

9 Primrose Lane, Pontardawe

Ground Investigation

Factual and Interpretative Report

G23023

April 2023

JCP Solicitors

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Report Control Sheet**Report Number**

G23023

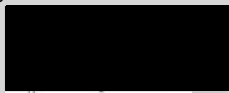
Date of Issue

April 2023

Site Address

9 Primrose Lane, Pontardawe, SA8 3ES

Report Preparation

Revision	Writer	Approver
Rev 0	Adam Putt BSc (Hons) FGS CSCi CGeol EurGeol MEnvSC Registered Ground Engineering Professional	Sam Setchell BSc MSc FGS CGeol
	Signature 	Signature 
Rev 1		
	Signature	Signature

Jackson Geo Services is a trading name of Jackson Drilling Holdings Limited – registered company number 06919550.

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1 Introduction

1.1 General

JCP Solicitors entered into a contract with Jackson Geo Services (JGS) to complete a ground investigation at 9 Primrose Lane, Pontardawe (hereafter referred to as The Site). The contract was agreed initially during March 2023, with the Phase II assessment instructed during April 2023. As per the Construction Design and Management (CDM) Regulations (2015), parties were attributed the following responsibilities:

Table 1: Responsibility Under CDM

Client	JCP Solicitors
Designer	Karen Gardner Architects
Principal Contractor	JCP Solicitors
Sub-Contractor	JGS

1.2 Proposed Development

The Site is proposed to be developed for residential use with 1 Nr. detached residential dwelling and 2 Nr. residential apartments proposed. Proposed development plans (GOCD GKT01 – P007) are included within Appendix I. The proposed development relates to the full planning application with Neath Port Talbot Council (NPT) Ref: P2022/0493.

1.3 Scope of Works

The scope of investigation was defined by JGS and is based upon the findings presented within the Phase I desk study report produced by JGS in March 2023. In summary, the scope of investigation comprised:

- ☑ Hand excavated trial pitting
- ☑ Geoenvironmental Testing
- ☑ Interpretative Reporting to include a geoenvironmental assessment to test the pollution linkages presented within the Conceptual Site Model (CSM) as presented within the Phase 1 assessment.

No geotechnical assessment was required by the client as part of the contract.

2 Background to Assessment

2.1 General

In accordance with the contaminated land assessment regime (Land contamination risk management (LCRM) (April 2021)) and the current published standards, BS:10175:2011+A2:2017, BS:21365:2020 and BS:5930:2015+A1:2020, this Phase 1 preliminary assessment has been produced in order to:

- Assess the likelihood of contamination, its nature and its extent.
- Assess the likelihood of any geological risks which could impact the development.
- Evaluate the environmental setting of The Site and identify sensitive receptors.

- Provide information from which likely contamination linkages (source-pathway-receptor relationships) can be identified.
- Determine the requirements for any investigation (if required).

LCRM has been designed to be used in a range of regulatory and management contexts, including voluntary remediation, planning, assessment of liabilities or under the Part 2A contaminated land regime.

LCRM states that a risk assessment must be completed by a competent person to:

- Identify the reasons for doing the risk assessment.
- Identify the potential contaminant linkages.
- Assess and evaluate the risk to establish whether there is unacceptable risk.

LCRM indicates this should be completed using a tiered approach to risk assessment as follows:

- Preliminary risk assessment – first tier of risk assessment that develops the initial conceptual site model to establish whether there are any potentially unacceptable risks.
- Generic quantitative risk assessment – uses generic assessment criteria and assumptions to estimate risk.
- Detailed quantitative risk assessment – uses detailed site-specific information to estimate risk.

2.2 Technical Approach to Risk Assessment

LCRM details that for each required tier of risk assessment the following must be identified:

- Identify the hazard – establish contaminant sources.
- Assess the hazard – use a source-pathway-receptor (S-P-R) linkage approach to find out if there is potential for unacceptable risk.
- Estimate the risk – predict what degree of harm or pollution might result and how likely it is to occur by using the tiered approach to risk assessment.
- Evaluate the risk – decide whether a risk is unacceptable.

2.3 Source-Pathway-Receptor Approach

The S-P-R approach uses a risk based approach to assess the potential the identified contamination linkages may cause to human health or the environment. Sources, Pathways and Receptors are defined within LCRM as the following:

- Source – a contaminant or pollutant that is in, on or under the land and that the potential to cause harm or pollution.
- Pathway – a route by which a receptor is or could be affected by a contaminant
- Receptor – something that could be adversely affected by a contaminant, for example a person, controlled waters, an organism, an ecosystem, or Part 2A receptors such as buildings, crops or animals

If a viable pathway is identified to connect a source and receptor then there is potential for a contamination linkage to be present which may cause harm to human health or the

environment. Within LCRM these are defined as 'potential contaminant linkages' until they are confirmed.

2.4 Conceptual Site Model

The Conceptual Site Model (CSM) is used to represent the characteristics of The Site and presents the relationship between the identified Sources, Pathways and Receptors showing the 'potential contaminant linkages'. The CSM also evaluates the potential risks from these identified 'potential contaminant linkages'.

2.5 Risk Assessment and Risk Categorisation

The risk assessment process is a requirement defined within LCRM as presented within Section 2.1. The jointly published guidance document EA and NHBC R&D Publication 66: *Guidance for the Safe Development of Housing on Land Affected by Contamination Vol.1* (2008) sets out a strategy for the categorisation of for Preliminary Risk Assessment. Table 2 shows how Risk Categories can be derived for identified 'potential contaminant linkages'.

