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Parrs Wood Lane East Didsbury

Human Health and Controlled Waters Risk Assessment: LNAPL Sources

Prepared for

Westlakes Engineering Ltd on behalf of Dandara Living Ltd.

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1 INTRODUCTION

Geosyntec Consultant Ltd have developed a risk assessment for human health and controlled waters specifically for the presence of Light Non-Aqueous Phase Liquid (LNAPL) and associated hydrocarbons discovered during site investigation at the Parrs Wood Lane site, East Didsbury for Westlakes Engineering Ltd on behalf of Dandara Living Ltd. Geosyntec have been appointed by Westlakes Engineering Ltd to carry out Risk Assessment in relation to the site at Parrs Wood Lane (the site) in Didsbury. Westlakes are appointed by Dandara Living Ltd (the Client) as their Civil, Structural and Geotechnical engineers for a proposed redevelopment of the site for residential end use. The redeveloped entails construction of a six-storey residential apartment building with undercroft parking.

This report has been prepared to support the planning process underway with Manchester City Council (MCC) and to allow the discharge of Condition 8 – Contaminated Land following the identification of free phase hydrocarbon contamination at the site. It should be read in conjunction with the report, 'Parrs Wood Lane: LNAPL Contextual Report' Geosyntec (Ref, GCU0400001a, 2026, and provided in Appendix G) and the Phase 1 Report for the site (CCG-C-21-12661-A, which is provided in Appendix A). This report provides further information and broader context around LNAPL contamination, its behaviour and approaches to management.

2 SITE DESCRIPTION

The site is located within the curtilage of a Tesco Store, off Parr Woods Lane, East Didsbury, Manchester, M20 5NP. The site currently forms a part of a car park with minimal associated soft landscaping. It comprises a triangular parcel of land which is around 72m by 39 m along its longest axes from east to west and north to south. The site and wider car park are shown in Figure 1, below.

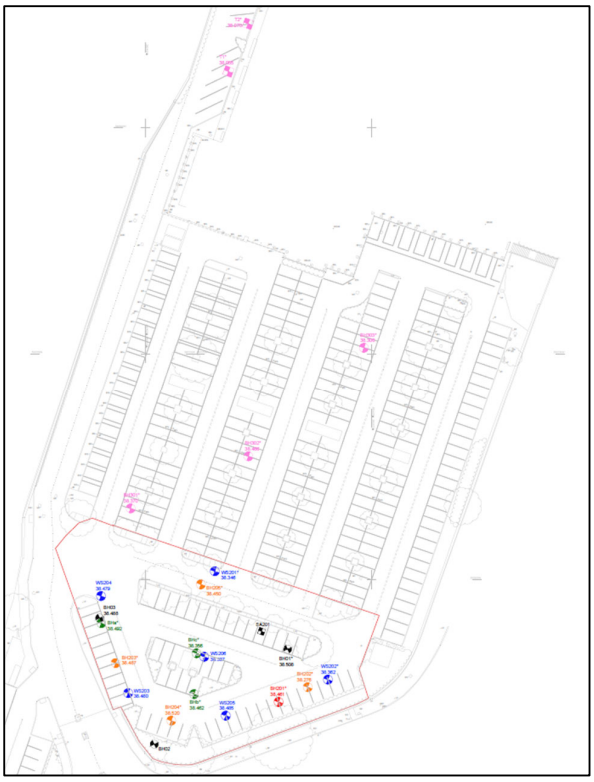


Figure 1. The wider carpark, with the zone of the proposed development shown as the red triangle. Intrusive investigation points are also shown.

The site is bound by public pavement along the south and east along the Parrs Wood Lane (A5145) frontage and by pavements to the west which leads to the Tesco Store. The northern boundary comprises a hard paved car park. The surface is generally flat.

The surrounding area is largely residential with light commercial use. A railway runs north-south approximately 30 m to the west of the site.

Based on recent ground investigation, the geology of the site comprises Made Ground to approximately 3.5 m bgl over Glaciofluvial deposits comprised of sands, silts and clays. Below this is Devensian Till which is above the Chester Formation weathered sandstone at a depth of around 12 m bgl. Groundwater was struck between approximately 2.5 to 4 m bgl when perched on the Till and approximately 12 – 14 m bgl in the bedrock sandstone. Resting groundwater levels are between 0.4 – 3.5 mbgl in the perched groundwater and 2.4 – 7 m bgl in the deeper wells implying sub-artesian conditions in the bedrock.

A site history is provided in the associated Phase 1 desk-based study produced by CCG Geotechnical Limited, which is included as Appendix A. The likely pertinent aspect of the site's history is that the Parrs Wood Motor Bus Depot was located on site (and the wider car park and Tesco store), which operated from *circa.* 1926 to 1971 and housed ~50 buses (www.manchestervictorianarchitecs.org.uk). There is no direct confirmation that the bus depot was used for refuelling; however, it is likely that this was possible based on experience of similar sites, furthermore an unspecified tank is shown on historical maps from 1956 to 1988 under the footprint of the current Tesco store – other tanks may have been present. In addition maintenance of vehicles may have occurred potentially leading to the release of hydrocarbons (e.g., oils, lubricants and fuels).

The activities on the bus depot were likely the origin of the LNAPL found during intrusive site investigation, which appears to be weathered diesel based on laboratory analytical data. The LNAPL would likely therefore have been in the subsurface for over 50 years.

An intrusive investigation factual report (CCG-C-11474) was referenced in the Phase 1 Report (2022) (Appendix A). Three boreholes were advanced to a notional depth of 10 m bgl; there were no reported visual or olfactory indications of hydrocarbon impacts. This report was not available for Geosyntec's review

3 PLAUSIBLE CONTAMINANT LINKAGES

The planned redevelopment consists of a six-storey apartment building with under-croft parking/ garages and service rooms on the ground floor. There will be a structural slab forming the ground floor for the carpark and service rooms.

The Phase 1 report identified organic contamination associated with the historical bus depot as a potential pollutant linkage. However, this report will examine the linkages more closely. The source-pathway-receptor model is shown in Table 1, below.

Table 1. Plausible Source, Pathway and Receptor linkages considered in this report

Source	Pathway	Receptor
Dissolved hydrocarbons from LNAPL	Unsaturated soil beneath the site	Residential development (Human Health)
	Saturated soils down hydraulic gradient of the site	Off-site Groundwater [1](Controlled waters)

The contaminant linkages are assessed in the following manner:

[1] The River Mersey is around 600 m south of the site. There is also a small stream which is 385 m south of the site, but this is unlikely in hydraulic continuity with the site. The phase 1 report (CCG-C-21-12661a, Appendix A) also reported that there were no records of groundwater, surface water or potable water abstractions within 1000 m of the site. Our report reflects this initial CSM.

- The analytical results were compared against industry screening values for residential without home ground produce
- The observations and data for the site will be discussed and used to develop an LNAPL-focused risk assessment
- The data and screening outputs will be integrated to highlight the risks and their potential magnitude from the free phase hydrocarbons at the site to human health and to controlled waters.
- Recommendation will be made regarding unacceptable risks and the need to resolve any uncertainties or data gaps.

4 GENERIC QUANTITATIVE RISK ASSESSMENT (GQRA)

Soil and groundwater data were collected by Westlakes Engineering during 2023 to 2025. These were screened against Generic Risk Assessment Criteria for Human Health (based on SoBRA, 2024) and Controlled Waters. For the sake of conservatism, the residential with no plant uptake was used. It should be noted that the lower level will comprise hard standing and car parking which will provide a physical barrier and well-ventilated zone which would prevent build-up of gases from the subsurface.

4.1 Human Health

A screening of the data (including VOCs, SVOCs and metals) was carried out against Generic Assessment Criteria (GACs) to highlight potential exceedances of analytes for groundwater and soils to assess whether there might be unacceptable risks.

The groundwater data were screened against Residential criteria. There were exceedances for nine wells (five on site), where the concentrations of C8 - C10 and C10 – C12 aliphatic hydrocarbons were greater than the criteria of 57 µg/L, which is greater than the 1% effective solubility value. Therefore, the presence of a non-mobile and non-VOC generating NAPL would lead to this exceedance. The PID results from the ground gas monitoring demonstrate that there is an absence of VOCs.

There was also an isolated exceedance of 1,4 trimethylbenzene in BH1, which had a concentration of 84 µg/L and the criterion was 24 µg/L. Trimethylbenzenes are used in petrol and diesel, and generally degrade relatively quickly compared to other LNAPL components and have greater solubility (Krumholz et al., 1996). The photolog (Appendix D) shows that some of the wells are damaged. It is therefore possible that the trimethylbenzene originated from a small more recent hydrocarbon spill in the car park.

The soil data were screened against the SoBRA (2024) residential criteria for 1% soil organic matter. There were no exceedances.

The screening process therefore suggests that the risks to human health from the LNAPL and hydrocarbons in the subsurface are:

- Absent for soils
- A function of a screening value being set to indicate LNAPL, in the case of the C8 – C10 and C10 – C12 hydrocarbons. However, the absence of high PID readings demonstrates that there is limited generation of VOCs. Furthermore, the undercroft car park would provide additional ventilation and prevent accumulation of VOCs.
- Linked to current site use in the case of the isolated VOC exceedance.

The outputs of the screening process are given in Appendix E.

4.2 Controlled waters

The groundwater data were also assessed against GAC for controlled waters. The GAC for controlled waters are generally drinking water standards and are therefore very low and conservative in comparison to typical threshold values for protection of surface waters.

There were exceedances for some metals, PAHs, one VOC, each TPH band and pentachlorophenol.

The samples which exceeded the metals GAC were from wells screened in both the Made Ground and the natural strata, and were from on and off-site wells. The made ground and natural soils of the site and wider area are therefore likely caused these exceedances.

The PAH exceedances were for two samples where benzo(a)pyrene was detected (2.24 and 0.04 µg/L), which were from BH303S, which was screened partially in made ground with a high content of ash. Furthermore, BH303 is off site. The drinking water standard for this PAH is less than the laboratory limit of detection. Therefore, if present at any level, it will be an exceedance. One sample also had an exceedance of the sum of 4 PAHs. The GAC is 0.1 µg/L and the concentration was 4.27 µg/L.

The TPHs concentration exceeded the GAC (World Health Authority and UK Drinking Water Standards) due to the presence of LNAPL across the site. However, as it is immobile and acutely degraded it is unlikely to create off-site impacts. The VOC exceedance was for benzene in BH302D (offsite – north – up assumed hydraulic gradient), which had a concentration of 4 µg/L. Benzene, like trimethylbenzene discussed in the Human Heath section, is more degradable than many other hydrocarbons (Krumholz et al., 1996) and from historic site usage should have degraded. This detection may therefore be a more recent surface input.

There were four exceedances of the GAC (a UK Minimum Reporting Value) for the SVOC, pentachlorophenol (0.1µg/L) of 10 (BH302S – off site), 24 (BH302D – off site), 3 (BH202) and 22 µg/L (BH203S). This product is associated with wood treatment but there was no apparent evidence of wood treatment on site.

Given the noted exceedances of the GAC for drinking water, the groundwater directly beneath the site in both the perched groundwater and deeper groundwater: the site is therefore not suitable as a

potable water supply. However, clay soils, with low permeability, and lack of hydraulic gradient mean that the relatively minor exceedances have very limited potential for transport.

The output of the screening process is given in Appendix F.

5 SOIL AND GROUNDWATER RESULTS

Soil and groundwater data were collected by Westlakes Engineering during 2023 to 2025. Geosyntec carried out a supplemental round of groundwater sampling for well head parameters during April 2026.

These data showed some exceedances against the GAC during the screening process. The data is therefore put into the context of the site and the behavior and fate of the LNAPL is discussed.

The borehole logs from Westlakes site investigation are provided in Appendix B, Westlakes soils and groundwater laboratory data is provided in Appendix C and a photolog of Geosyntec's visit and well head parameters are provided in Appendix D.

5.1 Soil data

Fourteen borehole logs and one trial pit (SA201) were available for review by Geosyntec. The visual and olfactory indications of hydrocarbon impacts are given in Table 2, below together with laboratory data for total aliphatic hydrocarbons and total aromatic hydrocarbons from available soil sample analytical results.

The observations indicate that NAPL was present in BH201, BH202, BH203, BH204, BH205, BH301, BH302 and BH303. BH301, BH302 and BH303 are outside the site development boundary to the north. The NAPL saturation calculation (see associated Parrs Wood Lane NAPL Context Report (GCU0400001a, 2026 for further details) indicated that soil samples from BH201 at 6.5 m bgl, BH301 at 3.5 m bgl, BH302 at 4.5 m bgl and BH303 at 3 m bgl contained NAPL. The highest saturation was 1.51%.

The soil data suggest that there is widespread NAPL, but that the fraction of the pore space it occupies is very low. As such, it would have very limited ability to move and would be held in place by capillarity. Furthermore, the analytical data indicate that impacts at depth are more limited.

Table 2. The reviewed borehole logs with TPH analytical data, calculated NAPL saturation and observations made during drilling. Results of NAPL saturation of over 0.5% are highlighted: these indicate hydrocarbons as a separate phase.

Borehole	Drilled Depth (m bgl)	Sample depth (m)	Hydrocarbons (mg/kg)			NAPL Saturation (%)	Hydrocarbon observations during drilling
			Aliphatic	Aromatic	Total		
BH201	8.45	3	26	< 10	26	0.02	Odour (2.8 m to 8 m) and staining (2.8 m)
		4	< 10	< 10	<10	0	
		6.5	1800	640	2440	1.51	
		8	71	< 10	71	0.04	
BH202	13.8	0.8	130	97	227	0.14	Odour (3.5 m to 12 m) and staining (7.1 m)
BH203	13.5	-	-	-	-	-	Odour (5 - 5.4 m 10.1-10.7 m and 12 m)
BH204	11.3	-	-	-	-	-	Odour (3.5 - 4.2 m, 5.5m, 6 - 7.5, 9 m) and staining (3.5 - 4.2 m).
BH205	12.5	-	-	-	-	-	Odour (2.5 - 10.3 m)
SA201	1.6	0.4	61	48	109	0.07	None
		0.9	< 10	< 10	<10	0	
WS201	2	0.6	35	< 10	<10	0	None
WS202	3	2.8	< 10	< 10	<10	0	
WS203	0.6	0.5	100	91	191	0.12	None
WS204	0.55	-	-	-	-	-	None
WS205	0.5	-	-	-	-	-	None
WS206	0.55	-	-	-	-	-	None
BH301	13.5	3.5	557	380	937	0.58	Odour (from 3.5 m) and staining (from 3.5 m)
		5	2	1	3	0	
		6	16	28	44	0.03	
		12.5	<1	<1	<1	0	
BH302	13	3.2	278	167	445	0.28	Odour (from 3.1 m) and staining (from 3.1 m)
		4.5	668	490	1158	0.72	
		12	<1	<1	<1	0	
BH303	14	3	1180	494	1674	1.04	Odour (from 2.8 m) and staining (from 2.8 m)
		5	7	16	23	0.01	
		8	12	26	38	0.02	
		13	11	7	18	0.01	

5.2 Groundwater data

5.2.1 Observations

Geosyntec carried out a site visit and carried out groundwater sampling to gain an understanding of the site and collect well head parameters.. The well-head parameters are generally constant and so the impact of any delay between the groundwater sampling and these data is not material. They do however support site characterisation. The stabilized well head parameters are shown in Table 3, below.

Table 3. Results from Geosyntec's April 2026 site visit. Note: the BH300-series wells are not in the site boundary

Groundwater monitoring well	Depth to Water (m)	Depth to Base (m)	Dissolved Oxygen (mg/L)	Electrical conductivity (µS/cm)	pH	Reduction-oxidation potential (mV)	Observations
BH01	2.479	9.577	0.26	326	7.24	-144	Hydrocarbon odour
WS201	-	1.709	6.32	192	7.28	-69	Reducing odour
BH201S	2.459	3	0.94	377	7	-26	
BH201D	2.395	5.814	0.31	156	7.33	-71	
BH202	6.65	13.35	0.52	720	7.31	-30	Hydrocarbon odour
BH203S	3.25	7.015	0.47	428	6.87	-125	Hydrocarbon odour
BH203D	6.294	12.769	1.3	427	6.93	106	
BH204S	5.75	7.65	5.7	408	6.84	91	
BH204D	7.212	10.93	0.3	493	7.12	-53	
BH205S	5.812	8.845	0.41	654	6.63	-86	Hydrocarbon odour
BH205D	6.585	12.49	0.76	645	6.57	-27	Hydrocarbon odour
BH301S	3.365	5.859	0.52	866	6.54	-104	Hydrocarbon odour
BH301D	6.673	13.246	0.7	1181	6.53	-70	Hydrocarbon odour
BH302S	3.21	5.661	2.59	913	6.56	-67	
BH302D	6.746	12.551	0.8	796	6.41	-44	
BH303S	2.52	3.953	0.51	694	6.24	31	
BH303D	6.522	13.065	0.64	1294	6.7	-83	
BHC	2.671	2.75	LNAPL (<5 mm) present[2]				
WS202	Dry	1.502					
BHB	Dry	3.6	-	-	-	-	-
WS206	Dry	-	-	-	-	-	-
BHA	Dry	4	-	-	-	-	-
BH03	Dry	2.943	-	-	-	-	-

[2] The LNAPL was measured using an interface probe. The limited accumulation of LNAPL and its apparent degraded nature prevented accurate measurement.

These observations show that groundwater levels were highly variable across the site, which suggests a complex hydrogeology, with localized perched groundwater on clay lenses, which may not be in continuity with bedrock groundwater flow.. There were low to moderate concentrations of dissolved oxygen with relatively low electrical conductivity. The pH was circumneutral. The redox levels were generally negative, except in BH203D, BH204S, and BH303S. Hydrocarbon odours were noted in some wells also.

The observations suggest that the LNAPL and hydrocarbon impacts are more widespread than indicated by the borehole log observations and soils data and that biodegradation is occurring. This is discussed further in Section 4.4.2.

5.2.2 Groundwater analytic data

The groundwater data showed widespread detections of hydrocarbons. These were compared against values of 1% of their single component solubility in water. Typically, any hydrocarbon which is present at above 1% of its effective solubility (i.e less than the single component solubility) is evidence that LNAPL is present near the well (Pankow and Cherry, 1996).

The results are shown below in Table 4, and are generally consistent with the soils observations, soil data and Geosyntec's site visit observations, and suggest that LNAPL is present across the site, in both the shallow and deep groundwater.

Table 4. Screening exercise to identify wells where TPH bands are present in concentrations greater than 1% of their effective solubility. Positive identifications are given in red. The BH300-series well were outside the site boundary.

Hydrocarbon	Carbon band	1% of Single component solubility	BH303 (s)	BH303 (d)	BH302 (s)	BH302 (d)	BH301 (s)	BH301 (d)	BH202	BH201 (s)	BH201 (d)	BH204 (s)	BH204 (d)	BH203 (d)	BH203 (s)	BH205 (s)	BH205 (d)	BH01
Aliphatics	>C5-C6	360																
	>C6-C8	54	23	12	7	18	7		6	8	4				78	6	19	
	>C8-C10	4.3	679	99	28	507	5		59	1120				13	819	5	176	
	>C10-C12	0.34	2410	510	100	2840	5		486	5230				35	3920	15	1040	
	>C12-C16	0.0076	7030	2630	512	10900	11		2210	18600		6		196	14300	193	4040	
	>C16-C21	0.00003	4670	1720	392	7520	10		1400	11100		6		171	9180	209	2480	
	>C21-C35	n/a	629	253	63	1400	11		247	1830		12		43	976	52	451	
Aromatics	>C5-EC7	17800				4												
	>EC7-EC8	5900								2								
	>EC8-EC10	650	552	154	213	273	12		30	413		112		38	441	21	489	
	>EC10-EC12	250	2780	910	521	2100	20		275	3190		341		391	3000	108	1750	15
	>EC12-EC16	58	8590	2100	881	6640	82		1490	13600		243	12	883	11800	351	5360	60
	>EC16-EC21	6.5	2530	669	277	2710	59	6	601	4890	8	66	29	217	4490	212	1680	50
	>EC21-EC35	0.066	295	82	35	319	14		54	433		19	12	32	462	32	235	

The monitoring wells BH203D, BH204S and BH303S showed positive redox results but have hydrocarbon concentrations indicative of LNAPL. This is inconsistent with microbial processes

depleting dissolved oxygen to metabolize dissolved hydrocarbons, but it may be that there are localized areas where the levels of dissolved oxygen can support aerobic conditions.

5.3 Ground gas data

Ground gas data from 22 April 2024 are shown in Table 5, below. These data show that there are low levels VOCs (as measured by MiniRae lite PID) in the ground gas, with a maximum concentration of 11.2 parts per million recorded in BH201S. Methane was present in BH205S and BH205D, which is indicative of anaerobic biodegradation of organics, which is consistent with the evidence of LNAPL presence from the soils and groundwater data. There are elevated carbon dioxide levels compared to atmospheric air and oxygen is similar to atmospheric (though lower in BH205S and BH205D where methane was detected), which also comprise lines of evidence that the hydrocarbons are being degraded.

Gas data cannot be used as effectively as soils and groundwater data to infer the presence of aged, non-volatile LNAPL. However, the data is consistent and suggests there is organic material (hydrocarbons) in the ground water which is undergoing biodegradation.

Table 5. The most recent ground gas data from April 2024. Note, negative flows occur when atmospheric pressure is greater than ground gas pressure. These wells were all in the site boundary.

Monitoring point reference	Flow rate Litres/hr		Atmospheric pressure range	Methane % V/V		Carbon dioxide % V/V		Oxygen % V/V		Balance %	Balance %	VOCs ppm
Apr-24	**Steady**	**Peak**	**mb**	**Steady**	**Peak**	**Steady**	**Peak**	**Steady**	**Min**	**Steady**	**Peak**	**Peak**
BH201s	0.2	0.2	1028	0.0	0.0	3.0	3.0	15.2	15.2	76.3	76.3	11.20
BH201d	0.0	0.0	1028	0.0	0.0	1.7	1.7	21.1	21.1	77.3	77.3	5.30
WS201	0.1	0.1	1029	0.0	0.0	3.8	3.8	13.7	13.7	77.4	77.4	1.20
WS202	0.2	0.2	1028	0.0	0.0	0.1	0.1	20.4	20.4	80.1	80.1	2.20
Bha	0.1	0.1	1029	0.0	0.0	5.4	5.4	8.7	8.7	87.4	87.4	0.40
BHb	0.1	0.1	1029	0.0	0.0	3.8	3.8	14.3	14.3	84.1	84.1	0.30
BHc	0.1	0.1	1029	0.0	0.0	4.2	4.2	13.7	13.7	82.2	82.2	0.20
BH202	-2.8	-4.3	1028	0.0	0.0	1.4	1.5	19.3	19.3	78.8	78.8	9.40
BH203s	0.1	0.1	1028	0.0	0.0	1.7	1.7	19.2	19.2	79.2	79.2	0.90
BH203d	0.2	0.2	1028	0.0	0.0	1.8	1.8	18.8	18.8	79.7	79.7	5.90
BH204s	0.2	0.2	1028	0.0	0.0	2.2	2.2	14.7	14.7	83.0	83.0	6.90
BH204d	0.2	0.2	1028	0.0	0.0	1.8	1.8	19.7	19.7	77.4	77.4	4.30
BH205s	0.2	0.2	1001	15.7	15.7	3.3	3.3	7.5	7.5	75.7	75.7	2.20
BH205d	0.0	-0.2	1028	6.7	6.7	3.7	3.7	7.6	7.6	82.3	82.3	2.70

A round of groundwater sampling and well-head VOC monitoring via direct connection to the wells was carried out following the installation of the BH300-series of monitoring wells in 2025.

The VOC results and observations are shown in Table 6, below.

The observations show indications of LNAPL in the form of odour. The VOC results of monitoring wells in the development site area were also all less than 10 ppm, with a well where LNAPL was detected recording a VOC reading of zero. The LNAPL was detected in BH1; no LNAPL was detected in this well during Geosyntec's site visit.

The offsite monitoring well BH303S had a concentration of VOCs of 86.9 ppm, which was greater than other results, including those from BH302 and BH303 and is at odds with the rest of the monitoring data.

Table 6. VOC and groundwater sampling observations collected on 21st August 2025

Sampling point	VOC (ppm)	Depth to LNAPL	Depth to Water	Observation
BH201s	0.1	-	2.65	Hydrocarbon Odour and discolouration
BH201d	2.3	-	2.67	
WS201	0	-	Wet at Base	
WS202	0	-	Dry	
BHa	0.7	-	Dry	
BHb	0	-	Wet at Base	
BHc	0	-	Dry	
BH202	2.7	-	7.12	Hydrocarbon Odour and discolouration
BH203s	5.3	-	3.51	Hydrocarbon Odour and discolouration
BH203d	1.1	-	7.18	Hydrocarbon Odour and discolouration
BH204s	0.3	-	5.97	Hydrocarbon Odour and discolouration
BH204d	2.3	-	7.64	
BH205s	0.8	-	5.82	
BH205d	0.3	-	7.16	
BH301S	8.5	-	4.18	Hydrocarbon Odour and discolouration
BH301D	4.3	-	7.33	
BH302S	1.6	-	3.6	Hydrocarbon Odour and discolouration
BH302D	2.8	-	7.1	
BH303S	86.9	-	2.88	Hydrocarbon Odour and discolouration
BH303D	5.9	-	7.01	
BH1	0	2.75	2.76	Hydrocarbon Odour and discolouration

5.4 LNAPL observations

The detection of LNAPL by an interface probe, and soils and groundwater observations and data inferences used to assess the presence of LNAPL are shown below in Figure 2. This figure shows that there is a high degree of internal agreement between each of the methods and indicates that LNAPL impacts are widespread beyond the site boundary.



Figure 2. Detection by interface probe, observations LNAPL from borehole logs, and inference of LNAPL groundwater and soils data

The presence of LNAPL however does not by itself indicate there is a risk. The risk posed by LNAPL exists in terms of saturation (the fraction of the pore space in the soils it occupies/ "pore saturation") and in terms of composition, where more risk-driving, smaller and more volatile components can partition out into groundwater and ground gas.

5.4.1 LNAPL Saturation risk

The pore saturation of the LNAPL at the site does not pose a risk. The LNAPL is generally residual and has zero mobility (NAPL contextual document, ref GCU0400001a, 2026) The two exceptions to this was location BHC, where an LNAPL accumulation of less than 5 mm was detected using an interface probe by Geosyntec in April 2026 (the exact thickness was reported as difficult to measure due to the degraded naturae of the LNAPL) and BH1 by Westlakes Engineering in August 2025, where 1 cm was recorded. This would indicate that the LNAPL was non-residual and mobile as it could move in the soil and has migrated into the monitoring well. Notably, a <5 mm accumulation of LNAPL indicates that LNAPL saturation is likely only marginally above what would be fully residual (SoBRA, 2026), and the LNAPL is in practical remediation terms not recoverable.

5.4.2 LNAPL composition risk

The ground gas data in Table 5 does not indicate that the LNAPL poses an issue based on its composition; the PID VOC results were quite low. The ground water data also does not suggest that LNAPL poses a risk from its composition. A graph of the average hydrocarbon fractions is shown in Figure 3, below. This shows a comparative absence of risk-driving components (<C12 – lighter, more mobile and more volatile fractions) and is consistent with aged and biodegraded diesel.

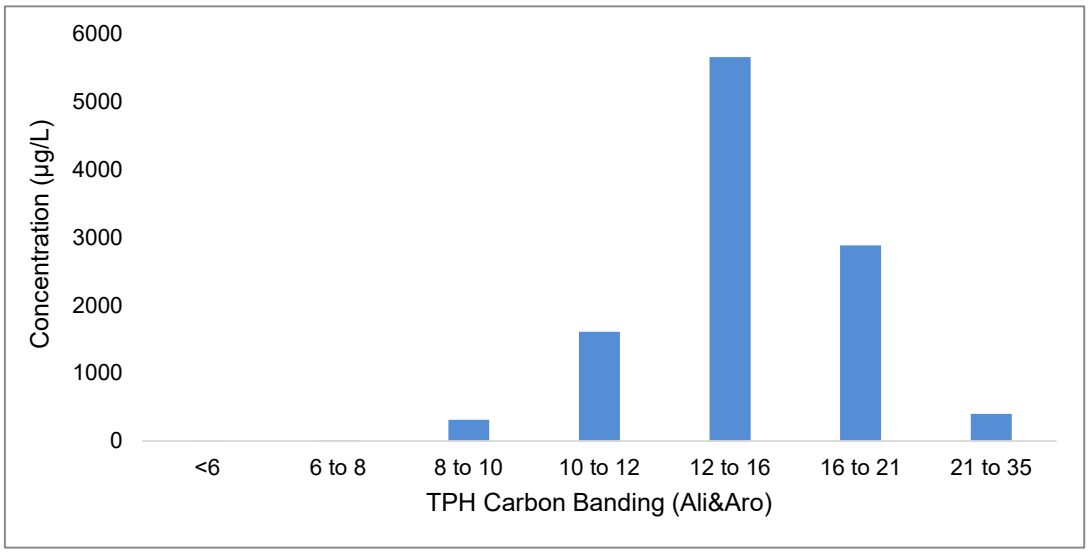


Figure 3. Average concentration of hydrocarbons from the groundwater data

Therefore, from a LNAPL specific approach, the free phase hydrocarbons are unlikely to pose a risk to either human health or controlled waters, and there is evidence that they are being biodegraded by aquifer microbes because the groundwater is anoxic (i.e. oxygen has been depleted) and there are elevated levels of carbon dioxide and methane in the ground gas.

The soils themselves are clay rich (as described in the borehole logs (Appendix B) and soil particle size distribution curves (Appendix C)). This will lead to low hydraulic conductivity. The relief of the land surrounding the site is level, which would lead to a low hydraulic gradient. The site is approximately 39 m AOD, with the highest groundwater recorded by Geosyntec being 2.395 m bgl (BH201D). The River Mersey is approximately 36 m AOD at Cheadle Bridge (www.topographic-map.com), 600 m to the south. Therefore, if the River Mersey is receiving groundwater recharge at this point, the calculation is (39 – 2.395 = 36.605 – 36 = 0.605/ 600), which gives an approximate hydraulic gradient

of 0.001. The bedrock, likely being semi-artesian, is perhaps unlikely to be providing baseflow to the river also.

Therefore, overall groundwater movement would be limited. In addition, there are lenses of clay and sand in the site geology, which are not likely to be in contact with the bedrock groundwater. This gives a reduced potential for the dissolved hydrocarbons to be transported.

This section has presented a semi-quantitative approach to describe the LNAPL distribution and behavior on site, and potential for transport of dissolved hydrocarbons in water.

The data show that:

- The LNAPL is distributed across and outside the site (in the BH300-wells) and is present at low pore saturation.
- The LNAPL is at a residual saturation and is held by soil capillarity and has no meaningful potential to be recovered.
- Transport of the LNAPL is not possible in the absence of a driving head. Transport of the dissolved hydrocarbons is low very likelihood given the clay-rich complex geology, perched groundwater which is likely not in continuity with the bedrock groundwater and low groundwater hydraulic gradient and distance to viable surface water receptors.
- There is also evidence of biodegradation, given the negative oxidation-reduction potential in the groundwater and presence of methane and carbon dioxide in the ground gases.

6 DISCUSSION

The LNAPL is practically non-mobile and is present at generally less than 1% of the soil pore space; saturation does not appear to be a concern. The LNAPL is held by the soil capillarity and cannot move. The volume of impact appears to be over a larger area than the development site 'red line boundary' extending further into the neighbouring land to the north. Notably, biodegradation processes have and are taking place, evidenced by the generation of methane and carbon dioxide, and establishment of reducing groundwater conditions. Accordingly, the profile of the LNAPL appears highly weathered and while the screening process showed some exceedances, framing these within the context of the site geology, the processes taking place in the subsurface, the limited pathways and absence of receptors demonstrates that the hydrocarbons do not pose a risk.

There were some exceedances of human health GAC in the groundwater data, but these appear to be a function of the presence of LNAPL and separately of more recent surface inputs.

There were also some exceedances of the controlled water risk assessment; however the hydrocarbons are actively degrading and have limited potential to move off site and so the risk posed to receptors is therefore very limited: there is an absence of a pathway; the nearest surface water in continuity with the groundwater is the River Mersey (600 m) and there are no records of ground, surface or potable water abstraction within 1000 m of the site.

The presence of the LNAPL has not resulted in the presence of a risk. The NAPL is residual except for a minimal accumulation in two monitoring wells at different times (which would practically be non-recoverable), and there is evidence that it is being degraded by natural processes. Remediation of the LNAPL would therefore bring no further benefit.

7 CONCLUSIONS AND RECOMMENDATIONS

The site is impacted by LNAPL. However, it does not pose a risk to the wider environment or to end users. The LNAPL is immobile and the dissolved hydrocarbons are degrading. The geology and hydrogeology are such that there is no likely viable pathway to reach viable off-site receptors.

Therefore, the LNAPL does not pose an unacceptable environmental risk to end users.

It should be noted that area upgradient of the site is also impacted by hydrocarbons and data from this area has been used in this report to inform the evaluation of risk. There were no clear distinctions in the data from off and on-site wells, albeit the PAH exceedances were in an off-site well (BH303) The wider area is similarly impacted to that within the site boundary. The offsite chemical impacts are of a similar nature and also not likely to be mobile.

A construction-specific environmental management plan may however be needed to control the risks to site workers during the development. A plan for further unidentified contaminated materials management for off-site disposal or on-site reuse is required.

This risk assessment has shown that there is an absence of risk to controlled water and human health end-users.

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APPENDIX A

CCG-C-21-12661-A

PHASE I GEOENVIRONMENTAL REPORT FOR LAND WITHIN THE CURTILAGE OF TESCO STORE PARR WOODS LANE EAST DIDSBURY MANCHESTER M20 5NP

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1.0 INTRODUCTION

CC GEOTECHNICAL LIMITED (***CCG***) is providing consultancy services to ***DANDARA LIVING*** (the *Client*) in connection with the proposed redevelopment of land located within the curtilage of Tesco Store, off Parr Woods Lane, East Didsbury, Manchester, M20 5NP.

It is understood that the site is to be redeveloped for residential use by the construction of a 6-storey apartment block with ground floor car parking and apartments on floors above. External works comprise peripheral hard and soft landscaping.

The existing and proposed site layouts, together with elevations of the proposed development are shown on ***HODDER AND PARTNERS*** architectural drawings contained herein.

The proposed development falls within the administrative jurisdiction of ***MANCHESTER CITY COUNCIL***.

This Phase I report was devised to generally comply with the relevant principles and requirements of a wide range of guidance including BS5930:1999 as amended 2007: "*Code of Practice for Site Investigations*", BS10175: 2011 "*Investigation of Potentially Contaminated Sites - Code of Practice*", and the DEFRA/Environment Agency Report CLR11 "*Model Procedures for the Management of Land Contamination*".

The site was the subject of an intrusive ground investigation, undertaken by ***CCG*** in July 2020, and Reported under Report Reference No. CCG-C-11474. A discussion pertaining to the findings of this investigation is presented in section 7.0 hereunder.

This report should be read in conjunction with the above referenced ground investigation report and with ***CCG*** Notes on Limitations, given in Appendix B.

2.0 PURPOSE & AIMS OF THE STUDY

The primary aim of the Phase I Desk Study was to assess whether the site is likely to be affected by contamination to an extent that it may pose a risk to human health and/or the built environment and/or the wider natural environment or is affected by any other natural or man-made features which may impact on the proposed redevelopment.

Specific tasks undertaken to achieve these objectives were as follows:

- Undertaking of a review of available historical mapping, environmental databases, and Environment Agency data
- Undertaking of a site walkover inspection
- Development of Preliminary Conceptual Model
- Development of a Phase 2 intrusive investigation strategy

3.0 SITE DATA

3.1 Site Location

The study site is located within the curtilage of Tesco Superstore, off Parr Woods Lane (A5145), East Didsbury, Manchester, M20 5NP, as shown on ***CCG*** Drawing No. CCG-C-21-12661-1 and Aerial Plate No. CCg-C-21-12661-2 contained herein. The ***ORDNANCE SURVEY*** co-ordinates for the approximate site centre are 385466 390486. The approximate site centre stands at an elevation of c.39maOD.

3.2 Site Description & Walkover Observations

The site was visited during October 2021 on completion of a review of all relevant historical and environmental mapping data (provided in Appendix D). Photographs taken at the time of the site visit are presented in Appendix E.

It was observed that the site is situated within a commercial context and comprises a triangular shaped parcel of land which extends to the approximate dimensions of c.72m x 39m, its long axis being on an east – west alignment.

At the time of undertaking the site walkover survey, it was evident that the site is currently utilised by the nearby retail store as a car parking facility with associated areas of soft landscaping.

It is bound to the south and east by public pavement extending along its Wood Lane (A5145) frontage, and to the west by pavements leading

into the nearby retail store (Tesco Superstore). Its northern boundary is adjoined by hard paved car parking facilities associated with the nearby superstore.

The surface topography across the site was seen to be sensibly flat with surface cover comprising predominantly tarmac paving with localised pockets of ornamental planting and semi-mature deciduous woodland species, with permanent lighting columns positioned around the periphery.

At the time of undertaking the site walkover survey, there was no visual evidence of the presence of non-native / invasive plant species within or adjoining the site boundary.

Vehicle / pedestrian access to the site via its Wood Lane frontage to the south

The information obtained from the visit is summarised in Table 1 hereunder.

Table 1: Summary of Walkover Observations

FEATURE		OBSERVATION
Current use of proposed development Land		Hard paved car parking facility
Context		Commercial context.
Topography / Surface		The surface topography across the site was seen to be sensibly flat with surface cover comprising predominantly tarmac paving with localised pockets of ornamental planting and semi-mature deciduous woodland species and permanent lighting columns positioned around the periphery.
Dimensions		c.72m x 39m, its long axis being on an east – west alignment
Access		Vehicle / pedestrian access to the site via its Wood Lane frontage to the south
Buildings Adjacent to the Site		None
Services		Given the presence of permanent lighting columns, it is assumed that the power supply associated with these features, and surface water drainage systems, may be buried beneath the existing car parking facility
Boundary	North	Car parking facilities associated with nearby retail store
	South	Public pavements extending along Wood Lane
	East	Public pavements extending along Wood Lane
	West	Access / egress pavement associated with nearby retail store
Material storage		None observed
Waste disposal		None observed
*Invasive plant species		None observed
Other potential contamination		Hydrocarbons associated with onsite car parking facilities

**These comments on the ecology are for initial preliminary assessment only and are based on observations undertaken by a person who is a trained ecologist but who has not undertaken a comprehensive Phase I Habitat Survey or similar.*

4.0 SITE HISTORY

The history of the site and its immediate surrounds was investigated by consultation with a range of archive resources. Geographical information, historical mapping and environmental data were primarily based on GroundSure Reports (CMAPS-AAG-994592-4165-051021, dated October 2021) presented in Appendix D, along with accompanying historical mapping data.

A summary of the historical mapping data is given hereunder:

Table 2: Historical Map Review

YEAR	SCALE	ON SITE	ADJACENT TO SITE	<250M
1849	1:10,560	Undeveloped / vacant land	S: Road [later recognised as Parrswood Lane	Much of the land surrounding the site is undeveloped / vacant land c.120m SE: Unspecified property with associated nurseries [extending to the E] c.220m W: Gravel Pit [not recognised in subsequent mapping data] c.230m SE: Property recognised as "Parrswood"
1881 1892-93 1893-94 1897	1:2,500 1:10,560 1:2,500 1:10,560	No significant change	No significant change	c.200m NE: Railway Line [approx.. NW-SE alignment] c.200m W: Parrswood House [later recognised as Didsbury Lodge]
1907 1910	1:2,500 1:2,500	No significant change	NW: Railway in coarse of construction	

1911 1911	1:10,560 1:10,560			
1922 1923 1923	1:2,500 1:10,560 1:10,560	No significant change	No significant change	c.150m SW: East Didsbury & Parrs Wood Station
1934 1934-38 1938 1938 1938 1954-55	1:2,500 1:10,560 1:10,560 1:10,560 1:10,560 1:10,560	Site forms part of Parrs Wood Bus Depot, which extends beyond the N/SW boundaries	N/SW: Extension of Parrs Wood Bus Depot	Much of the land to the W of the site developed for residential land use [semi-detached properties] c.200m N: Development of semi-detached residential properties and associated gardens [extending to the N] c.200m W: Children's Home [former Didsbury Lodge] adjacent School to the N c.210m N: Playing Field [extending to the N] c.230m S: Tennis Ground c.230m W: Tennis Grounds with associated Pavilion c.250m W: Cricket Ground [extending to the W]
1956-57 1957 1957-58 1965-67	1:1,250 1:2,500 1:1,250 1:10,560	No significant change	No significant change	c.60m E: Allotment Gardens [extending to the NE] c.85m SW: Garage recognised c.110m N: Tank
1974 1970-75 1976-81 1982-84 1984 1983-88	1:1,250 1:1,250 1:10,000 1:1,250 1:1,250 1:10,000	No significant change	No significant change	c.120m SE: Rural Studies Centre c.160m S: School [extending to the S], adjacent Tennis Courts to the N
1989 1988-92	1:10,000 1:1,250	Depot no longer recognised	N/SW: Depot no longer recognised	No significant change
1992 1992-94 1994 1995 2001 2003 2010 2021	1:1,250 1:1,250 1:1,250 1:10,000 1:10,000 1:1,250 1:10,000 1:10,000	Car parking facility	SW: Road [extending to the N] E: Clock Tower	c.80m N: Superstore

5.0 ENVIRONMENTAL SETTING

5.1 Documented Geology

The geology at the site is summarised on ***BRITISH GEOLOGICAL SURVEY*** (***BGS***) Sheet 098, Stockport, 1: 50,000 and 1:63,360 Scale Solid and Drift Editions (1971 - 1977) and Taylor, B.J. (1963) *et.al*, '*Geology of the country around Stockport and Knutsford. Explanation of sheet 098'*, HM Stationery Office, London.

The ***BGS*** drift mapping data indicated that the study site is underlain by natural drift deposits comprising glaciofluvial sheet deposits comprising permeable sands and gravel overlying diamicton (*boulder clay*) comprising impermeable clay silt sands and gravel, both geological units being of glacial origin (*Pleistocene Epoch - Late Quaternary - Devensian Sub Age*).

The solid geology is documented as the Chester Formation (*formerly the Chester Pebble Beds*) of the Sherwood Sandstone Group comprising permeable fine to coarse grained locally pebbly cross-bedded sandstones with sporadic argillaceous mudstone and siltstone horizons of the Early-Triassic Epoch (*Olenekian Sub-Age*).

The general dip of the solid geology within the surrounding area is seen to be in a south-westerly direction.

There are records pertaining to the presence of geological lines of weakness (i.e. faults etc.) within 250m of the study site. The nearest fault, extending on a north – south alignment, being located c.48m west of the study site. Its downthrow is seen to be to the west.

The '*Indicative Atlas of Radon in England and Wales'* (Miles. J.C.H *et.al*, 2007) Map 13 '*Northern Welsh Marches and Liverpool',* shows the site to be situated within an area where it is believed that less than 1% of the properties within the area are affected by Radon and therefore no Radon Protection Measures will be required for new structures in contact with the ground.

Geological Information obtained from the GroundSure Environmental Report is presented in Appendix D, and summarised hereunder:

Table 3: Summary of Geological Data from GroundSure Report

GEOLOGY		
Data	**Distance**	**Comments**
Artificial Ground	On Site	Artificial ground and/or reworked ground deposits associated with the development of the site & its immediate surroundings.
Superficial Deposits / Drift Geology	On Site	Glaciofluvial sheet deposits, Devensian
Permeability of clay deposits (GSD)	Maximum Permeability	Very High
	Minimum Permeability	High
Superficial Deposits / Drift Geology	On Site	Diamicton, Devensian
Permeability of clay deposits (Diamicton)	Maximum Permeability	High
	Minimum Permeability	Low
Bedrock and Solid Geology	On Site	Chester Formation of the Early-Triassic Period Epoch
Permeability of Bedrock: On Site	Maximum Permeability	High
	Minimum Permeability	High
Geological Lines of Weakness	On Site	No records
	<250m	1nr c.48m W
Radon Affected Area	On Site	The site is not in a Radon Affected Area, as less than 1% of properties are above the action level
Radon Protection	On Site	No radon protective measures are necessary
MINING, GROUNDWORKINGS AND NATURAL CAVITIES		
Data	**Distance**	**Comments**
Natural cavities	<500m	No records
BritPits	<500m	190m SW: Parrs Wood Gravel Pit [Sand & Gravel] - Ceased
Surface ground workings	<250m	113m SW: Unspecified Put 124m S: Unspecified Pit 141m SW: Unspecified Heap 148m SW: Unspecified Heap 176-77m N: Cuttings 180-81m N: Cuttings 182m SW: Gravel Pit 185m N: Cuttings 186m NE: Brick Field 248m NE: Unspecified Pit
Underground workings	<1000m	No records
Historical Mineral Planning Areas	<500m	No records
Non-coal mining	<1000m	No records
Mining cavities	<1000m	No records
Coal mining	On Site	No records
Brine areas	On Site	No records
Gypsum areas	On Site	No records
Tin mining	On Site	No records
Clay mining	On Site	No records
HAZARDS		
Data	**Distance**	**Comments**
Maximum shrink swell clays	On site	Very Low
Maximum running sands	On site	Negligible
Maximum compressible deposits	On site	Very Low
Maximum collapsible deposits	On site	Negligible
Maximum landslides	On site	Very Low
Maximum ground dissolution of soluble rocks	On site	Very Low

5.2 Historical Coal Mining

The appended environmental data, ***BGS*** mapping data and ***COAL AUTHORITY*** Gazetteer confirm that the site is not located within an area which is believed to be underlain by productive coal measures which may have been worked in the past and therefore a ***COAL AUTHORITY*** mining report was not procured.

5.3 Hydrology and Hydrogeology

Information on hydrology and hydrogeology obtained from a GroundSure Environmental Report is presented in Appendix D, and summarised hereunder:

Table 5: Summary of Hydrology and Hydrogeological Data from GroundSure Environmental Report

HYDROGEOLOGY AND HYDROLOGY		
Aquifer within Superficial Drift Deposits	On site	**Till, Devensian: Secondary Undifferentiated:** Assigned where it is not possible to attribute either category A or B. In general, these layers have previously been designated as both minor and no-aquifers in different locations due to the variable characteristics.
Aquifer within Superficial Drift Deposits	On site	**Glaciofluvial Sheet Deposits: Secondary A:** Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
Aquifer within Bedrock Deposits	On site	**Chester Formation – Principal Aquifer:** Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers
Groundwater Abstraction Licenses	<1000m	No records
Surface Water Abstraction Licenses	<1000m	No records
Potable Water Abstraction Licences	<1000m	No records
Source Protection Zones	<500m	No records
Source Protection Zones (confined aquifer)	<500m	No records
Water Network (OS Mastermap)	<250m	No records
Surface water features	<250m	No records
WFD Surface water body catchments	On Site	On Site: River WB catchment. Operational catchment: Bollin, Dean, Upper Mersey
WFD Surface water bodies	<250m	No records
WFD Groundwater bodies	<250m	On Site: Manchester and East Cheshire Permo-Triassic Sandstone Aquifers. Overall rating: Poor
FLOODING		
Risk of Flooding from Rivers and Sea (RoFRaS)	<50m	No records
Historical Flood Events	<250m	No records
Flood Defences	<250m	No records
Areas Benefitting from Flood Defences	<250m	No records
Flood Storage Areas	<250m	No records
Flood Zone 2	<50m	No records
Flood Zone 3	<50m	No records
Surface water flooding: Highest risk	On Site	1 in 1000 year, 0.1m – 0.3m
	<50m	1 in 100 year. 0.1m – 0.3m
Groundwater flooding: Highest risk	On Site	High
	<50m	High

For simplified interpretation, the geological succession underlying the site may be regarded as a series of discrete units in terms of their hydrogeological significance, as illustrated hereunder:

Table 5: Hydrogeological Interpretation

UNIT	PROPERTIES	HYDROGEOLOGICAL DESIGNATION
Made / Reworked Ground	If present, likely to be generally granular and permeable and will permit vertical and lateral transmission of groundwater.	Unproductive Aquifer
Glaciofluvial Sheet Deposits	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers	Secondary A
Till, Devensian	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type	Secondary Undifferentiated
Chester Formation	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers	Principal Aquifer

6.0 FURTHER ENVIRONMENTAL DATA

Environmental data was researched using several sources including Environment Agency Maps and GroundSure Envirosight Report presented in Appendix D and is summarised hereunder in Table 6. This environmental data has been used to carry out a Preliminary Qualitative Risk Assessment (Tier 1) and formulate the preliminary conceptual model as discussed in Section 8.0 of this report.

Table 7: Summary of Environmental Data

POTENTIALLY CONTAMINATIVE USES IDENTIFIED FROM 1:10,000 SCALE MAPPING		
Data	**Distance**	**Comments**
Historical industrial land uses	<250m	On Site: Unspecified Depot [1983] On Site: Bus Depot [1935-74] 71m SW: Railway Sidings [1974-83] 76m SW: Railway Sidings [1923] 102m N: Unspecified Tank [1965-83] 113m SW: Unspecified Pit [1934-38] 124m S: Unspecified Pit [1934] 141m SW: Unspecified Heap [1923] 141m SW: Railway Station [1923-34] 143m SW: Railway Station [1955-74] 148m SW: Railway Station]1938] 150m SW: Railway Station [1938] 164m SW: Railway Building [1974-83] 176m N: Cuttings [1893] 176m SW: Railway Sidings [1955-65] 177m SW: Railway Station [1983-89] 177m N: Cuttings [1938] 180-81m N: Cuttings [1934-38] 182m SW: Gravel Pit [11851] 185m N: Cuttings [1955] 185m SW: Railway Sidings [1923] 186m NE: Brick Field [1851] 202m S: Railway Buildings [1974-83] 210m S: Railway Sidings [1934] 223m SW: Railway Sidings [1938] 233m SW: Railway Building [1923] 243m SW: Railway Building [1923] 248m NE: Unspecified Pit [1911]
Historical tanks	<250m	100m N: Unspecified Tank [1975-88] 105-06m N: Unspecified Tank [1957-88]
Historical energy features	<250m	163m W: Electricity House [1975]
Historical petrol stations	<250m	No records
Historical garages	<250m	70m SW: Garage
Historical military land	<250m	No records
Records of Current Industrial Land Use		
Data	**Distance**	**Comments**
Recent industrial land uses	<250m	93m S: Gas Governor [Gas Features] 100m N: Mast [Telecommunications Features] 106m SE: Electric Sub-Station [Electric Sub-Station] 114m N: Mast [Telecommunications Features] 123m E: Didsbury Magazine [Published Goods] 138m SW: Electric Sub-Station [Electrical Features] 146m SW: Electric Sub-Station [Electrical Features] 173m NE: Electric Sub-Station [Electrical Features] 190m S: North West Equipment [Food and Beverage Industry Machinery] 191m SW: East Didsbury Rail Station [Railway Stations, Junctions and Halts] 192m NE: East Didsbury (Manchester Metrolink) [Tram, Metro and Light Railway Stations and Stops] 199m SE: Electric Sub-Stations [Electrical Features] 209m SE: Electric Sub-Station [Electrical Features]
Current or recent petrol stations	<250m	67m SW: Obsolete
Electricity cables	<250m	No records
Gas pipelines	<250m	No records
Sites determined as Contaminated Land	<250m	No records
Control of Major Accident Hazards (COMAH)	<250m	No records
Regulated explosive sites	<250m	No records
Hazardous substance storage/usage	<250m	No records
Historical licensed industrial activities (IPC)	<250m	No records
Licenced industrial activities (Part A(1))	<250m	No records
Licensed pollutant release (Part A(2)/B)	<250m	95m W: The Laundry Room. Process: Dry Cleaning. Current Permit – Part B 218m SW: Parrs Wood Service Station. Process: Petrol Vapour Recovery. Historical Permit – Part B
Radioactive Substance Authorisations	<250m	No records
Licensed Discharges to controlled waters	<250m	No records
Pollutant release to surface waters (Red list)	<250m	No records
Pollutant release to public sewer	<250m	No records
List 1 Dangerous Substances	<250m	No records
List 2 Dangerous Substances	<250m	No records

Pollution Incidents (EA/NRW)	<250m	No records
Pollution inventory substances	<250m	No records
Pollution inventory waste transfers	<250m	No records
Pollution inventory radioactive waste	<250m	No records

WASTE AND LANDFILL		
Data	**Distance**	**Comments**
Active or recent landfill	<500m	No records
Historical landfill (BGS records)	<500m	No records
Historical landfill (LA/mapping records)	<500m	No records
Historical landfill (EA/NRW records]	<500m	No records
Historical waste sites	<500m	No records
Licensed waste sites	<500m	No records
Waste exemptions	<500m	172m S: Parrswood Entertainment Centre [Storing waste exemption] 429m SW: Oracle Scotscroft Towers [Treating waste exemption] 439m SW: Scotscroft Building Towers Business Park [Storing waste exemption] 470m NE: 6 Queensway [Treating / Storing waste exemption]

ENVIRONMENTAL DESIGNATIONS		
Data	**Distance**	**Comments**
Sites of Special Scientific Interest (SSSI)	<500m	None
Conserved wetland sites (Ramsar sites)	<500m	None
Special Areas of Conservation (SAC)	<500m	None
Special Protection Areas (SPA)	<500m	None
National Nature Reserves (NNR)	<500m	None
Local Nature Reserves (LNR)	<500m	None
Designated Ancient Woodland	<500m	None
Biosphere Reserves	<500m	None
Forest Parks	<500m	None
Marine Conservation Zones	<500m	None
Green Belt	<500m	367m SE: Merseyside and Greater Manchester [Stockport] 386m SE: Merseyside and Greater Manchester [Manchester]
Proposed Ramsar sites	<500m	None
Possible Special Areas of Conservation (PSAC)	<500m	None
Potential Special Protection Areas (pSPA)	<500m	None
Nitrate Sensitive Areas	<500m	None
Nitrate Vulnerable Zones	<500m	None

7.0 PREVIOUS SITE INVESTIGATIONS / REPORTS

The study site was the subject of an intrusive ground investigation, undertaken in June 2020 by ***CCG***, and reported under Report Reference No. CCG-C-11474, dated July 2020. The purpose of this report was to provide the Client with factual geotechnical / geochemical information pertaining to existing ground conditions at this site, and no ***CCG*** interpretations were placed on the findings.

The scope of works undertaken in connection with the above referenced report comprised the sinking of 3nr cable percussive boreholes using a Dando 150 shell and auger rig to a notional depth of 10mbgl.

The ground conditions encountered comprised black bituminous paving and associated sub-base overlying superficial made ground deposits comprising brown slightly silty sands and gravel extending to 0.5m > 0.7mbgl. Thereafter the sequence continued in natural drift deposits comprising loose locally very loose silty gravelly sands to 4.5mbgl, locally firm brown clay to 6.1mbgl, then medium dense varying to dense red/ / brown slightly gravelly clayey sand thereafter, proven to 10mbgl.

There was no visual and/or olfactory evidence of contaminant and/or biodegradable material affecting the made ground deposits at any sampling position.

Monitored standing water levels were in the order of 4.19mbgl.

Sub-samples of borehole recovery from each position were analysed from a broad range of contaminants, the results of which were assessed against current assessment criteria applicable for a '*Commercial / Industrial*' land use scenario, which confirmed that no contaminant exceeded its respective soil human health assessment criteria.

8.0 PRELIMINARY QUALITATIVE RISK ASSESSMENT (TIER 1)

8.1 Introduction

Notwithstanding the findings of the previous study, since the site served for 40 years as a bus depot, there is a potential for the presence of contamination associated with the historic developments within and/or immediately adjoining the study site of the site, and hence a preliminary risk assessment was undertaken.

The risk assessment methodologies adopted by ***CCG*** are based on current available guidance from several sources and are included in Appendix D.

The Tier 1 Risk Assessment and Preliminary Conceptual Model (PCM) were formulated using the information discussed above and based on the following assumptions:

- The site is to be redeveloped for residential use by the construction of a 7-storey apartment block with ground floor car parking and apartments on floors above. External works comprise peripheral hard and soft landscaping.

  The existing and proposed site layouts, together with elevations of the proposed development are shown on ***HODDER AND PARTNERS*** architectural drawings contained herein.
- Drinking water will be from a mains supply.

In constructing the Preliminary Conceptual Model (PCM)***, CCG*** applied the guidance contained in CIRIA C552: 2001. This recommends use of a Risk Matrix which classifies risk based on the product of Probability of a source being present, and the Consequence of receptors being exposed to the source. Guidance tables setting out the classifications of probability and consequence together with a risk matrix are given in Tables 8 - 9 hereunder. In using this approach ***CCG*** recommends actual intrusive investigation of any Risk Classification of "*Moderate*" or over.

Table 8: Matrix of consequences against probability to gain a risk classification [CIRIA C552, 2001]

		CONSEQUENCE			
		SEVERE	MEDIUM	MILD	MINOR
Probability	High Likelihood	Very High Risk	High Risk	Moderate Risk	Moderate / Low Risk
	Likely	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
	Low Likelihood	Moderate Risk	Moderate / Low Risk	Low Risk	Very Low Risk
	Unlikely	Moderate / Low Risk	Low Risk	Very Low Risk	Very Low Risk

Table 9: Classification Definitions (C552 CIRIA, 2001)

CLASSIFICATION	DEFINITION
Very High	There is a high probability that severe harm could arise to a designated receptor from an identified hazard. Or, there is evidence that server harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
High	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the longer term.
Moderate	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that such harm would be server, or if any harm were to occur it is more likely that harm would be relatively mild. Investigation (if not undertaken already) is normally required to clarify the risk and to determine to potential liability. Some remedial works may be required in the longer term.
Moderate / Low	
Low	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild
Very Low	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be server.

8.2 Preliminary Conceptual Model

By application of the risk assessment methodology outlined above, the following PCM was constructed.

Table 10: Preliminary Conceptual Model (PCM)

POLLUTANT LINKAGE	SOURCE	PATHWAY	RECEPTOR	PROBABILITY	CONSEQUENCE	RISK RATING
1	Broad spectrum of heavy metals, aggressive pH, hydrocarbons, PAH`s in Made Ground associated with the development of the site & adjoining area and site long term use as a Bus Depot	Soil and / or soil dust ingestion	Construction workers Future occupants (adults & infants) Offsite receptors Flora	Likely	Medium	**Moderate**
2	Asbestos containing materials (ACM) in made ground soils associated with the development of the site & adjoining area	Fibre Inhalation	Construction workers Future occupants (adults & infants) Offsite receptors	Likely	Severe (ACM)	**High**
3	Inhalation of vapours associated with potential made ground deposits etc.	Inhalation	Future residents	Unlikely	Medium	**Moderate**
4	Inhalation of ground gases from onsite or offsite sources i.e. made ground soils etc.	Inhalation	Future residents	Unlikely	Medium	**Moderate**
5	pH & Sulphate attack on concrete	Future building	Future building	Likely	Mild	**Moderate / Low**
6	Organic contamination associated with onsite parking facilities & historical bus depot	Direct contact with water mains	Potable water supply	Unlikely	Medium	**Moderate**

The contaminants of concern associated with those risks which require intrusive investigation were researched by reference to published industry profiles, and are summarised hereunder:

Table 11: Summary of Contaminants of Concern based on PCM

LINKAGE NO.	METALS	NON-METALS	ORGANICS	GASES	OTHERS
PL1, PL2, PL4, PL5	Cd, Cr, Ni, Cu, Pb, Hg, Se, Zn	As, sulphates	TPHCWG, PAH's, BTEX, Volatiles (by PID)	-	pH Asbestos
PL3	-	-	-	CH_4, CO_2, H_2S	-
PL1-PL5	Cd, Cr, Ni, Cu, Pb, Hg, Se, Zn	As, sulphates	TPHCWG, BTEX PAH's, Volatiles (by PID)	CH_4, CO_2, H_2S	pH Asbestos

8.3 Summary of Risks

The foregoing analysis has identified a significant number of potential risks, and if present, these could adversely impact on human or environmental receptors, and since no previous site investigation has been undertaken, an intrusive phase of investigation is recommended to determine whether the postulated pollutant linkages are present on site.

9.0 AIMS AND PROPOSED SCOPE OF PHASE II INTRUSIVE INVESTIGATION

Based on the findings above, it is recommended that an intrusive investigation be undertaken prior to the commencement of any proposed redevelopment works. The Phase II Intrusive Investigation should include for exploratory holes to be sunk through made ground into the underlying natural strata.

The primary objectives of a ground investigations are to obtain enough data to reliably ascertain ground conditions on site, and to aid confirmation of the potential pollution linkages identified within the Preliminary Conceptual Model above. Enough soil and groundwater/soil leachate contamination data should be obtained to reliably allow the Preliminary Conceptual Model to be tested and refined by the performance of a quantitative risk assessment.

Using the guidance contained in BS10175: 2011 and R&D Technical Report P5-0066/TR: 2000 and taking into account recent ground investigation works, and given the nature of the redevelopment and loads imposed, it is proposed that 2nr boreholes be sunk to a notional depth of 15mbgl, or refusal in rockhead, whichever is the lesser using light cable percussive methods. It is further proposed that 6nr be trial pit excavations, or light dynamic sampling boreholes be undertaken to assess shallow ground conditions.

Given the potential for the presence of made ground deposits of an unknown composition it is proposed that 2nr boreholes be utilised for the installation of standpipes, thus enabling a programme of ground gas monitoring to be undertaken. To comply with CIRIA C665 for a "*Moderate*" risk site, it is proposed that gas monitoring is undertaken as a minimum on 6nr occasions over a period of 3 months.

The prime objective of any intrusive ground investigation is to provide reliable soil geotechnical data to assist with foundation / floor slab design options, and geochemical data and to assess the potential risk to human health and sensitive environmental receptors.

The proposed scope of works is summarised in Table 12 hereunder:

Table 12: Proposed Scope of Works

RISK	METHOD OF ASSESSMENT
Is the superficial ground impacted by contamination to the extent it may present a risk to human health?	Using the guidance contained in BS10175: 2011 and R&D Technical Report P5-0066/TR: 2000 and taking into account recent ground investigation works, and given the nature of the redevelopment and loads imposed, it is proposed that 2nr borehole be sunk to a notional depth of 15mbgl, or refusal in rockhead, whichever is the lesser using light cable percussive methods. It is further proposed that 6nr be trial pit excavations, or light dynamic sampling boreholes be undertaken to assess shallow ground conditions. Broad spectrum contamination analyses will be performed on selective subsamples (6nr) of recovered made ground to suite in Table 11
What are the geotechnical properties of the ground?	Standard Penetration Test's (SPT's) to be carried out at regular depth increments throughout the boreholes, with U100 samples being recovered in cohesive strata. A programme of soil engineering laboratory testing will be carried out to characterise soil classification parameters The *in-situ* tests and soil engineering test data will be used in formulating suitable foundation solutions.
Is the site affected by migrating gas from made ground deposits?	The evidence of the desk study is that there is a low – moderate risk of the site being contaminated by ground gases and therefore 2nr boreholes will be utilised for the installation of gas / groundwater monitoring standpipes. CIRIA C665 recommends monitoring on 6nr occasions over a period of 3 month.
Does the site pose a risk to the underlying aquifer	Soil water samples will be recovered from the standpipes and will be analysed to the suite proposed in Table 11. In the event that water does not accumulate in the standpipes, soil leachate analyses will be undertaken to the suite in Table 7. The results will be assessed against Drinking Water Standards and Environmental Quality Standards.

The layout of the proposed intrusive investigation is as annotated on ***CCG*** Drawing No's. CCG-C-21-12661-3 '*Site Investigation Layout Plan*' contained herein.

Please note to ensure that no borehole position impacts on any buried service, the final positioning of the borehole will be determined following a review of '*Clients'* buried service drawings.

Given that the site is to be redeveloped for continued residential land use, contamination data obtained as part of the above recommended Phase II intrusive investigation will be based on criteria contained in publication LQM/CIEH S4UL`s for Human Health Risk Assessment (2015) (***CCG*** Licence No. S4UL3233), applicable to the "*Public Open Space Land*"' land use scenario. Given this document does not provide criteria for Lead contaminants, it is proposed that Lead results are compared to the C4SL published by DEFRA SP1010 Development of Category 4 Screening Levels for '*Public Open Space Land'* use.

APPENDIX A: DRAWINGS:

21-12661 – SITE LOCATION PLAN
21-12661 – AERIAL PLATE
ARCHITECTURAL DRAWINGS



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Notes: Study Site

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UNIT 1 DELTIC WAY
KNOWSLEY INDUSTRIAL ESTATE
LIVERPOOL
L33 7BA
0151 545 2750

Client:
Dandara

Project:
Phase I-II Geoenvironmental Report for Land at Tesco Store, Parr Woods Lane, East Didsbury, Manchester, M20 5NP

Title:
Aerial Photograph

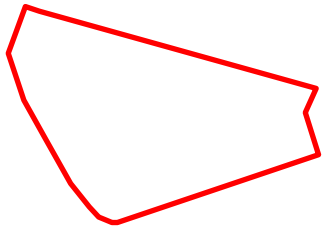
Scale:	Issue:
NTS	01
Drawn by:	Date:
DG	October 2021
Project No.	Drawing No.
CCG-C-21-12661	01

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Notes: Study Site



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UNIT 1 DELTIC WAY
KNOWSLEY INDUSTRIAL ESTATE
LIVERPOOL
L33 7BA
0151 545 2750

Client:
Dandara

Project:
Phase I-II Geoenvironmental Report for Land at Tesco Store, Parr Woods Lane, East Didsbury,

Title:
Aerial Photograph

Scale:	Issue:
NTS	01
Drawn by:	Date:
DG	October 2021
Project No.	Drawing No.
CCG-C-21-12661	02

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Confirm all dimensions before commencement of any work on site or fabrication.

revisions + notes:

REV. A	16/07/2021	AMENDED AMENITY SPACE EXTERIOR WALL
REV. B	30/07/2021	AMENDED PLAN
REV. C	28/10/2021	Massing Update
REV. D	05/11/2021	Consultant information update
REV. E	30/11/2021	Client information update

DRAFT

Community
Plant/Bins/Bikes
1B1P
2B3P

client: Dandara
date: NOVEMBER 2021

project: Didsbury, Parrs Wood
scale: 1:125 at A1
drawn by: NW

title: GROUND FLOOR PLAN
drawing number: L(—)000

status: PLANNING
job number: 0629
revision: E

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revisions + notes:

REV. A 30/11/2021 Client Information Update

DRAFT

client: Dandara

date: NOVEMBER 2021

project: Didsbury, Parrs Wood

scale: 1:125 at A1

drawn by: NW

title: ROOF PLAN

drawing number: L(—)00R

status: PLANNING

job number: 0629

revision: A

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REV. A	15/07/2021	AMENDED EXTERIOR WALL WINDOWS AND BALCONIES
REV. B	30/07/2021	AMENDED PLAN
REV. C	28/10/2021	Massing Update
REV. D	05/11/2021	Consultant information update
REV. E	30/11/2021	Client information update

DRAFT

1B1P
1B2P
2B3P
3B4P

client: Dandara
date: NOVEMBER 2021

project: Didsbury, Parrs Wood
scale: 1:125 at A1
drawn by: NW

title: FIRST FLOOR PLAN
drawing number: L(—)001

status: PLANNING
job number: 0629
revision: E

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REV. A 15/07/2021 AMENDED EXTERIOR WALL WINDOWS AND BALCONIES
REV. B 29/07/2021 AMENDED PLAN
REV. C 28/10/2021 Massing Update
REV. D 05/11/2021 Consultant Information Update
REV. E 30/11/2021 Client Information Update

DRAFT

1B1P
1B2P
2B3P
3B4P

client: Dandara
date: NOVEMBER 2021

project: Didsbury, Parrs Wood
scale: 1:125 at A1
drawn by: NW

title: TYPICAL FLOOR PLAN
drawing number: L(—)002

status: PLANNING
job number: 0629
revision: E

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revisions + notes:
REV. A 30/07/2021 AMENDED PLAN
REV. B 28/10/2021 Massing Update
REV. C 05/11/2021 Consultant Information Update
REV. D 30/11/2021 Client Information Update

DRAFT

1B1P
1B2P
2B3P
3B4P

client: Dandara	**date:** NOVEMBER 2021	
project: Didsbury, Parrs Wood	**scale:** 1:125 at A1	**drawn by:** NW
title: SIXTH FLOOR PLAN	**drawing number:** L(—)006	
status: PLANNING	**job number:** 0629	**revision:** D

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revisions + notes:

REV. A 28/10/2021 Massing Update
REV. B 05/11/2021 Consultant information update
REV. C 30/11/2021 Client information update

DRAFT

client: Dandara
date: SEPTEMBER 2021

project: Didsbury, Parrs Wood
scale: 1:100 at A1
drawn by: RC

title: North Elevation
drawing number: L(—)210

status: PLANNING
job number: 0629
revision: C

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revisions + notes:

REV. A 28/10/2021 Massing Update
REV. B 05/11/2021 Consultant information update
REV. C 30/11/2021 Client information update

DRAFT

client: Dandara
date: SEPTEMBER 2021

project: Didsbury, Parrs Wood
scale: 1:100 at A1
drawn by: RC

title: East Elevation
drawing number: L(—)211

status: PLANNING
job number: 0629
revision: C

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revisions + notes:

REV. A 28/10/2021 Massing Update
REV. B 05/11/2021 Consultant information update
REV. C 30/11/2021 Client information update

DRAFT

client: Dandara

date: SEPTEMBER 2021

project: Didsbury, Parrs Wood

scale: 1:100 at A1

drawn by: RC

title: South Elevation

drawing number: L(—)212

status: PLANNING

job number: 0629

revision: C

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Confirm all dimensions before commencement of any work on site or fabrication.

revisions + notes:

REV. A 28/10/2021 Massing Update
REV. B 05/11/2021 Consultant information update
REV. C 30/11/2021 Client information update

DRAFT

client: Dandara

date: SEPTEMBER 2021

project: Didsbury, Parrs Wood

scale: 1:100 at A1

drawn by: RC

title: West Elevation

drawing number: L(—)213

status: PLANNING

job number: 0629

revision: C

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Read drawing in conjunction with relevant specification, Structural Engineers' and Services Engineers' drawings.
Confirm all dimensions before commencement of any work on site or fabrication.

revisions + notes:

DRAFT

0m 10m 50m
20m 100m

client: DANDARA	**date:** SEPTEMBER 2021
project: TESCO PARRS WOOD, DIDSBURY	**scale:** 1:125 at A1 **drawn by:** RC
title: Site Location Plan_Proposed	**drawing number:** L(---)901
status: PLANNING	**job number:** 0629 **revision:** –

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APPENDIX B: NOTES ON LIMITATIONS

Standard Terms and Conditions of Engagement
Notes on Limitations
For: Geoenvironmental and Geotechnical Consultancy Services

General

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Phase I Environmental Audits / Desk Studies

The work undertaken to provide the basis of a Phase 1 Desk Study report comprises a study of available documented information from a variety of sources (including the client), together with (where appropriate) a walk over inspection of the site and meetings and discussions with relevant authorities and other interested parties. The opinions given in a Desk Study report have been dictated by finite data on which they are based and are relevant only to the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in the report, ***CC GEOTECHNICAL LTD*** reserves the right to review such information and to modify the opinions accordingly.

