GroundSolve Ltd
Consulting Geotechnical Engineers

WYNNSTAY TECHNOLOGY PARK, RUABON – SUMMARY REPORT

GSL3089R01

VERSION 1

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FINAL

Prepared for:

Gratton Oakes (Construction) Ltd

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GroundSolve Ltd

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This report has been prepared by GroundSolve Ltd with all reasonable care and diligence, within the best practice and guidance current at the time of issue within the proposed redline boundary and proposed Site end use as presented by the Client.

This report is confidential to the Client and GroundSolve Ltd accepts no responsibility whatsoever to third parties to whom this report is presented.

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1 INTRODUCTION

1.1 Report Objectives

GroundSolve Ltd was commissioned by Gratton Oakes (Construction) Ltd to undertake a review of previous Ground Investigations in relation for the proposed commercial development.

This report presents the review of records of the fieldwork and laboratory testing from previous investigations.

1.2 Proposed Development

The proposed development is comprised of the erection of 6 No. Industrial Units (Class B1) with associated access road and parking. See **Figure 1** below.

The site has been granted planning permission (P/2022/0306) by Wrexham Borough County Council.

Planning Condition 9 relates to ground conditions and potential contaminated.

> *No development shall take place until a phased site investigation of the nature and extent of contamination has been carried out and submitted to and approved in writing by the Local Planning Authority. If any contamination is found during the site investigation, no part of the development shall commence until a scheme specifying the measures that will be taken to remediate the site to render it suitable for the development hereby permitted has been submitted to and approved in writing by the Local Planning Authority. The site shall thereafter be remediated in accordance with the approved scheme. If during the course of development any contamination is found that has not been identified in the site investigation, no further development shall take place on those parts of the site where that contamination has been found until an additional scheme of remediation has been submitted to and approved in writing by the Local Planning Authority for those parts of the site. The relevant parts of the site shall thereafter be remediated in accordance with the additional scheme of remediation.*

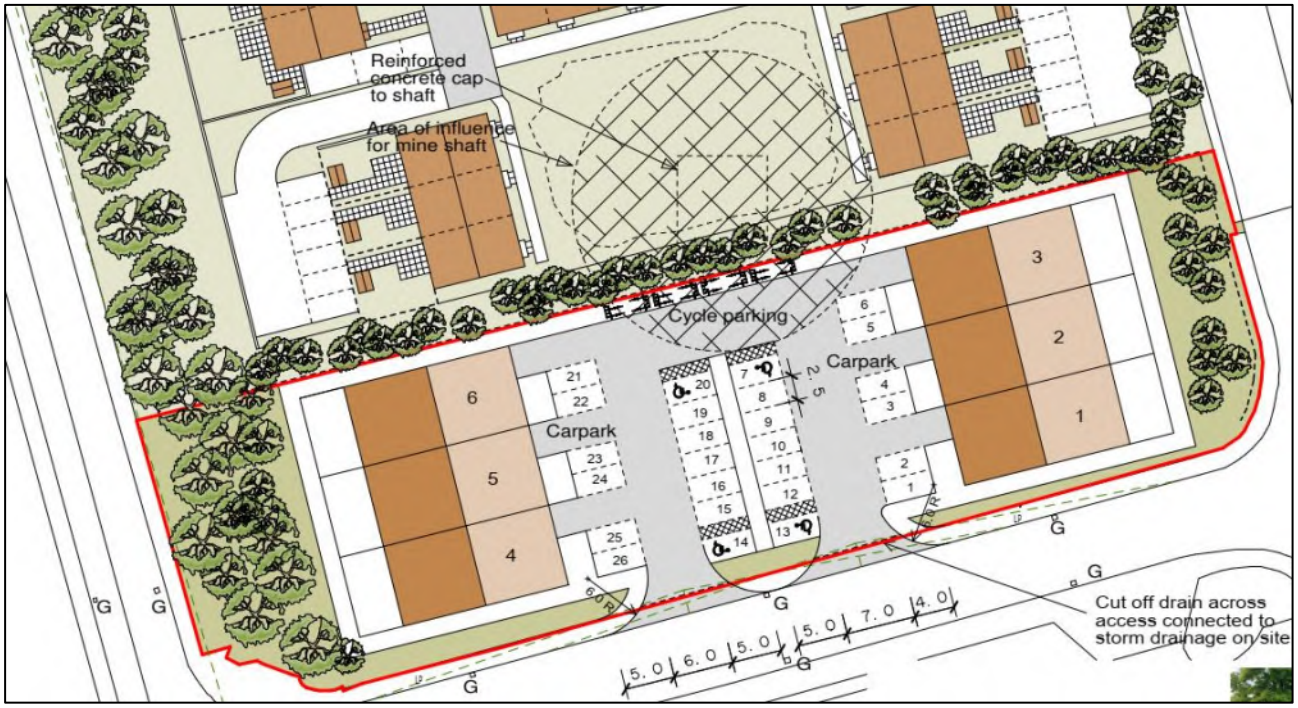


Figure 1 - Extract from Proposed Development Plan – Sean Caddick Architectural 21/2210/03 – Nov 2021

1.3 Objectives

The investigation objectives are to provide information that will allow the discharge the planning condition stated within P/2022/0306. The purpose of the report is to provide an assessment of the site using published information and conditions at the site in relation to the proposed commercial end use.

The findings and conclusions of the risk assessment have been set out and recommendations given for the proposed end use. If there is a subsequent change in the proposed land, the risk assessments and conclusions should be reviewed to determine whether they are still applicable for the revised end use.

This document is a working document and may need to be updated, in agreement with the relevant regulatory bodies, at any stage during development dependent on the conditions encountered. This version of this document is to be issued to regulators for approval (i.e., Wrexham County Borough Council).

1.4 Previous Investigations

The following reports have already been undertaken and should read in conjunction with this report. A summary of the previous reports are given in Section 3:

- Phase II Geo-environmental Report (Ref:2387, issued October 2020).
- Phase I Preliminary Risk Assessment (Ref: 2949, issued August 2023).
- Phase II Geo-environmental Report (Ref: 2949, issued September 2023).
- Phase II Geo-environmental Report (Ref: 3060, issued March 2024)

1.5 Limitations

This report has been prepared for the sole use of Gratton Oakes (Construction) Ltd . No other third party may rely upon or reproduce the contents of this report without the written approval of GroundSolve Ltd. If any unauthorised third party comes into possession of this report, they rely on it entirely at their own risk.

2 SITE DETAILS AND DESCRIPTION

Table 2.1 Current Site Overview.

Site name	Wynnstay Technology Park
Site address	Wynnstay Technology Park, Ruabon, Wrexham LL14 6EN
National Grid Reference (NGR)	329220, 343513
Approximate Site area	0.4Ha
Site shape	Roughly Rectangular
General topography and ground levels	The proposed development generally slopes from SW (123mOD to NE (124.5mOD). There is a raised embankment present along the western boundary.

A site visit was undertaken on 13th February 2024. Photographs of the site are presented in **Appendix A**. With the locations of various features detailed.

Table 2.2 – Summary of Description of the Site and its Environs

Current Use:	Derelict unused land
Access	Access is gained from the southeastern boundary
Existing Buildings& Structures	No permanent structures present on site. There is disused site office / steel container, which shows evidence of fire damage inside.
Site Surface	The majority of the site has scrub type vegetation throughout the site overlying very gravelly surface material. There a number of footpaths / accesses tracked worn into the surface. There is a partial area of gravel surfacing within the SW part of the site. There were no surface water areas present on site.
Vegetation	Generally scrub grass with mature & semi-mature trees along the western site boundary.
Storage Tanks	Below Ground Tanks: No evidence/none suspected. Above Ground Tanks: None present.
Services	No service information was noted
Asbestos	No potential Asbestos Containing Materials (ACMs) noted on the ground surface.
Waste Disposal/ Materials Storage	No significant areas of waste storage or fly tipping present on site. There is some evidence of fire damage and burnt material present within the container located on the southern boundary.
Surrounding Area	Two commercial sites border to the east (Oakland Egg Packing Plant) and south (Wrexham Mineral Cables). Residential properties are present to the west and an electricity substation is present to the north. The site is bordered by Llangollen Road to the north and Wynnstay Lane to the west. See **Figure 2**



Figure 2 - Extract from Aerial photography from Groundsure Report

3 PREVIOUS INVESTIGATIONS

The following works have previously been undertaken by GroundSolve:

- Phase II Geo-environmental Report (Ref:2387, issued October 2020).
- Phase I Preliminary Risk Assessment (Ref: 2949, issued August 2023).
- Phase II Geo-environmental Report (Ref: 2949, issued September 2023).
- Phase II Geo-environmental Report (Ref: 3060, issued March 2024)

The findings of these reports shall be summarised in the following sections.

3.1 Review

A summary of the findings from previous reports is given in **Table 3.1** below:

Table 3.1: Summary of Previous Investigations.

Site History	The earliest available mapping (1873) indicates a shaft located close to the northern boundary, which was associated with the adjacent Wynnstay Colliery with the remainder agricultural fields. By 1899 the shaft is marked as disused, and a secondary air shaft is also identified immediately to the northeast. From 1899 onwards the site is used for the tipping of mining spoil from the colliery via a tramway until its closure in 1962. By 1989 the site and the surrounding areas had extensive earthworks which had reprofiled the ground levels for the site to be redeveloped into Wynnstay Technology Park. The embankment has remained along the western and northern boundaries. The mine shaft was grouted and capped as part of the redevelopment. The site remains broadly undeveloped to the present.
Geological Setting	Made Ground is present typically to 1.0m comprising colliery spoil – gravelly sand / sandy gravel including ash, clinker, coal brick, concrete. The superficial deposits present on site are shown to comprise Glacial Till overlying the solid geology of the Pennine Lower Coal Measures Formation and Pennine Middle Coal Measures Formation (Undifferentiated) - Mudstone, Siltstone and Sandstone. The superficial aquifer on site is classed as Secondary Undifferentiated of low groundwater vulnerability. The bedrock aquifer on site is classed as Secondary A of low groundwater vulnerability.
Mining	The mining risk assessment indicates that the site could be affected by underground mining from 6 coal seams, however these are very deep ranging from 140m to 320m depth, and last worked in 1927. The Coal Authority have indicated that any movement in the ground due to coal mining activity associated with these workings should have stopped by now.

	The coal shaft present along the northern boundary was grouted and capped in 1990.
Waste	Waste material from the past mining activities it likely to be on site in the form of made ground.
Contamination Sources	**Onsite** Potential contamination features comprise Made Ground from the deposition of colliery spoil and former tramway. During the reprofiling of the site, a significant thickness of colliery spoil was removed from site. Contaminants of concern would be metals and PAHs. No evidence of fuel tanks present on site. Ground gas – no evidence of organic rich Made Ground or drift deposits. There is no evidence of shallow coal mine working on or near the site. The potential for mine gas from the mine shaft present in northern boundary is considered very low. The Coal Authority records shows that the shaft was grouted and has a 11m^2 reinforced concrete cap. **Offsite** No significant offsite sources of contamination. A substation is present 100m to the north. No risk to the development site. Two commercial properties are 50m to the east and south of the site. No significant sources of contamination.