Table 2: Risk Categories

Probability (Likelihood)		Consequence			
		Severe	Medium	Mild	Minor
	High Likelihood	Very High Risk	High Risk	Moderate Risk	Low Risk
	Likely	High Risk	Moderate Risk	Moderate/low Risk	Low Risk
	Low Likelihood	Moderate Risk	Moderate/low risk	Low Risk	Very Low Risk
	Unlikely	Moderate/Low Risk	Low Risk	Very Low Risk	Very Low Risk

The risk categories have been given the following definitions:

- Very high risk - There is a high probability that severe harm could arise to a designated receptor from an identified hazard at The Site without appropriate remediation action.
- High Risk - Harm is likely to arise to a designated receptor from an identified hazard at The Site without appropriate remediation action.
- Moderate Risk - It is possible that without appropriate remediation action harm could arise to designated receptor. It is relatively unlikely that any such harm would be severe, and if any harm were to occur it is more likely that such harm would be relatively mild.
- Low Risk - It is possible that harm could arise to a designated receptor from an identified hazard. It is likely that, at worst if any harm was realised any effects would be mild.
- Very Low Risk - The presence of an identified hazard does not give rise to the potential to cause harm to a designated receptor.

Each identified 'potential contaminant linkage' will be assigned a Risk Category as part of the risk assessment process. These will be assigned on a qualitative basis using professional judgement to estimate the Probability and Consequence. The risk category will be utilised to help determine any intrusive investigation strategy required with areas of The Site where higher risk 'potential pollution linkages' are identified requiring a more intense investigation than those areas with a lower Risk Category.

2.6 Limitations

The project has been undertaken in accordance with The Specification and current standards and guidance as applicable (see References).

This report presents the observations made during desk based studies and the fieldwork period on a factual basis. Any observations within the report are limited to those which can be made based upon the information available at the time.

JGS consider the contents of the report have been produced accurately and the data presented is representative of the site conditions at the time. JGS assumes any third party data included in the report is accurate and correct. No responsibility is accepted by JGS for inaccuracies within third party data.

This report has been written to The Specification and is for use only in this context by the named Client and their advisers and is confidential to the named Client.

This report presents information on ground conditions, including groundwater, gas and contamination concentrations and soil properties, which are based upon the available dataset for the investigation. This dataset is considered representative of the site as whole, however is limited by the locations of investigation. Ground conditions, in particular Made Ground, can vary substantially and JGS do not accept responsibility for local unforeseen changes. Furthermore, groundwater, gas concentrations and chemical concentration can vary with time, atmospheric conditions and spatially dependent upon a variety of confining factors.

Consideration should be made as to the relevance of the information if the dataset is to be utilised after a significant period of time has elapsed from the date of investigation.

3 The Site

3.1 Site Location

The Site is situated at National Grid Reference (NGR) SN 73885 02682, and is approximately 2 km south east from the town of Pontardawe, in the Swansea Valley. The location of The Site is shown in Figure 1:

Figure 1: Site Location



3.2 Current Use

The Site currently comprises a residential property with a garden to its south. It is rectangular and measures approximately 20 m by 30 m.

The site currently consists of a single-story dwelling with loft conversion. There is a small outbuilding and garage with carport attached to the south east of the property. A glasshouse is present in the southern end of the garden. The driveway at the front (north) of the property comprises macadam. A concrete patio area is present at the rear of the property. Along the western side of the garden, there is a brick wall separating two different ground levels, with the ground shallowly sloping up to a flat area in the south end of the garden. The garden is mostly flat apart from this. Adjacent to the west of the dwelling is a manhole cover, a drainage pipe coming off the patio is also present in alignment with this cover suggesting its use is for drainage and/or wastewater.

The site is bound to the north by a brick wall separating the site and Primrose Lane. Beyond which is a row of detached dwellings. To the east and west are detached residential dwellings with driveways. To the south, a post and wire fence separates The Site from an open field. This field shows signs of a high water table including a significant number of reeds.

3.3 Anticipated Ground Conditions

As presented within the Phase 1 desk study report, the anticipated ground conditions have been assessed using the data available on the British Geological Survey (BGS) Geology of Britain Viewer (2023) and the published BGS map (map no. 230, 1977). Observations made are summarised within Table 3:

Table 3: Anticipated Ground Conditions

Artificial Ground	None recorded.	N/A
Superficial Deposits	Devensian Till	Diamicton.
Solid Geology	Grovesend Formation - Sandstone	Predominantly argillaceous, comprising mudstones and siltstones, with well developed coals; minor lithic ("Pennant") sandstones; locally developed red mudstones in the type area.

Several faults are present in the local area. They primarily trend north – south. There is a fault that trends north - south located less than 100 m to the east of the site, the site sits on the downthrow side of the fault. Coal seams are present north and south of the site which trend approximately east - west. They are located approximately 700 m to 1 km away.

The Department for Environment, Food & Rural Affairs (DEFRA) MAGIC mapping system (2023) indicates The Site is located within an area where the superficial deposits are classified as a secondary undifferentiated aquifer, and the bedrock is classified as a secondary A aquifer.

4 Fieldwork

4.1 General Information

The fieldwork was completed on 13 April 2023.

The ground investigation was undertaken in accordance with BS5930:2015+A1:2020. The works were supervised by a trained and competent JGS engineer.

The layout of the investigation locations and their unique identifiers were determined by JGS. JGS set out the locations onsite from local features.

Service drawings were provided to JGS by Karen Gardner Architects prior to works commencing on site and the location of the proposed investigation locations was checked against the service drawings prior to excavation.

Prior to excavation, each exploratory hole location was scanned using a Cable Avoidance Tool (CAT) to confirm the absence of services beneath the proposed excavation.