It should be noted that any risks identified in this report are perceived risks based on the information reviewed; actual risks can only be assessed following a physical investigation of the site.

Phase II Environmental Audits

The investigation of the site has been carried out with the intention of providing enough information concerning the type and degree of contamination, and ground and groundwater conditions to allow a reasonable risk assessment to be made. The objectives of the investigation have been limited to establishing the risks associated to potential human targets, building materials, the environment (including adjacent land), and surface and groundwater.

The amount of exploratory work and chemical testing undertaken may have been restricted by the timescale available, and the locations of the exploratory holes may have been restricted to areas unoccupied by the building(s) on the site, and further restricted by the existence of buried services. A more comprehensive investigation may be required if the site is to be redeveloped as, in addition to risk assessment, several important engineering and environmental issues may need to be resolved.

For those reasons, if costs have been included in relation to site remediation these must be considered as tentative only and must, in any event, be confirmed by a qualified quantity surveyor.

The exploratory holes undertaken, investigate only a small volume of the ground in relation to the size of the site, and can only provide a general indication of site conditions. The number of sampling points and the methods of sampling and testing do not preclude the existence of localised “hotspots” of contamination where concentrations may be significantly higher than those encountered.

Geoenvironmental Ground Investigations

The investigation of the site has been carried out to provide sufficient information within the agreed scope of the investigation, under the general headings of type and degree of contamination, geotechnical characteristics, and ground and groundwater conditions, to provide a reasonable assessment of the environmental risks together with engineering and development implications.

If costs have been included in relation to the site remediation, these must be confirmed by a qualified quantity surveyor.

The exploratory holes undertaken, investigate only a small volume of the ground in relation to the size of the site, and can only provide a general indication of the site conditions. The opinions provided and recommendations given in this report are based on the ground conditions apparent at the site of each of the exploratory holes. There may be ground conditions present on the sites which have not been disclosed by this investigation, and which have therefore not been considered in this report.

The comments made on groundwater conditions are based on observations made at the time that site work was carried out. It should be noted that groundwater levels will vary owing to seasonal, tidal, weather, or other effects.

The risk assessment and opinions provided, inter alia, take into consideration currently available guidance relating to acceptable contamination concentrations; no liability can be accepted for the retrospective effects of any future changes or amendments to these values.

APPENDIX C: CURRENT CONTAMINATED LAND GUIDANCE / LEGISLATION & RISK ASSESSMENT METHODOLOGIES

CURRENT CONTAMINATED LAND LEGISLATION / GUIDANCE & ENVIRONMENTAL RISK ASSESSMENT METHODLOGY

LEGISLATION OVERVIEW

This report includes hazard identification and risk assessment in line with the risk-based methods referred to in relevant UK legislation and guidance. Government environmental policy is based upon a "suitable for use approach". When considering the current use of land, Part IIA of the Environment Protection Act 1990 (EPA 1990) provides the regulatory regime, which was introduced by Section 57 of the Environment Act 1995, which came into force in England on 1 April 2000. The main objective of introducing the Part IIA regime is to provide an improved system for the identification and remediation of land where contamination is causing unacceptable risks to human health or the wider environment given the current use and circumstances of the land.

Part IIA provides a statutory definition of contaminated land under Section 78A(2) as:

"any land which appears to the Local Authority in whose area it is situated to be in such a condition, by reason of substances in, on, or under the land, that:

Significant harm is being caused or there is a significant possibility of such harm being caused;
or
Pollution of controlled waters is being, or is likely to be, caused."

Part IIA provides a statutory definition of the pollution of controlled waters under Section 78A(9) as:

"the entry into controlled waters of **any** poisonous, noxious or polluting matter or **any** solid waste matter".

To assist in establishing if there is a "significant possibility of significant harm" there must be a "significant pollutant linkage" for potential harm to exist. That means there must be a source(s) of contamination, sensitive receptors present and a connection or pathway between the two. This combination of source-pathway-receptor is termed a "pollutant linkage or SPR linkage."

Part IIA of The Environmental Protection Act 1990 is supported by a substantial quantity of guidance and other Regulations, especially DEFRA Circular 01/2006 Contaminated Land (this replaces DETR Circular 02/2000). Part IIA defines the duties of Local Authorities in dealing with it. Except for situations of very high pollution risk, Part IIA places contaminated land responsibility on thee planning and redevelopment process. In situations where there is very high pollution risk direct action from the Local Authority is usually necessary. Planning Policy Statement 23 (PPS23) provides guidance on the planning process and requires that sites which have been developed shall not be capable of being determined "contaminated land" under Part IIA.

The criteria for assessing levels of pollutants and hence determining whether a site represents a hazard are based on a range of techniques, models, and guidance. Within this context it is relevant to note that Government objectives are:

(a) to identify and remove unacceptable risks to human health and the environment;
(b) to seek to bring damaged land back into beneficial use;
(c) to seek to ensure that the cost burdens faced by individuals, companies and society are proportionate, manageable, and economically sustainable.

These three objectives underlie the "suitable for use" approach to remediation of contaminated land. The "suitable for use" approach focuses on the risks caused by land contamination. The approach recognises that the risks presented by any given level of contamination will vary greatly according to the use of the land and a wide range of other factors, such as the underlying geology of the site. Risks therefore should be assessed on a site-by-site basis.

The "suitable for use" approach then consists of three elements:

(a) ensuring that land is suitable for its current use - in other words, identifying any land where contamination is causing unacceptable risks to human health and the environment, assessed on the basis of the current use and circumstances of the land, and returning such land to a condition where such risks no longer arise; the contaminated land regime provides the regulatory mechanisms to achieve this;

(b) ensuring that land is made suitable for any new use, as planning permission is given for that new use - in other words, assessing the potential risks from contamination, on the basis of the proposed future use and circumstances, before official permission is given for the development and, where necessary to avoid unacceptable risks to human health and the environment, remediating the land before the new use commences; this is the role of the town and country planning and building control regimes; and

(c) limiting requirements for remediation to the work necessary to prevent unacceptable risks to human health or the environment in relation to the current use or future use of the land for which planning permission is being sought - in other words, recognising that the risks from contaminated land can be satisfactory assessed only in the context of specific uses of the land (whether current or proposed), and that any attempt to guess what might be needed at some time in the future for other uses is likely to result either in premature work (thereby running the risk of distorting social, economic and environmental priorities) or in unnecessary work (thereby wasting resources).

The mere presence of pollutants does not therefore necessarily warrant action, and consideration must be given to the scale of risk involved for the current and proposed end use of the site.

RISK ASSESSMENT METHODOLOGY

Current practice recommends that the determination of potential liabilities that could arise from land contamination be carried out using the process of risk assessment, whereby "risk" is defined as:

"(a) The probability, or frequency, or occurrence of a defined hazard; and
(b) The magnitude (including the seriousness) of the consequences."

The UK's approach to the assessment of environmental risk is set out in by the Department of the Environment (2000) publication "A Guide to Risk Assessment and Risk Management for Environmental Protection." This established an iterative, systematic staged process which comprises:

(a) Hazard identification
(b) Hazard assessment
(c) Risk estimation
(d) Risk evaluation
(e) Risk Assessment

At each stage during the investigation process the above steps are repeated as more detailed information becomes available for the site.

CLR11- 'Model Procedures for the Management of Land Contamination', a document published by the Department for Environment, Food and Rural Affairs (DEFRA) and the Environment Agency (EA) outlines a tiered approach to the assessment of risks posed by contaminated land, as summarised hereunder:

Tier 1: Preliminary Risk Assessment
A Preliminary Risk Assessment is usually undertaken as part of a desk study, outlines potential risks posed by potential contamination to all receptors by defining plausible "pollution linkages" and developing a preliminary conceptual model (PCM). The purpose of this model is to define all possible complete pollution linkages, where the requisite source – pathway – target elements are present, and these elements being defined as:

- a contaminant (source) is a hazardous substance or agent, present at levels that have the potential to cause harm or damage a receptor
- a pathway is the means by or through which a contaminant meets, or otherwise affects, the receptor
- a receptor (target) is an entity (human being, aquatic environment, flora, and fauna etc) that is vulnerable to the adverse effects of the contaminant

This relationship is termed a "pollution linkage". It should be recognised that for a health or environmental risk to exist, all three elements of the relationship or linkage must be present, i.e.

- if there is no contaminant, or contaminant present at levels below those considered to be harmful or damaging to a receptor, then there can be no adverse effect on a receptor
- if there is no receptor present that can be adversely affected by a contaminant, no harm or damage can arise
- even where both a contaminant and a receptor are present, no harm or damage will occur if there is no pathway by or through which a linkage between the two can be established

The absence of one or more of each component (source, pathway, receptor) would prevent a pollutant linkage being established and there would be no significant environmental risk.

The PCM is subject to continual refinement as additional data becomes available. As part of a Phase I Investigation (Desk Study and site walk over) a PCM is formed. Based on the PCM, potential pollutant linkages can be assessed. If the PCM and hazard assessment indicate that a pollution linkage is not of significance, then no further assessment or action is required due to this linkage. For each significant and possible linkage, a risk assessment is carried out. The linkages which potentially pose significant risks may require a variety of responses ranging from immediate remedial action or risk management or, more commonly, further investigation and risk assessment. This next stage is usually termed a Phase II Main Site Investigation and should provide additional data to allow refinement of the PCM and assess the level of risk from each pollutant linkage. Risk assessment will usually include Tier 2 Generic Quantitative Risk Assessment and / or, if necessary, a Tier 3 Detailed Quantitative Risk Assessment.

Tier 2: Generic Quantitative Risk Assessment (GQRA)
GQRA requires an intrusive investigation to characterise the site assisting in the re-assessment of the source-pathway receptor linkage. The conceptual model should be refined accordingly.

Upon completion of an intrusive investigation a it must be decided whether Generic Assessment Criteria (GAC) are suitable for assessing the risk posed by potential contamination at the site. If GAC are deemed unacceptable for risk assessment purposes or cannot be developed a Tier 3 Detailed Quantitative Risk Assessment (DQRA) is required.

If GQRA reveals that unacceptable risks are not present, then no further action is required. If GQRA identifies a possibility of risk, a decision must be made whether further work is required or necessary for the purposes of risk assessment. If further risk assessment is deemed not suitable not required, an Options Appraisal should be undertaken. If further risk assessment is required, the scope nature of further risk assessment must be decided – it is possible that a Tier 3 DQRA will be undertaken in this scenario.

Tier 3: Detailed Quantitative Risk Assessment (DQRA)
DQRA is used when pollutant linkages require further assessment. DQRA is often undertaken for pollutant linkages where GAC are unavailable or inappropriate for or more conservative than the actual circumstances of the site. Site specific data is used to create Site Specific Assessment Criteria (SSAC) and enable a more accurate assessment of the risks. Further investigation may or may not be required to formulate SSAC depending on the

site-specific conditions and information already obtained.

If DQRA reveals that unacceptable risks are not present, then no further action is required. If DQRA identifies a possibility of risk, a decision must be made whether further work is required or necessary for the purposes of risk assessment. If further risk assessment is deemed not suitable not required, an Options Appraisal should be undertaken. If further risk assessment is required, the scope and nature of further risk assessment must be decided at this point.

NOTE: A Tier 1 Preliminary Risk Assessment is undertaken as part of a Desk Study Report and a Preliminary Conceptual Model is developed for all pollutant linkages. However, the methodologies for assessing the risks to human health, risks to controlled waters and risk posed by ground gas using quantitative techniques vary considerably, therefore GQRA and DQRA for human health, controlled waters and ground gas must be undertaken separately. The risk assessment methodologies where quantitative assessment is used for risks to human health, risks to controlled waters and risks posed by ground gas, if relevant, are described hereunder.

BACKGROUND INFORMATION, CURRENT GUIDANCE AND RISK ASSESSMENT METHODOLOGY FOR RISKS POSED TO HUMAN HEALTH

Background

In March 2002, the Department for Environment, Food and Rural Affairs (DEFRA) and the EA published the Contaminated Land Exposure Assessment (CLEA) Model and a series of related reports. These were designed to provide a scientifically based framework for the assessment of chronic risks to human health from contaminated land. These reports (CLR7-10) together with associated "SGV" documents have since been withdrawn (August 2008) and the following documents have been published as revised guidance to the CLEA assessment:

Environment Agency : 2008: Updated Technical Background to the CLEA model Science Report SC050021/SR3
Environment Agency : 2008: Human Health Toxicological Assessment of Contaminants in Soil SC050021/SR2

Additional guidance on statistical assessment replacing CLR 7 is provided in:

CL:AIRE :2008 Guidance on Comparing Data with a Critical Concentration

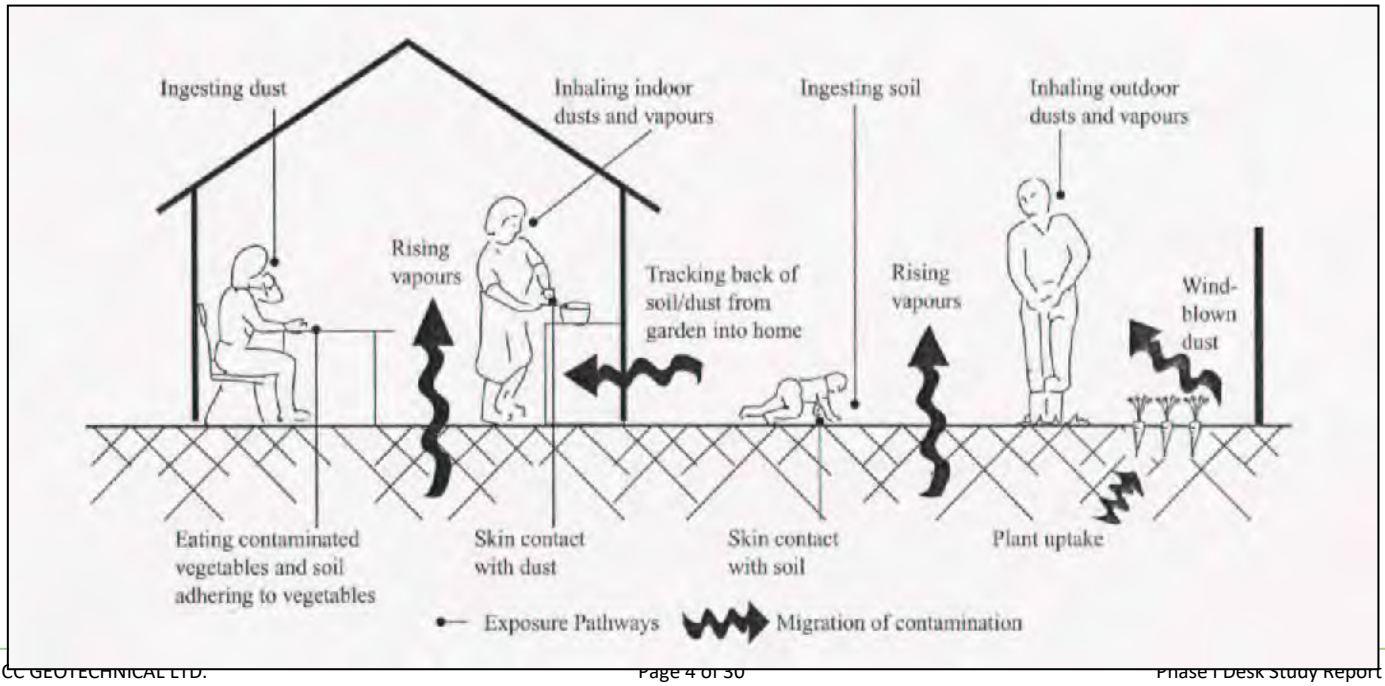
Other guidance/software used in spatial / statistical assessment is provided in:

USEPA 2006: Data Quality Assessment: Statistical Methods for Practitioners
Spatial Analysis and Decision Assistance (SADA) – The University of Tennessee

A different approach to the statistical appraisal of data is required depending on whether the assessment of risk is to assess whether land is Contaminated Land in accordance with regulations, or whether the assessment is to determine whether the site is suitable for new development in according with Planning guidance. This is discussed further in CL:AIRE :2008 "Guidance on Comparing Data with a Critical Concentration".

A program for the derivation of GAC`s based on the above guidance is provided by the Environment Agency and is entitled "CLEA Software Version 1.04".

The CLEA model has been developed to calculate an estimated tolerable daily soil intake (TDSI) for site users given a set 'default' exposure pathway. Ten human exposure pathways are covered in the CLEA model as presented below:



Ingestion
ingestion of outdoor soil
ingestion of indoor dust
ingestion of home grown produce
ingestion of soil attached to home grown produce

Dermal Contact
dermal contact with outdoor soil
dermal contact with indoor dust

Inhalation
inhalation of outdoor dust
inhalation of indoor dust
inhalation of outdoor soil vapour
inhalation of indoor soil vapour

It should be noted that there are other potential exposure pathways on some sites not included in the CLEA model e.g. certain organic compounds can pass through plastic water pipes into drinking water supply.

Where contaminated water is present at a depth less than 2.00mbgl and there is a potential risk of inhalation of vapours (only when volatile compounds are present) the risk from inhalation of vapours from soil water will be assessed using a UK compliant version of BP Risc v4.02.

The presence and/or significance of each of the above exposure pathways are dependent on the type of land use being considered and the nature of the contaminant under scrutiny. Accordingly, the CLEA model considers for principle 'default' land use types and makes a series of 'default' assumptions about human exposure frequency, duration and critical human target groups for each land use considered:

residential
allotments
commercial / industrial land use

The above land use categories defined in the CLEA are detailed below:

Residential: This generic scenario assumes a typical residential property consisting of a two-storey house built on a ground-bearing slab with a private garden consisting of lawn, flowerbeds, and a small fruit and vegetable patch. The occupants are assumed to be parents with young children, who make regular use of the garden area.

Allotments: This generic scenario assumes a plot of open space (about 250 m2), commonly made available by the local authority to tenants to grow fruit and vegetables for their own consumption. There are usually several plots to a site and the overall site area may cover more than a hectare. The tenants are assumed to be parents or grandparents and that young children make occasional accompanied visits to the plot.

Commercial/Industrial: There are many kinds of workplace and work-related activities. This generic scenario assumes a typical commercial or light industrial property consisting of a three-storey building at which employees spend most time indoors and are involved in office based or relatively light physical work.

Human Health Risk Assessment Methodology
Assessment of risk for the protection of human health is undertaken using the methodology as outlined previously, and summarised hereunder:

Tier 1 Preliminary Risk Assessment
Tier 2 Generic Quantitative Risk Assessment
Tier 3 Detailed Quantitative Risk Assessment

The Tier 1 Preliminary Risk Assessment is undertaken as part of the desk study report and includes the development of a Preliminary Conceptual Model. Tier 2 and Tier 3 Quantitative Risk Assessments are undertaken to develop and refine the Preliminary Conceptual Model aiding a more detailed assessment of the risk posed by contaminants revealed by site investigation and soil / soil water chemical analyses.

The methods used by CC GEOTECHNICAL LTD to derive assessment criteria, to statistically analyse chemical data and to compare chemical data to the derived assessment criteria are discussed hereunder.

Derivation of Generic Assessment Criteria (GAC) and Site-Specific Assessment Criteria (SSAC)
GAC`s are derived based on the proposed land use and the associated applicable exposure pathways. It should be noted that there are difficulties in establishing soil concentrations of contaminants beyond which risks from exposure to these contaminants would be 'unacceptable' and the GAC value does not necessarily equate to the level for "significant possibility of significant harm" as defined in Part IIA of The Environmental Protection Act (1990) to determine whether land is "contaminated." This ultimately requires detailed 'toxicological' information of the health effects of individual contaminants and a scientific judgement on what constitutes an 'unacceptable' risk. The primary purpose of the CLEA derived GAC's are as 'minimal risk thresholds' for the assessment of human health risks in relation to land use.

Minimal risk thresholds calculated using generic input parameters for each of the above land uses are termed Generic Assessment Criteria (GAC) and

are used for Generic Quantitative Risk Assessment (GQRA). However, further assessment may be required taking into consideration site specific factors such as the way the land is used, the soil type, the building characteristics and the exact nature of the receptor, to determine whether there is a significant possibility of risk to human health to site users. Such an assessment is known as a Detailed Quantitative Risk Assessment (DQRA) and the resultant threshold concentrations are known as Site Specific Assessment Criteria (SSAC). Such assessments should be conducted with the agreement of the local authority (or the Environment Agency) since it is the authority that determines whether land is Contaminated Land or whether Planning Permission for a new development may be granted.

For the purposes of this report, assessment criteria have been derived in accordance with current guidance based on the conceptual model for the proposed land use using the CLEA v1.04 software. These criteria are not intended to indicate whether the site may be contaminated land, nor do they replace any published soil guideline values. However, the values are intended to provide guidance for the local authority on whether the site may be considered uncontaminated. If, based on the site's proposed future use, the site would be considered by the local authority to be uncontaminated and therefore, on the basis of soil concentrations, fit for purpose, then no further risk assessment based on soil concentrations and the risk to human health would be necessary. However, should these criteria be exceeded, or the conceptual site model vary from the model used in the risk assessment to derive these values then the risk assessment should be updated accordingly.

For contaminants routinely analysed where inhalation is a significant pathway (naphthalene, phenanthrene, Aromatic EC5-EC7, Aromatic EC7-EC8, Aromatic EC8-EC10, Aromatic EC10-EC12, Aromatic EC12-EC16, Aliphatic EC5-EC6, Aliphatic EC8_EC10, Aliphatic EC10-EC12, Aliphatic EC12-EC16), plots of the GAC as a function of Soil Organic Matter (SOM) are used to determine if they pose a potential risk to human health, which are presented hereunder. Where there is an exceedance further assessment may be undertaken.

Statistical Assessment of Soil Contamination Data & Comparison of Contamination Data to Threshold Values

In any site investigation only a small fraction of the soil on the site is analysed. Therefore, the mean derived from the contamination data for a contaminant may not be the same as the true mean for the contaminant distribution on the site. To improve the reliability of any assessment a statistical analysis is undertaken in line with the CL:AIRE document "Guidance on Comparing Soil Contamination Data with a Critical Concentration".

Statistical assessment of soil data is undertaken using programs based on the guidance in the CL:AIRE document or the USEPA software ProUCL v4.0.

Where the number of results in a dataset is less than four, a statistical assessment is not undertaken, and the assessment is performed by comparison of the maximum value(s) with a Health Criteria Value (HCV), such as Generic Assessment Criteria value(s).

For the Planning situation, the regulator needs to check whether the concentration of contaminants is low compared to the HCV. This decision is based on whether there is at least a 95% confidence level that the true mean of the dataset is lower than the HCV.

For the Part IIA scenario the regulator needs to determine whether the concentration of contaminants is greater than the HCV. This decision is based on whether there is at least a 95% confidence level that the true mean of the dataset is higher than the HCV. However, the regulator may proceed with determination if there is just a 51% probability, "on the balance of probabilities".

The Outlier Test used in the statistical assessment may not be able identify separate populations if numerous populations are present. To ensure that this is not the case a spatial assessment of the data will be undertaken using SADA.

If the screening levels are exceeded, then more sophisticated quantitative risk assessment or remedial action may be undertaken. The benefits of undertaking a quantitative risk assessment must be weighed against the likelihood that it will bring about cost savings in the proposed remediation.

BACKGROUND INFORMATION, CURRENT GUIDANCE AND RISK ASSESSMENT METHODOLOGY FOR RISKS POSED TO CONTROLLED WATER

Definition of Controlled Waters

The term 'controlled waters' is defined in Section 104 of the Water Resources Act 1991 as:

"Territorial Waters…which extend seawards for three miles…, coastal waters…, inland freshwaters, waters in any relevant lake or pond or of so much of any relevant river or watercourse as is above the freshwater limit, and ground waters, that is to say, any waters contained in underground strata."

Note that the definition of groundwater under the Water Resources Act 1991 includes all water within underground strata (including soil / pore water in the unsaturated zone). The definition of groundwater under the Groundwater Directive however is limited to water in the saturated zone. For the purposes of Part IIA of the Environmental Protection Act 1990, the Environment Agency recommends that the groundwater within the saturated zone only is considered as the receptor (rather than soil / pore water).

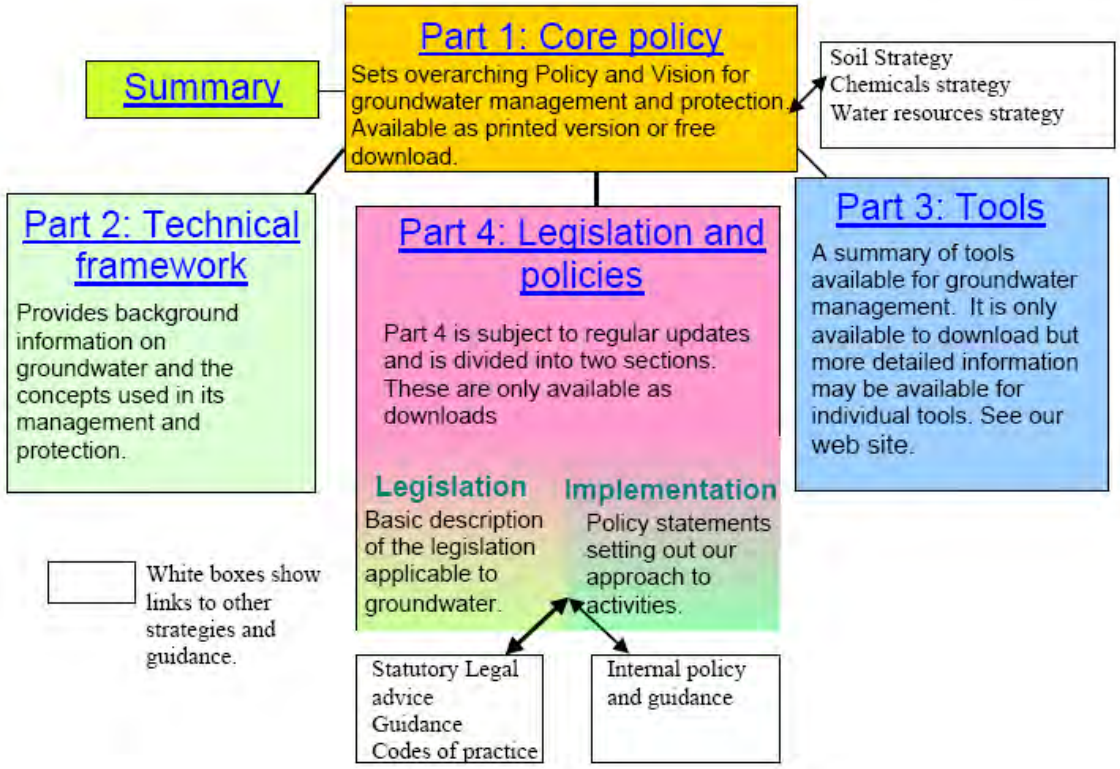
Environment Agency Guidance

Legislation and guidance surrounding the protection of controlled waters in the UK is abundant and can be complex. The Environment Agency's overall position on groundwater is "To protect and manage groundwater resources for present and future generation in ways that are appropriate for the risks that we identify" (Groundwater Protection : Policy and Practice GP3, 2006). In brief, the core objectives of the existing legislation serve to enforce this position.

In 1992, the National Rivers Authority published their Policy and Practice for the Protection of Groundwater (PPPG), this document was influential as it provided a focus for key developments such as Source Protection Zones (SPZs) and Groundwater Vulnerability Maps. The Policy was then revised in 1998, since which there have been substantial changes in legislation, driven by Europe. Key European Directives relating to groundwater include the Groundwater Directive (80/68/EEC) and the Water Framework Directive (2000/60/EC). Aspects of these directives are controlled by primary UK legislation such as the Water Resources Act 1991. Further to legislative changes, gaps identified in the 1998 PPPG required addressing. These changes are reflected in the forthcoming Environment Agency Policy document entitled Groundwater Protection : Policy and Practice (GP3), a draft

version of which was available for public consultation (Parts 1 to 3) ending July 2006 with Part 4 issued in March 2008. Part 4 includes a section on key groundwater legislation and the Environment Agency's interpretation of it.

The following gives a breakdown of the structure of the document (taken from the Environment Agency GP3 draft consultation document, 2006)



Controlled Water Risk Assessment Methodology
The risk posed to controlled water is assessed by CC GEOTECHNICAL in accordance with current guidance as outlined hereunder.

In order for a developer of a potentially contaminated site to fulfil their obligations under the legislation, a site assessment would be required to be undertaken in order to identify any potential risks to controlled waters and to derive suitable clean-up criteria if necessary to ensure the protection of controlled waters. The general approach for Groundwater Protection is detailed further in Part 3 of GP3.

When assessing groundwater impact the Environment Agency advocate the application of their framework methodology "Remedial Targets Methodology – Hydrogeological Risk Assessment for Land Contamination" Environment Agency (2006). The methodology has four levels of assessment as described below:

Level 1 considers whether contaminant concentrations in "pore water" in contaminated soil are enough to impact on the receptor, ignoring dilution, dispersion, and attenuation along the pathway. The "pore water" concentration is determined from:
measured "pore water" concentrations or perched water quality
ii) soil leaching tests
iii) theoretical calculations based on soil/water partitioning equations

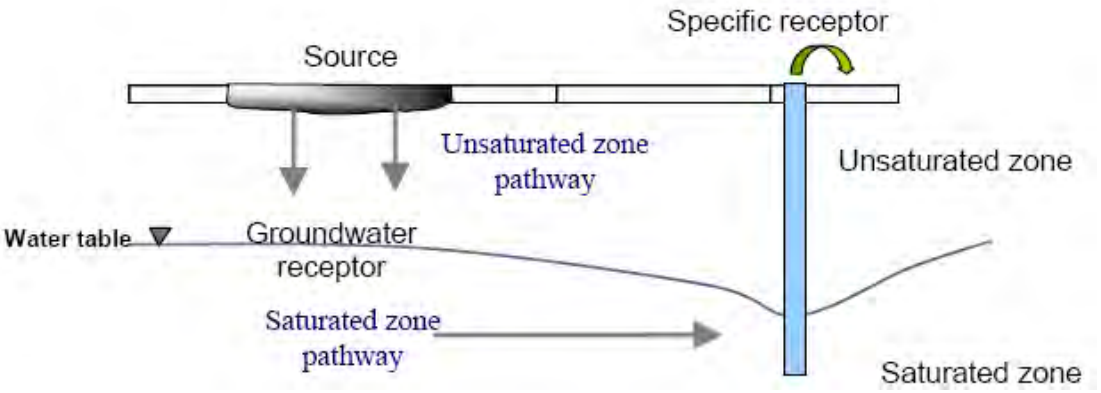
Level 2 considers dilution by the receiving groundwater or surface water body and whether this is enough to reduce contaminant concentrations to acceptable levels. The remedial target is defined as the target concentration multiplied by a dilution factor (DF).

Levels 3 and 4 consider whether natural attenuation (including dispersion, retardation, and degradation) of the contaminant as it moves through the unsaturated and saturated zones to the receptor are enough to reduce contaminant concentrations to acceptable levels. The remedial target is defined as target concentration multiplied by a dilution factor (DF) and attenuation factor (AF). In Level 3 simple analytical models are used to calculate the significance of attenuation. The Environment Agency has released a "Remedial targets worksheet v3.1" to carry out basic calculations using a conservative approach up to Level 3 using basic principles assuming a simple migration of contaminants from the source zone into the aquifer receptor. Level 4 assessment uses more sophisticated numerical models and allows for the introduction of additional geological horizons and is used mainly to determine whether soil contaminants will reach their target within a specified timeframe. Use of such software should only be used once agreement has been obtained from the Environment Agency.

Three main stages apply to any risk assessment of controlled waters, these are:

1. Risk Screening (Tier 1 Preliminary Risk Assessment): The understanding of the Conceptual Site Model (CSM) is the key to assessing any site. Using

a robust CSM, potential pathways or receptors may be screened out from any further assessment at an early stage. For example, if the pathway through the unsaturated zone is blocked by the presence of a significant thickness of low permeability clay. A greater understanding of the CSM is achieved with each tier of risk assessment. An example of a basic CSM is given below (taken from the Environment Agency GP3 draft consultation document, 2006):



2. Generic Hydrogeological Risk Assessment (EA Remedial Targets Methodology Level 1): When undertaking the Generic Hydrogeological Risk Assessment (EA Remedial Targets Methodology Tier 1), comparison of chemical analytical results is made with screening criteria. Published values of screening criteria with which chemical test results can be compared are published in the following guidance:

Water Supply (Water Quality) Regulations 2000
The Private Water Supplies Regulations 1991
Environmental Quality Standards for surface waters based on The EC Dangerous Substances Directive (76/464/EEC and Daughter Directives)
The Surface Waters(Abstraction for Drinking Water Classification) Regulations 1996
World Health Organisation Drinking Water Standards 2004

Should the Level 1 assessment indicate threshold levels to be exceeded, then there are three alternative ways in which to proceed:

To devise suitable remedial solutions
To carry out more investigation, sampling, and analysis
To conduct a site specific Detailed Quantitative Risk Assessment (DQRA) to determine if the materials are suitable for their proposed use, or devise site specific clean-up level

3. Detailed Quantitative Risk Assessment (EA Remedial Targets Methodology Levels 2 to 4): The decision to carry out a DQRA will be dependant on the extent and implications of the initial qualitative and generic assessment. The scope of any such assessment will be accurately defined by the outcomes of the previous levels of assessment. The conceptual model will be sufficiently refined by this stage that only certain contaminants of concern, certain pathways and certain receptors will require further assessment, the remainder having been screened out.

Additional site-specific data is normally required for this stage of assessment, as explained above, more processes that are capable of affecting contaminant concentrations are considered (such as dilution and attenuation).

Remediation criteria, if derived, will therefore be specific to each site and will be based on a detailed assessment of the potential impact at the identified receptor or compliance point. A greater level of confidence can be placed on the predicted impact on the compliance point following a DQRA.

BACKGROUND INFORMATION, CURRENT GUIDANCE AND RISK ASSESSMENT METHODOLOGY FOR RISKS POSED BY GROUND GAS

Origin of Ground and Landfill Gases
When carrying out a ground gas risk assessment, the origin or source of the gases is important as potential risks will vary depending on the source. This Appendix relates to the risk of the two main ground gases of concern; methane and carbon dioxide and does not apply to other ground gases (e.g. radon or vapours from hydrocarbon spills). Methane and carbon dioxide are major constituents of landfill gas but can also occur from a variety of anthropogenic and natural sources, as summarised in Table 5 below:

Gas	Source	Comments
Landfill Gas	Anaerobic decomposition of degradable waste within landfill sites. Typically, 60% methane and 40% carbon dioxide during methanogenic phase.	Composition varies over time, particularly in early stages. Contains a range of minor constituents (particularly carbon monoxide and hydrogen sulphide).
Landfill Associated	- Anaerobic degradation of leachate external to the site; - Degassing of dissolved gases in groundwater;	Can result in secondary (external) production of methane or carbon dioxide.

Gas	Source	Comments
Gases	- Evolution of gases following interaction between leachate and groundwater	
Made Ground	Anaerobic degradation of organic components	Very variable depending on source
Sewer Gas, Cess Pits	Anaerobic degradation of organic components of sewage producing methane and carbon dioxide.	Often characterised by hydrogen sulphide odour.
Mains Gas	Leakage from underground pipework or storage tanks. Mainly methane but often contains higher alkanes.	An odourise is added to permit detection of leaks. Typically, 90% CH4, but 1 to 27% C2-C4 alkanes, May also contain other trace gases e.g. CO, helium and CO2 (from degradation of CH4 in the ground).
Other Anthropogenic Sources	- Degradation of leaked or spilled hydrocarbons or other industrial chemicals; - Anaerobic degradation of organic contaminants in groundwaters (e.g. silage liquor); - Reactions between monitoring well construction components and environment; - Burial grounds/cemeteries.	Hydrocarbon spillages often have an 'oily' odour. Fuel spillages common – Petrol or Diesel and can contain a wide range of VOC's. Can degrade to produce methane / carbon dioxide.
Alluvium / Marsh / Peat Gas	Anaerobic microbial degradation of organic material (usually waterlogged vegetation / peat). Often associated with the presence of alluvial deposits or dredging's.	
Geogenic Gas	Natural seepages of carbon dioxide and hydrocarbon gases derived from geologic sources such as coal seams and deep oil / gas source formations. Can be present in solution in groundwaters.	Methane most common but can contain carbon dioxide and higher alkanes.
Mine Gases	Various types. Most common is "fire damp" with high methane, produced by the desorption of gas trapped in coal. "Black damp" (Scythe gas) with high carbon dioxide and denser than air. "White damp" is high in carbon monoxide.	Methane most common. Can contain higher alkanes, carbon dioxide and carbon monoxide. Often low in oxygen.
Natural Shallow Ground Gas	Various types - high carbon dioxide formed by subsurface aerobic activity leading to depleted oxygen and elevated carbon dioxide; - chemical degradation of rocks (e.g. carbonates) producing carbon dioxide; - carbon dioxide production in root zone of soils by plants.	Gases can be emitted from ground under falling barometric pressure conditions.

Table 5. Potential Sources of Ground Gases

This Appendix does not provide guidance for the assessment of risk when other gases are present due to 'Other Sources' from the above table (particularly organic compounds such as BTEX and VOC's or for the risk from radon or hydrogen sulphide).

To determine the origin of the gas a range of factors must be considered together, including;

1. Proximity of likely sources
2. Ground conditions (geology, hydrogeology, anthropogenic pathways etc)
3. Properties of gases present including:
    - Chemical composition
    - Physical properties
    - Ratios of components e.g. methane : carbon dioxide
4. Timeframe of activities such as infilling periods, capping works, installation of gas control systems etc

Identification of the originating source may be problematic given that there may be more than one source present and trace gas analysis may be required. Identification of the sources of the gases encountered during monitoring is usually carried out through a process of eliminating the most unlikely potential sources (given the site setting) and selecting those which are most likely.

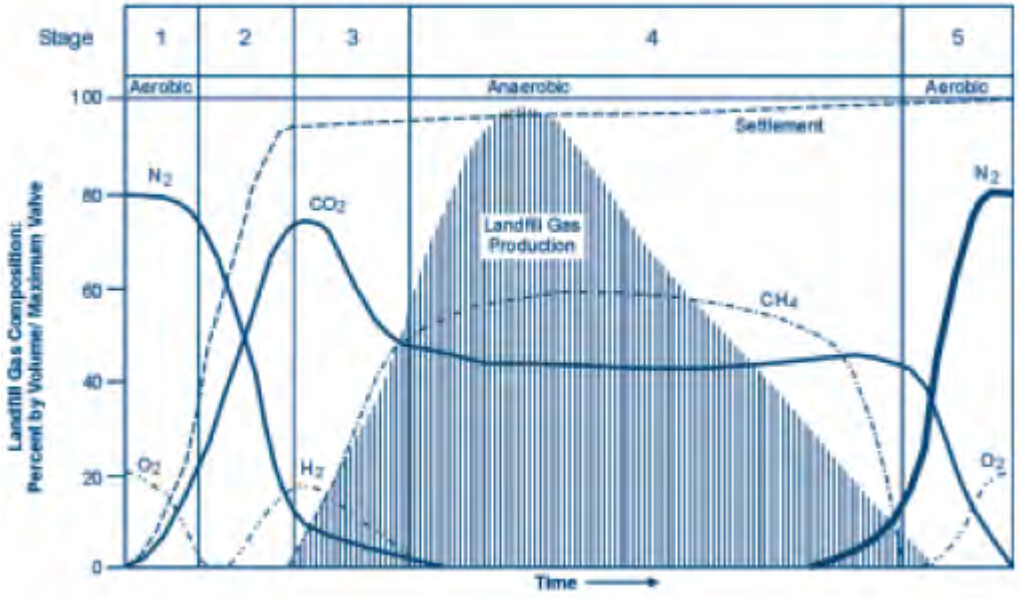
Hazards Associated with Presence of Methane

Methane gas is combustible and potentially explosive. When the concentration of methane in air is between the limits of 5.0%v/v and 15.0%v/v an explosive mixture is formed. The Lower Explosive Limit (LEL) of methane is 5.0%v/v, which is equivalent to 100% LEL. The 15.0%v/v limit is known as the Upper Explosive Limit (UEL), but concentrations above this level cannot be assumed to represent safe concentrations. Further, the LEL and UEL will vary (up and down) depending upon the proportion of other gases (including oxygen). However, the fact that methane is a colourless, odourless gas means that there is no simple indicator of the presence of the gas until such a time as explosive limits are reached, and an incident occurs. Methane is lighter than air and has a low toxicity. However, at high concentrations it can result in asphyxiation due to oxygen displacement.

Hazards Associated with Presence of Carbon Dioxide

Carbon dioxide is a colourless, odourless gas, which, although non-flammable, is both toxic and an asphyxiant. As carbon dioxide is denser than air, it will collect in low points and depressions. The UK Health & Safety Executive (HSE) has published information relating to concentrations of carbon dioxide that humans may be exposed to, which uses concentrations contained in the Control of Substances Hazardous to Health Regulations 2002 (as amended). These are the Long-Term Occupational Exposure Limit (LTOEL, 8-hour period) and the Short-Term Occupational Exposure Limit (STOEL, 15-minute period), which are 0.5% and 1.5% carbon dioxide, respectively.

Parameters Influencing the Rate of Ground Gas Production
The figure below is taken from EA guidance document LFTGN 03 illustrates typical ground gas generation curves from biodegradable materials:



The production of methane and carbon dioxide at a landfill site may be expected to be considerable and ongoing. Concentrations of methane will eventually decrease, followed by concentrations of carbon dioxide, but the duration and rate of gas production can vary markedly between sites. Five distinct phases of gas production occur during the process which are, in order of event as marked above, as follows:

1. An aerobic phase involving oxygen depletion and temperature increase through aerobic respiration;
2. The establishment of anaerobic conditions and the evolution of carbon dioxide and hydrogen through acidogenic activity;
3. Commencement of methanogenic activity; the establishment of populations of methanogenic bacteria;
4. A phase of stable methanogenic activity, which may go on for many tens of years;
5. A phase of decreasing methanogenic activity, representing depletion of the organic material and a return to aerobic conditions.

The time scale for the return to the normal ground gas concentrations will be highly variable, depending upon the types and quantities of materials present. In addition, the optimum parameters influencing the rate of decomposition and ground gas production within the ground at a site are as follows:

High water content with adequate rainfall and water infiltration to provide moisture content between approximately 20 to 26%;
Conditions that either are or are very close to anaerobic;
High proportion of biodegradable materials;
A pH between 6.5 and 8.5, ideally verging slightly on the acidic between pH 6 to 7;
Temperature between 25°C and 55°C;
The ratio of the biochemical and chemical oxygen demands (BOD:COD);
High permeability;
Small particle size, as finer subsurface materials possess a greater surface area to provide a growing 'face' for the micro-organisms, but high fines levels reduces permeability and reduces decomposition rate.

For this reason, it is vital that sources of methane and carbon dioxide are identified prior to the commencement of any work on a construction site, and that the ground gas regime is characterised at the worst temporal conditions a site may experience. From this, a risk assessment is carried out to identify the risk at the site from ground gases so that suitable protection measures can be designed and incorporated into a development to prevent a dangerous build-up of gas occurring.

Factors Influencing the Migration and Behaviour of Ground Gases
There are many factors that influence the migration of ground gases which can affect the risk from a gassing source:

driving force – pressure differential along a pathway, diffusion and dissolved in solution;
meteorological conditions – short term and seasonal conditions including atmospheric pressure changes (e.g. rapidly falling pressure causes gas to expand increasing emission rates), rainfall, frozen ground and thawing, temperature;
geological and groundwater conditions – these can have the over riding influence on the direction/pathways and quantity of migrating gas;
anthropogenic influences – man-made pathways include mine shafts, service runs/drains, foundation piles, underground voids/pits/basements, foundation/building design/construction

Current Guidance
Previous versions of Building Regulations Approved Document C provided statutory guidance stating that consideration should be given to appropriate action and / or specific solutions in situations where methane concentration exceeded 1%v/v or carbon dioxide concentrations exceeded

5%v/v. The latest Building Regulations Approved Document C (DoE 2004) no longer endorses this approach and recommends the use of a risk-based approach to interpreting a gas monitoring survey. This is in line with current EA guidance for landfill gas (LFTGN 03, 2004) which recommends the use of a structured risk-based approach like that outlined in CLR 11. On this basis, recent guidance has been produced in 2006 and 2007 with the aim of providing up to date advice in relation to residential and commercial development. The guidance does not address issues associated with gas derived from landfills, for this refer to "Guidance on the Management of Landfill Gas" (Environment Agency 2004) for an overview.

Recent guidance relevant to gas assessments for residential and commercial development includes;

Wilson et al. (CIRIA C665, December 2007) "Assessing Risks Posed by Hazardous Ground Gases for Buildings."
This document provides up to date advice on all aspects of ground gas risk assessment such as investigation, monitoring programmes, data collection and interpretation. The guidance presents separate methodologies for the characterisation of:
All development types except low rise housing with gardens (Situation A)
Low rise housing with gardens (Situation B)

Boyle and Witherington (NHBC / RSK Group, Report 10627-R01(04) January 2007) "Guidance on the Evaluation of Development Proposals on Sites where Methane and Carbon Dioxide are Present."
This document presents the "Traffic Lights System" detailed below and is relevant only for low rise properties (e.g. bungalows and town houses) that have a ventilated sub-floor void (i.e. Situation B as described in CIRIA C665).

British Standard (BS 8485, December 2007) "Code of Practice for the Characterization and Remediation from Ground Gas in Affected Developments"
This document provides an overview of gas characterisation and assessment. The Standard is intended to be used by designers of gas protection measures and regulators involved in the assessment of design solutions.

Further guidance, Wilson, and Card (CIEH) "Ground Gas Handbook for Designers and Regulators" providing practical guidance on ground gas assessments and the design and evaluation of protection measures, is expected to be published in March 2009.

Each of these documents continues to highlight the importance of, and give further guidance towards, carrying out a tiered risk-based decision-making process in accord with government policy on dealing with contamination from historic or natural sources and highlight the importance of the Conceptual Model in site characterisation.

Ground Gas Risk Assessment Methodology
Assessment of risk posed by ground gas is undertaken using the methodology as outlined previously, and summarised hereunder:

Tier 1 Preliminary Risk Assessment
Tier 2 Generic Quantitative Risk Assessment
Tier 3 Detailed Quantitative Risk Assessment

The methodology used in each of the above assessments with concern to ground gas is discussed hereunder.

Tier 1 Preliminary Risk Assessment
All potential sources of methane and carbon dioxide are identified in the Preliminary Conceptual Model and the generation potential determined. The background information discussed earlier is referred to in order to determine the potential for a source to generate ground gas.

CIRIA C665 provides idealised monitoring frequency / period dependant upon generation potential of gas source and sensitivity of the proposed land use as below:

Idealised Frequency and Period of Monitoring (after Table 5.5a and 5.5b, CIRIA C665)

		Generation Potential of Source				
		Very Low	Low	Moderate	High	Very High
Sensitivity of Development	Low (Commercial)	4/1	6/2	6/3	12/6	12/12
	Moderate (Flats)	6/2	6/3	9/6	12/12	24/24
	High (Residential with Gardens)	6/3	9/6	12/6	24/12	24/24

Notes
1. First number is the number of readings and the second is the minimum period in months (e.g. 6/2 – six sets of readings over two months).
2. At least two sets of readings must be at low (preferably under 1,000 mb) and falling pressure.

The monitoring programme is decided using the above table prior to the intrusive site investigation. However, if the intrusive investigation reveals that the potential source is better or worse than anticipated the monitoring programme should be modified accordingly. For example, if the made ground contains no evidence of organic material and comprises entirely granular brick fill, the potential for that made ground to generate ground gas is reduced considerably.

Tier 2 Generic Quantitative Risk Assessment
Generic Quantitative Risk Assessment is undertaken upon completion of the required gas monitoring period.

All three current guidance documents propose that both ground gas concentrations and flow rates are used to calculate the limiting gas well gas volume flow rates for methane and carbon dioxide, based on the ground gas conditions monitored for during the worse-case temporal conditions. This limiting gas well volume flow rate is termed the Gas Screening Value (GSV, note that this was termed borehole gas volume flow), and is calculated as follows:

GSV (l/hr) = [gas well gas concentration (%v/v)] x [gas well flow rate (l/hr)]
100

GSV's are compared to typical max concentrations and limiting gas screening values derived for either Situation A - All development except low rise housing with gardens, or Situation B low rise housing with gardens (NHBC Traffic Light System). Table 8.5 from CIRIA C665 is used for comparison of gas screening values for "Situation A Developments" and is presented hereunder:

Characteristic Situation (CIRIA R149)	Comparable Partners in Technology gas Regime (see Box 8.2)	Risk Classification	Gas Screening Value (CH4 or CO2) (l/hr)1	Additional Factors	Typical Source of Generation
1	A	Very low risk	<0.07	Typically, methane ≤ 1% and/or carbon dioxide ≤ 5%. Otherwise consider increase to Situation 2	Natural soils with low organic content "Typical" made ground
2	B	Low risk	<0.7	Borehole air flow rate not to exceed 70l/hr. Otherwise consider increase to characteristic Situation 3	Natural soil, high peat/organic content. "Typical" made ground
3	C	Moderate risk	<3.5		Old landfill, inert waste, mineworking flooded
4	D	Moderate to high risk	<15	Quantitative risk assessment required to evaluate scope of protective measures.	Mineworking susceptible to flooding, completed landfill (WMP 26B criteria)
5	E	High risk	<70		Mineworking unflooded inactive with shallow workings near surface
6	F	Very high risk	>70		Recent landfill site

Table 8.5 from CIRIA C665 Modified Wilson and Card Classification

Table 8.7 is used for comparison of gas screening values for "Situation B Developments" and is presented hereunder:

Traffic Light	Methane1		Carbon Dioxide2	
	Typical max concentration3 (% by volume)	Gas screening value2,4 (litres/hour)	Typical max concentration3 (% by volume)	Gas screening value2,4 (litres/hour)
Green	1	0.13	5	0.78
Amber 1	5	0.63	10	1.60
Amber 2	20	1.60	30	3.10
Red				

Notes:
1. The worst-case ground gas regime identified on the site, either methane or carbon dioxide, at the worst-case temporal conditions that the site may be expected to encounter will be the decoder as to what Traffic Light is allocated;
2. Borehole Gas Volume Flow Rate, in litres per hour as defined in Wilson and Card (1999), is the borehole flow rate multiplied by the concentration in the air stream of the gas being considered;
3. The Typical Maximum Concentration can be exceeded in certain circumstances should the Conceptual Site Model indicate it is safe to do so;
4. The Gas Screening Value thresholds should not generally be exceeded without the completion of a detailed ground gas risk assessment considering site-specific conditions.

Table 8.7 from CIRIA C665 - NHBC Traffic light system for 150 mm void

Dependant on the outcome of the assessment of risk posed by ground gas it is determined whether gas protection measures are required for the proposed development, and or whether a detailed quantitative risk assessment is required for the site.

Selection & Design of Protective Measures

Table 8.6 and Box 8.4 of CIRIA C665 contain information on the detailed design of protection measures and were initially intended for the purposes of determining then level of protection measures a development requires. These tables and related text include some useful information on the design of gas protection measures, however BS84845:2007, which supersedes the guidance included within CIRIA C665, is used for selection of gas protection measures.

BS8485: 2007 uses a scoring system dependant on the Characteristic Situation / NHBC Traffic Light and proposed end use of the site. The scoring system is summarised in BS8485:2007 Table 2 as presented hereunder:

Characteristic gas situation, CS	NHBC traffic light	Required gas protection			
		Non-managed property e.g. private housing	Public building (a)	Commercial buildings	Industrial buildings (b)
1 2 3	Green Amber 1 Amber 2	0 3 4	0 3 3	0 2 2	0 1 (c) 2
4 5 6	Red	6 (d)	5(d) 6(e)	4 5 7	3 4 6
NOTE Traffic light indications are taken from NHBC Report no.:10627-RO1 (04) and are mainly applicable to low-rise residential housing1. These are for comparative purposes but the boundaries between the traffic light indications and CS values do not coincide.					
a) Public buildings include, for example, managed apartments, schools, and hospitals. b) Industrial buildings are generally open and well ventilated. However, areas such as office pods might require a separate assessment and may be classified as commercial buildings and require a different scope of gas protection to the main building. c) Maximum methane concentration 20% otherwise consider and increase to CS3. d) Residential building on higher traffic light/CS sites is not recommended unless the type of construction or site circumstances allow additional levels of protection to be incorporated, e.g. high-performance ventilation or pathway intervention measures, and an associated sustainable system of management of maintenance of the gas control system, e.g. in institutional and/or fully serviced contractual situations. e) Consideration of issues such as ease of evacuation and how false alarms will be handled are needed when completing the design specification of any gas protection scheme					
1 The NHBC guidance and CIRIA C665 guidance refers to low rise housing (which is up to three storeys without lifts) that is constructed with a 150mm ventilated sub-floor void.					

BS8485:2007 Table 2 Required gas protection by characteristic gas situation and type of building

Once a score is assigned, a combination of protection systems / elements is chosen from BS8485:2007 Table 3 shown below:

PROTECTION ELEMENT/SYSTEM		SCORE	COMMENTS
a) Venting/dilution (See Annex A BS8485)			
Passive sub floor ventilation (venting layer can be a clear void or formed using gravel, geocomposites, polystyrene void formers, etc.)A	Very good performance	2.5	Ventilation performance in accordance with Annex A (BS8485)
	Good performance	1	If passive ventilation is poor this is generally unacceptable, and some form of active system will be required.
Subfloor ventilation with active abstraction/pressurization (venting layer can be a clear void or formed using gravel, geocomposites, polystyrene void formers, etc.)A		2.5	There must be robust management systems in place to ensure the continued maintenance of any ventilation system. Active ventilation can always be designed to meet good performance.
Ventilated car park (basement or under croft)		4	Mechanically assisted systems come in two forms: extraction and positive pressurization.
b) Barriers			
Floor slabs Block and beam floor slab Reinforced concrete ground bearing slab Reinforced concrete ground bearing foundation raft with limited service penetrations that are cast into slab Reinforced concrete cast in situ suspended floor slab with minimal service penetrations and water bars around all slab penetrations and at joints Fully tanked basement		 0 0.5 1.5 1.5 2	It is good practice to install ventilation in all foundation systems to effect pressure relief as a minimum. Breaches in floor slabs such as joints must be effectively sealed against gas ingress in order to maintain these performances.
c) Membranes			
Taped and sealed membrane to reasonable levels of workmanship/in line with current good practice with validation B,C		0.5	The performance of membranes is heavily dependent on the quality of design of the installation, resistance to damage after installation, and the integrity of joints.
Proprietary gas resistant membrane to reasonable levels of workmanship /in line with good practice under independent inspection (CQA)B,C		1	
Proprietary gas resistant membrane installed to reasonable levels of workmanship/in line with current good practice under CQA with integrity testing and independent validation		2	
d) Monitoring and detection (not applicable to non-managed property, or in isolation)			
Intermittent monitoring using handheld equipment		0.5	Where fitted, permanent monitoring systems ought

Permanent monitoring and alarm system A	Installed in the underfloor venting/dilution system	2	to be installed in the underfloor venting/dilution system in the first instance but can also be provided within the occupied space as a fail safe.
	Installed in the building	1	
e) Pathway Intervention			
Pathway intervention		-	This can consist of site protection measures for off-site or on-site sources (see Annex A, BS8485)
NOTE In practice the choice of materials might well rely on factors such as construction method and the risk of damage after installation. It is important to ensure that the chosen combination gives an appropriate level of protection			
It is possible to test ventilation systems by installing monitoring probes for post installation validation. If a 1 200g DPM material is to function as a gas barrier it should be installed according to BRE 212 /BRE 414 being taped and sealed to all penetrations Polymeric Materials> 1200 g (proportional to thickness) but their physical properties mean that they are more robust and resistant to damage.			

BS8485:2007 Table 3 Solution Scores

Where the gas situation is 4 or more (and for NHBC Red situations) the site requires a comprehensive risk assessment to confirm the scope of protection measures. These are higher risk sites and reliance on Table 2 and 3 alone is not enough.

For a site which is impacted by migratory gases from an off-site source, the development may be protected by imposing pathway intervention methods, which if successfully validated, could also remove the need for further analysis. It is essential that the gas regime in these circumstances has been fully characterised and that the only source impacting the site is located off site and that the pathway is clearly defined and its interception equally proven before construction commences. Pathway intervention methods may include vertical membrane installations, venting trenches, rows of stone columns, activated trenches and various proprietary systems. These systems are particularly relevant to domestic housing where there is limited scope for foundation type solutions.

CURRENT GUIDANCE ON REMEDIATION

When risk assessment of the site has been completed and it indicates that remedial works are required, the main guidance in managing this process is set out in the DEFRA/EA publication CLR11 (2004) "Model Procedures for the Management of Land Contamination." The stages of managing remediation are as follows:

(a) Options Appraisal and develop Remediation Strategy;
(b) Develop Implementation Plan and Verification Plan;
(c) Remediation, Verification and Monitoring.

The Remediation Strategy sets out the remediation targets, identifies technically feasible remedial solutions and presents an evaluation of the options so that these can be assessed enabling that the most suitable solution is adopted. An outline of the proposed remedial method should be presented. Agreement should be sought of the appropriate statutory bodies for the Remediation Strategy before proceeding to the next stage.

The Implementation Plan is a detailed method statement setting out how the remediation is to be carried out including stating how the site will be managed, welfare procedures, health and safety considerations together with practical measures such as details of temporary works, programme of works, waste management licences and regulatory consents required. Agreement should again be sought of the appropriate statutory bodies for this Plan.

The Verification Plan sets out the requirements for gathering data to demonstrate that the remediation has met the required remediation objectives and criteria. The Verification Plan presents the requirements for a wide range of issues including the level of supervision, sampling and testing regimes for treated materials, waste and imported materials, required monitoring works during and post remediation, how compliance with all licenses and consents will be checked etc. Agreement should again be sought of the appropriate statutory bodies for the Verification Plan. On completion of the remediation a Verification Report should be produced to provide a complete record of all remediation activities on site and the data collected as required in the Verification Plan. The Verification Report should demonstrate that the remediation has met the remedial targets to show that the site is suitable for the proposed use.