3.2 Previous Fieldwork

All the previous phases of fieldwork are summarised below:

Table 3.2 - Summary of previous investigation exploratory holes

Phase of Investigation	Exploratory Hole	Depth to base of strata (mbgl)			Comments
		Made Ground	Glacial Till	Groundwater	
2020	20-TP1	1.10	-		Terminated within the Made Ground
	20-TP1A	2.00	-		Terminated within the Made Ground
	20-TP2	2.30	-		Terminated within the Made Ground
	20-TP3	2.00	-		Terminated within the Made Ground
	20-TP4	1.90	-		Terminated within the Made Ground
	20-WS1	2.00	5.45	1.00	Groundwater encountered perched on cohesive Made Ground
	20-WS2	2.50	5.45	2.00	Groundwater encountered perched on cohesive Made Ground
	20-WS3	1.50	5.45	1.50	Groundwater encountered perched on surface of Glacial Till
	20-WS4	2.10	4.37	1.50	Groundwater encountered perched on cohesive Made Ground
	20-WS5	2.00	5.35	1.00	Groundwater encountered perched on cohesive Made Ground
	20-WS6	1.90	4.41	1.80	Groundwater encountered perched on surface of Glacial Till
	20-WS7	1.50	5.36	1.50	Groundwater encountered perched on surface of Glacial Till
	20-WS8	2.00	5.45	-	No groundwater encountered. Glacial Till unweathered.
	20-WS9	2.18	-	-	Terminated on obstruction within the Made Ground
	20-WS10	1.70	3.72	1.70	Groundwater encountered perched on surface of Glacial Till
2023	23-TT01	1.75	2.50		No groundwater encountered. Large metal column support present at 1.75m bgl.

Phase of Investigation	Exploratory Hole	Depth to base of strata (mbgl)			Comments
		Made Ground	Glacial Till	Groundwater	
	23-TT02	3.00	3.00		No groundwater encountered. Horizontal metal beams present at 2.00m bgl.
	23-TT03	3.00		2.50	Groundwater encountered at 2.50m bgl. Horizontal metal sheets and concrete blocks present at base of pit.
	23-TT04	2.60	3.50		No groundwater encountered. Horizontal timber beam noted at 2.10m bgl.
	23-TT05	2.00	3.50		No groundwater encountered.
	23-TT06	2.65	4.00		No groundwater encountered.
	23-TT07	2.35	4.00		No groundwater encountered.
	23-SA01	2.10	3.25		No groundwater encountered. Soakaway test completed at 1.00m bgl.
	23-SA02	2.00	3.50		No groundwater encountered. Soakaway test completed at 1.00m bgl.
	23-SA03	3.50			No groundwater encountered. Soakaway test completed at 1.00m bgl.
	23-WS01	1.75	4.00		Terminated due to SPT refusal. No groundwater encountered.
	23-WS02	0.90	2.00		Terminated due to SPT refusal. No groundwater encountered.
	23-WS03	1.80	5.00	2.00	Groundwater encountered at 2.00m bgl.
	23-WS04	1.10	4.00		Terminated due to SPT refusal. No groundwater encountered.
	23-WS05	3.00	-		Terminated due to SPT refusal. No groundwater encountered.
2024	24-HP01	0.50	-	-	Carried out in embankment. Terminated within the Made Ground
	24-HP02	0.60	-	-	Carried out in embankment. Terminated within the Made Ground
	24-HP03	0.70	-	-	Carried out in embankment. Terminated within the Made Ground
	24-HP04	0.50	-	-	Carried out in embankment. Terminated within the Made Ground
	24-HP05	0.35	-	-	Carried out in embankment. Terminated within the Made Ground
	24-HP06	0.80	-	-	Carried out in embankment. Terminated within the Made Ground
	24-HP07	0.80	-	-	Carried out in embankment. Terminated within the Made Ground
	24-HP08	0.35	-	-	Carried out in embankment. Terminated within the Made Ground
	24-HP09	0.45	-	-	Terminated within the Made Ground
	24-HP10	0.10	-	-	Terminated within the Made Ground
	24-HP11	0.10	-	-	Terminated within the Made Ground
	24-HP12	0.15	-	-	Terminated within the Made Ground
	24-HP13	0.40	-	-	Terminated within the Made Ground
	24-HP14	0.35	-	-	Terminated within the Made Ground
	24-HP15	0.20	-	-	Terminated within the Made Ground

3.3 Mining Legacy

The site has a former mine shaft on site, Wynnstay Colliery No.2 Shaft. The shaft was treated and capped by Wrexham BC in the early 90's the details of which are included within the Coal consultant's report. Treatment comprised the placement of approximately 550tons of PFA grout into the shaft along with the construction of a 9.60m x 9.60m reinforced concrete cap at ~3.00mbgl. No formal record of the shaft diameter is available however given the cap size, it may have been up to 4.80m in diameter, which ties in with the historical plans.

In addition to the shaft, the 1899 historical plan shows an air shaft some 20m to the north of the main shaft, which on later editions is indicated to be a chimney some 5m in diameter. It is considered that this does not represent a conventional air shaft sunk to the workings. Instead, it is likely that as the "air shaft" had a building next to it then the

No 2 shaft was being used as a ventilation shaft at this time, with the building being a fan house sucking air up the shaft. The fan house would be connected to the No.2 shaft via a shallow drift.

The previous investigation completed a series of trial trenches to locate the drift. A total of 3 trenches were completed to locate the air drift and fan house (TT01 – TT03). Pits TT01 & 02 recorded Made Ground to between 1.70 and 2.00m overlying the natural Glacial Till. Both excavations encountered steel and timber shoring along with variations in depth to the underlying Till. It is anticipated these are indicative of the location and depth of the former drift. TT03 encountered the existing shaft cap at 3.00m which is consistent with the recorded details.

In view of the above it is considered that the drift was located at shallow depth and was backfilled as part of the demolition and remediation of the site. Backfilling is unlikely to have been undertaken in a controlled manner and will predominantly comprise the mining spoil loosely tipped into the drift, consequently, is its recommended that the drift is excavated down to the underlying competent strata and the subsequent excavation backfilled with a suitably compacted granular fill.

4 GENERIC QUANTITATIVE RISK ASSESSMENT

4.1 Assessment for the Protection of Human Health

The results of the soil analyses are presented below, where they have been compared to suitable generic assessment criteria (GACs), in order to allow a generic quantitative risk assessment (GQRA) to be carried out for the site and the proposed development.

The Category 4 Screening Levels (C4SLs) published by DEFRA (2014) have been adopted in the first instance, which have been published for six substances to date. Where a C4SL is unavailable, the "Suitable 4 Use Levels" (S4ULs) published by LQM/CIEH (2015) have been adopted.

These criteria have been derived using the CLEA model for a range of standard end-use scenarios and a range of soil organic matter (SOM) contents. It should be noted that the C4SL values are derived on the basis of a "low level of toxicological concern", while the S4UL values are based on a "tolerable" or "minimal" level of risk. As such, the S4ULs describe a lower level of risk than the C4SLs, and are equivalent to the former Soil Guideline Values (SGVs, published by the Environment Agency) and the previous editions of the LQM/CIEH GAC values.

In total within all the previous phases of investigation, there has been up to 23No samples selected for a range of chemical testing. A number of samples were located within the commercial development area in the south and the residential area to the north. However, it has been considered that the results represent the reworked colliery made ground present over both areas.

The GQRA is based on a soil with a Soil Organic Matter of 1.0%, for a commercial end use.

A full summary of the chemical test results is presented in Appendix C.

Metals

The results from the metal analysis have recorded typically low concentrations with no exceedances of the applicable GACs.

PAHs

All samples selected for analysis have generally recorded low PAHs.

Petroleum Hydrocarbons (PHC)

No hydrocarbon impacted material was encountered during the fieldwork. The chemical results have typically been below the detection limit with no samples above any GACs.

Asbestos

Asbestos can be present in soil as fragments of bulk Asbestos Containing Materials (ACMs) (e.g., asbestos cement sheeting) and also as discrete asbestos fibres within the soil matrix. This investigation has carried out assessments to determine whether both bulk fragments of asbestos and discrete fibres are present in the soil at the site. The asbestos assessment commenced on site with inspection of the Made Ground by our site staff for the presence of bulk ACMs. During the fieldwork no suspected ACMs were identified.

Laboratory assessments were carried out in order to confirm the site assessment that ACMs were absent, and no asbestos was detected in any of the samples retrieved from site.

4.2 Assessment for the Protection of Controlled Waters

The total concentrations detected within soil samples are predominantly relatively marginal in human health terms and do not indicate particularly high concentrations which would be indicative of a significant source of contamination to groundwater. There is a significant layer of low permeability Glacial Till below the Made Ground Overall, it is assessed that there is a low possibility of a contaminant linkage between and the underlying groundwater in the Secondary A Aquifer.

Groundsolve believes that the site does not pose a significant risk to Controlled Water because:

- There are low to negligible levels of contaminants present within the Made Ground;
- The site it underlain by low permeability glacial till;
- the site is underlain by non-productive strata;
- the shallow groundwaters at and in the vicinity of the site are not abstracted for human consumption;
- the nearest surface water is >2000m from the site

4.3 Permanent Ground Gases

The intrusive investigation has shown that the shallow ground conditions have recorded relatively thin deposits of Made Ground ranging between 1.5-2.35m in thickness and is generally absent of organic rich material.

The Coal Mining assessment has found no evidence of shallow coal mine working on or near the site. Mining was carried out at depth with the shallowest seam approximately 140m below ground level. The potential for mine gas from the mine shaft present along the northern boundary is considered very low. The Coal Authority records shows that the shaft was grouted and capped and there is a significant thickness of Glacial Clay.

The Site is located within an area where the radon risk is high, with estimated 5% to 10% of properties affected by radon; therefore, basic radon protective measures are required.

Measured Gas Concentrations

Up to six rounds of gas monitoring have been carried out by GroundSolve in the five gas monitoring wells. The highest flow rates, methane, and carbon dioxide concentrations to date, together with the lowest oxygen levels (i.e., a combination of the worst-case temporal conditions recorded) from the monitoring visits are summarised in **Table 4.1** below:

Table 4.1: Summary of Ground Gas Monitoring

Location	Borehole	Response Zone mbgl	Steady State Flow (l/hr)	Methane (%v/v)	Carbon Dioxide (%v/v)	Oxygen (% v/v)	Water Level mbgl	Atmospheric pressure readings mb
Residential development	23-WS01	1.50	0.1*	0.3	3.6	19.1	Dry	998-1005
	23-WS02	1.00	0.1*	0.1*	2.5	16.8	Dry	998-1005
	23-WS03	2.00	0.1*	0.1*	1.9	17.1	1.82-1.97	967-1005
Commercial development	23-WS04	1.00	0.1*	0.2	2.3	12.9	1.0m-Dry	963-1005
	23-WS05	3.00	0.1*	0.2	2.1	15.9	1.35-2.75	967-1005

* limit of detection on gas monitor

Ground Gas Assessment

In accordance with current practises and the above measured ground gas levels, it is considered that the worst-case temporal conditions may not have been measured during the monitoring period. However, it is anticipated that the

worst-case temporal conditions will not be significantly worse than those presented in **Table 4.1** above. The gas flow rates measured across the site from all the monitoring visits were less than the instrument detection limit of 0.1 l/hr. From Table 8.5 of CIRIA C665 the worst-case Characteristic Situation for the site are as follows:

Table 4.2: Summary Characteristic Gas Situations

Borehole Number	Steady State Flow	CH_4			CO_2		
	l/h	% v/v	GSV (l/hr)	Characteristic Situation	% v/v	GSV (l/hr)	Characteristic Situation
23-WS01	0.1	0.3	0.0003	1	3.6	0.0036	1
23-WS02	0.1	0.1	0.0001	1	2.5	0.0025	1
23-WS03	0.1	0.1	0.0001	1	1.9	0.0019	1
23-WS04	0.1	0.2	0.0001	1	2.3	0.0023	1
23-WS05	0.1	0.2	0.0002	1	2.1	0.0021	1

Methane concentrations have been recorded at or just above the detection limit. Based on the Ground Gas Assessment it can be seen that the carbon dioxide conditions at the site are the main risk driver regarding the gas conditions. The fieldwork and ground gas concentrations are indicating low gas risk and CS1 conditions. With the absence of any significant gas sources and the CS1 conditions, the proposed development requires no remedial measures for ground gases.

The Site is located within an area where the radon risk is high, with estimated 5% to 10% of properties affected by radon. The site will therefore require basic radon protective measures.

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 Ground Profile

The proposed development is comprised of the erection of 6 No. Industrial Units (Class B1) with associated access road and parking.