All exploratory hole locations were excavated to a depth of 1.20 m by hand. As hand excavation progressed, the excavations were scanned using a Cable Avoidance Tool (CAT) to continue to confirm the absence of services.

Photographs of the materials encountered were taken in accordance with The Specification and are presented in Appendix II.

The approximate location of the exploratory holes is shown on the drawing within Appendix I.

4.2 Exploratory Holes

The proposed numbers of exploratory holes, their unique identifiers, termination depths and installation requirements were determined by JGS. The details of the as built exploratory holes, including the location ID, construction method, actual termination depth and installation detail, are listed within Table 4.

Table 4: Exploratory Hole Details

Exploratory Hole ID	Construction Method	Termination Depth (m)	Installation Details		
			Type	Diameter (mm)	Response Zone (m bgl)
TP1	Hand excavated	1.20	Backfilled with arisings		
TP2	Hand excavated	1.20			
TP3	Hand excavated	1.20			
TP4	Hand excavated	1.20			

Notes: SP – Standpipe piezometer; P – Piezometer

Fair copy logs, which record the method, samples obtained, in-situ testing completed within the exploratory holes, backfill and descriptions of the material encountered, are presented within Appendix II.

4.3 Logging and Sampling

Samples of the materials encountered were obtained in accordance with The Specification for descriptive and geoenvironmental testing purposes.

The description of the materials encountered was completed in accordance with BS5930:2015+A1:2020, BS EN ISO 14688-1 (2018) and BS EN ISO 14689 (2018).

Geoenvironmental samples were packaged appropriately and dispatched directly from site to Eurofins Chemtest ensuring compliance with the deviant sampling policy. The samples were subsequently stored under laboratory conditions until testing commenced.

5 Geoenvironmental Laboratory Testing

Laboratory testing for geoenvironmental purposes was completed at Eurofins Chemtest, UKAS registration number 2183. The testing requirements were specified by JGS and the testing has been completed in accordance with the relevant technical standards. The geoenvironmental testing was completed on 20 April 2023. The testing is summarised within Table 5 and the results are presented within Appendix III.

Table 5: Geoenvironmental Testing Summary

Test Type	Number of Tests
Metals	4
Polycyclic Aromatic Hydrocarbons	4
Organic Matter Content	4
Asbestos	4

6 Geoenvironmental Assessment

A Generic Human Health Risk Assessment (GQRA) and Controlled Waters Risk Assessment has been completed in accordance with the guidance given within LCRM (April 2021) as discussed within Section 2 of this report. The purpose of the assessments are to test the source-pathway-receptors identified within Conceptual Site Model (CSM) presented within the Phase 1 Desk Study and identify any actual risk to the identified receptors. The CSM from the desk study is presented in Table 6 below for reference.

Table 6: Initial Site Conceptual Model and Preliminary Risk Assessment

Source	Pathway	Receptor	Consequence	Probability	Risk
Contaminated Soil (shallow soils)	Direct contact and inadvertent ingestion by eating or smoking with dirty hands	Future Site Users (including construction workers)	Mild	Unlikely	Very Low
	Inhalation of dusts		Medium	Low Likelihood	Low
	Ingestion of homegrown produce and soil attached to vegetables	Future Site Users	Mild	Unlikely	Very Low
	Indoor/Outdoor inhalation of soil vapour	Future Site Users	Mild	Unlikely	Very Low
	Direct contact	Buildings	Minor	Likely	Low
	Direct contact	Water supply pipework	Minor	Likely	Low
	Migration via shallow groundwater	Controlled waters	Minor	Unlikely	Very Low
Ground Gases (from organic soils)	Indoor inhalation of gases	Future Site Users	Mild	Unlikely	Very Low

6.1 Generic Human Health Risk Assessment

The results of the geoenvironmental tests conducted on soils have been compared against the GACs for a Residential end use with plant uptake and an organic matter content of 1 %. The assessment of the lab results against the GACs is presented within Appendix IV. The determinants analysed demonstrated no exceedances of the GACs and therefore these determinants are not considered to pose a risk to human health.

6.2 Controlled Waters Risk Assessment

The results of the geoenvironmental tests indicate generally low levels of contamination have been observed onsite with no determinants exceeding the GACs. This, combined with a reasonably small area of proposed soft landscaping means it is considered a minimal risk that leachates may migrate downwards and cause contamination to the groundwater underlying the site. The Site is therefore not considered to pose a risk to controlled waters.

6.3 Preliminary Ground Gas and Vapour Risk Assessment

The potential for vapours and ground gases have been identified within the initial CSM with the primary potential source anticipated to be either Made Ground or materials containing organics (such as peat) which potentially underlay the site. No significant thickness of Made Ground and no materials containing organics were encountered during the investigation as

such there is not considered to be source likely to produce ground gas or vapours present which could impact The Site.

7 Revised Conceptual Site Model and Conclusions

7.1 Revised Conceptual Site Model

The results of the GQRA, Controlled Waters Risk Assessment and Preliminary Vapour Assessment undertaken suggest that analysed determinants do not pose a risk to the identified receptors identified within the CSM.

7.2 Conclusions and Recommendations

It is considered that The Site can developed in its current state for the proposed end use without any requirement for remedial works to be undertaken prior to development commencing.