APPENDIX D: COMMERCIAL ENVIRONMENTAL DATA



Site Details:

Tesco Stores Parrs Wood Lane,
M20 5NP

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Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: County Series

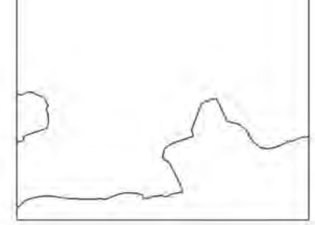
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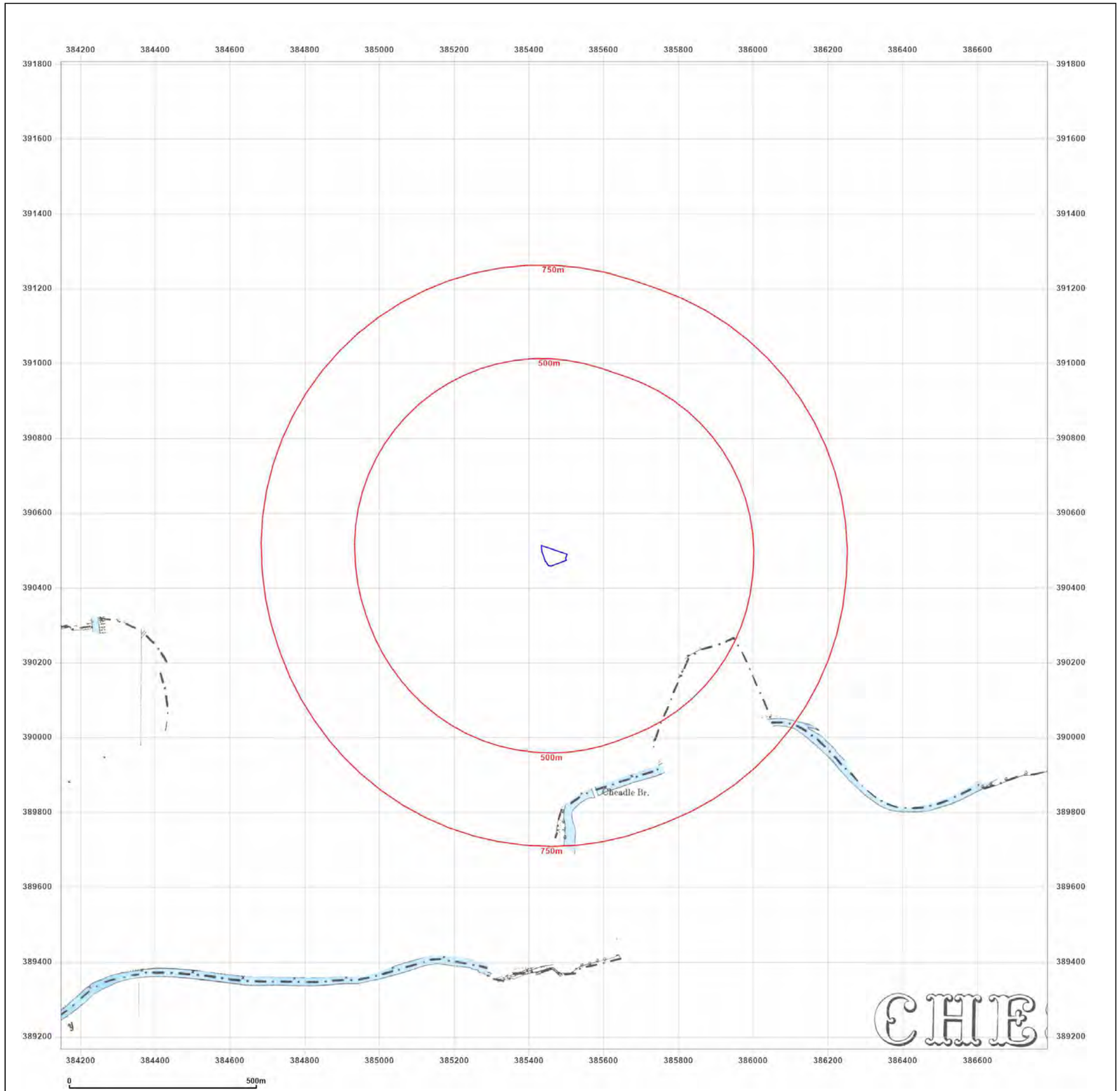
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Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
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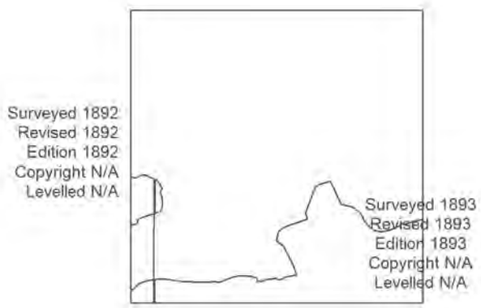
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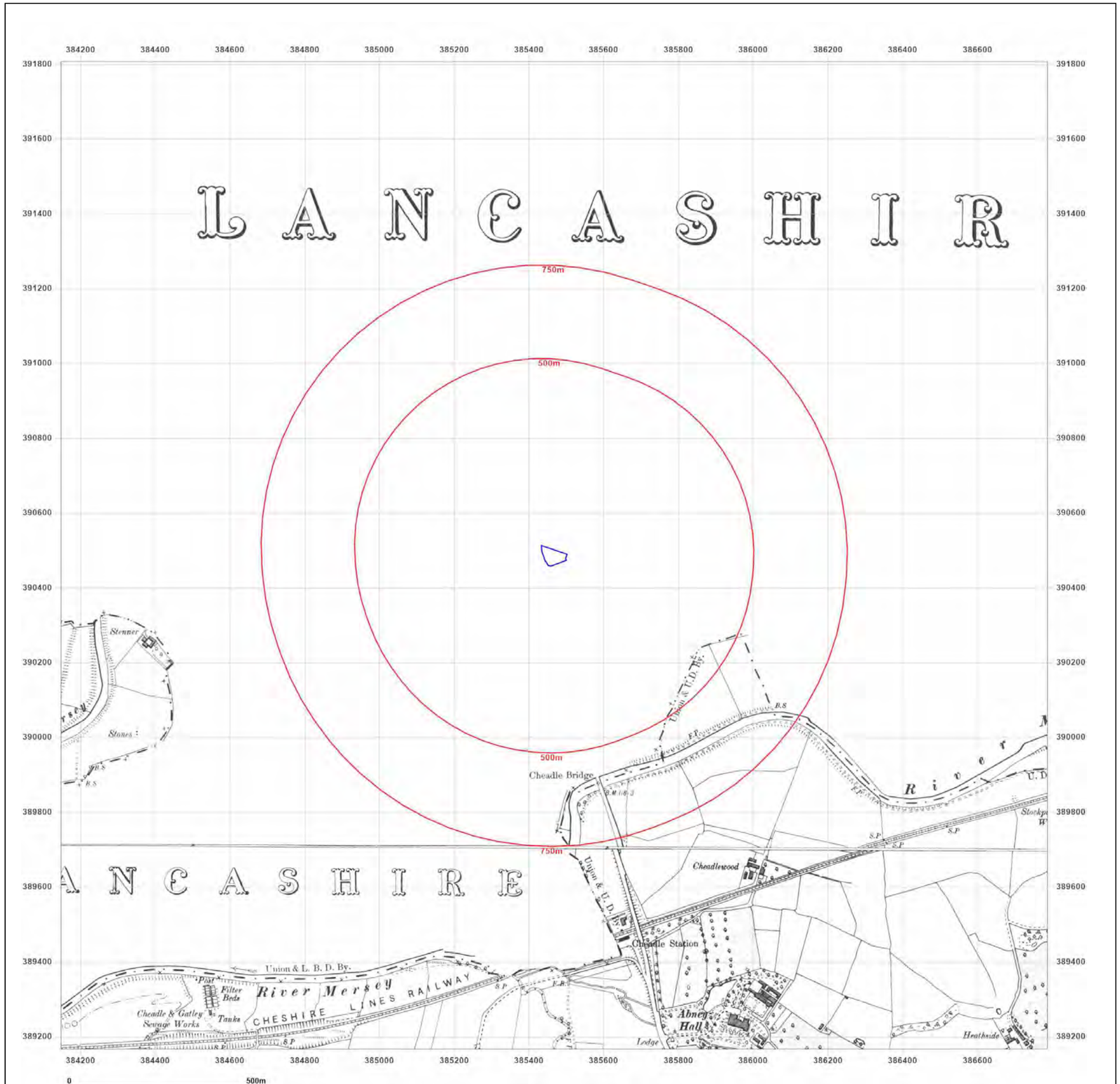
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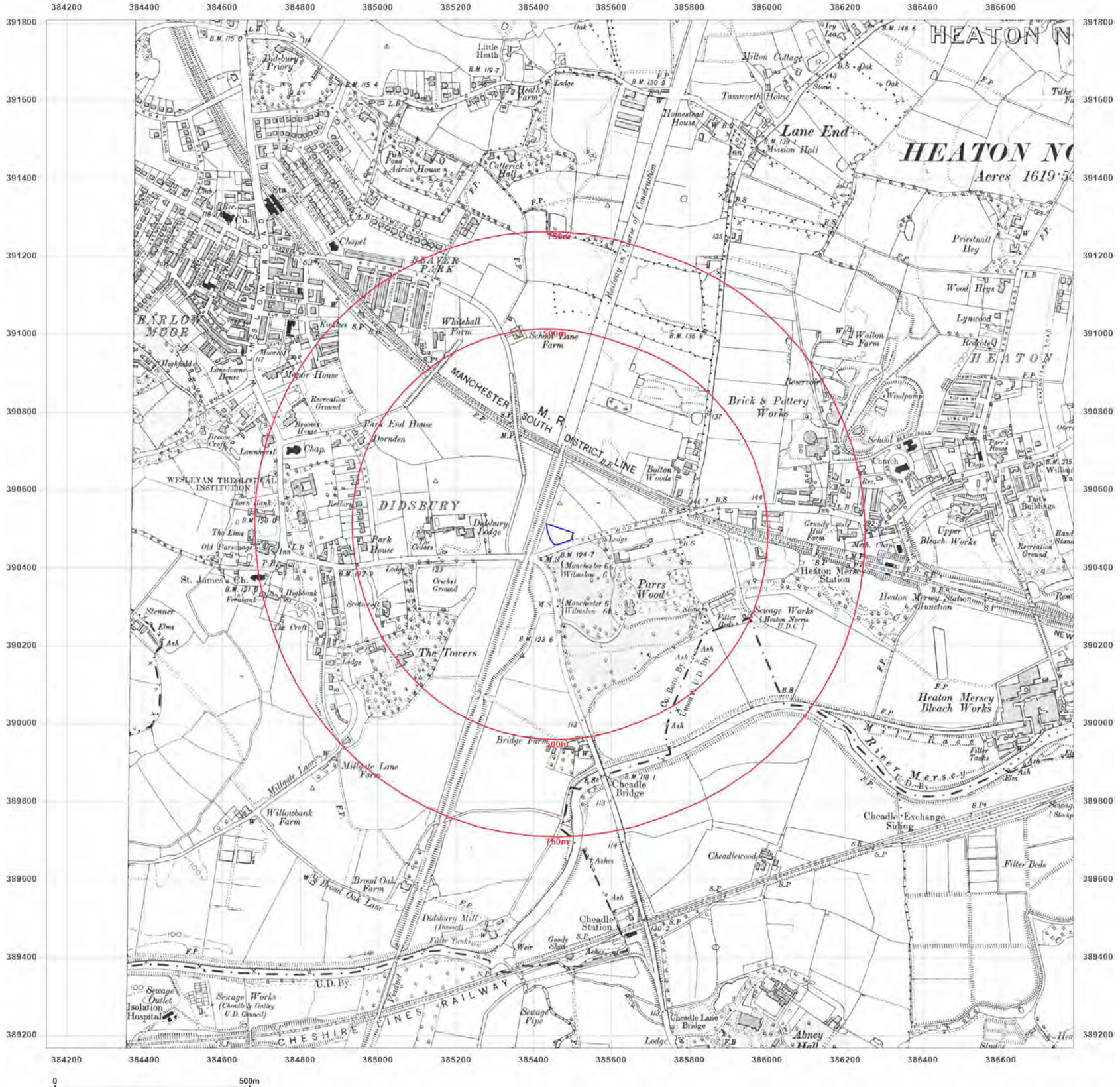
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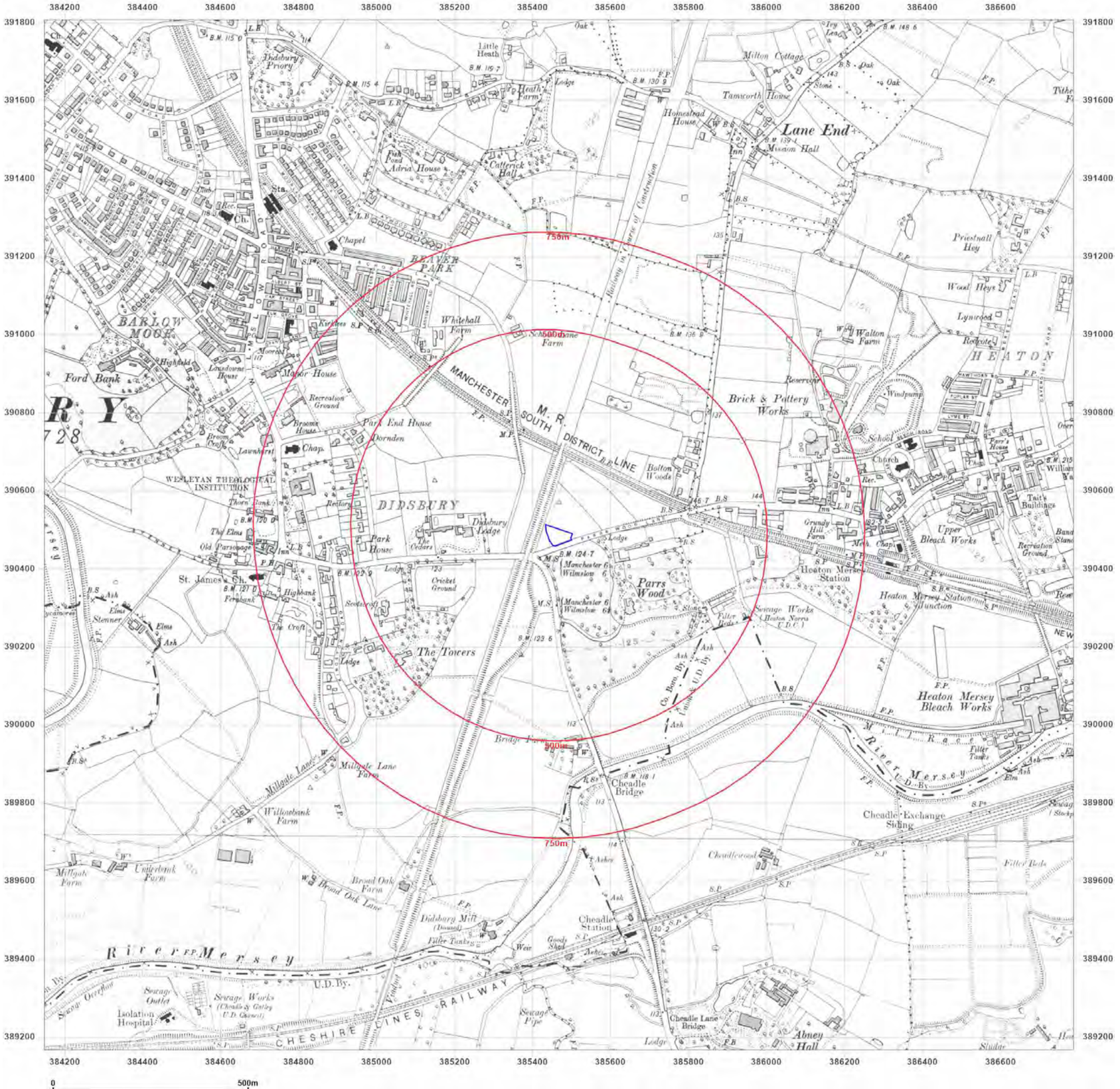
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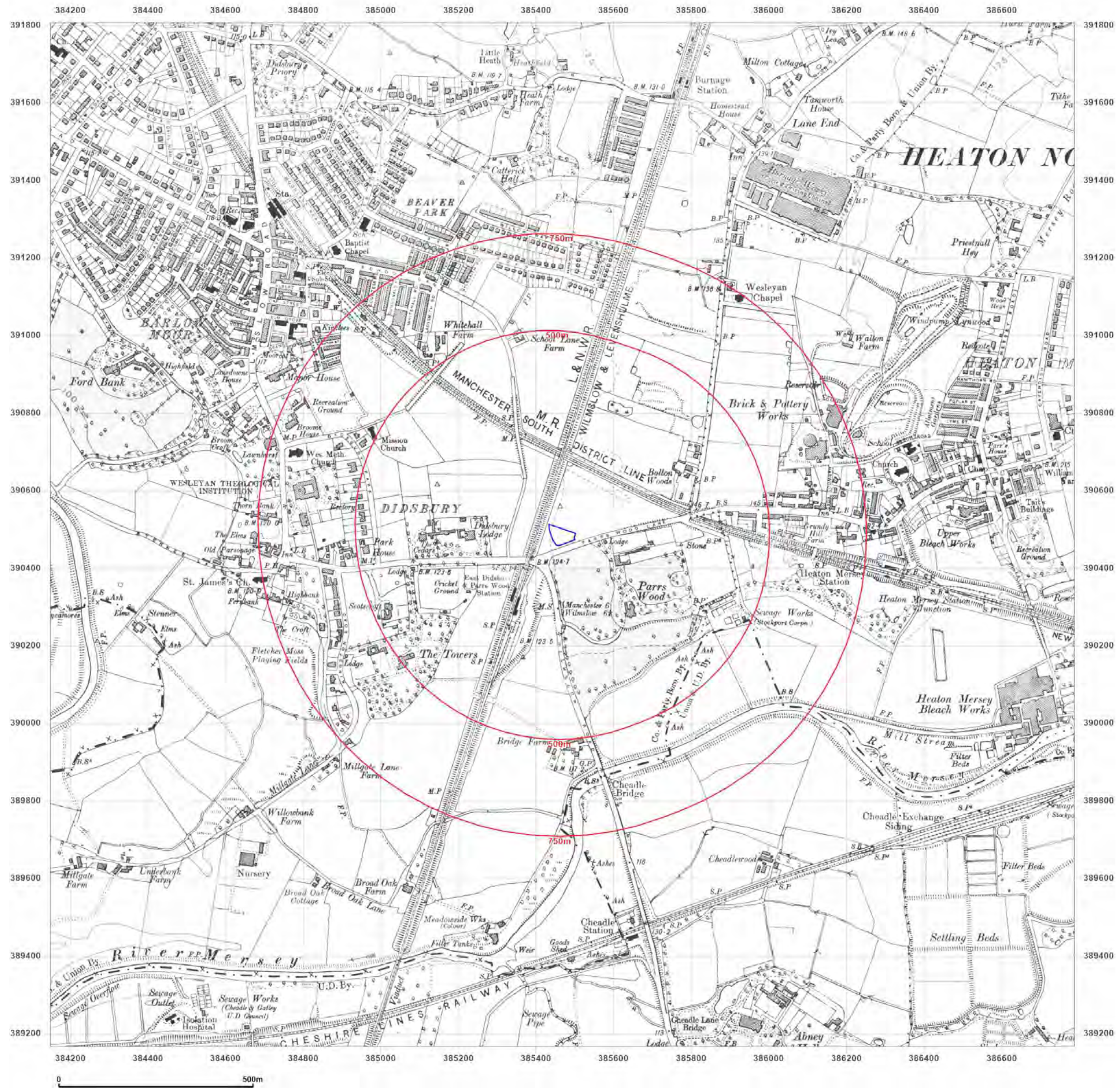
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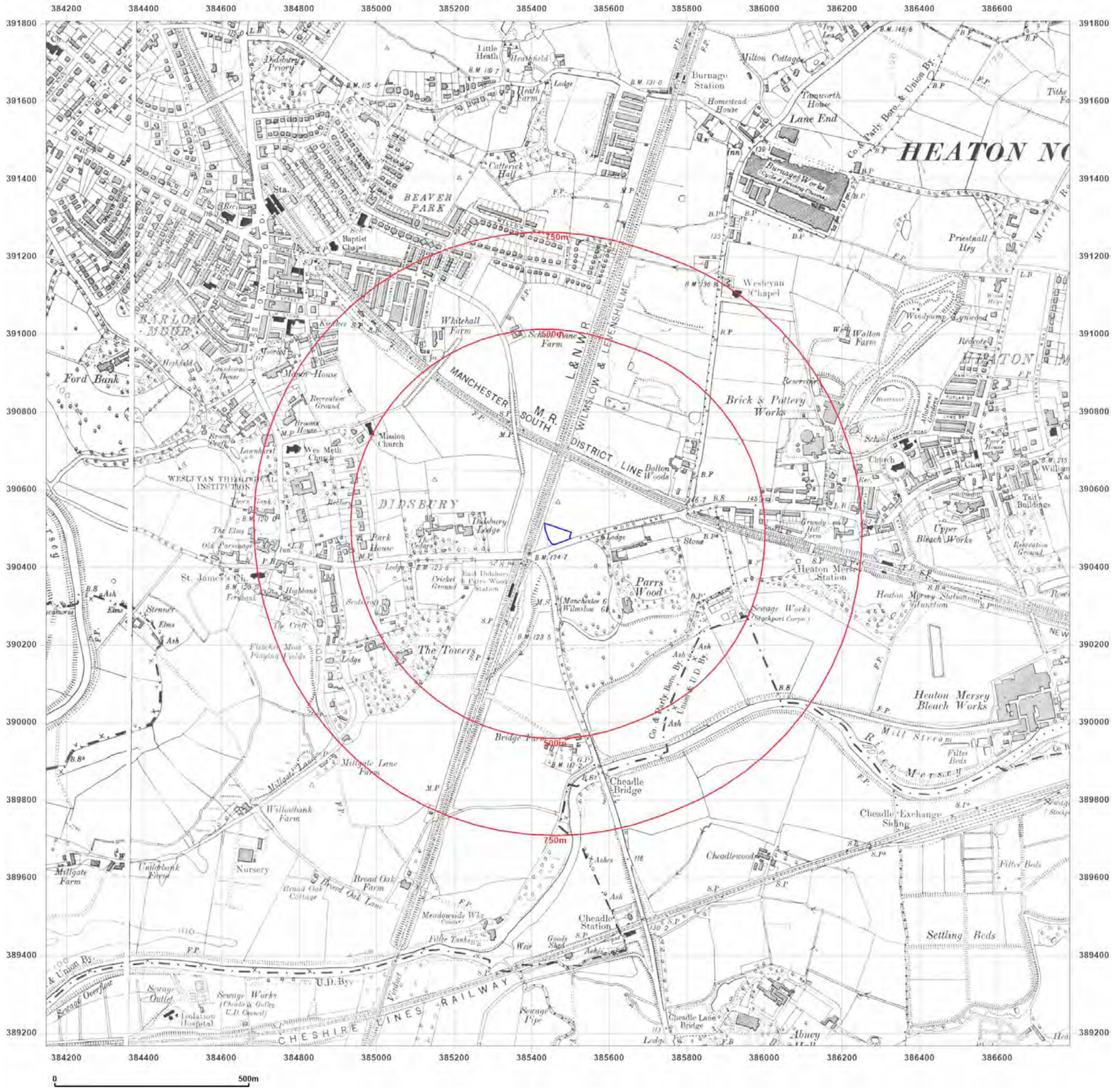
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CCG

Site Details:

Tesco Stores Parrs Wood Lane,
M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

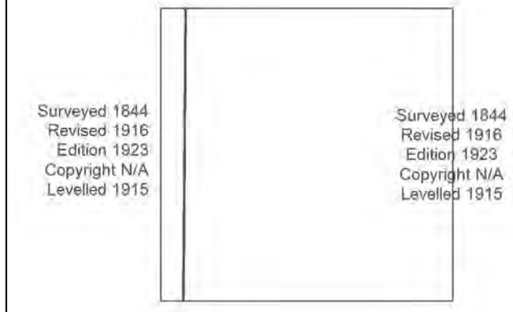
Map Name: County Series

Map date: **1923**

Scale: 1:10,560

Printed at: 1:10,560

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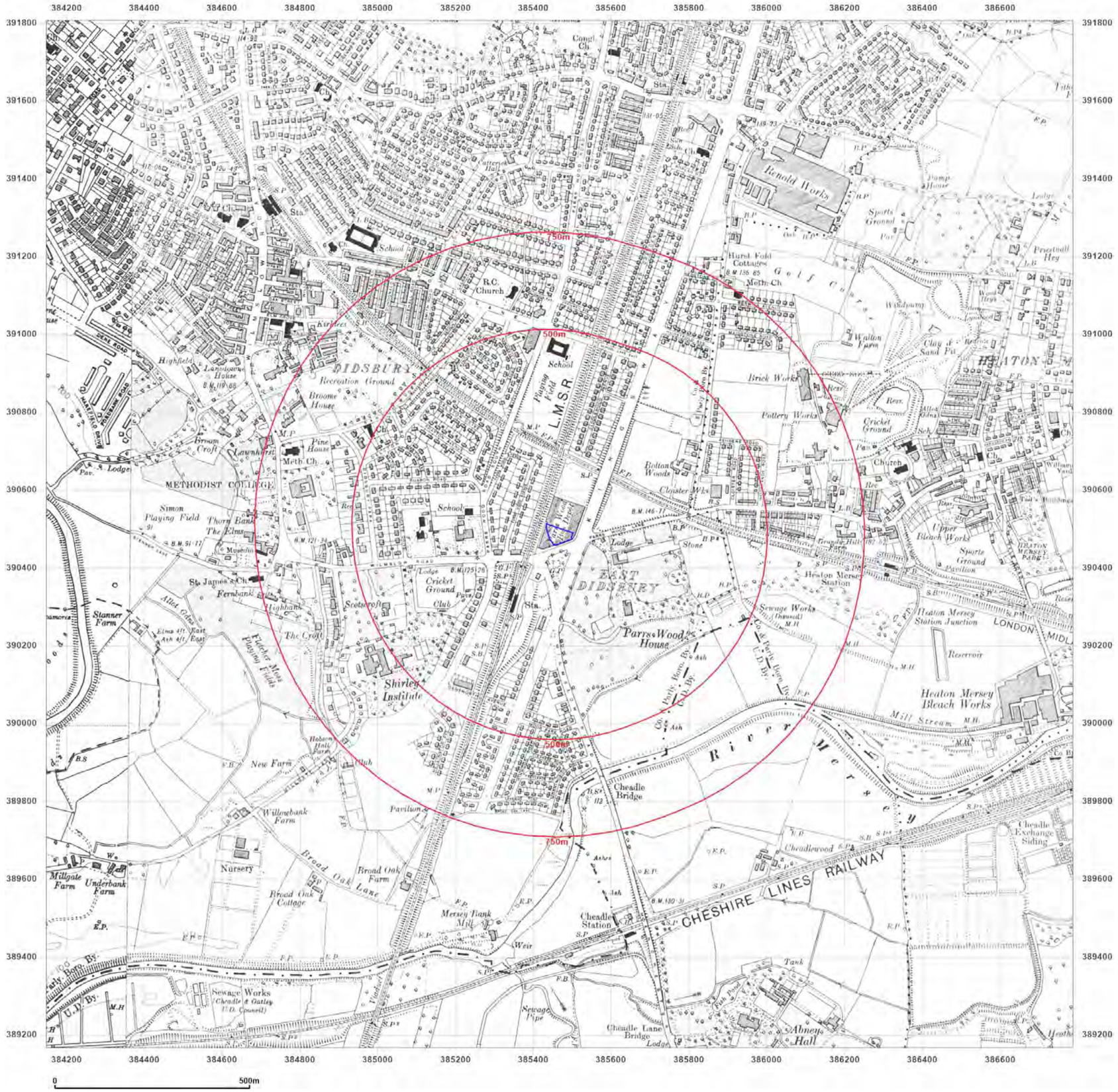
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Production date: 05 October 2021

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Site Details:

Tesco Stores Parrs Wood Lane,
M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

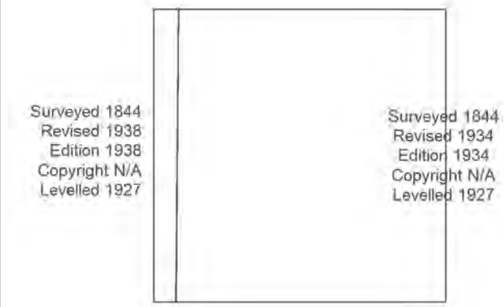
Map Name: County Series

Map date: **1934-1938**

Scale: 1:10,560

Printed at: 1:10,560

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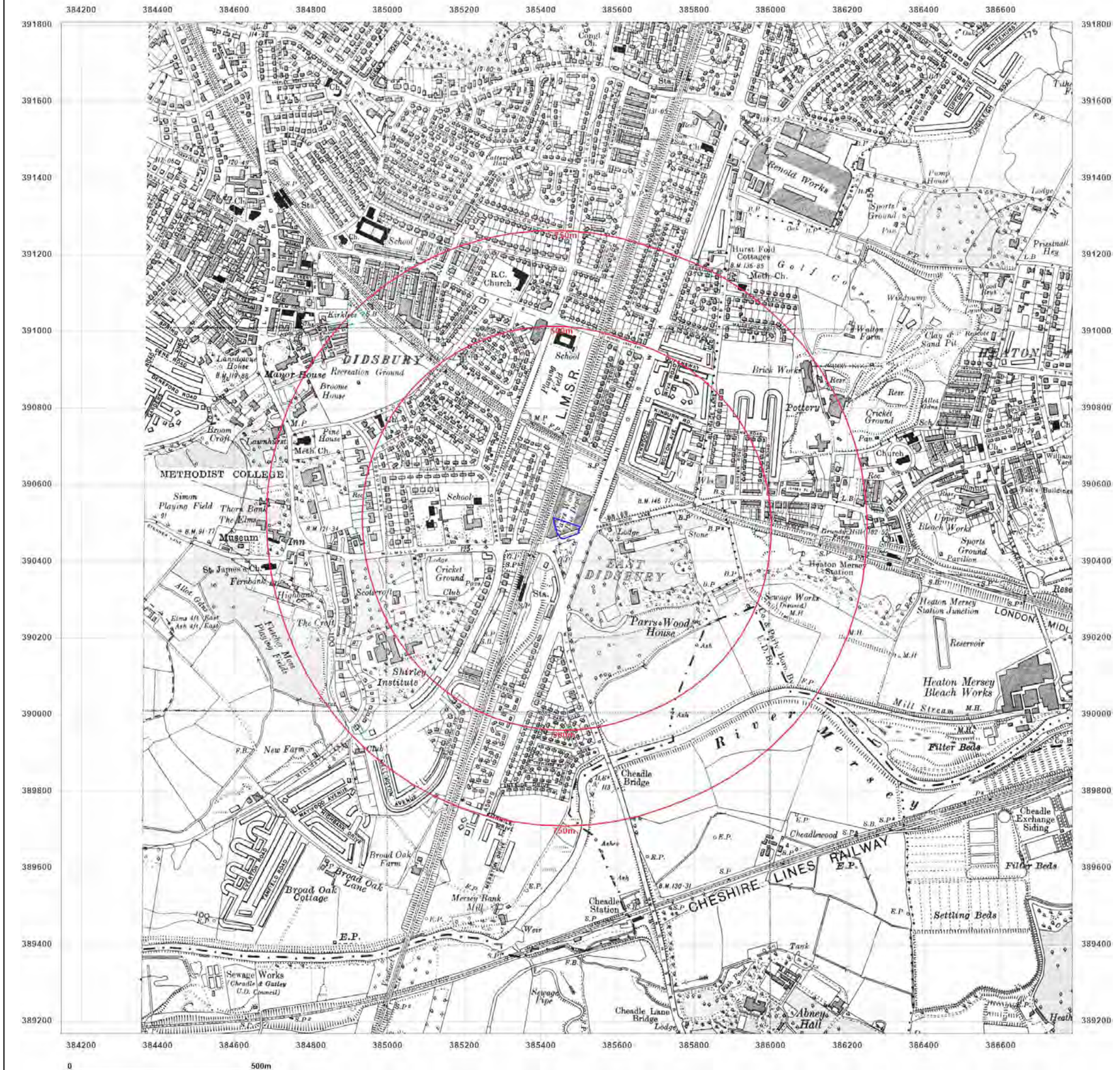
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Site Details:

Tesco Stores Parrs Wood Lane,
M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1872
Revised 1938
Edition 1938
Copyright N/A
Levelled 1927

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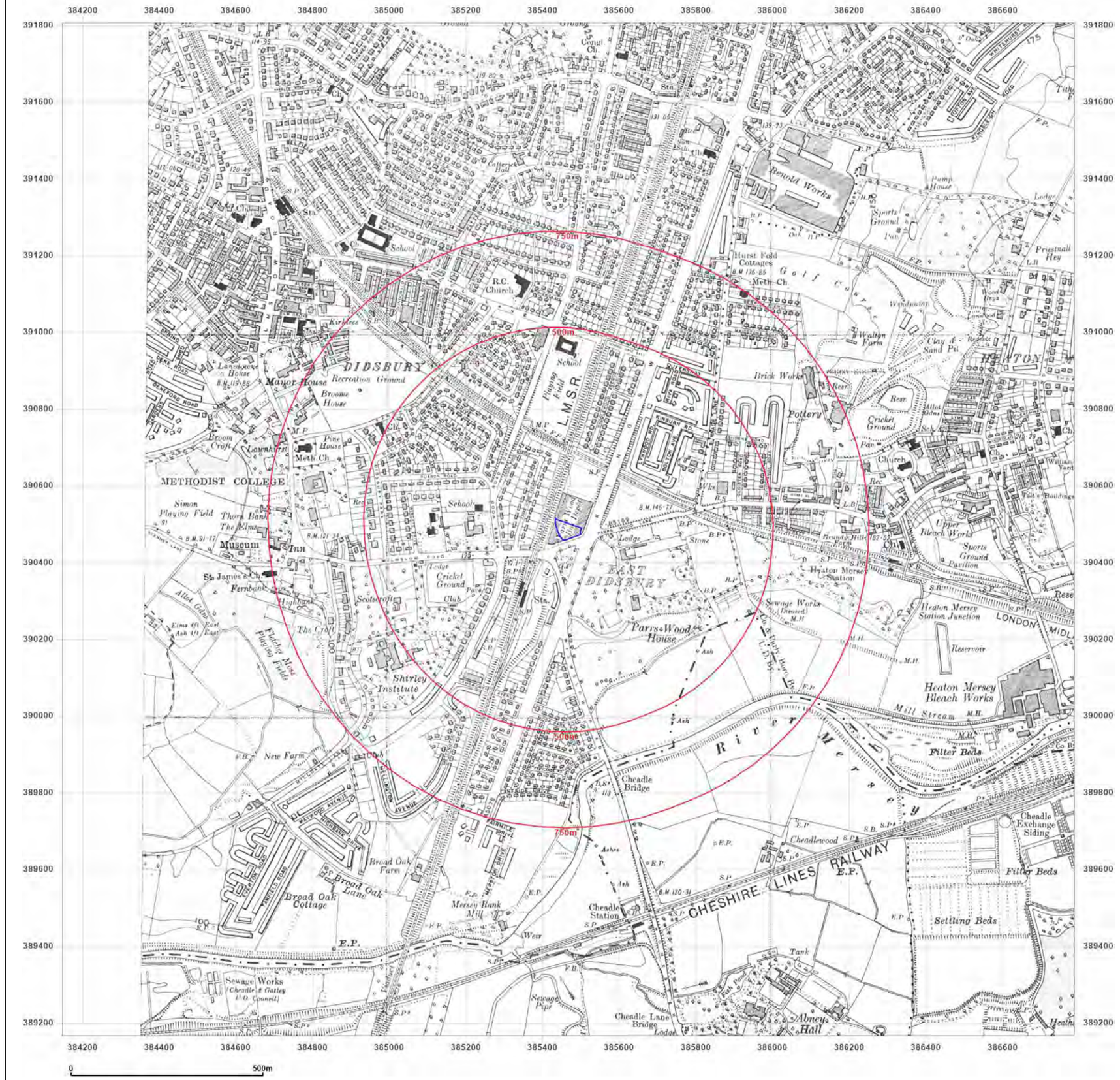
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Site Details:

Tesco Stores Parrs Wood Lane,
M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

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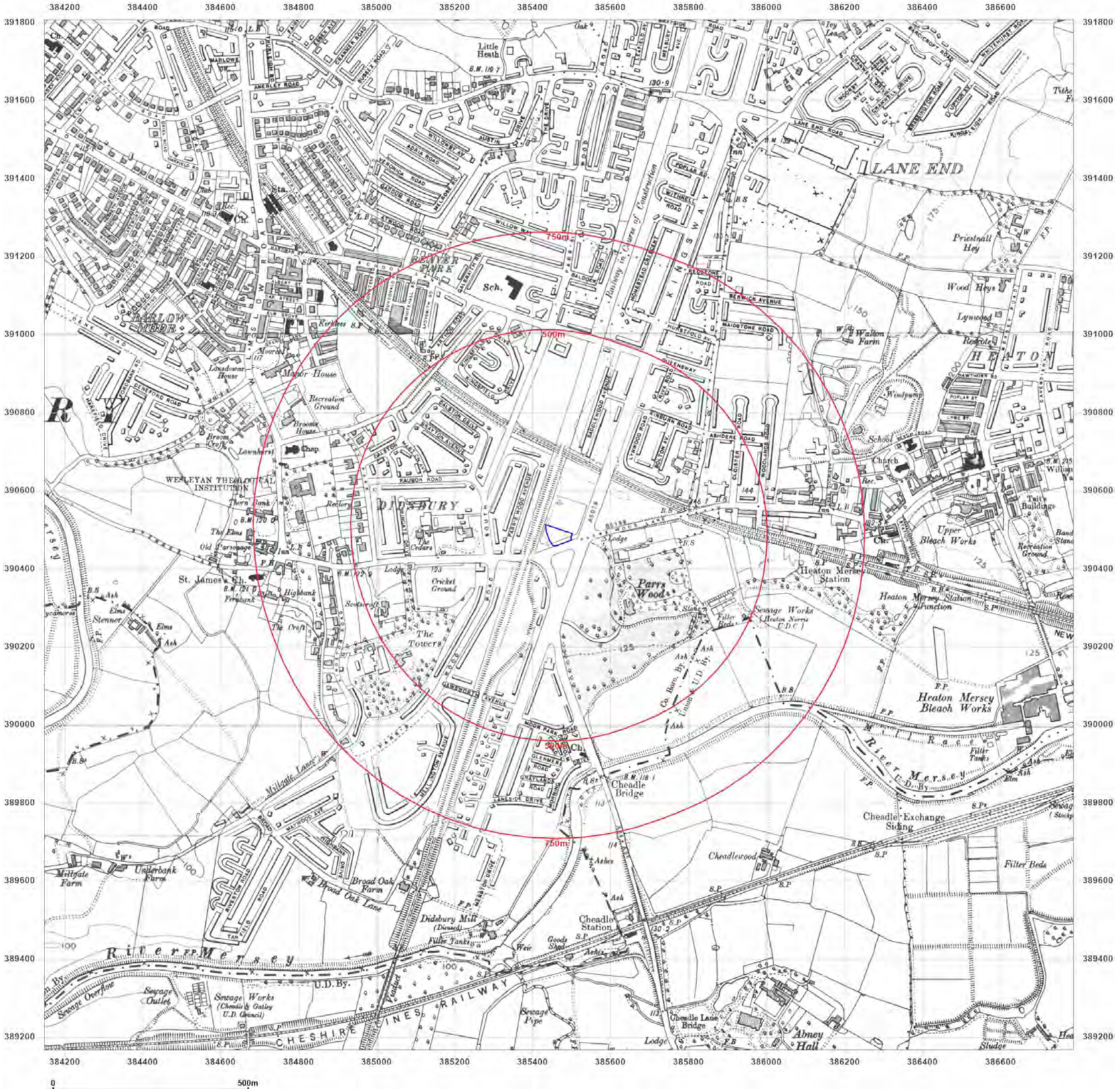
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Site Details:

Tesco Stores Parrs Wood Lane,
M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1872
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A

Surveyed 1872
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A

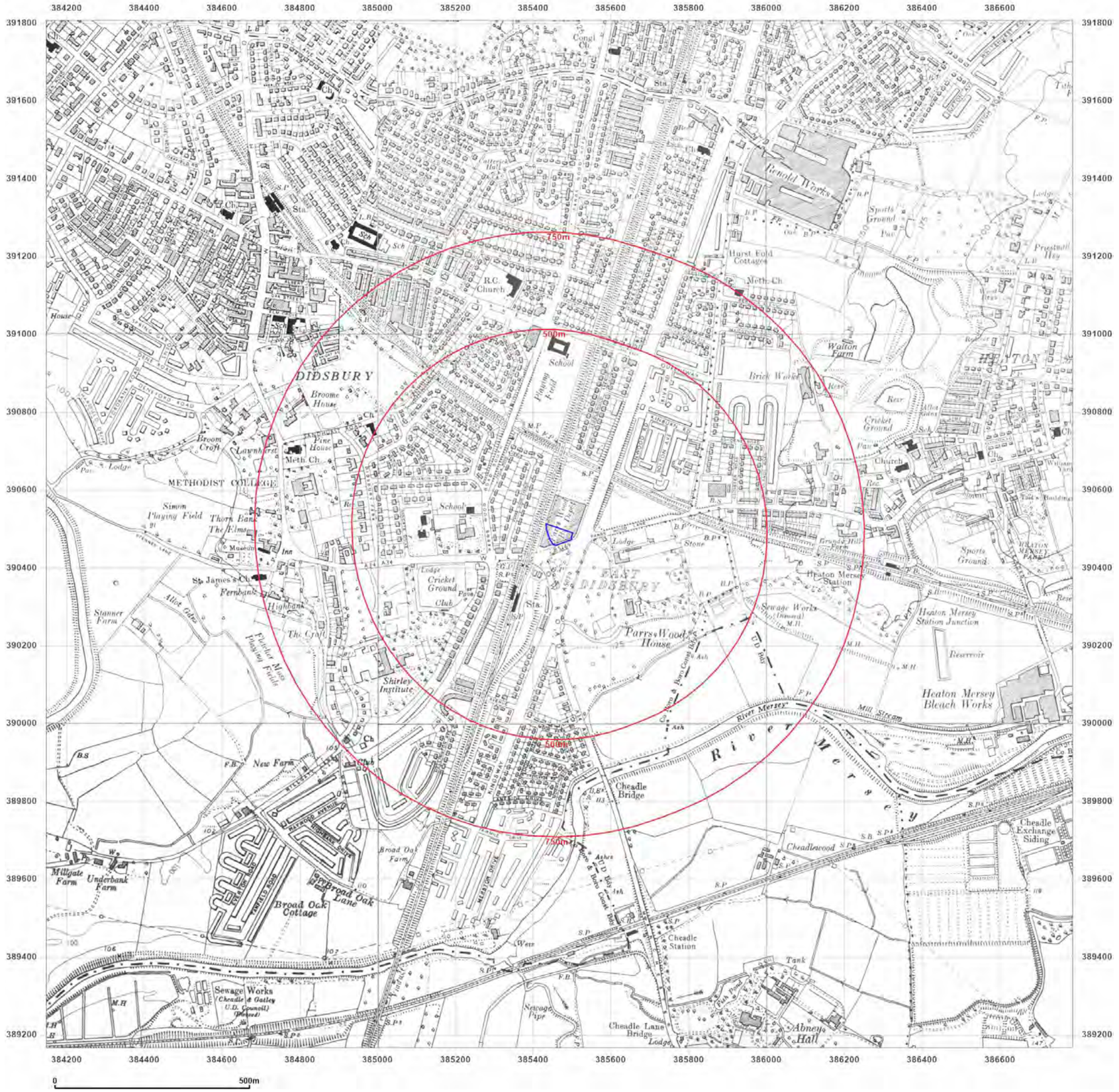
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CCG

Site Details:

Tesco Stores Parrs Wood Lane,
M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: Provisional

Map date: **1954-1955**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed N/A
Revised 1955
Edition N/A
Copyright 1955
Levelled N/A

Surveyed N/A
Revised 1955
Edition N/A
Copyright 1955
Levelled N/A

Surveyed 1949
Revised 1954
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1949
Revised 1953
Edition N/A
Copyright 1954
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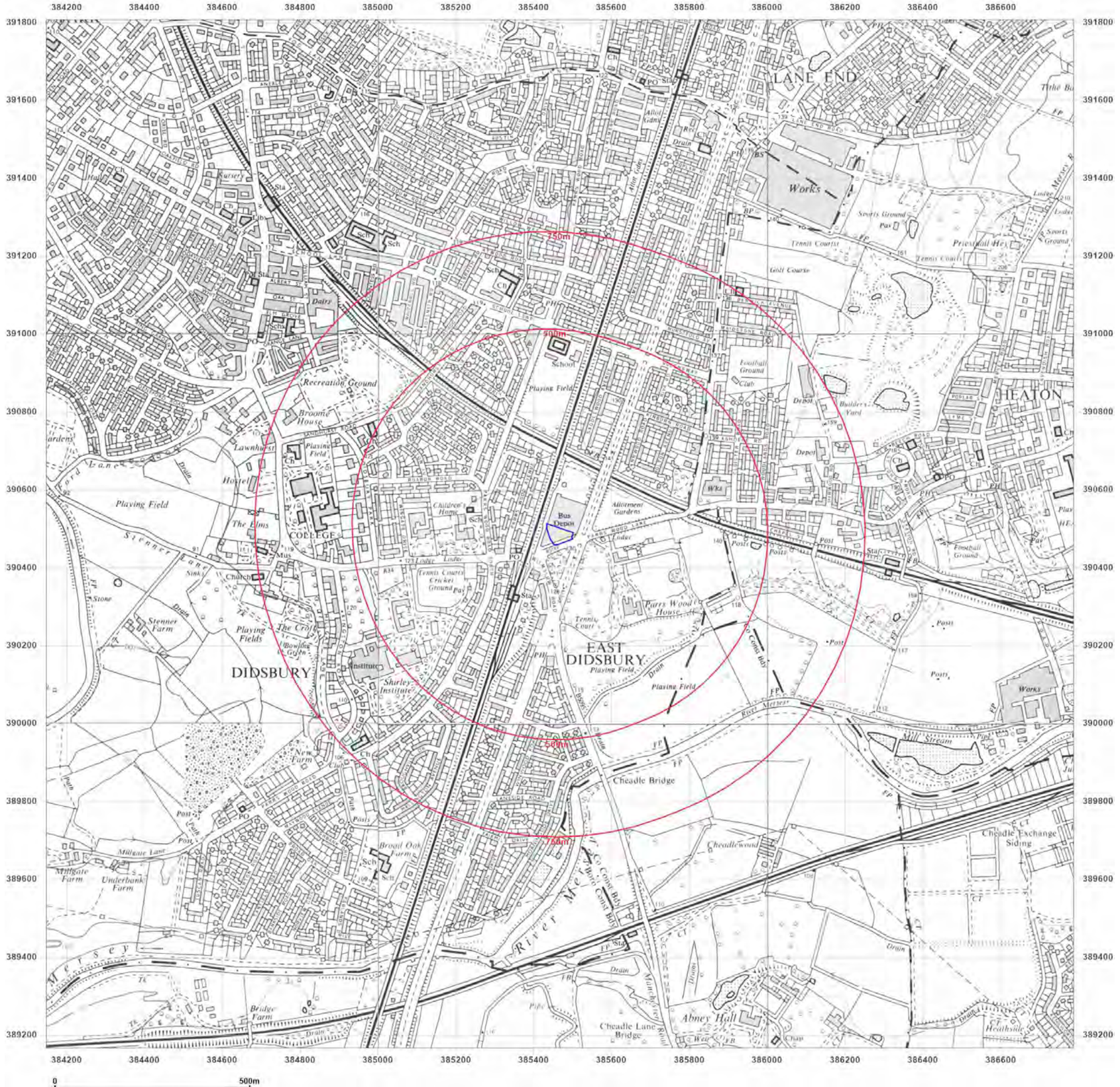
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CCG

Site Details:

Tesco Stores Parrs Wood Lane,
M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: Provisional

Map date: **1965-1967**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1966
Revised 1966
Edition N/A
Copyright 1966
Levelled N/A

Surveyed 1965
Revised 1965
Edition N/A
Copyright 1965
Levelled N/A

Surveyed 1967
Revised 1967
Edition N/A
Copyright 1967
Levelled N/A

Surveyed 1966
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Edition N/A
Copyright 1966
Levelled N/A

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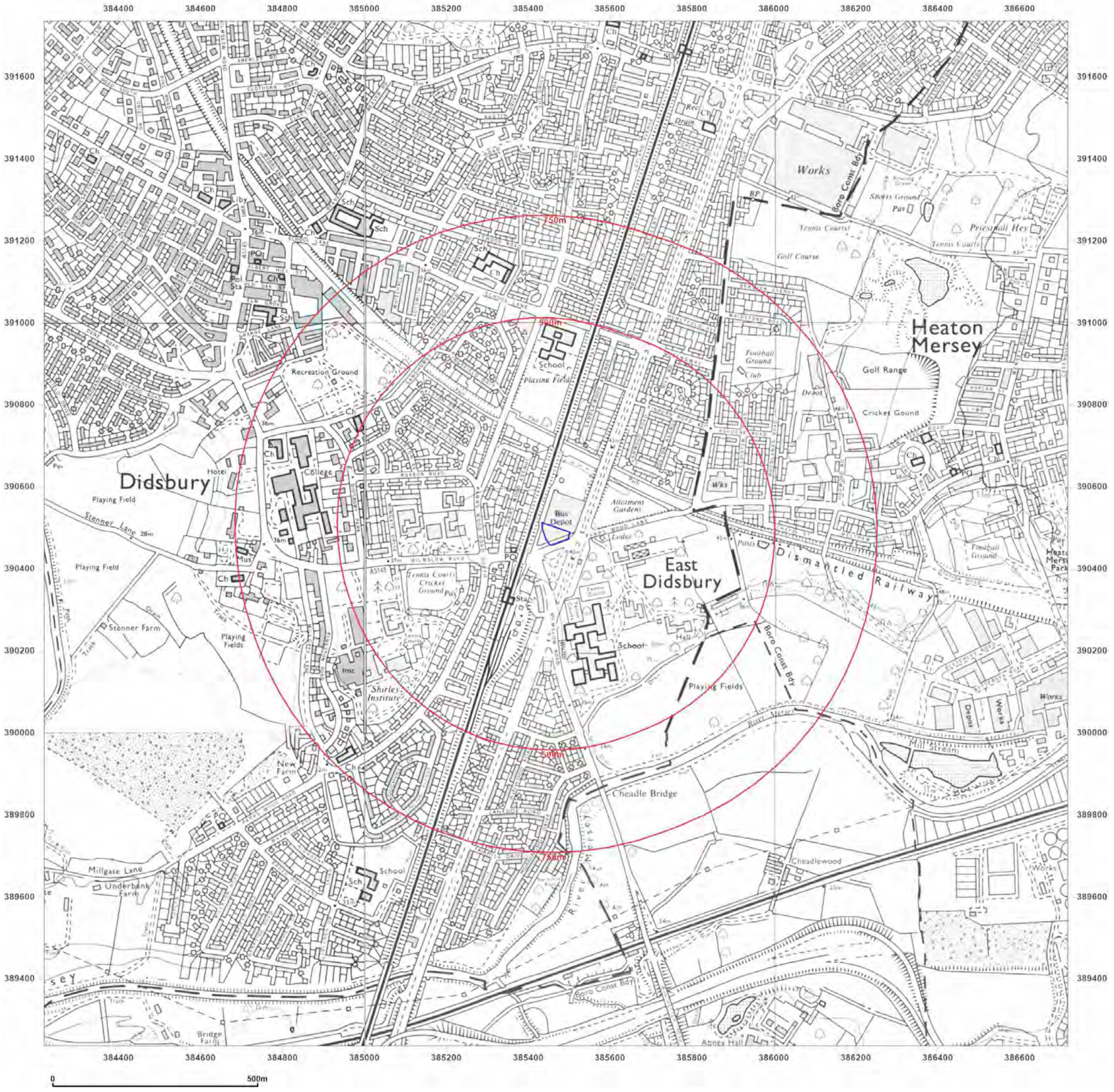
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Site Details:

Tesco Stores Parrs Wood Lane,
M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: National Grid

Map date: **1976-1981**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
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Surveyed 1977
Revised 1981
Edition N/A
Copyright 1981
Levelled 1976

Surveyed 1974
Revised 1975
Edition N/A
Copyright 1976
Levelled 1964

Surveyed 1975
Revised 1977
Edition N/A
Copyright 1977
Levelled 1964

Surveyed 1975
Revised 1978
Edition N/A
Copyright 1978
Levelled 1964

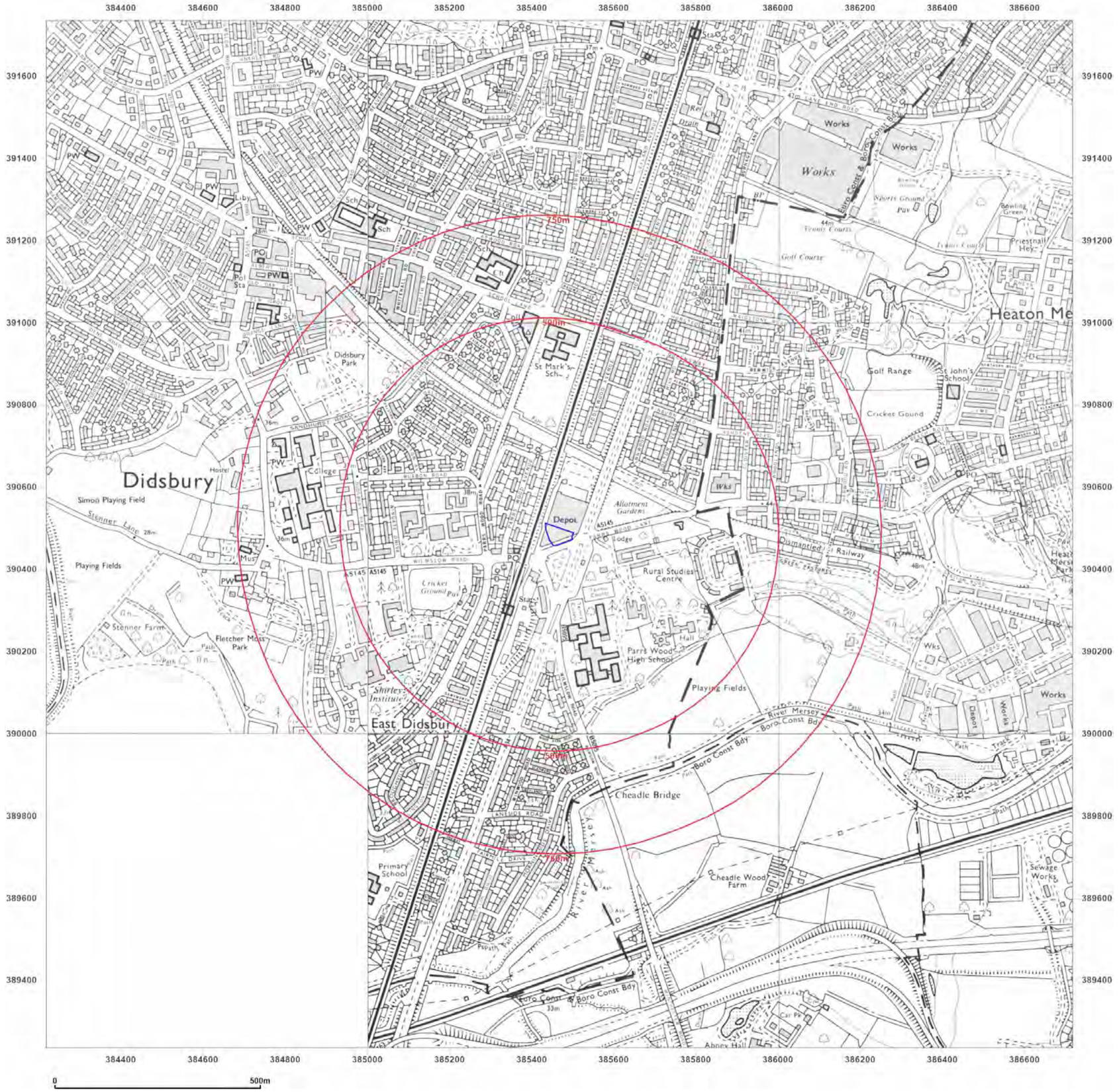
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Site Details:

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M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: National Grid

Map date: **1983-1988**

Scale: 1:10,000

Printed at: 1:10,000

N
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Surveyed 1985
Revised 1988
Edition N/A
Copyright 1988
Levelled 1981

Surveyed 1981
Revised 1983
Edition N/A
Copyright 1983
Levelled 1981

Surveyed 1983
Revised 1983
Edition N/A
Copyright 1983
Levelled 1981

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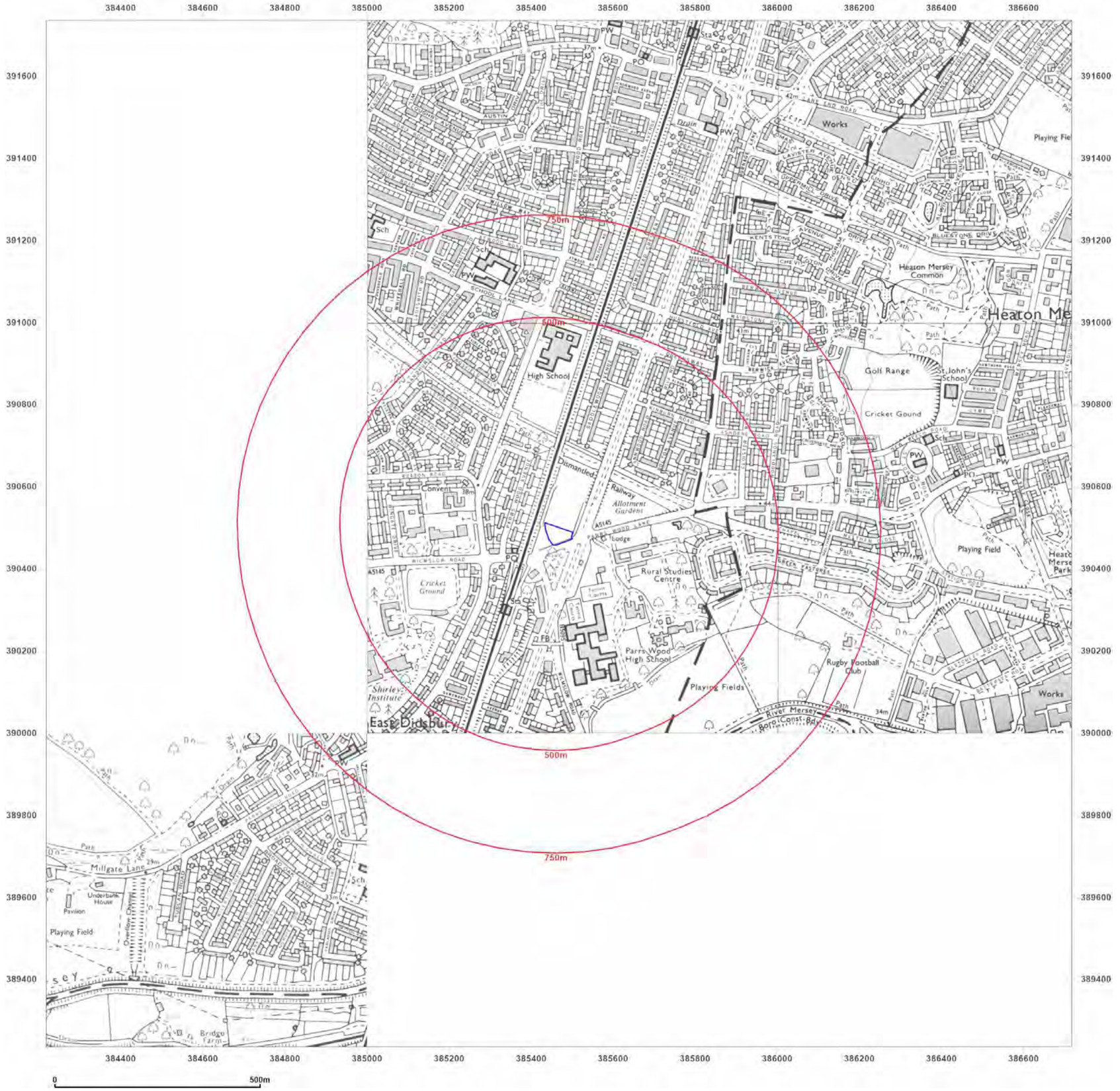
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Site Details:

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M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: National Grid

Map date: **1989**

Scale: 1:10,000

Printed at: 1:10,000

N
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Surveyed 1986
Revised 1989
Edition N/A
Copyright 1989
Levelled 1981

Surveyed 1984
Revised 1989
Edition N/A
Copyright 1989
Levelled 1981

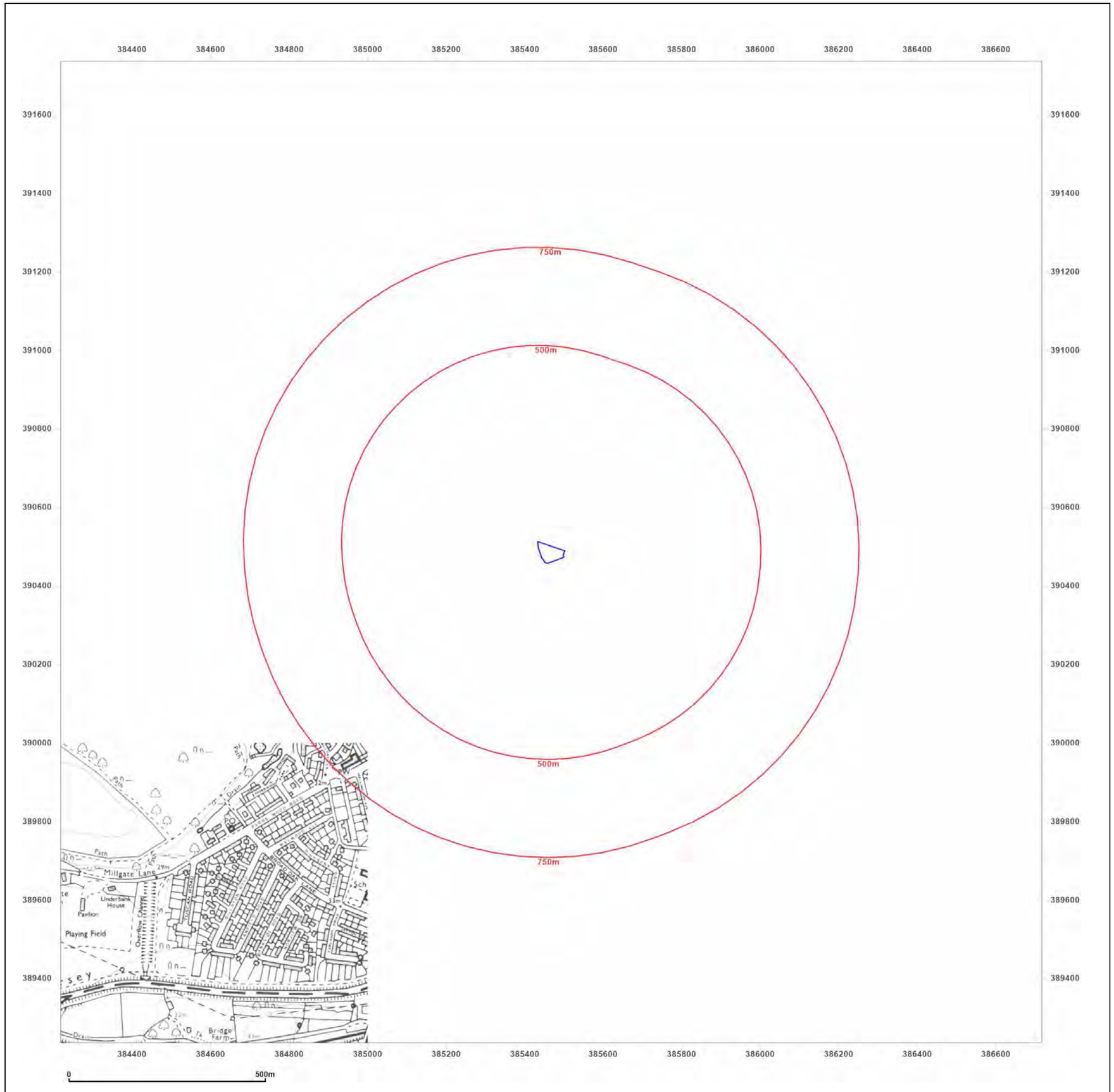
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Site Details:

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M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

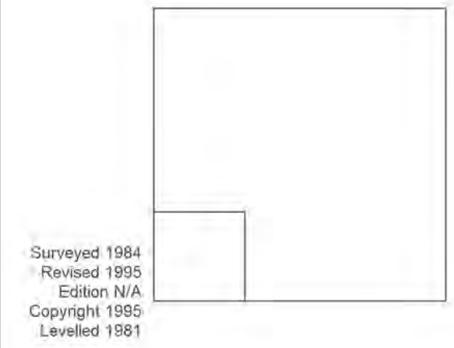
Map Name: National Grid

Map date: **1995**

Scale: 1:10,000

Printed at: 1:10,000

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Site Details:

Tesco Stores Parrs Wood Lane,
M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: National Grid

Map date: **2001**

Scale: 1:10,000

Printed at: 1:10,000

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Site Details:

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M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

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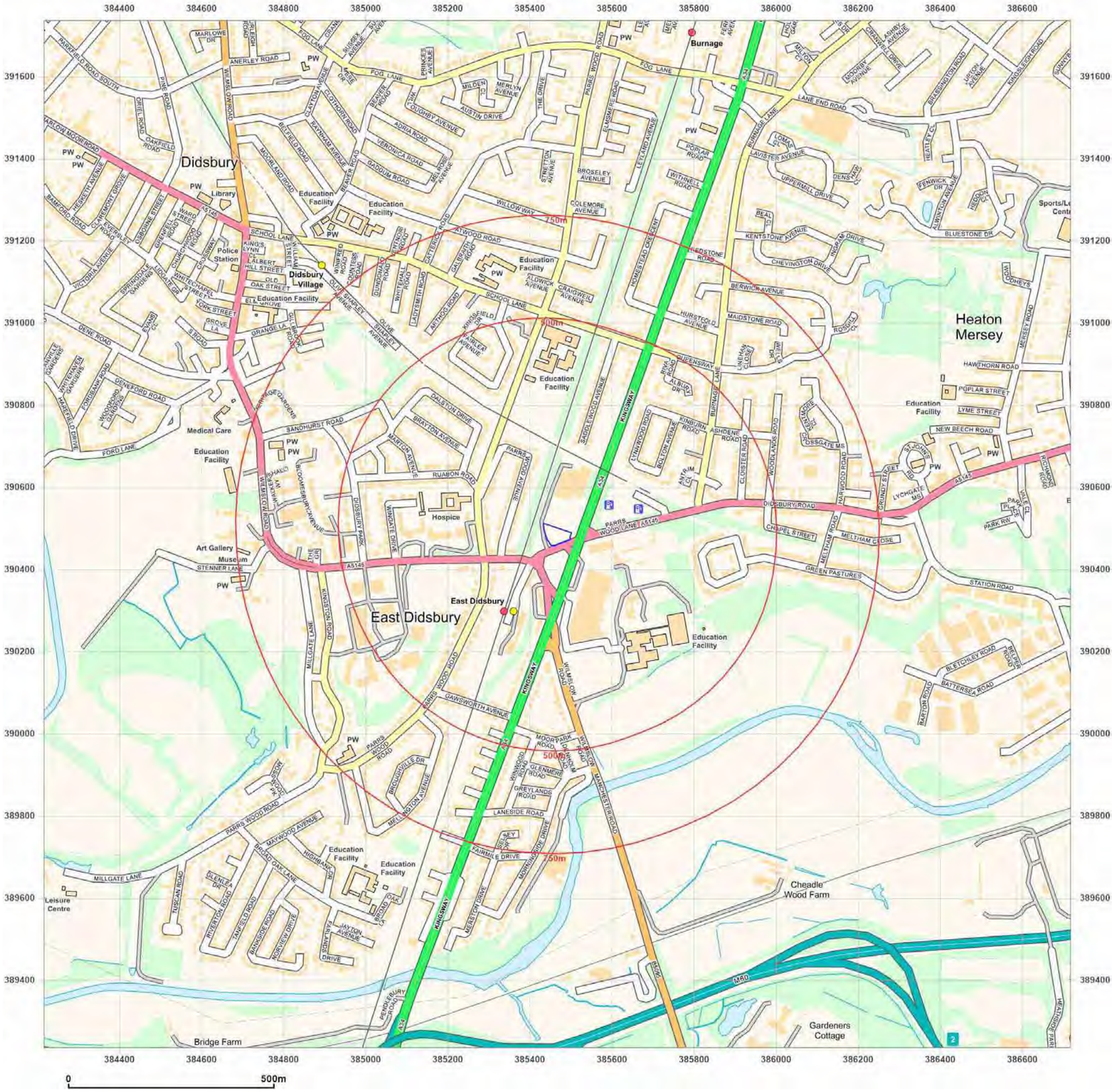
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CCG

Site Details:

Tesco Stores Parrs Wood Lane,
M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: National Grid

Map date: **2021**

Scale: 1:10,000

Printed at: 1:10,000

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2021

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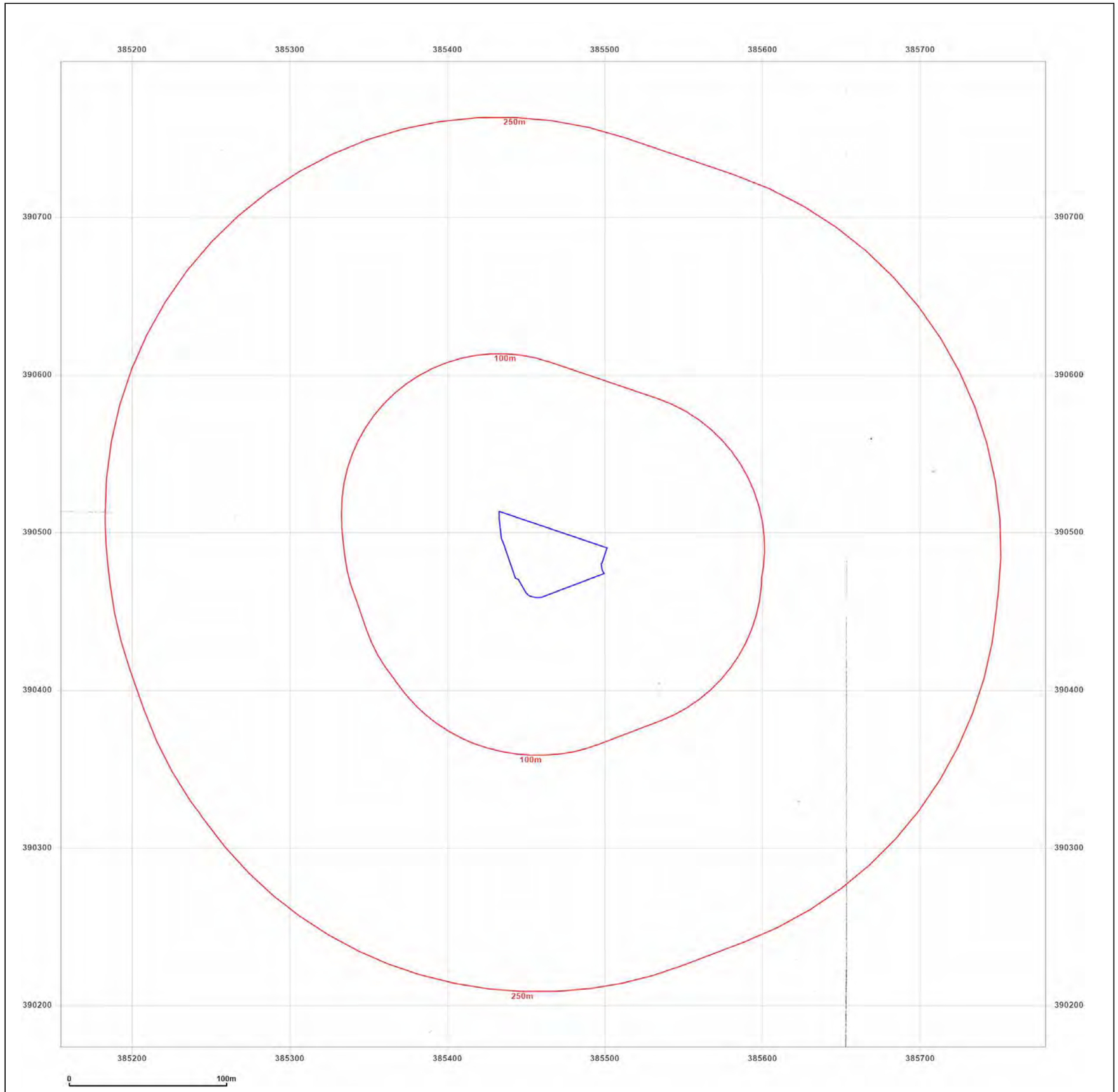
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Site Details:

Tesco Stores Parrs Wood Lane,
M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

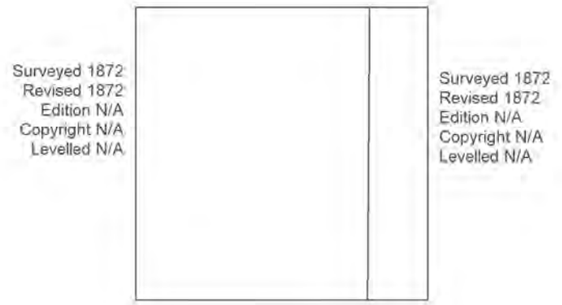
Map Name: County Series

Map date: **1872**

Scale: 1:2,500

Printed at: 1:2,500

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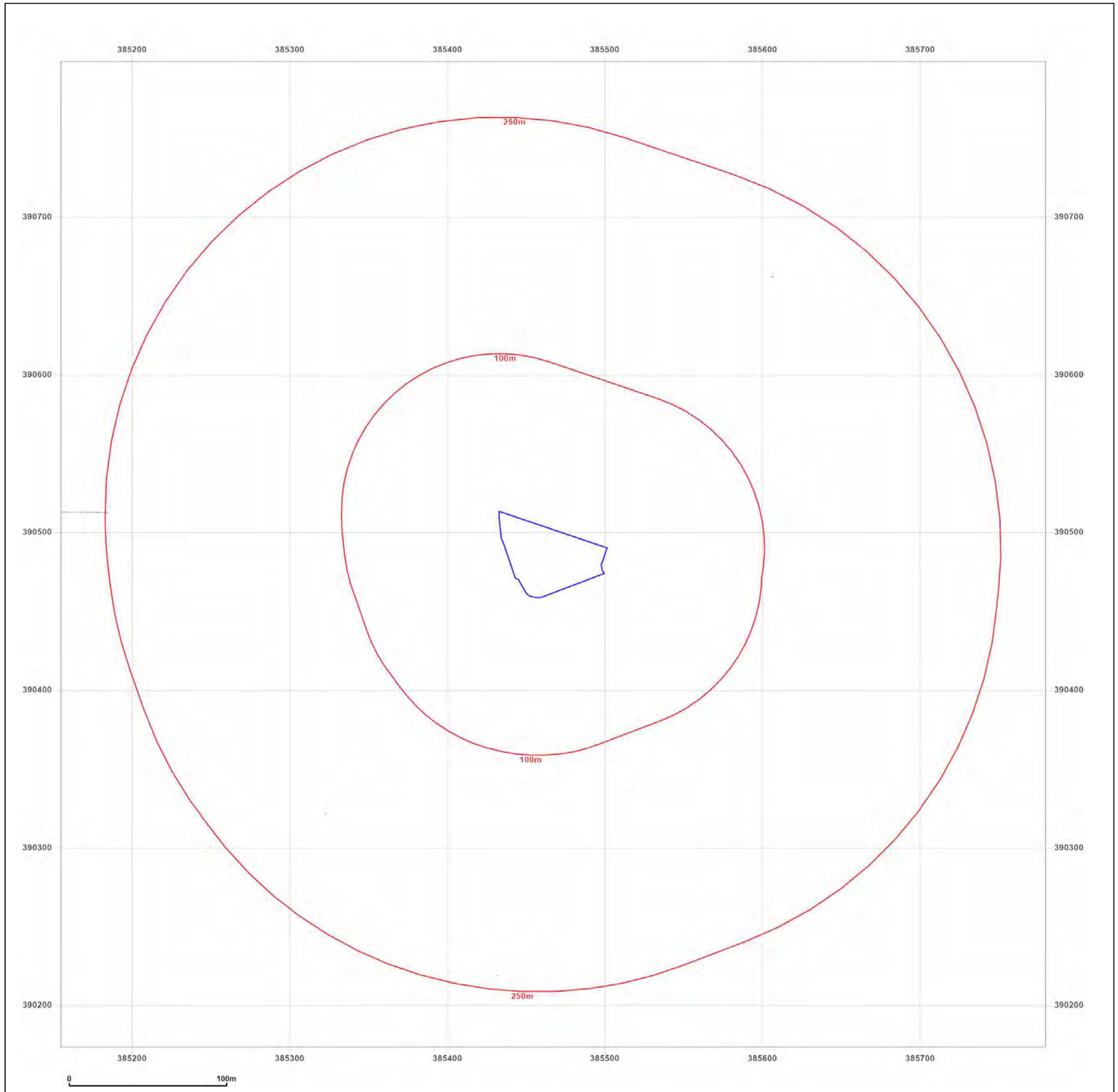
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Production date: 05 October 2021