It is understood that ground levels are unlikely to change significantly. The embankment present along the western boundary is understood to remain.

The conceptual site model has been updated since the Phase 1 Preliminary Risk Assessment, as the findings of the Phase 2 site investigation revealed the following general downward succession:

- Site surface: Reworked colliery material / sandy gravel/ gravelly Sand. Typically absence of topsoil;
- Made Ground; Reworked colliery material varying between sandy gravel/ gravelly Sand and reworked gravelly clay typically ranging between 1.5m to 2.35m.
- Devensian Till: generally encountered as a dark brown sandy gravelly clay and a greyish brown sandy gravelly clay.

The potential contamination at the site has been assessed using the contaminant-pathway-receptor linkage approach.

Table 5.1: Summary of Contaminant Linkages

Receptor Group	Pollution Source	
	Hotspots	Pervasive
Human Health	None	No exceedance for commercial landuse.
Plant Life	None	None
Controlled Waters	No unacceptable contamination, subject to confirmation from NRW	
Water Supply Pipe Material Assessment	No special precautions required, use of PE pipe is deemed permissible	
Design of below ground concrete	No special precautions are required at the site for the design of concrete in terms of the durability and structural performance	
Human health / property (from ground gases)	Basic Radon protection measures are required. With regards to permanent ground gases, no gas protection measures are required (i.e. Characteristic Situation 1/NHBC Green conditions apply).	

The results of site investigation and laboratory analysis generally recorded low concentrations of metals, PAHs, TPHs and asbestos all typical from soils that comprise ash, clinker, coal fragments.

The investigations have shown that the site is absent or has minimal thicknesses of topsoil/ subsoil. If soft landscaped areas are proposed, then a thickness of imported topsoil will be required.

- Provision of a clean cover system in soft landscaping. This should comprise of a minimum of 200 mm thick validated topsoil layer.

Whilst unexpected contamination is not anticipated, the proposed development could encounter previously unrecorded hotspots of contaminants. These will be assessed and mitigated in accordance with current good practice.

Radon Protection Measures

The new development will require basic radon protective measures.

6 REFERENCES

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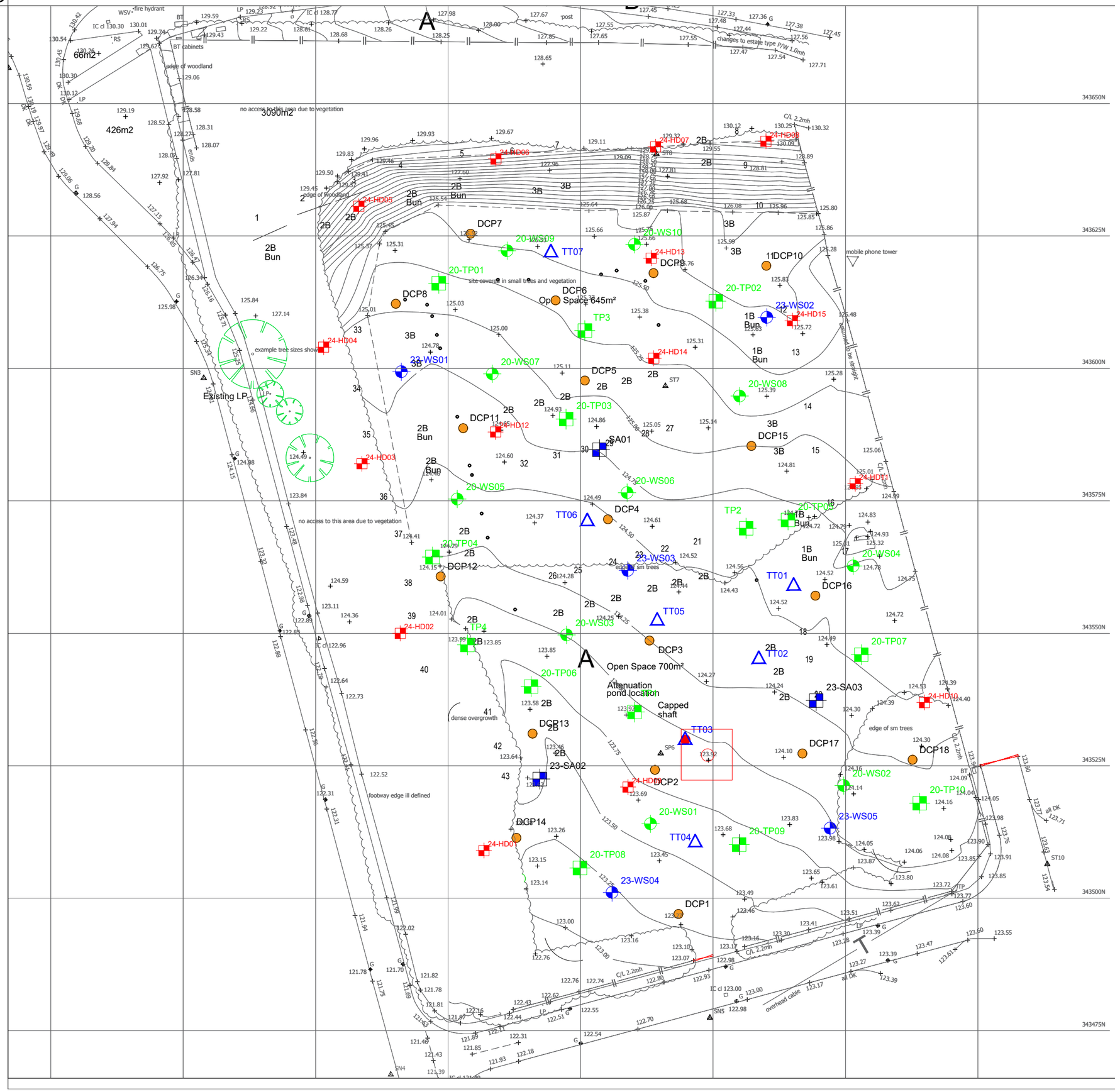
7 DEFINITIONS

AOD	Above Ordnance Datum
bgl	Below ground level
BGS	British Geological Survey
BRE	Building Research Establishment
CBR	California Bearing Ratio (test)
COMAH	Control of Major Accident Hazards (regulations)
DQRA	Detailed Quantitative Risk Assessment
DWS	Drinking Water Standard
EQS	Environmental Quality Standard
GAC	Generic Assessment Criterion
GQA	General Quality Assessment (Environment Agency)
GQRA	Generic Quantitative Risk Assessment
GSV	Gas Screening Value
HCV	Health Criteria Value
IPPC	Integrated Pollution Prevention and Control (regulations)
NGR	National Grid Reference
NIHHS	Notification of Installations Handling Hazardous Substances (regulations)
OS	Ordnance Survey
ppm	Parts per million
ppmv	Parts per million by volume
SAC	Special Area of Conservation
SPZ	Source Protection Zone
SSAC	Site-Specific Assessment Criterion
SSSI	Site of Special Scientific Interest

8 DRAWINGS

1. GSL3059-1-001 – Exploratory Hole Location Plan
2. 21/2210/03-D – Nov 2021 - Sean Caddick Architectural

A3



Legend

- Site Boundary

2020 Investigations

- Trial Pit Locations
- Borehole Locations
- DCP Locations

2023 Site Investigation

- Windowless Sample Locations
- Soakaway Locations
- TT Locations

2024 Site Investigation

- Trial Pits

Revision	Description	Date
A		

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Job Title

Wynnstay Technology Park
Ruabon, Wrexham

Drawing Title

Exploratory Hole Location Plan

Drawing Scale	Drawn By	Approved By
@ A3	JT	SF

Drawing Status	Date of Issue
Draft	02/24

Drawing No	Revision
3060-1-001	

Approved Residential Development
Ref: P/2019/0805

Reinforced concrete cap to shaft

Area of influence for mine shaft

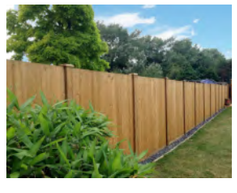
Cycle parking

Carpark

Carpark

Cut off drain across access connected to storm drainage on site

2.0m high timber fence



33 x 2.4m Visibility splay

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Revision:

A	Detail added in respect of mine shaft and boundary treatment.	18/10/23
B	Layout amended.	04/12/23
C	Layout amended.	14/02/24
D	Layout amended.	13/03/24

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Client:
Grattonoakes Ltd

Project:
Commercial Development
Wynnstay Park
Ruabon
Wrexham

Drawing title:
Proposed Block Plan

Scale:
1:500 @ A3

Date:
November 2021

Drawing number:
21/2210/03

Revision:
D

APPENDIX A – SITE PHOTO RECORDS


Herras fencing between different development areas
P01
P02
P03
P04



Photo 1 – Looking north from the southern part of the site



Photo 2 – Looking north from the southern part of the site



Photo 3 – Looking west within southern part of site



Photo 4 – Old container present along southern boundary. Evidence of fire damage. Burnt ash material present inside container. No evidence of any impact outside the container.

APPENDIX B - EXPLORATORY HOLE RECORDS

GroundSolve Ltd

Machine Dug Trial Pit Record

20-TP01

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 09/09/2020
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329210.17 N343535.15
Project No. : 2949	Crew Name:	Equipment:

Location Number	Location Type	Level	Logged By	Scale	Page Number
20-TP01	TP	123.92m AoD	SF	1:25	Sheet 1 of 1

Backfill/ Instal'n	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.12	123.80		Grass over dark brown slightly gravelly SAND. Gravel is fine to medium sub-angular of brick and mudstone (MADE GROUND)
					0.40	123.52		Very stiff orangish brown slightly sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular of mudstone and coal (MADE GROUND)
								Very dense dark grey slightly sandy clayey fine to coarse sub-angular to angular GRAVEL of mudstone with high cobble content, Cobbles are sub-angular to angular of mudstone (MADE GROUND)
					1.10	122.82		End of Trial Pit at 1.100m

1
2
3
4
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Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
1.20	0.70	Unstable	None				

Remarks

No groundwater encountered

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
Bretton
CH4 0DH

GroundSolve Ltd

Machine Dug Trial Pit Record

20-TP01A

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 09/09/2020
Location: Ruabon	Contractor: Harvey Plant	
Project No. : 2949	Crew Name:	Equipment:

Location Number	Location Type	Level	Logged By	Scale	Page Number
20-TP01A	TP		SF	1:25	Sheet 1 of 1

Backfill/ Instal'n	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.20			Grass over dark brown slightly gravelly SAND. Gravel is fine to medium sub-angular of brick and mudstone (MADE GROUND)
								Loose orangish brown very gravelly SAND. Gravel is fine to coarse sub-angular to angular of mudstone, sandstone and brick. Occasional lenses of soft brown sandy gravelly clay noted (MADE GROUND)
					2.00			End of Trial Pit at 2.000m

1 2 3 4 5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
1.30	0.70	Stable	None				

Remarks

No groundwater encountered

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
Bretton
CH4 0DH

GroundSolve Ltd

Machine Dug Trial Pit Record

20-TP02

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 09/09/2020
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329231.26 N343569.83
Project No. : 2949	Crew Name:	Equipment:

Location Number	Location Type	Level	Logged By	Scale	Page Number
20-TP02	TP	124.70m AoD	SF	1:25	Sheet 1 of 1

Backfill/ Instal'n	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.30	124.40		Grass over dark brown slightly gravelly SAND. Gravel is fine to medium sub-angular of brick and mudstone (MADE GROUND)
					2.10	122.60		Loose orangish brown sandy fine to coarse sub-angular to angular GRAVEL of mudstone and burnt shale (MADE GROUND)
					2.30	122.40		Soft black sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular of mudstone, burnt shale and brick. Occasional sub-angular cobbles of mudstone noted. (MADE GROUND)
								End of Trial Pit at 2.300m

1 2 3 4 5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
1.25	0.70	Unstable	None				