8 References

- ≡ BGS England and Wales Sheet 230, Ammanford, 1:5000 geological map (Bedrock and Superficials). British Geological Survey. (1977)
- ≡ BGS GeoIndex (onshore) Map Viewer. www.bgs.ac.uk. British Geological Survey. (2023)
- ≡ BS 5930:2015+A1. Code of practice for ground investigations. British Standards Institution. (2020)
- ≡ BS 10175:2011+A2. Investigation of potentially contaminated sites. Code of practice. (2017)
- ≡ BS EN 1997-2. Eurocode 7. Geotechnical design. Part 2 Ground investigation and testing. British Standards Institution. (2007, incorporating corrigendum June 2010)
- ≡ BS EN ISO 14688-1. Geotechnical investigation and testing. Identification and classification of soil. Part 1 Identification and description (2018)
- ≡ BS EN ISO 14688-2. Geotechnical investigation and testing. Identification and classification of soil. Part 2 Principles for a classification (2018)
- ≡ Department for Environment, Food and Rural Affairs (DEFRA) MAGIC maps online application. DEFRA (2023)
- ≡ Open Street Map (2023)

Appendix I

Drawings

Site Location Plan

Drawing Number: P.01_SITE

LOCATION PLAN

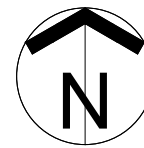
Proposed Development Plan

Drawing Number: P.02/A_BLOCK

PLANS

Exploratory Hole Plan

Drawing Number: JGS-G23023-001



SITE LOCATION PLAN 1:1250
OS ref: SN 73888 02681

