene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
2-Methylphenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
2-Nitroaniline (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
2-Nitrophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
3-Nitroaniline (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
4-Chloroaniline (aq)	<1 µg/l	TM176	<1	<1	<1	<1	<2	<1
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
4-Methylphenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
4-Nitroaniline (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
4-Nitrophenol (aq)	<1 µg/l	TM176	<1	<1	<1	<1	<2	<1
Azobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Acenaphthylene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Acenaphthene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Anthracene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	<2 #	<2 #	<2 #	<2 #	<4 #	<2 #
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	150902-38	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329713
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Customer Sample R	BH3	BH4	BH5	BH8	BH109	BH110
		Depth (m)	.	.	.	.	.	.
		Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
		Date Sampled	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015
		Sampled Time	.	00:00:00	.	.	.	.
		Date Received	02/09/2015	02/09/2015	02/09/2015	02/09/2015	02/09/2015	02/09/2015
		SDG Ref	150902-38	150902-38	150902-38	150902-38	150902-38	150902-38
		Lab Sample No.(s)	11995368	11995366	11995367	11995371	11995370	11995369
		AGS Reference						
Component	**LOD/Units**	**Method**						
Benzo(a)anthracene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Benzo(a)pyrene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Carbazole (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Chrysene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Dibenzofuran (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
n-Dibutyl phthalate (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Diethyl phthalate (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Dimethyl phthalate (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
n-Dioctyl phthalate (aq)	<5 µg/l	TM176	<5 #	<5 #	<5 #	<5 #	<10 #	<5 #
Fluoranthene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Fluorene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Hexachlorobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Hexachlorobutadiene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Pentachlorophenol (aq)	<1 µg/l	TM176	<1	<1	<1	<1	<2	<1
Phenol (aq)	<1 µg/l	TM176	<1	<1	<1	<1	<2	<1
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Hexachloroethane (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Nitrobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Naphthalene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Isophorone (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176	<1	<1	<1	<1	<2	<1
Phenanthrene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #
Pyrene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 #	<1 #	<2 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	150902-38	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329713
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Customer Sample R	BH111					
		Depth (m)	.					
		Sample Type	Water(GW/SW)					
		Date Sampled	01/09/2015					
		Sampled Time	.					
		Date Received	02/09/2015					
		SDG Ref	150902-38					
		Lab Sample No.(s)	11995372					
		AGS Reference						
Component	**LOD/Units**	**Method**						
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<1 #					
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 #					
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 #					
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<1					
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<1 #					
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<1 #					
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<1 #					
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<1 #					
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<1 #					
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<1 #					
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<1 #					
2-Chlorophenol (aq)	<1 µg/l	TM176	<1 #					
2-Methylnaphthalene (aq)	<1 µg/l	TM176	<1 #					
2-Methylphenol (aq)	<1 µg/l	TM176	<1 #					
2-Nitroaniline (aq)	<1 µg/l	TM176	<1 #					
2-Nitrophenol (aq)	<1 µg/l	TM176	<1 #					
3-Nitroaniline (aq)	<1 µg/l	TM176	<1 #					
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<1 #					
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<1 #					
4-Chloroaniline (aq)	<1 µg/l	TM176	<1					
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<1 #					
4-Methylphenol (aq)	<1 µg/l	TM176	5.42 #					
4-Nitroaniline (aq)	<1 µg/l	TM176	<1 #					
4-Nitrophenol (aq)	<1 µg/l	TM176	<1					
Azobenzene (aq)	<1 µg/l	TM176	<1 #					
Acenaphthylene (aq)	<1 µg/l	TM176	<1 #					
Acenaphthene (aq)	<1 µg/l	TM176	<1 #					
Anthracene (aq)	<1 µg/l	TM176	<1 #					
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<1 #					
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176	<1 #					
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	<2 #					
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<1 #					

CERTIFICATE OF ANALYSIS

SDG:	150902-38	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329713
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

Customer Sample R	BH111
Depth (m)	.
Sample Type	Water(GW/SW)
Date Sampled	01/09/2015
Sampled Time	.
Date Received	02/09/2015
SDG Ref	150902-38
Lab Sample No.(s)	11995372
AGS Reference	