Remarks

No groundwater encountered

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
Bretton
CH4 0DH

GroundSolve Ltd

Machine Dug Trial Pit Record

20-TP03

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 09/09/2020
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329200.81 N343607.13
Project No. : 2949	Crew Name:	Equipment:

Location Number	Location Type	Level	Logged By	Scale	Page Number
20-TP03	TP	125.30m AoD	SF	1:25	Sheet 1 of 1

Backfill/ Instal'n	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.15	125.15		Grass over dark brown slightly gravelly SAND. Gravel is fine to medium sub-angular of brick and mudstone (MADE GROUND)
								Loose dark grey sandy fine to coarse sub-angular to angular GRAVEL of mudstone and burnt shale. Occasional sub-rounded to sub-angular cobbled of mudstone noted (MADE GROUND)
					1.80	123.50		Very dense dark grey slightly sandy clayey fine to coarse sub-angular to angular GRAVEL of mudstone with high cobble content, Cobbles are sub-angular to angular of mudstone (MADE GROUND)
					2.00	123.30		End of Trial Pit at 2.000m

1 2 3 4 5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
1.30	0.70	Stable	None				

Remarks

No groundwater encountered

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
Bretton
CH4 0DH

GroundSolve Ltd

Machine Dug Trial Pit Record

20-TP04

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 09/09/2020
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329178.66 N343547.81
Project No. : 2949	Crew Name:	Equipment:

Location Number	Location Type	Level	Logged By	Scale	Page Number
20-TP04	TP	123.99m AoD	SF	1:25	Sheet 1 of 1

Backfill/ Instal'n	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
								Dense light grey slightly sandy fine to coarse sub-angular to angular GRAVEL of mudstone with high cobble/boulder content. Cobbles/boulders are sub-angular to angular of mudstone (MADE GROUND)
								At 0.70m becomes loose
								At 1.20m becomes very dense
					1.70	122.29		Firm black sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular of mudstone, burnt shale and brick. Occasional sub-angular cobbles of mudstone noted. (MADE GROUND)
					1.90	122.09		End of Trial Pit at 1.900m

1
2
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4
5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
1.20	0.70	Stable	None				

Remarks

No groundwater encountered

GroundSolve Ltd
Unit 1 Well House Barns
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GroundSolve Ltd

Machine Dug Trial Pit Record

23-SA01

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 22/06/2023
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329203.57 N343584.96
Project No. : 2949	Crew Name: Thomas Plant	Equipment: JCB 3CX

Location Number	Location Type	Level	Logged By	Scale	Page Number
23-SA01	TP	124.75m AoD	RP	1:25	Sheet 1 of 1

Backfill/ Instal'n	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.25	ES		0.20	124.55		Dark brown slightly sandy very gravelly CLAY. Gravel is fine to medium angular to subangular of sandstone and brick. (MADE GROUND)
		0.50	ES					Very loose dark blackish brown clayey sandy angular to subangular fine to coarse GRAVEL of sandstone, concrete, clinker and brick with low cobble content. Cobbles are angular concrete (MADE GROUND)
		1.00	B					
		1.00	ES					
		1.75	D					
		2.00	ES		2.10	122.65		Firm dark brown slightly sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone. (GLACIAL TILL)
		2.50	B					
		3.00	D					
					3.25	121.50		End of Trial Pit at 3.250m

1 2 3 4 5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
2.10	1.25	Unstable	None				

Remarks

No groundwater encountered. Soakaway test completed at 1.00m bgl.

GroundSolve Ltd
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GroundSolve Ltd — Machine Dug Trial Pit Record — 23-SA02

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 22/06/2023
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329192.31 N343522.50
Project No. : 2949	Crew Name: Thomas Plant	Equipment: JCB 3CX

Location Number	Location Type	Level	Logged By	Scale	Page Number
23-SA02	TP	123.62m AoD	RP	1:25	Sheet 1 of 1

Backfill/ Instal'n	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.20	ES		0.20	123.42		Dark brown slightly sandy very gravelly CLAY. Gravel is fine to medium angular to subangular of sandstone. (MADE GROUND)
		0.50	ES					Very loose dark blackish brown clayey sandy angular to subangular fine to coarse GRAVEL of sandstone, concrete, clinker, coal and brick with low cobble content. Cobbles are angular concrete (MADE GROUND)
		0.75	B					
		0.75	D					
		1.00	ES					
		1.50	D					
		2.00	ES		2.00	121.62		Firm dark brown slightly sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone. (GLACIAL TILL)
		2.20	D					
		2.50	D					
		3.25	B					
					3.50	120.12		End of Trial Pit at 3.500m

1 2 3 4 5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
2.00	1.25	Unstable	None				

Remarks

No groundwater encountered. Soakaway test completed at 1.00m bgl.

GroundSolve Ltd
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GroundSolve Ltd

Machine Dug Trial Pit Record

23-SA03

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 22/06/2023
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329244.48 N343537.31
Project No. : 2949	Crew Name: Thomas Plant	Equipment: JCB 3CX

Location Number	Location Type	Level	Logged By	Scale	Page Number
23-SA03	TP	124.30m AoD	RP	1:25	Sheet 1 of 1

Backfill/ Instal'n	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.20	ES		0.25	124.05		Dark brown slightly sandy very gravelly CLAY. Gravel is fine to medium angular to subangular of sandstone. (MADE GROUND)
		0.50	ES					Very loose dark brown slightly clayey slightly sandy angular to subangular fine to coarse gravel of sandstone, concrete, brick, clinker and coal medium cobble content. Cobbles are angular of concrete, brick and clinker (MADE GROUND)
		1.00 1.00	B ES					
		2.00	ES					
		2.85	B					
					3.00	121.30		Firm brown sandy very gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone, concrete and brick. (MADE GROUND)
					3.50	120.80		End of Trial Pit at 3.500m

1 2 3 4 5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
2.00	1.40	Unstable	None				

Remarks

No groundwater encountered. Soakaway test completed at 1.00m bgl.

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Machine Dug Trial Pit Record

23-TT01

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 20/06/2023
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329240.21 N343559.01
Project No. : 2949	Crew Name: Thomas Plant	Equipment: JCB 3CX

Location Number	Location Type	Level	Logged By	Scale	Page Number
23-TT01	TP	124.52m AoD	RP	1:25	Sheet 1 of 1

Backfill/ Instal'n	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.15	124.37		Dark brown slightly sandy very gravelly CLAY. Gravel is fine to medium angular to subangular of sandstone and brick. (MADE GROUND)
		0.25	ES					
		0.50	ES					Very loose dark blackish brown clayey sandy angular to subangular fine to coarse GRAVEL of sandstone, concrete, clinker, coal and brick with low cobble content. Cobbles are angular concrete (MADE GROUND)
		0.95	B					
		1.00	ES					
		1.50	D					
					1.75	122.77		Soft dark brown sandy slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded of sandstone (GLACIAL TILL)
								Large metal column support present
					2.50	122.02		End of Trial Pit at 2.500m
		2.75	B					

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
4.00	2.00	Unstable	None				

Remarks

No groundwater encountered. Large metal column support present at 1.75m bgl.

GroundSolve Ltd
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Bretton
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GroundSolve Ltd — Machine Dug Trial Pit Record — 23-TT02

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 20/06/2023
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329233.67 N343545.07
Project No. : 2949	Crew Name: Thomas Plant	Equipment: JCB 3CX

Location Number	Location Type	Level	Logged By	Scale	Page Number
23-TT02	TP	124.30m AoD	RP	1:25	Sheet 1 of 1

Backfill/ Instal'n	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.25	ES					Very loose dark blackish brown clayey sandy angular to subangular fine to coarse GRAVEL of sandstone, concrete, clinker, coal and brick (MADE GROUND)
		0.50	ES					
		0.70	D					
		1.00	ES					
		1.50	B					
								Horizontal metal beams present
					2.00	122.30		Soft dark brown sandy gravelly CLAY. Gravel is fine to medium subangular to subrounded of sandstone (GLACIAL TILL)
					3.00	121.30		End of Trial Pit at 3.000m
		3.50	B					

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
4.30	2.00	Unstable	None				

Remarks

No groundwater encountered. Horizontal metal beams present at 2.00m bgl.

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Chester Road
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GroundSolve Ltd

Machine Dug Trial Pit Record

23-TT03

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 20/06/2023
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329219.82 N343529.97
Project No. : 2949	Crew Name: Thomas Plant	Equipment: JCB 3CX

Location Number	Location Type	Level	Logged By	Scale	Page Number
23-TT03	TP	123.92m AoD	RP	1:25	Sheet 1 of 1

Backfill/ Instal'n	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.25	ES					Very loose dark blackish brown clayey sandy angular to subangular fine to coarse GRAVEL of sandstone, concrete, clinker, coal and brick with low cobble content. Cobbles are angular concrete (MADE GROUND)
		0.50	ES					
		1.00	B					
		1.00	ES					
	▼				2.20	121.72		Soft dark brown sandy gravelly CLAY. Gravel is fine to coarse angular to subangular of sandstone, metal and concrete (MADE GROUND)
								Metal sheets and concrete slab covering a void
		3.00	B		3.00	120.92		End of Trial Pit at 3.000m

1 2 3 4 5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
6.50	2.20	Unstable	None				

Remarks

Groundwater encountered at 2.50m bgl. Horizontal metal sheets and concrete blocks present at base of pit. Appears to be covering a void, possibly the mine shaft.

GroundSolve Ltd
Unit 1 Well House Barns
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Bretton
CH4 0DH

GroundSolve Ltd — Machine Dug Trial Pit Record — 23-TT04

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 21/06/2023
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329221.67 N343510.43
Project No. : 2949	Crew Name: Thomas Plant	Equipment: JCB 3CX

Location Number	Location Type	Level	Logged By	Scale	Page Number
23-TT04	TP	123.60m AoD	RP	1:25	Sheet 1 of 1

Backfill/ Instal'n	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.30	ES		0.30	123.30		Dark brown slightly sandy very gravelly CLAY. Gravel is fine to medium angular to subangular of sandstone (MADE GROUND)
		1.00	B					Very loose dark blackish brown clayey sandy angular to subangular fine to coarse GRAVEL of sandstone, concrete, clinker, coal and brick with low cobble content. Cobbles are angular concrete. Wooden stakes present. (MADE GROUND)
		1.00	ES					
		1.50	D					
		2.10	ES					*Horizontal timber beam*
		2.75	B		2.60	121.00		Firm dark brown slightly sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone. (GLACIAL TILL)
		3.75	B		3.50	120.10		End of Trial Pit at 3.500m

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
4.00	2.00	Unstable	None				

Remarks

No groundwater encountered. Horizontal timber beam noted at 2.10m bgl.

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
Bretton
CH4 0DH

GroundSolve Ltd

Machine Dug Trial Pit Record

23-TT05

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 21/06/2023
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329214.44 N343552.35
Project No. : 2949	Crew Name: Thomas Plant	Equipment: JCB 3CX

Location Number	Location Type	Level	Logged By	Scale	Page Number
23-TT05	TP	124.30m AoD	RP	1:25	Sheet 1 of 1

Backfill/ Instal'n	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.15	124.15		Dark brown slightly sandy very gravelly CLAY. Gravel is fine to medium angular to subangular of sandstone and brick. (MADE GROUND)
		0.25	ES					
		0.50	ES					Very loose blackish brown clayey sandy angular to subangular fine to coarse GRAVEL of sandstone, concrete, clinker, coal and brick (MADE GROUND)
		0.90	D					
		1.00	ES					
		1.50	B					
		2.00	D		2.00	122.30		
		2.00	ES					Firm brown slightly sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone. (GLACIAL TILL)
		3.00	B					
					3.50	120.80		End of Trial Pit at 3.500m

1 2 3 4 5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
3.50	1.50	Unstable	None				

Remarks

No groundwater encountered.