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Site Details:

Tesco Stores Parrs Wood Lane,
M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

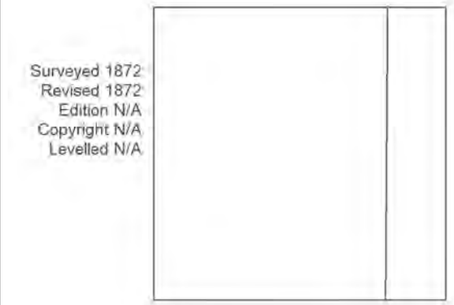
Map Name: County Series

Map date: **1872**

Scale: 1:2,500

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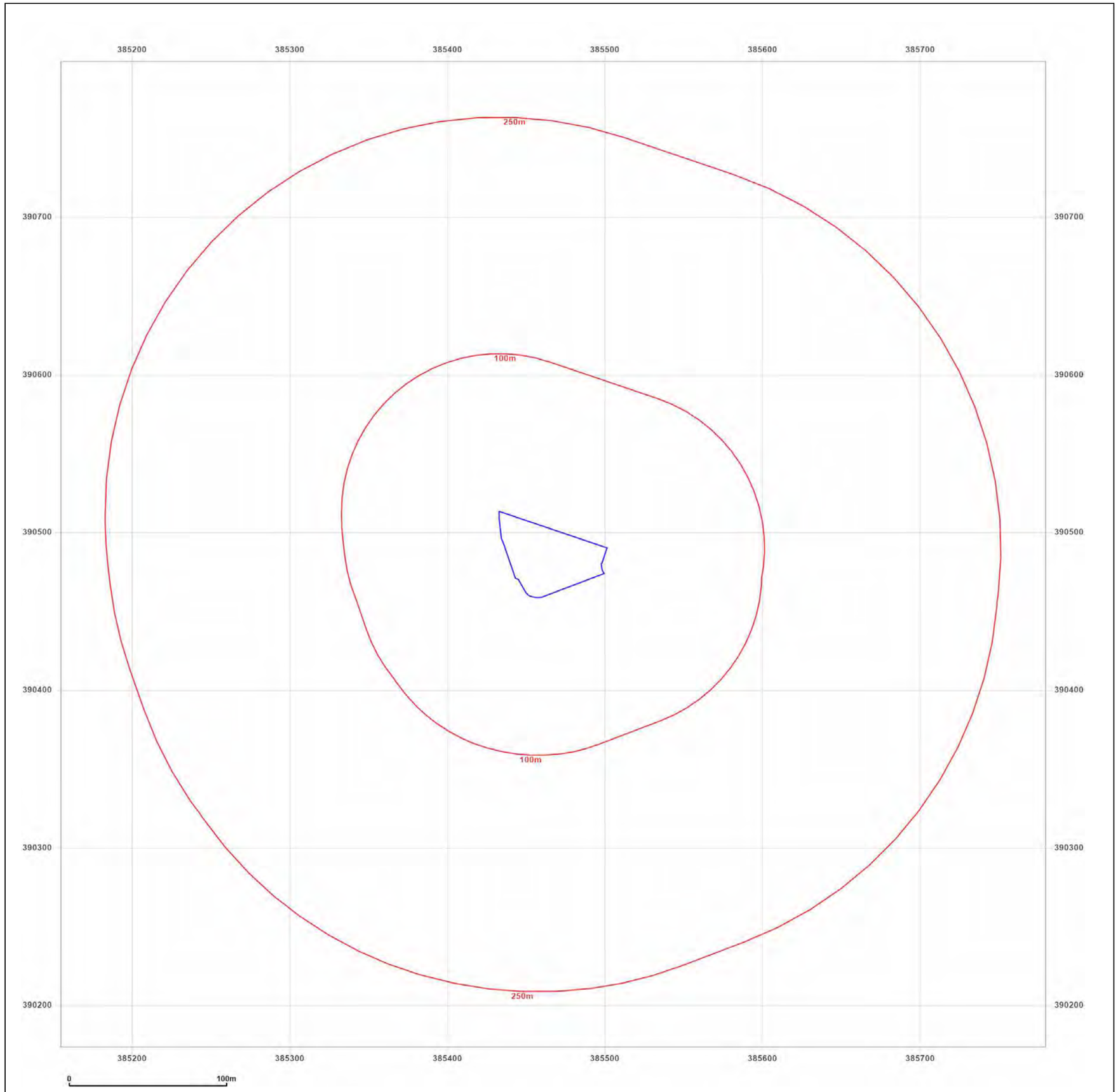
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Site Details:

Tesco Stores Parrs Wood Lane,
M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

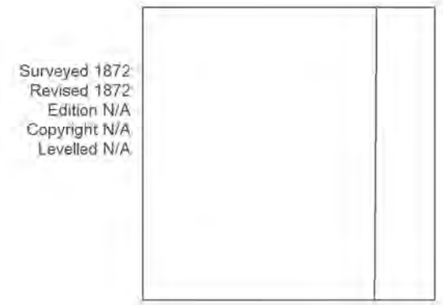
Map Name: County Series

Map date: **1872**

Scale: 1:2,500

Printed at: 1:2,500

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W E
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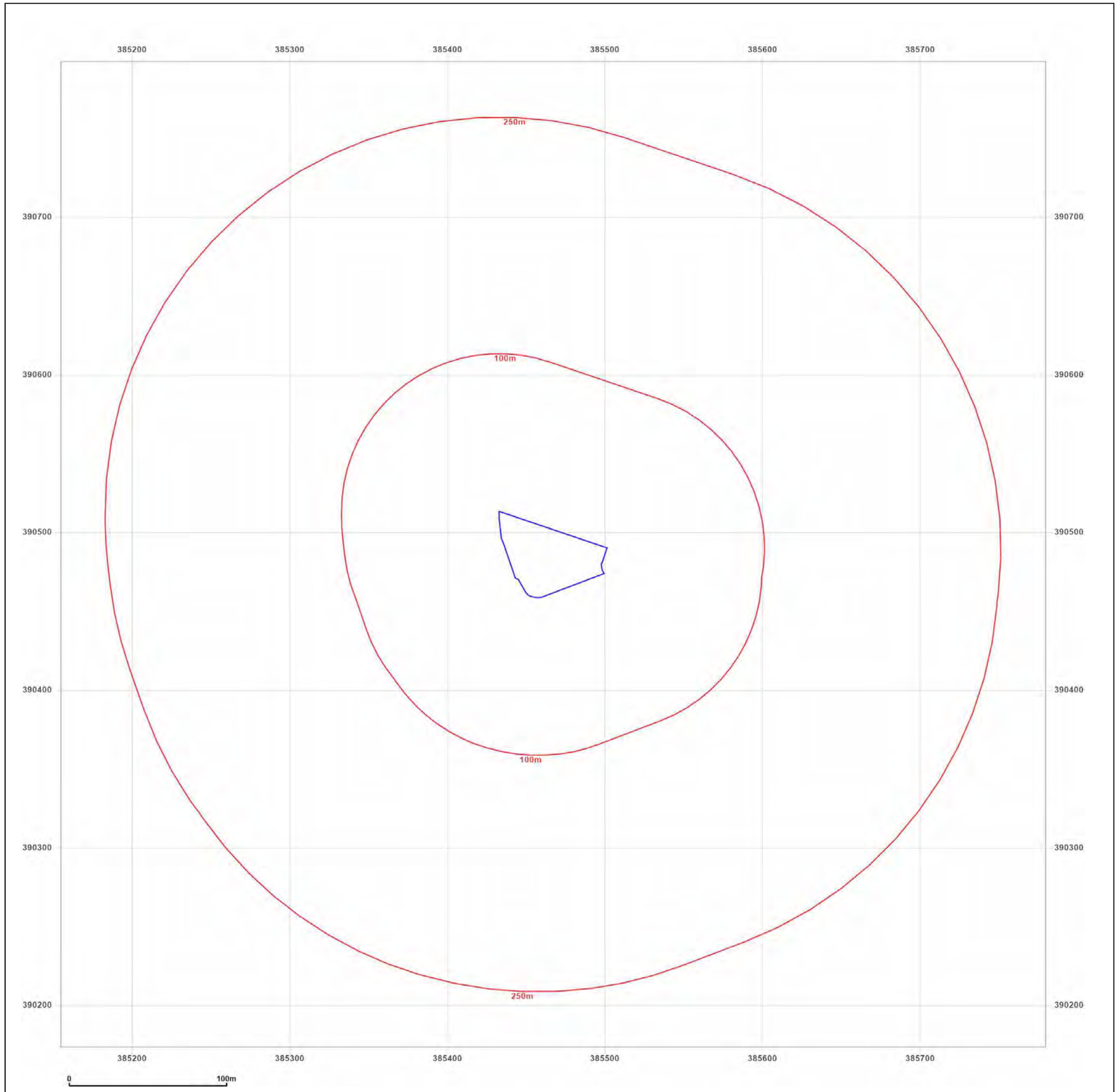
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Site Details:

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M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

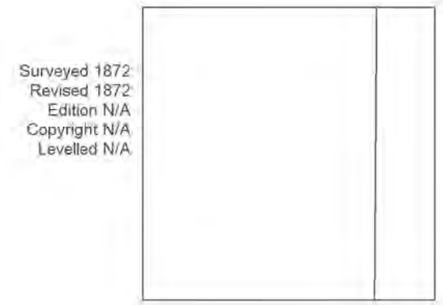
Map Name: County Series

Map date: **1872**

Scale: 1:2,500

Printed at: 1:2,500

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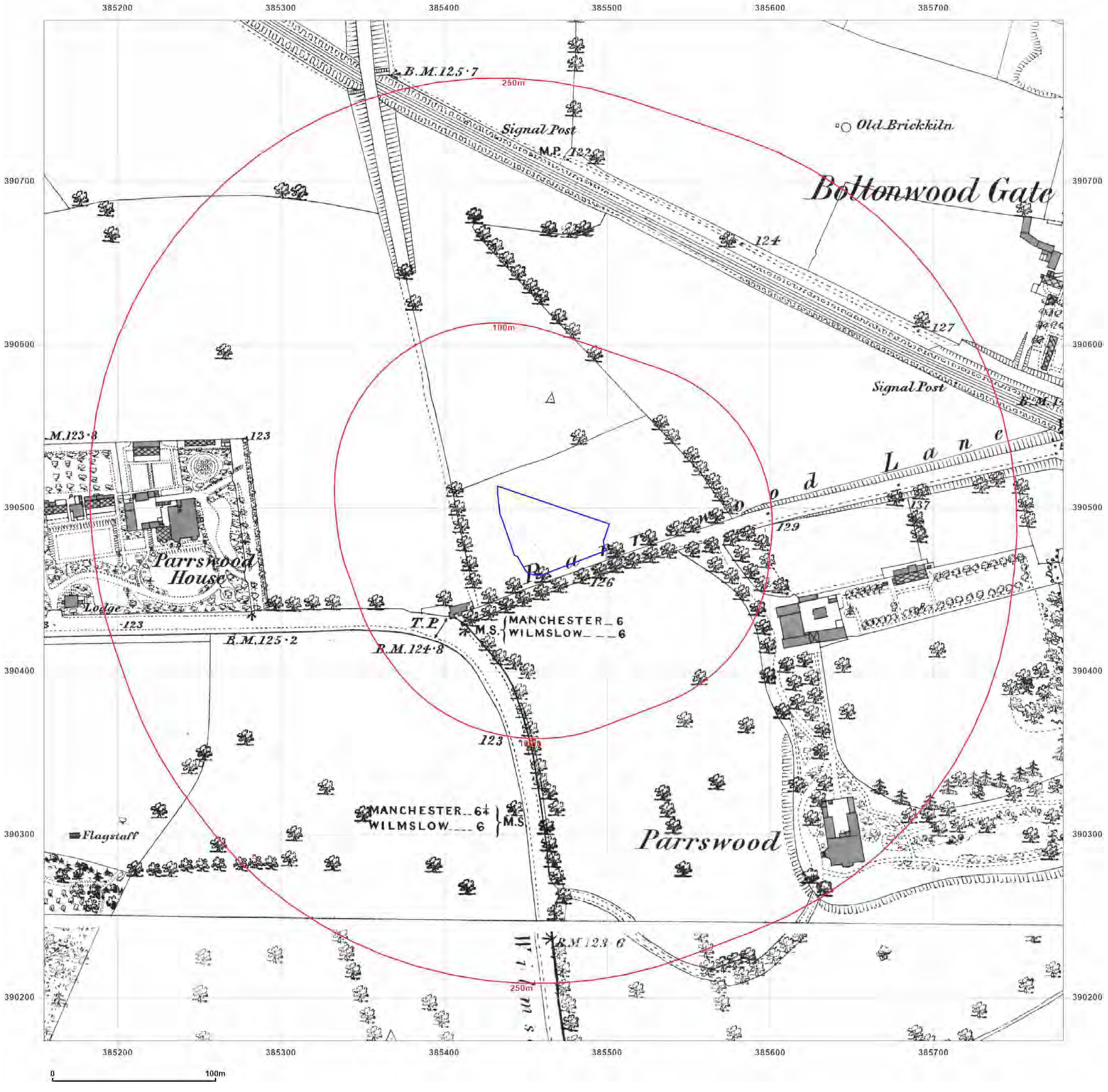
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Site Details:

Tesco Stores Parrs Wood Lane,
M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: County Series

Map date: **1881**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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Surveyed 1881
Revised N/A
Edition 1881
Copyright N/A
Levelled N/A

Surveyed 1881
Revised N/A
Edition 1881
Copyright N/A
Levelled N/A

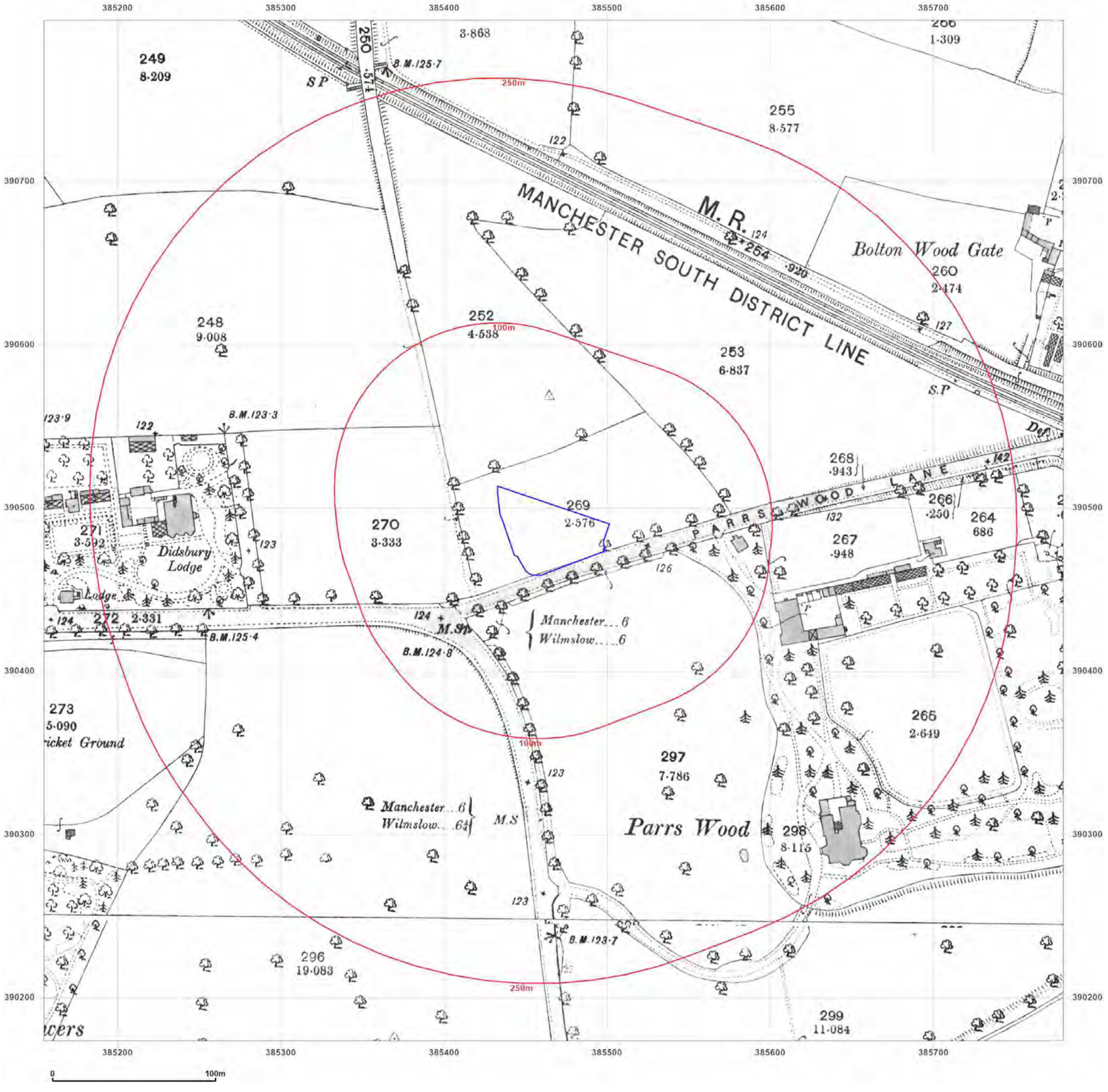
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Site Details:

Tesco Stores Parrs Wood Lane,
M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: County Series

Map date: **1893-1894**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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Surveyed 1894
Revised N/A
Edition 1894
Copyright N/A
Levelled N/A

Surveyed 1893
Revised N/A
Edition 1893
Copyright N/A
Levelled N/A

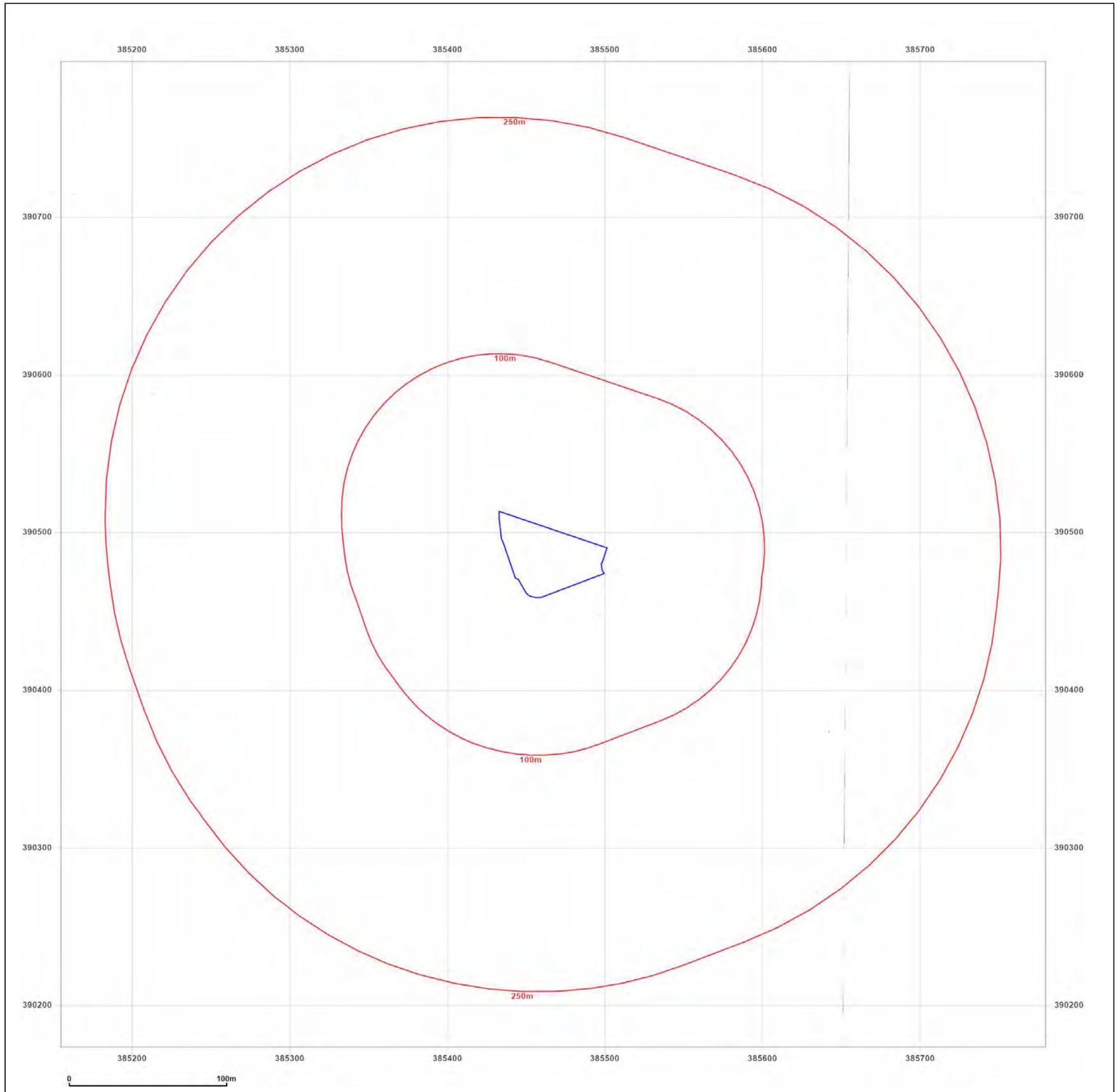
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Production date: 05 October 2021

Map legend available at:
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Site Details:

Tesco Stores Parrs Wood Lane,
M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

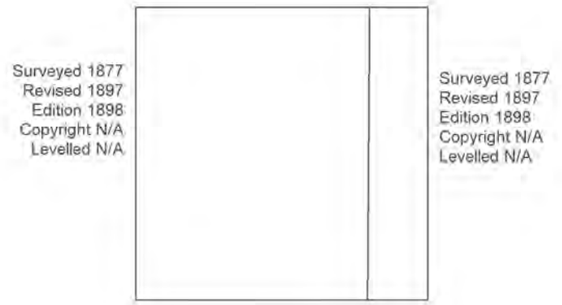
Map Name: County Series

Map date: **1898**

Scale: 1:2,500

Printed at: 1:2,500

N
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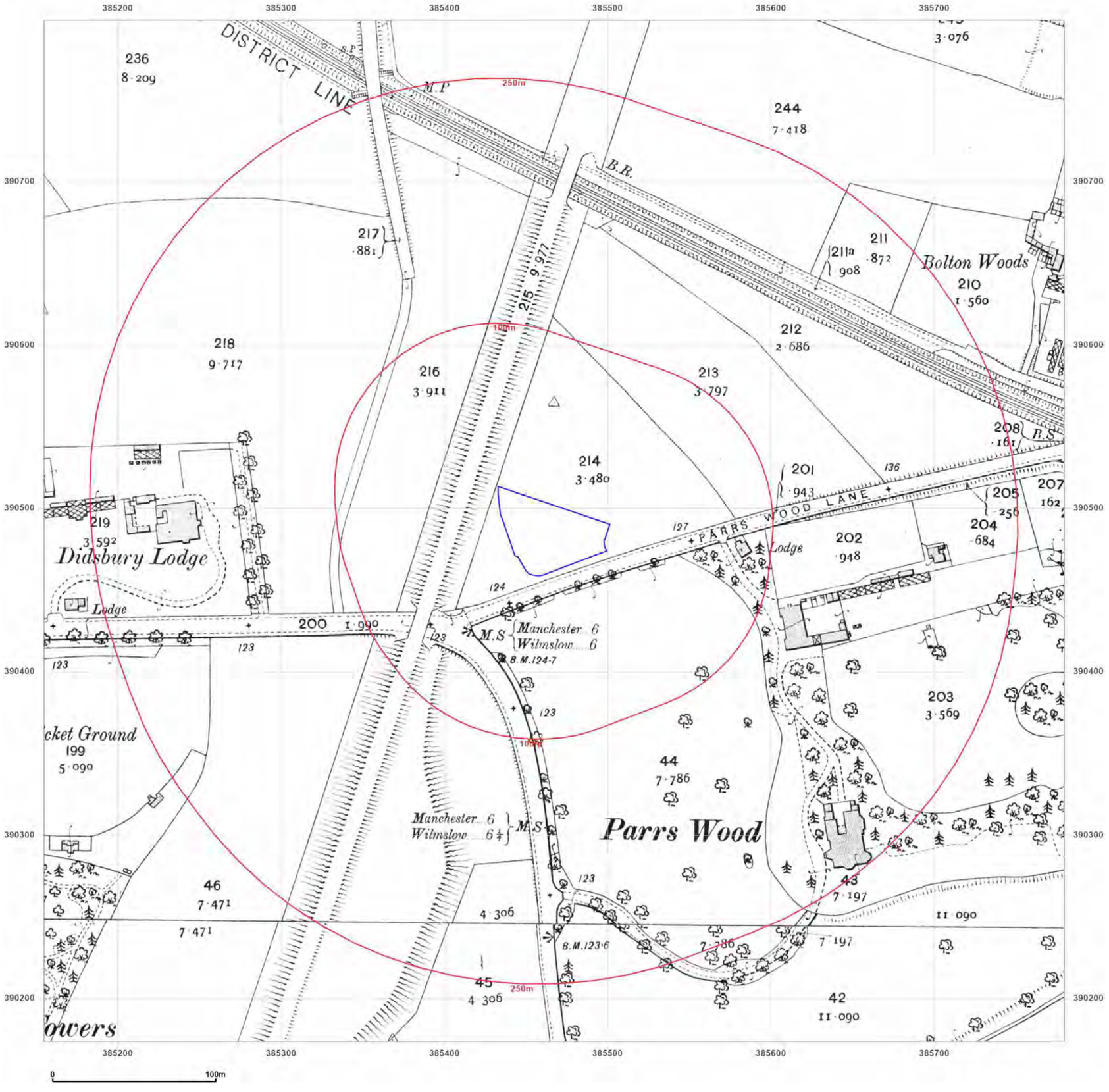
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Site Details:

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M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: County Series

Map date: **1907**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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Surveyed 1891
Revised 1905
Edition 1907
Copyright N/A
Levelled N/A

Surveyed 1891
Revised 1905
Edition 1907
Copyright N/A
Levelled N/A

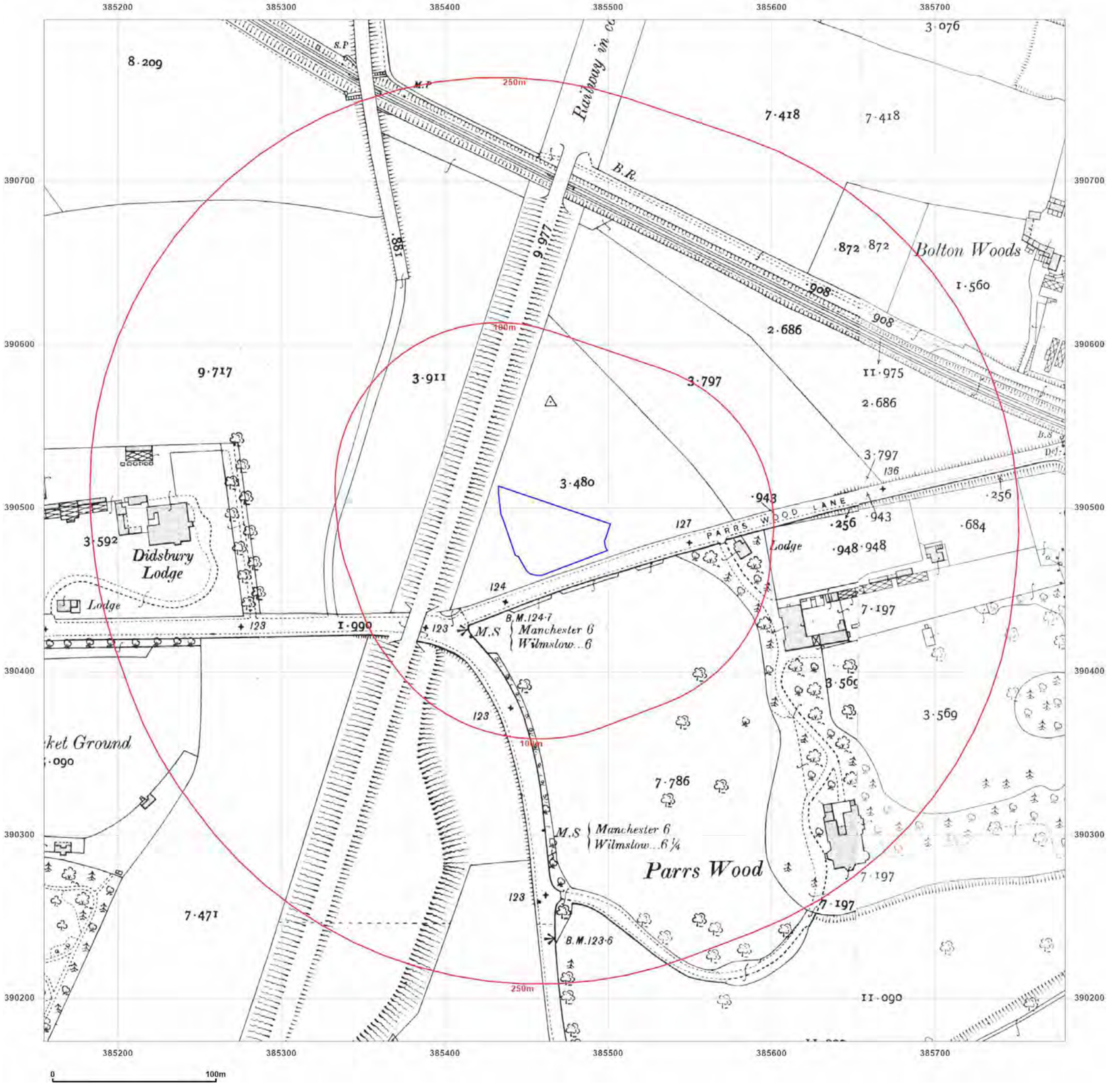
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Site Details:

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M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

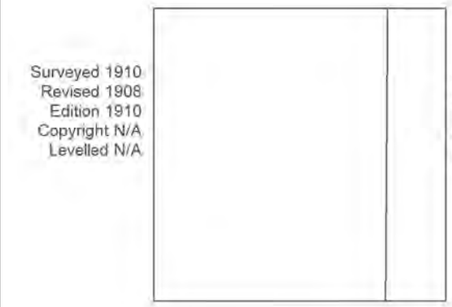
Map Name: County Series

Map date: **1910**

Scale: 1:2,500

Printed at: 1:2,500

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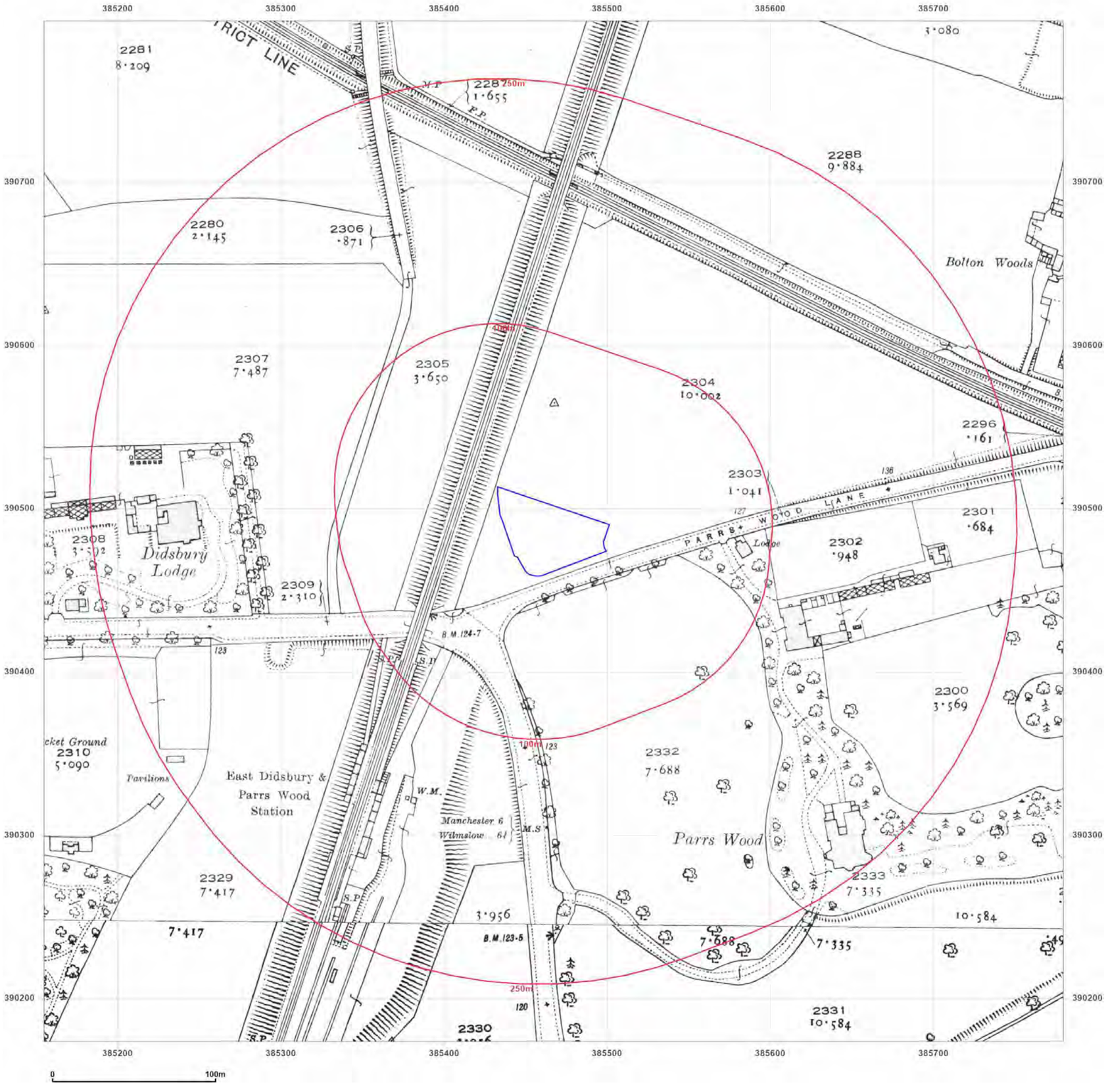
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Site Details:

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Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: County Series

Map date: **1922**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1922
Revised 1916
Edition 1922
Copyright N/A
Levelled 1915

Surveyed 1922
Revised 1916
Edition 1922
Copyright N/A
Levelled 1915

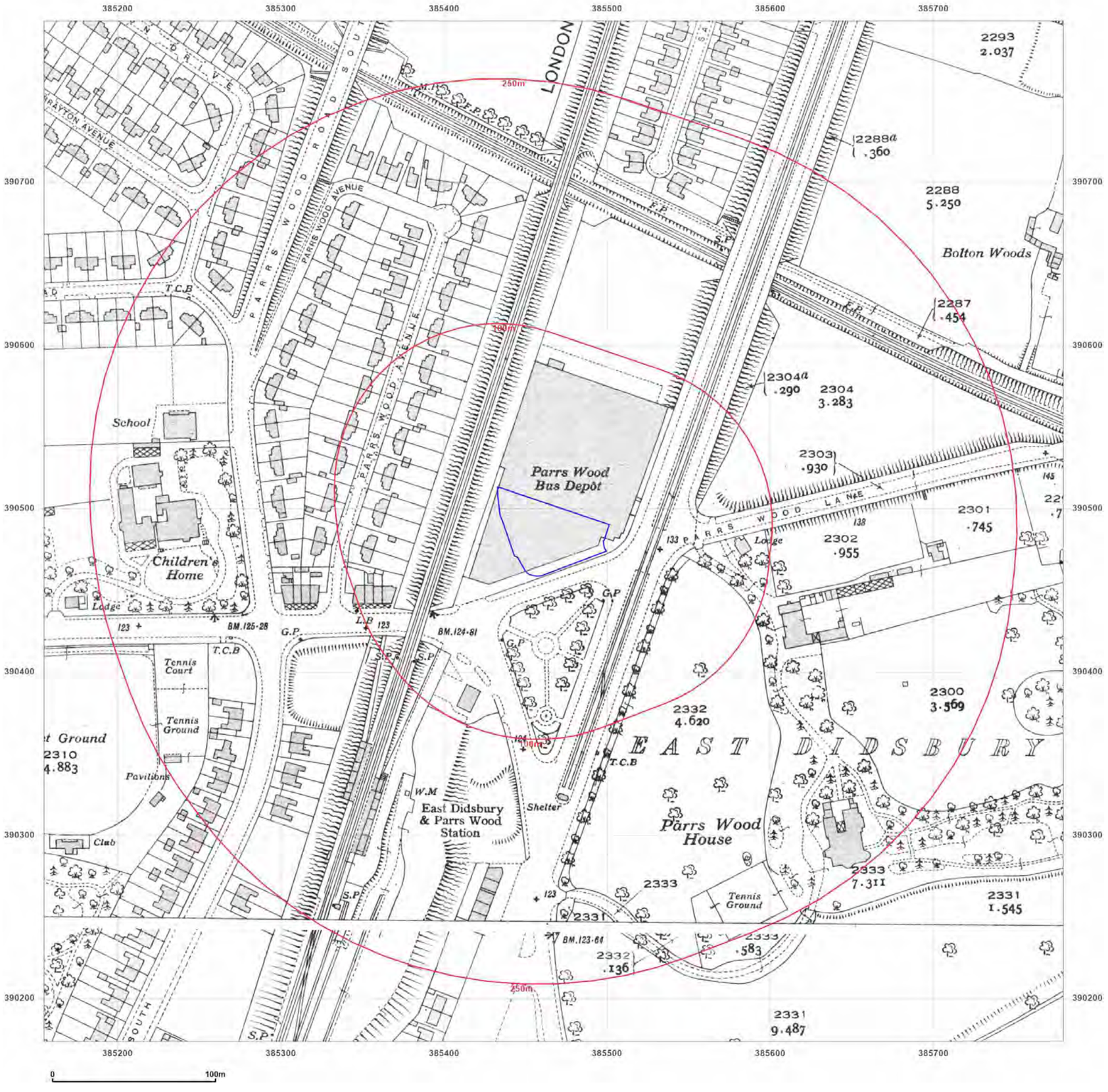
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Site Details:

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M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: County Series

Map date: **1934**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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Surveyed 1873
Revised 1934
Edition N/A
Copyright N/A
Levelled 1927

Surveyed 1873
Revised 1934
Edition N/A
Copyright N/A
Levelled 1927

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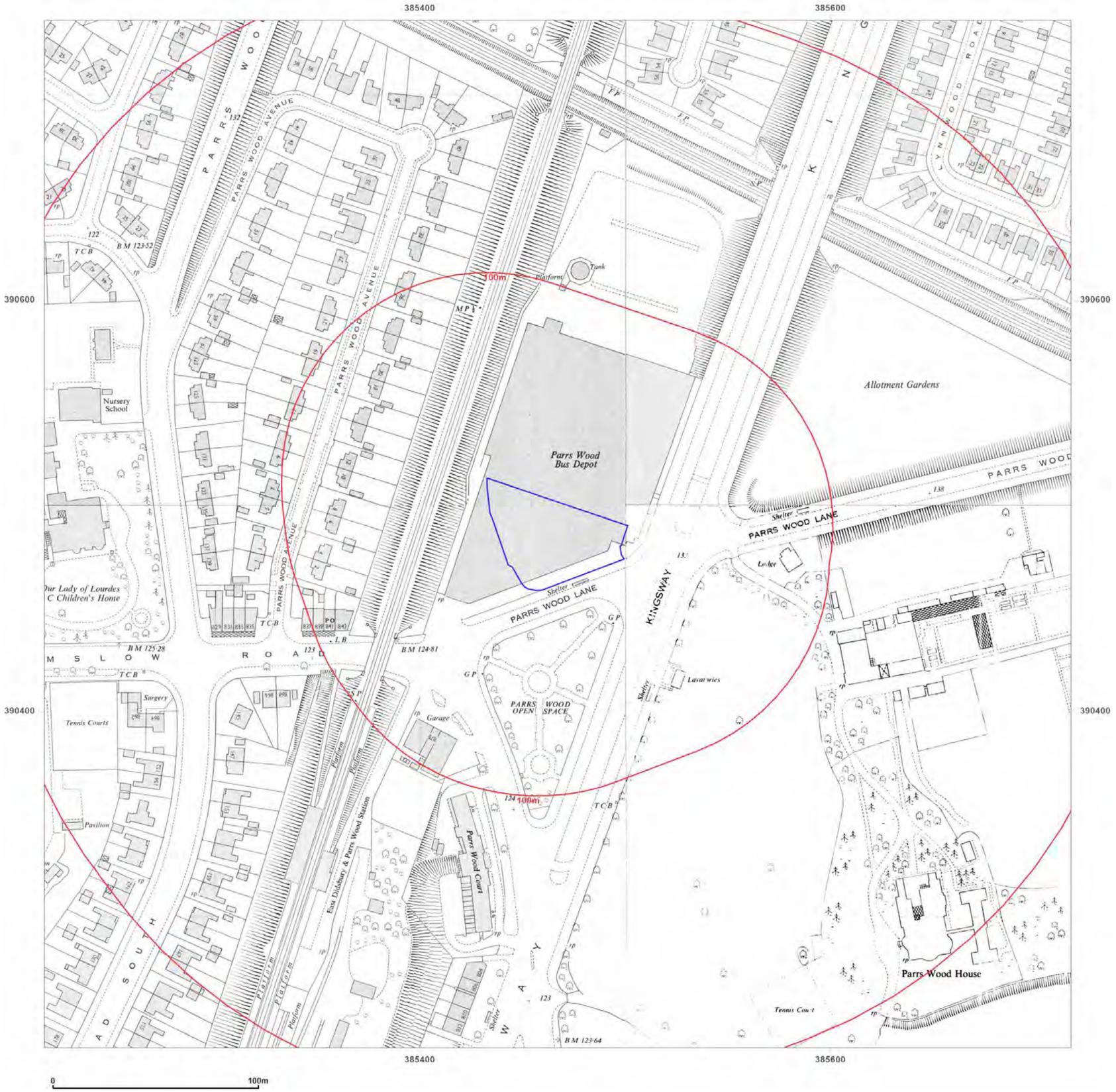
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Site Details:

Tesco Stores Parrs Wood Lane,
M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: National Grid

Map date: **1956-1957**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
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Surveyed 1957
Revised 1957
Edition N/A
Copyright 1957
Levelled 1949

Surveyed 1957
Revised 1957
Edition N/A
Copyright 1957
Levelled 1949

Surveyed 1957
Revised 1957
Edition N/A
Copyright 1957
Levelled 1949

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Revised N/A
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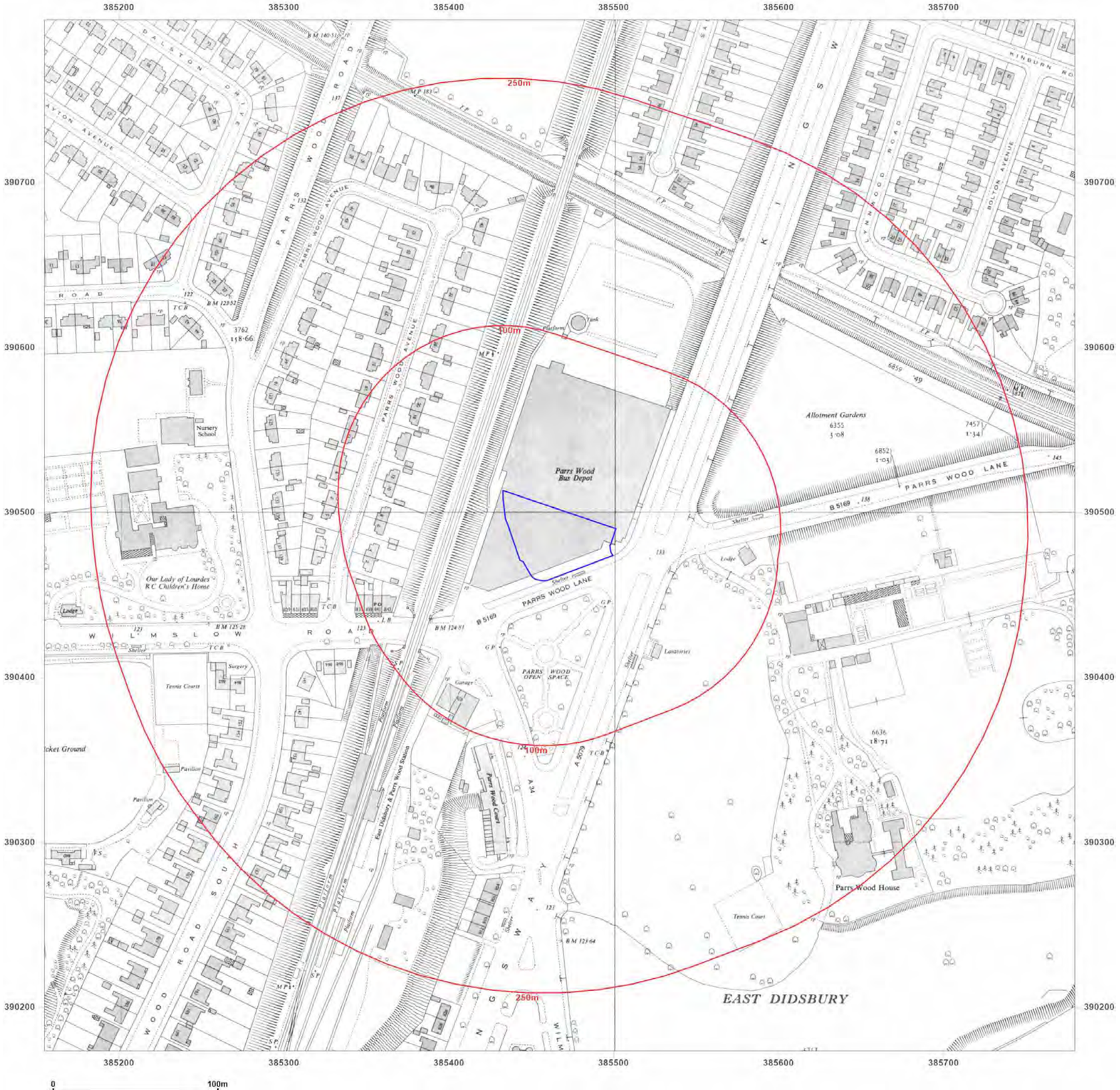
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Site Details:

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M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: National Grid

Map date: **1957**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1957
Revised 1957
Edition N/A
Copyright 1959
Levelled 1949

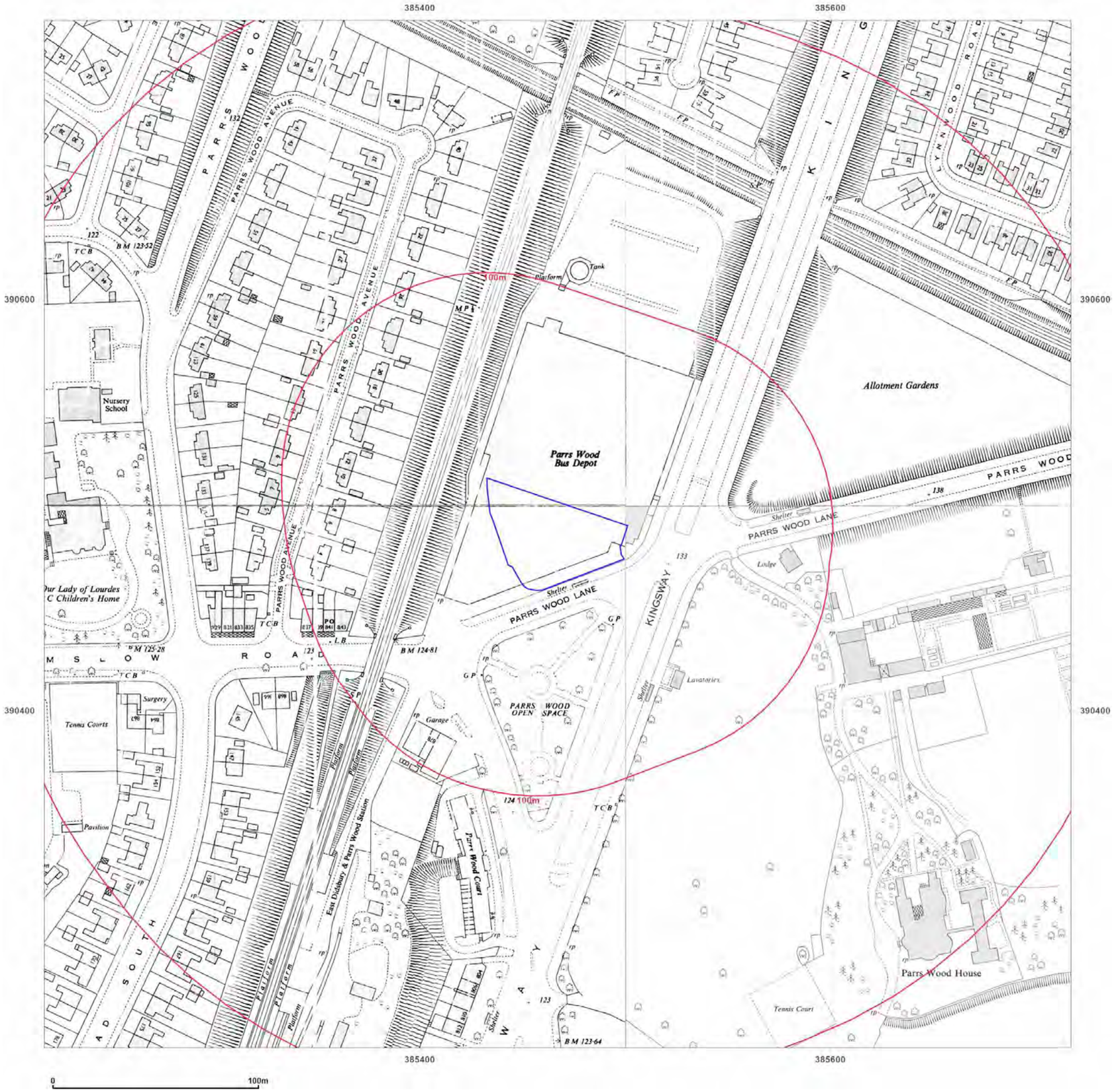
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Site Details:

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M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: National Grid

Map date: **1957-1958**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1957
Revised 1957
Edition N/A
Copyright N/A
Levelled 1949

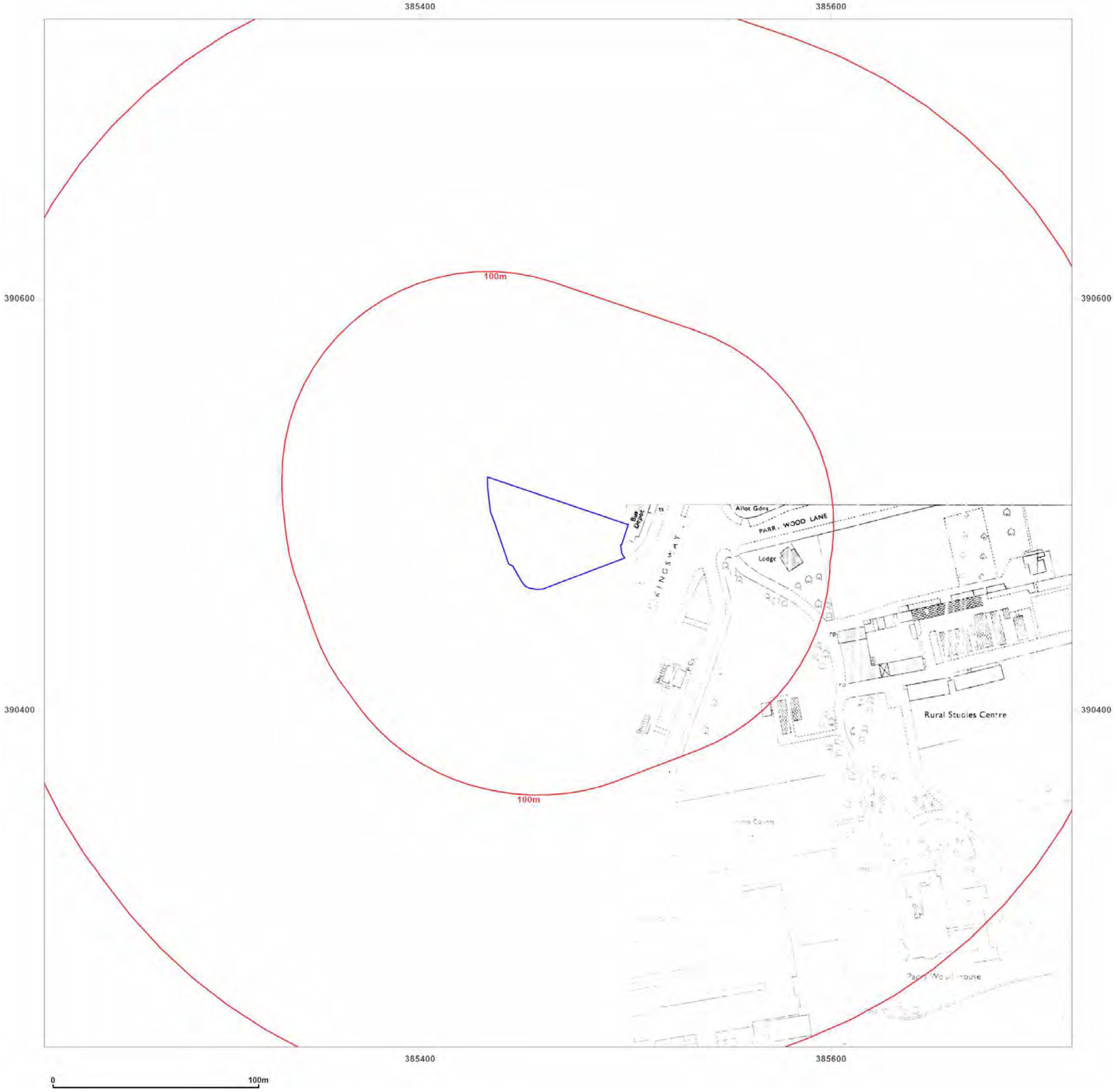
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Site Details:

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M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

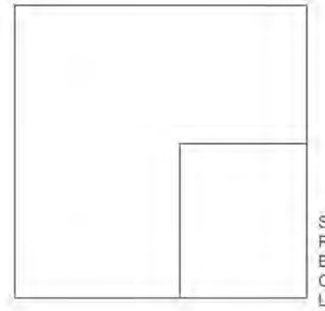
Map Name: National Grid

Map date: **1974**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
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Revised N/A
Edition N/A
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Levelled N/A

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Site Details:

Tesco Stores Parrs Wood Lane,
M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: National Grid

Map date: **1970-1975**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed 1957
Revised 1974
Edition N/A
Copyright 1975
Levelled 1958

Surveyed 1957
Revised 1974
Edition N/A
Copyright 1975
Levelled 1958

Surveyed 1957
Revised 1970
Edition N/A
Copyright 1970
Levelled 1958

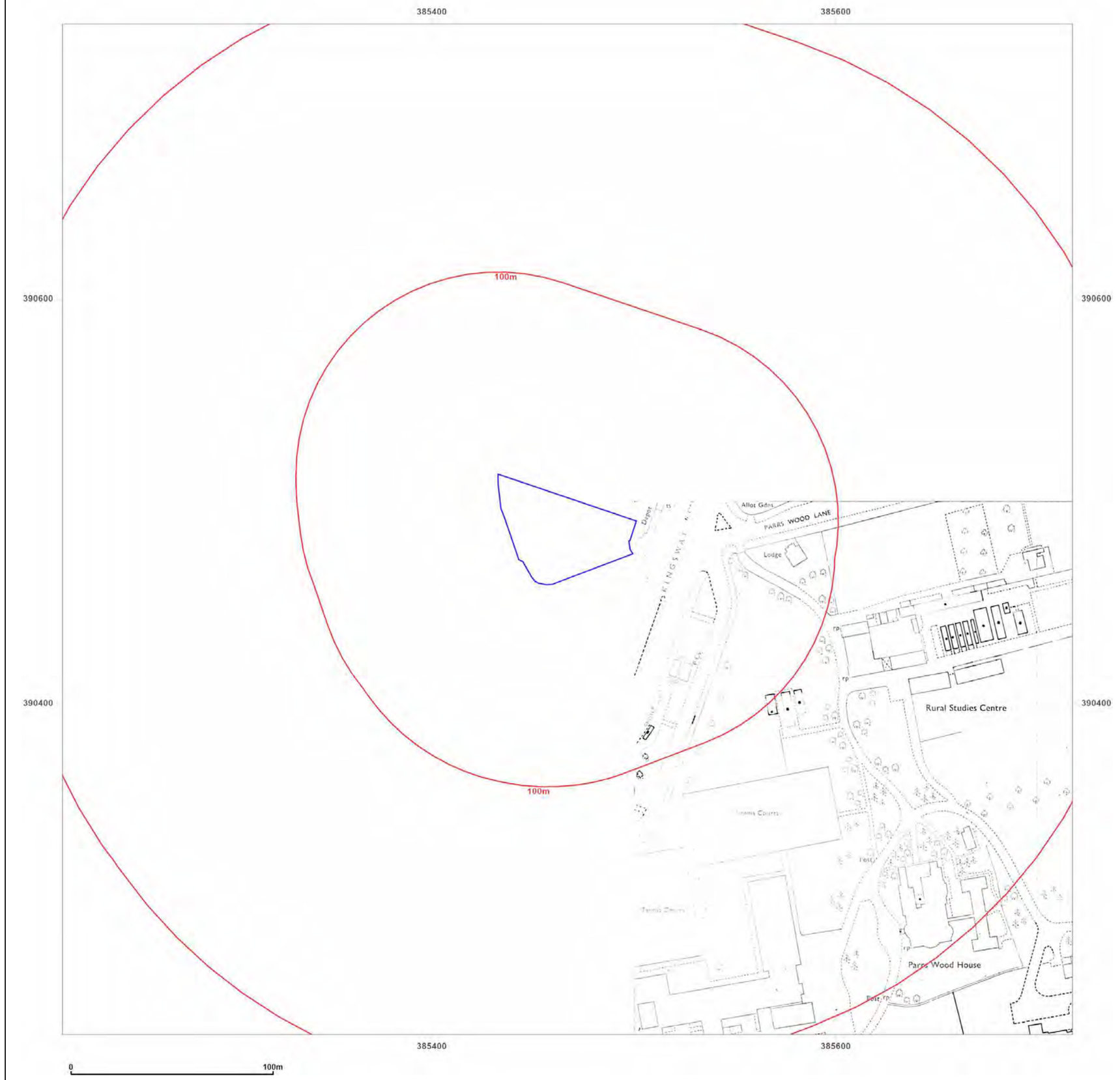
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Site Details:

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M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

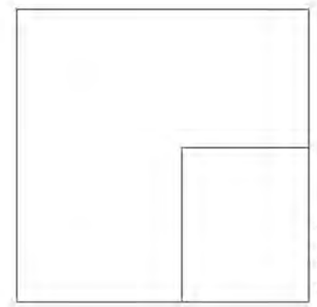
Map Name: National Grid

Map date: **1984**

Scale: 1:1,250

Printed at: 1:2,000

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Site Details:

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M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: National Grid

Map date: **1982-1984**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed 1958
Revised 1982
Edition N/A
Copyright 1982
Levelled 1958

Surveyed 1957
Revised 1981
Edition N/A
Copyright 1982
Levelled 1958

Surveyed 1958
Revised 1982
Edition N/A
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Levelled 1958

Surveyed 1958
Revised 1984
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Levelled 1958

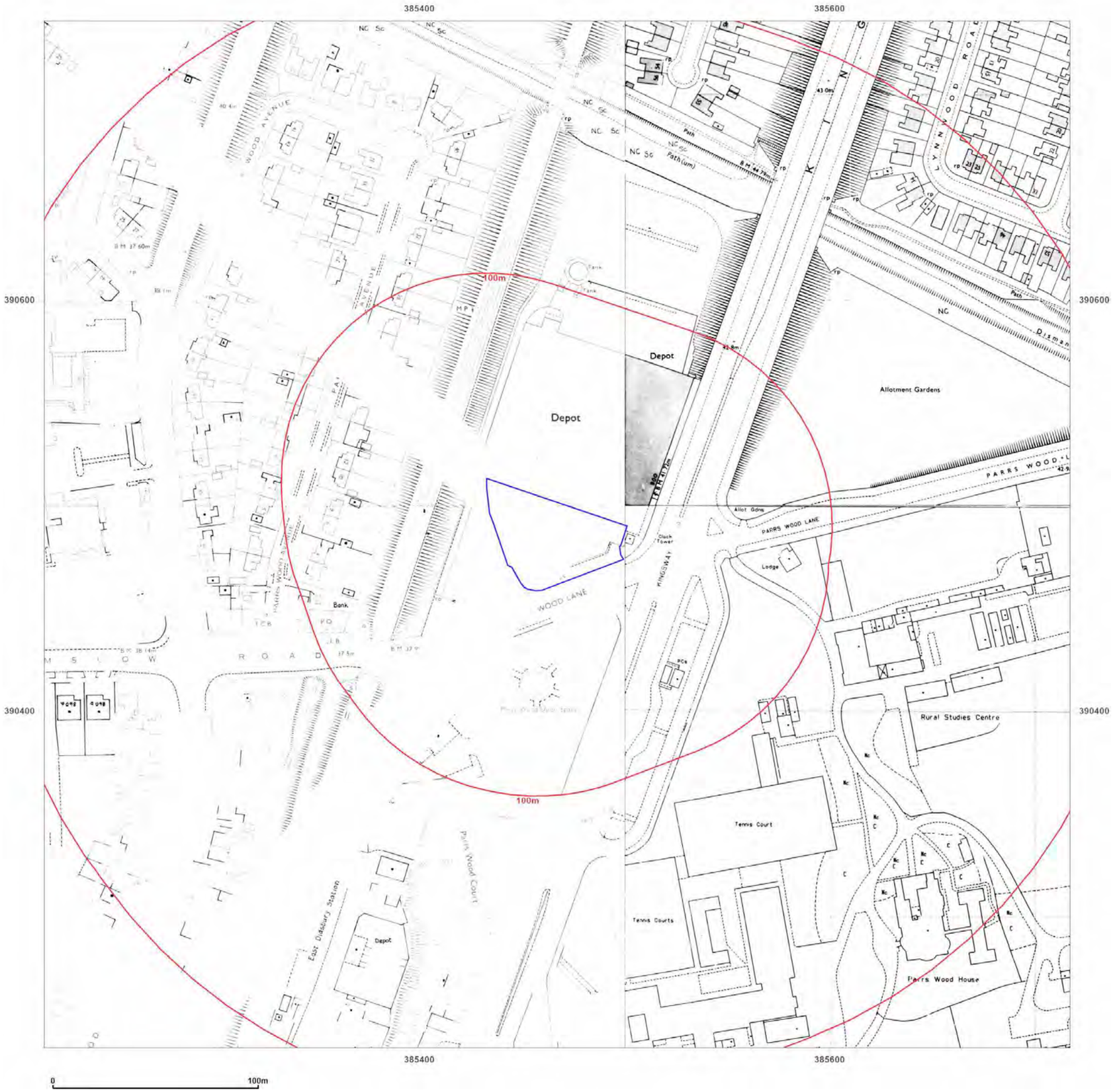
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Site Details:

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M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: National Grid

Map date: **1988-1992**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed 1958
Revised 1988
Edition N/A
Copyright 1988
Levelled 1958

Surveyed 1958
Revised 1988
Edition N/A
Copyright 1988
Levelled 1958

Surveyed 1956
Revised 1988
Edition N/A
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Site Details:

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M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: National Grid

Map date: **1992**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed 1992
Revised 1992
Edition N/A
Copyright 1992
Levelled N/A

Surveyed 1992
Revised 1992
Edition N/A
Copyright 1992
Levelled N/A

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Site Details:

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Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: National Grid

Map date: **1992-1994**

Scale: 1:1,250

Printed at: 1:2,000

N
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Revised 1994
Edition N/A
Copyright 1994
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Revised 1992
Edition N/A
Copyright 1992
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Surveyed 1957
Revised 1974
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Site Details:

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M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: National Grid

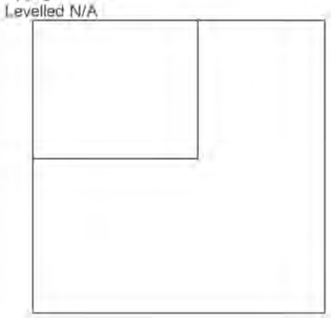
Map date: **1994**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
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Revised 1994
Edition N/A
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Site Details:

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M20 5NP

Client Ref: 4165
Report Ref: CMAPS-AAG-994592-4165-051021HIS
Grid Ref: 385467, 390486

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

N
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Groundsure LOCATION INTELLIGENCE

Enviro+Geo Insight

Tesco Stores Parrs Wood Lane, M20 5NP

Order Details

Date: 06/10/2021

Your ref: 4165

Our Ref: CMAPS-AAG-994592-4165-051021EDRGEO

Client: CENTREMAPS

Site Details

Location: 385466 390486

Area: 0.22 ha

Authority: Manchester City Council



Summary of findings p. 2

OS MasterMap site plan p.12

Aerial image p. 8

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Contact us with any questions at:
info@groundsure.com
08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
13	1.1	Historical industrial land uses	5	0	33	74	-
18	1.2	Historical tanks	0	0	3	8	-
18	1.3	Historical energy features	0	0	1	9	-
19	1.4	Historical petrol stations	0	0	0	0	-
19	1.5	Historical garages	0	0	1	0	-
20	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
21	2.1	Historical industrial land uses	7	0	43	115	-
27	2.2	Historical tanks	0	0	9	14	-
29	2.3	Historical energy features	0	0	1	18	-
30	2.4	Historical petrol stations	0	0	0	0	-
30	2.5	Historical garages	0	0	4	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
31	3.1	Active or recent landfill	0	0	0	0	-
31	3.2	Historical landfill (BGS records)	0	0	0	0	-
32	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
32	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
32	3.5	Historical waste sites	0	0	0	0	-
32	3.6	Licensed waste sites	0	0	0	0	-
32	3.7	Waste exemptions	0	0	1	10	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
34	4.1	Recent industrial land uses	0	0	13	-	-
35	4.2	Current or recent petrol stations	0	0	1	0	-
36	4.3	Electricity cables	0	0	0	0	-
36	4.4	Gas pipelines	0	0	0	0	-
36	4.5	Sites determined as Contaminated Land	0	0	0	0	-