Component	LOD/Units	Method	BH111					
Benzo(a)anthracene (aq)	<1 µg/l	TM176	<1 #					
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176	<1 #					
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176	<1 #					
Benzo(a)pyrene (aq)	<1 µg/l	TM176	<1 #					
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176	<1 #					
Carbazole (aq)	<1 µg/l	TM176	<1 #					
Chrysene (aq)	<1 µg/l	TM176	<1 #					
Dibenzofuran (aq)	<1 µg/l	TM176	<1 #					
n-Dibutyl phthalate (aq)	<1 µg/l	TM176	<1 #					
Diethyl phthalate (aq)	<1 µg/l	TM176	<1 #					
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176	<1 #					
Dimethyl phthalate (aq)	<1 µg/l	TM176	<1 #					
n-Dioctyl phthalate (aq)	<5 µg/l	TM176	<5 #					
Fluoranthene (aq)	<1 µg/l	TM176	<1 #					
Fluorene (aq)	<1 µg/l	TM176	<1 #					
Hexachlorobenzene (aq)	<1 µg/l	TM176	<1 #					
Hexachlorobutadiene (aq)	<1 µg/l	TM176	<1 #					
Pentachlorophenol (aq)	<1 µg/l	TM176	<1					
Phenol (aq)	<1 µg/l	TM176	<1					
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176	<1 #					
Hexachloroethane (aq)	<1 µg/l	TM176	<1 #					
Nitrobenzene (aq)	<1 µg/l	TM176	<1 #					
Naphthalene (aq)	<1 µg/l	TM176	<1 #					
Isophorone (aq)	<1 µg/l	TM176	<1 #					
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176	<1					
Phenanthrene (aq)	<1 µg/l	TM176	<1 #					
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176	<1 #					
Pyrene (aq)	<1 µg/l	TM176	<1 #					

Validated

CERTIFICATE OF ANALYSIS

SDG: 150902-38
Job: H_URS_WIM-273
Client Reference:
Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall
Order Number:
Report Number: 329713
Superseded Report:

TPH CWG (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Customer Sample R	BH3	BH4	BH5	BH8	BH109	BH110
		Depth (m)	.	.	.	.	.	.
		Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
		Date Sampled	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015
		Sampled Time	.	00:00:00	.	.	.	.
		Date Received	02/09/2015	02/09/2015	02/09/2015	02/09/2015	02/09/2015	02/09/2015
		SDG Ref	150902-38	150902-38	150902-38	150902-38	150902-38	150902-38
		Lab Sample No.(s)	11995368	11995366	11995367	11995371	11995370	11995369
		AGS Reference						
Component	**LOD/Units**	**Method**						
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3 #	<3 #	<3 #	<3 #	<3 #	<3 #
Benzene	<7 µg/l	TM245	<7 #	<7 #	<7 #	<7 #	<7 #	<7 #
Toluene	<4 µg/l	TM245	<4 #	<4 #	<4 #	<4 #	<4 #	<4 #
Ethylbenzene	<5 µg/l	TM245	<5 #	<5 #	<5 #	<5 #	<5 #	<5 #
m,p-Xylene	<8 µg/l	TM245	<8 #	<8 #	<8 #	<8 #	<8 #	<8 #
o-Xylene	<3 µg/l	TM245	<3 #	<3 #	<3 #	<3 #	<3 #	<3 #
Sum of detected BTEX	<28 µg/l	TM245	<28	<28	<28	<28	<28	<28
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
GRO >C5-C10	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
EPH (C6-C10)	<100 µg/l	TM245	<100	<100	<100	<100	<100	<100

CERTIFICATE OF ANALYSIS

SDG:	150902-38	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329713
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

Customer Sample R	BH111	DUP01
Depth (m)	.	.
Sample Type	Water(GW/SW)	Water(GW/SW)
Date Sampled	01/09/2015	01/09/2015
Sampled Time	.	.
Date Received	02/09/2015	02/09/2015
SDG Ref	150902-38	150902-38
Lab Sample No.(s)	11995372	11995373
AGS Reference		

Component	LOD/Units	Method	BH111	DUP01
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3 #	<3 #
Benzene	<7 µg/l	TM245	<7 #	<7 #
Toluene	<4 µg/l	TM245	<4 #	<4 #
Ethylbenzene	<5 µg/l	TM245	<5 #	<5 #
m,p-Xylene	<8 µg/l	TM245	<8 #	<8 #
o-Xylene	<3 µg/l	TM245	<3 #	<3 #
Sum of detected BTEX	<28 µg/l	TM245	<28	<28
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	<10	<10
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	<10	<10
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	<10	<10
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	<10	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	<10	<10
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	<10	<10
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	<10	<10
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	<10	<10
GRO >C5-C10	<10 µg/l	TM245	<10	<10
EPH (C6-C10)	<100 µg/l	TM245	<100	<100