GroundSolve Ltd
Unit 1 Well House Barns
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Bretton
CH4 0DH

GroundSolve Ltd — Machine Dug Trial Pit Record — 23-TT06

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 21/06/2023
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329201.31 N343571.16
Project No. : 2949	Crew Name: Thomas Plant	Equipment: JCB 3CX

Location Number	Location Type	Level	Logged By	Scale	Page Number
23-TT06	TP	124.40m AoD	RP	1:25	Sheet 1 of 1

Backfill/ Instal'n	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.25	ES					Loose dark brown clayey sandy angular to subangular fine to coarse GRAVEL of sandstone, concrete, clinker, coal and brick (MADE GROUND)
		0.40	ES					
		0.60	D					
		1.00	ES					
		1.50	B					
		2.00	ES					
		2.25	D					
					2.65	121.75		Soft dark brown sandy slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded of sandstone (GLACIAL TILL)
		3.50	B					
					4.00	120.40		End of Trial Pit at 4.000m

1 2 3 4 5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
3.50	1.50	Unstable	None				

Remarks

No groundwater encountered.

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
Bretton
CH4 0DH

GroundSolve Ltd — Machine Dug Trial Pit Record — 23-TT07

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 21/06/2023
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329194.37 N343622.00
Project No. : 2949	Crew Name: Thomas Plant	Equipment: JCB 3CX

Location Number	Location Type	Level	Logged By	Scale	Page Number
23-TT07	TP	125.50m AoD	RP	1:25	Sheet 1 of 1

Backfill/ Instal'n	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.25	ES		0.20	125.30		Dark brown slightly sandy very gravelly CLAY. Gravel is fine to medium angular to subangular of sandstone (MADE GROUND)
		0.50	D					(MADE GROUND)
		0.50	ES					
		1.00	ES					
		1.90	B					
					2.35	123.15		Soft dark brown sandy gravelly CLAY. Gravel is fine to medium subangular to subrounded of sandstone (GLACIAL TILL)
		2.60	D					
		3.30	B					
					4.00	121.50		End of Trial Pit at 4.000m

1 2 3 4 5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
3.50	1.25	Unstable	None				

Remarks

No groundwater encountered.

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
Bretton
CH4 0DH

GroundSolve Ltd — Windowless Sample Record — 20-WS01

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 09/09/2020
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329213.20 N343514.05
Project No. : 2949	Crew Name: Regional Drilling	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
20-WS01	WLS	123.60m AoD	AB	1:25	Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.10	123.50		Grass over dark brown sandy gravelly SILT. Gravel is fine to medium sub-angular of brick and mudstone (MADE GROUND)
								Medium dense brown to black clayey gravelly fine to coarse SAND. Gravel is angular to sub-angular fine to coarse of mudstone and burnt shale (MADE GROUND)
	▼	1.00	SPT	N=14 (0,0/0,0,0,14)	1.00	122.60		Firm black sandy gravelly CLAY. Gravel is angular to subangular fine to coarse of mudstone, burnt shale and brick (MADE GROUND)
		2.00	SPT	N=3 (0,0/0,0,0,3)	2.00	121.60		Very soft becoming firm light greyish brown very sandy CLAY (GLACIAL TILL - WEATHERED)
		3.00	SPT	N=5 (0,0/0,0,0,5)				
		4.00	SPT	N=12 (0,0/0,0,0,12)				
					5.00	118.60		

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Water strike at 1.00m

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
Bretton
CH4 0DH

GroundSolve Ltd	Windowless Sample Record	20-WS01

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 09/09/2020
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329213.20 N343514.05
Project No. : 2949	Crew Name: Regional Drilling	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
20-WS01	WLS	123.60m AoD	AB	1:25	Sheet 2 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		5.00	SPT	N=50 (0,0/50 for 297mm)				Very Stiff light greyish brown very sandy CLAY (GLACIAL TILL)
					5.42	118.18		End of Borehole at 5.420m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Water strike at 1.00m

GroundSolve Ltd
Unit 1 Well House Barns
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GroundSolve Ltd	Windowless Sample Record	20-WS02

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 09/09/2020
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329249.67 N343521.26
Project No. : 2949	Crew Name: Regional Drilling	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
20-WS02	WLS	124.14m AoD	TG	1:25	Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		1.00	SPT	N=10 (0,0/0,0,0,10)				Medium dense black sandy angular to subangular fine to coarse GRAVEL of mudstone and burnt shale (MADE GROUND)
	▼	2.00	SPT	N=10 (0,0/0,0,0,10)				
					2.10	122.04		Firm black slightly sandy gravelly CLAY. Gravel is angular to subangular fine to coarse of burnt shale (MADE GROUND)
					2.50	121.64		Firm grey silty sandy CLAY (GLACIAL TILL - WEATHERED)
		3.00	SPT	N=12 (0,0/0,0,0,12)				
					3.20	120.94		Stiff brown sandy gravelly CLAY (GLACIAL TILL)
		4.00	SPT	N=27 (0,0/0,0,0,27)				
		5.00	SPT	N=23 (0,0/0,0,0,23)				

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Water strike at 2.00m

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Unit 1 Well House Barns
Chester Road
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GroundSolve Ltd	Windowless Sample Record	20-WS02

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 09/09/2020
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329249.67 N343521.26
Project No. : 2949	Crew Name: Regional Drilling	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
20-WS02	WLS	124.14m AoD	TG	1:25	Sheet 2 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Stiff brown sandy gravelly CLAY (GLACIAL TILL)
					5.45	118.69		End of Borehole at 5.450m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Water strike at 2.00m

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
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GroundSolve Ltd — Windowless Sample Record — 20-WS03

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 09/09/2020
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329197.36 N343549.71
Project No. : 2949	Crew Name: Regional Drilling	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
20-WS03	WLS	124.00m AoD	AB	1:25	Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		1.00	SPT	N=13 (0,0/0,0,0,13)				Grass over medium dense dark brown slightly gravelly SAND. Gravel is fine to medium sub-angular of brick and mudstone (MADE GROUND)
	▼				1.50	122.50		Very stiff black sandy gravelly CLAY. Gravel is angular to subangular fine to coarse of mudstone (GLACIAL TILL)
		2.00	SPT	N=14 (0,0/0,0,0,14)	2.00	122.00		Firm greyish brown sandy CLAY (GLACIAL TILL)
		3.00	SPT	N=25 (0,0/0,0,0,25)				*At 3.00m becomes very stiff*
		4.00	SPT	N=39 (0,0/0,0,0,39)				
					4.20	119.80		Very stiff dark brown slightly sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse of mudstone (GLACIAL TILL)
		5.00	SPT	N=31 (0,0/0,0,0,31)				

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Water strike at 1.50m

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
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GroundSolve Ltd	Windowless Sample Record	20-WS03

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 09/09/2020
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329197.36 N343549.71
Project No. : 2949	Crew Name: Regional Drilling	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
20-WS03	WLS	124.00m AoD	AB	1:25	Sheet 2 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					5.45	118.55		Very stiff dark brown slightly sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse of mudstone (GLACIAL TILL)
								End of Borehole at 5.450m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Water strike at 1.50m

GroundSolve Ltd
Unit 1 Well House Barns
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GroundSolve Ltd — Windowless Sample Record — 20-WS04

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 09/09/2020
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329251.48 N343562.72
Project No. : 2949	Crew Name: Regional Drilling	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
20-WS04	WLS	124.78m AoD	TG	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		1.00	SPT	N=8 (0,0/0,0,0,8)				Loose reddish brown to light brown sandy angular to subangular fine to coarse GRAVEL of mudstoneand burnt shale (MADE GROUND)
	▼				1.50	123.28		
		2.00	SPT	N=8 (0,0/0,0,0,8)				Firm black to grey silty CLAY (GLACIAL TILL - WEATHERED)
					2.10	122.68		
		3.00	SPT	N=6 (0,0/0,0,0,6)				Soft greyish brown sandy gravelly CLAY. Gravel is subrounded to rounded fine to coarse of sandstone (GLACIAL TILL)
		4.00	SPT	N=50 (0,0/50 for 292mm)				*At 4.00m becomes very stiff*
					4.37	120.41		End of Borehole at 4.370m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Water strike at 1.50m

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GroundSolve Ltd	Windowless Sample Record	20-WS05

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 09/09/2020
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329176.72 N343575.34
Project No. : 2949	Crew Name: Regional Drilling	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
20-WS05	WLS	124.40m AoD	AB	1:25	Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								Grass over dark brown sandy gravelly SILT. Gravel is fine to medium sub-angular of brick and mudstone (MADE GROUND)	
	▼	1.00	SPT	N=31 (0,0/0,0,0,31)	1.00	123.40			1
								Very stiff black sandy gravelly CLAY. Gravel is angular to subangular fine to coarse of mudstone (MADE GROUND)	
		2.00	SPT	N=3 (0,0/0,0,0,3)	2.00	122.40			2
								Soft greyish brown sandy CLAY (GLACIAL TILL - WEATHERED)	
		3.00	SPT	N=14 (0,0/0,0,0,14)				*At 3.00m becomes firm*	3
		4.00	SPT	N=40 (0,0/0,0,0,40)	4.00	120.40			4
								Stiff greyish brown sandy CLAY (GLACIAL TILL)	
									5

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Water strike at 1.00m

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Unit 1 Well House Barns
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GroundSolve Ltd — Windowless Sample Record — 20-WS05

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 09/09/2020
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329176.72 N343575.34
Project No. : 2949	Crew Name: Regional Drilling	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
20-WS05	WLS	124.40m AoD	AB	1:25	Sheet 2 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		5.00	SPT	N=50 (0,0/50 for 290mm)				Stiff greyish brown sandy CLAY (GLACIAL TILL)
					5.35	119.05		End of Borehole at 5.350m

6 7 8 9 10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Water strike at 1.00m

GroundSolve Ltd
Unit 1 Well House Barns
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GroundSolve Ltd	Windowless Sample Record	20-WS06

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 09/09/2020
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329208.79 N343576.55
Project No. : 2949	Crew Name: Regional Drilling	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
20-WS06	WLS	124.60m AoD	TG	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		1.00	SPT	N=14 (0,0/0,0,0,14)				Medium dense black sandy6 angular to subangular fine to coarse GRAVEL of mudstone and burnt shale (MADE GROUND)
	▼				1.90	122.70		
		2.00	SPT	N=7 (0,0/0,0,0,7)				Firm to stiff brown silty sandy CLAY (GLACIAL TILL - WEATHERED)
		3.00	SPT	N=30 (0,0/0,0,0,30)	3.00	121.60		No Recovery - Possibly sand (GLACIAL TILL)
		4.00	SPT	N=50 (0,0/50 for 296mm)				
					4.41	120.19		End of Borehole at 4.410m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Water strike at 1.80m

GroundSolve Ltd
Unit 1 Well House Barns
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GroundSolve Ltd — Windowless Sample Record — 20-WS07

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 09/09/2020
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329183.34 N343598.98
Project No. : 2949	Crew Name: Regional Drilling	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
20-WS07	WLS	124.85m AoD	AB	1:25	Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		1.00	SPT	N=33 (0,0/0,0,0,33)				Grass over dense dark brown sandy gravelly SILT. Gravel is fine to medium sub-angular of brick and mudstone (MADE GROUND)
	▼				1.50	123.35		
		2.00	SPT	N=3 (0,0/0,0,0,3)				Very soft grey sandy slightly gravelly CLAY. Gravel is fine to coarse of mudstone (GLACIAL TILL - WEATHERED)
		3.00	SPT	N=24 (0,0/0,0,0,24)	3.00	121.85		Very stiff grey very sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse of sandstone (GLACIAL TILL)
		4.00	SPT	N=26 (0,0/0,0,0,26)				

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Water strike at 1.50m

GroundSolve Ltd
Unit 1 Well House Barns
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GroundSolve Ltd — Windowless Sample Record — 20-WS07

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 09/09/2020
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329183.34 N343598.98
Project No. : 2949	Crew Name: Regional Drilling	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
20-WS07	WLS	124.85m AoD	AB	1:25	Sheet 2 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		5.00	SPT	N=50 (0,0/50 for 291mm)				Very stiff grey very sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse of sandstone (GLACIAL TILL)
					5.36	119.49		End of Borehole at 5.360m