36	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
36	4.7	Regulated explosive sites	0	0	0	0	-
37	4.8	Hazardous substance storage/usage	0	0	0	0	-
37	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
37	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
37	**4.11**	**Licensed pollutant release (Part A(2)/B)**	0	0	2	0	-
38	4.12	Radioactive Substance Authorisations	0	0	0	0	-
38	4.13	Licensed Discharges to controlled waters	0	0	0	0	-
38	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
38	4.15	Pollutant release to public sewer	0	0	0	0	-
38	**4.16**	**List 1 Dangerous Substances**	0	0	0	2	-
39	4.17	List 2 Dangerous Substances	0	0	0	0	-
39	4.18	Pollution Incidents (EA/NRW)	0	0	0	0	-
39	4.19	Pollution inventory substances	0	0	0	0	-
39	4.20	Pollution inventory waste transfers	0	0	0	0	-
40	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
41	**5.1**	**Superficial aquifer**	Identified (within 500m)				
43	**5.2**	**Bedrock aquifer**	Identified (within 500m)				
45	**5.3**	**Groundwater vulnerability**	Identified (within 50m)				
46	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
46	5.5	Groundwater vulnerability- local information	None (within 0m)				
47	**5.6**	**Groundwater abstractions**	0	0	0	0	5
49	**5.7**	**Surface water abstractions**	0	0	0	0	2
50	5.8	Potable abstractions	0	0	0	0	0
50	5.9	Source Protection Zones	0	0	0	0	-
50	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
51	6.1	Water Network (OS MasterMap)	0	0	0	-	-

51	6.2	Surface water features	0	0	0	-	-
52	**6.3**	**WFD Surface water body catchments**	1	-	-	-	-
52	**6.4**	**WFD Surface water bodies**	0	0	0	-	-
53	**6.5**	**WFD Groundwater bodies**	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
54	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
54	7.2	Historical Flood Events	0	0	0	-	-
54	7.3	Flood Defences	0	0	0	-	-
55	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
55	7.5	Flood Storage Areas	0	0	0	-	-
56	7.6	Flood Zone 2	None (within 50m)				
56	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
57	**8.1**	**Surface water flooding**	1 in 100 year, 0.1m - 0.3m (within 50m)				
Page	Section	Groundwater flooding					
59	**9.1**	**Groundwater flooding**	High (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
60	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
61	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
61	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
61	10.4	Special Protection Areas (SPA)	0	0	0	0	0
61	10.5	National Nature Reserves (NNR)	0	0	0	0	0
62	**10.6**	**Local Nature Reserves (LNR)**	0	0	0	0	6
62	10.7	Designated Ancient Woodland	0	0	0	0	0
62	10.8	Biosphere Reserves	0	0	0	0	0
63	10.9	Forest Parks	0	0	0	0	0
63	10.10	Marine Conservation Zones	0	0	0	0	0
63	**10.11**	**Green Belt**	0	0	0	2	1
63	10.12	Proposed Ramsar sites	0	0	0	0	0

64	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
64	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
64	10.15	Nitrate Sensitive Areas	0	0	0	0	0
64	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
65	10.17	SSSI Impact Risk Zones	0	-	-	-	-
65	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
66	11.1	World Heritage Sites	0	0	0	-	-
67	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
67	11.3	National Parks	0	0	0	-	-
67	**11.4**	**Listed Buildings**	0	0	2	-	-
68	**11.5**	**Conservation Areas**	0	0	1	-	-
68	11.6	Scheduled Ancient Monuments	0	0	0	-	-
68	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
69	**12.1**	**Agricultural Land Classification**	Urban (within 250m)				
70	12.2	Open Access Land	0	0	0	-	-
70	12.3	Tree Felling Licences	0	0	0	-	-
70	12.4	Environmental Stewardship Schemes	0	0	0	-	-
70	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
71	**13.1**	**Priority Habitat Inventory**	0	0	6	-	-
72	13.2	Habitat Networks	0	0	0	-	-
72	13.3	Open Mosaic Habitat	0	0	0	-	-
72	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
73	**14.1**	**10k Availability**	Identified (within 500m)				
74	**14.2**	**Artificial and made ground (10k)**	0	2	5	3	-
76	**14.3**	**Superficial geology (10k)**	1	0	2	6	-

77	14.4	Landslip (10k)	0	0	0	0	-
78	14.5	Bedrock geology (10k)	1	0	1	3	-
79	14.6	Bedrock faults and other linear features (10k)	0	0	1	1	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
80	15.1	50k Availability	Identified (within 500m)				
81	15.2	Artificial and made ground (50k)	0	0	0	0	-
81	15.3	Artificial ground permeability (50k)	0	0	-	-	-
82	15.4	Superficial geology (50k)	1	0	2	1	-
83	15.5	Superficial permeability (50k)	Identified (within 50m)				
83	15.6	Landslip (50k)	0	0	0	0	-
83	15.7	Landslip permeability (50k)	None (within 50m)				
84	15.8	Bedrock geology (50k)	1	1	0	0	-
85	15.9	Bedrock permeability (50k)	Identified (within 50m)				
85	15.10	Bedrock faults and other linear features (50k)	0	1	0	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
86	16.1	BGS Boreholes	0	2	25	-	-
Page	Section	Natural ground subsidence					
89	17.1	Shrink swell clays	Negligible (within 50m)				
90	17.2	Running sands	Very low (within 50m)				
91	17.3	Compressible deposits	Negligible (within 50m)				
92	17.4	Collapsible deposits	Very low (within 50m)				
93	17.5	Landslides	Very low (within 50m)				
94	17.6	Ground dissolution of soluble rocks	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
95	18.1	Natural cavities	0	0	0	0	-
96	18.2	BritPits	0	0	1	0	-
96	18.3	Surface ground workings	0	0	15	-	-
97	18.4	Underground workings	0	0	0	0	0
97	18.5	Historical Mineral Planning Areas	0	0	0	0	-

97	18.6	Non-coal mining	0	0	0	0	0
98	18.7	Mining cavities	0	0	0	0	0
98	**18.8**	**JPB mining areas**	Identified (within 0m)				
98	18.9	Coal mining	None (within 0m)				
98	18.10	Brine areas	None (within 0m)				
99	18.11	Gypsum areas	None (within 0m)				
99	18.12	Tin mining	None (within 0m)				
99	18.13	Clay mining	None (within 0m)				

Page	Section	Radon	
100	**19.1**	**Radon**	Less than 1% (within 0m)

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
101	**20.1**	**BGS Estimated Background Soil Chemistry**	3	2	-	-	-
101	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
102	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-

Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
103	21.1	Underground railways (London)	0	0	0	-	-
103	21.2	Underground railways (Non-London)	0	0	0	-	-
104	21.3	Railway tunnels	0	0	0	-	-
104	**21.4**	**Historical railway and tunnel features**	0	0	19	-	-
105	21.5	Royal Mail tunnels	0	0	0	-	-
105	**21.6**	**Historical railways**	0	0	1	-	-
105	**21.7**	**Railways**	0	3	25	-	-
107	21.8	Crossrail 1	0	0	0	0	-
107	21.9	Crossrail 2	0	0	0	0	-
107	21.10	HS2	0	0	0	0	-

Recent aerial photograph



Capture Date: 22/04/2019

Site Area: 0.22ha

Recent site history - 2015 aerial photograph



Capture Date: 11/06/2015

Site Area: 0.22ha

Recent site history - 2009 aerial photograph



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Capture Date: 02/06/2009

Site Area: 0.22ha

Recent site history - 2000 aerial photograph



Capture Date: 19/06/2000

Site Area: 0.22ha

OS MasterMap site plan



Site Area: 0.22ha

1 Past land use



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

1.1 Historical industrial land uses

Records within 500m	112

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
A	**On site**	**Unspecified Depot**	**1983**	**818457**

ID	Location	Land use	Dates present	Group ID
A	**On site**	**Bus Depot**	**1965 - 1974**	**914167**
A	**On site**	**Bus Depot**	**1938**	**919992**
A	**On site**	**Bus Depot**	**1934**	**945617**
A	**On site**	**Bus Depot**	**1955**	**979639**
B	71m SW	Railway Sidings	1974	963352
B	71m SW	Railway Sidings	1983	986435
B	76m SW	Railway Sidings	1923	893042
C	102m N	Unspecified Tank	1983	876860
C	102m N	Unspecified Tank	1965 - 1974	952977
D	113m SW	Unspecified Pit	1934 - 1938	916609
D	113m SW	Unspecified Pit	1938	918951
B	124m S	Unspecified Pit	1934	840528
D	141m SW	Unspecified Heap	1923	882119
B	141m SW	Railway Station	1923 - 1934	909067
B	143m SW	Railway Station	1955 - 1974	900989
B	148m SW	Railway Station	1938	918315
B	150m SW	Railway Station	1938	856752
B	164m SW	Railway Building	1974	949569
B	164m SW	Railway Building	1983	957395
E	176m N	Cuttings	1893	891369
F	176m SW	Railway Sidings	1955 - 1965	861399
B	177m SW	Railway Station	1983 - 1989	942448
E	177m N	Cuttings	1938	882106
E	180m N	Cuttings	1938	938160
E	181m N	Cuttings	1934	961038
D	182m SW	Gravel Pit	1851	807883
E	185m N	Cuttings	1955	915659
F	185m SW	Railway Sidings	1923	883296

ID	Location	Land use	Dates present	Group ID
3	186m NE	Brick Field	1851	817974
B	202m S	Railway Buildings	1974	833696
B	202m S	Railway Building	1983	820237
F	210m S	Railway Sidings	1934	971431
F	223m SW	Railway Sidings	1938	968326
F	223m SW	Railway Sidings	1938	849980
B	233m SW	Railway Building	1923	820238
B	243m SW	Railway Building	1923	820239
4	248m NE	Unspecified Pit	1911	920370
G	256m NW	Cuttings	1893	964764
G	258m N	Cuttings	1911 - 1938	901548
G	265m NW	Cuttings	1938	970637
G	268m N	Cuttings	1911	867187
G	274m NW	Cuttings	1983 - 1989	874536
G	274m NW	Cuttings	1955	895584
G	274m NW	Cuttings	1965 - 1974	913143
H	294m E	Cuttings	1938	935171
H	300m E	Cuttings	1911 - 1974	845518
H	314m E	Cuttings	1893	866818
I	316m E	Unspecified Works	1934 - 1938	870707
H	317m E	Cuttings	1911	895193
I	325m E	Unspecified Pit	1911	964080
I	327m E	Unspecified Works	1965 - 1974	966265
I	330m E	Unspecified Commercial/Industrial	1989	796935
I	330m E	Unspecified Works	1983	870217
F	333m SW	Railway Building	1923	820240
F	342m SW	Railway Building	1923	820241
K	358m NE	Unspecified Heap	1934	983056

ID	Location	Land use	Dates present	Group ID
H	359m E	Cuttings	1923	909867
K	360m NE	Unspecified Heap	1911 - 1923	891102
K	364m NE	Unspecified Heap	1911 - 1923	883035
L	369m SE	Disused Sewage Works	1934 - 1938	884380
L	369m SE	Sewage Work	1923	795017
L	370m SE	Sewage Works	1923	969069
L	370m SE	Sewage Works	1911	915732
L	370m SE	Sewage Works	1911	948865
L	371m SE	Sewage Works	1938	914966
L	373m SE	Disused Sewage Works	1938	934805
M	373m NE	Unspecified Pit	1934	845447
M	377m NE	Unspecified Pit	1911 - 1923	966410
M	380m NE	Unspecified Pit	1923	976553
L	380m SE	Disused Sewage Works	1955	898055
M	385m NE	Unspecified Pit	1911	851448
L	387m SE	Filter Beds	1911	892672
L	387m SE	Filter Beds	1911	969779
L	387m SE	Filter Beds	1938	982135
L	398m SE	Filter Beds	1893	966345
L	399m SE	Filter Beds	1911	890761
N	445m SW	Unspecified Heap	1983 - 1989	878116
N	445m SW	Unspecified Heap	1974	888711
H	447m E	Unspecified Ground Workings	1923	800672
H	448m E	Unknown Filled Ground	1911 - 1923	947129
H	450m E	Unspecified Pit	1911	985169
O	460m NE	Unspecified Pit	1911	972861
O	468m NE	Unspecified Pit	1911	949902
P	469m E	Unspecified Heap	1934	899603

ID	Location	Land use	Dates present	Group ID
P	472m E	Unspecified Heap	1955	930506
H	475m E	Unspecified Pit	1934	920953
Q	480m NW	Railway Sidings	1923	865868
H	481m E	Unspecified Ground Workings	1938	800671
H	481m E	Unspecified Pit	1911 - 1923	880241
H	483m E	Unspecified Pit	1911	855595
Q	486m NW	Railway Sidings	1923	904670
R	486m S	Unspecified Heap	1911 - 1923	880201
Q	486m NW	Railway Sidings	1911	923859
Q	487m NW	Railway Sidings	1938	902237
R	489m S	Unspecified Heap	1955	891978
L	490m SE	Unspecified Tank	1911 - 1923	977184
Q	490m NW	Railway Sidings	1938	874167
S	490m NW	Cuttings	1938	930957
L	491m SE	Unspecified Tank	1938	959866
Q	491m NW	Railway Sidings	1934	851258
Q	491m NW	Cuttings	1923 - 1934	955197
Q	492m NW	Railway Sidings	1955 - 1966	922909
Q	493m NW	Cuttings	1893	877641
S	493m NW	Cuttings	1923	925757
Q	493m NW	Railway Sidings	1911	903364
Q	493m NW	Railway Sidings	1911	913195
T	494m S	Railway Sidings	1955	872150
T	494m S	Railway Sidings	1966	931248
S	494m NW	Cuttings	1955	850468
S	496m NW	Cuttings	1965 - 1983	898907
Q	496m NW	Railway Sidings	1938	886861

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	11

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
C	100m N	Unspecified Tank	1975 - 1988	137299
C	105m N	Unspecified Tank	1957 - 1988	133197
C	106m N	Unspecified Tank	1957 - 1975	122884
5	260m SE	Unspecified Tank	1970 - 1992	135553
L	403m SE	Tanks	1907 - 1922	128852
L	414m SE	Tanks	1907 - 1922	136027
L	416m SE	Tanks	1910	149253
9	423m NW	Unspecified Tank	1894	116936
L	448m SE	Tanks	1922	107209
L	489m SE	Unspecified Tank	1907 - 1922	125495
L	490m SE	Tanks	1910	107208

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	10

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
2	163m W	Electricity House	1975	63681
J	327m NW	Electricity Substation	1994	80059
J	328m NW	Electricity Substation	1975	83519
J	329m NW	Electricity Substation	1982 - 1988	76756
6	352m N	Electricity Substation	1982 - 1992	76673
7	375m W	Electricity Substation	1982 - 1992	84170
8	396m SW	Electricity Substation	1992	62388
F	417m SW	Electricity Substation	1975	84072
F	419m SW	Electricity Substation	1982 - 1992	76913
I	427m E	Electricity Substation	1982 - 1992	74540

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	**0**

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	**1**

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
1	70m SW	Garage	1957 - 1975	25676

This data is sourced from Ordnance Survey / Groundsure.

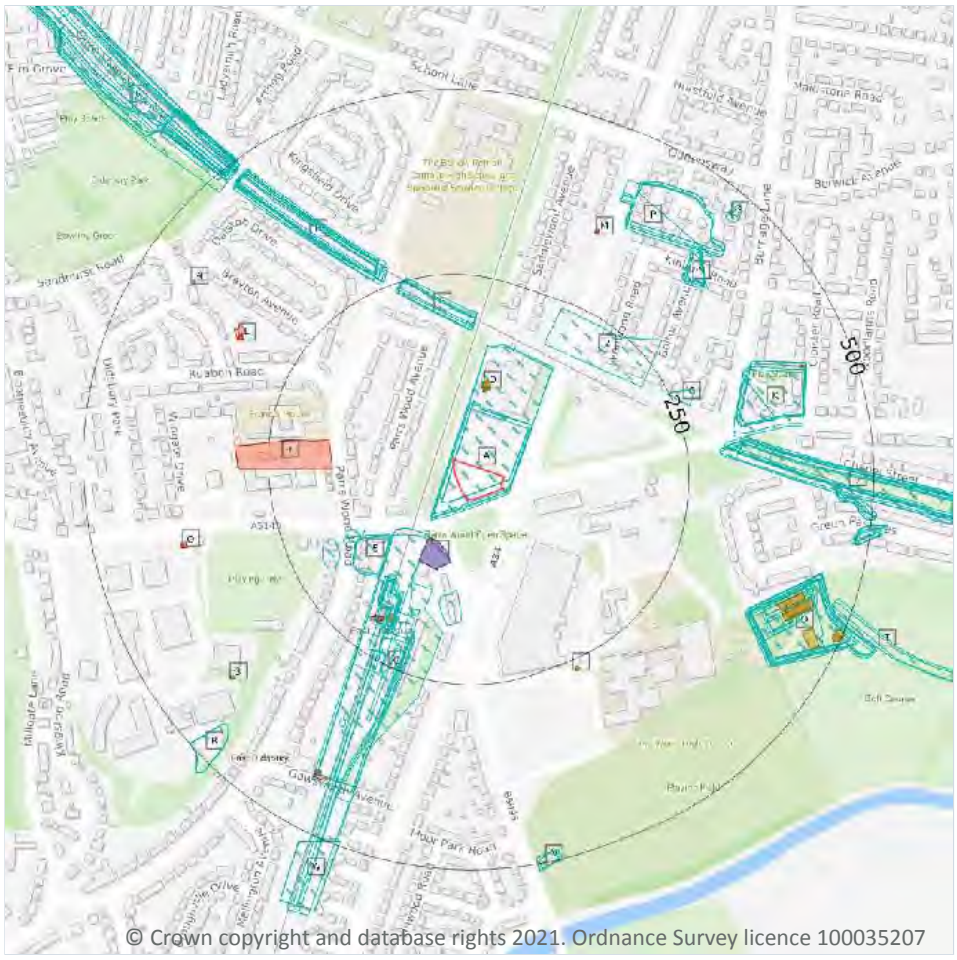
1.6 Historical military land

Records within 500m	0

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey / Groundsure / other sources.

2 Past land use - un-grouped



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

2.1 Historical industrial land uses

Records within 500m	165

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 21**

ID	Location	Land Use	Date	Group ID
A	**On site**	**Bus Depot**	**1934**	**945617**
A	**On site**	**Bus Depot**	**1938**	**919992**
A	**On site**	**Bus Depot**	**1938**	**919992**

ID	Location	Land Use	Date	Group ID
A	**On site**	**Bus Depot**	**1974**	**914167**
A	**On site**	**Unspecified Depot**	**1983**	**818457**
A	**On site**	**Bus Depot**	**1955**	**979639**
A	**On site**	**Bus Depot**	**1965**	**914167**
C	71m SW	Railway Sidings	1974	963352
C	71m SW	Railway Sidings	1983	986435
C	76m SW	Railway Sidings	1923	893042
D	102m N	Unspecified Tank	1974	952977
D	102m N	Unspecified Tank	1983	876860
D	102m N	Unspecified Tank	1965	952977
E	113m SW	Unspecified Pit	1938	916609
E	113m SW	Unspecified Pit	1934	916609
E	113m SW	Unspecified Pit	1938	918951
C	124m S	Unspecified Pit	1934	840528
E	141m SW	Unspecified Heap	1923	882119
C	141m SW	Railway Station	1923	909067
C	143m SW	Railway Station	1955	900989
C	147m SW	Railway Station	1974	900989
C	147m SW	Railway Station	1965	900989
C	147m SW	Railway Station	1934	909067
C	148m SW	Railway Station	1938	918315
E	148m SW	Unspecified Heap	1923	882119
C	150m SW	Railway Station	1938	856752
C	151m SW	Railway Station	1923	909067
C	164m SW	Railway Building	1974	949569
C	164m SW	Railway Building	1983	957395
F	176m N	Cuttings	1893	891369
C	176m SW	Railway Sidings	1965	861399

ID	Location	Land Use	Date	Group ID
C	177m SW	Railway Station	1983	942448
C	177m SW	Railway Station	1989	942448
F	177m N	Cuttings	1938	882106
F	180m N	Cuttings	1938	938160
F	181m N	Cuttings	1934	961038
E	182m SW	Gravel Pit	1851	807883
F	185m N	Cuttings	1955	915659
C	185m SW	Railway Sidings	1923	883296
2	186m NE	Brick Field	1851	817974
C	202m S	Railway Buildings	1974	833696
C	202m S	Railway Building	1983	820237
C	205m S	Railway Sidings	1955	861399
C	210m S	Railway Sidings	1934	971431
C	223m SW	Railway Sidings	1938	968326
C	223m SW	Railway Sidings	1938	849980
C	233m SW	Railway Building	1923	820238
C	243m SW	Railway Building	1923	820239
G	248m NE	Unspecified Pit	1911	920370
G	248m NE	Unspecified Pit	1911	920370
H	256m NW	Cuttings	1893	964764
H	258m N	Cuttings	1923	901548
H	258m N	Cuttings	1923	901548
H	258m N	Cuttings	1911	901548
H	265m NW	Cuttings	1938	970637
H	266m NW	Cuttings	1938	901548
H	267m NW	Cuttings	1938	901548
H	268m N	Cuttings	1911	867187
H	270m NW	Cuttings	1934	901548

ID	Location	Land Use	Date	Group ID
H	274m NW	Cuttings	1974	913143
H	274m NW	Cuttings	1983	874536
H	274m NW	Cuttings	1989	874536
H	274m NW	Cuttings	1955	895584
H	274m NW	Cuttings	1965	913143
J	294m E	Cuttings	1938	935171
J	295m E	Cuttings	1938	935171
J	300m E	Cuttings	1938	845518
J	304m E	Cuttings	1974	845518
J	304m E	Cuttings	1955	845518
J	304m E	Cuttings	1965	845518
J	314m E	Cuttings	1893	866818
K	316m E	Unspecified Works	1938	870707
K	316m E	Unspecified Works	1934	870707
J	317m E	Cuttings	1911	895193
J	317m E	Cuttings	1923	845518
J	317m E	Cuttings	1934	845518
J	317m E	Cuttings	1911	845518
K	325m E	Unspecified Pit	1911	964080
K	325m E	Unspecified Pit	1911	964080
K	327m E	Unspecified Works	1965	966265
K	330m E	Unspecified Works	1974	966265
K	330m E	Unspecified Works	1983	870217
K	330m E	Unspecified Commercial/Industrial	1989	796935
C	333m SW	Railway Building	1923	820240
C	342m SW	Railway Building	1923	820241
N	358m NE	Unspecified Heap	1934	983056
J	359m E	Cuttings	1923	909867

ID	Location	Land Use	Date	Group ID
N	360m NE	Unspecified Heap	1911	891102
N	360m NE	Unspecified Heap	1923	891102
N	364m NE	Unspecified Heap	1923	883035
N	367m NE	Unspecified Heap	1911	883035
N	367m NE	Unspecified Heap	1911	883035
O	369m SE	Disused Sewage Works	1934	884380
O	369m SE	Sewage Work	1923	795017
O	369m SE	Disused Sewage Works	1938	884380
O	370m SE	Sewage Works	1923	969069
O	370m SE	Sewage Works	1911	915732
O	370m SE	Sewage Works	1911	948865
O	370m SE	Sewage Works	1911	948865
O	371m SE	Sewage Works	1938	914966
O	373m SE	Disused Sewage Works	1938	934805
P	373m NE	Unspecified Pit	1934	845447
P	377m NE	Unspecified Pit	1911	966410
P	377m NE	Unspecified Pit	1923	966410
P	380m NE	Unspecified Pit	1923	976553
O	380m SE	Disused Sewage Works	1955	898055
P	385m NE	Unspecified Pit	1911	851448
P	385m NE	Unspecified Pit	1911	851448
O	387m SE	Filter Beds	1911	969779
O	387m SE	Filter Beds	1911	892672
O	387m SE	Filter Beds	1911	892672
O	387m SE	Filter Beds	1938	982135
O	398m SE	Filter Beds	1893	966345
O	399m SE	Filter Beds	1911	890761
O	399m SE	Filter Beds	1911	890761

ID	Location	Land Use	Date	Group ID
R	445m SW	Unspecified Heap	1974	888711
R	445m SW	Unspecified Heap	1983	878116
R	445m SW	Unspecified Heap	1989	878116
J	447m E	Unspecified Ground Workings	1923	800672
J	448m E	Unknown Filled Ground	1911	947129
J	448m E	Unknown Filled Ground	1923	947129
J	450m E	Unspecified Pit	1911	985169
J	450m E	Unspecified Pit	1911	985169
S	460m NE	Unspecified Pit	1911	972861
S	468m NE	Unspecified Pit	1911	949902
S	468m NE	Unspecified Pit	1911	949902
T	469m E	Unspecified Heap	1934	899603
T	472m E	Unspecified Heap	1955	930506
J	475m E	Unspecified Pit	1934	920953
U	480m NW	Railway Sidings	1923	865868
J	481m E	Unspecified Ground Workings	1938	800671
J	481m E	Unspecified Pit	1923	880241
J	481m E	Unspecified Pit	1911	880241
J	481m E	Unspecified Pit	1923	880241
J	483m E	Unspecified Pit	1911	855595
J	483m E	Unspecified Pit	1911	855595
U	486m NW	Railway Sidings	1923	904670
V	486m S	Unspecified Heap	1923	880201
V	486m S	Unspecified Heap	1911	880201
V	486m S	Unspecified Heap	1923	880201
U	486m NW	Railway Sidings	1911	923859
U	487m NW	Railway Sidings	1938	902237
V	489m S	Unspecified Heap	1955	891978

ID	Location	Land Use	Date	Group ID
O	490m SE	Unspecified Tank	1923	977184
U	490m NW	Railway Sidings	1938	874167
O	490m SE	Unspecified Tank	1911	977184
U	490m NW	Railway Sidings	1938	874167
U	490m NW	Cuttings	1938	930957
O	491m SE	Unspecified Tank	1938	959866
U	491m NW	Railway Sidings	1934	851258
U	491m NW	Cuttings	1934	955197
U	492m NW	Railway Sidings	1955	922909
U	492m NW	Railway Sidings	1965	922909
U	493m NW	Cuttings	1923	955197
U	493m NW	Cuttings	1893	877641
U	493m NW	Cuttings	1923	925757
U	493m NW	Railway Sidings	1911	903364
U	493m NW	Railway Sidings	1911	913195
W	494m S	Railway Sidings	1966	931248
W	494m S	Railway Sidings	1955	872150
U	494m NW	Cuttings	1955	850468
U	496m NW	Cuttings	1974	898907
U	496m NW	Cuttings	1983	898907
U	496m NW	Cuttings	1965	898907
U	496m NW	Railway Sidings	1938	886861

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**23**

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 21**

ID	Location	Land Use	Date	Group ID
D	100m N	Unspecified Tank	1988	137299
D	100m N	Unspecified Tank	1982	137299
D	100m N	Unspecified Tank	1975	137299
D	105m N	Unspecified Tank	1988	133197
D	105m N	Unspecified Tank	1982	133197
D	106m N	Unspecified Tank	1957	122884
D	106m N	Unspecified Tank	1975	122884
D	106m N	Unspecified Tank	1957	133197
D	106m N	Unspecified Tank	1957	133197
I	260m SE	Unspecified Tank	1984	135553
I	260m SE	Unspecified Tank	1984	135553
I	261m SE	Unspecified Tank	1970	135553
I	261m SE	Unspecified Tank	1992	135553
O	403m SE	Tanks	1907	128852
O	403m SE	Tanks	1922	128852
O	414m SE	Tanks	1907	136027
O	414m SE	Tanks	1922	136027
O	416m SE	Tanks	1910	149253
4	423m NW	Unspecified Tank	1894	116936
O	448m SE	Tanks	1922	107209
O	489m SE	Unspecified Tank	1907	125495
O	489m SE	Unspecified Tank	1922	125495
O	490m SE	Tanks	1910	107208

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**19**

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 21**

ID	Location	Land Use	Date	Group ID
1	163m W	Electricity House	1975	63681
L	327m NW	Electricity Substation	1994	80059
L	328m NW	Electricity Substation	1975	83519
L	329m NW	Electricity Substation	1988	76756
L	329m NW	Electricity Substation	1982	76756
M	352m N	Electricity Substation	1992	76673
M	352m N	Electricity Substation	1988	76673
M	352m N	Electricity Substation	1982	76673
Q	375m W	Electricity Substation	1988	84170
Q	375m W	Electricity Substation	1982	84170
Q	375m W	Electricity Substation	1992	84170
3	396m SW	Electricity Substation	1992	62388
C	417m SW	Electricity Substation	1975	84072
C	419m SW	Electricity Substation	1988	76913
C	419m SW	Electricity Substation	1982	76913
C	419m SW	Electricity Substation	1992	76913
K	427m E	Electricity Substation	1988	74540
K	428m E	Electricity Substation	1992	74540
K	428m E	Electricity Substation	1982	74540

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	4

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 21**

ID	Location	Land Use	Date	Group ID
B	70m SW	Garage	1957	25676
B	70m SW	Garage	1957	25676
B	74m SW	Garage	1957	25676
B	74m SW	Garage	1975	25676

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



Site Outline

Search buffers in metres (m)

Waste exemptions

3.1 Active or recent landfill

Records within 500m	0

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.2 Historical landfill (BGS records)

Records within 500m	0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m	0

Landfill sites identified from Local Authority records and high detail historical mapping.

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m	0

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.5 Historical waste sites

Records within 500m	0

Waste site records derived from Local Authority planning records and high detail historical mapping.

This data is sourced from Ordnance Survey/Groundsure and Local Authority records.

3.6 Licensed waste sites

Records within 500m	0

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.7 Waste exemptions

Records within 500m	11

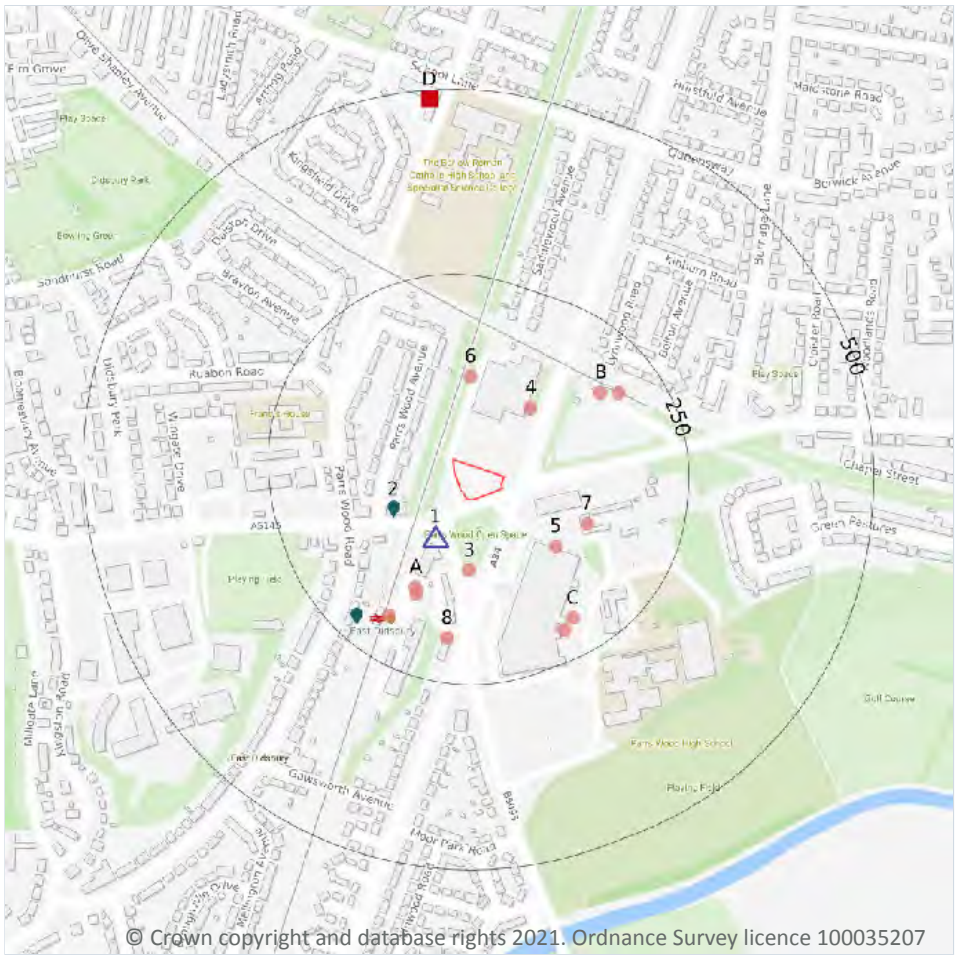
Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on **page 31**

ID	Location	Site	Reference	Category	Sub-Category	Description
1	172m S	PARRSWOOD ENTERTAINMENT CENTRE, WILMSLOW ROAD, MANCHESTER, M20 5PG	WEX110669	Storing waste exemption	Not on a farm	Storage of waste in a secure place
A	429m SW	Oracle Scotscroft Towers Manchester M20 2RY	EPR/PH0416DB/A001	Treating waste exemption	Non-Agricultural Waste Only	Crushing waste fluorescent tubes
A	439m SW	SCOTSCROFT BUILDING, TOWERS BUSINESS PARK, WILMSLOW ROAD, MANCHESTER, M20 2RY	WEX255682	Storing waste exemption	Not on a farm	Storage of waste in a secure place
A	439m SW	SCOTSCROFT BUILDING, TOWERS BUSINESS PARK, WILMSLOW ROAD, MANCHESTER, M20 2RY	WEX255682	Storing waste exemption	Not on a farm	Storage of waste in secure containers
A	439m SW	SCOTSCROFT BUILDING, TOWERS BUSINESS PARK, WILMSLOW ROAD, MANCHESTER, M20 2RY	WEX113660	Storing waste exemption	Not on a farm	Storage of waste in secure containers
A	439m SW	SCOTSCROFT BUILDING, TOWERS BUSINESS PARK, WILMSLOW ROAD, MANCHESTER, M20 2RY	WEX113660	Storing waste exemption	Not on a farm	Storage of waste in a secure place
A	439m SW	SCOTSCROFT BUILDING, TOWERS BUSINESS PARK, WILMSLOW ROAD, MANCHESTER, M20 2RY	WEX112310	Storing waste exemption	Not on a farm	Storage of waste in secure containers
A	439m SW	SCOTSCROFT BUILDING, TOWERS BUSINESS PARK, WILMSLOW ROAD, MANCHESTER, M20 2RY	WEX112310	Storing waste exemption	Not on a farm	Storage of waste in a secure place
B	470m NE	6, QUEENSWAY, MANCHESTER, M19 1QP	WEX141562	Storing waste exemption	Not on a farm	Storage of waste in a secure place
B	470m NE	6, QUEENSWAY, MANCHESTER, M19 1QP	WEX141562	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
B	470m NE	6, QUEENSWAY, MANCHESTER, M19 1QP	WEX141562	Storing waste exemption	Not on a farm	Storage of waste in secure containers

This data is sourced from the Environment Agency and Natural Resources Wales.

4 Current industrial land use



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4.1 Recent industrial land uses

Records within 250m	13

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Company	Address	Activity	Category
3	95m S	Gas Governor	Greater Manchester, M20	Gas Features	Infrastructure and Facilities
4	100m N	Mast	Greater Manchester, M20	Telecommunications Features	Infrastructure and Facilities
5	106m SE	Electricity Sub Station	Greater Manchester, M20	Electrical Features	Infrastructure and Facilities

ID	Location	Company	Address	Activity	Category
6	114m N	Mast	Greater Manchester, M20	Telecommunications Features	Infrastructure and Facilities
7	123m E	Didsbury Magazine	3 The Stables Parrswood Entertainment Centre, Wilmslow Road, Manchester, Greater Manchester, M20 5PG	Published Goods	Industrial Products
A	138m SW	Electricity Sub Station	Greater Manchester, M20	Electrical Features	Infrastructure and Facilities
A	146m SW	Electricity Sub Station	Greater Manchester, M20	Electrical Features	Infrastructure and Facilities
B	173m NE	Electricity Sub Station	Greater Manchester, M19	Electrical Features	Infrastructure and Facilities
8	190m S	North West Equipment	804, Kingsway, Manchester, Greater Manchester, M20 5WY	Food and Beverage Industry Machinery	Industrial Products
A	191m SW	East Didsbury Rail Station	Greater Manchester, M20	Railway Stations, Junctions and Halts	Public Transport, Stations and Infrastructure
B	192m NE	East Didsbury (Mancheste r Metrolink)	Greater Manchester, M19	Tram, Metro and Light Railway Stations and Stops	Public Transport, Stations and Infrastructure
C	199m SE	Electricity Sub Station	Greater Manchester, M20	Electrical Features	Infrastructure and Facilities
C	209m SE	Electricity Sub Station	Greater Manchester, M20	Electrical Features	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	**1**

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Company	Address	LPG	Status
1	67m SW	OBSOLETE	878, Wilmslow Road, Parrs Wood, Manchester, Greater Manchester, M20 0WP	Not Applicable	Obsolete

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	0

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	0

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	0

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	0

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.10 Licensed industrial activities (Part A(1))

Records within 500m	0

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m	2

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Address	Details	
2	95m W	The Laundry Room, 839 Wilmslow Road, Didsbury, Manchester, M20 5WD	Process: Dry Cleaning Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
A	218m SW	Parrswood Serv Stn, Wilmslow Rd, M20 5WP	Process: Petrol Vapour Recovery Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	0

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.13 Licensed Discharges to controlled waters

Records within 500m	0

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.14 Pollutant release to surface waters (Red List)

Records within 500m	0

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.15 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.16 List 1 Dangerous Substances

Records within 500m	2

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Name	Status	Receiving Water	Authorised Substances
D	488m N	Kruger Tissue (manufacturing) Ltd	Not Active	River Sett, Manchester Ship Canal	Mercury (other), Cadmium, Hexachlorocyclohexane, Pentachlorophenol

ID	Location	Name	Status	Receiving Water	Authorised Substances
D	488m N	Kruger Tissue (manufacturing) Ltd	Active	River Sett, Manchester Ship Canal	Mercury (other), Cadmium, Hexachlorocyclohexane, Pentachlorophenol

This data is sourced from the Environment Agency and Natural Resources Wales.

4.17 List 2 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.18 Pollution Incidents (EA/NRW)

Records within 500m	0

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.19 Pollution inventory substances

Records within 500m	0

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.20 Pollution inventory waste transfers

Records within 500m	0

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

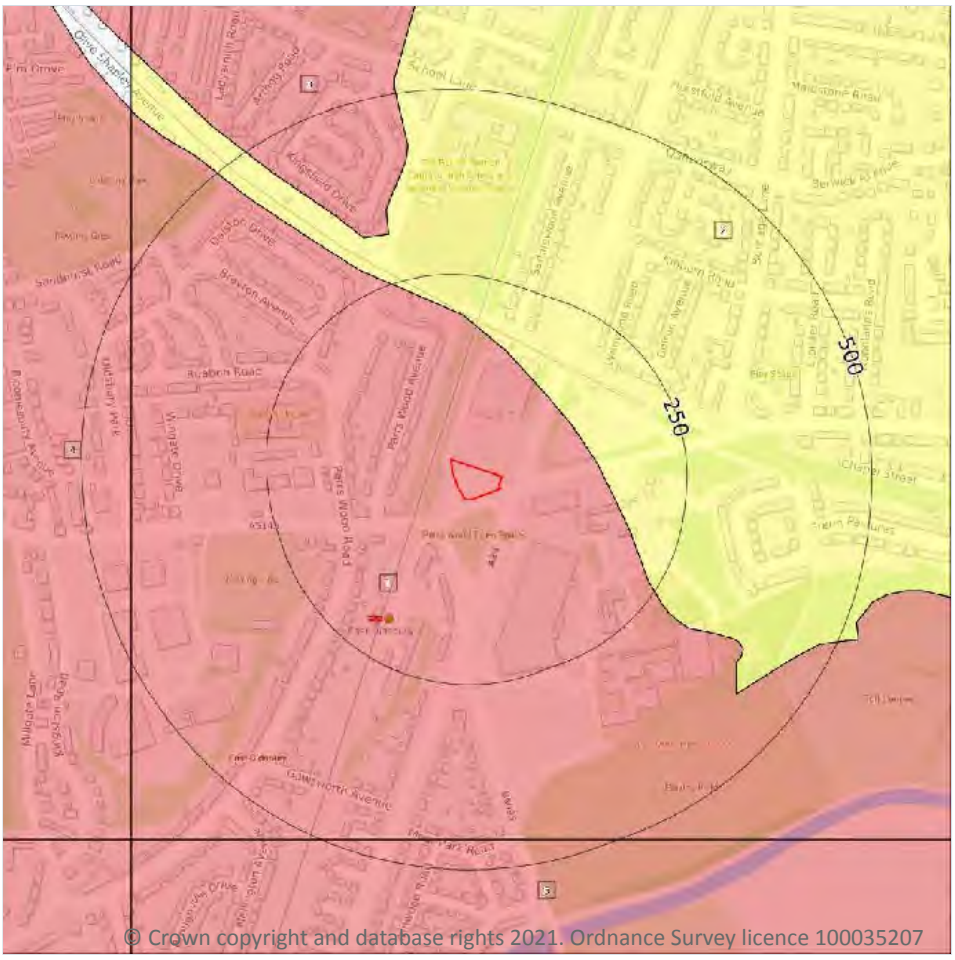
4.21 Pollution inventory radioactive waste

Records within 500m	0

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

5 Hydrogeology - Superficial aquifer



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive
- Unknown

5.1 Superficial aquifer

Records within 500m	5

Aquifer status of groundwater held within superficial geology.

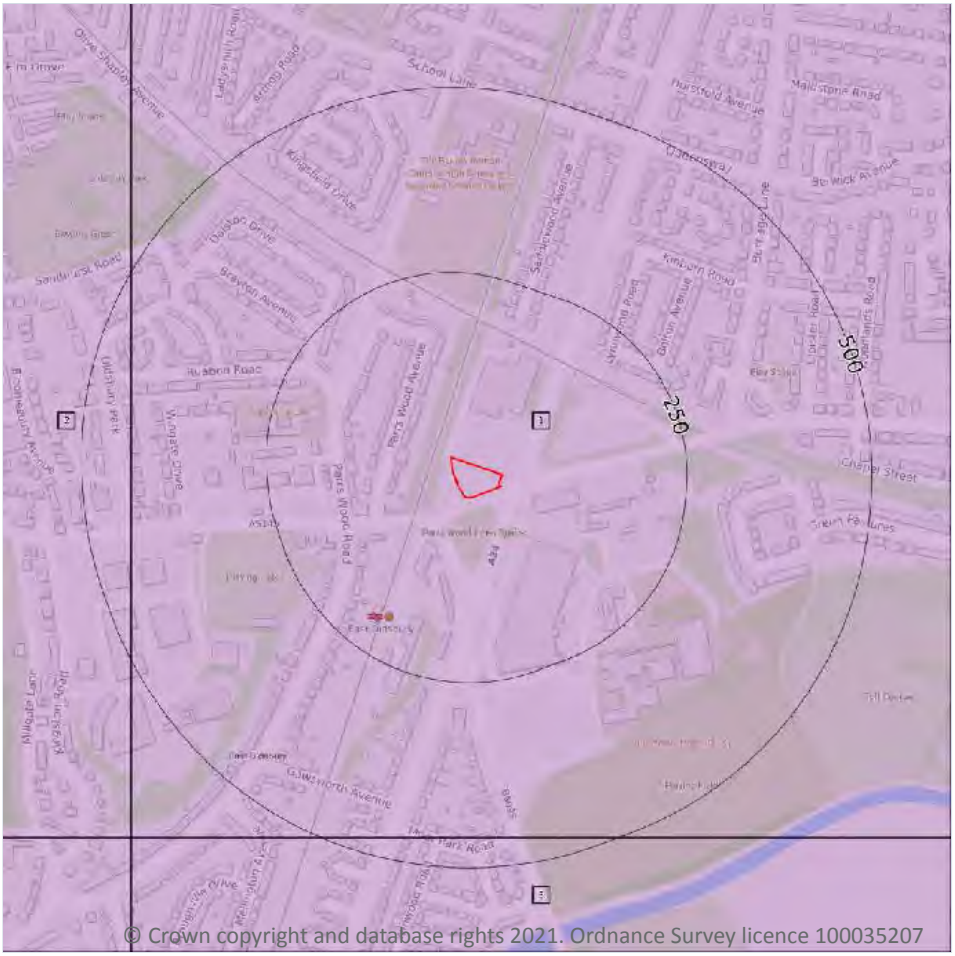
Features are displayed on the Hydrogeology map on **page 41**

ID	Location	Designation	Description
1	**On site**	**Secondary A**	**Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers**
2	117m NE	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

ID	Location	Designation	Description
3	316m N	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
4	433m W	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
5	459m S	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Bedrock aquifer



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive

5.2 Bedrock aquifer

Records within 500m	3

Aquifer status of groundwater held within bedrock geology.

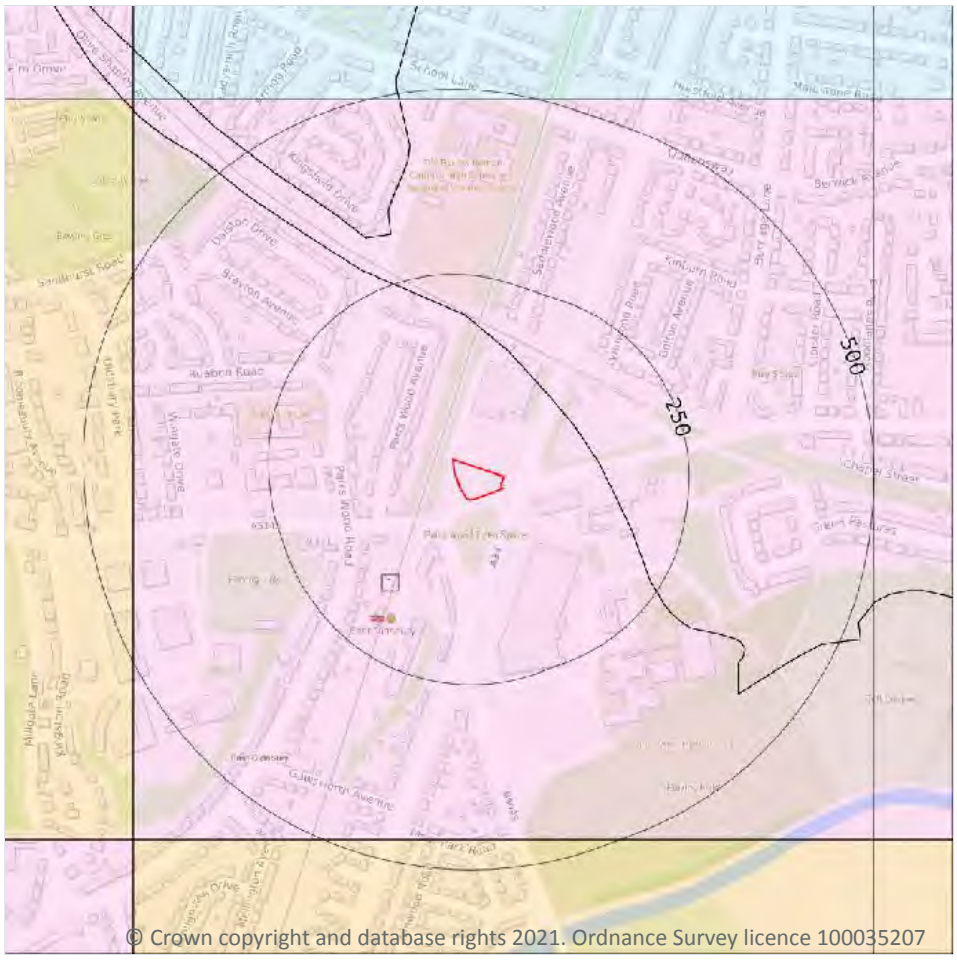
Features are displayed on the Bedrock aquifer map on **page 43**

ID	Location	Designation	Description
1	**On site**	**Principal**	**Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers**
2	433m W	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

ID	Location	Designation	Description
3	459m S	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Groundwater vulnerability



Site Outline

Search buffers in metres (m)

Superficial vulnerability

- Principal superficial aquifer, high vulnerability
- Secondary superficial aquifer, high vulnerability
- Principal superficial aquifer, medium vulnerability
- Secondary superficial aquifer, medium vulnerability
- Principal superficial aquifer, low vulnerability
- Secondary superficial aquifer, low vulnerability

Bedrock vulnerability

- Principal bedrock aquifer, high vulnerability
- Secondary bedrock aquifer, high vulnerability
- Principal bedrock aquifer, medium vulnerability
- Secondary bedrock aquifer, medium vulnerability
- Principal bedrock aquifer, low vulnerability
- Secondary bedrock aquifer, low vulnerability

Other information

- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m	1

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on **page 45**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	**On site**	**Summary Classification: Secondary superficial aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: Low Infiltration value: >70% Dilution value: 300-550mm/year**	**Vulnerability: Medium Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: High**	**Vulnerability: Low Aquifer type: Principal Flow mechanism: Mixed**

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

5.4 Groundwater vulnerability- soluble rock risk

Records on site	**0**

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

This data is sourced from the British Geological Survey and the Environment Agency.

5.5 Groundwater vulnerability- local information

Records on site	**0**

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk.

This data is sourced from the British Geological Survey and the Environment Agency.

Abstractions and Source Protection Zones



Site Outline

Search buffers in metres (m)

- Source Protection Zone 1 — Inner catchment
- Source Protection Zone 2 — Outer catchment
- Source Protection Zone 3 — Total catchment
- Source Protection Zone 4 — Zone of Special Interest
- Source Protection Zone 1c — Inner catchment - confined aquifer
- Source Protection Zone 2c — Outer catchment - confined aquifer
- Source Protection Zone 3c — Total catchment - confined aquifer
- Drinking water abstraction licences
- Drinking water abstraction licences — Polygon features
- Drinking water abstraction licences — Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m	5

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 47**

ID	Location	Details	
-	1418m E	Status: Historical Licence No: 2569013019 Details: Lake & Pond Throughflow Direct Source: Ground Water - North West Region Point: "A BOREHOLE AT HEATON MERSEY LODGE,VALE ROAD, STOCKPORT" Data Type: Point Name: SHAW Easting: 386880 Northing: 390150	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 24/12/1996 Expiry Date: - Issue No: 100 Version Start Date: 24/12/1996 Version End Date: -
-	1418m E	Status: Historical Licence No: 2569013019 Details: Lake & Pond Throughflow Direct Source: Ground Water - North West Region Point: A BOREHOLE AT HEATON MERSEY LODGE,VALE ROAD, STOCKPORT Data Type: Point Name: SHAW Easting: 386880 Northing: 390150	Annual Volume (m^3): 4860 Max Daily Volume (m^3): 18 Original Application No: - Original Start Date: 24/12/1996 Expiry Date: - Issue No: 100 Version Start Date: 24/12/1996 Version End Date: -
-	1483m W	Status: Historical Licence No: 2569015006 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: "BOREHOLE AT DIDSBURY GOLF CLUB, NORTHENDEN, WYTHENSHAWE," Data Type: Point Name: DIDSBURY GOLF CLUB LTD Easting: 383950 Northing: 390470	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 22/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 24/12/1992 Version End Date: -
-	1483m W	Status: Historical Licence No: 2569015006 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE AT DIDSBURY GOLF CLUB, NORTHENDEN, WYTHENSHAWE, Data Type: Point Name: DIDSBURY GOLF CLUB LTD Easting: 383950 Northing: 390470	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 22/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 24/12/1992 Version End Date: -

ID	Location	Details	
-	1483m W	Status: Active Licence No: 2569015006 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE AT DIDSBURY GOLF CLUB NORTHENDEN WYTHENSHAWE Data Type: Point Name: DIDSBURY GOLF CLUB LTD Easting: 383950 Northing: 390470	Annual Volume (m^3): 9,092 Max Daily Volume (m^3): 68.19 Original Application No: - Original Start Date: 22/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/04/2008 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.7 Surface water abstractions

Records within 2000m	**2**

Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 47**

ID	Location	Details	
-	1587m S	Status: Historical Licence No: 2569014038 Details: Lake & Pond Throughflow Direct Source: Surface, Non-Tidal - North West Region Point: ABNEY HALL POND CHORLTON BROOK CHEADLE STOCKPORT CHESHIRE Data Type: Point Name: STOCKPORT METROPOLITAN BOROUGH COUNCIL Easting: 386093 Northing: 389002	Annual Volume (m^3): 355192 Max Daily Volume (m^3): 1946.26 Original Application No: - Original Start Date: 17/12/2006 Expiry Date: 31/03/2018 Issue No: 1 Version Start Date: 17/12/2006 Version End Date: -
-	1587m S	Status: Active Licence No: 2569014038/R01 Details: Lake & Pond Throughflow Direct Source: Surface, Non-Tidal - North West Region Point: ABNEY HALL POND CHORLTON BROOK CHEADLE STOCKPORT CHESHIRE Data Type: Point Name: STOCKPORT METROPOLITAN BOROUGH COUNCIL Easting: 386093 Northing: 389002	Annual Volume (m^3): 355,192 Max Daily Volume (m^3): 1,944 Original Application No: - Original Start Date: 01/04/2018 Expiry Date: 31/03/2030 Issue No: 1 Version Start Date: 01/04/2018 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.8 Potable abstractions

Records within 2000m	0

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.9 Source Protection Zones

Records within 500m	0

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

This data is sourced from the Environment Agency and Natural Resources Wales.

6 Hydrology



Site Outline

Search buffers in metres (m)

Water Network (OS MasterMap)

Surface water features (wider than 5m)

Surface water features (narrower than 5m)

WFD River, canal and surface water transfer water bodies

WFD Lake water bodies

WFD Transitional and coastal water bodies

WFD Surface water body catchments boundaries

WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m	0

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	0

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	1

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on **page 51**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
2	**On site**	**River WB catchment**	**Mersey (upstream of Manchester Ship Canal)**	**GB112069061030**	**Bollin, Dean, Upper Mersey**	**Upper Mersey**

This data is sourced from the Environment Agency and Natural Resources Wales.

6.4 WFD Surface water bodies

Records identified	1

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

Features are displayed on the Hydrology map on **page 51**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	597m S	River	Mersey (upstream of Manchester Ship Canal)	GB112069061030	Moderate	Good	Moderate	2016

This data is sourced from the Environment Agency and Natural Resources Wales.

6.5 WFD Groundwater bodies

Records on site	1

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

Features are displayed on the Hydrology map on **page 51**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
1	**On site**	**Manchester and East Cheshire Permo-Triassic Sandstone Aquifers**	**GB41201G101100**	**Poor**	**Poor**	**Poor**	**2015**

This data is sourced from the Environment Agency and Natural Resources Wales.

7 River and coastal flooding

7.1 Risk of flooding from rivers and the sea

Records within 50m	0

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m within the Risk of Flooding from Rivers and Sea (RoFRaS)/Flood Risk Assessment Wales (FRAW) models. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition. The risk categories for RoFRaS for rivers and the sea and FRAW for rivers are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance). The risk categories for FRAW for the sea are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 200 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 200 chance) or High (greater than or equal to 1 in 30 chance).

This data is sourced from the Environment Agency and Natural Resources Wales.

7.2 Historical Flood Events

Records within 250m	0

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.3 Flood Defences

Records within 250m	0

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.4 Areas Benefiting from Flood Defences

Records within 250m	0

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.5 Flood Storage Areas

Records within 250m	0

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

This data is sourced from the Environment Agency and Natural Resources Wales.

River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m	0

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.7 Flood Zone 3

Records within 50m	0

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

8 Surface water flooding



Site Outline
Search buffers in metres (m)

1 in 1000 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site	**1 in 1000 year, 0.1m - 0.3m**
Highest risk within 50m	**1 in 100 year, 0.1m - 0.3m**

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

Features are displayed on the Surface water flooding map on **page 57**

The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Between 0.1m and 0.3m
1 in 250 year	Negligible
1 in 100 year	Negligible
1 in 30 year	Negligible

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



Site Outline

Search buffers in metres (m)

High

Moderate - High

Moderate

Low

Negligible

9.1 Groundwater flooding

Highest risk on site	**High**
Highest risk within 50m	**High**

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on **page 59**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



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Site Outline

Search buffers in metres (m)

Local Nature Reserves (LNR)

Green Belt

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	0

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	0

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.3 Special Areas of Conservation (SAC)

Records within 2000m	0

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.4 Special Protection Areas (SPA)

Records within 2000m	0

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.5 National Nature Reserves (NNR)

Records within 2000m	0

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.6 Local Nature Reserves (LNR)

Records within 2000m	6

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

Features are displayed on the Environmental designations map on **page 60**

ID	Location	Name	Data source
4	776m SW	Stenner Woods and Milgate Fields, Didsbury	Natural England
5	834m SE	Mersey Vale Nature Park	Natural England
6	837m NE	Heaton Mersey Common	Natural England
7	1196m SE	Abney Hall	Natural England
8	1199m E	Mersey Vale Nature Park	Natural England
-	1790m SW	Gatley Carrs	Natural England

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.7 Designated Ancient Woodland

Records within 2000m	0

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.8 Biosphere Reserves

Records within 2000m	0

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.9 Forest Parks

Records within 2000m	0

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.11 Green Belt

Records within 2000m	3

Areas designated to prevent urban sprawl by keeping land permanently open.

Features are displayed on the Environmental designations map on **page 60**

ID	Location	Name	Local Authority name
1	367m SE	Merseyside and Greater Manchester	Stockport
2	386m SE	Merseyside and Greater Manchester	Manchester
3	613m W	Merseyside and Greater Manchester	Manchester

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m	0

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

Records within 2000m	0

Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

This data is sourced from Natural England and Natural Resources Wales.

SSSI Impact Zones and Units

10.17 SSSI Impact Risk Zones

Records on site	0

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

This data is sourced from Natural England.

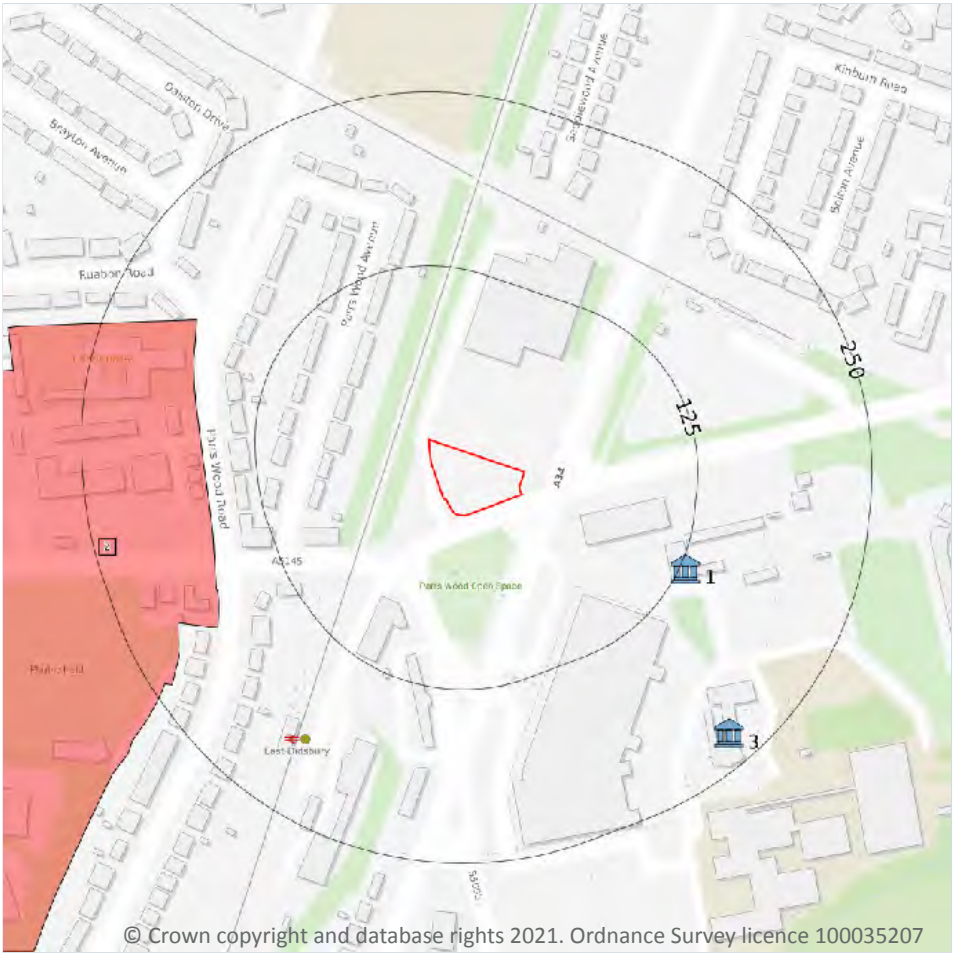
10.18 SSSI Units

Records within 2000m	0

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

This data is sourced from Natural England and Natural Resources Wales.

11 Visual and cultural designations



Site Outline

Search buffers in metres (m)

Listed buildings

Conservation areas

Conservation areas - no data

National Parks

Areas of Outstanding Natural Beauty

Registered parks and gardens

Scheduled Monuments

World Heritage Sites

11.1 World Heritage Sites

Records within 250m	0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.2 Area of Outstanding Natural Beauty

Records within 250m	0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 National Parks

Records within 250m	0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

11.4 Listed Buildings

Records within 250m	2

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.

Features are displayed on the Visual and cultural designations map on **page 66**

ID	Location	Name	Grade	Reference Number	Listed date
1	129m SE	Former Coach House/Stable Block To North Of Parrs Wood House And Attached Yard Wall, Didsbury, Manchester, M20	II	1254972	03/10/1974
3	227m SE	Parrs Wood House, Didsbury, Manchester, M20	II*	1254971	25/02/1952

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.5 Conservation Areas

Records within 250m	1

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

Features are displayed on the Visual and cultural designations map on **page 66**

ID	Location	Name	District	Date of designation
2	162m W	Didsbury St James	Manchester	01/11/1970

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.6 Scheduled Ancient Monuments

Records within 250m	0

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

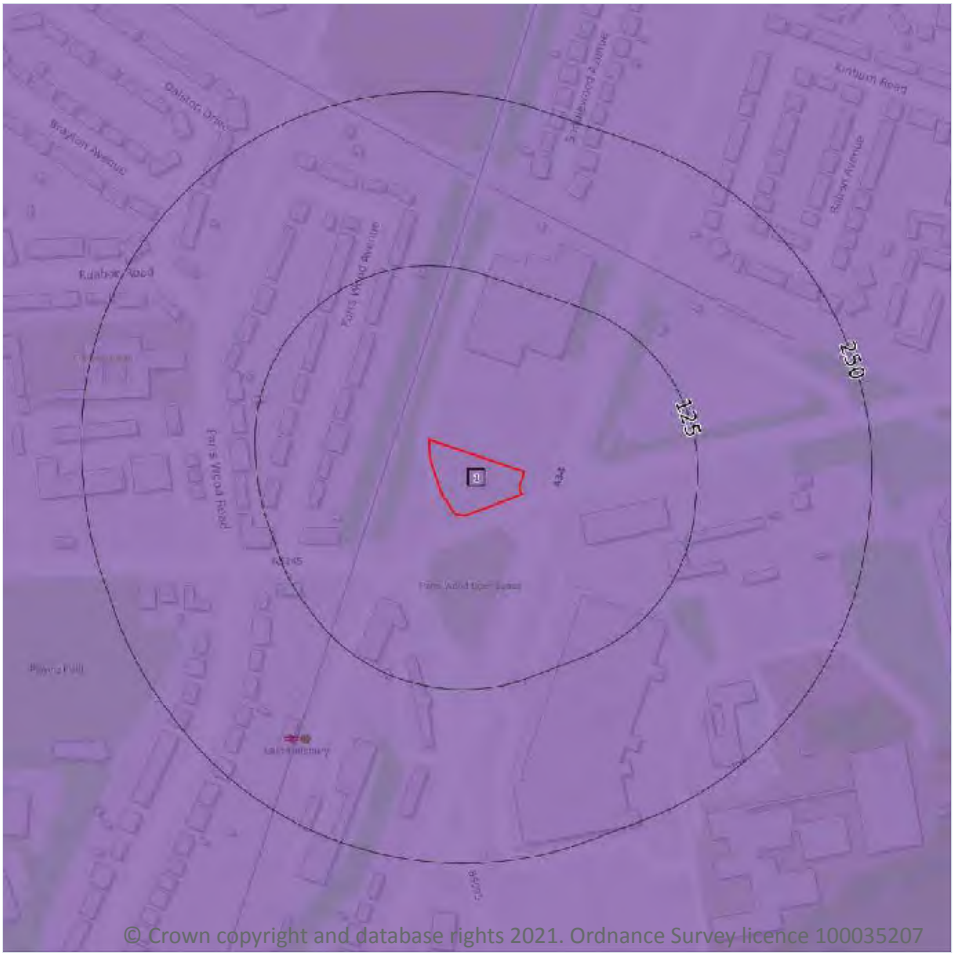
11.7 Registered Parks and Gardens

Records within 250m	0

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

12 Agricultural designations



Site Outline

Search buffers in metres (m)

- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m	1

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on **page 69**

ID	Location	Classification	Description
1	**On site**	**Urban**	-

This data is sourced from Natural England.

12.2 Open Access Land

Records within 250m	0

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

This data is sourced from Natural England and Natural Resources Wales.

12.3 Tree Felling Licences

Records within 250m	0

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	0

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. The schemes identified may be historical schemes that have now expired, or may still be active.

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m	0

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

This data is sourced from Natural England.

13 Habitat designations



Site Outline

Search buffers in metres (m)

Priority Habitat Inventory
Open Mosaic Habitat
Limestone Pavement Orders

Habitat Networks

Primary Habitat
Restorable Habitat
Associated Habitats
Habitat Restoration-Creation
Network Enhancement Zone 1
Network Enhancement Zone 2

13.1 Priority Habitat Inventory

Records within 250m	6

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

Features are displayed on the Habitat designations map on **page 71**

ID	Location	Main Habitat	Other habitats
1	128m E	No main habitat but additional habitats present	Additional: TORCH (INV 50%)
2	198m E	Traditional orchard	Main habitat: TORCH (INV > 50%)
A	229m E	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
3	231m E	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

ID	Location	Main Habitat	Other habitats
A	242m E	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
A	246m E	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	0

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	0

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

13.4 Limestone Pavement Orders

Records within 250m	0

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.

14 Geology 1:10,000 scale - Availability



Site Outline

Search buffers in metres (m)

Full coverage

Partial coverage

No coverage

14.1 10k Availability

Records within 500m	3

An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 73**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**No coverage**	**SJ89SE**
2	433m W	Full	Full	Full	No coverage	SJ89SW
3	459m S	No coverage	Full	Full	No coverage	SJ88NE

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Artificial and made ground



Site Outline

Search buffers in metres (m)

- Reclaimed ground
- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

14.2 Artificial and made ground (10k)

Records within 500m	10

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

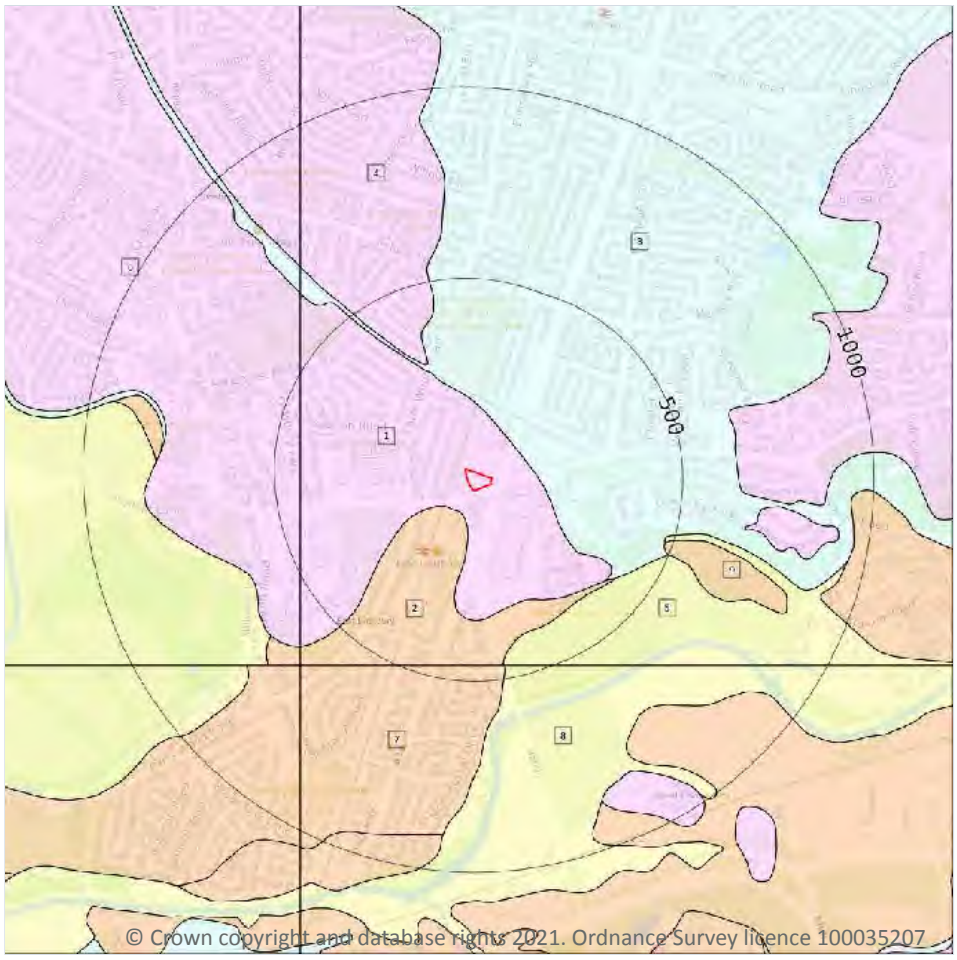
Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 74**

ID	Location	LEX Code	Description	Rock description
1	8m W	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
2	31m E	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
3	75m SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
A	158m NE	WGR-VOID	Worked Ground (Undivided)	Void

ID	Location	LEX Code	Description	Rock description
A	181m NE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
4	199m N	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
5	211m NW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
6	279m N	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
7	440m S	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
8	497m N	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial



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Site Outline

Search buffers in metres (m)

Landslip (10k)

Superficial geology (10k)
Please see table for more details.