Validated

CERTIFICATE OF ANALYSIS

SDG:	150902-38	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329713
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Customer Sample R	BH3	BH4	BH5	BH8	BH109	BH110
		Depth (m)	.	.	.	.	.	.
		Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
		Date Sampled	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015
		Sampled Time	.	00:00:00	.	.	.	.
		Date Received	02/09/2015	02/09/2015	02/09/2015	02/09/2015	02/09/2015	02/09/2015
		SDG Ref	150902-38	150902-38	150902-38	150902-38	150902-38	150902-38
		Lab Sample No.(s)	11995368	11995366	11995367	11995371	11995370	11995369
		AGS Reference						
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM208	88.6 1	92.5 1	89.5 1	88.4 1	88.2 1	87.9 1
Toluene-d8**	%	TM208	81.8 1	82.6 1	81.9 1	81.5 1	82.2 1	83.1 1
4-Bromofluorobenzene**	%	TM208	81.4 1	79.4 1	80.6 1	77.1 1	79.5 1	81 1
Dichlorodifluoromethane	<1 µg/l	TM208	<1 1	<1 1	<1 1	<1 1	<1 1	<1 1
Chloromethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
Vinyl chloride	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
Bromomethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
Chloroethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
Trichlorofluoromethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
1,1-Dichloroethene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
Carbon disulphide	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
Dichloromethane	<3 µg/l	TM208	<3 1 #	<3 1 #	<3 1 #	<3 1 #	<3 1 #	<3 1 #
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
1,1-Dichloroethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
2,2-Dichloropropane	<1 µg/l	TM208	<1 1	<1 1	<1 1	<1 1	<1 1	<1 1
Bromochloromethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
Chloroform	<1 µg/l	TM208	<1 1 #	1.57 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
1,1,1-Trichloroethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
1,1-Dichloropropene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
Carbontetrachloride	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
1,2-Dichloroethane	<1 µg/l	TM208	<1 1	<1 1	<1 1	<1 1	<1 1	<1 1
Benzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
Trichloroethene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
1,2-Dichloropropane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
Dibromomethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
Bromodichloromethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
Toluene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
1,1,2-Trichloroethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #

CERTIFICATE OF ANALYSIS

SDG:	150902-38	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329713
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

Customer Sample R			BH3	BH4	BH5	BH8	BH109	BH110
Depth (m)			.	.	.	.	.	.
Sample Type			Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
Date Sampled			01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015
Sampled Time			.	00:00:00	.	.	.	.
Date Received			02/09/2015	02/09/2015	02/09/2015	02/09/2015	02/09/2015	02/09/2015
SDG Ref			150902-38	150902-38	150902-38	150902-38	150902-38	150902-38
Lab Sample No.(s)			11995368	11995366	11995367	11995371	11995370	11995369
AGS Reference								
Component	**LOD/Units**	**Method**						
1,3-Dichloropropane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
Tetrachloroethene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
Dibromochloromethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
1,2-Dibromoethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
Chlorobenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
Ethylbenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
m,p-Xylene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
o-Xylene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
Styrene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
Bromoform	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
Isopropylbenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1 1	<1 1	<1 1	<1 1	<1 1	<1 1
1,2,3-Trichloropropane	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
Bromobenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
Propylbenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
2-Chlorotoluene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
4-Chlorotoluene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
tert-Butylbenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
sec-Butylbenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
4-iso-Propyltoluene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
1,3-Dichlorobenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
1,4-Dichlorobenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
n-Butylbenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
1,2-Dichlorobenzene	<1 µg/l	TM208	<1 1	<1 1	<1 1	<1 1	<1 1	<1 1
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1 1	<1 1	<1 1	<1 1	<1 1	<1 1
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
Hexachlorobutadiene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
Naphthalene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