6 7 8 9 10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Water strike at 1.50m

GroundSolve Ltd
Unit 1 Well House Barns
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GroundSolve Ltd	Windowless Sample Record	20-WS08

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 09/09/2020
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329230.03 N343594.77
Project No. : 2949	Crew Name: Regional Drilling	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
20-WS08	WLS	125.30m AoD	TG	1:25	Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								Medium dense black sandy angular to subangular fine to coarse GRAVEL of mudstone and burnt shale (MADE GROUND)	
		1.00	SPT	N=34 (0,0/0,0,0,34)	1.00	124.30			1
								Dense black SILT (MADE GROUND)	
					1.50	123.80			
								Firm black slightly sandy CLAY (MADE GROUND)	
		2.00	SPT	N=10 (0,0/0,0,0,10)	2.00	123.30			2
								Stiff to very stiff greyish brown sandy gravelly CLAY (GLACIAL TILL)	
		3.00	SPT	N=30 (0,0/0,0,0,30)					3
		4.00	SPT	N=24 (0,0/0,0,0,24)					4
		5.00	SPT	N=34 (0,0/0,0,0,34)					5

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

No groundwater encountered

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
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GroundSolve Ltd	Windowless Sample Record	20-WS08

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 09/09/2020
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329230.03 N343594.77
Project No. : 2949	Crew Name: Regional Drilling	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
20-WS08	WLS	125.30m AoD	TG	1:25	Sheet 2 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Stiff to very stiff greyish brown sandy gravelly CLAY (GLACIAL TILL)
					5.45	119.85		End of Borehole at 5.450m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

No groundwater encountered

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
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GroundSolve Ltd — Windowless Sample Record — 20-WS09

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 09/09/2020
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329186.14 N343622.21
Project No. : 2949	Crew Name: Regional Drilling	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
20-WS09	WLS	125.50m AoD	AB	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		1.00	SPT	N=26 (0,0/0,0,0,26)				Grass over dark brown sandy gravelly SILT. Gravel is fine to medium sub-angular of brick and mudstone (MADE GROUND)
	▼				1.50	124.00		
		2.00	SPT	50 (0,0/50 for 30mm)				Very dense black asphalt (MADE GROUND)
					2.18	123.32		End of Borehole at 2.180m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Water strike at 1.50m. Terminated on obstruction.

GroundSolve Ltd
Unit 1 Well House Barns
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GroundSolve Ltd	Windowless Sample Record	20-WS10

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 09/09/2020
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329210.19 N343623.42
Project No. : 2949	Crew Name: Regional Drilling	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
20-WS10	WLS	125.66m AoD	AB	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		1.00	SPT	N=37 (0,0/0,0,0,37)				Grass over dense dark brown sandy gravelly SILT. Gravel is fine to medium sub-angular of brick and mudstone (MADE GROUND)
	▼				1.70	123.96		
		2.00	SPT	N=42 (0,0/0,0,0,42)				Very stiff dark grey sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse of mudstone (GLACIAL TILL)
		3.00	SPT	N=39 (0,0/0,0,0,39)	3.00	122.66		Very stiff grey slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse of sandstone (GLACIAL TILL)
		3.60	SPT	50 (0,0/50 for 120mm)	3.72	121.94		End of Borehole at 3.720m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Water strike at 1.70m

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
Bretton
CH4 0DH

GroundSolve Ltd — Windowless Sample Record — 23-WS01

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 23/06/2023
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329166.18 N343599.37
Project No. : 2949	Crew Name: Regional Drilling	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
23-WS01	WLS	124.78m AoD	RP	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.25	ES					Dense dark blackish brown slightly clayey very sandy fine to medium GRAVEL of sandstone, brick, ash, clinker and concrete (MADE GROUND)
		0.50	ES					
		0.75	D					
		1.00	ES					
		1.00	SPT	N=31 (3,3/3,7,11,11,10)				
		1.50	D					
					1.75	123.03		
		2.00	SPT	N=12 (2,2/2,3,3,4)				Firm dark brown sandy slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded of sandstone (GLACIAL TILL - WEATHERED)
					2.50	122.28		
		3.00	SPT	N=36 (5,9/6,7,11,12)				Stiff greyish brown sandy slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded of sandstone. (GLACIAL TILL) *Grey fine to medium angular to subangular gravel*
		3.50	D					
		4.00	SPT	50 (25 for 5mm/50 for 10mm)	4.00	120.78		End of Borehole at 4.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.00	100										
2.00	92										
3.00	79										
4.00	70										

Remarks

Terminated due to SPT refusal. No groundwater encountered.

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
Bretton
CH4 0DH

GroundSolve Ltd — Windowless Sample Record — 23-WS02

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 23/06/2023
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329235.16 N343609.64
Project No. : 2949	Crew Name: Regional Drilling	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
23-WS02	WLS	125.60m AoD	RP	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.25	ES		0.10	125.50		Dark brown slightly sandy very gravelly CLAY. Gravel is fine to medium angular to subangular of sandstone. (MADE GROUND)
		0.50	ES					Soft dark brown sandy slightly gravelly CLAY. Gravel is fine to medium angular to subangular of brick, clinker and sandstone. (MADE GROUND)
		0.70	D					
		1.00	ES		0.90	124.70		Medium dense brown slightly sandy angular to subangular fine to coarse GRAVEL of sandstone. (GLACIAL TILL)
		1.00	SPT	N=20 (3,5/4,5,5,6)				
		1.50	D					
		2.00	SPT	N=50 (7,10/50 for 285mm)	2.00	123.60		End of Borehole at 2.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.00 2.00	100 92										

Remarks

Terminated due to SPT refusal. No groundwater encountered.

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
Bretton
CH4 0DH

GroundSolve Ltd — Windowless Sample Record — 23-WS03

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 23/06/2023
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329208.92 N343561.87
Project No. : 2949	Crew Name: Regional Drilling	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
23-WS03	WLS	124.35m AoD	RP	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.25	ES					Medium dense dark brown slightly clayey sandy angular to subangular fine to coarse gravel of sandstone, concrete, brick, clinker and coal (MADE GROUND)
		0.50	ES					
		0.60	D					
		1.00	ES					
		1.00	SPT	N=15 (3,4/3,4,4,4)				
					1.80	122.55		
	▼	2.00	SPT	N=10 (1,1/2,2,2,4)				Firm dark brownish black sandy slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded of sandstone (GLACIAL TILL - WEATHERED)
		2.50	D					
		3.00	SPT	N=13 (2,2/2,3,3,5)				
					3.20	121.15		Stiff brown sandy slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded of sandstone (GLACIAL TILL)
		4.00	SPT	N=23 (4,5/4,5,7,7)				
		4.20	D					
		4.50	D					
		5.00	SPT	N=29 (2,3/5,5,7,12)	5.00	119.35		End of Borehole at 5.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.00	100										
2.00	92										
3.00	79										
4.00	70										
5.00	64										

Remarks

Groundwater encountered at 2.00m bgl.

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
Bretton
CH4 0DH

GroundSolve Ltd — Windowless Sample Record — 23-WS04

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 23/06/2023
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329205.95 N343501.09
Project No. : 2949	Crew Name: Regional Drilling	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
23-WS04	WLS	123.25m AoD	RP	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.25	ES		0.20	123.05		Dark brown slightly sandy very gravelly CLAY. Gravel is fine to medium angular to subangular of sandstone and brick. (MADE GROUND)
		0.50	D					Loose dark blackish brown clayey sandy angular to subangular fine to coarse GRAVEL of sandstone, concrete, clinker and brick (MADE GROUND)
		0.50	ES					
		1.00	ES					
		1.00	SPT	N=8 (3,2/1,3,2,2)	1.10	122.15		
		2.00	SPT	N=10 (2,2/1,2,4,3)				Firm brown sandy slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded of sandstone (GLACIAL TILL)
		2.50	D					
		3.00	SPT	N=14 (3,3/2,3,4,5)				
		3.70	D					
		4.00	SPT	50 (25 for 10mm/50 for 0mm)	4.00	119.25		End of Borehole at 4.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.00	100										
2.00	92										
3.00	79										
4.00	70										

Remarks

Terminated due to SPT refusal. No groundwater encountered.

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
Bretton
CH4 0DH

GroundSolve Ltd	Windowless Sample Record	23-WS05

Project Name: Ruabon Business Park - Phase I & II	Client: Beech Developments	Date: 23/06/2023
Location: Ruabon	Contractor: Harvey Plant	Co-ords: E329247.11 N343513.22
Project No. : 2949	Crew Name: Regional Drilling	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
23-WS05	WLS	123.98m AoD	RP	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.25	ES		0.30	123.68		Dark greyish brown very clayey slightly sandy angular to subangular fine to medium GRAVEL of sandstone and brick (MADE GROUND)
		0.50	ES					Dense brown sandy angular to subangular fine to medium GRAVEL of sandstone and brick (MADE GROUND)
		0.60	D					
		1.00	ES					
		1.00	SPT	N=39 (9,3/9,7,11,12)				
		2.00	ES					
		2.00	SPT	N=18 (8,5/5,4,4,5)				
		2.50	D					
					2.80	121.18		Very stiff black slightly sandy slightly gravelly CLAY. Gravel is fine to medium angular of sandstone and coal (MADE GROUND)
		3.00	SPT	N=50 (3,4/50 for 265mm)	3.00	120.98		End of Borehole at 3.000m

1 2 3 4 5

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.00	100										
2.00	92										
3.00	79										

Remarks

Terminated due to SPT refusal. No groundwater encountered.

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
Bretton
CH4 0DH

GroundSolve Ltd

Hand Dug Trial Pit

24-HP01

Project Name: Wynnstay Technology Park, Ruabon-Additional Testing	Client: Castlemead Group Ltd	Date: 13/02/2024
Location:	Contractor:	Co-ords: E329181.75 N343509.00
Project No. : 3060	Crew Name:	Equipment: Hand tools.

Location Number	Location Type	Level	Logged By	Scale	Page Number
24-HP01	TP	127.00m AoD	AR	1:10	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Loose dark grey fine to coarse sub angular GRAVEL of clinker, red brick and mudstone with ash. (MADE GROUND)
		0.50	ES		0.50	126.50		End of Borehole at 0.500m

1

2

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.40	0.40						

Remarks

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
Bretton
CH4 0DH

GroundSolve Ltd

Hand Dug Trial Pit

24-HP02

Project Name: Wynnstay Technology Park, Ruabon-Additional Testing	Client: Castlemead Group Ltd	Date: 13/02/2024
Location:	Contractor:	Co-ords: E329165.97 N343550.00
Project No. : 3060	Crew Name:	Equipment: Hand tools.

Location Number	Location Type	Level	Logged By	Scale	Page Number
24-HP02	TP	127.00m AoD	AR	1:10	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Loose dark grey fine to coarse sub angular GRAVEL of clinker and mudstone with ash. (MADE GROUND)
		0.60	ES		0.60	126.40		End of Borehole at 0.600m

1

2

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.40	0.40						

Remarks

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
Bretton
CH4 0DH

GroundSolve Ltd

Hand Dug Trial Pit

24-HP03

Project Name: Wynnstay Technology Park, Ruabon-Additional Testing	Client: Castlemead Group Ltd	Date: 13/02/2024
Location:	Contractor:	Co-ords: E329158.73 N343582.00
Project No. : 3060	Crew Name:	Equipment: Hand tools.

Location Number	Location Type	Level	Logged By	Scale	Page Number
24-HP03	TP	127.00m AoD	AR	1:10	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.70	ES		0.70	126.30		Loose dark grey fine to coarse sub angular GRAVEL of clinker and mudstone with ash. (MADE GROUND)
								End of Borehole at 0.700m

1

2

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.40	0.40						

Remarks

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
Bretton
CH4 0DH

GroundSolve Ltd

Hand Dug Trial Pit

24-HP04

Project Name: Wynnstay Technology Park, Ruabon-Additional Testing	Client: Castlemead Group Ltd	Date: 13/02/2024
Location:	Contractor:	Co-ords: E329151.50 N343604.00
Project No. : 3060	Crew Name:	Equipment: Hand tools.