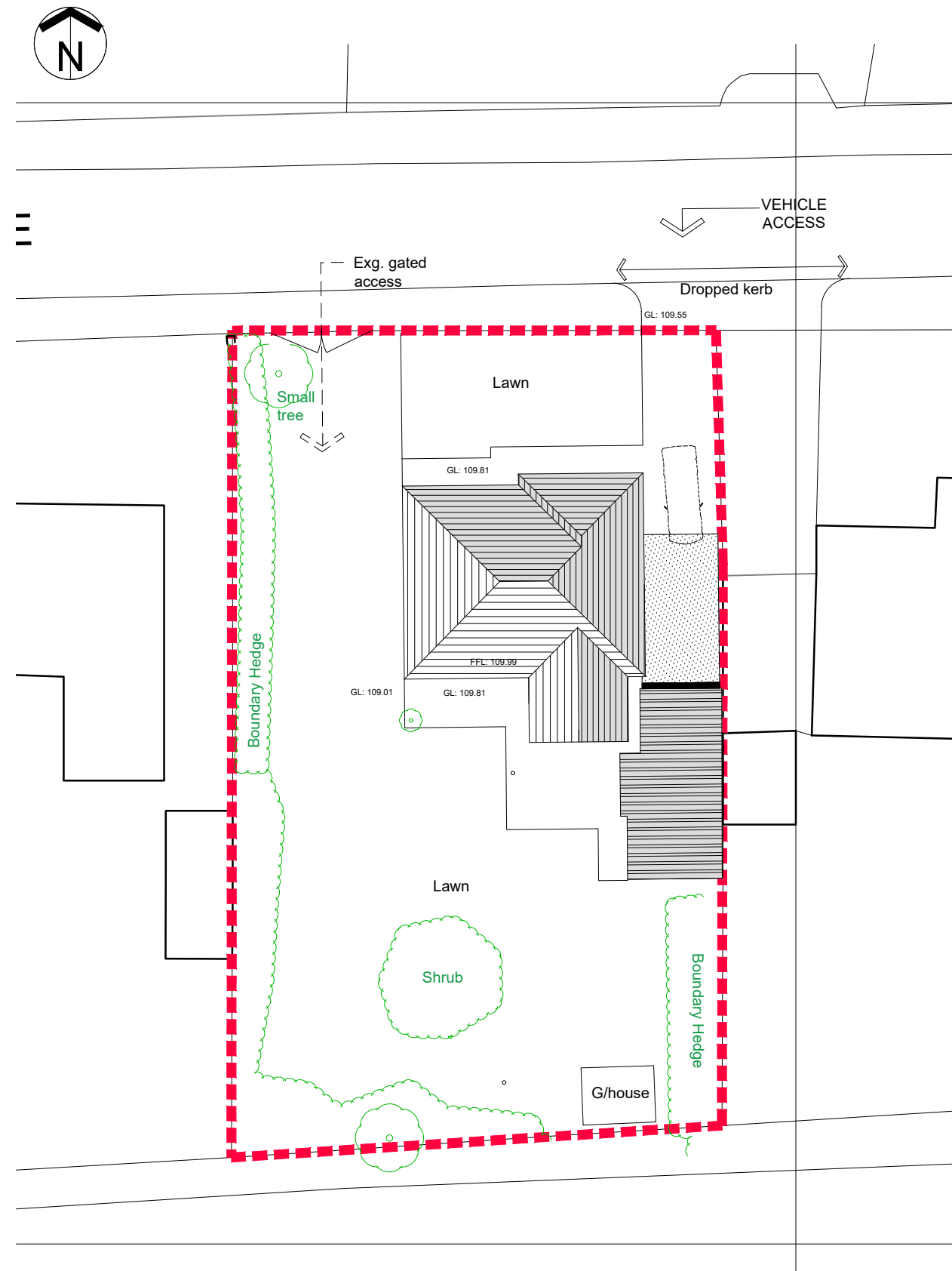
PLANNING

karen gardner
architects

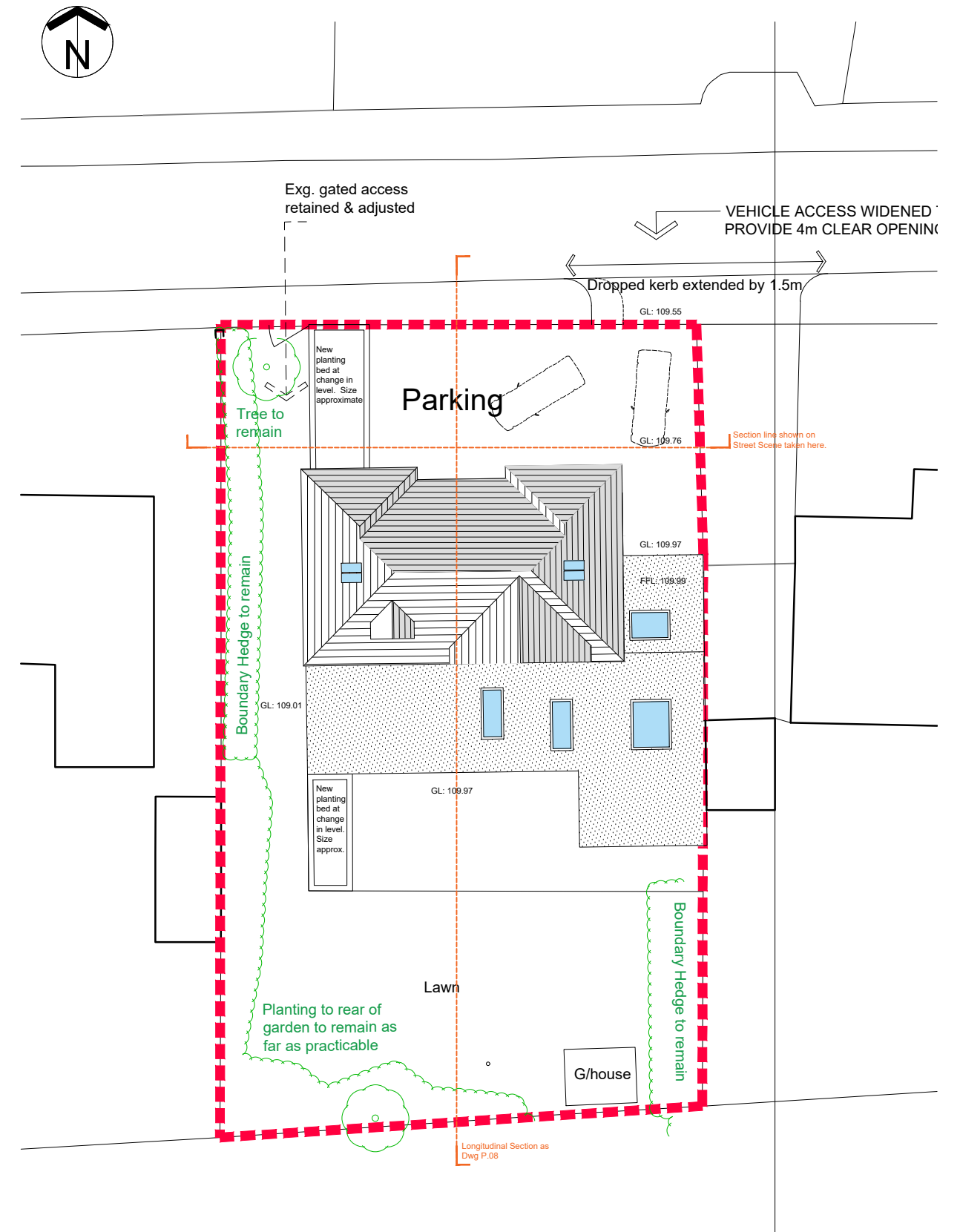
UNIT 12, THE OLD SCHOOL, NARBERTH, PEMBS, SA67 7DU
TEL: 01834 861221 MOB: 07980 428656



CLIENT: R Powel Williams
PROJECT: 9, Primrose Lane, Rhos, SA8 3ES
DRAWING: SITE LOCATION PLAN
SCALE: 1:1250 @ A3 DATE: OCT 2022 REVISION:



SITE LAYOUT AS EXISTING 1:250



SITE LAYOUT AS PROPOSED 1:250



Key:
● Trial Pit

© OpenAerialMap <http://openaerialmap.org/legal/>



Project Title:
9 Primrose Lane, Pontardawe

Project Number:
G23023

Drawing Number:
JGS-G23023-001



Appendix II

Exploratory Hole Logs

Trial Pits Logs

TP1 to TP4





EXPLORATORY HOLE PHOTOGRAPHS

Remarks

Exploratory Hole

TP1

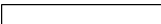
Project	9 Primrose Lane, Rhos, Pontardawe	Easting		Equipment	Hand tools	Sheet 1 of 2
Client	JCP Solicitors	Northing		Method	TP	
Project No	G23023	Level		Termination Reason	Scheduled depth	



TP1 Face A

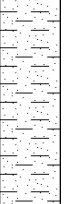
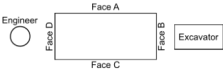


TP1 Face A

		EXPLORATORY HOLE PHOTOGRAPHS		Remarks		Exploratory Hole	
						TP1	
Project	9 Primrose Lane, Rhos, Pontardawe		Easting		Equipment	Hand tools	Sheet 2 of 2
Client	JCP Solicitors		Northing		Method	TP	
Project No	G23023		Level		Termination Reason	Scheduled depth	