Component	LOD/Units	Method	BH3	BH4	BH5	BH8	BH109	BH110
Customer Sample R			BH3	BH4	BH5	BH8	BH109	BH110
Depth (m)			.	.	.	.	.	.
Sample Type			Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
Date Sampled			01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015
Sampled Time			.	00:00:00	.	.	.	.
Date Received			02/09/2015	02/09/2015	02/09/2015	02/09/2015	02/09/2015	02/09/2015
SDG Ref			150902-38	150902-38	150902-38	150902-38	150902-38	150902-38
Lab Sample No.(s)			11995368	11995366	11995367	11995371	11995370	11995369
AGS Reference								
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1 1	<1 1	<1 1	<1 1	<1 1	<1 1

CERTIFICATE OF ANALYSIS

SDG:	150902-38	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329713
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Customer Sample R	BH111	DUP01				
		Depth (m)	.	.				
		Sample Type	Water(GW/SW)	Water(GW/SW)				
		Date Sampled	01/09/2015	01/09/2015				
		Sampled Time	.	.				
		Date Received	02/09/2015	02/09/2015				
		SDG Ref	150902-38	150902-38				
		Lab Sample No.(s)	11995372	11995373				
		AGS Reference						
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM208	91.7 1	90.5 1				
Toluene-d8**	%	TM208	80.4 1	80.1 1				
4-Bromofluorobenzene**	%	TM208	77.9 1	78 1				
Dichlorodifluoromethane	<1 µg/l	TM208	<1 1	<1 1				
Chloromethane	<1 µg/l	TM208	<1 1 #	<1 1 #				
Vinyl chloride	<1 µg/l	TM208	<1 1 #	<1 1 #				
Bromomethane	<1 µg/l	TM208	<1 1 #	<1 1 #				
Chloroethane	<1 µg/l	TM208	<1 1 #	<1 1 #				
Trichlorofluoromethane	<1 µg/l	TM208	<1 1 #	<1 1 #				
1,1-Dichloroethene	<1 µg/l	TM208	<1 1 #	<1 1 #				
Carbon disulphide	<1 µg/l	TM208	<1 1 #	<1 1 #				
Dichloromethane	<3 µg/l	TM208	<3 1 #	<3 1 #				
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1 1 #	<1 1 #				
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1 1 #	<1 1 #				
1,1-Dichloroethane	<1 µg/l	TM208	<1 1 #	<1 1 #				
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1 1 #	<1 1 #				
2,2-Dichloropropane	<1 µg/l	TM208	<1 1	<1 1				
Bromochloromethane	<1 µg/l	TM208	<1 1 #	<1 1 #				
Chloroform	<1 µg/l	TM208	<1 1 #	1.41 1 #				
1,1,1-Trichloroethane	<1 µg/l	TM208	<1 1 #	<1 1 #				
1,1-Dichloropropene	<1 µg/l	TM208	<1 1 #	<1 1 #				
Carbontetrachloride	<1 µg/l	TM208	<1 1 #	<1 1 #				
1,2-Dichloroethane	<1 µg/l	TM208	<1 1	<1 1				
Benzene	<1 µg/l	TM208	<1 1 #	<1 1 #				
Trichloroethene	<1 µg/l	TM208	<1 1 #	<1 1 #				
1,2-Dichloropropane	<1 µg/l	TM208	<1 1 #	<1 1 #				
Dibromomethane	<1 µg/l	TM208	<1 1 #	<1 1 #				
Bromodichloromethane	<1 µg/l	TM208	<1 1 #	<1 1 #				
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1 1 #	<1 1 #				
Toluene	<1 µg/l	TM208	<1 1 #	<1 1 #				
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1 1 #	<1 1 #				
1,1,2-Trichloroethane	<1 µg/l	TM208	<1 1 #	<1 1 #				

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

Customer Sample R	BH111	DUP01				
Depth (m)	.	.				
Sample Type	Water(GW/SW)	Water(GW/SW)				
Date Sampled	01/09/2015	01/09/2015				
Sampled Time	.	.				
Date Received	02/09/2015	02/09/2015				
SDG Ref	150902-38	150902-38				
Lab Sample No.(s)	11995372	11995373				
AGS Reference						