14.3 Superficial geology (10k)

Records within 500m **9**

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 76**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**GFSDD-XSV**	**Glaciofluvial Sheet Deposits, Devensian - Sand And Gravel**	**Sand And Gravel**
2	67m SW	RTD2-XSV	River Terrace Deposits, 2 - Sand And Gravel	Sand And Gravel
3	98m NE	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton
4	292m N	GFSDD-XSV	Glaciofluvial Sheet Deposits, Devensian - Sand And Gravel	Sand And Gravel

ID	Location	LEX Code	Description	Rock description
5	381m SE	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
6	433m W	GFSDD-XSV	Glaciofluvial Sheet Deposits, Devensian - Sand And Gravel	Sand And Gravel
7	459m S	RTD2-XSV	River Terrace Deposits, 2 - Sand And Gravel	Sand And Gravel
8	466m S	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
9	481m E	RTD2-XSV	River Terrace Deposits, 2 - Sand And Gravel	Sand And Gravel

This data is sourced from the British Geological Survey.

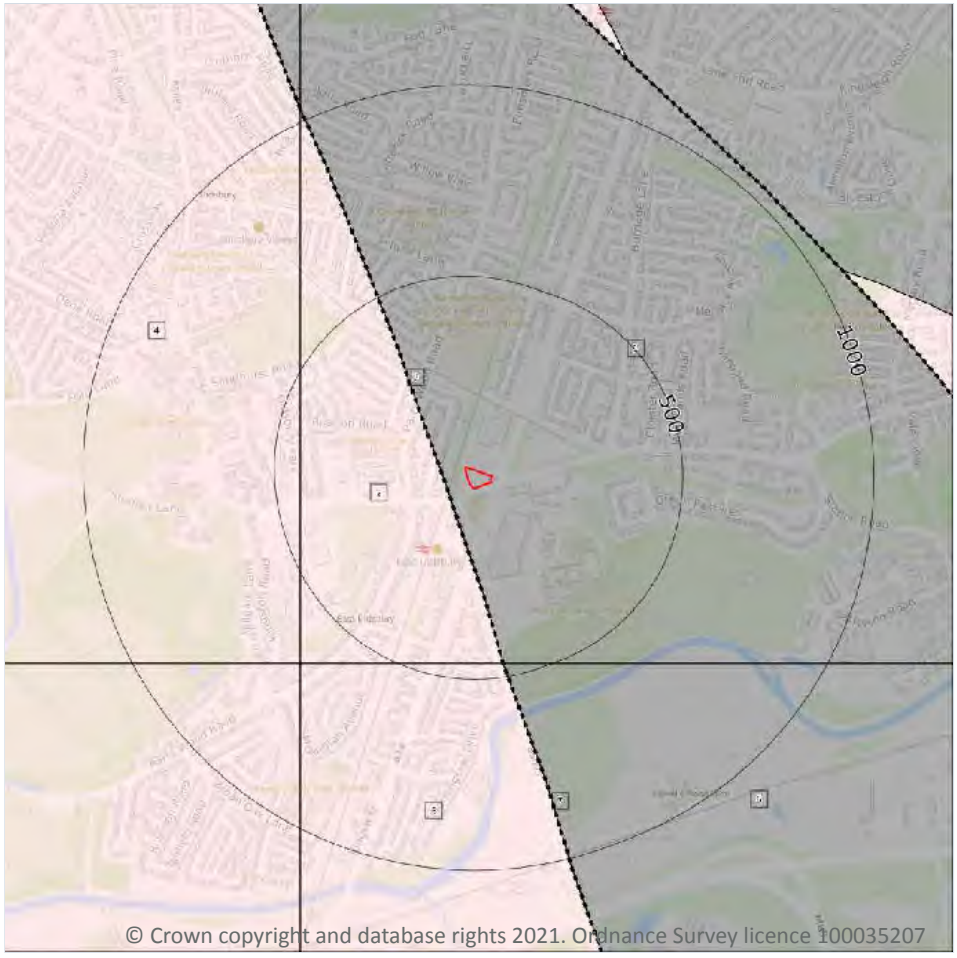
14.4 Landslip (10k)

Records within 500m	**0**

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

Bedrock geology (10k)
Please see table for more details.

14.5 Bedrock geology (10k)

Records within 500m **5**

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 78**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**CPB-SDST**	**Chester Pebble Beds Formation - Sandstone**	**Early Triassic Epoch**
2	60m W	WLSF-SDST	Wilmslow Sandstone Formation - Sandstone	Early Triassic Epoch
4	433m W	WLSF-SDST	Wilmslow Sandstone Formation - Sandstone	Early Triassic Epoch
5	459m S	WLSF-SDST	Wilmslow Sandstone Formation - Sandstone	Early Triassic Epoch

ID	Location	LEX Code	Description	Rock age
6	464m S	CPB-PESST	Chester Pebble Beds Formation - Pebbly (gravelly) Sandstone	Early Triassic Epoch

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m	**2**

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 78**

ID	Location	Category	Description
3	60m W	FAULT	Normal fault, inferred; crossmarks on downthrow side
7	464m S	FAULT	Normal fault, inferred; crossmarks on downthrow side

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability



Site Outline

Search buffers in metres (m)

Geological map tile

15.1 50k Availability

Records within 500m	1

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 80**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**No coverage**	**Full**	**Full**	**Full**	**EW098_stockport_v4**

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Artificial and made ground

15.2 Artificial and made ground (50k)

Records within 500m	0

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

This data is sourced from the British Geological Survey.

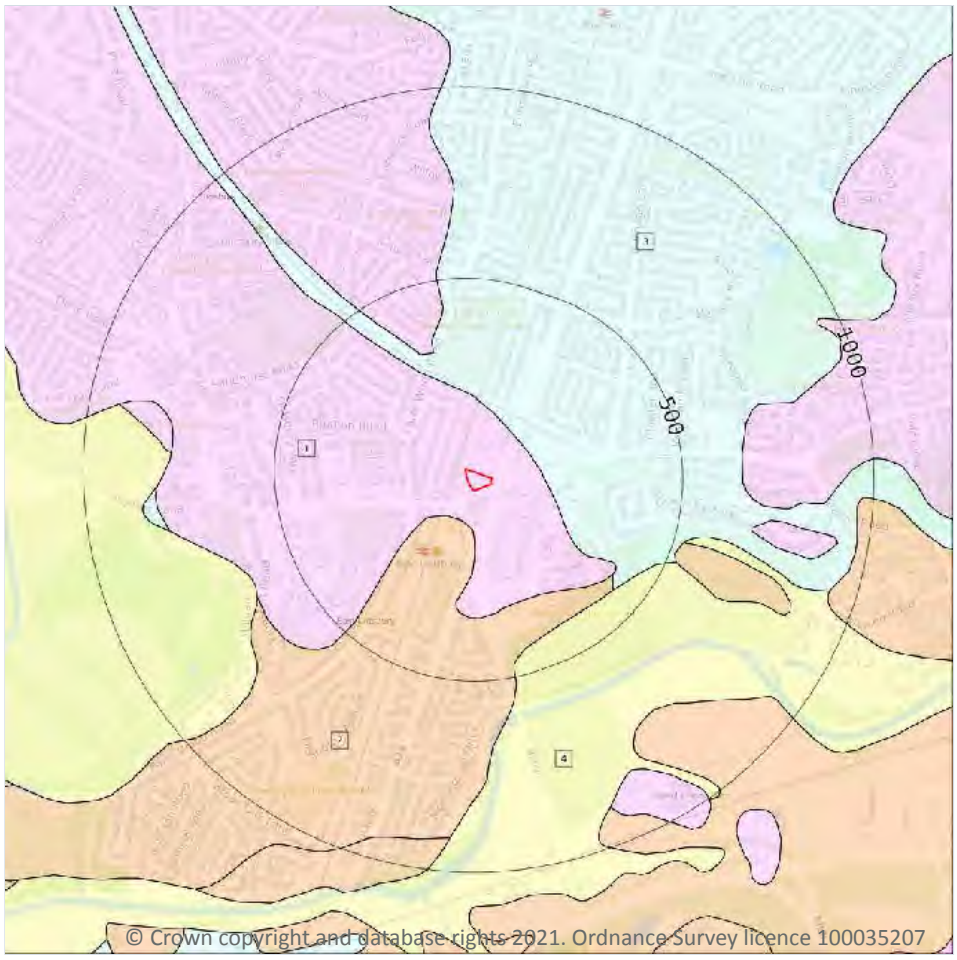
15.3 Artificial ground permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

Superficial geology (50k)
Please see table for more details.

15.4 Superficial geology (50k)

Records within 500m **4**

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 82**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**GFSDD-XSV**	**GLACIOFLUVIAL SHEET DEPOSITS, DEVENSIAN**	**SAND AND GRAVEL**
2	86m S	RTDU-XSV	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	SAND AND GRAVEL
3	117m NE	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
4	407m SE	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	1

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Intergranular**	**Very High**	**High**

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

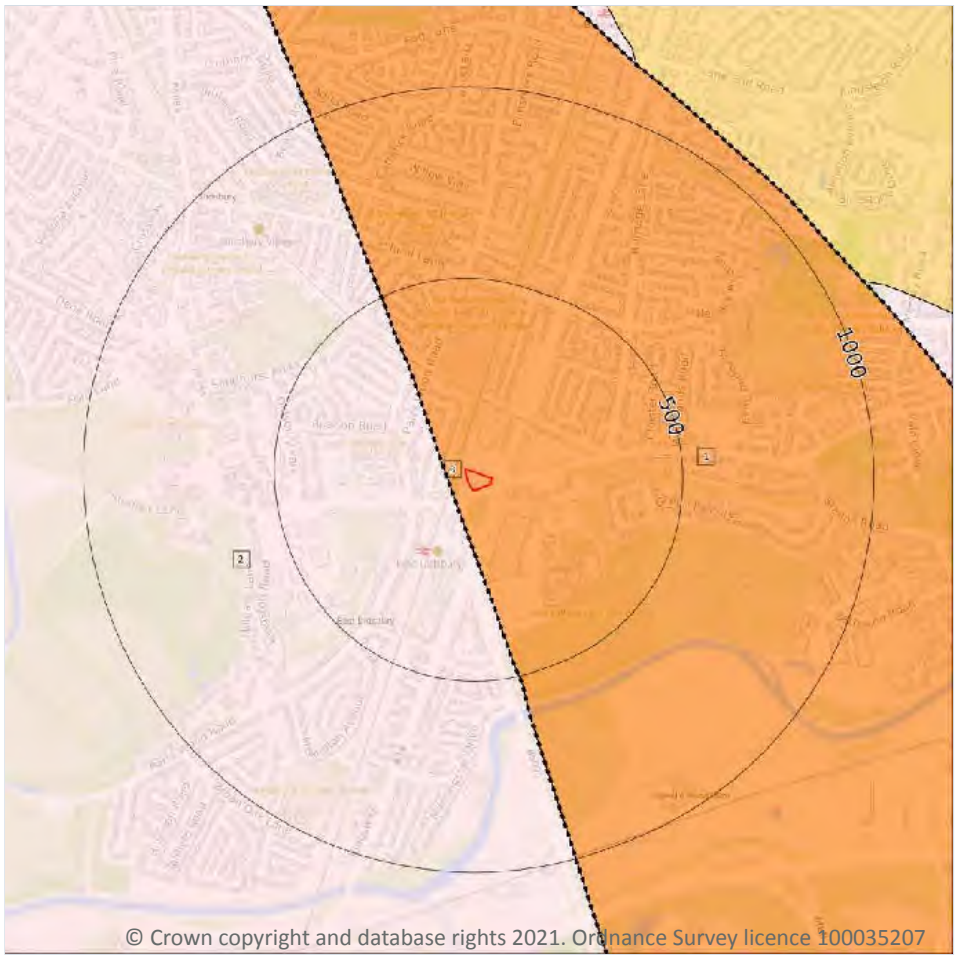
15.7 Landslip permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



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Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

15.8 Bedrock geology (50k)

Records within 500m	2

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 84**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**CHES-PESST**	**CHESTER FORMATION - SANDSTONE, PEBBLY (GRAVELLY)**	**OLENEKIAN**
2	48m W	WLSF-SDST	WILMSLOW SANDSTONE FORMATION - SANDSTONE	-

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	2

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Mixed**	**High**	**Moderate**
48m W	Intergranular	High	High

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	1

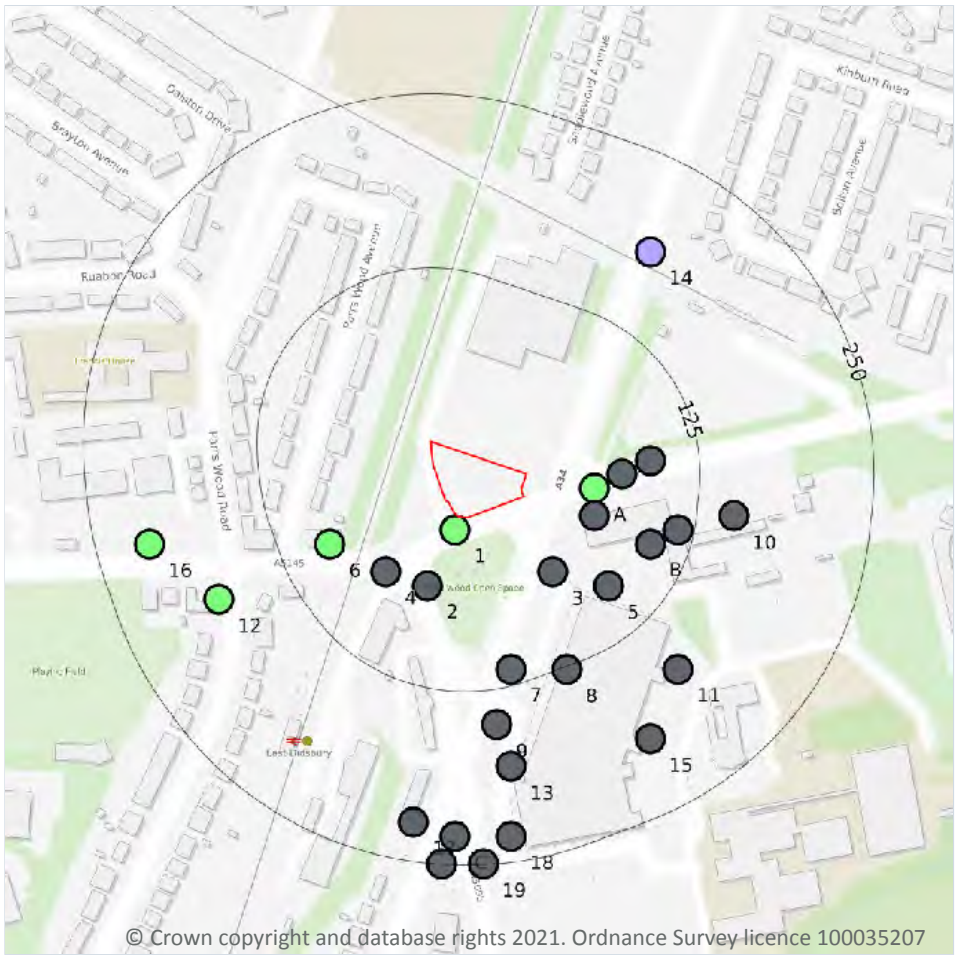
Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 84**

ID	Location	Category	Description
3	48m W	FAULT	Fault, inferred

This data is sourced from the British Geological Survey.

16 Boreholes



Site Outline

Search buffers in metres (m)

Confidential

0 - 10m

10 - 30m

30m+

Unknown

16.1 BGS Boreholes

Records within 250m	27

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

Features are displayed on the Boreholes map on **page 86**

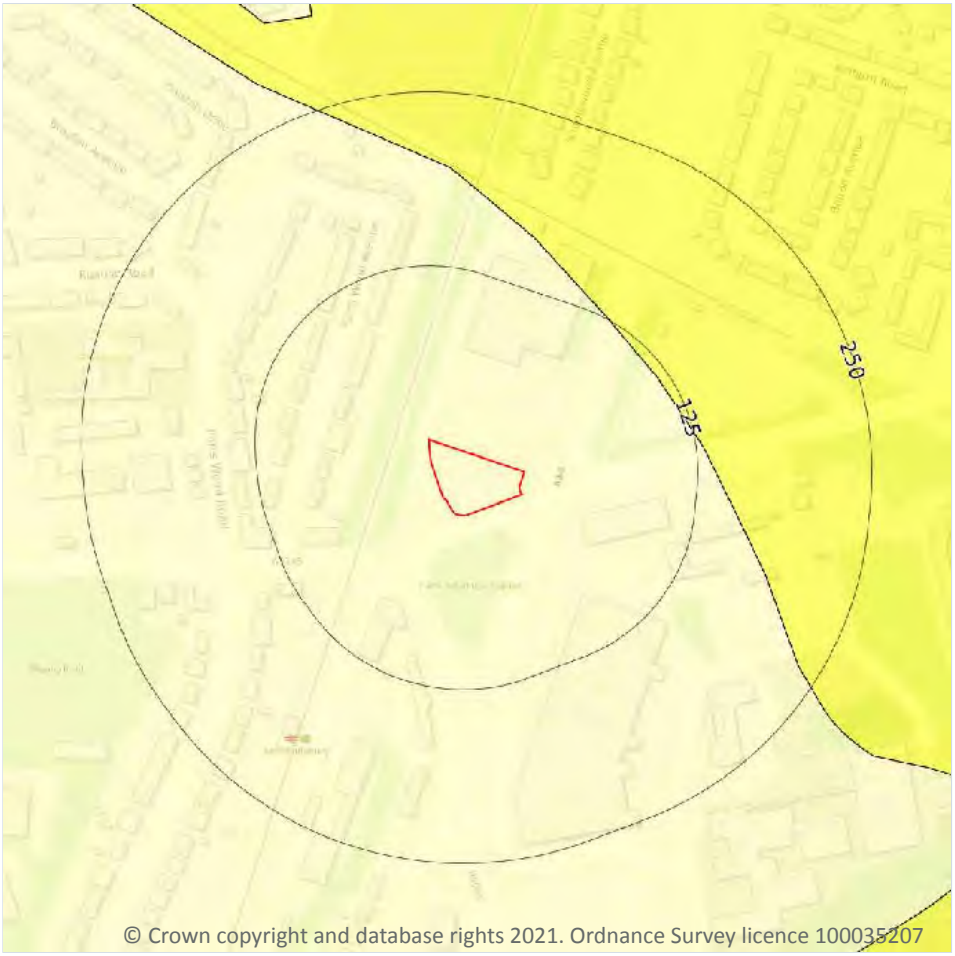
ID	Location	Grid reference	Name	Length	Confidential	Web link
1	10m S	385450 390450	DIDSBURY NO.107	11.43	N	866288
A	50m E	385550 390480	DIDSBURY NO.108	14.02	N	866289

ID	Location	Grid reference	Name	Length	Confidential	Web link
A	53m E	385550 390460	PARRSWOOD DEVELOPMENT ROAD IMPROVEMENTS TH2	-	Y	N/A
2	55m SW	385430 390410	PARRSWOOD DEVELOPMENT ROAD IMPROVEMENTS TH16	-	Y	N/A
3	58m S	385520 390420	PARRSWOOD DEVELOPMENT ROAD IMPROVEMENTS TH3	-	Y	N/A
4	65m SW	385400 390420	PARRSWOOD DEVELOPMENT ROAD IMPROVEMENTS TH5	-	Y	N/A
A	69m E	385570 390490	PARRSWOOD DEVELOPMENT ROAD IMPROVEMENTS TH1	-	Y	N/A
5	88m SE	385560 390410	PARRS WOOD SCHOOL REDEVELOPMENT TPB	-	Y	N/A
6	89m W	385360 390440	DIDSBURY NO.106	11.33	N	866287
A	90m E	385590 390500	PARRSWOOD DEVELOPMENT ROAD IMPROVEMENTS TH15	-	Y	N/A
B	97m E	385590 390440	PARRS WOOD SCHOOL REDEVELOPMENT 1	-	Y	N/A
7	113m S	385490 390350	PARRSWOOD DEVELOPMENT ROAD IMPROVEMENTS TH4	-	Y	N/A
B	113m E	385610 390450	PARRS WOOD SCHOOL REDEVELOPMENT TPF	-	Y	N/A
8	127m S	385530 390350	PARRS WOOD SCHOOL REDEVELOPMENT 2	-	Y	N/A
9	150m S	385480 390310	PARRSWOOD DEVELOPMENT ROAD IMPROVEMENTS TH14	-	Y	N/A
10	151m E	385650 390460	PARRS WOOD SCHOOL REDEVELOPMENT 12	-	Y	N/A
11	166m SE	385610 390350	PARRS WOOD SCHOOL REDEVELOPMENT 11	-	Y	N/A
12	178m SW	385280 390400	DIDSBURY NO.103	11.99	N	866284
13	182m S	385490 390280	PARRS WOOD SCHOOL REDEVELOPMENT 3	-	Y	N/A
14	183m NE	385590 390650	DIDSBURY NO.109	6.1	N	866290
15	196m SE	385590 390300	PARRS WOOD SCHOOL REDEVELOPMENT 10	-	Y	N/A
16	212m W	385230 390440	DIDSBURY NO.105	11.43	N	866286
17	222m S	385420 390240	PARRSWOOD DEVELOPMENT ROAD IMPROVEMENTS TH6	-	Y	N/A
C	229m S	385450 390230	PARRSWOOD DEVELOPMENT ROAD IMPROVEMENTS TH9	-	Y	N/A
18	231m S	385490 390230	PARRS WOOD SCHOOL REDEVELOPMENT TPD	-	Y	N/A

ID	Location	Grid reference	Name	Length	Confidential	Web link
19	249m S	385470 390210	PARRSWOOD DEVELOPMENT ROAD IMPROVEMENTS TH10A	-	Y	N/A
C	249m S	385440 390210	PARRSWOOD DEVELOPMENT ROAD IMPROVEMENTS TH10	-	Y	N/A

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.1 Shrink swell clays

Records within 50m	1

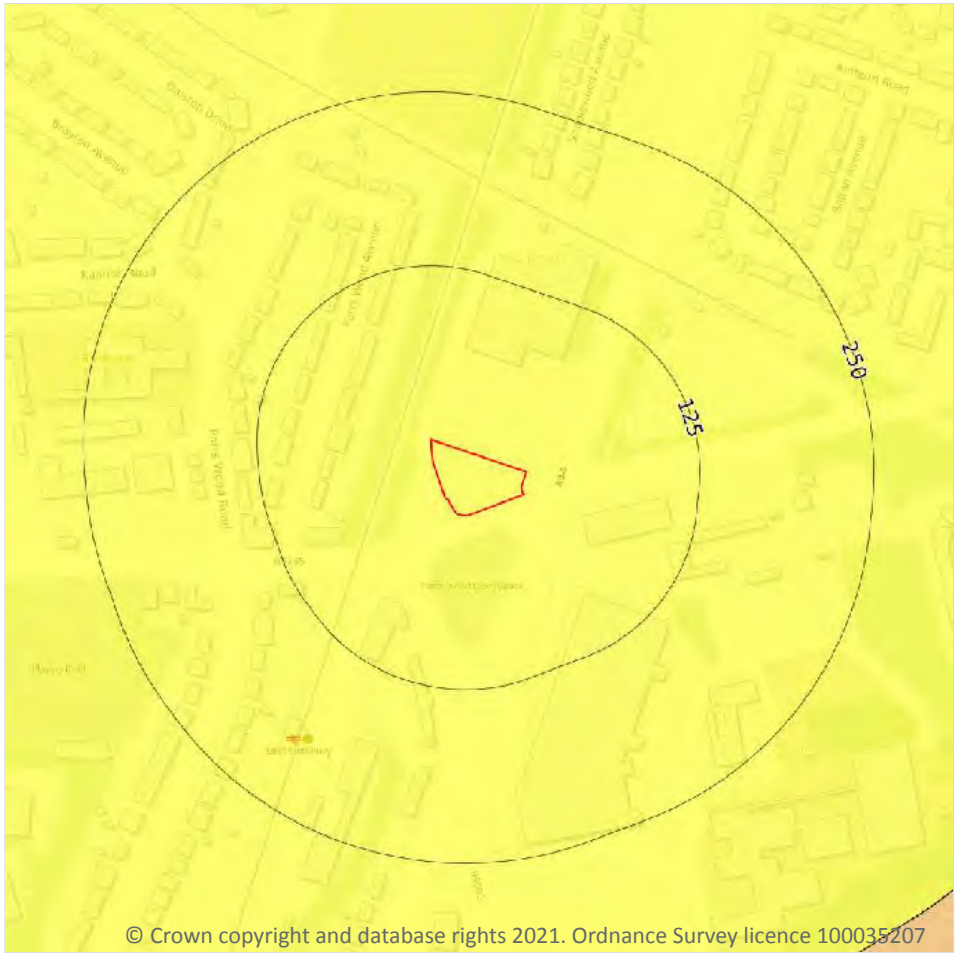
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 89**

Location	Hazard rating	Details
On site	**Negligible**	**Ground conditions predominantly non-plastic.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.2 Running sands

Records within 50m	1

The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 90**

Location	Hazard rating	Details
On site	**Very low**	**Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.3 Compressible deposits

Records within 50m	1

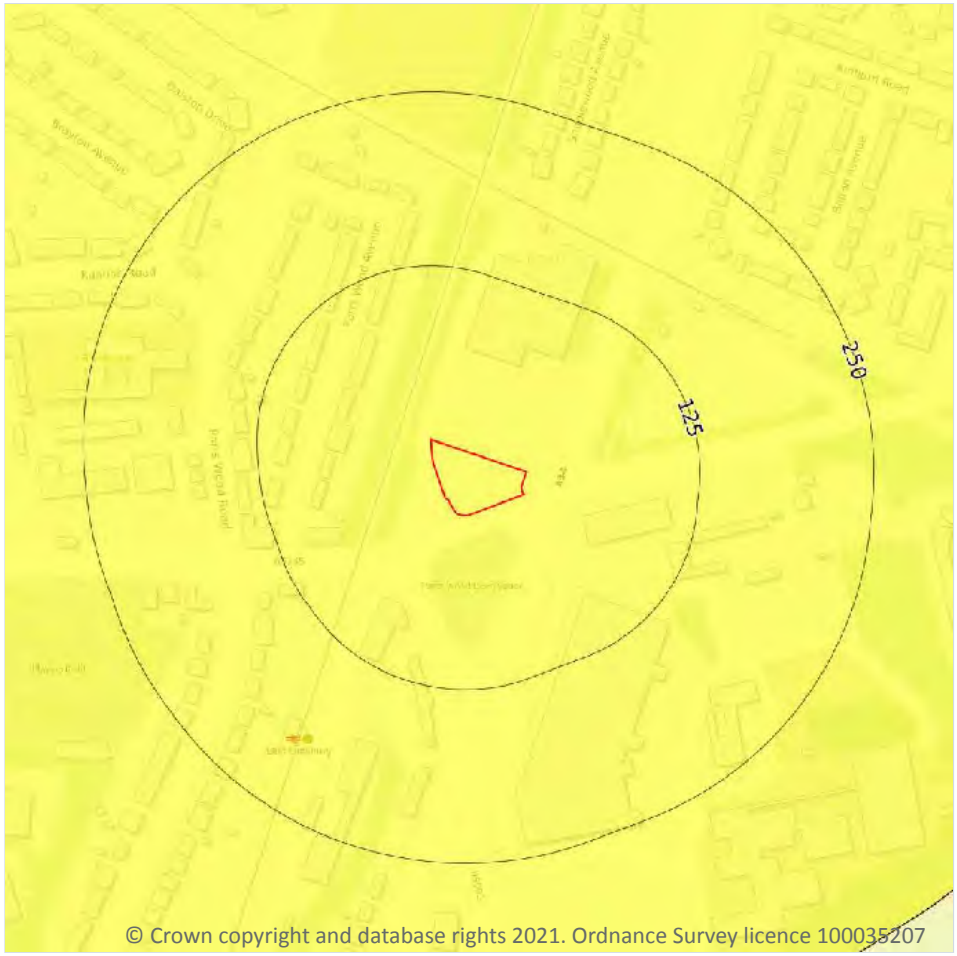
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 91**

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.4 Collapsible deposits

Records within 50m	1

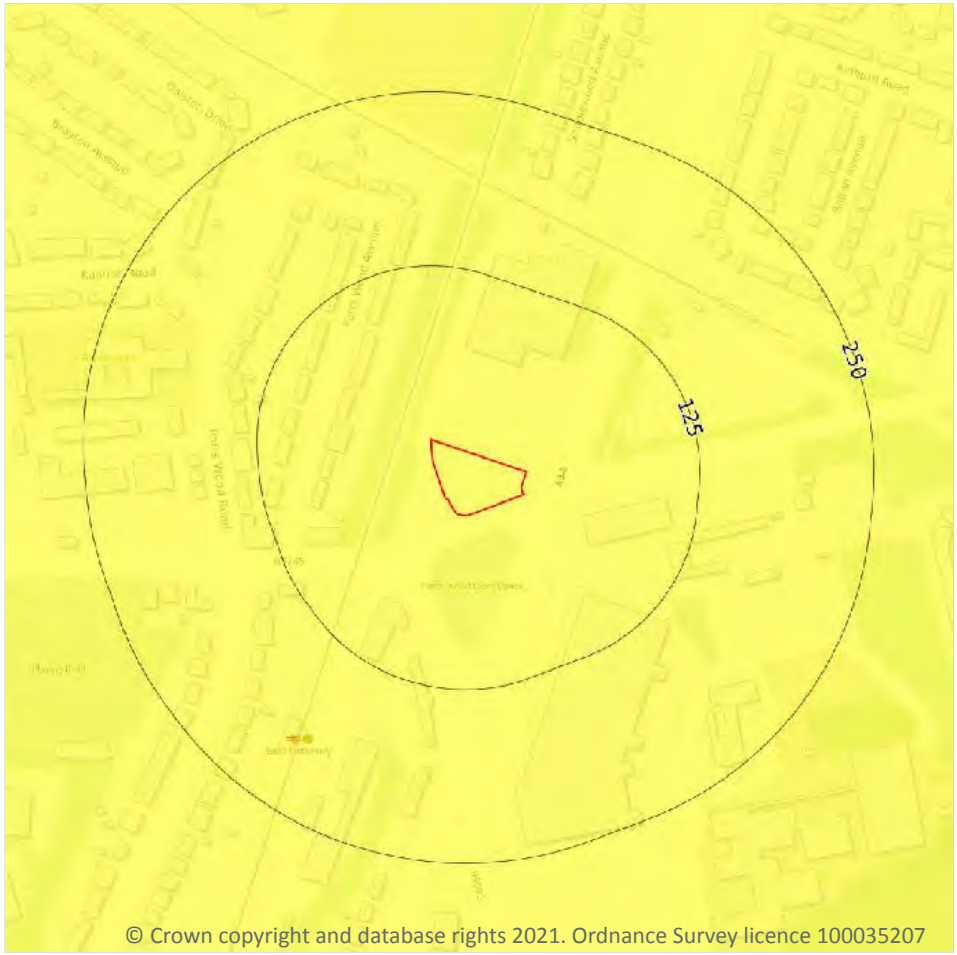
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 92**

Location	Hazard rating	Details
On site	**Very low**	**Deposits with potential to collapse when loaded and saturated are unlikely to be present.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.5 Landslides

Records within 50m	1

The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 93**

Location	Hazard rating	Details
On site	**Very low**	**Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



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Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.6 Ground dissolution of soluble rocks

Records within 50m	1

The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 94**

Location	Hazard rating	Details
On site	**Negligible**	**Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.**

This data is sourced from the British Geological Survey.

18 Mining, ground workings and natural cavities



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Site Outline

Search buffers in metres (m)

- Natural cavities (Area)
- Natural cavities (Point)
- BritPits
- Surface ground workings
- Underground workings
- Historical Mineral Planning Areas
- Mining Cavities

Non Coal Mining

- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

18.1 Natural cavities

Records within 500m	0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

18.2 BritPits

Records within 500m	1

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

Features are displayed on the Mining, ground workings and natural cavities map on **page 95**

ID	Location	Details	Description
A	190m SW	Name: Parrs Wood Gravel Pit Address: Didsbury, MANCHESTER, Lancashire Commodity: Sand & Gravel Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m	15

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining, ground workings and natural cavities map on **page 95**

ID	Location	Land Use	Year of mapping	Mapping scale
A	113m SW	Unspecified Pit	1938	1:10560
A	113m SW	Unspecified Pit	1934	1:10560
A	113m SW	Unspecified Pit	1938	1:10560
1	124m S	Unspecified Pit	1934	1:10560
A	141m SW	Unspecified Heap	1923	1:10560
A	148m SW	Unspecified Heap	1923	1:10560
B	176m N	Cuttings	1893	1:10560
B	177m N	Cuttings	1938	1:10560
B	180m N	Cuttings	1938	1:10560
B	181m N	Cuttings	1934	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
A	182m SW	Gravel Pit	1851	1:10560
B	185m N	Cuttings	1955	1:10560
2	186m NE	Brick Field	1851	1:10560
C	248m NE	Unspecified Pit	1911	1:10560
C	248m NE	Unspecified Pit	1911	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m	0

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

This is data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	0

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	0

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m	0

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Stantec UK Ltd.

18.8 JPB mining areas

Records on site	1

Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

Location	Details
On site	**Whilst outside of an area where The Coal Authority have information on coal mining activities, Johnson Poole & Bloomer (JPB) may have information such as mining plans and maps held within their archive that have occurred within 1km of this property. Please note, the plans held by JPB may also relate to non-mining records. Further details and a quote for services (if appropriate) can be obtained by emailing this report to enquiries.gs@jpb.co.uk.**

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site	0

Areas which could be affected by past, current or future coal mining.

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site	0

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.

18.11 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.13 Clay mining

Records on site	0

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).

19 Radon



Site Outline

Search buffers in metres (m)

- Greater than 30%
- Between 10% and 30%
- Between 5% and 10%
- Between 3% and 5%
- Between 1% and 3%
- Less than 1%

19.1 Radon

Records on site	1

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on **page 100**

Location	Estimated properties affected	Radon Protection Measures required
On site	**Less than 1%**	**None****

This data is sourced from the British Geological Survey and Public Health England.

20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m	5

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km^2. In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km^2; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**15 - 25 mg/kg**	**No data**	**300 - 600 mg/kg**	**240 - 360 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**30 - 45 mg/kg**
On site	**15 - 25 mg/kg**	**No data**	**300 - 600 mg/kg**	**240 - 360 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**30 - 45 mg/kg**
On site	**15 - 25 mg/kg**	**No data**	**300 - 600 mg/kg**	**240 - 360 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**30 - 45 mg/kg**
9m NE	15 - 25 mg/kg	No data	300 - 600 mg/kg	240 - 360 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
48m SW	15 - 25 mg/kg	No data	300 - 600 mg/kg	240 - 360 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m	0

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km^2).

This data is sourced from the British Geological Survey.

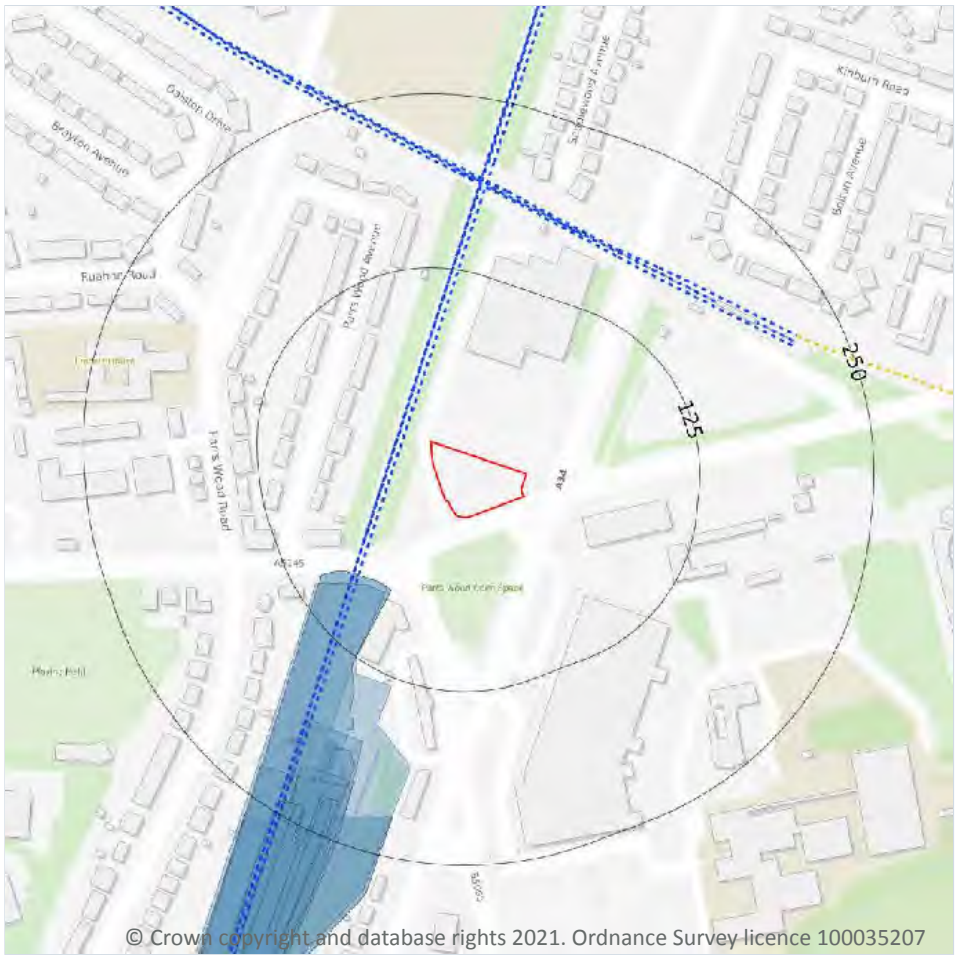
20.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km^2.

This data is sourced from the British Geological Survey.

21 Railway infrastructure and projects



Site Outline

Search buffers in metres (m)

- Crossrail 1 Stations
- Crossrail 1 Route
- Crossrail 1 Worksites
- Crossrail 2 Stations
- Crossrail 2 Route
- Crossrail 2 Worksites
- Crossrail 2 Safeguarding
- Crossrail 2 Headhouses
- Railway stations
- Active railways
- Active tunnels
- Abandoned railways
- Historic railways
- Historic tunnels
- Underground stations
- Underground Lines
- Royal Mail tunnels
- HS2 optimised route
- HS2 Stations
- HS2 Depots
- HS2 Surface Safeguarding
- HS2 Subsurface Safeguarding

21.1 Underground railways (London)

Records within 250m	0

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m	0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.

This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m	19

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

Features are displayed on the Railway infrastructure and projects map on **page 103**

Location	Land Use	Year of mapping	Mapping scale
71m SW	Railway Sidings	1974	10000
71m SW	Railway Sidings	1983	10000
76m SW	Railway Sidings	1923	10560
176m SW	Railway Sidings	1965	10560
185m SW	Railway Sidings	1957	2500
185m SW	Railway Sidings	1923	10560
186m SW	Railway Sidings	1957	1250
205m S	Railway Sidings	1955	10560
210m S	Railway Sidings	1934	10560
220m S	Railways	1922	-
220m S	Railways	1934	-
221m SW	Railway Sidings	1922	2500
221m SW	Railway Sidings	1934	2500
223m SW	Railway Sidings	1938	10560
223m SW	Railway Sidings	1938	10560
235m SW	Railway Sidings	1922	2500
235m SW	Railway Sidings	1934	2500

Location	Land Use	Year of mapping	Mapping scale
241m SW	Railway Sidings	1922	2500
241m SW	Railway Sidings	1934	2500

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m	0

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.

21.6 Historical railways

Records within 250m	1

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

Features are displayed on the Railway infrastructure and projects map on **page 103**

Location	Description
219m NE	Abandoned

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m	28

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

Features are displayed on the Railway infrastructure and projects map on **page 103**

Location	Name	Type
20m W	Styal Line	rail
24m W	Styal Line	rail
24m W	Not given	Multi Track

Location	Name	Type
63m SW	Styal Line	rail
66m SW	Styal Line	rail
85m SW	Styal Line	rail
88m SW	Styal Line	rail
169m NE		light_rail
170m NE		light_rail
170m N		light_rail
172m NE	Not given	Multi Track
173m N		light_rail
173m N		light_rail
174m NE		light_rail
174m N		light_rail
176m NE		light_rail
177m N	Styal Line	rail
178m N	Styal Line	rail
183m N		light_rail
188m N		light_rail
188m N		light_rail
190m NE		light_rail
191m N	Not given	Multi Track
195m N		light_rail
197m NE		light_rail
198m NE	Not given	Multi Track
205m N	Styal Line	rail
206m N	Styal Line	rail

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m	0

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m	0

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m	0

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 ltd.

Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see https://www.groundsure.com/sources-reference.

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: https://www.groundsure.com/terms-and-conditions-jan-2020/.

APPENDIX E: SITE PHOTOGRAPHS



1. Ornate planting within the south-western section of the study site
2. Study site as seen from its eastern boundary





3. Western section of the study site
4. Trolly storage facility within approx. site centre





5. Ornate planting within approx. site centre
6. As above. Positioned along eastern boundary





7. Central section of the study site, northly aspect
8. As Figure 6 above





9. Clock tower positioned close to the eastern site boundary
10. Ornate planting within approx. site centre



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APPENDIX B

Borehole Log

Westlakes Environmental

Borehole No. **BH201**

Sheet 1 of 1

Project Name: Parrs Wood Lane	Project No. 2333	Co-ords: -	Hole Type CP
Location: East Didsbury, Manchester		Level: 38.40	Scale 1:50
Client: Dandara Living Developments Ltd		Dates: 15/11/2023 - 17/11/2023	Logged By TW

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15	38.25		MADE GROUND: Asphalt.
		0.30	D					MADE GROUND: Whitish cream, slightly clayey very sandy gravel. Sand is fine to coarse. Gravel is fine to coarse, subangular limestone and quartzite. (SUBBASE)
					0.50	37.90		MADE GROUND: Concrete and brick structure. Recovered as red-brown, slightly gravelly cobbles. Gravel and cobbles of subangular brick and concrete.
		1.00	D					
		1.50		N=50 (9,10/11,12,14,13)	1.50	36.90		MADE GROUND: Brown, fine to coarse gravelly sand. Gravel is fine to corase, subangular brick, ash, sandstone and quartzite.
		1.50 - 1.95	D					
		2.80 - 2.90	B		2.80	35.60		MADE GROUND: Brown, fine to coarse sand and gravel. Gravel is fine to coarse, subangular brick, ash, sandstone and quartzite.
		3.00	ES					*Black staining and strong hydrocarbon odour noted within Made Ground from 3.0m to 3.50m bgl.*
	▼	3.00		N=24 (4,5/6,6,6,6)				
		3.90	D		3.90	34.50		Firm to stiff, brown, sandy gravelly CLAY. Sand is fine to medium. Gravel is fine to coarse, subangular to subrounded sandstone, mudstone and quartzite. (Strong hydrocarbon odour)
		4.00	ES					
		4.00		N=11 (4,3/2,3,3,3)				
		4.00 - 4.45	D					
		5.00 - 5.45	U					
		6.00		N=23 (5,6/6,6,5,6)				
		6.00 - 6.45	D					
		6.50	ES		6.50	31.90		Stiff to very stiff, brown, slightly silty sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is fine to coarse, subangular to subrounded sandstone, mudstone and quartzite. (Strong hydrocarbon odour)
		7.50	D					*Sand lenses of approximately 200mm thickness locally recorded within clay from 6.50m to 8.45 bgl. Hydrocarbon odour appearing to get worse with depth.*
		7.50		N=39 (6,6/6,5,12,16)				*Becoming very stiff from 7.50m bgl.*
		8.00	ES					
		8.00		N=28 (9,7/5,7,7,9)				
		8.00 - 8.45	D					
					8.45	29.95		End of borehole at 8.45 m

Remarks

Location checked for underground services using CAT4 scanner. Hand excavated trial pit progressed to 1.20m bgl. Buried brick/concrete structure encountered from 0.50m to 1.50m bgl. Black staining and noted hydrocarbon odour recorded from 3.0m to 3.50m bgl. Natural soils also exhibited strong hydrocarbon odour from 3.90m to 8.45m bgl. Borehole aborted at 8.45m bgl due to noted contamination. Borehole installed with dual ground gas/water monitoring well from 1.0m to 3.0m in Made Ground and to 4.0m to 7.0m in natural soils. Groundwater level recorded on 17/11/23 at 2.97m bgl.

AGS

Trial Pit Log

Westlakes Environmental

TrialPit No: SA201
Sheet 1 of 1

Project Name:	Parrs Wood Lane	Project No.: 2333	Co-ords: - Level: 38.37
Location:	East Didsbury, Manchester	Dimensions (m): 1.10 x 0.30	Date: 16/11/2023
Client:	Dandara Living Developments Ltd	Depth: 1.60	Scale: 1:25 Logged: TW

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description
				0.10	38.27		MADE GROUND: Asphalt.
	0.40	ES		0.50	37.87		MADE GROUND: Whitish cream, slightly clayey very sandy gravel. Sand is fine to coarse. Gravel is fine to coarse, subangular limestone and quartzite. (SUBBASE)
	0.90	ES		0.80	37.57		MADE GROUND: Concrete with rebar.
	1.00	D		1.10	37.27		Firm to stiff, brown, very sandy gravelly CLAY. Sand is fine to medium. Gravel is fine to coarse, subangular to subrounded sandstone, mudstone and quartzite.
	1.30	D		1.60	36.77		Orangish brown, silty gravelly SAND. Sand is fine to medium. Gravel is fine to coarse, subangular to subrounded sandstone, mudstone and quartzite.
							End of Pit at 1.600m

Remarks: Underground services checked using CAT4 scanner. Machine excavated trial pit to 1.60m. Concrete with 2-way rebar was encountered from 0.50m to 0.80m bgl. Natural soils encountered from 0.80m to 1.60m bgl. Groundwater was not encountered. Soakaway infiltration testing was undertaken in natural soils. Excavation backfilled with arisings on completion and reinstated with subbase and tarmac.

Stability: Stable

AGS

Borehole Log

Westlakes Environmental

Borehole No. **WS201**

Sheet 1 of 1

Project Name: Parrs Wood Lane	Project No. 2333	Co-ords: -	Hole Type WS
Location: East Didsbury, Manchester		Level: 38.33	Scale 1:50
Client: Dandara Living Developments Ltd		Dates: 15/11/2023 - 15/11/2023	Logged By TW

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15	38.18		MADE GROUND: Asphalt.
		0.60	ES		0.70	37.63		MADE GROUND: Whitish cream, slightly clayey very sandy gravel. Sand is fine to coarse. Gravel is fine to coarse, subangular limestone and quartzite. (SUBBASE) *Very compact surface from 0.40m to 0.60m bgl recorded as possible concrete.*
		1.00	D		0.90	37.43		MADE GROUND: Brown, sandy gravelly clay. Sand is fine to coarse. Gravel is fine to coarse, subangular brick, ash, sandstone and quartzite.
		1.20		N=14 (1,2/2,3,4,5)	1.40	36.93		Firm to stiff, brown, very sandy gravelly CLAY. Sand is fine to medium. Gravel is fine to coarse, subangular to subrounded sandstone, mudstone and quartzite.
		1.80	D					
		2.00		50 (8,9/50 for 255mm)	2.00	36.33		Medium dense, orangish brown, slightly silty gravelly SAND. Sand is fine to medium. Gravel is fine to coarse, subangular to subrounded sandstone, mudstone and quartzite. End of borehole at 2.00 m

Remarks

Location checked for underground services using CAT4 scanner. Hand excavated trial pit progressed to 1.20m bgl. Natural soils encountered from 0.90m to 2.0m bgl. Borehole refusal at 2.00m bgl in gravelly sand. Borehole installed with ground gas/water monitoring well from 1.0m to 1.75m in natural soils. Groundwater level recorded on 17/11/23 at 1.65m bgl.

AGS

Borehole Log

Westlakes Environmental

Borehole No. **WS202**

Sheet 1 of 1

Project Name: Parrs Wood Lane	Project No. 2333	Co-ords: -	Hole Type WS
Location: East Didsbury, Manchester		Level: 38.35	Scale 1:50
Client: Dandara Living Developments Ltd		Dates: 15/11/2023 - 15/11/2023	Logged By TW

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15	38.20		MADE GROUND: Asphalt.
								MADE GROUND: Whitish cream, slightly clayey very sandy gravel. Sand is fine to coarse. Gravel is fine to coarse, subangular limestone and quartzite. (SUBBASE)
								Very compact surface from 0.60m to 0.80m bgl recorded as possible concrete.
		1.20		N=25 (6,9/7,7,6,5)				
								Borehole repeatedly collapsed from 3.0m to 1.50m bgl and had to be re-drilled.
		2.00		N=26 (5,7/6,6,6,8)				
		2.80	ES					
		3.00		50 (8,12/50 for 85mm)	3.00	35.35		End of borehole at 3.00 m

Remarks

Location checked for underground services using CAT4 scanner. Hand excavated trial pit progressed to 1.20m bgl. Made Ground encountered to 3.0m bgl. Borehole refusal at 3.00m bgl in Made Ground. Borehole installed with ground gas/ water monitoring well from 0.50m to 1.50m in Made Ground. The borehole was recorded dry on 17/11/23.

AGS

Borehole Log

Westlakes Environmental

Borehole No. **WS203**

Sheet 1 of 1

Project Name: Parrs Wood Lane	Project No. 2333	Co-ords: -	Hole Type WS
Location: East Didsbury, Manchester		Level: 38.50	Scale 1:50
Client: Dandara Living Developments Ltd		Dates: 15/11/2023 - 15/11/2023	Logged By TW

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15	38.35		MADE GROUND: Asphalt.
		0.50	ES		0.59	37.91		MADE GROUND: Whitish cream, slightly clayey very sandy gravel. Sand is fine to coarse. Gravel is fine to coarse, subangular limestone and quartzite. (SUBBASE)
					0.60	37.90		MADE GROUND: Concrete with rebar.
								End of borehole at 0.60 m

Remarks

Location checked for underground services using CAT4 scanner. Hand excavated trial pit progressed to 0.60m bgl. Concrete slab encountered at 0.60m bgl and hand digging could not be progressed.

AGS

Borehole Log

Westlakes Environmental

Borehole No. **WS204**

Sheet 1 of 1

Project Name: Parrs Wood Lane	Project No. 2333	Co-ords: -	Hole Type WS
Location: East Didsbury, Manchester		Level: 38.43	Scale 1:50
Client: Dandara Living Developments Ltd		Dates: 15/11/2023 - 15/11/2023	Logged By TW

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15	38.28		MADE GROUND: Asphalt.
					0.54	37.89		MADE GROUND: Whitish cream, slightly clayey very sandy gravel. Sand is fine to coarse. Gravel is fine to coarse, subangular limestone and quartzite. (SUBBASE)
					0.55	37.88		MADE GROUND: Concrete with rebar.
								End of borehole at 0.55 m

Remarks

Location checked for underground services using CAT4 scanner. Hand excavated trial pit progressed to 0.55m bgl. Concrete slab encountered at 0.55m bgl and hand digging could not be progressed.

AGS

Borehole Log

Westlakes Environmental

Borehole No. **WS205**

Sheet 1 of 1

Project Name: Parrs Wood Lane	Project No. 2333	Co-ords: -	Hole Type WS
Location: East Didsbury, Manchester		Level: 38.47	Scale 1:50
Client: Dandara Living Developments Ltd		Dates: 15/11/2023 - 15/11/2023	Logged By TW

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15	38.32		MADE GROUND: Asphalt.
					0.49	37.98		MADE GROUND: Whitish cream, slightly clayey very sandy gravel. Sand is fine to coarse. Gravel is fine to coarse, subangular limestone and quartzite. (SUBBASE)
					0.50	37.97		MADE GROUND: Concrete with rebar.
								End of borehole at 0.50 m

Remarks

Location checked for underground services using CAT4 scanner. Hand excavated trial pit progressed to 0.50m bgl. Concrete slab encountered at 0.50m bgl and hand digging could not be progressed.

AGS

Borehole Log

Westlakes Environmental

Borehole No. **WS206**

Sheet 1 of 1

Project Name: Parrs Wood Lane	Project No. 2333	Co-ords: -	Hole Type WS
Location: East Didsbury, Manchester		Level: 38.37	Scale 1:50
Client: Dandara Living Developments Ltd		Dates: 15/11/2023 - 15/11/2023	Logged By TW

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15	38.22		MADE GROUND: Asphalt.
								MADE GROUND: Whitish cream, slightly clayey very sandy gravel. Sand is fine to coarse. Gravel is fine to coarse, subangular limestone and quartzite. (SUBBASE)
					0.54	37.83		MADE GROUND: Concrete with rebar.
					0.55	37.82		End of borehole at 0.55 m

Remarks

Location checked for underground services using CAT4 scanner. Hand excavated trial pit progressed to 0.55m bgl. Concrete slab encountered at 0.55m bgl and hand digging could not be progressed.

AGS

Borehole Log

Westlakes Environmental

Borehole No. **BH202** Sheet 1 of 2

Project Name: Parrs Wood Lane	Project No. 2333	Co-ords: -	Hole Type CP
Location: East Didsbury, Manchester		Level: 38.32	Scale 1:50
Client: Dandara Living Developments Ltd		Dates: 17/11/2023 - 21/02/2024	Logged By TW

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15	38.17		MADE GROUND: Asphalt.
		0.80	ES					MADE GROUND: Whitish cream, slightly clayey very sandy gravel. Sand is fine to coarse. Gravel is fine to coarse, subangular limestone and quarzite.
		1.20		N=18 (10,10/8,3,4,3) PID=0	1.20	37.12		MADE GROUND: Brown, slightly clayey sand and gravel. Sand is fine to coarse. Gravel is fine to coarse, subangular limestone and quarzite.
		1.20 - 1.65	D					
		2.00	ES					
		2.00		N=22 (9,9/8,6,5,3) PID=1				
		2.00 - 2.45	D					
		3.00		50 (10,11/50 for 60mm)	3.00	35.32		MADE GROUND: Concrete recovered as subangular cobbles. Hydrocarbon odour noted.
				PID=115	3.50	34.82		Medium dense, brown, slightly silty very sandy GRAVEL. Sand is fine to medium. Gravel is fine toi coarse, subangular to subrounded sandstone, mudstone, quartzite and granite. Strong hydrocarbon odour noted.
		3.70	ES					
	▼	4.00		N=13 (2,2/3,2,3,5)	3.90	34.42		Firm, brown, slightly silty sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is fine toi coarse, subangular to subrounded sandstone, mudstone, quartzite and granite. Strong hydrocarbon odour noted.
		4.00 - 4.45	D					
				PID=6				
		5.00	ES					*Becming stiff and a slight hydrocarbon odour noted from 4.0m bgl.*
		5.00		N=23 (2,3/5,5,6,7)				
		5.00 - 5.45	D					
				PID=76				
		6.00		N=31 (3,4/7,8,8,8)	6.00	32.32		Dense, brown, silty clayey slightly gravelly SAND. Sand is fine to medium. Gravel is fine to coarse, subangular to subrounded sandstone, mudstone, quartzite and granite. Strong hydrocarbon odour noted.
		6.00 - 6.45	B					
		6.00 - 6.45	D					
		6.50	ES					*Bands of silt noted within the sand with local staining of silt from 6.50m bgl.*
				PID=270				
					7.10	31.22		Stiff, brown, sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is fine to coarse, subangular to subrounded sandstone, mudstone and quartzite. Hydrocarbon odour noted.
		7.50 - 7.95	U					
		8.50	ES		8.40	29.92		Medium dense, brown, silty clayey SAND. Sand is fine to coarse. Strong hydrocarbon odour noted.
				PID=168				
		9.00		N=13 (2,2/2,3,4,4)				
		9.00 - 9.45	D					
				PID=15	10.00	28.32		

Continued on next sheet

Remarks

Location checked for underground services using CAT4 scanner. Hand excavated trial pit progressed to 1.20m bgl. Buried concrete encountered at 3.0m bgl. Hydrocarbon contamination encountered within natural soils from 3.0m to 12.0m bgl. Groundwater encountered at 4.0m and 10.50m bgl. Borehole installed with groundwater monitoring well at depths of 13.0m to 13.80m bgl in bedrock.

AGS

Borehole Log

Borehole No. **BH202** Sheet 2 of 2

Project Name: Parrs Wood Lane	Project No. 2333	Co-ords: -	Hole Type CP
Location: East Didsbury, Manchester		Level: 38.32	Scale 1:50
Client: Dandara Living Developments Ltd		Dates: 17/11/2023 - 21/02/2024	Logged By TW

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
	▼	10.50		N=27 (3,4/5,7,7,8)				Stiff, brown, very sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is fine to coarse, subangular to subrounded sandstone, mudstone and quartzite. Slight hydrocarbon odour noted.
		10.50 - 10.95	D					*Bands of silty sand (approx. 50mm thick) noted within clay from 10.0m bgl.*
		12.00	ES		12.00	26.32		Very stiff, brown, laminated, silty sandy CLAY. Sand is fine.
		12.00		50 (4,6/50 for 265mm) PID=10				
		12.00 - 12.45	D	PID=9	12.60	25.72		Very dense, light brown, fine to coarse, subangular GRAVEL. Gravel is sandstone and mudstone.
					12.80	25.52		Completely weathered, red-brown SANDSTONE recovered as clayey gravelly sand. (Weathered Chester Formation)
		13.50	ES					
		13.50		50 (35 for 115mm/50 for 30mm)	13.80	24.52		End of borehole at 13.80 m
		13.50 - 13.80	D					

Remarks

Location checked for underground services using CAT4 scanner. Hand excavated trial pit progressed to 1.20m bgl. Buried concrete encountered at 3.0m bgl. Hydrocarbon contamination encountered within natural soils from 3.0m to 12.0m bgl. Groundwater encountered at 4.0m and 10.50m bgl. Borehole installed with groundwater monitoring well at depths of 13.0m to 13.80m bgl in bedrock.

Borehole Log

Borehole No. **BH203** Sheet 1 of 2

Project Name: Parrs Wood Lane	Project No. 2333	Co-ords: -	Hole Type CP
Location: East Didsbury, Manchester		Level: 38.42	Scale 1:50
Client: Dandara Living Developments Ltd		Dates: 17/11/2023 - 16/02/2024	Logged By TW

Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.15	38.27		MADE GROUND: Asphalt.
					0.48	37.94		MADE GROUND: Whitish cream, slightly clayey very sandy gravel. Sand is fine to coarse. Gravel is fine to coarse, subangular limestone and quarzite.
					0.70	37.72		MADE GROUND: Concrete with rebar.
		0.90	ES	PID=0	1.00	37.42		MADE GROUND: Dark brown, slightly silty gravelly SAND. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded concrete, brick, sandstone mudstone with local ash content.
		1.20 1.20 - 1.65	D	N=8 (1,1/2,2,1,3)				
		2.00		N=20 (6,2/3,6,6,5) PID=1	2.00	36.42		Firm, brown, slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded sandstone, mudstone, quartzite and granite.
		2.00 - 2.45 2.00 - 2.50	D B					Medium dense, brown, SAND and GRAVEL. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded sandstone, mudstone, quartzite and granite.
		3.00		N=21 (4,5/5,5,6,5) PID=0				
		3.00 - 3.45	D					
		3.60	ES					*Slight hydrocarbon odour noted from 3.50m to 4.0m bgl.*
		4.00		N=12 (6,5/5,3,2,2) PID=29				*Stronger hydrocarbon odour noted from 4.0m bgl.*
		4.00 - 4.45	D	PID=20	4.30	34.12		Stiff, brown, slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded sandstone, mudstone and quartzite. Hydrocarbon odour noted.
		4.80	ES					
		5.00		N=22 (3,4/6,5,6,5)	5.00	33.42		
		5.00 - 5.45	D					Medium dense, brown, fine to medium silty SAND. Sand is fine to medium. Hydrocarbon odour noted.
				PID=149	5.40	33.02		Very stiff, brown, sandy gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded sandstone, mudstone and quartzite. Hydrocarbon odour noted.
		5.50 - 6.00	B					
		6.00 6.00	ES	N=19 (1,2/3,5,5,6)				*Bands of sandy sillt within clay from 5.50m to 6.50m bgl*
		6.00 - 6.45	D					*Strong hydrocarbon odour noted from 6.50m to 8.0m bgl.*
		7.50		N=21 (2,3/3,4,6,8) PID=33				
		7.50 - 7.95	D					
		8.00	ES					
				PID=37				
		9.00 - 9.45	U					
		9.50	D					
								Continued on next sheet

Remarks

Location checked for underground services using CAT4 scanner. Hand excavated trial pit progressed to 1.20m bgl. Concrete slab with thin rebar encountered at 0.55m bgl. Hydrocarbon contamination encountered within natural soils from 3.50m to 12.0m bgl. Groundwater encountered at 3.50m and 10.50m bgl. Borehole installed with dual groundwater monitoring well at depths of 2.0m to 7.0m bgl in superficial soils and 12.0m to 13.0m bgl in bedrock.

Borehole Log

Westlakes Environmental

Borehole No. **BH203** Sheet 2 of 2

Project Name: Parrs Wood Lane	Project No. 2333	Co-ords: -	Hole Type CP
Location: East Didsbury, Manchester		Level: 38.42	Scale 1:50
Client: Dandara Living Developments Ltd		Dates: 17/11/2023 - 16/02/2024	Logged By TW

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					10.10	28.32		Medium dense, brown, slightly clayey slightly gravelly SAND. Sand is fine to medium. Gravel is fine to medium, subangular to subrounded sandstone, mudstone and quartzite. Hydrocarbon odour noted.
	▼	10.50		N=24 (2,4/4,6,7,7)				
		10.50 - 10.95	D		10.70	27.72		Very stiff, brown, sandy gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded sandstone, mudstone and quartzite. Hydrocarbon odour noted.
		11.00	ES	PID=9				
		12.00		N=50 (8,10/12,13,13,12) PID=1	12.00	26.42		Completely weathered, red-brown SANDSTONE recovered as clayey gravelly sand. (Weathered Chester Formation)
		12.00 - 12.45	D					
					12.80	25.62		Extremely weak, extremely weathered, red-brown SANDSTONE recovered as cobbles of subangular sandstone. (Chester Formation)
		13.00	ES	PID=2				
		13.00 - 13.45	D					
		13.50		50 (25 for 10mm/50 for 20mm)	13.50	24.92		End of borehole at 13.50 m

11 12 13 14 15 16 17 18 19 20

Remarks

Location checked for underground services using CAT4 scanner. Hand excavated trial pit progressed to 1.20m bgl. Concrete slab with thin rebar encountered at 0.55m bgl. Hydrocarbon contamination encountered within natural soils from 3.50m to 12.0m bgl. Groundwater encountered at 3.50m and 10.50m bgl. Borehole installed with dual groundwater monitoring well at depths of 2.0m to 7.0m bgl in superficial soils and 12.0m to 13.0m bgl in bedrock.

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Borehole Log

Westlakes Environmental

Borehole No. **BH204**

Sheet 1 of 2

Project Name: Parrs Wood Lane	Project No. 2333	Co-ords: -	Hole Type CP
Location: East Didsbury, Manchester		Level: 38.55	Scale 1:50
Client: Dandara Living Developments Ltd		Dates: 16/02/2024 - 19/02/2024	Logged By TW

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	38.45		MADE GROUND: Asphalt.
					0.50	38.05		MADE GROUND: Whitish cream, slightly clayey very sandy gravel. Sand is fine to coarse. Gravel is fine to coarse, subangular limestone and quarzite.
					0.70	37.85		MADE GROUND: Concrete with rebar.
		1.20	ES					MADE GROUND: Whitish cream, slightly clayey very sandy gravel. Sand is fine to coarse. Gravel is fine to coarse, subangular limestone and quarzite.
		1.20		N=13 (2,3/3,3,3,4) PID=0	1.40	37.15		
		1.20 - 1.65	D		1.60	36.95		Medium dense, brown, gravelly SAND. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded sandstone, mudstone, quartzite and granite.
		2.00		N=37 (4,5/8,10,10,9)				
		2.00 - 2.45	D					Dense, brown, SAND and GRAVEL. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded sandstone, mudstone, quartzite and granite.
				PID=1				*Coarse gravel band recorded between 2.50m to 3.0m bgl.*
		3.00		N=22 (2,5/5,6,7,4)				*Becoming medium dense from 3.0m to 4.20m bgl.*
	▼	3.00 - 3.45	D					
				PID=59				*Strong hydrocarbon odour noted and black staining in groundwater from 3.50m to 4.20m bgl.*
		4.00		N=9 (5,4/3,2,2,2) PID=45	4.20	34.35		
		4.00 - 4.45	B					Firm to stiff, brown, sandy gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded sandstone, mudstone, quartzite and granite. Slight hydrocarbon odour noted.
		4.20	ES					
				PID=12				
		5.00 - 5.45	U					
		5.50	D		5.50	33.05		Stiff, brown, silty sandy CLAY. Sand is fine to medium. Slight hydrocarbon odour noted.
		6.00		N=14 (2,3/3,3,4,4)				
		6.00 - 6.50	D					*Bands of sandy silt and slight hydrocarbon odour recorded between 6.0m and 7.50m bgl.*
				PID=3				
		7.50	ES		7.50	31.05		Very stiff, brown, silty sandy CLAY. Sand is fine to medium. Strong hydrocarbon odour noted.
		7.50		N=36 (3,6/7,9,10,10) PID=338				*Bands of sand within clay from 7.70m to 9.0m bgl.*
		7.50 - 7.95	D					
		8.00 - 8.50	B					
				PID=110				
		9.00		N=26 (3,4/5,6,7,8)	9.00	29.55		Stiff, brown, very sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is fine to coarse, subangular to subrounded sandstone, mudstone and quartzite. Strong hydrocarbon odour noted.
		9.00 - 9.45	D					*Bands of silty sand (10-15mm thick) within clay from 9.0m to 10.50m bgl.*
				PID=21				

Continued on next sheet

Remarks

Location checked for underground services using CAT4 scanner. Hand excavated trial pit progressed to 1.20m bgl. Concrete slab with thin rebar encountered at 0.50m bgl. Hydrocarbon contamination encountered within natural soils from 3.50m to 10.50m bgl. Groundwater encountered at 3.50m and 10.50m bgl. Borehole installed with dual groundwater monitoring well at depths of 2.0m to 8.0m bgl in superficial soils and 10.80m to 11.30m bgl in bedrock.

AGS

Borehole Log

Westlakes Environmental

Borehole No. **BH204** Sheet 2 of 2

Project Name: Parrs Wood Lane	Project No. 2333	Co-ords: -	Hole Type CP
Location: East Didsbury, Manchester		Level: 38.55	Scale 1:50
Client: Dandara Living Developments Ltd		Dates: 16/02/2024 - 19/02/2024	Logged By TW

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
	▼	10.50	ES		10.50	28.05		Dense, dark grey, sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded sandstone, mudstone and quartzite.
		10.50		50 (7,9/50 for 245mm)	10.80	27.75		Completely weathered, red-brown SANDSTONE recovered as clayey gravelly sand. (Weathered Chester Formation)
		10.50 - 10.95	D	PID=12				
		11.30	D		11.30	27.25		End of borehole at 11.30 m
		11.30	ES					
		11.30		50 (25 for 5mm/50 for 135mm)				

11 12 13 14 15 16 17 18 19 20

Remarks

Location checked for underground services using CAT4 scanner. Hand excavated trial pit progressed to 1.20m bgl. Concrete slab with thin rebar encountered at 0.50m bgl. Hydrocarbon contamination encountered within natural soils from 3.50m to 10.50m bgl. Groundwater encountered at 3.50m and 10.50m bgl. Borehole installed with dual groundwater monitoring well at depths of 2.0m to 8.0m bgl in superficial soils and 10.80m to 11.30m bgl in bedrock.