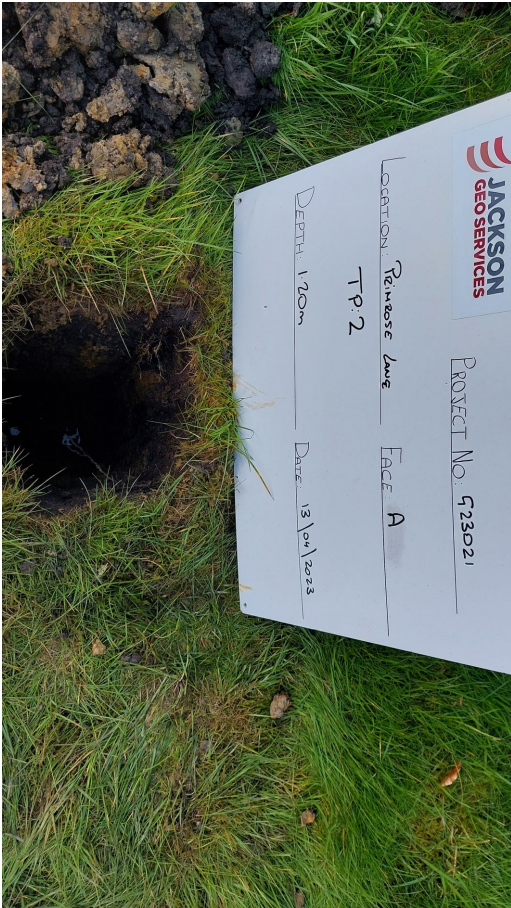
TP1 Spoil

				TRIAL PIT EXPLORATORY HOLE LOG				Exploratory Hole Progress by Time				Exploratory Hole	
								Date and Time		Depth	Water Depth	TP2	
								23/04/2023 09:55 23/04/2023 10:15		0.00 1.20	Wet		
Project9 Primrose Lane, Rhos, Pontardawe								EquipmentHand tools					
ClientJCP Solicitors		MethodTP								Scale1:20			
Project NoG23023		Level		Orientation50 degrees						LoggedAP			
Easting		Northing		Length0.30						CheckedSSe			
Termination Reason		Scheduled depth		Width0.30									
Samples	Sampling and Testing Depths	Insitu Testing and Depth Related Remarks	Depth (Thickness)	Level (mAOD)	Legend	Description				Scale	Backfill		
1 ES	0.80 - 1.20		0.00			Black very clayey fine to medium SAND. Frequent roots and rootlets. (TOPSOIL)				0.50			
			(0.20)			Soft greyish brown mottled orange sandy CLAY. Sand is fine to medium, occasionally coarse. (DEVENSIAN TILL)							
			0.20			0.80m - 1.20m Becoming slightly gravelly. Gravel is angular fine to coarse of sandstone.							
			(1.00)			End of Exploratory Hole at 1.20m				1.00			
										1.50			
										2.00			
										2.50			
										3.00			
										3.50			
										4.00			
WeatherCloudy		Trial Pit Excavation Onsite Layout 				Water Strikes							
ShoringNone						Date and Time		Strike	Rising to	Time	Remarks		
StabilityStable						Log presents Face A unless otherwise noted.		13/04/2023 10:15	1.20	1.20	20mins	Seepage	
Remarks													

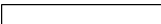
		EXPLORATORY HOLE PHOTOGRAPHS		Remarks		Exploratory Hole
						TP2
Project	9 Primrose Lane, Rhos, Pontardawe	Easting		Equipment	Hand tools	Sheet 1 of 2
Client	JCP Solicitors	Northing		Method	TP	
Project No	G23023	Level		Termination Reason	Scheduled depth	



TP2 Face A

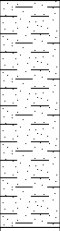
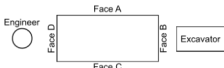


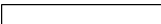
TP2 Face A

		EXPLORATORY HOLE PHOTOGRAPHS			Remarks		Exploratory Hole
							TP2
Project	9 Primrose Lane, Rhos, Pontardawe		Easting		Equipment	Hand tools	Sheet 2 of 2
Client	JCP Solicitors		Northing		Method	TP	
Project No	G23023		Level		Termination Reason	Scheduled depth	



TP2 Spoil

 JACKSON GEO SERVICES				TRIAL PIT EXPLORATORY HOLE LOG						Exploratory Hole Progress by Time			Exploratory Hole	
Date and Time		Depth	Water Depth							TP3				
13/04/2023 10:20 13/04/2023 10:50		0.00 1.20	Dry											
Project		9 Primrose Lane, Rhos, Pontardawe		Equipment		Hand tools		Sheet 1 of 1						
Client		JCP Solicitors		Method		TP		Scale		1:20				
Project No		G23023	Level		Orientation		32 degrees		Logged		AP			
Easting			Northing		Length		0.30		Checked		SSe			
Termination Reason		Scheduled depth		Width		0.30								
Samples	Sampling and Testing Depths	Insitu Testing and Depth Related Remarks		Depth (Thickness)	Level (mAOD)	Legend	Description				Scale	Backfill		
1 ES	0.30 - 0.40			0.00 (0.15) 0.15			Black very clayey fine to medium SAND. Frequent roots and rootlets. (TOPSOIL)				0.50			
				(0.45)			Blackish brown slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick, cement and rare sandstone. Cobbles are subangular of brick. Rare glass and plastic. (MADE GROUND)							
				0.60			Soft greyish brown mottled orange slightly gravelly sandy CLAY. Sand is fine to medium, occasionally coarse. Gravel is angular fine to coarse of sandstone. (DEVENSIAN TILL)							
				(0.60)			End of Exploratory Hole at 1.20m							
											1.50			
											2.00			
											2.50			
											3.00			
											3.50			
											4.00			
Weather		Cloudy		Trial Pit Excavation Onsite Layout 				Water Strikes						
Shoring		None						Date and Time		Strike	Rising to	Time	Remarks	
Stability		Stable												
Remarks														