Component	LOD/Units	Method	BH111	DUP01				
1,3-Dichloropropane	<1 µg/l	TM208	<1 1 #	<1 1 #				
Tetrachloroethene	<1 µg/l	TM208	<1 1 #	<1 1 #				
Dibromochloromethane	<1 µg/l	TM208	<1 1 #	<1 1 #				
1,2-Dibromoethane	<1 µg/l	TM208	<1 1 #	<1 1 #				
Chlorobenzene	<1 µg/l	TM208	<1 1 #	<1 1 #				
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1 1 #	<1 1 #				
Ethylbenzene	<1 µg/l	TM208	<1 1 #	<1 1 #				
m,p-Xylene	<1 µg/l	TM208	<1 1 #	<1 1 #				
o-Xylene	<1 µg/l	TM208	<1 1 #	<1 1 #				
Styrene	<1 µg/l	TM208	<1 1 #	<1 1 #				
Bromoform	<1 µg/l	TM208	<1 1 #	<1 1 #				
Isopropylbenzene	<1 µg/l	TM208	<1 1 #	<1 1 #				
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1 1	<1 1				
1,2,3-Trichloropropane	<1 µg/l	TM208	<1 1 #	<1 1 #				
Bromobenzene	<1 µg/l	TM208	<1 1 #	<1 1 #				
Propylbenzene	<1 µg/l	TM208	<1 1 #	<1 1 #				
2-Chlorotoluene	<1 µg/l	TM208	<1 1 #	<1 1 #				
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1 1 #	<1 1 #				
4-Chlorotoluene	<1 µg/l	TM208	<1 1 #	<1 1 #				
tert-Butylbenzene	<1 µg/l	TM208	<1 1 #	<1 1 #				
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1 1 #	<1 1 #				
sec-Butylbenzene	<1 µg/l	TM208	<1 1 #	<1 1 #				
4-iso-Propyltoluene	<1 µg/l	TM208	<1 1 #	<1 1 #				
1,3-Dichlorobenzene	<1 µg/l	TM208	<1 1 #	<1 1 #				
1,4-Dichlorobenzene	<1 µg/l	TM208	<1 1 #	<1 1 #				
n-Butylbenzene	<1 µg/l	TM208	<1 1 #	<1 1 #				
1,2-Dichlorobenzene	<1 µg/l	TM208	<1 1	<1 1				
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1 1	<1 1				
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1 1 #	<1 1 #				
Hexachlorobutadiene	<1 µg/l	TM208	<1 1 #	<1 1 #				
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1 1 #	<1 1 #				
Naphthalene	<1 µg/l	TM208	<1 1 #	<1 1 #				

CERTIFICATE OF ANALYSIS

SDG:	150902-38	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329713
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Customer Sample R	BH111	DUP01					
		Depth (m)	.	.					
		Sample Type	Water(GW/SW)	Water(GW/SW)					
		Date Sampled	01/09/2015	01/09/2015					
		Sampled Time	.	.					
		Date Received	02/09/2015	02/09/2015					
		SDG Ref	150902-38	150902-38					
		Lab Sample No.(s)	11995372	11995373					
		AGS Reference							
Component	**LOD/Units**	**Method**							
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1 1 #	<1 1 #					
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1 1	<1 1					

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample [1]	Surrogate Corrected
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)		
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser		
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM172	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	EPH in Waters		
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID		
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS		
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry		
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers		
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters		
TM245	By GC-FID	Determination of GRO by Headspace in waters		
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter		
TM283		Determination of Dissolved Niobium, Tungsten, and Zirconium in Water Matrices by ICP-MS		

[1] Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

SDG: 150902-38
Job: H_URS_WIM-273
Client Reference:

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

Order Number:
Report Number: 329713
Superseded Report:

Test Completion Dates

Lab Sample No(s)	11995368	11995366	11995367	11995371	11995370	11995369	11995372	11995373
Customer Sample Ref.	BH3	BH4	BH5	BH8	BH109	BH110	BH111	DUP01
AGS Ref.								
Depth								
Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID
Ammoniacal Nitrogen	08-Sep-2015	08-Sep-2015	07-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015
Anions by Kone (w)	09-Sep-2015	09-Sep-2015	09-Sep-2015	09-Sep-2015	09-Sep-2015	09-Sep-2015	09-Sep-2015	09-Sep-2015
COD Unfiltered	05-Sep-2015	05-Sep-2015	05-Sep-2015	05-Sep-2015	05-Sep-2015	05-Sep-2015	05-Sep-2015	05-Sep-2015
Dissolved Metals by ICP-MS	09-Sep-2015	09-Sep-2015	09-Sep-2015	09-Sep-2015	09-Sep-2015	08-Sep-2015	09-Sep-2015	09-Sep-2015
Dissolved W, Nb and Zr by ICP-MS	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015
EPH (DRO) (C10-C40) Aqueous (W)	10-Sep-2015	10-Sep-2015	10-Sep-2015	10-Sep-2015	10-Sep-2015	10-Sep-2015	10-Sep-2015	10-Sep-2015
EPH CWG (Aliphatic) Aqueous GC (W)	14-Sep-2015	14-Sep-2015	14-Sep-2015	14-Sep-2015	14-Sep-2015	14-Sep-2015	14-Sep-2015	14-Sep-2015
EPH CWG (Aromatic) Aqueous GC (W)	14-Sep-2015	14-Sep-2015	14-Sep-2015	14-Sep-2015	14-Sep-2015	14-Sep-2015	14-Sep-2015	14-Sep-2015
GRO by GC-FID (W)	04-Sep-2015	04-Sep-2015	04-Sep-2015	04-Sep-2015	04-Sep-2015	04-Sep-2015	04-Sep-2015	08-Sep-2015
Mercury Dissolved	07-Sep-2015	07-Sep-2015	07-Sep-2015	07-Sep-2015	07-Sep-2015	07-Sep-2015	07-Sep-2015	07-Sep-2015
Nitrite by Kone (w)	06-Sep-2015	06-Sep-2015	06-Sep-2015	06-Sep-2015	06-Sep-2015	06-Sep-2015	06-Sep-2015	06-Sep-2015
pH Value	10-Sep-2015	10-Sep-2015	10-Sep-2015	10-Sep-2015	10-Sep-2015	10-Sep-2015	10-Sep-2015	10-Sep-2015
SVOC MS (W) - Aqueous	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015	
Total EPH (aq)	11-Sep-2015	11-Sep-2015	11-Sep-2015	11-Sep-2015	11-Sep-2015	11-Sep-2015	11-Sep-2015	11-Sep-2015
TPH CWG (W)	14-Sep-2015	14-Sep-2015	14-Sep-2015	14-Sep-2015	14-Sep-2015	14-Sep-2015	14-Sep-2015	14-Sep-2015
VOC MS (W)	04-Sep-2015	04-Sep-2015	04-Sep-2015	03-Sep-2015	04-Sep-2015	04-Sep-2015	03-Sep-2015	03-Sep-2015

ASSOCIATED AQC DATA

Ammoniacal Nitrogen

Component	Method Code	QC 1224	QC 1233	QC 1270
Ammoniacal Nitrogen as N	TM099	**96.0** 91.84 : 108.16	**102.8** 91.84 : 108.16	**102.0** 91.84 : 108.16

Anions by Kone (w)

Component	Method Code	QC 1236	QC 1219
Chloride	TM184	94.64 : 106.82	94.23 : 107.50
Phosphate (Ortho as PO4)	TM184	96.40 : 108.40	**105.6** 96.41 : 109.80
Sulphate (soluble)	TM184	**99.6** 96.47 : 104.74	94.38 : 108.93
TON as NO3	TM184	**102.5** 93.05 : 112.12	93.93 : 110.49

COD Unfiltered

Component	Method Code	QC 1264	QC 1268	QC 1273
COD	TM107	**100.57** 95.90 : 102.57	**100.19** 95.90 : 102.57	**99.43** 95.90 : 102.57

Dissolved Metals by ICP-MS

Component	Method Code	QC 1270	QC 1278
Aluminium	TM152	**106.13** 88.58 : 117.87	**104.93** 88.58 : 117.87
Antimony	TM152	**101.73** 87.01 : 109.33	**101.73** 87.01 : 109.33
Arsenic	TM152	**102.4** 89.45 : 113.51	**98.67** 89.45 : 113.51
Barium	TM152	**102.4** 90.47 : 113.85	**102.67** 90.47 : 113.85
Beryllium	TM152	**96.27** 84.68 : 120.26	**105.6** 84.68 : 120.26
Boron	TM152	**95.6** 82.95 : 121.47	**100.13** 82.95 : 121.47
Cadmium	TM152	**101.47** 90.40 : 113.29	**103.6** 90.40 : 113.29
Chromium	TM152	**100.13** 90.01 : 114.05	**102.53** 90.01 : 114.05
Cobalt	TM152	**100.67** 87.14 : 117.85	**100.93** 87.14 : 117.85
Copper	TM152	**100.67** 88.43 : 114.27	**103.6** 88.43 : 114.27
Lead	TM152	**95.33** 89.53 : 109.90	**96.0** 89.53 : 109.90