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Borehole Log

Westlakes Environmental

Borehole No. **BH205** Sheet 1 of 2

Project Name: Parrs Wood Lane	Project No. 2333	Co-ords: -	Hole Type CP
Location: East Didsbury, Manchester		Level: 38.40	Scale 1:50
Client: Dandara Living Developments Ltd		Dates: 21/02/2024 - 23/02/2024	Logged By TW

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	38.30		MADE GROUND: Asphalt.
					0.50	37.90		MADE GROUND: Whitish cream, slightly clayey very sandy gravel. Sand is fine to coarse. Gravel is fine to coarse, subangular limestone and quarzite.
					0.75	37.65		MADE GROUND: Concrete with rebar.
					1.00	37.40		MADE GROUND: Concrete cobbles.
		1.20	ES					MADE GROUND: Brown-black, sandy gravelly clay. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded brick, concrete, cinder, sandstone and mudstone with local ash content.
		1.20		N=30 (4,6/7,10,7,6) PID=2	1.40	37.00		
		1.20 - 1.65	D	PID=3				
		2.00		N=17 (5,5/6,4,4,3)				Medium dense, brown, SAND and GRAVEL. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded sandstone, mudstone, quartzite and granite.
		2.00 - 2.45	D					*Coarse gravel band recorded between 2.0m to 2.50m bgl.*
		2.50	ES	PID=30				*Strong hydrocarbon odour noted from 2.50m to 3.80m bgl.*
		3.00		N=20 (3,4/3,7,7,3)				
		3.00 - 3.45	D					
	▼				3.80	34.60		Very stiff, brown, slightly silty slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded sandstone, mudstone, quartzite and granite. Hydrocarbon odour noted.
		4.00	ES					*Becoming stiff from 4.0m and 4.20m bgl.*
		4.00		N=12 (1,1/2,2,4,4) PID=100	4.20	34.20		Stiff, brown, silty sandy CLAY. Sand is fine to medium. Hydrocarbon odour noted.
		4.00 - 4.45	D					*Bands of silty sand within clay from 4.50m to 5.30m bgl.*
		5.00		N=18 (2,2/2,4,5,7) PID=21				
		5.00 - 5.45	D	PID=40	5.30	33.10		Medium dense, brown, slightly clayey silty SAND. Sand is fine to medium. Hydrocarbon odour noted.
		6.00		N=15 (1,2/2,4,4,5)	6.00	32.40		Stiff, brown, silty sandy CLAY. Sand is fine to medium. Hydrocarbon odour noted.
		6.00 - 6.45	D	PID=79				
				PID=235	6.50	31.90		Medium dense, brown, clayey very silty SAND. Sand is fine to medium. Strong hydrocarbon odour noted.
		7.00 - 7.50	B					
		7.50	ES					
		7.50		N=24 (2,2/5,5,6,8)	7.70	30.70		Stiff, brown, very sandy gravelly CLAY. Sand is fine to medium. Gravel is fine to coarse, subangular to subrounded sandstone, mudstone and quartzite. Hydrocarbon odour noted.
		7.50 - 7.95	D					*Bands of silty sand within clay from 7.70m to 8.20m bgl.*
					8.20	30.20		Dense, slightly clayey very silty SAND. Strong hydrocarbon odour.
				PID=147				
	▼	9.00	ES					
		9.00		N=33 (3,5/7,7,9,10)				
		9.00 - 9.45	D	PID=61				

Continued on next sheet

Remarks

Location checked for underground services using CAT4 scanner. Hand excavated trial pit progressed to 1.20m bgl. Concrete slab with thin rebar encountered at 0.50m bgl. Hydrocarbon contamination encountered within natural soils from 2.50m to 12.0m bgl. Groundwater encountered at 4.0m and 9.0m bgl. Borehole installed with dual groundwater monitoring well at depths of 3.0m to 9.0m bgl in superficial soils and 12.0m to 12.50m bgl in bedrock.

AGS

Borehole Log

Borehole No. **BH205** Sheet 2 of 2

Project Name: Parrs Wood Lane	Project No. 2333	Co-ords: -	Hole Type CP
Location: East Didsbury, Manchester		Level: 38.40	Scale 1:50
Client: Dandara Living Developments Ltd		Dates: 21/02/2024 - 23/02/2024	Logged By TW

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		10.50		50 (10,10/50 for 275mm) PID=51	10.30	28.10		Very dense, brown, slightly clayey SAND and GRAVEL. Sand is fine to medium. Gravel is fine to coarse, subangular to subrounded sandstone, mudstone and quartzite. Slight hydrocarbon odour noted.
		10.50 - 10.95 11.00	D ES					
		11.50 - 12.00	B					
		12.00		50 (25 for 95mm/50 for 150mm) PID=8	12.00 12.20	26.40 26.20		Completely weathered, red-brown SANDSTONE recovered as clayey gravelly sand. (Weathered Chester Formation)
		12.00 - 12.45 12.20	D ES	PID=7	12.50	25.90		Extremely weak, extremely weathered, red-brown SANDSTONE recovered as cobbles of subangular sandstone. (Chester Formation)
		12.50 12.50	D	50 (25 for 30mm/50 for 60mm)				End of borehole at 12.50 m

Remarks

Location checked for underground services using CAT4 scanner. Hand excavated trial pit progressed to 1.20m bgl. Concrete slab with thin rebar encountered at 0.50m bgl. Hydrocarbon contamination encountered within natural soils from 2.50m to 12.0m bgl. Groundwater encountered at 4.0m and 9.0m bgl. Borehole installed with dual groundwater monitoring well at depths of 3.0m to 9.0m bgl in superficial soils and 12.0m to 12.50m bgl in bedrock.

Borehole Log

Westlakes Environmental

Borehole No. **BH301**

Sheet 1 of 2

Project Name:	Parrs Wood Lane	Project No. 2333	Co-ords:	385466.75 - 390515.70	Hole Type CP
Location:	East Didsbury, Manchester		Level:	38.37	Scale 1:50
Client:	Dandara Living Developments Ltd		Dates:	23/07/2025 - 25/07/2025	Logged By JT

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	38.27		MADE GROUND: Asphalt
					0.50	37.87		MADE GROUND: Light grey fine to coarse angular gravel of limestone (MOT Type 1)
					0.70	37.67		MADE GROUND: Reinforced concrete
					0.80	37.57		MADE GROUND: Light grey fine to coarse angular gravel of limestone (MOT Type 1)
								MADE GROUND: Compact brown slightly clayey gravelly fine to coarse sand. Gravel is fine to coarse subrounded of sandstone and quartzite, and rare angular of brick and concrete
					3.00	35.37		Medium dense brown, slightly silty very sandy GRAVEL. Sand is fine to medium. Gravel is fine to coarse, subangular to subrounded of sandstone, mudstone, quartzite and granite.
		3.50	ES					*Strong hydrocarbon odour and grey discolouration observed from 3.5m bgl*
	▼				4.20	34.17		Dense brown gravelly SAND. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded of sandstone, mudstone, quartzite and granite.
		5.00	ES					
					5.30	33.07		Soft to firm grey-brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is fine to coarse subangular to subrounded of sandstone, quartzite and mudstone
		6.00	ES					
					6.90	31.47		Red fine to medium clayey SAND
					7.70	30.67		Firm grey-brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is fine to coarse subangular to subrounded of sandstone, quartzite and mudstone
					8.30	30.07		Firm grey-brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is fine to coarse subangular to subrounded of sandstone, quartzite and mudstone. Rare angular to subangular fine to medium gravel sized fragments of coal
								Continued on next sheet

Remarks

Location checked for underground services using CAT4 scanner. Hand excavated trial pit progressed to 1.20m bgl. Concrete slab with thin rebar encountered at 0.50m bgl. Groundwater encountered at 4.0m bgl. Borehole installed with dual gas and groundwater monitoring well.

AGS

Borehole Log

Borehole No. **BH301**

Sheet 2 of 2

Project Name:	Parrs Wood Lane	Project No. 2333	Co-ords:	385466.75 - 390515.70	Hole Type CP
Location:	East Didsbury, Manchester		Level:	38.37	Scale 1:50
Client:	Dandara Living Developments Ltd		Dates:	23/07/2025 - 25/07/2025	Logged By JT

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					10.50	27.87		Dense grey-brown sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded sandstone, mudstone and quartzite.
					12.00	26.37		Dense red fine to medium SAND (Completely weathered sandstone)
		12.50	ES		12.50	25.87		Weak red fine to medium SANDSTONE, recovered as fine to coarse angular gravel and cobbles
					13.50	24.87		End of borehole at 13.50 m

Remarks

Location checked for underground services using CAT4 scanner. Hand excavated trial pit progressed to 1.20m bgl. Concrete slab with thin rebar encountered at 0.50m bgl. Groundwater encountered at 4.0m bgl. Borehole installed with dual gas and groundwater monitoring well.

Borehole Log

Borehole No. **BH302**

Sheet 1 of 2

Project Name:	Parrs Wood Lane	Project No. 2333	Co-ords:	385472.78 - 390527.18	Hole Type CP
Location:	East Didsbury, Manchester		Level:	38.47	Scale 1:50
Client:	Dandara Living Developments Ltd		Dates:	28/07/2025 - 29/07/2025	Logged By JT

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	38.37		MADE GROUND: Asphalt
					0.50	37.97		MADE GROUND: Light grey fine to coarse angular gravel of limestone (MOT Type 1)
					0.65	37.82		MADE GROUND: Reinforced concrete
								MADE GROUND: Black sandy fine to coarse angular gravel of ash, brick and concrete
					1.40	37.07		Medium dense brown slightly silty very sandy GRAVEL. Sand is fine to medium. Gravel is fine to coarse, subangular to subrounded of sandstone, mudstone, quartzite and granite. Strong hydrocarbon odour and grey discolouration observed from 3.1m bgl
		3.20	ES					*Strong hydrocarbon odour and grey discolouration from 3.1m*
					4.30	34.17		Soft to firm grey-brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is fine to coarse subangular to subrounded of sandstone, quartzite and mudstone
		4.50	ES					
					5.20	33.27		Dense brown coarse SAND
					6.10	32.37		Soft to firm grey-brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is fine to coarse subangular to subrounded of sandstone, quartzite and mudstone
								Continued on next sheet

Remarks

Location checked for underground services using CAT4 scanner. Hand excavated trial pit progressed to 1.20m bgl. Concrete slab with thin rebar encountered at 0.50m bgl. Borehole installed with dual gas and groundwater monitoring well.

Borehole Log

Westlakes Environmental

Borehole No. **BH302**

Sheet 2 of 2

Project Name:	Parrs Wood Lane	Project No. 2333	Co-ords:	385472.78 - 390527.18	Hole Type CP
Location:	East Didsbury, Manchester		Level:	38.47	Scale 1:50
Client:	Dandara Living Developments Ltd		Dates:	28/07/2025 - 29/07/2025	Logged By JT

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					11.00	27.47		Dense grey-brown sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded sandstone, mudstone and quartzite. Low content of subrounded cobbles of sandstone and quartzite.
		12.00	ES		11.60	26.87		Weak red fine to medium SANDSTONE, recovered as fine to coarse angular gravel and cobbles
					13.00	25.47		End of borehole at 13.00 m

11 12 13 14 15 16 17 18 19 20

Remarks

Location checked for underground services using CAT4 scanner. Hand excavated trial pit progressed to 1.20m bgl. Concrete slab with thin rebar encountered at 0.50m bgl. Borehole installed with dual gas and groundwater monitoring well.

AGS

Borehole Log

Westlakes Environmental

Borehole No. **BH303** Sheet 1 of 2

Project Name:	Parrs Wood Lane	Project No. 2333	Co-ords:	385498.28 - 390551.36	Hole Type CP
Location:	East Didsbury, Manchester		Level:	38.31	Scale 1:50
Client:	Dandara Living Developments Ltd		Dates:	30/07/2025 - 01/08/2025	Logged By JT

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	38.21		MADE GROUND: Asphalt
					0.50	37.81		MADE GROUND: Light grey fine to coarse angular gravel of limestone (MOT Type 1)
					0.70	37.61		MADE GROUND: Reinforced concrete
					0.80	37.51		MADE GROUND: Compact fine to coarse angular gravel of brick
					0.90	37.41		MADE GROUND: Compact black sandy fine to coarse angular gravel of ash
					1.50	36.81		MADE GROUND: Compact black-brown sandy fine to coarse angular gravel and cobbles of brick and concrete. High content of ash
								Dense brown gravelly SAND. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded of sandstone, mudstone, quartzite and granite.
		3.00	ES		2.80	35.51		Dense grey-brown gravelly cobbly SAND. Sand is fine to coarse. Gravel and cobbles are fine to coarse subangular to subrounded of sandstone, mudstone, quartzite and granite. *Strong hydrocarbon odour and grey discolouration from 2.8m*
					3.90	34.41		Soft to firm grey-brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is fine to coarse subangular to subrounded of sandstone, quartzite and mudstone
		5.00	ES					
		8.00	ES		8.00	30.31		Dense red fine to medium slightly clayey SAND
					8.80	29.51		Soft to firm grey-brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is fine to coarse subangular to subrounded of sandstone, quartzite and mudstone
					10.00	28.31		Continued on next sheet

Remarks

Location checked for underground services using CAT4 scanner. Hand excavated trial pit progressed to 1.20m bgl. Concrete slab with thin rebar encountered at 0.50m bgl. Possible groundwater strike at 5.0m bgl or higher. Borehole installed with dual gas and groundwater monitoring well.

AGS

Borehole Log

Borehole No. **BH303**

Sheet 2 of 2

Project Name:	Parrs Wood Lane	Project No. 2333	Co-ords:	385498.28 - 390551.36	Hole Type CP
Location:	East Didsbury, Manchester		Level:	38.31	Scale 1:50
Client:	Dandara Living Developments Ltd		Dates:	30/07/2025 - 01/08/2025	Logged By JT

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Dense grey-brown sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded sandstone, mudstone and quartzite. Low content of subrounded cobbles of sandstone and quartzite.
					11.60	26.71		Weak red fine to medium SANDSTONE, recovered as fine to coarse angular gravel and cobbles
		13.00	ES					
					14.00	24.31		End of borehole at 14.00 m

Remarks

Location checked for underground services using CAT4 scanner. Hand excavated trial pit progressed to 1.20m bgl. Concrete slab with thin rebar encountered at 0.50m bgl. Possible groundwater strike at 5.0m bgl or higher. Borehole installed with dual gas and groundwater monitoring well.

Geosyntec
consultants

APPENDIX C

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Analytical Report Number : 23-69857

Replaces Analytical Report Number: 23-69857, issue no. 1
Client references/information amended.
Sample ID on sample 2883884 amended as per client's request.
The report has been updated to the current Schedule of Accreditation Issue No: 119 Issue date: 23 January 2024

Project / Site name:	Parrs Wood Lane	Samples received on:	17/11/2023
Your job number:	2333	Samples instructed on/ Analysis started on:	17/11/2023
Your order number:	2023-287	Analysis completed by:	29/11/2023
Report Issue Number:	2	Report issued on:	27/02/2024
Samples Analysed:	4 leachate samples - 10 soil samples		

Signed: Izabela Wójcik

Izabela Wójcik
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 23-69857
Project / Site name: Parrs Wood Lane
Your Order No: 2023-287

Lab Sample Number				2883880	2883881	2883882	2883883	2883884
Sample Reference				BH201	BH201	BH201	BH201	BH202
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				3.00	4.00	6.50	8.00	0.80
Date Sampled				15/11/2023	15/11/2023	15/11/2023	16/11/2023	16/11/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	70	< 0.1	12	< 0.1	48
Moisture Content	%	0.01	NONE	6.5	12	14	14	3.4
Total mass of sample received	kg	0.001	NONE	1.7	1.3	1.3	1.3	1.3

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	IZJ	IZJ	IZJ	IZJ	IZJ

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.4	7.7	8.6	8.6	8
Electrical Conductivity	µS/cm	10	ISO 17025	91	96	100	100	93
Total Sulphate as SO4	mg/kg	50	MCERTS	80	58	150	170	300
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0196	0.0065	0.0249	0.0295	0.0094
Total Sulphur	mg/kg	50	MCERTS	150	220	540	710	200
Organic Matter (automated)	%	0.1	MCERTS	0.2	0.5	1.9	0.8	1.2
Redox Potential	mV	-800	NONE	111.2	82.6	83.8	92.1	98.7

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	12	0.34	3.3
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.27
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.05	0.39
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	4.1	0.07	0.95
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	4.2	0.16	1.1
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.2
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.45	< 0.05	0.73
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.44	< 0.05	0.64
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.08	< 0.05	0.33
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.08	< 0.05	0.37
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	0.44
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	0.16
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.43
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.28
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.07
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.47

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	< 0.80	21.1	< 0.80	10.1

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	4	2.9	4	5.9	2.3
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	0.3	0.2	0.2	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	0.8
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	13	13	13	17	6.5
Copper (aqua regia extractable)	mg/kg	1	MCERTS	8.2	12	15	17	6.3
Lead (aqua regia extractable)	mg/kg	1	MCERTS	5.4	5.9	7.6	8	46
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	15	14	16	22	5.6
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	32	25	35	42	46

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Analytical Report Number: 23-69857
Project / Site name: Parrs Wood Lane
Your Order No: 2023-287

Lab Sample Number				2883880	2883881	2883882	2883883	2883884
Sample Reference				BH201	BH201	BH201	BH201	BH202
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				3.00	4.00	6.50	8.00	0.80
Date Sampled				15/11/2023	15/11/2023	15/11/2023	16/11/2023	16/11/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Monoaromatics & Oxygenates								
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	74	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	89	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	130	230	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	380	760	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	200	250	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	1.7	< 0.020
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	mg/kg	0.05	NONE	< 0.050	< 0.050	2.7	14	< 0.050
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	130	1.2	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH_CU_1D_AL}$	mg/kg	2	MCERTS	5.6	< 2.0	780	14	9.5
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	18	< 8.0	710	27	16
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	140	13	100
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	26	< 10	1800	71	130
TPH-CWG - Aromatic >EC5 - EC7 $_{HS_1D_AR}$	mg/kg	0.01	NONE	< 0.010	< 0.010	0.091	< 0.010	< 0.010
TPH-CWG - Aromatic >EC7 - EC8 $_{HS_1D_AR}$	mg/kg	0.01	NONE	< 0.010	< 0.010	0.08	< 0.010	< 0.010
TPH-CWG - Aromatic >EC8 - EC10 $_{HS_1D_AR}$	mg/kg	0.05	NONE	< 0.050	< 0.050	0.85	1.4	< 0.050
TPH-CWG - Aromatic >EC10 - EC12 $_{EH_CU_1D_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0	56	< 1.0	3.6
TPH-CWG - Aromatic >EC12 - EC16 $_{EH_CU_1D_AR}$	mg/kg	2	MCERTS	< 2.0	< 2.0	260	< 2.0	5.6
TPH-CWG - Aromatic >EC16 - EC21 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	< 10	< 10	210	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	< 10	< 10	110	< 10	82
TPH-CWG - Aromatic (EC5 - EC35) $_{EH_CU+HS_1D_AR}$	mg/kg	10	NONE	< 10	< 10	640	< 10	97
VOCs								
Chloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Chloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
Bromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0#	< 5.0	< 5.0	-
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
1,1-dichloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
1,1-dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0##	< 5.0###	< 5.0##	< 5.0##	-
Chloroform	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,2-dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	74	< 5.0	-
Carbontetrachloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
1,2-dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Trichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0^	< 5.0	< 5.0	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0^	< 5.0	< 5.0	-
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	89	< 5.0	-
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-

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Analytical Report Number: 23-69857
Project / Site name: Parrs Wood Lane
Your Order No: 2023-287

Lab Sample Number				2883880	2883881	2883882	2883883	2883884
Sample Reference				BH201	BH201	BH201	BH201	BH202
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				3.00	4.00	6.50	8.00	0.80
Date Sampled				15/11/2023	15/11/2023	15/11/2023	16/11/2023	16/11/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Tetrachloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	130	230	-
p & m-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	380	760	-
Styrene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Bromoform	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
o-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	200	250	-
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	< 5.0###	< 5.0	< 5.0	-
Bromobenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
N-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	320	1300	-
Tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	700	2300	-
Sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,3-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
P-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,4-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,2-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Butylbenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
Hexachloroethane	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	-
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	12	0.34	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	-

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Analytical Report Number: 23-69857
Project / Site name: Parrs Wood Lane
Your Order No: 2023-287

Lab Sample Number				2883880	2883881	2883882	2883883	2883884
Sample Reference				BH201	BH201	BH201	BH201	BH202
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				3.00	4.00	6.50	8.00	0.80
Date Sampled				15/11/2023	15/11/2023	15/11/2023	16/11/2023	16/11/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	< 0.1	15	0.4	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.05	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	< 0.2	1.8	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	-
4-Nitroaniline	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	4.1	0.07	-
Azobenzene	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	4.2	0.16	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Carbazole	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	-
Anthraquinone	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.45	< 0.05	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.44	< 0.05	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.08	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.08	< 0.05	-
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number: 23-69857
Project / Site name: Parrs Wood Lane
Your Order No: 2023-287

Lab Sample Number				2883885	2883886	2883887	2883888	2883889
Sample Reference				SA201	SA201	WS201	WS202	WS203
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.90	0.60	2.80	0.50
Date Sampled				16/11/2023	16/11/2023	15/11/2023	15/11/2023	15/11/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	62	20	41	47	52
Moisture Content	%	0.01	NONE	8	10	8.7	4.1	3.1
Total mass of sample received	kg	0.001	NONE	1.3	1.4	1.4	1.3	1.3
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	IZJ	IZJ	IZJ	IZJ	IZJ

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	10.7	8.7	9	9.5	9.1
Electrical Conductivity	µS/cm	10	ISO 17025	270	290	270	92	110
Total Sulphate as SO4	mg/kg	50	MCERTS	1200	160	1400	110	210
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.118	0.0345	0.0588	0.0076	0.0218
Total Sulphur	mg/kg	50	MCERTS	450	89	570	82	140
Organic Matter (automated)	%	0.1	MCERTS	0.5	0.8	0.4	< 0.1	0.7
Redox Potential	mV	-800	NONE	13.3	39.1	83.2	93	78.9

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.09	0.12	0.1	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.36	0.13	0.2	< 0.05	0.06
Anthracene	mg/kg	0.05	MCERTS	0.09	< 0.05	0.06	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.5	0.1	0.34	< 0.05	0.16
Pyrene	mg/kg	0.05	MCERTS	0.45	0.11	0.34	< 0.05	0.21
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.21	< 0.05	0.15	< 0.05	0.09
Chrysene	mg/kg	0.05	MCERTS	0.24	< 0.05	0.19	< 0.05	0.13
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.21	< 0.05	0.23	< 0.05	0.17
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.11	< 0.05	0.09	< 0.05	0.1
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.18	< 0.05	0.2	< 0.05	0.12
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.12	< 0.05	0.16	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.14	< 0.05	0.21	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	2.7	< 0.80	2.27	< 0.80	1.04

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	2.5	4.5	5.5	1.7	2.8
Boron (water soluble)	mg/kg	0.2	MCERTS	0.8	0.4	0.3	< 0.2	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.5	< 0.2	0.5	0.5	0.7
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	7.5	12	10	4.2	5.7
Copper (aqua regia extractable)	mg/kg	1	MCERTS	7.8	11	18	3.5	7.4
Lead (aqua regia extractable)	mg/kg	1	MCERTS	11	15	180	4.8	16
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	7.8	11	8.7	2.9	8.5
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	24	27	75	14	34

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Analytical Report Number: 23-69857
Project / Site name: Parrs Wood Lane
Your Order No: 2023-287

Lab Sample Number				2883885	2883886	2883887	2883888	2883889
Sample Reference				SA201	SA201	WS201	WS202	WS203
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.90	0.60	2.80	0.50
Date Sampled				16/11/2023	16/11/2023	15/11/2023	15/11/2023	15/11/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Monoaromatics & Oxygenates								
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH_CU_1D_AL}$	mg/kg	2	MCERTS	6.7	< 2.0	2.8	< 2.0	5.8
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	11	< 8.0	< 8.0	< 8.0	13
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	42	< 8.0	25	< 8.0	83
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	61	< 10	35	< 10	100
TPH-CWG - Aromatic >EC5 - EC7 $_{HS_1D_AR}$	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPH-CWG - Aromatic >EC7 - EC8 $_{HS_1D_AR}$	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPH-CWG - Aromatic >EC8 - EC10 $_{HS_1D_AR}$	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPH-CWG - Aromatic >EC10 - EC12 $_{EH_CU_1D_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH_CU_1D_AR}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	41	< 10	< 10	< 10	91
TPH-CWG - Aromatic (EC5 - EC35) $_{EH_CU+HS_1D_AR}$	mg/kg	10	NONE	48	< 10	< 10	< 10	91
VOCs								
Chloromethane	µg/kg	5	ISO 17025	-	-	-	-	-
Chloroethane	µg/kg	5	NONE	-	-	-	-	-
Bromomethane	µg/kg	5	ISO 17025	-	-	-	-	-
Vinyl Chloride	µg/kg	5	NONE	-	-	-	-	-
Trichlorofluoromethane	µg/kg	5	NONE	-	-	-	-	-
1,1-dichloroethene	µg/kg	5	NONE	-	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	-	-	-	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	-	-	-	-	-
1,1-dichloroethane	µg/kg	5	ISO 17025	-	-	-	-	-
2,2-Dichloropropane	µg/kg	5	NONE	-	-	-	-	-
Chloroform	µg/kg	5	NONE	-	-	-	-	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	-	-	-	-
1,2-dichloroethane	µg/kg	5	ISO 17025	-	-	-	-	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	-	-	-	-
Benzene	µg/kg	5	MCERTS	-	-	-	-	-
Carbontetrachloride	µg/kg	5	NONE	-	-	-	-	-
1,2-dichloropropane	µg/kg	5	ISO 17025	-	-	-	-	-
Trichloroethene	µg/kg	5	ISO 17025	-	-	-	-	-
Dibromomethane	µg/kg	5	ISO 17025	-	-	-	-	-
Bromodichloromethane	µg/kg	5	ISO 17025	-	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-	-	-	-
Toluene	µg/kg	5	MCERTS	-	-	-	-	-
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	-	-	-	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	-	-	-	-

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Analytical Report Number: 23-69857
Project / Site name: Parrs Wood Lane
Your Order No: 2023-287

Lab Sample Number				2883885	2883886	2883887	2883888	2883889
Sample Reference				SA201	SA201	WS201	WS202	WS203
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.90	0.60	2.80	0.50
Date Sampled				16/11/2023	16/11/2023	15/11/2023	15/11/2023	15/11/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Dibromochloromethane	µg/kg	5	ISO 17025	-	-	-	-	-
Tetrachloroethene	µg/kg	5	NONE	-	-	-	-	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	-	-	-	-	-
Chlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	-	-	-	-
Ethylbenzene	µg/kg	5	MCERTS	-	-	-	-	-
p & m-xylene	µg/kg	5	MCERTS	-	-	-	-	-
Styrene	µg/kg	5	ISO 17025	-	-	-	-	-
Bromoform	µg/kg	5	NONE	-	-	-	-	-
o-xylene	µg/kg	5	MCERTS	-	-	-	-	-
Isopropylbenzene	µg/kg	5	ISO 17025	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-	-	-	-	-
Bromobenzene	µg/kg	5	NONE	-	-	-	-	-
N-Propylbenzene	µg/kg	5	ISO 17025	-	-	-	-	-
2-Chlorotoluene	µg/kg	5	ISO 17025	-	-	-	-	-
4-Chlorotoluene	µg/kg	5	ISO 17025	-	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	-	-	-	-
Tert-Butylbenzene	µg/kg	5	ISO 17025	-	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	-	-	-	-
Sec-Butylbenzene	µg/kg	5	ISO 17025	-	-	-	-	-
1,3-dichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	-
P-Isopropyltoluene	µg/kg	5	ISO 17025	-	-	-	-	-
1,4-dichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	-
1,2-dichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	-
Butylbenzene	µg/kg	5	NONE	-	-	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	-
Hexachlorobutadiene	µg/kg	5	NONE	-	-	-	-	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	-

SVOCs

Aniline	mg/kg	0.1	NONE	-	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Hexachloroethane	mg/kg	0.05	ISO 17025	-	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Nitrophenol	mg/kg	0.3	NONE	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	-	-	-	-

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Analytical Report Number: 23-69857
Project / Site name: Parrs Wood Lane
Your Order No: 2023-287

Lab Sample Number				2883885	2883886	2883887	2883888	2883889
Sample Reference				SA201	SA201	WS201	WS202	WS203
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.90	0.60	2.80	0.50
Date Sampled				16/11/2023	16/11/2023	15/11/2023	15/11/2023	15/11/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Nitroaniline	mg/kg	0.2	NONE	-	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	-
Azobenzene	mg/kg	0.3	NONE	-	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	NONE	-	-	-	-	-
Anthraquinone	mg/kg	0.3	NONE	-	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number: 23-69857
Project / Site name: Parrs Wood Lane

Your Order No: 2023-287

Lab Sample Number				2883890	2883891	2883892	2883893
Sample Reference				BH201	BH201	BH201	BH201
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				3.00	4.00	6.50	8.00
Date Sampled				15/11/2023	15/11/2023	15/11/2023	16/11/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status				
Speciated PAHs							
Naphthalene	µg/l	0.01	NONE	0.7	< 0.01	67	< 0.01
Acenaphthylene	µg/l	0.01	NONE	0.17	< 0.01	0.28	< 0.01
Acenaphthene	µg/l	0.01	NONE	0.54	< 0.01	1.3	< 0.01
Fluorene	µg/l	0.01	NONE	0.74	< 0.01	1.6	< 0.01
Phenanthrene	µg/l	0.01	NONE	0.32	< 0.01	0.89	< 0.01
Anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	0.1	< 0.01
Fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Total PAH							
Total EPA-16 PAHs	µg/l	0.2	NONE	2.5	< 0.2	71	< 0.2
Heavy Metals / Metalloids							
Arsenic (dissolved)	µg/l	1	ISO 17025	< 1.0	< 1.0	5.4	< 1.0
Boron (dissolved)	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	< 0.4	< 0.4	1	< 0.4
Copper (dissolved)	µg/l	0.7	ISO 17025	8.6	2.7	6.8	4
Lead (dissolved)	µg/l	1	ISO 17025	2.3	< 1.0	1.4	< 1.0
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	0.6	0.5	2.8	< 0.3
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	9	2.3	6.7	11
Monoaromatics & Oxygenates							
Benzene	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0
Toluene	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0
Ethylbenzene	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0
p & m-xylene	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0
o-xylene	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	< 10	< 10	< 10	< 10
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >C5 - C6 $_{HS_1D_AL}$	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8 $_{HS_1D_AL}$	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10 $_{HS_1D_AL}$	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12 $_{EH_1D_AL_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16 $_{EH_1D_AL_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21 $_{EH_1D_AL_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35 $_{EH_1D_AL_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35) $_{HS+EH_1D_AL_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7 $_{HS_1D_AR}$	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8 $_{HS_1D_AR}$	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 23-69857
Project / Site name: Parrs Wood Lane

Your Order No: 2023-287

Lab Sample Number				2883890	2883891	2883892	2883893
Sample Reference				BH201	BH201	BH201	BH201
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				3.00	4.00	6.50	8.00
Date Sampled				15/11/2023	15/11/2023	15/11/2023	16/11/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status				
TPH-CWG - Aromatic >C8 - C10 $_{HS_1D_AR}$	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12 $_{EH_1D_AR_MS}$	µg/l	10	NONE	15	< 10	130	< 10
TPH-CWG - Aromatic >C12 - C16 $_{EH_1D_AR_MS}$	µg/l	10	NONE	60	< 10	220	< 10
TPH-CWG - Aromatic >C16 - C21 $_{EH_1D_AR_MS}$	µg/l	10	NONE	50	< 10	100	< 10
TPH-CWG - Aromatic >C21 - C35 $_{EH_1D_AR_MS}$	µg/l	10	NONE	< 10	< 10	20	< 10
TPH-CWG - Aromatic (C5 - C35) $_{HS+EH_1D_AR_MS}$	µg/l	10	NONE	130	< 10	460	< 10

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Analytical Report Number : 23-69857
Project / Site name: Parrs Wood Lane

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2883880	BH201	None Supplied	3	Brown sand with gravel and stones.
2883881	BH201	None Supplied	4	Brown sandy clay.
2883882	BH201	None Supplied	6.5	Brown sandy clay with stones.
2883883	BH201	None Supplied	8	Brown clay and sand.
2883884	BH202	None Supplied	0.8	Brown sand with clinker and gravel
2883885	SA201	None Supplied	0.4	Brown sand with gravel and stones.
2883886	SA201	None Supplied	0.9	Brown clay and sand with stones.
2883887	WS201	None Supplied	0.6	Brown silt with gravel and stones.**
2883888	WS202	None Supplied	2.8	Brown gravel with stones.**
2883889	WS203	None Supplied	0.5	Brown gravel with stones.**

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Analytical Report Number : 23-69857
Project / Site name: Parrs Wood Lane

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
NRA Leachate Prep	10:1 extract with de-ionised water shaken for 24 hours then filtered.	In-house method based on National Rivers Authority	L020-PL	W	NONE
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Electrical conductivity of soil	Determination of electrical conductivity in soil by electrometric measurement.	In-house method	L031-PL	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards. Refer to CoA for analyte specific accreditation.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Redox Potential of soil	Determination of redox potential in soil by electrometric measurement.	In house method.	L084-PL	W	NONE
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS

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Analytical Report Number : 23-69857
Project / Site name: Parrs Wood Lane

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.Refer to CoA for analyte specific accreditation.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
TPHCWG (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260. Refer to CoA for analyte specific accreditation	L073B-PL	W	MCERTS
BTEX and MTBE in leachates (Monoaromatics)	Determination of BTEX and MTBE in leachates by headspace GC-MS.	In-house method based on USEPA8260. Refer to CoA for analyte specific accreditation	L073B-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID. Refer to CoA for band specific accreditation.	In-house method with silica gel split/clean up.	L088/76-PL	D	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

** - Unaccredited sample matrix
- Quality control parameter has a high recovery (outside of limit); however the associated result is below the reporting limit, other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised
- Data reported unaccredited due to quality control parameter failure associated with this result; other checks applied prior to reporting the data have been

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Analytical Report Number : 23-69857
Project / Site name: Parrs Wood Lane

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status

accepted. The result should be considered as being deviating and may be compromised
^ - Data reported unaccredited due to quality control parameter failure associated with this result; The result should be considered as being deviating and may be compromised
- Quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised.

envirolab
Hattersley Science & Technology Park
Stockport Road, Hattersley, SK14 3QU

FINAL ANALYTICAL TEST REPORT
SUPPLEMENT TO TEST REPORT 25/08525/1

Amendments: Request for project/sample information change

Envirolab Job Number: 25/08525
Issue Number: 2 **Date:** 19 August, 2025

Client: Westlakes Engineering Ltd
Unit 2.1, 20 Dale Street
Manchester
Greater Manchester
UK
M1 1EZ

Project Manager: Helen Brown/John Taylor
Project Name: Parrs Wood
Project Ref: 2333
Order No: P/O 2025_186
Date Samples Received: 01/08/25
Date Instructions Received: 05/08/25
Date Analysis Completed: 19/08/25

Approved by:

[redacted]

Richard Wong
Client Manager

Envirolab Job Number: 25/08525

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08525/1	25/08525/2	25/08525/3	25/08525/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH303	BH303	BH303	BH303						
Depth to Top	3.00	5.00	8.00	13.00						
Depth To Bottom										
Date Sampled	30-Jul-25	31-Jul-25	31-Jul-25	30-Jul-25						
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES						
Sample Matrix Code	4A	5A	6A	4A						
% Stones >10mm$_A$	<0.1	2.4	3.4	4.7				% w/w	0.1	A-T-044
pH$_D^{M\#}$	9.77	8.52	8.55	9.04				pH	0.01	A-T-031s
Organic Matter$_D^{M\#}$	0.23	0.96	1.43	0.21				% w/w	0.14	A-T-032s
Arsenic$_D^{M\#}$	1	4	2	<1				mg/kg	1	A-T-024s
Cadmium$_D$	<1.0	<1.0	<1.0	<1.0				mg/kg	1	A-T-024s
Copper$_D^{M\#}$	7	10	13	2				mg/kg	1	A-T-024s
Chromium$_D^{M\#}$	7	10	13	6				mg/kg	1	A-T-024s
Lead$_D^{M\#}$	5	6	6	2				mg/kg	1	A-T-024s
Mercury$_D$	<0.17	<0.17	<0.17	<0.17				mg/kg	0.17	A-T-024s
Nickel$_D^{M\#}$	11	15	17	7				mg/kg	1	A-T-024s
Selenium$_D^{M\#}$	<1	<1	<1	<1				mg/kg	1	A-T-024s
Zinc$_D^{M\#}$	21	26	34	13				mg/kg	1	A-T-024s

Envirolab Job Number: 25/08525

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08525/1	25/08525/2	25/08525/3	25/08525/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH303	BH303	BH303	BH303						
Depth to Top	3.00	5.00	8.00	13.00						
Depth To Bottom										
Date Sampled	30-Jul-25	31-Jul-25	31-Jul-25	30-Jul-25						
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES						
Sample Matrix Code	4A	5A	6A	4A						
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	NAD	-	-	-						A-T-045
Asbestos Matrix (visual)$_{D}$	-	-	-	-						A-T-045
Asbestos Matrix (microscope)$_{D}$	-	-	-	-						A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	-	-	-						A-T-045

Envirolab Job Number: 25/08525

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08525/1	25/08525/2	25/08525/3	25/08525/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH303	BH303	BH303	BH303						
Depth to Top	3.00	5.00	8.00	13.00						
Depth To Bottom										
Date Sampled	30-Jul-25	31-Jul-25	31-Jul-25	30-Jul-25						
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES						
Sample Matrix Code	4A	5A	6A	4A						
PAH-16MS										
Acenaphthene$_A^{M\#}$	0.20	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	0.14	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	0.08	<0.02	<0.02	<0.02				mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	<0.04	<0.04	<0.04	<0.04				mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	<0.04	<0.04	<0.04	<0.04				mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	<0.05	<0.05	<0.05	<0.05				mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	<0.05	<0.05	<0.05	<0.05				mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.07	<0.07	<0.07	<0.07				mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	<0.06	<0.06	<0.06	<0.06				mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.04	<0.04	<0.04	<0.04				mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	<0.08	<0.08	<0.08	<0.08				mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	0.67	<0.01	0.01	<0.01				mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	<0.03	<0.03	<0.03	<0.03				mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	0.06	<0.03	<0.03	<0.03				mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	0.66	<0.03	0.04	<0.03				mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	<0.07	<0.07	<0.07	<0.07				mg/kg	0.07	A-T-019s
Total PAH-16MS$_A^{M\#}$	1.81	<0.08	<0.08	<0.08				mg/kg	0.01	A-T-019s

Envirolab Job Number: 25/08525

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08525/1	25/08525/2	25/08525/3	25/08525/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH303	BH303	BH303	BH303						
Depth to Top	3.00	5.00	8.00	13.00						
Depth To Bottom										
Date Sampled	30-Jul-25	31-Jul-25	31-Jul-25	30-Jul-25						
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES						
Sample Matrix Code	4A	5A	6A	4A						
SVOC excluding PAH-16										
4-Bromophenyl phenyl ether$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Hexachlorobenzene$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Diethyl phthalate$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Dimethyl phthalate$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Dibenzofuran$_A$	326	<100	<100	<100				µg/kg	100	A-T-052s
Carbazole$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Butylbenzyl phthalate$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Bis(2-ethylhexyl)phthalate$_A$	<500	<500	<500	<500				µg/kg	500	A-T-052s
Bis(2-chloroethoxy)methane$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Bis(2-chloroethyl)ether$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
4-Nitrophenol$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
3+4-Methylphenol$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
4-Chloro-3-methylphenol$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
2-Nitrophenol$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
2-Methylphenol$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
1,2,4-Trichlorobenzene$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
2-Chlorophenol$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
2,6-Dinitrotoluene$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
2,4-Dinitrotoluene$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
2,4-Dimethylphenol$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
2,4-Dichlorophenol$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
2,4,6-Trichlorophenol$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
2,4,5-Trichlorophenol$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
1,4-Dichlorobenzene$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
1,3-Dichlorobenzene$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
1,2-Dichlorobenzene$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
2-Chloronaphthalene$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
2-Methylnaphthalene$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Bis(2-chloroisopropyl)ether$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Phenol$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Pentachlorophenol$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
n-Nitroso-n-dipropylamine$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s

Envirolab Job Number: 25/08525

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08525/1	25/08525/2	25/08525/3	25/08525/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH303	BH303	BH303	BH303						
Depth to Top	3.00	5.00	8.00	13.00						
Depth To Bottom										
Date Sampled	30-Jul-25	31-Jul-25	31-Jul-25	30-Jul-25						
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES						
Sample Matrix Code	4A	5A	6A	4A						
n-Dioctylphthalate$_A$	<500	<500	<500	<500				µg/kg	500	A-T-052s
n-Dibutylphthalate$_A$	<100	<100	<100	124				µg/kg	100	A-T-052s
Nitrobenzene$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Isophorone$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Hexachloroethane$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Hexachlorobutadiene$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Perylene$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s

Envirolab Job Number: 25/08525

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08525/1	25/08525/2	25/08525/3	25/08525/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH303	BH303	BH303	BH303						
Depth to Top	3.00	5.00	8.00	13.00						
Depth To Bottom										
Date Sampled	30-Jul-25	31-Jul-25	31-Jul-25	30-Jul-25						
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES						
Sample Matrix Code	4A	5A	6A	4A						
VOC excl. BTEX										
Dichlorodifluoromethane$_A$	<1	<1	<1	<1				µg/kg	1	A-T-006s
Chloromethane$_A$	<10	<10	<10	<10				µg/kg	10	A-T-006s
Vinyl Chloride (Chloroethene)$_A^\#$	<1	<1	<1	<1				µg/kg	1	A-T-006s
Bromomethane$_A^\#$	<1	<1	<1	<1				µg/kg	1	A-T-006s
Chloroethane$_A^\#$	<1	<1	<1	<1				µg/kg	1	A-T-006s
Trichlorofluoromethane$_A^\#$	<1	<1	<1	<1				µg/kg	1	A-T-006s
1,1-Dichloroethene$_A^\#$	<1	<1	<1	<1				µg/kg	1	A-T-006s
Carbon Disulphide$_A^\#$	<1	<1	<1	<1				µg/kg	1	A-T-006s
Dichloromethane$_A$	<5	<5	<5	<5				µg/kg	5	A-T-006s
trans 1,2-Dichloroethene$_A^\#$	<1	<1	<1	<1				µg/kg	1	A-T-006s
1,1-Dichloroethane$_A^\#$	<1	<1	<1	<1				µg/kg	1	A-T-006s
cis 1,2-Dichloroethene$_A^\#$	<1	<2	<2	<1				µg/kg	1	A-T-006s
2,2-Dichloropropane$_A^\#$	<1	<1	<1	<1				µg/kg	1	A-T-006s
Bromochloromethane$_A^\#$	<5	<5	<5	<5				µg/kg	5	A-T-006s
Chloroform$_A^\#$	<1	<1	<1	<1				µg/kg	1	A-T-006s
1,1,1-Trichloroethane$_A^\#$	<1	<1	<1	<1				µg/kg	1	A-T-006s
1,1-Dichloropropene$_A^\#$	<1	<1	<1	<1				µg/kg	1	A-T-006s
Carbon Tetrachloride$_A^\#$	<1	<1	<1	<1				µg/kg	1	A-T-006s
1,2-Dichloroethane$_A^\#$	<2	<2	<2	<2				µg/kg	2	A-T-006s
Trichloroethene$_A^\#$	<1	<2	<2	<1				µg/kg	1	A-T-006s
1,2-Dichloropropane$_A^\#$	<1	<1	<1	<1				µg/kg	1	A-T-006s
Dibromomethane$_A^\#$	<1	<1	<1	<1				µg/kg	1	A-T-006s
Bromodichloromethane$_A^\#$	<10	<10	<10	<10				µg/kg	10	A-T-006s
cis 1,3-Dichloropropene$_A^\#$	<1	<1	<1	<1				µg/kg	1	A-T-006s
trans 1,3-Dichloropropene$_A^\#$	<1	<1	<1	<1				µg/kg	1	A-T-006s
1,1,2-Trichloroethane$_A^\#$	<1	<1	<1	<1				µg/kg	1	A-T-006s
1,3-Dichloropropane$_A^\#$	<1	<1	<1	<1				µg/kg	1	A-T-006s
Tetrachloroethene$_A^\#$	<1	<4	<4	<1				µg/kg	1	A-T-006s
Dibromochloromethane$_A^\#$	<3	<3	<3	<3				µg/kg	3	A-T-006s
1,2-Dibromoethane$_A^\#$	<1	<1	<1	<1				µg/kg	1	A-T-006s
Chlorobenzene$_A^\#$	<1	<1	<1	<1				µg/kg	1	A-T-006s
1,1,1,2-Tetrachloroethane$_A$	<1	<1	<1	<1				µg/kg	1	A-T-006s

Envirolab Job Number: 25/08525

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08525/1	25/08525/2	25/08525/3	25/08525/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH303	BH303	BH303	BH303						
Depth to Top	3.00	5.00	8.00	13.00						
Depth To Bottom										
Date Sampled	30-Jul-25	31-Jul-25	31-Jul-25	30-Jul-25						
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES						
Sample Matrix Code	4A	5A	6A	4A						
Styrene$_{A}^{\#}$	<1	<1	<1	<1				µg/kg	1	A-T-006s
Bromoform$_{A}^{\#}$	<3	<3	<3	<3				µg/kg	3	A-T-006s
Isopropylbenzene$_{A}^{\#}$	20	<1	<1	<1				µg/kg	1	A-T-006s
1,1,2,2-Tetrachloroethane$_{A}$	<1	<1	<1	<1				µg/kg	1	A-T-006s
1,2,3-Trichloropropane$_{A}^{\#}$	<1	<1	<1	<1				µg/kg	1	A-T-006s
Bromobenzene$_{A}^{\#}$	<1	<1	<1	<1				µg/kg	1	A-T-006s
n-Propylbenzene$_{A}^{\#}$	30	<1	<1	<1				µg/kg	1	A-T-006s
2-Chlorotoluene$_{A}^{\#}$	<1	<1	<1	<1				µg/kg	1	A-T-006s
1,3,5-Trimethylbenzene$_{A}^{\#}$	<1	<1	<1	<1				µg/kg	1	A-T-006s
4-Chlorotoluene$_{A}^{\#}$	<1	<1	<1	<1				µg/kg	1	A-T-006s
tert-Butylbenzene$_{A}^{\#}$	7	<2	<2	<2				µg/kg	2	A-T-006s
1,2,4-Trimethylbenzene$_{A}^{\#}$	<1	<1	<1	<1				µg/kg	1	A-T-006s
sec-Butylbenzene$_{A}^{\#}$	<41	<1	<1	<1				µg/kg	1	A-T-006s
4-Isopropyltoluene$_{A}^{\#}$	<1	<1	<1	<1				µg/kg	1	A-T-006s
1,3-Dichlorobenzene$_{A}$	<1	<1	<1	<1				µg/kg	1	A-T-006s
1,4-Dichlorobenzene$_{A}^{\#}$	<1	<1	<1	<1				µg/kg	1	A-T-006s
n-Butylbenzene$_{A}^{\#}$	<65	<1	<1	<1				µg/kg	1	A-T-006s
1,2-Dichlorobenzene$_{A}^{\#}$	<1	<1	<1	<1				µg/kg	1	A-T-006s
1,2-Dibromo-3-chloropropane (DCBP)$_{A}$	<2	<2	<2	<2				µg/kg	2	A-T-006s
1,2,4-Trichlorobenzene$_{A}$	<3	<3	<3	<3				µg/kg	3	A-T-006s
Hexachlorobutadiene$_{A}^{\#}$	<1	<1	<1	<1				µg/kg	1	A-T-006s
1,2,3-Trichlorobenzene$_{A}$	<3	<3	<3	<3				µg/kg	3	A-T-006s

Envirolab Job Number: 25/08525

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08525/1	25/08525/2	25/08525/3	25/08525/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH303	BH303	BH303	BH303						
Depth to Top	3.00	5.00	8.00	13.00						
Depth To Bottom										
Date Sampled	30-Jul-25	31-Jul-25	31-Jul-25	30-Jul-25						
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES						
Sample Matrix Code	4A	5A	6A	4A						
TPH CWG with Clean Up										
Ali >C5-C6$_A$	<0.01	<0.05	<0.05	<0.01				mg/kg	0.01	A-T-022s
Ali >C6-C8$_A$	0.48	<0.05	<0.05	<0.01				mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$	24	<1	<1	<1				mg/kg	1	A-T-055s
Ali >C10-C12$_A^{M\#}$	129	<1	<1	<1				mg/kg	1	A-T-055s
Ali >C12-C16$_A^{M\#}$	569	2	4	5				mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	397	2	4	5				mg/kg	1	A-T-055s
Ali >C21-C35$_A^{M\#}$	56	2	3	1				mg/kg	1	A-T-055s
Total Aliphatics$_A$	1180	7	12	11				mg/kg	1	Calc-As Recd
Aro >C5-C7$_A^{\#}$	<0.01	<0.05	<0.05	<0.01				mg/kg	0.01	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.01	<0.05	<0.05	<0.01				mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$	17	<1	<1	<1				mg/kg	1	A-T-055s
Aro >C10-C12$_A$	42	<1	1	<1				mg/kg	1	A-T-055s
Aro >C12-C16$_A$	292	3	4	4				mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	118	3	5	2				mg/kg	1	A-T-055s
Aro >C21-C35$_A^{M\#}$	25	10	15	1				mg/kg	1	A-T-055s
Total Aromatics$_A$	494	16	26	7				mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C35)$_A$	1670	23	38	18				mg/kg	1	Calc-As Recd
BTEX - Benzene$_A^{\#}$	<0.01	<0.05	<0.05	<0.01				mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.01	<0.05	<0.05	<0.01				mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	<0.01	<0.05	<0.05	<0.01				mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	<0.01	<0.05	<0.05	<0.01				mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	<0.01	<0.05	<0.05	<0.01				mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	<0.01	<0.05	<0.05	<0.01				mg/kg	0.01	A-T-022s

Envirolab Job Number: 25/08525

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08525/1	25/08525/2	25/08525/3	25/08525/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH303	BH303	BH303	BH303						
Depth to Top	3.00	5.00	8.00	13.00						
Depth To Bottom										
Date Sampled	30-Jul-25	31-Jul-25	31-Jul-25	30-Jul-25						
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES						
Sample Matrix Code	4A	5A	6A	4A						
Leachate Prep BS EN 12457-2 (10:1) A	*	*	*	*						A-T-001
Arsenic (leachable)A	1	<1	<1	3				µg/l	1	A-T-025w
Cadmium (leachable)A	<1	<1	<1	<1				µg/l	1	A-T-025w
Copper (leachable)A	<4	6	<4	<4				µg/l	4	A-T-025w
Chromium (leachable)A	<1	<1	<1	<1				µg/l	1	A-T-025w
Lead (leachable)A	1	2	<1	<1				µg/l	1	A-T-025w
Mercury (leachable)A	<0.1	<0.1	<0.1	<0.1				µg/l	0.1	A-T-025w
Nickel (leachable)A	<2	<2	<2	<2				µg/l	2	A-T-025w
Selenium (leachable)A	<1	<1	<1	<1				µg/l	1	A-T-025w
Zinc (leachable)A	3	12	4	9				µg/l	2	A-T-025w

Envirolab Job Number: 25/08525

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08525/1	25/08525/2	25/08525/3	25/08525/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH303	BH303	BH303	BH303						
Depth to Top	3.00	5.00	8.00	13.00						
Depth To Bottom										
Date Sampled	30-Jul-25	31-Jul-25	31-Jul-25	30-Jul-25						
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES						
Sample Matrix Code	4A	5A	6A	4A						
PAH 16MS (leachable)										
Acenaphthene (leachable)$_A$	0.10	<0.02	<0.02	<0.02				µg/l	0.02	A-T-019w
Acenaphthylene (leachable)$_A$	0.05	<0.02	<0.02	<0.02				µg/l	0.02	A-T-019w
Anthracene (leachable)$_A$	0.04	<0.02	<0.02	<0.02				µg/l	0.02	A-T-019w
Benzo(a)anthracene (leachable)$_A$	0.04	<0.02	<0.02	<0.02				µg/l	0.02	A-T-019w
Benzo(a)pyrene (leachable) $_A$	0.05	<0.02	<0.02	<0.02				µg/l	0.02	A-T-019w
Benzo(b)fluoranthene (leachable)$_A$	0.04	<0.02	<0.02	<0.02				µg/l	0.02	A-T-019w
Benzo(ghi)perylene (leachable)$_A$	0.06	<0.02	<0.02	0.03				µg/l	0.02	A-T-019w
Benzo(k)fluoranthene (leachable)$_A$	0.04	<0.02	<0.02	<0.02				µg/l	0.02	A-T-019w
Chrysene (leachable)$_A$	0.05	<0.02	<0.02	<0.02				µg/l	0.02	A-T-019w
Dibenzo(ah)anthracene (leachable)$_A$	0.05	<0.02	<0.02	<0.02				µg/l	0.02	A-T-019w
Fluoranthene (leachable)$_A$	0.04	<0.02	<0.02	<0.02				µg/l	0.02	A-T-019w
Fluorene (leachable)$_A$	0.08	<0.02	<0.02	<0.02				µg/l	0.02	A-T-019w
Indeno(123-cd)pyrene (leachable)$_A$	0.04	<0.02	<0.02	<0.02				µg/l	0.02	A-T-019w
Naphthalene (leachable) $_A$	0.04	<0.02	<0.02	<0.02				µg/l	0.02	A-T-019w
Phenanthrene (leachable)$_A$	0.04	<0.02	<0.02	0.03				µg/l	0.02	A-T-019w
Pyrene (leachable)$_A$	0.04	<0.02	<0.02	<0.02				µg/l	0.02	A-T-019w
Total PAH 16MS (leachable)$_A$	0.80	<0.02	<0.02	0.06				µg/l	0.02	A-T-019w

Envirolab Job Number: 25/08525

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08525/1	25/08525/2	25/08525/3	25/08525/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH303	BH303	BH303	BH303						
Depth to Top	3.00	5.00	8.00	13.00						
Depth To Bottom										
Date Sampled	30-Jul-25	31-Jul-25	31-Jul-25	30-Jul-25						
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES						
Sample Matrix Code	4A	5A	6A	4A						
TPH CWG (leachable) with Clean Up										
Ali >C5-C6 (leachable)$_A$	<1	<1	<1	<1				µg/l	1	A-T-022w
Ali >C6-C8 (leachable)$_A$	<1	<1	<1	<1				µg/l	1	A-T-022w
Ali >C8-C10 (leachable)$_A$	<10	<10	<10	<10				µg/l	10	A-T-055w
Ali >C10-C12 (leachable)$_A$	<10	<10	<10	<10				µg/l	10	A-T-055w
Ali >C12-C16 (leachable)$_A$	<10	<10	<10	<10				µg/l	10	A-T-055w
Ali >C16-C21 (leachable)$_A$	<10	<10	<10	<10				µg/l	10	A-T-055w
Ali >C21-C35 (leachable)$_A$	<20	<20	<20	<20				µg/l	20	A-T-055w
Total Aliphatics (leachable)$_A$	<20	<20	<20	<20				µg/l	10	Calc-As Recd
Aro >C5-C7 (leachable)$_A$	<1	<1	<1	<1				µg/l	1	A-T-022w
Aro >C7-C8 (leachable)$_A$	<1	<1	<1	<1				µg/l	1	A-T-022w
Aro >C8-C10 (leachable)$_A$	<10	<10	<10	<10				µg/l	10	A-T-055w
Aro >C10-C12 (leachable)$_A$	37	<10	<10	<10				µg/l	10	A-T-055w
Aro >C12-C16 (leachable)$_A$	130	<10	<10	11				µg/l	10	A-T-055w
Aro >C16-C21 (leachable)$_A$	68	10	<10	<10				µg/l	10	A-T-055w
Aro >C21-C35 (leachable)$_A$	<20	<20	<20	<20				µg/l	20	A-T-055w
Total Aromatics (leachable)$_A$	280	<20	<20	<20				µg/l	20	Calc-As Recd
TPH (Ali & Aro >C5-C35) (leachable)$_A$	280	<20	<20	<20				µg/l	20	Calc-As Recd
BTEX - Benzene (leachable)$_A$	<1	<1	<1	<1				µg/l	1	A-T-022w
BTEX - Toluene (leachable)$_A$	<1	<1	<1	<1				µg/l	1	A-T-022w
BTEX - Ethyl Benzene (leachable)$_A$	<1	<1	<1	<1				µg/l	1	A-T-022w
BTEX - o Xylene (leachable)$_A$	<1	<1	<1	<1				µg/l	1	A-T-022w
BTEX - m & p Xylene (leachable)$_A$	<1	<1	<1	<1				µg/l	1	A-T-022w
MTBE (leachable)$_A$	<1	<1	<1	<1				µg/l	1	A-T-022w

Report Notes

General

•This report shall not be reproduced, except in full, without written approval from Envirolab.
•The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client and can affect the validity of results.
•The results reported herein relate only to the material supplied to the laboratory.
•The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **four weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
•Analytical results reflect the quality of the sample at the time of analysis only.
•Opinions and Interpretations expressed are outside our scope of accreditation.
•A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
•If a sample is outside of the calibration range or affected by interferences then it may need diluting. This will result in the limit of detection (LOD) being raised.
•Subcontracted Analysis: Please see the appended report for any deviations, current LODs and accreditation status of the test.

Key

Superscript "#"	Accredited to ISO 17025
Superscript "M"	Accredited to MCertS
Superscript "U"	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript "A"	Analysis performed on as-received Sample
Subscript "D"	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript "D" on Asbestos	Analysis performed on a dried aliquot of sample provided.
Subscript "^"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
Trace	Asbestos found not suitable for Gravimetric Quantification – not enough to accurately weigh.
N/A	Not applicable

Asbestos

Identification: Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis
"Trace Asbestos Identified" will be reported if there is not enough present to verify the type.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs
Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.					

Soil Chemical Analysis:

All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH by method A-T-007:

For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:

EPH CWG results have humics mathematically subtracted through instrument calculation.
Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:

Results greater than 12900µS/cm @ 25^0C / 11550µS/cm @ 20^0C fall outside the calibration range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Hattersley Science & Technology Park, Stockport Road, Hattersley, SK14 3QU
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Westlakes Engineering Ltd, Unit 2.1, 20 Dale Street, Manchester, Greater Manchester , UK, M1 1EZ

Project: Parrs Wood

Clients Project No: 2333

Project No: 25/08525

Date Received: 05/08/2025 (am)

Cool Box Temperatures (°C): 17.3

NO DEVIATIONS IDENTIFIED with respect to sampling dates or containers received.

Note: If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3 (for water samples 5 ± 3°C), ISO 18400-105:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	25/08525/1	25/08525/2	25/08525/3	25/08525/4
Client Sample No				
Client Sample ID/Depth	BH303 3.00m	BH303 5.00m	BH303 8.00m	BH303 13.00m
Date Sampled	30/07/25	31/07/25	31/07/25	30/07/25
A-T-006s	12/08/2025	08/08/2025	08/08/2025	12/08/2025
A-T-019s	11/08/2025	11/08/2025	11/08/2025	11/08/2025
A-T-019w	12/08/2025	12/08/2025	12/08/2025	12/08/2025
A-T-022s	11/08/2025	13/08/2025	13/08/2025	11/08/2025
A-T-022w	13/08/2025	13/08/2025	13/08/2025	13/08/2025
A-T-024s	13/08/2025	13/08/2025	13/08/2025	13/08/2025
A-T-025w	13/08/2025	13/08/2025	13/08/2025	13/08/2025
A-T-031s	18/08/2025	18/08/2025	18/08/2025	18/08/2025
A-T-032s	18/08/2025	18/08/2025	18/08/2025	18/08/2025
A-T-044	18/08/2025	18/08/2025	18/08/2025	18/08/2025
A-T-045	06/08/2025			
A-T-052s	13/08/2025	13/08/2025	13/08/2025	13/08/2025
A-T-055s	19/08/2025	11/08/2025	11/08/2025	11/08/2025
A-T-055w	12/08/2025	12/08/2025	12/08/2025	12/08/2025
Calc-As Recd	19/08/2025	13/08/2025	13/08/2025	13/08/2025

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

envirolab
Hattersley Science & Technology Park
Stockport Road, Hattersley, SK14 3QU

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 25/08145
Issue Number: 1 **Date:** 12 August, 2025

Client:
Westlakes Engineering Ltd
Unit 2.1, 20 Dale Street
Manchester
Greater Manchester
UK
M1 1EZ

Project Manager: John Taylor
Project Name: Parrs Wood
Project Ref: 2333
Order No: 2025_175
Date Samples Received: 25/07/25
Date Instructions Received: 28/07/25
Date Analysis Completed: 12/08/25

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 25/08145

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08145/1	25/08145/2	25/08145/3	25/08145/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH301	BH301	BH301	BH301						
Depth to Top	3.50	5.00	6.00	12.50						
Depth To Bottom										
Date Sampled	23-Jul-25	24-Jul-25	24-Jul-25	24-Jul-25						
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES						
Sample Matrix Code	4A	4A	5A	1A						
% Stones >10mm$_A$	<0.1	5.0	0.5	<0.1				% w/w	0.1	A-T-044
pH$_D$$^{M\#}$	8.27	8.35	7.60	9.15				pH	0.01	A-T-031s
Organic Matter$_D$$^{M\#}$	0.32	0.83	1.77	0.25				% w/w	0.14	A-T-032s
Arsenic$_D$$^{M\#}$	1	3	<1	<1				mg/kg	1	A-T-024s
Cadmium$_D$	<1.0	<1.0	<1.0	<1.0				mg/kg	1	A-T-024s
Copper$_D$$^{M\#}$	7	10	25	4				mg/kg	1	A-T-024s
Chromium$_D$$^{M\#}$	7	10	19	5				mg/kg	1	A-T-024s
Lead$_D$$^{M\#}$	4	15	10	3				mg/kg	1	A-T-024s
Mercury$_D$	<0.17	<0.17	<0.17	<0.17				mg/kg	0.17	A-T-024s
Nickel$_D$$^{M\#}$	10	10	30	7				mg/kg	1	A-T-024s
Selenium$_D$$^{M\#}$	<1	<1	<1	<1				mg/kg	1	A-T-024s
Zinc$_D$$^{M\#}$	22	22	61	15				mg/kg	1	A-T-024s

Envirolab Job Number: 25/08145

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08145/1	25/08145/2	25/08145/3	25/08145/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH301	BH301	BH301	BH301						
Depth to Top	3.50	5.00	6.00	12.50						
Depth To Bottom										
Date Sampled	23-Jul-25	24-Jul-25	24-Jul-25	24-Jul-25						
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES						
Sample Matrix Code	4A	4A	5A	1A						
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	NAD	-	-	-						A-T-045
Asbestos Matrix (visual)$_{D}$	-	-	-	-						A-T-045
Asbestos Matrix (microscope)$_{D}$	-	-	-	-						A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	-	-	-						A-T-045

Envirolab Job Number: 25/08145

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08145/1	25/08145/2	25/08145/3	25/08145/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH301	BH301	BH301	BH301						
Depth to Top	3.50	5.00	6.00	12.50						
Depth To Bottom										
Date Sampled	23-Jul-25	24-Jul-25	24-Jul-25	24-Jul-25						
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES						
Sample Matrix Code	4A	4A	5A	1A						
PAH-16MS										
Acenaphthene$_A^{M\#}$	0.07	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	0.02	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	<0.02	<0.02	<0.02	<0.02				mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	<0.04	<0.04	<0.04	<0.04				mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	<0.04	<0.04	<0.04	<0.04				mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	<0.05	<0.05	<0.05	<0.05				mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	<0.05	<0.05	<0.05	<0.05				mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.07	<0.07	<0.07	<0.07				mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	<0.06	<0.06	<0.06	<0.06				mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.04	<0.04	<0.04	<0.04				mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	<0.08	<0.08	<0.08	<0.08				mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	0.16	<0.01	0.01	<0.01				mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	<0.03	<0.03	<0.03	<0.03				mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	0.10	<0.03	<0.03	<0.03				mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	0.21	<0.03	<0.03	<0.03				mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	<0.07	<0.07	<0.07	<0.07				mg/kg	0.07	A-T-019s
Total PAH-16MS$_A^{M\#}$	0.56	<0.08	<0.08	<0.08				mg/kg	0.01	A-T-019s

Envirolab Job Number: 25/08145

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08145/1	25/08145/2	25/08145/3	25/08145/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH301	BH301	BH301	BH301						
Depth to Top	3.50	5.00	6.00	12.50						
Depth To Bottom										
Date Sampled	23-Jul-25	24-Jul-25	24-Jul-25	24-Jul-25						
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES						
Sample Matrix Code	4A	4A	5A	1A						
SVOC excluding PAH-16										
4-Bromophenyl phenyl ether$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Hexachlorobenzene$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Diethyl phthalate$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Dimethyl phthalate$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Dibenzofuran$_A$	222	<100	<100	<100				µg/kg	100	A-T-052s
Carbazole$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Butylbenzyl phthalate$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Bis(2-ethylhexyl)phthalate$_A$	<500	<500	2930	<500				µg/kg	500	A-T-052s
Bis(2-chloroethoxy)methane$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Bis(2-chloroethyl)ether$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
4-Nitrophenol$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
3+4-Methylphenol$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
4-Chloro-3-methylphenol$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
2-Nitrophenol$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
2-Methylphenol$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
1,2,4-Trichlorobenzene$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
2-Chlorophenol$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
2,6-Dinitrotoluene$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
2,4-Dinitrotoluene$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
2,4-Dimethylphenol$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
2,4-Dichlorophenol$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
2,4,6-Trichlorophenol$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
2,4,5-Trichlorophenol$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
1,4-Dichlorobenzene$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
1,3-Dichlorobenzene$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
1,2-Dichlorobenzene$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
2-Chloronaphthalene$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
2-Methylnaphthalene$_A$	1310	<100	<100	<100				µg/kg	100	A-T-052s
Bis(2-chloroisopropyl)ether$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Phenol$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Pentachlorophenol$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
n-Nitroso-n-dipropylamine$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s

Envirolab Job Number: 25/08145

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08145/1	25/08145/2	25/08145/3	25/08145/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH301	BH301	BH301	BH301						
Depth to Top	3.50	5.00	6.00	12.50						
Depth To Bottom										
Date Sampled	23-Jul-25	24-Jul-25	24-Jul-25	24-Jul-25						
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES						
Sample Matrix Code	4A	4A	5A	1A						
n-Dioctylphthalate$_A$	<500	<500	<500	<500				µg/kg	500	A-T-052s
n-Dibutylphthalate$_A$	<100	121	203	123				µg/kg	100	A-T-052s
Nitrobenzene$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Isophorone$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Hexachloroethane$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Hexachlorobutadiene$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s
Perylene$_A$	<100	<100	<100	<100				µg/kg	100	A-T-052s

Envirolab Job Number: 25/08145

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08145/1	25/08145/2	25/08145/3	25/08145/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH301	BH301	BH301	BH301						
Depth to Top	3.50	5.00	6.00	12.50						
Depth To Bottom										
Date Sampled	23-Jul-25	24-Jul-25	24-Jul-25	24-Jul-25						
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES						
Sample Matrix Code	4A	4A	5A	1A						
VOC excl. BTEX										
Dichlorodifluoromethane$_{A}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
Chloromethane$_{A}$	<10	<10	<250	<10				µg/kg	10	A-T-006s
Vinyl Chloride (Chloroethene)$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
Bromomethane$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
Chloroethane$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
Trichlorofluoromethane$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
1,1-Dichloroethene$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
Carbon Disulphide$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
Dichloromethane$_{A}$	<5	<5	<125	<5				µg/kg	5	A-T-006s
trans 1,2-Dichloroethene$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
1,1-Dichloroethane$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
cis 1,2-Dichloroethene$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
2,2-Dichloropropane$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
Bromochloromethane$_{A}^{\#}$	<5	<5	<125	<5				µg/kg	5	A-T-006s
Chloroform$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
1,1,1-Trichloroethane$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
1,1-Dichloropropene$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
Carbon Tetrachloride$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
1,2-Dichloroethane$_{A}^{\#}$	<2	<2	<50	<2				µg/kg	2	A-T-006s
Trichloroethene$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
1,2-Dichloropropane$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
Dibromomethane$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
Bromodichloromethane$_{A}^{\#}$	<10	<10	<250	<10				µg/kg	10	A-T-006s
cis 1,3-Dichloropropene$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
trans 1,3-Dichloropropene$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
1,1,2-Trichloroethane$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
1,3-Dichloropropane$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
Tetrachloroethene$_{A}^{\#}$	<1	<1	<25^{U}	<1				µg/kg	1	A-T-006s
Dibromochloromethane$_{A}^{\#}$	<3	<3	<75	<3				µg/kg	3	A-T-006s
1,2-Dibromoethane$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
Chlorobenzene$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
1,1,1,2-Tetrachloroethane$_{A}$	<1	<1	<25	<1				µg/kg	1	A-T-006s

Envirolab Job Number: 25/08145

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08145/1	25/08145/2	25/08145/3	25/08145/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH301	BH301	BH301	BH301						
Depth to Top	3.50	5.00	6.00	12.50						
Depth To Bottom										
Date Sampled	23-Jul-25	24-Jul-25	24-Jul-25	24-Jul-25						
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES						
Sample Matrix Code	4A	4A	5A	1A						
Styrene$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
Bromoform$_{A}^{\#}$	<3	<3	<75	<3				µg/kg	3	A-T-006s
Isopropylbenzene$_{A}^{\#}$	19	<1	<25	<1				µg/kg	1	A-T-006s
1,1,2,2-Tetrachloroethane$_{A}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
1,2,3-Trichloropropane$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
Bromobenzene$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
n-Propylbenzene$_{A}^{\#}$	30	<1	<25	<1				µg/kg	1	A-T-006s
2-Chlorotoluene$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
1,3,5-Trimethylbenzene$_{A}^{\#}$	1	<1	<25	<1				µg/kg	1	A-T-006s
4-Chlorotoluene$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
tert-Butylbenzene$_{A}^{\#}$	<2	<2	<50	<2				µg/kg	2	A-T-006s
1,2,4-Trimethylbenzene$_{A}^{\#}$	29	<1	<25	<1				µg/kg	1	A-T-006s
sec-Butylbenzene$_{A}^{\#}$	<39	<1	<25	<1				µg/kg	1	A-T-006s
4-Isopropyltoluene$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
1,3-Dichlorobenzene$_{A}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
1,4-Dichlorobenzene$_{A}^{\#}$	<1	<1	<25^{U}	<1				µg/kg	1	A-T-006s
n-Butylbenzene$_{A}^{\#}$	<44	<1	<25	<1				µg/kg	1	A-T-006s
1,2-Dichlorobenzene$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
1,2-Dibromo-3-chloropropane (DCBP)$_{A}$	<2	<2	<50	<2				µg/kg	2	A-T-006s
1,2,4-Trichlorobenzene$_{A}$	<3	<3	<75	<3				µg/kg	3	A-T-006s
Hexachlorobutadiene$_{A}^{\#}$	<1	<1	<25	<1				µg/kg	1	A-T-006s
1,2,3-Trichlorobenzene$_{A}$	<3	<3	<75	<3				µg/kg	3	A-T-006s

Envirolab Job Number: 25/08145

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08145/1	25/08145/2	25/08145/3	25/08145/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH301	BH301	BH301	BH301						
Depth to Top	3.50	5.00	6.00	12.50						
Depth To Bottom										
Date Sampled	23-Jul-25	24-Jul-25	24-Jul-25	24-Jul-25						
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES						
Sample Matrix Code	4A	4A	5A	1A						
TPH CWG with Clean Up										
Ali >C5-C6$_A$	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
Ali >C6-C8$_A$	0.12	0.02	<0.01	<0.01				mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$	12	<1	<1	<1				mg/kg	1	A-T-055s
Ali >C10-C12$_A^{M\#}$	55	<1	<1	<1				mg/kg	1	A-T-055s
Ali >C12-C16$_A^{M\#}$	244	<1	5	<1				mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	205	<1	5	<1				mg/kg	1	A-T-055s
Ali >C21-C35$_A^{M\#}$	42	2	6	<1				mg/kg	1	A-T-055s
Total Aliphatics$_A$	557	2	16	<1				mg/kg	1	Calc-As Recd
Aro >C5-C7$_A^{\#}$	0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$	7	<1	2	<1				mg/kg	1	A-T-055s
Aro >C10-C12$_A$	41	<1	2	<1				mg/kg	1	A-T-055s
Aro >C12-C16$_A$	199	<1	8	<1				mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	107	<1	6	<1				mg/kg	1	A-T-055s
Aro >C21-C35$_A^{M\#}$	27	1	8	<1				mg/kg	1	A-T-055s
Total Aromatics$_A$	380	1	28	<1				mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C35)$_A$	937	3	44	<1				mg/kg	1	Calc-As Recd
BTEX - Benzene$_A^{\#}$	0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s

Report Notes

General

•This report shall not be reproduced, except in full, without written approval from Envirolab.
•The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client and can affect the validity of results.
•The results reported herein relate only to the material supplied to the laboratory.
•The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **four weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
•Analytical results reflect the quality of the sample at the time of analysis only.
•Opinions and Interpretations expressed are outside our scope of accreditation.
•A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
•If a sample is outside of the calibration range or affected by interferences then it may need diluting. This will result in the limit of detection (LOD) being raised.
•Subcontracted Analysis: Please see the appended report for any deviations, current LODs and accreditation status of the test.