Location Number	Location Type	Level	Logged By	Scale	Page Number
24-HP04	TP	127.00m AoD	AR	1:10	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Loose orange brown fine to coarse sub angular GRAVEL of clinker and mudstone with ash. (MADE GROUND)
		0.50	ES		0.50	126.50		End of Borehole at 0.500m

1

2

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.40	0.40						

Remarks

GroundSolve Ltd
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GroundSolve Ltd

Hand Dug Trial Pit

24-HP05

Project Name: Wynnstay Technology Park, Ruabon-Additional Testing	Client: Castlemead Group Ltd	Date: 13/02/2024
Location:	Contractor:	Co-ords: E329158.15 N343630.60
Project No. : 3060	Crew Name:	Equipment: Hand tools.

Location Number	Location Type	Level	Logged By	Scale	Page Number
24-HP05	TP	127.50m AoD	AR	1:10	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.35	ES		0.35	127.15		Loose dark brown slightly clayey sandy fine to coarse sub angular GRAVEL of mudstone, red brick clinker with ash and occasional cobbles. (MADE GROUND)
								End of Borehole at 0.350m

1

2

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.40	0.40						

Remarks

GroundSolve Ltd
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Bretton
CH4 0DH

GroundSolve Ltd

Hand Dug Trial Pit

24-HP06

Project Name: Wynnstay Technology Park, Ruabon-Additional Testing	Client: Castlemead Group Ltd	Date: 13/02/2024
Location:	Contractor:	Co-ords: E329184.02 N343639.55
Project No. : 3060	Crew Name:	Equipment: Hand tool

Location Number	Location Type	Level	Logged By	Scale	Page Number
24-HP06	TP	129.00m AoD	AR	1:10	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Loose light reddish cream slightly sandy fine to coarse sub angular GRAVEL of mudstone with occasional cobbles. (MADE GROUND)
		0.80	ES		0.80	128.20		End of Borehole at 0.800m

1

2

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.40	0.40						

Remarks

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
Bretton
CH4 0DH

GroundSolve Ltd

Hand Dug Trial Pit

24-HP07

Project Name: Wynnstay Technology Park, Ruabon-Additional Testing	Client: Castlemead Group Ltd	Date: 13/02/2024
Location:	Contractor:	Co-ords: E329214.17 N343641.82
Project No. : 3060	Crew Name:	Equipment: Hand tools.

Location Number	Location Type	Level	Logged By	Scale	Page Number
24-HP07	TP	129.50m AoD	AR	1:10	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Loose light reddish cream slightly sandy fine to coarse sub angular GRAVEL of mudstone with occasional cobbles. (MADE GROUND)
		0.80	ES		0.80	128.70		End of Borehole at 0.800m

1

2

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.40	0.40						

Remarks

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
Bretton
CH4 0DH

GroundSolve Ltd

Hand Dug Trial Pit

24-HP08

Project Name: Wynnstay Technology Park, Ruabon-Additional Testing	Client: Castlemead Group Ltd	Date: 13/02/2024
Location:	Contractor:	Co-ords: E329235.00 N343642.88
Project No. : 3060	Crew Name:	Equipment: Hand tools.

Location Number	Location Type	Level	Logged By	Scale	Page Number
24-HP08	TP	130.00m AoD	AR	1:10	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.35	ES					Loose dark grey fine to coarse sub angular GRAVEL of clinker and mudstone with ash. (MADE GROUND)
					0.80	129.20		End of Borehole at 0.800m

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.40	0.40						

Remarks

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
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GroundSolve Ltd

Hand Dug Trial Pit

24-HP09

Project Name: Wynnstay Technology Park, Ruabon-Additional Testing	Client: Castlemead Group Ltd	Date: 13/02/2024
Location:	Contractor:	Co-ords: E329208.95 N343520.98
Project No. : 3060	Crew Name:	Equipment:

Location Number	Location Type	Level	Logged By	Scale	Page Number
24-HP09	TP	123.69m AoD		1:10	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.45	ES		0.45	123.24		Loose light reddish cream slightly sandy fine to coarse sub angular GRAVEL of mudstone, redbrick, clinker with ash with occasional cobbles. (MADE GROUND)
								End of Borehole at 0.450m

1

2

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks

GroundSolve Ltd
Unit 1 Well House Barns
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GroundSolve Ltd

Hand Dug Trial Pit

24-HP10

Project Name: Wynnstay Technology Park, Ruabon-Additional Testing	Client: Castlemead Group Ltd	Date: 13/02/2024
Location:	Contractor:	Co-ords: E329264.91 N343536.95
Project No. : 3060	Crew Name:	Equipment: Hand tools.

Location Number	Location Type	Level	Logged By	Scale	Page Number
24-HP10	TP	124.50m AoD	AR	1:10	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	ES		0.10	124.40		Loose light reddish cream slightly sandy fine to coarse sub angular GRAVEL of mudstone with occasional cobbles. (MADE GROUND)
								End of Borehole at 0.100m

1

2

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.40	0.40						

Remarks

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
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GroundSolve Ltd

Hand Dug Trial Pit

24-HP11

Project Name: Wynnstay Technology Park, Ruabon-Additional Testing	Client: Castlemead Group Ltd	Date: 13/02/2024
Location:	Contractor:	Co-ords: E329183.96 N343588.01
Project No. : 3060	Crew Name:	Equipment: Hand tools.

Location Number	Location Type	Level	Logged By	Scale	Page Number
24-HP11	TP	124.65m AoD	AR	1:10	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	ES					Loose light reddish cream slightly sandy fine to coarse sub angular GRAVEL of mudstone with occasional cobbles. (MADE GROUND)
					0.20	124.45		End of Borehole at 0.200m

1

2

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.40	0.40						

Remarks

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
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CH4 0DH

GroundSolve Ltd

Hand Dug Trial Pit

24-HP12

Project Name: Wynnstay Technology Park, Ruabon-Additional Testing	Client: Castlemead Group Ltd	Date: 13/02/2024
Location:	Contractor:	Co-ords: E329251.86 N343578.24
Project No. : 3060	Crew Name:	Equipment: Hand tools.

Location Number	Location Type	Level	Logged By	Scale	Page Number
24-HP12	TP	124.95m AoD	AR	1:10	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.15	ES		0.15	124.80		Loose dark grey fine to coarse sub angular GRAVEL of clinker and mudstone with ash. (MADE GROUND)
								End of Borehole at 0.150m

1

2

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.40	0.40						

Remarks

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
Bretton
CH4 0DH

GroundSolve Ltd

Hand Dug Trial Pit

24-HP13

Project Name: Wynnstay Technology Park, Ruabon-Additional Testing	Client: Castlemead Group Ltd	Date: 13/02/2024
Location:	Contractor:	Co-ords: E329213.34 N343620.80
Project No. : 3060	Crew Name:	Equipment: Hand tools.

Location Number	Location Type	Level	Logged By	Scale	Page Number
24-HP13	TP	125.70m AoD	AR	1:10	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Loose light reddish cream slightly sandy fine to coarse sub angular GRAVEL of mudstone with occasional cobbles. (MADE GROUND)
		0.40	ES		0.40	125.30		End of Borehole at 0.400m

1

2

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.40	0.40						

Remarks

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
Bretton
CH4 0DH

GroundSolve Ltd

Hand Dug Trial Pit

24-HP14

Project Name: Wynnstay Technology Park, Ruabon-Additional Testing	Client: Castlemead Group Ltd	Date: 13/02/2024
Location:	Contractor:	Co-ords: E329213.82 N343601.91
Project No. : 3060	Crew Name:	Equipment: Hand tools.

Location Number	Location Type	Level	Logged By	Scale	Page Number
24-HP14	TP	125.30m AoD	AR	1:10	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.35	ES		0.35	124.95		Loose light reddish cream slightly sandy fine to coarse sub angular GRAVEL of mudstone with occasional cobbles. (MADE GROUND)
								End of Borehole at 0.350m

1

2

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.40	0.40						

Remarks

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
Bretton
CH4 0DH

GroundSolve Ltd

Hand Dug Trial Pit

24-HP15

Project Name: Wynnstay Technology Park, Ruabon-Additional Testing	Client: Castlemead Group Ltd	Date: 13/02/2024
Location:	Contractor:	Co-ords: E329240.00 N343609.21
Project No. : 3060	Crew Name:	Equipment: Hand tools.

Location Number	Location Type	Level	Logged By	Scale	Page Number
24-HP15	TP	125.75m AoD	AR	1:10	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	ES		0.20	125.55		Loose light reddish cream slightly sandy fine to coarse sub angular GRAVEL of mudstone with occasional cobbles. (MADE GROUND)
								End of Borehole at 0.200m

1

2

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.40	0.40						

Remarks

GroundSolve Ltd
Unit 1 Well House Barns
Chester Road
Bretton
CH4 0DH

APPENDIX C – SUMMARY OF CHEMICAL TEST RESULTS

Job No: 3083

Site Location: Wynnstay Technology Park Ruabon - Commercial Development

Commercial (1% SOM)

GroundSolve Ltd

Metals & Non-Metals	20-TP02 2.10	20-TP04 0.50	20-TP06 1.00	20-TP10 0.50	20-WS02 3.50	20-WS04 2.00	20-TP01 2.00	20-TP01 0.50	20-TP02 0.50	20-TP05 0.50	20-TP07 0.50	20-TP08 0.50	24-HP09 0.45	24-HP10 0.10	24-HP11 0.10	24-HP12 0.15	24-HP13 0.40	24-HP14 0.35	24-HP15 0.20	23-WS01 1.00	23-WS03 0.50	23-WS03 1.00	23-WS05 0.50	23-WS05 1.00	Min (mg/kg)	Max (mg/kg)	Average (mg/kg)	Count	Adopted Guideline (mg/kg)	Source	Exceedances
Arsenic	-	16	2.8	14	-	-	-	9	57	10	15	20	10.9	13.1	12.8	42.8	29.4	19.7	7	25	15	-	8	-	8	57	18.19	18	640	C4SL	0
Boron, water soluble	-	0.4	0.5	0.5	-	-	-	0.3	0.8	0.5	0.7	0.5	-	-	-	-	-	-	-	0.8	1	-	< 0.2	-	< 0.2	1	0.56	11	240000	S4UL	0
Cadmium	-	0.3	< 0.1	0.5	-	-	-	0.3	< 0.1	0.3	0.7	0.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.2	< 0.1	-	< 0.1	-	< 0.1	0.7	0.37	18	410	C4SL	0
Chromium III	-	15	16	10	-	-	-	15	29	11	15	17	13.9	18.8	14.9	21.2	23.8	12.8	12.5	7.2	12	-	5.4	-	5.4	29	15.03	18	8600	S4UL	0
Chromium, Hexavalent	-	< 1.0	< 1.0	< 1.0	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	-	-	-	-	-	-	< 1.0	< 1.0	-	< 1.0	-	< 1.0	<1	1	11	49	C4SL	0
Copper	-	45	24	31	-	-	-	27	60	49	43	53	41.8	59.7	38.3	55.7	69.9	59.7	37.3	30	36	-	13	-	13	69.9	42.97	18	68000	S4UL	0
Lead	-	49	15	30	-	-	-	72	68	24	69	36	21	81.4	59.2	120	85	45.3	24.2	21	22	-	0.9	-	0.9	120	46.83	18	2300	C4SL	0
Mercury	-	0.1	< 0.05	< 0.05	-	-	-	< 0.05	< 0.05	< 0.05	0.12	0.18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.05	< 0.05	-	< 0.05	-	< 0.05	<0.5	0.24	18	58	S4UL	0
Nickel	-	32	56	62	-	-	-	27	37	30	31	33	32.7	22.7	25.2	44.2	69.9	50.7	35.7	34	23	-	6.8	-	6.8	69.9	36.27	18	980	S4UL	0
Phenol - Monohydric	-	1.7	< 0.3	< 0.3	-	-	-	< 0.3	< 0.3	< 0.3	0.4	0.3	<5	<5	<5	<5	<5	<5	<5	6.7	0.8	-	< 0.3	-	< 0.3	6.7	2.59	18	440	S4UL	0
Selenium	-	2.2	< 0.5	3.3	-	-	-	< 0.5	< 0.5	1.6	1	1.6	<1.0	<1.0	<1.0	1.4	2.3	1.9	<1.0	1.5	0.6	-	< 0.5	-	< 0.5	3.3	1.3	18	12000	S4UL	0
Zinc	-	91	59	92	-	-	-	79	71	83	220	91	51.2	81.4	63.9	69.6	71.7	77.5	56.6	72	33	-	6	-	6	220	76.05	18	730000	S4UL	0