Dissolved Metals by ICP-MS

		QC 1270	QC 1278
Lithium	TM152	**97.07** 84.32 : 123.11	**105.33** 84.32 : 123.11
Manganese	TM152	**99.87** 91.43 : 113.17	**103.2** 91.43 : 113.17
Molybdenum	TM152	**102.13** 80.73 : 113.85	**101.2** 80.73 : 113.85
Nickel	TM152	**100.0** 87.68 : 113.94	**100.53** 87.68 : 113.94
Phosphorus	TM152	**106.67** 86.68 : 118.34	**100.8** 86.68 : 118.34
Selenium	TM152	**101.33** 91.03 : 113.34	**100.93** 91.03 : 113.34
Strontium	TM152	**101.07** 90.44 : 114.09	**102.13** 90.44 : 114.09
Tellurium	TM152	**104.53** 80.93 : 116.91	**102.53** 80.93 : 116.91
Thallium	TM152	**96.13** 90.27 : 111.31	**96.4** 90.27 : 111.31
Tin	TM152	**100.27** 83.07 : 112.37	**100.53** 83.07 : 112.37
Titanium	TM152	**102.53** 92.65 : 111.58	**101.87** 92.65 : 111.58
Uranium	TM152	**92.13** 88.60 : 110.35	**97.33** 88.60 : 110.35
Vanadium	TM152	**100.4** 88.43 : 116.60	**103.07** 88.43 : 116.60
Zinc	TM152	**99.87** 89.84 : 113.06	**105.33** 89.84 : 113.06

Dissolved W, Nb and Zr by ICP-MS

Component	Method Code	QC 1290
Bismuth	TM283	**92.13** 66.55 : 123.56
Niobium	TM283	**107.6** 85.00 : 115.00
Silver	TM283	**105.33** 81.37 : 112.35
Tungsten	TM283	**85.87** 85.00 : 115.00
Zirconium	TM283	**102.27** 85.00 : 115.00

EPH (DRO) (C10-C40) Aqueous (W)

Component	Method Code	QC 1208	QC 1212
EPH (DRO) (C10-C40)	TM172	**96.5** 59.22 : 112.78	**77.0** 59.47 : 106.15

EPH CWG (Aliphatic) Aqueous GC (W)

EPH CWG (Aliphatic) Aqueous GC (W)

Component	Method Code	QC 1219
Total Aliphatics >C12-C35	TM174	**79.17** 66.67 : 110.42

EPH CWG (Aromatic) Aqueous GC (W)

Component	Method Code	QC 1220
Total Aromatics >EC12-EC35	TM174	**88.67** 63.00 : 121.00

GRO by GC-FID (W)

Component	Method Code	QC 1199	QC 1175	QC 1286
Benzene by GC	TM245	**95.5** 76.72 : 118.62	**104.5** 79.00 : 121.00	**90.0** 77.50 : 122.50
Ethylbenzene by GC	TM245	**90.0** 74.74 : 116.76	**104.0** 79.00 : 121.00	**87.5** 77.50 : 122.50
m & p Xylene by GC	TM245	**89.75** 73.06 : 114.58	**103.5** 79.00 : 121.00	**87.75** 77.50 : 122.50
MTBE GC-FID	TM245	**98.5** 80.00 : 121.03	**108.0** 79.00 : 121.00	**92.0** 77.50 : 122.50
o Xylene by GC	TM245	**90.0** 70.00 : 130.00	**103.0** 79.00 : 121.00	**87.5** 77.50 : 122.50
QC	TM245	**101.89** 70.00 : 130.00	**104.28** 79.00 : 121.00	**102.19** 74.88 : 125.54
Toluene by GC	TM245	**92.0** 79.35 : 119.27	**105.0** 79.00 : 121.00	**88.5** 77.50 : 122.50

Mercury Dissolved

Component	Method Code	QC 1262	QC 1200
Mercury Dissolved (CVAF)	TM183	**98.5** 73.51 : 120.83	**95.5** 73.51 : 120.83

pH Value

Component	Method Code	QC 1201	QC 1215
pH	TM256	**101.08** 99.20 : 102.85	**100.54** 99.37 : 102.65