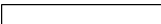
		EXPLORATORY HOLE PHOTOGRAPHS			Remarks		Exploratory Hole
							TP3
Project	9 Primrose Lane, Rhos, Pontardawe		Easting		Equipment	Hand tools	Sheet 1 of 2
Client	JCP Solicitors		Northing		Method	TP	
Project No	G23023		Level		Termination Reason	Scheduled depth	



TP3 Face A

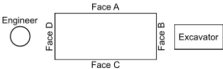


TP3 Face A

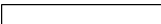
		EXPLORATORY HOLE PHOTOGRAPHS			Remarks		Exploratory Hole
							TP3
Project	9 Primrose Lane, Rhos, Pontardawe		Easting		Equipment	Hand tools	Sheet 2 of 2
Client	JCP Solicitors		Northing		Method	TP	
Project No	G23023		Level		Termination Reason	Scheduled depth	



TP3 Spoil

				TRIAL PIT EXPLORATORY HOLE LOG				Exploratory Hole Progress by Time				Exploratory Hole	
								Date and Time		Depth	Water Depth	TP4	
								13/04/2023 11:10 13/04/2023 11:50		0.00 1.20	Wet		
Project9 Primrose Lane, Rhos, Pontardawe								EquipmentHand tools					
ClientJCP Solicitors		MethodTP								Scale1:20			
Project NoG23023		Level		Orientation35 degrees						LoggedAP			
Easting		Northing		Length0.30						CheckedSSe			
Termination Reason		Scheduled depth		Width0.30									
Samples	Sampling and Testing Depths	Insitu Testing and Depth Related Remarks		Depth (Thickness)	Level (mAOD)	Legend	Description				Scale	Backfill	
1 ES	0.45 - 0.55			0.00 (0.15) 0.15			Black very clayey fine to medium SAND. Frequent roots and rootlets. (TOPSOIL)				0.50 1.00 1.50 2.00 2.50 3.00 3.50 4.00		
						Soft greyish brown mottled orange slightly gravelly sandy CLAY with low cobble content. Sand is fine to medium, occasionally coarse. Gravel is angular fine to coarse of sandstone. Cobbles are subrounded of sandstone. (DEVENSIAN TILL)							
							End of Exploratory Hole at 1.20m						
WeatherCloudy		Trial Pit Excavation Onsite Layout  Log presents Face A unless otherwise noted.					Water Strikes						
ShoringNone							Date and Time		Strike	Rising to	Time	Remarks	
StabilityStable							13/04/2023 11:30		0.45	0.45	20mins	Seepage	
Remarks													

Printed 26/04/2023 11:40

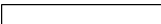
		EXPLORATORY HOLE PHOTOGRAPHS			Remarks		Exploratory Hole
							TP4
Project	9 Primrose Lane, Rhos, Pontardawe		Easting		Equipment	Hand tools	Sheet 1 of 2
Client	JCP Solicitors		Northing		Method	TP	
Project No	G23023		Level		Termination Reason	Scheduled depth	



TP4 Face A



TP4 Face A

		EXPLORATORY HOLE PHOTOGRAPHS			Remarks		Exploratory Hole
							TP4
Project	9 Primrose Lane, Rhos, Pontardawe		Easting		Equipment	Hand tools	Sheet 2 of 2
Client	JCP Solicitors		Northing		Method	TP	
Project No	G23023		Level		Termination Reason	Scheduled depth	



TP4 Spoil

Appendix III

Geoenvironmental Testing

Eurofins Chemtest Reports

Report number: 23-12445



2183

Tel: [REDACTED]

Email: [REDACTED]

Final Report

Report No.: 23-12445-1
Initial Date of Issue: 20-Apr-2023
Client Jackson Geo Services
Client Address: Northwood Farm
Coxbridge Road
Baltonsborough
Somerset
BA68 RA
Contact(s): Adam Putt
Project G23023 9 Primrose Lane, Rhos,
Pontadawe
Quotation No.:
Order No.:
No. of Samples: 4
Turnaround (Wkdays): 5
Date Approved: 20-Apr-2023

Date Received: 17-Apr-2023

Date Instructed: 17-Apr-2023

Results Due: 21-Apr-2023

Approved By:



Details: Stuart Henderson, Technical
Manager

Results - Soil

Project: G23023 9 Primrose Lane, Rhos, Pontadawe

Client: Jackson Geo Services	Chemtest Job No.:				23-12445	23-12445	23-12445	23-12445
Quotation No.:	Chemtest Sample ID.:				1624096	1624097	1624098	1624099
Order No.:	Client Sample Ref.:				1	1	1	1
	Client Sample ID.:				1	2	3	4
	Sample Location:				TP1	TP2	TP3	TP4
	Sample Type:				SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0.50	0.80	0.30	0.45
	Bottom Depth (m):				0.80	1.20	0.40	0.55
	Asbestos Lab:				DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD				
ACM Type	U	2192		N/A	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	18	21	25	16
Arsenic	U	2455	mg/kg	0.5	11	7.0	30	12
Cadmium	U	2455	mg/kg	0.10	0.12	0.10	1.7	0.17
Chromium	U	2455	mg/kg	0.5	16	11	24	15
Copper	U	2455	mg/kg	0.50	19	11	70	22
Mercury	U	2455	mg/kg	0.05	0.14	0.06	0.48	0.15
Nickel	U	2455	mg/kg	0.50	17	11	34	18
Lead	U	2455	mg/kg	0.50	18	10	89	17
Selenium	U	2455	mg/kg	0.25	0.63	0.61	1.4	0.74
Zinc	U	2455	mg/kg	0.50	41	30	430	50
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	[A] 2.1	[A] 2.4	[A] 6.1	[A] 2.1
Naphthalene	U	2800	mg/kg	0.10	< 0.10	< 0.10	0.41	0.18
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	0.12	< 0.10
Fluorene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	0.34	0.28
Anthracene	U	2800	mg/kg	0.10	< 0.10	< 0.10	0.10	< 0.10
Fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	0.31	0.21
Pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	0.27	0.19
Benzo[a]anthracene	U	2800	mg/kg	0.10	< 0.10	< 0.10	0.22	< 0.10
Chrysene	U	2800	mg/kg	0.10	< 0.10	< 0.10	0.23	< 0.10
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	0.32	< 0.10
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	0.11	< 0.10
Benzo[a]pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	0.19	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	0.20	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	0.10	< 0.10
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	< 0.10	< 0.10	0.14	< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0	< 2.0	3.1	< 2.0