Petroleum Hydrocarbons	20-TP02 2.10	20-TP04 0.50	20-TP06 1.00	20-TP10 0.50	20-WS02 3.50	20-WS04 2.00	20-TP01 2.00	20-TP01 0.50	20-TP02 0.50	20-TP05 0.50	20-TP07 0.50	20-TP08 0.50	24-HP09 0.45	24-HP10 0.10	24-HP11 0.10	24-HP12 0.15	24-HP13 0.40	24-HP14 0.35	24-HP15 0.20	23-WS01 1	23-WS03 0.5	23-WS03 1	23-WS05 0.5	23-WS05 1	Min (mg/kg)	Max (mg/kg)	Average (mg/kg)	Count	Adopted Guideline (mg/kg)	Source	Exceedances
Aliphatic C5-C6	-	< 0.01	< 0.01	< 0.01	-	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	-	-	-	-	-	< 0.01	< 0.01	-	< 0.01	-	< 0.01	<0.01	0.01	11	3200	S4UL	0
Aliphatic C6-C8	-	< 0.01	< 0.01	< 0.01	-	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	-	-	-	-	-	< 0.01	< 0.01	-	< 0.01	-	< 0.01	<0.01	0.01	11	7800	S4UL	0
Aliphatic C8-C10	-	< 0.01	< 0.01	< 0.01	-	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	-	-	-	-	-	< 0.01	< 0.01	-	< 0.01	-	< 0.01	<0.01	0.01	11	2000	S4UL	0
Aliphatic C10-C12	-	< 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	11	9700	S4UL	0
Aliphatic C12-C16	-	< 1.2	< 1.2	< 1.2	-	-	-	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	-	-	-	-	-	-	-	< 1.2	< 1.2	-	< 1.2	-	< 1.2	<1.2	1.2	11	59000	S4UL	0
Aliphatic C16-C35	-	< 3.4	< 3.4	< 3.4	-	-	-	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4	-	-	-	-	-	-	-	< 3.4	< 3.4	-	< 3.4	-	< 3.4	<3.4	3.4	11	1600000	S4UL	0
Aliphatic C35-C40	-	< 3.4	< 3.4	< 3.4	-	-	-	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4	-	-	-	-	-	-	-	< 3.4	< 3.4	-	< 3.4	-	< 3.4	<3.4	3.4	11	1600000	S4UL	0
Aromatic C5-C7	-	< 0.01	< 0.01	< 0.01	-	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	-	-	-	-	-	< 0.01	< 0.01	-	< 0.01	-	< 0.01	<0.01	0.01	11	26000	S4UL	0
Aromatic C7-C8	-	< 0.01	< 0.01	< 0.01	-	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	-	-	-	-	-	< 0.01	< 0.01	-	< 0.01	-	< 0.01	<0.01	0.01	11	56000	S4UL	0
Aromatic C8-C10	-	< 0.01	< 0.01	< 0.01	-	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	-	-	-	-	-	< 0.01	< 0.01	-	< 0.01	-	< 0.01	<0.01	0.01	11	3500	S4UL	0
Aromatic C10-C12	-	< 0.9	< 0.9	< 0.9	-	-	-	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	-	-	-	-	-	-	-	< 0.9	< 0.9	-	< 0.9	-	< 0.9	<0.9	0.9	11	16000	S4UL	0
Aromatic C12-C16	-	< 0.5	< 0.5	< 0.5	-	-	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-	-	-	-	-	-	< 0.5	< 0.5	-	< 0.5	-	< 0.5	<0.5	0.5	11	36000	S4UL	0
Aromatic C16-C21	-	< 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	11	28000	S4UL	0
Aromatic C21-C35	-	< 1.4	< 1.4	< 1.4	-	-	-	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	-	-	-	-	-	-	-	< 1.4	< 1.4	-	< 1.4	-	< 1.4	<1.4	1.4	11	28000	S4UL	0
Aromatic C35-C40	-	< 1.4	< 1.4	< 1.4	-	-	-	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	-	-	-	-	-	-	-	< 1.4	< 1.4	-	< 1.4	-	< 1.4	<1.4	1.4	11	28000	S4UL	0

Polyaromatic Hydrocarbons (PAH	20-TP02 2.10	20-TP04 0.50	20-TP06 1.00	20-TP10 0.50	20-WS02 3.50	20-WS04 2.00	20-TP01 2.00	20-TP01 0.50	20-TP02 0.50	20-TP05 0.50	20-TP07 0.50	20-TP08 0.50	24-HP09 0.45	24-HP10 0.10	24-HP11 0.10	24-HP12 0.15	24-HP13 0.40	24-HP14 0.35	24-HP15 0.20	23-WS01 1	23-WS03 0.5	23-WS03 1	23-WS05 0.5	23-WS05 1	Min (mg/kg)	Max (mg/kg)	Average (mg/kg)	Count	Adopted Guideline (mg/kg)	Source	Exceedances
Acenaphthene	-	< 0.03	< 0.03	< 0.03	-	-	-	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.03	< 0.03	-	< 0.03	-	< 0.03	<0.5	0.21	18	84000	S4UL	0
Acenaphthylene	-	< 0.03	< 0.03	< 0.03	-	-	-	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.03	< 0.03	-	< 0.03	-	< 0.03	<0.5	0.21	18	83000	S4UL	0
Anthracene	-	< 0.03	< 0.03	< 0.03	-	-	-	< 0.03	< 0.03	< 0.03	0.09	0.04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.03	< 0.03	-	< 0.03	-	< 0.03	<0.5	0.22	18	520000	S4UL	0
Benzo(a)anthracene	-	< 0.03	< 0.03	< 0.03	-	-	-	< 0.03	< 0.03	< 0.03	0.34	< 0.03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.03	< 0.03	-	< 0.03	-	< 0.03	<0.5	0.23	18	170	S4UL	0
Benzo(a)pyrene	-	< 0.03	< 0.03	< 0.03	-	-	-	< 0.03	< 0.03	< 0.03	0.27	< 0.03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.03	< 0.03	-	< 0.03	-	< 0.03	<0.5	0.23	18	77	C4SL	0
Benzo(b)fluoranthene	-	< 0.03	< 0.03	< 0.03	-	-	-	< 0.03	< 0.03	< 0.03	0.35	< 0.03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.03	< 0.03	-	< 0.03	-	< 0.03	<0.5	0.23	18	44	S4UL	0
Benzo(g,h,i)perylene	-	< 0.03	< 0.03	< 0.03	-	-	-	< 0.03	< 0.03	< 0.03	0.13	< 0.03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.03	< 0.03	-	< 0.03	-	< 0.03	<0.5	0.22	18	3900	S4UL	0
Benzo(k)fluoranthene	-	< 0.03	< 0.03	< 0.03	-	-	-	< 0.03	< 0.03	< 0.03	0.14	< 0.03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.03	< 0.03	-	< 0.03	-	< 0.03	<0.5	0.22	18	1200	S4UL	0
Chrysene	-	< 0.03	< 0.03	< 0.03	-	-	-	< 0.03	< 0.03	< 0.03	0.39	< 0.03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.03	< 0.03	-	< 0.03	-	< 0.03	<0.5	0.23	18	350	S4UL	0
Dibenzo(a,h)anthracene	-	< 0.03	< 0.03	< 0.03	-	-	-	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.03	< 0.03	-	< 0.03	-	< 0.03	<0.5	0.21	18	3.5	S4UL	0
Fluoranthene	-	< 0.03	< 0.03	< 0.03	-	-	-	< 0.03	< 0.03	< 0.03	1.1	< 0.03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.03	< 0.03	-	< 0.03	-	< 0.03	1.1	0.27	18	23000	S4UL	0
Fluorene	-	< 0.03	< 0.03	< 0.03	-	-	-	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.03	< 0.03	-	< 0.03	-	< 0.03	<0.5	0.21	18	63000	S4UL	0
Indeno(1,2,3-c,d)pyrene	-	< 0.03	< 0.03	< 0.03	-	-	-	< 0.03	< 0.03	< 0.03	0.12	< 0.03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.03	< 0.03	-	< 0.03	-	< 0.03	<0.5	0.22	18	500	S4UL	0
Naphthalene	-	< 0.03	< 0.03	< 0.03	-	-	-	< 0.03	< 0.03	< 0.03	0.05	< 0.03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.29	< 0.03	-	< 0.03	-	< 0.03	<0.5	0.23	18	190	S4UL	0
Phenanthrene	-	< 0.03	< 0.03	< 0.03	-	-	-	< 0.03	< 0.03	< 0.03	0.44	< 0.03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.13	< 0.03	-	< 0.03	-	< 0.03	<0.5	0.24	18	22000	S4UL	0
Pyrene	-	< 0.03	< 0.03	< 0.03	-	-	-	< 0.03	< 0.03	< 0.03	0.96	< 0.03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.03	< 0.03	-	< 0.03	-	< 0.03	0.96	0.26	18	54000	S4UL	0

Other Contaminants / Testing	20-TP02 2.10	20-TP04 0.50	20-TP06 1.00	20-TP10 0.50	20-WS02 3.50	20-WS04 2.00	20-TP01 2.00	20-TP01 0.50	20-TP02 0.50	20-TP05 0.50	20-TP07 0.50	20-TP08 0.50	24-HP09 0.45	24-HP10 0.10	24-HP11 0.10	24-HP12 0.15	24-HP13 0.40	24-HP14 0.35	24-HP15 0.20	23-WS01 1	23-WS03 0.5	23-WS03 1	23-WS05 0.5	23-WS05 1	Min (mg/kg)	Max (mg/kg)	Average (mg/kg)	Count	Adopted Guideline (mg/kg)	Source	Exceedances
Organic Matter	-	1.8	2	0.6	-	-	-	0.8	0.6	5.7	7.4	5.1	1.1	5.3	4.9	5.4	12	7.4	1	0.8	0.2	-	0.6	-	0.6	12	3.48	18	-	-	-
pH	7.8	6.7	7.6	7.6	7.7	7.6	5.4	8	6.6	6.3	7	7.1	7.4	7.7	7.1	7	4.9	6	6.8	4.8	5.5	5.1	8.1	8.2	4.8	8.2	6.83	24	-	-	-
Sulphide	-	24	52	< 10	-	-	-	< 10	< 10	< 10	60	16	-	-	-	-	-	-	-	20	24	-	20	-	20	60	23.27	11	-	-	-
Cyanide, Total	-	0.1	< 0.1	< 0.1	-	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.3	0.2	-	< 0.1	-	< 0.1	<1	0.47	18	-	-	-
Sulphur (free)	-	13	5	< 0.75	-	-	-	< 0.75	< 0.75	< 0.75	5.3	1.9	-	-	-	-	-	-	-	17	2.4	-	2.3	-	2.3	17	4.54	11	-	-	-
Sulphate Aqueous Extract as SO4	1700	89	110	110	94	100	110	55	17	15	30	18	<20	<20	<20	<20	120	<20	<20	90	47	45	37	130	<20	1700	126.54	24	-	-	-