SVOC MS (W) - Aqueous

SVOC MS (W) - Aqueous

Component	Method Code	QC 1208	QC 1247
4-Bromophenylphenylether	TM176	**87.2** 55.04 : 128.00	**82.4** 65.62 : 120.95
Benzo(a)anthracene	TM176	**87.2** 52.64 : 123.68	**82.4** 62.83 : 114.26
Benzo(a)pyrene	TM176	**79.68** 49.60 : 114.40	**80.8** 54.19 : 105.67
Butylbenzyl phthalate	TM176	**93.6** 49.04 : 127.76	**82.4** 45.10 : 118.90
Hexachlorobutadiene	TM176	**77.52** 42.80 : 108.20	**61.28** 43.12 : 110.32
Naphthalene	TM176	**92.0** 47.20 : 116.80	**85.6** 69.48 : 118.94
Nitrobenzene	TM176	**88.8** 58.70 : 110.90	**79.52** 69.13 : 107.62
Phenol	TM176	**50.08** 30.25 : 79.75	**49.12** 30.92 : 74.19

VOC MS (W)

Component	Method Code	QC 1188	QC 1162
1,1,1,2-Tetrachloroethane	TM208	**91.0** 84.25 : 114.84	**94.5** 87.29 : 112.22
1,1,1-Trichloroethane	TM208	**90.0** 84.67 : 111.97	**91.5** 83.02 : 113.68
1,1-Dichloroethane	TM208	**93.5** 80.19 : 121.45	**95.0** 77.85 : 123.56
1,2-Dichloroethane	TM208	**94.0** 77.68 : 127.05	**96.5** 80.96 : 124.37
2-Chlorotoluene	TM208	**91.0** 85.81 : 116.77	**96.5** 84.42 : 112.35
4-Chlorotoluene	TM208	**92.0** 87.22 : 115.45	**96.5** 88.70 : 113.67
Benzene	TM208	**91.0** 82.30 : 120.49	**95.0** 85.85 : 118.22
Bromomethane	TM208	**101.0** 76.16 : 123.35	**103.0** 78.68 : 126.84
Carbontetrachloride	TM208	**93.0** 83.96 : 117.98	**93.5** 82.06 : 117.49
Chlorobenzene	TM208	**93.0** 85.75 : 114.88	**97.5** 77.50 : 122.50
Chloroform	TM208	**95.0** 84.84 : 119.97	**100.0** 77.50 : 122.50
Chloromethane	TM208	**117.5** 53.63 : 141.38	**113.0** 64.99 : 145.80
Cis-1,2-Dichloroethene	TM208	**104.0** 81.65 : 120.44	**108.0** 82.70 : 120.11
Dichloromethane	TM208	**94.0** 79.31 : 122.56	**99.5** 80.45 : 125.21
Ethylbenzene	TM208	**89.5** 80.74 : 110.74	**90.0** 81.00 : 111.00
Hexachlorobutadiene	TM208	**98.5** 68.91 : 121.59	**99.0** 79.39 : 111.07
o-Xylene	TM208	**91.0** 85.43 : 113.21	**95.0** 84.32 : 113.42

CERTIFICATE OF ANALYSIS

VOC MS (W)

		QC 1188	QC 1162
p/m-Xylene	TM208	**89.25** 80.94 : 113.51	**92.75** 82.25 : 112.25
Tert-butyl methyl ether	TM208	**98.0** 59.77 : 129.51	**93.0** 76.57 : 125.98
Tetrachloroethene	TM208	**91.0** 83.21 : 115.40	**93.5** 84.88 : 110.14
Toluene	TM208	**90.0** 86.02 : 114.04	**93.0** 85.71 : 113.18
Trichloroethene	TM208	**91.0** 83.50 : 113.50	**94.0** 87.32 : 112.88
Vinyl Chloride	TM208	**92.5** 63.71 : 124.88	**88.0** 67.57 : 130.24

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

SDG:	150902-38	**Location:**	Stag Brewery	**Order Number:**	
Job:	H_URS_WIM-273	**Customer:**	AECOM	**Report Number:**	329713
Client Reference:		**Attention:**	Gary Marshall	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W)	**Sample No :**	12041687	**Depth :**	
	Sample ID :	BH109		

```
Alcontrol/Geochem Analytical Services
Speciated TPH - SATS ( C12 - C40 )

Sample Identity:  11416099-
Date Acquired   :  11/09/2015 21:08:44 PM
Units           :  ppb
Dilution        :
CF              :  1
Multiplier      :  0.008
```