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1624096	1	1	TP1		A	Amber Glass 250ml
1624096	1	1	TP1		A	Amber Glass 60ml
1624096	1	1	TP1		A	Plastic Tub 500g
1624097	1	2	TP2		A	Amber Glass 250ml
1624097	1	2	TP2		A	Amber Glass 60ml
1624097	1	2	TP2		A	Plastic Tub 500g
1624098	1	3	TP3		A	Amber Glass 250ml
1624098	1	3	TP3		A	Amber Glass 60ml
1624098	1	3	TP3		A	Plastic Tub 500g
1624099	1	4	TP4		A	Amber Glass 250ml
1624099	1	4	TP4		A	Amber Glass 60ml
1624099	1	4	TP4		A	Plastic Tub 500g

Test Methods

SOP	Title	Parameters included	Method summary
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene*; Chrysene*; Dibenzo[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:



Appendix IV

Comparison Against GACs

Comparison of laboratory data Vs GACs for Residential with Plant Uptake

GENERIC ASSESSMENT CRITERIA - RESIDENTIAL WITH PLANT UPTAKE

Project: G22008 New Manor Farm																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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	Evaluation	SOM
Type	ResiPlant	1%

Select From Drop Down Above

	SOM (%)			No. Excadances
	1	2,5	6	
Arsenic	37.00	37.00	37.00	0
Cadmium	11.00	11.00	11.00	0
Chromium	91.00	91.00	91.00	0
Copper	2400.00	2400.00	2400.00	0
Elemental Mercury	1.20	1.20	1.20	0
Nickel	130.00	130.00	130.00	0
Lead	200.00	200.00	200.00	0
Selenium	250.00	250.00	250.00	0
Zinc	3700.00	3700.00	3700.00	0
Chromium (VI)	6.00	6.00	6.00	0
Aliphatic EC 5-6	42	78	160	0
Aliphatic EC >6-8	100	230	530	0
Aliphatic EC >8-10	27	65	150	0
Aliphatic EC >10-12	130	330	760	0
Aliphatic EC >12-16	1100	2400	4300	0
Aliphatic EC >16-35	65000	92000	110000	0
Aliphatic EC >35-44	65000	92000	110000	0
Aromatic EC 5-7	70	140	300	0
Aromatic EC >7-8	130	290	660	0
Aromatic EC >8-10	34	83	190	0
Aromatic EC >10-12	74	180	380	0
Aromatic EC >12-16	140	330	660	0
Aromatic EC >16-21	260	540	930	0
Aromatic EC >21-35	1100	1500	1700	0
Aromatic EC >35-44	1100	1500	1700	0
Aliphatic+Aromatic EC >44-70	1600	1800	1900	0
Naphthalene	2.3	5.6	13	0
Acenaphthylene	170	420	920	0
Acenaphthene	210	510	1100	0
Flourene	170	400	860	0
Phenanthrene	95	220	440	0
Anthracene	2400	5400	11000	0
Fluoranthene	280	560	890	0
Pyrene	620	1200	2000	0
Benzo(a)anthracene	7.2	11	13	0
Chrysene	15	22	27	0
Benzo(b)fluoranthene	7.6	3.3	3.7	0
Benzo(k)fluoranthene	2.7	93	100	0
Benzo(a)pyrene	2.2	2.7	3	0
Indeno(1,2,3-c,d)pyrene	27	36	41	0
Dibenzo(a,h)anthracene	0.24	0.28	0.3	0
Benzo(g,h,i)perylene	320	340	350	0
Chloromethane	0.0083	0.0098	0.013	0
Chloroethane (Vinyl Chloride)	0.00064	0.00087	0.004	0
Chloroethane	8.3	11	18	0
1,1 Dichloroethane	2.4	3.9	7.4	0
cis 1,2 dichloroethene	0.11	0.19	0.37	0
Trichloromethane (Chloroform)	0.91	1.7	3.4	0
1,1,1 Trichloroethane	8.8	18	39	0
Tetrachloromethane (Carbon Tetrachloride)	0.026	0.056	0.13	0
Benzene	0.087	0.17	0.37	0
1,2 Dichloroethane	0.0071	0.011	0.017	0
Trichloroethene (TCE)	0.016	0.034	0.075	0
Toluene	130	290	660	0
Tetrachloroethene (PCE)	0.18	0.39	0.9	0
Chlorobenzene	0.46	1	2.4	0
1,1,2,2 and 1,1,1,2 Tetrachloroethanes	1.2	2.8	6.4	0
Ethylbenzene	40	110	260	0
p-xylene (worse case)	56	130	310	0
m-xylene	61	140	330	0
Methyl tert-butyl ether (MTBE)	49	84	160	0
PCBs (12 congeners)	0.008	0.008	0.008	0
Aldrin	5.7	6.6	7.1	0
Phenol	280	550	1100	0