Key

Superscript "#"	Accredited to ISO 17025
Superscript "M"	Accredited to MCertS
Superscript "U"	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript "A"	Analysis performed on as-received Sample
Subscript "D"	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript "D" on Asbestos	Analysis performed on a dried aliquot of sample provided.
Subscript "^"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
Trace	Asbestos found not suitable for Gravimetric Quantification – not enough to accurately weigh.
N/A	Not applicable

Asbestos

Identification: Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis
"Trace Asbestos Identified" will be reported if there is not enough present to verify the type.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs
Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.					

Soil Chemical Analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH by method A-T-007:
For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:
EPH CWG results have humics mathematically subtracted through instrument calculation.
Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:
Results greater than 12900µS/cm @ 25^0C / 11550µS/cm @ 20^0C fall outside the calibration range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Hattersley Science & Technology Park, Stockport Road, Hattersley, SK14 3QU
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Westlakes Engineering Ltd, Unit 2.1, 20 Dale Street, Manchester, Greater Manchester , UK, M1 1EZ

Project: Parrs Wood

Clients Project No: 2333

Project No: 25/08145

Date Received: 28/07/2025 (am)

Cool Box Temperatures (°C): 16.7

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	25/08145/1	25/08145/2	25/08145/3	25/08145/4
Client Sample No				
Client Sample ID/Depth	BH301 3.50m	BH301 5.00m	BH301 6.00m	BH301 12.50m
Date Sampled	23/07/25	24/07/25	24/07/25	24/07/25
A-T-006s	04/08/2025	04/08/2025	06/08/2025	04/08/2025
A-T-019s	04/08/2025	04/08/2025	04/08/2025	04/08/2025
A-T-022s	06/08/2025	06/08/2025	06/08/2025	06/08/2025
A-T-024s	11/08/2025	11/08/2025	11/08/2025	11/08/2025
A-T-031s	08/08/2025	08/08/2025	08/08/2025	08/08/2025
A-T-032s	12/08/2025	12/08/2025	12/08/2025	12/08/2025
A-T-044	07/08/2025	07/08/2025	07/08/2025	07/08/2025
A-T-045	29/07/2025			
A-T-052s	06/08/2025	06/08/2025	06/08/2025	06/08/2025
A-T-055s	12/08/2025	08/08/2025	08/08/2025	08/08/2025
Calc-As Recd	12/08/2025	08/08/2025	08/08/2025	08/08/2025

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

envirolab
Hattersley Science & Technology Park
Stockport Road, Hattersley, SK14 3QU

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 25/08348
Issue Number: 1 **Date:** 19 August, 2025

Client: Westlakes Engineering Ltd
Unit 2.1, 20 Dale Street
Manchester
Greater Manchester
UK
M1 1EZ

Project Manager: (use) Tommy Walker/Helen Brown/John Taylor
Project Name: Parrs Wood
Project Ref: 2333
Order No: 2025_181
Date Samples Received: 30/07/25
Date Instructions Received: 31/07/25
Date Analysis Completed: 19/08/25

Approved by:



Gemma Berrisford
Deputy Client Services Supervisor

Envirolab Job Number: 25/08348

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08348/1	25/08348/2	25/08348/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH302	BH302	BH302							
Depth to Top	3.20	4.50	12.00							
Depth To Bottom										
Date Sampled	28-Jul-25	28-Jul-25	29-Jul-25							
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES							
Sample Matrix Code	4AC	3	1A							
% Stones >10mm$_A$	13.1	<0.1	<0.1					% w/w	0.1	A-T-044
pH$_D$$^{M\#}$	7.90	6.40	8.72					pH	0.01	A-T-031s
Organic Matter$_D$$^{M\#}$	0.17	1.00	0.34					% w/w	0.14	A-T-032s
Arsenic$_D$$^{M\#}$	2	<1	1					mg/kg	1	A-T-024s
Cadmium$_D$	<1.0	<1.0	<1.0					mg/kg	1	A-T-024s
Copper$_D$$^{M\#}$	4	15	3					mg/kg	1	A-T-024s
Chromium$_D$$^{M\#}$	8	15	6					mg/kg	1	A-T-024s
Lead$_D$$^{M\#}$	3	7	2					mg/kg	1	A-T-024s
Mercury$_D$	<0.17	<0.17	<0.17					mg/kg	0.17	A-T-024s
Nickel$_D$$^{M\#}$	10	21	6					mg/kg	1	A-T-024s
Selenium$_D$$^{M\#}$	<1	<1	<1					mg/kg	1	A-T-024s
Zinc$_D$$^{M\#}$	17	36	17					mg/kg	1	A-T-024s

Envirolab Job Number: 25/08348

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08348/1	25/08348/2	25/08348/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH302	BH302	BH302							
Depth to Top	3.20	4.50	12.00							
Depth To Bottom										
Date Sampled	28-Jul-25	28-Jul-25	29-Jul-25							
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES							
Sample Matrix Code	4AC	3	1A							
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	NAD	-	-							A-T-045
Asbestos Matrix (visual)$_{D}$	-	-	-							A-T-045
Asbestos Matrix (microscope)$_{D}$	-	-	-							A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	-	-							A-T-045

Envirolab Job Number: 25/08348

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08348/1	25/08348/2	25/08348/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH302	BH302	BH302							
Depth to Top	3.20	4.50	12.00							
Depth To Bottom										
Date Sampled	28-Jul-25	28-Jul-25	29-Jul-25							
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES							
Sample Matrix Code	4AC	3	1A							
PAH-16MS										
Acenaphthene$_A^{M\#}$	0.06	<0.16	<0.01					mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.04	<0.04	<0.01					mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	<0.03	<0.02	<0.02					mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	<0.04	<0.04	<0.04					mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	<0.04	<0.04	<0.04					mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	<0.05	<0.05	<0.05					mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	<0.05	<0.05	<0.05					mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.07	<0.07	<0.07					mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	<0.06	<0.06	<0.06					mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.04	<0.04	<0.04					mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	<0.08	<0.08	<0.08					mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	0.18	0.29	<0.01					mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	<0.03	<0.03	<0.03					mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	<0.05	2.47	<0.03					mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	0.33	0.46	<0.03					mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	<0.07	<0.07	<0.07					mg/kg	0.07	A-T-019s
Total PAH-16MS$_A^{M\#}$	0.57	3.22	<0.08					mg/kg	0.01	A-T-019s

Envirolab Job Number: 25/08348

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08348/1	25/08348/2	25/08348/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH302	BH302	BH302							
Depth to Top	3.20	4.50	12.00							
Depth To Bottom										
Date Sampled	28-Jul-25	28-Jul-25	29-Jul-25							
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES							
Sample Matrix Code	4AC	3	1A							
SVOC excluding PAH-16										
4-Bromophenyl phenyl ether$_A$	<100	<100	<100					µg/kg	100	A-T-052s
Hexachlorobenzene$_A$	<100	<100	<100					µg/kg	100	A-T-052s
Diethyl phthalate$_A$	<100	<100	<100					µg/kg	100	A-T-052s
Dimethyl phthalate$_A$	<100	<100	<100					µg/kg	100	A-T-052s
Dibenzofuran$_A$	<100	352	<100					µg/kg	100	A-T-052s
Carbazole$_A$	<100	439	<100					µg/kg	100	A-T-052s
Butylbenzyl phthalate$_A$	<100	<100	<100					µg/kg	100	A-T-052s
Bis(2-ethylhexyl)phthalate$_A$	<500	<500	<500					µg/kg	500	A-T-052s
Bis(2-chloroethoxy)methane$_A$	<100	<100	<100					µg/kg	100	A-T-052s
Bis(2-chloroethyl)ether$_A$	<100	<100	<100					µg/kg	100	A-T-052s
4-Nitrophenol$_A$	<100	<100	<100					µg/kg	100	A-T-052s
3+4-Methylphenol$_A$	<100	<100	<100					µg/kg	100	A-T-052s
4-Chloro-3-methylphenol$_A$	<100	<100	<100					µg/kg	100	A-T-052s
2-Nitrophenol$_A$	<100	<100	<100					µg/kg	100	A-T-052s
2-Methylphenol$_A$	<100	<100	<100					µg/kg	100	A-T-052s
1,2,4-Trichlorobenzene$_A$	<100	<100	<100					µg/kg	100	A-T-052s
2-Chlorophenol$_A$	<100	<100	<100					µg/kg	100	A-T-052s
2,6-Dinitrotoluene$_A$	<100	<100	<100					µg/kg	100	A-T-052s
2,4-Dinitrotoluene$_A$	<100	1250	<100					µg/kg	100	A-T-052s
2,4-Dimethylphenol$_A$	<100	<100	<100					µg/kg	100	A-T-052s
2,4-Dichlorophenol$_A$	<100	<100	<100					µg/kg	100	A-T-052s
2,4,6-Trichlorophenol$_A$	<100	<100	<100					µg/kg	100	A-T-052s
2,4,5-Trichlorophenol$_A$	<100	<100	<100					µg/kg	100	A-T-052s
1,4-Dichlorobenzene$_A$	<100	<100	<100					µg/kg	100	A-T-052s
1,3-Dichlorobenzene$_A$	<100	<100	<100					µg/kg	100	A-T-052s
1,2-Dichlorobenzene$_A$	<100	<100	<100					µg/kg	100	A-T-052s
2-Chloronaphthalene$_A$	<100	<100	<100					µg/kg	100	A-T-052s
2-Methylnaphthalene$_A$	216	11900	135					µg/kg	100	A-T-052s
Bis(2-chloroisopropyl)ether$_A$	<100	<100	<100					µg/kg	100	A-T-052s
Phenol$_A$	<100	<100	<100					µg/kg	100	A-T-052s
Pentachlorophenol$_A$	<100	<100	<100					µg/kg	100	A-T-052s
n-Nitroso-n-dipropylamine$_A$	<100	<100	<100					µg/kg	100	A-T-052s

Envirolab Job Number: 25/08348

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08348/1	25/08348/2	25/08348/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH302	BH302	BH302							
Depth to Top	3.20	4.50	12.00							
Depth To Bottom										
Date Sampled	28-Jul-25	28-Jul-25	29-Jul-25							
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES							
Sample Matrix Code	4AC	3	1A							
n-Dioctylphthalate$_A$	<500	<500	<500					µg/kg	500	A-T-052s
n-Dibutylphthalate$_A$	<100	160	163					µg/kg	100	A-T-052s
Nitrobenzene$_A$	<100	<100	<100					µg/kg	100	A-T-052s
Isophorone$_A$	<100	<100	<100					µg/kg	100	A-T-052s
Hexachloroethane$_A$	<100	<100	<100					µg/kg	100	A-T-052s
Hexachlorobutadiene$_A$	<100	<100	<100					µg/kg	100	A-T-052s
Perylene$_A$	<100	<100	<100					µg/kg	100	A-T-052s

Envirolab Job Number: 25/08348

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08348/1	25/08348/2	25/08348/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH302	BH302	BH302							
Depth to Top	3.20	4.50	12.00							
Depth To Bottom										
Date Sampled	28-Jul-25	28-Jul-25	29-Jul-25							
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES							
Sample Matrix Code	4AC	3	1A							
VOC excl. BTEX										
Dichlorodifluoromethane$_{A}$	<1	<25	<1					µg/kg	1	A-T-006s
Chloromethane$_{A}$	<10	<250	<10					µg/kg	10	A-T-006s
Vinyl Chloride (Chloroethene)$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
Bromomethane$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
Chloroethane$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
Trichlorofluoromethane$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
1,1-Dichloroethene$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
Carbon Disulphide$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
Dichloromethane$_{A}$	<5	<125	<5					µg/kg	5	A-T-006s
trans 1,2-Dichloroethene$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
1,1-Dichloroethane$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
cis 1,2-Dichloroethene$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
2,2-Dichloropropane$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
Bromochloromethane$_{A}^{\#}$	<5	<125	<5					µg/kg	5	A-T-006s
Chloroform$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
1,1,1-Trichloroethane$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
1,1-Dichloropropene$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
Carbon Tetrachloride$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
1,2-Dichloroethane$_{A}^{\#}$	<2	<50	<2					µg/kg	2	A-T-006s
Trichloroethene$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
1,2-Dichloropropane$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
Dibromomethane$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
Bromodichloromethane$_{A}^{\#}$	<10	<250	<10					µg/kg	10	A-T-006s
cis 1,3-Dichloropropene$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
trans 1,3-Dichloropropene$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
1,1,2-Trichloroethane$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
1,3-Dichloropropane$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
Tetrachloroethene$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
Dibromochloromethane$_{A}^{\#}$	<3	<75	<3					µg/kg	3	A-T-006s
1,2-Dibromoethane$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
Chlorobenzene$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
1,1,1,2-Tetrachloroethane$_{A}$	<1	<25	<1					µg/kg	1	A-T-006s

Envirolab Job Number: 25/08348

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08348/1	25/08348/2	25/08348/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH302	BH302	BH302							
Depth to Top	3.20	4.50	12.00							
Depth To Bottom										
Date Sampled	28-Jul-25	28-Jul-25	29-Jul-25							
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES							
Sample Matrix Code	4AC	3	1A							
Styrene$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
Bromoform$_{A}^{\#}$	<3	<75	<3					µg/kg	3	A-T-006s
Isopropylbenzene$_{A}^{\#}$	15	98	<1					µg/kg	1	A-T-006s
1,1,2,2-Tetrachloroethane$_{A}$	<1	<25	<1					µg/kg	1	A-T-006s
1,2,3-Trichloropropane$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
Bromobenzene$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
n-Propylbenzene$_{A}^{\#}$	25	128	<1					µg/kg	1	A-T-006s
2-Chlorotoluene$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
1,3,5-Trimethylbenzene$_{A}^{\#}$	<1	137	<1					µg/kg	1	A-T-006s
4-Chlorotoluene$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
tert-Butylbenzene$_{A}^{\#}$	<2	<50	<2					µg/kg	2	A-T-006s
1,2,4-Trimethylbenzene$_{A}^{\#}$	<1	525	<1					µg/kg	1	A-T-006s
sec-Butylbenzene$_{A}^{\#}$	49	155	<1					µg/kg	1	A-T-006s
4-Isopropyltoluene$_{A}^{\#}$	<1	96	<1					µg/kg	1	A-T-006s
1,3-Dichlorobenzene$_{A}$	<1	<25	<1					µg/kg	1	A-T-006s
1,4-Dichlorobenzene$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
n-Butylbenzene$_{A}^{\#}$	42	<144	<1					µg/kg	1	A-T-006s
1,2-Dichlorobenzene$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
1,2-Dibromo-3-chloropropane (DCBP)$_{A}$	<2	<50	<2					µg/kg	2	A-T-006s
1,2,4-Trichlorobenzene$_{A}$	<3	<75	<3					µg/kg	3	A-T-006s
Hexachlorobutadiene$_{A}^{\#}$	<1	<25	<1					µg/kg	1	A-T-006s
1,2,3-Trichlorobenzene$_{A}$	<3	<75	<3					µg/kg	3	A-T-006s

Envirolab Job Number: 25/08348

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08348/1	25/08348/2	25/08348/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH302	BH302	BH302							
Depth to Top	3.20	4.50	12.00							
Depth To Bottom										
Date Sampled	28-Jul-25	28-Jul-25	29-Jul-25							
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES							
Sample Matrix Code	4AC	3	1A							
TPH CWG with Clean Up										
Ali >C5-C6$_A$	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Ali >C6-C8$_A$	0.06	0.33	<0.01					mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$	8	19	<1					mg/kg	1	A-T-055s
Ali >C10-C12$_A^{M\#}$	30	89	<1					mg/kg	1	A-T-055s
Ali >C12-C16$_A^{M\#}$	134	319	<1					mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	96	213	<1					mg/kg	1	A-T-055s
Ali >C21-C35$_A^{M\#}$	11	27	<1					mg/kg	1	A-T-055s
Total Aliphatics$_A$	278	668	<1					mg/kg	1	Calc-As Recd
Aro >C5-C7$_A^{\#}$	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$	2	26	<1					mg/kg	1	A-T-055s
Aro >C10-C12$_A$	19	88	<1					mg/kg	1	A-T-055s
Aro >C12-C16$_A$	98	281	<1					mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	41	80	<1					mg/kg	1	A-T-055s
Aro >C21-C35$_A^{M\#}$	7	16	<1					mg/kg	1	A-T-055s
Total Aromatics$_A$	167	490	<1					mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C35)$_A$	444	1160	<1					mg/kg	1	Calc-As Recd
BTEX - Benzene$_A^{\#}$	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	<0.01	0.15	<0.01					mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	<0.01	0.11	<0.01					mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	<0.01	0.02	<0.01					mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s

Envirolab Job Number: 25/08348

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08348/1	25/08348/2	25/08348/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH302	BH302	BH302							
Depth to Top	3.20	4.50	12.00							
Depth To Bottom										
Date Sampled	28-Jul-25	28-Jul-25	29-Jul-25							
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES							
Sample Matrix Code	4AC	3	1A							
Leachate Prep BS EN 12457-2 (10:1) A	*	*	*							A-T-001
pH (leachable)A	-	-	8.35					pH	0.01	A-T-031w
Arsenic (leachable)A	1	<1	1					µg/l	1	A-T-025w
Cadmium (leachable)A	<1	<1	<1					µg/l	1	A-T-025w
Copper (leachable)A	<4	9	<4					µg/l	4	A-T-025w
Chromium (leachable)A	<1	<1	<1					µg/l	1	A-T-025w
Lead (leachable)A	1	3	<1					µg/l	1	A-T-025w
Mercury (leachable)A	<0.1	<0.1	<0.1					µg/l	0.1	A-T-025w
Nickel (leachable)A	<2	3	<2					µg/l	2	A-T-025w
Selenium (leachable)A	<1	<1	<1					µg/l	1	A-T-025w
Zinc (leachable)A	3	13	3					µg/l	2	A-T-025w

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Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08348/1	25/08348/2	25/08348/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH302	BH302	BH302							
Depth to Top	3.20	4.50	12.00							
Depth To Bottom										
Date Sampled	28-Jul-25	28-Jul-25	29-Jul-25							
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES							
Sample Matrix Code	4AC	3	1A							
PAH 16MS (leachable)										
Acenaphthene (leachable)$_A$	0.09	<0.02	<0.02					µg/l	0.02	A-T-019w
Acenaphthylene (leachable)$_A$	<0.02	<0.02	<0.02					µg/l	0.02	A-T-019w
Anthracene (leachable)$_A$	<0.02	<0.02	<0.02					µg/l	0.02	A-T-019w
Benzo(a)anthracene (leachable)$_A$	<0.02	<0.02	<0.02					µg/l	0.02	A-T-019w
Benzo(a)pyrene (leachable) $_A$	<0.02	<0.02	<0.02					µg/l	0.02	A-T-019w
Benzo(b)fluoranthene (leachable)$_A$	<0.02	<0.02	<0.02					µg/l	0.02	A-T-019w
Benzo(ghi)perylene (leachable)$_A$	<0.02	<0.02	<0.02					µg/l	0.02	A-T-019w
Benzo(k)fluoranthene (leachable)$_A$	<0.02	<0.02	<0.02					µg/l	0.02	A-T-019w
Chrysene (leachable)$_A$	<0.02	<0.02	<0.02					µg/l	0.02	A-T-019w
Dibenzo(ah)anthracene (leachable)$_A$	<0.02	<0.02	<0.02					µg/l	0.02	A-T-019w
Fluoranthene (leachable)$_A$	<0.02	<0.02	<0.02					µg/l	0.02	A-T-019w
Fluorene (leachable)$_A$	0.04	<0.02	<0.02					µg/l	0.02	A-T-019w
Indeno(123-cd)pyrene (leachable)$_A$	<0.02	<0.02	<0.02					µg/l	0.02	A-T-019w
Naphthalene (leachable) $_A$	0.02	<0.02	0.05					µg/l	0.02	A-T-019w
Phenanthrene (leachable)$_A$	<0.02	<0.02	<0.02					µg/l	0.02	A-T-019w
Pyrene (leachable)$_A$	<0.02	<0.02	<0.02					µg/l	0.02	A-T-019w
Total PAH 16MS (leachable)$_A$	0.15	<0.02	0.05					µg/l	0.02	A-T-019w

Envirolab Job Number: 25/08348

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08348/1	25/08348/2	25/08348/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH302	BH302	BH302							
Depth to Top	3.20	4.50	12.00							
Depth To Bottom										
Date Sampled	28-Jul-25	28-Jul-25	29-Jul-25							
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES							
Sample Matrix Code	4AC	3	1A							
SVOC excluding PAH-16 (leachable)										
1,2,4-Trichlorobenzene SVOC (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
1,2-Dichlorobenzene SVOC (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
1,3-Dichlorobenzene SVOC (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
1,4-Dichlorobenzene SVOC (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
2,4,5-Trichlorophenol (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
2,4,6-Trichlorophenol (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
2,4-Dichlorophenol (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
2,4-Dimethylphenol (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
2,4-Dinitrotoluene (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
2,6-Dinitrotoluene (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
2-Chloronaphthalene (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
2-Chlorophenol (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
2-Methylnaphthalene (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
2-Methylphenol (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
2-Nitrophenol (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
4-Bromophenyl phenyl ether (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
4-Chloro-3-methylphenol (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
3+4-Methylphenol (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
4-Nitrophenol (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
Bis(2-chloroethoxy)methane (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
Bis(2-chloroethyl)ether (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
Bis(2-chloroisopropyl)ether (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
Bis(2-ethylhexyl)phthalate (leachable)$_A$	-	-	<4					µg/l	4	A-T-052w
Butylbenzyl phthalate (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
Carbazole (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
Dibenzofuran (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
Diethyl phthalate (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
Dimethyl phthalate (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
n-Dibutylphthalate (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
n-Dioctylphthalate (leachable)$_A$	-	-	<10					µg/l	10	A-T-052w
Hexachlorobenzene (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
Hexachlorobutadiene (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w

Envirolab Job Number: 25/08348 **Client Project Name: Parrs Wood**

Client Project Ref: 2333

Lab Sample ID	25/08348/1	25/08348/2	25/08348/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH302	BH302	BH302							
Depth to Top	3.20	4.50	12.00							
Depth To Bottom										
Date Sampled	28-Jul-25	28-Jul-25	29-Jul-25							
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES							
Sample Matrix Code	4AC	3	1A							
Hexachloroethane (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
Isophorone (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
Nitrobenzene (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
n-Nitroso-n-dipropylamine (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
Pentachlorophenol (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
Perylene (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w
Phenol (leachable)$_A$	-	-	<2					µg/l	2	A-T-052w

Envirolab Job Number: 25/08348

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08348/1	25/08348/2	25/08348/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH302	BH302	BH302							
Depth to Top	3.20	4.50	12.00							
Depth To Bottom										
Date Sampled	28-Jul-25	28-Jul-25	29-Jul-25							
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES							
Sample Matrix Code	4AC	3	1A							
VOC excl. BTEX (leachable)										
Dibromochloromethane (leachable)$_A$	-	-	<3					µg/l	3	A-T-006w
Dibromomethane (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
Dichlorodifluoromethane (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
Dichloromethane (leachable)$_A$	-	-	<5					µg/l	5	A-T-006w
Hexachlorobutadiene (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
Isopropylbenzene (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
n-butylbenzene (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
n-propylbenzene (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
sec-Butylbenzene (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
Styrene (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
tert-Butylbenzene (leachable)$_A$	-	-	<2					µg/l	2	A-T-006w
Tetrachloroethene (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
trans 1,2-Dichloroethene (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
trans 1,3-Dichloropropene (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
Trichloroethene (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
Trichlorofluoromethane (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
Vinyl Chloride (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
1,1,1,2-Tetrachloroethane (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
1,1,1-Trichloroethane (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
1,1,2,2-Tetrachloroethane (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
1,1,2-Trichloroethane (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
1,1-Dichloroethane (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
1,1-Dichloroethene (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
1,1-Dichloropropene (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
1,2,3-Trichlorobenzene (leachable)$_A$	-	-	<3					µg/l	3	A-T-006w
1,2,3-Trichloropropane (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
1,2,4-Trichlorobenzene (leachable)$_A$	-	-	<3					µg/l	3	A-T-006w
1,2,4-Trimethylbenzene (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
1,2-Dibromo-3-chloropropane (leachable)$_A$	-	-	<2					µg/l	2	A-T-006w
1,2-Dibromoethane (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
1,2-Dichlorobenzene (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
1,2-Dichloroethane (leachable)$_A$	-	-	<2					µg/l	2	A-T-006w

Envirolab Job Number: 25/08348

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08348/1	25/08348/2	25/08348/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH302	BH302	BH302							
Depth to Top	3.20	4.50	12.00							
Depth To Bottom										
Date Sampled	28-Jul-25	28-Jul-25	29-Jul-25							
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES							
Sample Matrix Code	4AC	3	1A							
1,2-Dichloropropane (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
1,3,5-Trimethylbenzene (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
1,3-Dichlorobenzene (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
1,3-Dichloropropane (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
1,4-Dichlorobenzene (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
2,2-Dichloropropane (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
2-Chlorotoluene (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
4-Chlorotoluene (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
4-Isopropyltoluene (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
Bromobenzene (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
Bromochloromethane (leachable)$_A$	-	-	<5					µg/l	5	A-T-006w
Bromodichloromethane (leachable)$_A$	-	-	<10					µg/l	10	A-T-006w
Bromoform (leachable)$_A$	-	-	<3					µg/l	3	A-T-006w
Bromomethane (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
Carbon Disulphide (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
Carbon Tetrachloride (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
Chlorobenzene (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
Chloroethane (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
Chloroform (leachable) $_A$	-	-	<1					µg/l	1	A-T-006w
Chloromethane (leachable)$_A$	-	-	<10					µg/l	10	A-T-006w
cis 1,2-Dichloroethene (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w
cis 1,3-Dichloropropene (leachable)$_A$	-	-	<1					µg/l	1	A-T-006w

Envirolab Job Number: 25/08348

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/08348/1	25/08348/2	25/08348/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH302	BH302	BH302							
Depth to Top	3.20	4.50	12.00							
Depth To Bottom										
Date Sampled	28-Jul-25	28-Jul-25	29-Jul-25							
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES							
Sample Matrix Code	4AC	3	1A							
TPH CWG (leachable) with Clean Up										
Ali >C5-C6 (leachable)$_A$	<1	<1	<1					µg/l	1	A-T-022w
Ali >C6-C8 (leachable)$_A$	<1	<1	<1					µg/l	1	A-T-022w
Ali >C8-C10 (leachable)$_A$	<10	<10	<10					µg/l	10	A-T-055w
Ali >C10-C12 (leachable)$_A$	<10	<10	<10					µg/l	10	A-T-055w
Ali >C12-C16 (leachable)$_A$	<10	<10	<10					µg/l	10	A-T-055w
Ali >C16-C21 (leachable)$_A$	<10	<10	<10					µg/l	10	A-T-055w
Ali >C21-C35 (leachable)$_A$	<20	<20	<20					µg/l	20	A-T-055w
Total Aliphatics (leachable)$_A$	<20	<20	<20					µg/l	10	Calc-As Recd
Aro >C5-C7 (leachable)$_A$	<1	<1	<1					µg/l	1	A-T-022w
Aro >C7-C8 (leachable)$_A$	<1	<1	<1					µg/l	1	A-T-022w
Aro >C8-C10 (leachable)$_A$	<10	<10	<10					µg/l	10	A-T-055w
Aro >C10-C12 (leachable)$_A$	44	<10	<10					µg/l	10	A-T-055w
Aro >C12-C16 (leachable)$_A$	145	10	<10					µg/l	10	A-T-055w
Aro >C16-C21 (leachable)$_A$	66	13	<10					µg/l	10	A-T-055w
Aro >C21-C35 (leachable)$_A$	<20	<20	<20					µg/l	20	A-T-055w
Total Aromatics (leachable)$_A$	251	26	<20					µg/l	20	Calc-As Recd
TPH (Ali & Aro >C5-C35) (leachable)$_A$	251	26	<20					µg/l	20	Calc-As Recd
BTEX - Benzene (leachable)$_A$	<1	<1	<1					µg/l	1	A-T-022w
BTEX - Toluene (leachable)$_A$	<1	<1	<1					µg/l	1	A-T-022w
BTEX - Ethyl Benzene (leachable)$_A$	<1	<1	<1					µg/l	1	A-T-022w
BTEX - o Xylene (leachable)$_A$	<1	<1	<1					µg/l	1	A-T-022w
BTEX - m & p Xylene (leachable)$_A$	<1	<1	<1					µg/l	1	A-T-022w
MTBE (leachable)$_A$	<1	<1	<1					µg/l	1	A-T-022w

Report Notes

General

•This report shall not be reproduced, except in full, without written approval from Envirolab.
•The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client and can affect the validity of results.
•The results reported herein relate only to the material supplied to the laboratory.
•The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **four weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
•Analytical results reflect the quality of the sample at the time of analysis only.
•Opinions and Interpretations expressed are outside our scope of accreditation.
•A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
•If a sample is outside of the calibration range or affected by interferences then it may need diluting. This will result in the limit of detection (LOD) being raised.
•Subcontracted Analysis: Please see the appended report for any deviations, current LODs and accreditation status of the test.

Key

Superscript "#"	Accredited to ISO 17025
Superscript "M"	Accredited to MCertS
Superscript "U"	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript "A"	Analysis performed on as-received Sample
Subscript "D"	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript "D" on Asbestos	Analysis performed on a dried aliquot of sample provided.
Subscript "^"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
Trace	Asbestos found not suitable for Gravimetric Quantification – not enough to accurately weigh.
N/A	Not applicable

Asbestos

Identification: Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis
"Trace Asbestos Identified" will be reported if there is not enough present to verify the type.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs
Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.					

Soil Chemical Analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH by method A-T-007:
For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:
EPH CWG results have humics mathematically subtracted through instrument calculation.
Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:
Results greater than 12900µS/cm @ 25^0C / 11550µS/cm @ 20^0C fall outside the calibration range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Hattersley Science & Technology Park, Stockport Road, Hattersley, SK14 3QU
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Westlakes Engineering Ltd, Unit 2.1, 20 Dale Street, Manchester, Greater Manchester , UK, M1 1EZ

Project: Parrs Wood

Clients Project No: 2333

Project No: 25/08348

Date Received: 31/07/2025 (am)

Cool Box Temperatures (°C): 16.2 & 17.3

Lab Sample ID	25/08348/2
Client Sample No	
Client Sample ID/Depth	BH302 4.50m
Date Sampled	28/07/25
Deviation Code	
F	✓

Key
F *Maximum holding time exceeded between sampling date and analysis for analytes listed below*

HOLDING TIME EXCEEDANCES

Lab Sample ID	25/08348/2
Client Sample No	
Client Sample ID/Depth	BH302 4.50m
Date Sampled	28/07/25
VOC excl. BTEX	✓

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	25/08348/1	25/08348/2	25/08348/3
Client Sample No			
Client Sample ID/Depth	BH302 3.20m	BH302 4.50m	BH302 12.00m
Date Sampled	28/07/25	28/07/25	29/07/25
A-T-006s	13/08/2025	13/08/2025	13/08/2025
A-T-006w			07/08/2025
A-T-019s	07/08/2025	07/08/2025	07/08/2025
A-T-019w	12/08/2025	12/08/2025	07/08/2025
A-T-022s	08/08/2025	08/08/2025	08/08/2025
A-T-022w	19/08/2025	19/08/2025	07/08/2025
A-T-024s	13/08/2025	13/08/2025	13/08/2025
A-T-025w	13/08/2025	13/08/2025	08/08/2025
A-T-031s	13/08/2025	13/08/2025	13/08/2025
A-T-031w			06/08/2025
A-T-032s	14/08/2025	14/08/2025	14/08/2025
A-T-044	13/08/2025	13/08/2025	13/08/2025
A-T-045	01/08/2025		
A-T-052s	08/08/2025	08/08/2025	08/08/2025
A-T-052w			07/08/2025
A-T-055s	07/08/2025	08/08/2025	07/08/2025
A-T-055w	12/08/2025	12/08/2025	06/08/2025
Calc-As Recd	19/08/2025	19/08/2025	08/08/2025

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

envirolab
Hattersley Science & Technology Park
Stockport Road, Hattersley, SK14 3QU

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 25/09456
Issue Number: 1 **Date:** 12 September, 2025

Client: Westlakes Engineering Ltd
Unit 2.1, 20 Dale Street
Manchester
Greater Manchester
UK
M1 1EZ

Project Manager: John Taylor
Project Name: Parrs Wood
Project Ref: 2333
Order No: 2025_206
Date Samples Received: 27/08/25
Date Instructions Received: 28/08/25
Date Analysis Completed: 12/09/25

Approved by:



Richard Wong
Client Manager

UKAS TESTING
1247

Envirolab Job Number: 25/09456

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/09456/1	25/09456/2	25/09456/3	25/09456/4	25/09456/5	25/09456/6	25/09456/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH303 (s)	BH303 (d)	BH302 (s)	BH302 (d)	BH301 (s)	BH301 (d)	BH202			
Depth to Top	2.88	7.01	3.60	7.10	4.18	7.33	7.12			
Depth To Bottom										
Date Sampled	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25			
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
pH (w)$_{A}^{\#}$	6.39	7.04	6.50	6.63	6.44	7.05	7.35	pH	0.01	A-T-031w
Hardness Total$_{A}^{\#}$	186.7	579.2	745.7	326.4	314.2	383.9	374.3	mg/l Ca CO3	4	A-T-049w
DOC - Dissolved Organic Carbon (w)$_{A}^{\#}$	10.8	5.5	24.3	8.8	7.8	5.1	2.3	mg/l	2	A-T-032w
Arsenic (dissolved)$_{A}^{\#}$	8	10	13	3	37	3	5	µg/l	1	A-T-025w
Boron (dissolved)$_{A}^{\#}$	24	36	57	50	<50	53	59	µg/l	10	A-T-025w
Cadmium (dissolved)$_{A}^{\#}$	0.6	0.5	9.5	<0.2	2.8	<0.2	<0.2	µg/l	0.2	A-T-025w
Copper (dissolved)$_{A}^{\#}$	14	21	32	<4	53	<4	<4	µg/l	4	A-T-025w
Chromium (dissolved)$_{A}^{\#}$	6	9	44	2	11	2	<1	µg/l	1	A-T-025w
Chromium (hexavalent) (w)$_{A}^{\#}$	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/l	0.05	A-T-040w
Lead (dissolved)$_{A}^{\#}$	27.2	15.6	235	2.5	39.0	2.5	0.7	µg/l	0.1	A-T-025w
Mercury (dissolved)$_{A}^{\#}$	<0.1	<0.1	<0.5	<0.1	<0.5	<0.1	<0.1	µg/l	0.1	A-T-025w
Nickel (dissolved)$_{A}^{\#}$	5	18	39	6	25	4	2	µg/l	2	A-T-025w
Selenium (dissolved)$_{A}^{\#}$	1	3	14	<1	6	<1	<1	µg/l	1	A-T-025w
Zinc (dissolved)$_{A}^{\#}$	26	249	595	76	78	49	5	µg/l	2	A-T-025w

Envirolab Job Number: 25/09456

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/09456/1	25/09456/2	25/09456/3	25/09456/4	25/09456/5	25/09456/6	25/09456/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH303 (s)	BH303 (d)	BH302 (s)	BH302 (d)	BH301 (s)	BH301 (d)	BH202			
Depth to Top	2.88	7.01	3.60	7.10	4.18	7.33	7.12			
Depth To Bottom										
Date Sampled	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25			
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
PAH 16MS (w)										
Acenaphthene (w)$_A^{\#}$	113	1.01	15.6	2.35	29.1	<0.01	<0.01	µg/l	0.01	A-T-019w
Acenaphthylene (w)$_A^{\#}$	73.6	0.46	5.40	<1.00	15.4	<0.01	<0.01	µg/l	0.01	A-T-019w
Anthracene (w)$_A^{\#}$	19.2	0.17	2.92	<1.00	6.41	<0.01	<0.01	µg/l	0.01	A-T-019w
Benzo(a)anthracene (w)$_A^{\#}$	3.60	<0.01	1.68	<1.00	<1.00	<0.01	0.01	µg/l	0.01	A-T-019w
Benzo(a)pyrene (w)$_A^{\#}$	3.27	<0.01	<1.00	<1.00	<1.00	<0.01	0.01	µg/l	0.01	A-T-019w
Benzo(b)fluoranthene (w)$_A^{\#}$	3.70	<0.01	<1.00	<1.00	<1.00	<0.01	0.01	µg/l	0.01	A-T-019w
Benzo(ghi)perylene (w)$_A^{\#}$	2.57	<0.01	<1.00	<1.00	<1.00	<0.01	0.01	µg/l	0.01	A-T-019w
Benzo(k)fluoranthene (w)$_A^{\#}$	1.96	<0.01	<1.00	<1.00	<1.00	<0.01	0.01	µg/l	0.01	A-T-019w
Chrysene (w)$_A^{\#}$	7.96	0.02	2.34	<1.00	2.06	<0.01	0.02	µg/l	0.01	A-T-019w
Dibenzo(ah)anthracene (w)$_A^{\#}$	<1.00	<0.01	<1.00	<1.00	<1.00	<0.01	0.01	µg/l	0.01	A-T-019w
Fluoranthene (w)$_A^{\#}$	14.1	0.05	4.76	<1.00	2.13	<0.01	0.01	µg/l	0.01	A-T-019w
Fluorene (w)$_A^{\#}$	377	1.58	23.9	2.91	76.6	0.02	0.01	µg/l	0.01	A-T-019w
Indeno(123-cd)pyrene (w)$_A^{\#}$	2.24^{U}	<0.01	<1.00^{U}	<1.00^{U}	<1.00^{U}	<0.01^{U}	<0.01	µg/l	0.01	A-T-019w
Naphthalene (w)$_A^{\#}$	12.2	0.79	9.94	23.3	6.88	<0.01	<0.01	µg/l	0.01	A-T-019w
Phenanthrene (w)$_A^{\#}$	219	1.49	30.8	3.84	80	0.03	0.02	µg/l	0.01	A-T-019w
Pyrene (w)$_A^{\#}$	15.5	0.14	7.90	<1.00	5.17	<0.01	0.01	µg/l	0.01	A-T-019w
Total PAH 16MS (w)$_A^{\#}$	869	5.71	105	32.4	224	0.05	0.13	µg/l	0.01	A-T-019w

Envirolab Job Number: 25/09456

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/09456/1	25/09456/2	25/09456/3	25/09456/4	25/09456/5	25/09456/6	25/09456/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH303 (s)	BH303 (d)	BH302 (s)	BH302 (d)	BH301 (s)	BH301 (d)	BH202			
Depth to Top	2.88	7.01	3.60	7.10	4.18	7.33	7.12			
Depth To Bottom										
Date Sampled	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25			
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
SVOC (excluding PAH-16) (w)										
1,2,4-Trichlorobenzene$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
1,2-Dichlorobenzene$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
1,3-Dichlorobenzene$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
1,4-Dichlorobenzene$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
2,4,5-Trichlorophenol$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
2,4,6-Trichlorophenol$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
2,4-Dichlorophenol$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
2,4-Dimethylphenol$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
2,4-Dinitrotoluene$_A$	21	5	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
2,6-Dinitrotoluene$_A$	<10	<1	<10	<10	<10	2	<1	µg/l	1	A-T-052w
2-Chloronaphthalene$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
2-Chlorophenol$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
2-Methylnaphthalene$_A$	<10	2	12	32	<10	<1	<1	µg/l	1	A-T-052w
2-Methylphenol$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
2-Nitrophenol$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
4-Bromophenyl phenyl ether$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
4-Chloro-3-methylphenol$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
Bis(2-chloroisopropyl)ether$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
3+4-Methylphenol$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
4-Nitrophenol$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
Bis(2-chloroethyl)ether$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
Bis(2-chloroethoxy)methane$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
Bis(2-ethylhexyl)phthalate$_A$	<100	<10	<100	<100	<100	<10	<10	µg/l	10	A-T-052w
Butylbenzyl phthalate$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
Carbazole$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
Dibenzofuran$_A$	<10	1	<10	<10	10	<1	<1	µg/l	1	A-T-052w
n-Dibutylphthalate$_A$	<10	<1	<10	<10	<10	7	<1	µg/l	1	A-T-052w
n-Dioctylphthalate$_A$	<100	<10	<100	<100	<100	<10	<10	µg/l	10	A-T-052w
n-Nitroso-n-dipropylamine$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
Diethyl phthalate$_A$	<10	1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
Dimethyl phthalate$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
Hexachlorobutadiene$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w

Envirolab Job Number: 25/09456

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/09456/1	25/09456/2	25/09456/3	25/09456/4	25/09456/5	25/09456/6	25/09456/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH303 (s)	BH303 (d)	BH302 (s)	BH302 (d)	BH301 (s)	BH301 (d)	BH202			
Depth to Top	2.88	7.01	3.60	7.10	4.18	7.33	7.12			
Depth To Bottom										
Date Sampled	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25			
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Hexachlorobenzene SVOC$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
Pentachlorophenol SVOC$_A$	<10	<1	<10	<10	24	<1	<1	µg/l	1	A-T-052w
Phenol$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
Hexachloroethane$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
Nitrobenzene$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w
Isophorone$_A$	<10	<1	<10	<10	13	<1	<1	µg/l	1	A-T-052w
Perylene$_A$	<10	<1	<10	<10	<10	<1	<1	µg/l	1	A-T-052w

Envirolab Job Number: 25/09456

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/09456/1	25/09456/2	25/09456/3	25/09456/4	25/09456/5	25/09456/6	25/09456/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH303 (s)	BH303 (d)	BH302 (s)	BH302 (d)	BH301 (s)	BH301 (d)	BH202			
Depth to Top	2.88	7.01	3.60	7.10	4.18	7.33	7.12			
Depth To Bottom										
Date Sampled	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25			
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
VOC excl. BTEX										
Dichlorodifluoromethane$_{A}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Chloromethane$_{A}$	<10	<10	<10	<10	<10	<10	<10	µg/l	10	A-T-006w
Vinyl Chloride$_{A}^{\#}$	<3	<3	<3	<3	<3	<3	<3	µg/l	1	A-T-006w
Bromomethane$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Chloroethane$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Trichlorofluoromethane$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
trans 1,2-Dichloroethene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Dichloromethane$_{A}$	<5	<5	<5	<5	<5	<5	<5	µg/l	5	A-T-006w
Carbon Disulphide$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,1-Dichloroethene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,1-Dichloroethane$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
cis 1,2-Dichloroethene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Bromochloromethane$_{A}^{\#}$	<5	<5	<5	<5	<5	<5	<5	µg/l	5	A-T-006w
Chloroform$_{A}^{\#}$	<1	2	<1	<1	<1	2	<1	µg/l	1	A-T-006w
2,2-Dichloropropane$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,2-Dichloroethane$_{A}^{\#}$	<2	<2	<2	<2	<2	<2	<2	µg/l	2	A-T-006w
1,1,1-Trichloroethane$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,1-Dichloropropene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Carbon Tetrachloride$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Dibromomethane$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,2-Dichloropropane$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Bromodichloromethane$_{A}^{\#}$	<10	<10	<10	<10	<10	<10	<10	µg/l	10	A-T-006w
Trichloroethene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
cis 1,3-Dichloropropene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
trans 1,3-Dichloropropene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,1,2-Trichloroethane$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,3-Dichloropropane$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Dibromochloromethane$_{A}^{\#}$	<3	<3	<3	<3	<3	<3	<3	µg/l	3	A-T-006w
1,2-Dibromoethane$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Tetrachloroethene$_{A}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,1,1,2-Tetrachloroethane$_{A}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Chlorobenzene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w

Envirolab Job Number: 25/09456

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/09456/1	25/09456/2	25/09456/3	25/09456/4	25/09456/5	25/09456/6	25/09456/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH303 (s)	BH303 (d)	BH302 (s)	BH302 (d)	BH301 (s)	BH301 (d)	BH202			
Depth to Top	2.88	7.01	3.60	7.10	4.18	7.33	7.12			
Depth To Bottom										
Date Sampled	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25			
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Bromoform$_A^\#$	<3	10	<3	<3	<3	8	<3	µg/l	3	A-T-006w
Styrene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,1,2,2-Tetrachloroethane$_A$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,2,3-Trichloropropane$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Isopropylbenzene$_A^\#$	20	2	14	5	19	<1	<1	µg/l	1	A-T-006w
Bromobenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
2-Chlorotoluene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
n-propylbenzene$_A^\#$	27	1	13	2	26	<1	<1	µg/l	1	A-T-006w
4-Chlorotoluene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,2,4-Trimethylbenzene$_A^\#$	<1	2	4	14	2	1	<1	µg/l	1	A-T-006w
4-Isopropyltoluene$_A^\#$	<1	<1	<1	1	<1	<1	<1	µg/l	1	A-T-006w
1,3,5-Trimethylbenzene$_A^\#$	<1	<1	1	4	<1	<1	<1	µg/l	1	A-T-006w
1,2-Dichlorobenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,4-Dichlorobenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
sec-Butylbenzene$_A^\#$	32	1	11	2	26	<1	<1	µg/l	1	A-T-006w
tert-Butylbenzene$_A^\#$	4	<2	<2	<2	<2	<2	<2	µg/l	2	A-T-006w
1,3-Dichlorobenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
n-butylbenzene$_A^\#$	42	<1	5	2	25	<1	<1	µg/l	1	A-T-006w
1,2-Dibromo-3-chloropropane$_A^\#$	<2	<2	<2	<2	<2	<2	<2	µg/l	2	A-T-006w
1,2,4-Trichlorobenzene$_A^\#$	<3	<3	<3	<3	<3	<3	<3	µg/l	3	A-T-006w
1,2,3-Trichlorobenzene$_A^\#$	<3	<3	<3	<3	<3	<3	<3	µg/l	3	A-T-006w
Hexachlorobutadiene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w

Envirolab Job Number: 25/09456

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/09456/1	25/09456/2	25/09456/3	25/09456/4	25/09456/5	25/09456/6	25/09456/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH303 (s)	BH303 (d)	BH302 (s)	BH302 (d)	BH301 (s)	BH301 (d)	BH202			
Depth to Top	2.88	7.01	3.60	7.10	4.18	7.33	7.12			
Depth To Bottom										
Date Sampled	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25			
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
TPH CWG (w) with Clean Up										
Ali >C5-C6 (w)$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-022w
Ali >C6-C8 (w)$_A^{\#}$	23	4	12	7	18	7	<1	µg/l	1	A-T-022w
Ali >C8-C10 (w)$_A^{\#}$	679	8	99	28	507	<5	<5	µg/l	5	A-T-055w
Ali >C10-C12 (w)$_A^{\#}$	2410	25	510	100	2840	<5	<5	µg/l	5	A-T-055w
Ali >C12-C16 (w)$_A^{\#}$	7030	117	2630	512	10900	11	<5	µg/l	5	A-T-055w
Ali >C16-C21 (w)$_A^{\#}$	4670	119	1720	392	7520	10	<5	µg/l	5	A-T-055w
Ali >C21-C35 (w)$_A^{\#}$	629	26	253	63	1400	11	<5	µg/l	5	A-T-055w
Total Aliphatics (w)$_A^{\#}$	15400	299	5220	1100	23200	39	<5	µg/l	5	Calc-As Recd
Aro >C5-C7 (w)$_A^{\#}$	<1	<1	<1	<1	4	<1	<1	µg/l	1	A-T-022w
Aro >C7-C8 (w)$_A^{\#}$	<1	1	<1	1	<1	<1	<1	µg/l	1	A-T-022w
Aro >C8-C10 (w)$_A$	552	24	154	213	273	12	<5	µg/l	5	A-T-055w
Aro >C10-C12 (w)$_A^{\#}$	2780	72	910	521	2100	20	<5	µg/l	5	A-T-055w
Aro >C12-C16 (w)$_A^{\#}$	8590	180	2100	881	6640	82	<5	µg/l	5	A-T-055w
Aro >C16-C21 (w)$_A^{\#}$	2530	86	669	277	2710	59	6	µg/l	5	A-T-055w
Aro >C21-C35 (w)$_A^{\#}$	295	20	82	35	319	14	<10	µg/l	10	A-T-055w
Total Aromatics (w)$_A^{\#}$	14700	383	3920	1930	12000	187	<10	µg/l	10	Calc-As Recd
TPH (Ali & Aro >C5-C35) (w)$_A$	30200	682	9140	3030	35200	226	<10	µg/l	10	Calc-As Recd
BTEX - Benzene (w)$_A^{\#}$	<1	<1	<1	<1	4	<1	<1	µg/l	1	A-T-022w
BTEX - Toluene (w)$_A^{\#}$	<1	1	<1	1	<1	<1	<1	µg/l	1	A-T-022w
BTEX - Ethyl Benzene (w)$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-022w
BTEX - m & p Xylene (w)$_A^{\#}$	<1	1	2	9	<1	<1	<1	µg/l	1	A-T-022w
BTEX - o Xylene (w)$_A^{\#}$	1	<1	<1	1	1	<1	<1	µg/l	1	A-T-022w
MTBE (w)$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-022w

Envirolab Job Number: 25/09456

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/09456/8	25/09456/9	25/09456/10	25/09456/11	25/09456/12	25/09456/13	25/09456/14	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH201 (s)	BH201 (d)	BH204 (s)	BH204 (d)	BH203 (d)	BH203 (s)	BH205 (s)			
Depth to Top	2.65	2.67	5.97	7.64	7.18	3.51	5.82			
Depth To Bottom										
Date Sampled	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	27-Aug-25			
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
pH (w)$_{A}^{\#}$	6.96	6.93	6.80	7.18	6.69	6.74	6.58	pH	0.01	A-T-031w
Hardness Total$_{A}^{\#}$	60.1	80.8	157.5	283.6	182.8	202.5	321.4	mg/l Ca CO3	4	A-T-049w
DOC - Dissolved Organic Carbon (w)$_{A}^{\#}$	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.6	mg/l	2	A-T-032w
Arsenic (dissolved)$_{A}^{\#}$	3	3	2	4	2	7	6	µg/l	1	A-T-025w
Boron (dissolved)$_{A}^{\#}$	11	11	16	29	17	16	<20	µg/l	10	A-T-025w
Cadmium (dissolved)$_{A}^{\#}$	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	µg/l	0.2	A-T-025w
Copper (dissolved)$_{A}^{\#}$	5	<4	<4	<4	<4	<4	<8	µg/l	4	A-T-025w
Chromium (dissolved)$_{A}^{\#}$	1	2	<1	<1	<1	2	4	µg/l	1	A-T-025w
Chromium (hexavalent) (w)$_{A}^{\#}$	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/l	0.05	A-T-040w
Lead (dissolved)$_{A}^{\#}$	2.5	4.0	0.9	0.3	0.7	2.8	3.7	µg/l	0.1	A-T-025w
Mercury (dissolved)$_{A}^{\#}$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	µg/l	0.1	A-T-025w
Nickel (dissolved)$_{A}^{\#}$	<2	3	<2	<2	<2	2	6	µg/l	2	A-T-025w
Selenium (dissolved)$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<2	µg/l	1	A-T-025w
Zinc (dissolved)$_{A}^{\#}$	25	28	4	5	3	12	39	µg/l	2	A-T-025w

Envirolab Job Number: 25/09456

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/09456/8	25/09456/9	25/09456/10	25/09456/11	25/09456/12	25/09456/13	25/09456/14	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH201 (s)	BH201 (d)	BH204 (s)	BH204 (d)	BH203 (d)	BH203 (s)	BH205 (s)			
Depth to Top	2.65	2.67	5.97	7.64	7.18	3.51	5.82			
Depth To Bottom										
Date Sampled	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	27-Aug-25			
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
PAH 16MS (w)										
Acenaphthene (w)$_A^{\#}$	<0.01	7.76	<0.01	0.93	<0.01	2.25	20.9	µg/l	0.01	A-T-019w
Acenaphthylene (w)$_A^{\#}$	<0.01	4.29	<0.01	0.10	<0.01	0.43	26.5	µg/l	0.01	A-T-019w
Anthracene (w)$_A^{\#}$	<0.01	1.58	<0.01	<0.01	<0.01	0.15	9.92	µg/l	0.01	A-T-019w
Benzo(a)anthracene (w)$_A^{\#}$	<0.01	<1.00	<0.01	<0.01	<0.01	<0.01	<1.00	µg/l	0.01	A-T-019w
Benzo(a)pyrene (w)$_A^{\#}$	<0.01	<1.00	<0.01	<0.01	<0.01	<0.01	<1.00	µg/l	0.01	A-T-019w
Benzo(b)fluoranthene (w)$_A^{\#}$	<0.01	<1.00	<0.01	<0.01	<0.01	<0.01	<1.00	µg/l	0.01	A-T-019w
Benzo(ghi)perylene (w)$_A^{\#}$	<0.01	<1.00	<0.01	<0.01	<0.01	<0.01	<1.00	µg/l	0.01	A-T-019w
Benzo(k)fluoranthene (w)$_A^{\#}$	<0.01	<1.00	<0.01	<0.01	<0.01	<0.01	<1.00	µg/l	0.01	A-T-019w
Chrysene (w)$_A^{\#}$	<0.01	1.10	<0.01	<0.01	<0.01	0.01	2.03	µg/l	0.01	A-T-019w
Dibenzo(ah)anthracene (w)$_A^{\#}$	<0.01	<1.00	<0.01	<0.01	<0.01	<0.01	<1.00	µg/l	0.01	A-T-019w
Fluoranthene (w)$_A^{\#}$	<0.01	<1.00	<0.01	<0.01	<0.01	0.04	2.64	µg/l	0.01	A-T-019w
Fluorene (w)$_A^{\#}$	0.03	11.7	<0.01	1.03	<0.01	3.77	92.4	µg/l	0.01	A-T-019w
Indeno(123-cd)pyrene (w)$_A^{\#}$	<0.01^U	<1.00^U	<0.01	<0.01	<0.01	<0.01	<1.00^U	µg/l	0.01	A-T-019w
Naphthalene (w)$_A^{\#}$	0.01	14.9	<0.01	5.26	<0.01	0.52	10	µg/l	0.01	A-T-019w
Phenanthrene (w)$_A^{\#}$	<0.01	9.65	<0.01	0.12	<0.01	1.16	53.1	µg/l	0.01	A-T-019w
Pyrene (w)$_A^{\#}$	<0.01	1.81	<0.01	<0.01	<0.01	0.07	6.61	µg/l	0.01	A-T-019w
Total PAH 16MS (w)$_A^{\#}$	0.04	52.8	<0.01	7.44	<0.01	8.40	224	µg/l	0.01	A-T-019w

Lab Sample ID	25/09456/8	25/09456/9	25/09456/10	25/09456/11	25/09456/12	25/09456/13	25/09456/14	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH201 (s)	BH201 (d)	BH204 (s)	BH204 (d)	BH203 (d)	BH203 (s)	BH205 (s)			
Depth to Top	2.65	2.67	5.97	7.64	7.18	3.51	5.82			
Depth To Bottom										
Date Sampled	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	27-Aug-25			
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
SVOC (excluding PAH-16) (w)										
1,2,4-Trichlorobenzene$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
1,2-Dichlorobenzene$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
1,3-Dichlorobenzene$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
1,4-Dichlorobenzene$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
2,4,5-Trichlorophenol$_A$	1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
2,4,6-Trichlorophenol$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
2,4-Dichlorophenol$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
2,4-Dimethylphenol$_A$	2	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
2,4-Dinitrotoluene$_A$	<1	<1	<1	<1	2	4	<10	µg/l	1	A-T-052w
2,6-Dinitrotoluene$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
2-Chloronaphthalene$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
2-Chlorophenol$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
2-Methylnaphthalene$_A$	<1	<1	<1	2	<1	<1	<10	µg/l	1	A-T-052w
2-Methylphenol$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
2-Nitrophenol$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
4-Bromophenyl phenyl ether$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
4-Chloro-3-methylphenol$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
Bis(2-chloroisopropyl)ether$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
3+4-Methylphenol$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
4-Nitrophenol$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
Bis(2-chloroethyl)ether$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
Bis(2-chloroethoxy)methane$_A$	<1	<1	<1	<1	<1	<1	18	µg/l	1	A-T-052w
Bis(2-ethylhexyl)phthalate$_A$	<10	<10	<10	<10	<10	<10	<100	µg/l	10	A-T-052w
Butylbenzyl phthalate$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
Carbazole$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
Dibenzofuran$_A$	<1	<1	<1	<1	<1	2	<10	µg/l	1	A-T-052w
n-Dibutylphthalate$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
n-Dioctylphthalate$_A$	<10	<10	<10	<10	<10	<10	<100	µg/l	10	A-T-052w
n-Nitroso-n-dipropylamine$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
Diethyl phthalate$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
Dimethyl phthalate$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
Hexachlorobutadiene$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w

Envirolab Job Number: 25/09456

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/09456/8	25/09456/9	25/09456/10	25/09456/11	25/09456/12	25/09456/13	25/09456/14	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH201 (s)	BH201 (d)	BH204 (s)	BH204 (d)	BH203 (d)	BH203 (s)	BH205 (s)			
Depth to Top	2.65	2.67	5.97	7.64	7.18	3.51	5.82			
Depth To Bottom										
Date Sampled	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	27-Aug-25			
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Hexachlorobenzene SVOC$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
Pentachlorophenol SVOC$_A$	3	<1	<1	<1	<1	<1	22	µg/l	1	A-T-052w
Phenol$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
Hexachloroethane$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
Nitrobenzene$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w
Isophorone$_A$	<1	<1	<1	<1	<1	<1	25	µg/l	1	A-T-052w
Perylene$_A$	<1	<1	<1	<1	<1	<1	<10	µg/l	1	A-T-052w

Envirolab Job Number: 25/09456

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/09456/8	25/09456/9	25/09456/10	25/09456/11	25/09456/12	25/09456/13	25/09456/14	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH201 (s)	BH201 (d)	BH204 (s)	BH204 (d)	BH203 (d)	BH203 (s)	BH205 (s)			
Depth to Top	2.65	2.67	5.97	7.64	7.18	3.51	5.82			
Depth To Bottom										
Date Sampled	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	27-Aug-25			
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
VOC excl. BTEX										
Dichlorodifluoromethane$_{A}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Chloromethane$_{A}$	<10	<10	<10	<10	<10	<10	<10	µg/l	10	A-T-006w
Vinyl Chloride$_{A}^{\#}$	<3	<3	<3	<3	<3	<3	<3	µg/l	1	A-T-006w
Bromomethane$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Chloroethane$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Trichlorofluoromethane$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
trans 1,2-Dichloroethene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Dichloromethane$_{A}$	<5	<5	<5	<5	<5	<5	<5	µg/l	5	A-T-006w
Carbon Disulphide$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,1-Dichloroethene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,1-Dichloroethane$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
cis 1,2-Dichloroethene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Bromochloromethane$_{A}^{\#}$	<5	<5	<5	<5	<5	<5	<5	µg/l	5	A-T-006w
Chloroform$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
2,2-Dichloropropane$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,2-Dichloroethane$_{A}^{\#}$	<2	<2	<2	<2	<2	<2	<2	µg/l	2	A-T-006w
1,1,1-Trichloroethane$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,1-Dichloropropene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Carbon Tetrachloride$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Dibromomethane$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,2-Dichloropropane$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Bromodichloromethane$_{A}^{\#}$	<10	<10	<10	<10	<10	<10	<10	µg/l	10	A-T-006w
Trichloroethene$_{A}^{\#}$	<1	<1	<1	1	<1	<1	<1	µg/l	1	A-T-006w
cis 1,3-Dichloropropene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
trans 1,3-Dichloropropene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,1,2-Trichloroethane$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,3-Dichloropropane$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Dibromochloromethane$_{A}^{\#}$	<3	<3	<3	<3	<3	<3	<3	µg/l	3	A-T-006w
1,2-Dibromoethane$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Tetrachloroethene$_{A}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,1,1,2-Tetrachloroethane$_{A}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Chlorobenzene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w

Envirolab Job Number: 25/09456 **Client Project Name: Parrs Wood**

Client Project Ref: 2333

Lab Sample ID	25/09456/8	25/09456/9	25/09456/10	25/09456/11	25/09456/12	25/09456/13	25/09456/14	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH201 (s)	BH201 (d)	BH204 (s)	BH204 (d)	BH203 (d)	BH203 (s)	BH205 (s)			
Depth to Top	2.65	2.67	5.97	7.64	7.18	3.51	5.82			
Depth To Bottom										
Date Sampled	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	27-Aug-25			
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Bromoform$_{A}^{\#}$	<3	<3	<3	<3	<3	<3	<3	µg/l	3	A-T-006w
Styrene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,1,2,2-Tetrachloroethane$_{A}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,2,3-Trichloropropane$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Isopropylbenzene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	6	µg/l	1	A-T-006w
Bromobenzene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
2-Chlorotoluene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
n-propylbenzene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	6	µg/l	1	A-T-006w
4-Chlorotoluene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,2,4-Trimethylbenzene$_{A}^{\#}$	<1	11	<1	10	<1	<1	14	µg/l	1	A-T-006w
4-Isopropyltoluene$_{A}^{\#}$	<1	1	<1	2	<1	<1	2	µg/l	1	A-T-006w
1,3,5-Trimethylbenzene$_{A}^{\#}$	<1	4	<1	7	<1	<1	5	µg/l	1	A-T-006w
1,2-Dichlorobenzene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,4-Dichlorobenzene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
sec-Butylbenzene$_{A}^{\#}$	<1	<1	<1	<1	<1	2	8	µg/l	1	A-T-006w
tert-Butylbenzene$_{A}^{\#}$	<2	<2	<2	<2	<2	<2	<2	µg/l	2	A-T-006w
1,3-Dichlorobenzene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
n-butylbenzene$_{A}^{\#}$	<1	2	<1	<1	<1	1	7	µg/l	1	A-T-006w
1,2-Dibromo-3-chloropropane$_{A}^{\#}$	<2	<2	<2	<2	<2	<2	<2	µg/l	2	A-T-006w
1,2,4-Trichlorobenzene$_{A}^{\#}$	<3	<3	<3	<3	<3	<3	<3	µg/l	3	A-T-006w
1,2,3-Trichlorobenzene$_{A}^{\#}$	<3	<3	<3	<3	<3	<3	<3	µg/l	3	A-T-006w
Hexachlorobutadiene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w

Envirolab Job Number: 25/09456

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/09456/8	25/09456/9	25/09456/10	25/09456/11	25/09456/12	25/09456/13	25/09456/14	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH201 (s)	BH201 (d)	BH204 (s)	BH204 (d)	BH203 (d)	BH203 (s)	BH205 (s)			
Depth to Top	2.65	2.67	5.97	7.64	7.18	3.51	5.82			
Depth To Bottom										
Date Sampled	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	27-Aug-25			
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
TPH CWG (w) with Clean Up										
Ali >C5-C6 (w)$_A^{\#}$	<1	<1	<1	<1	<1	<1	2	µg/l	1	A-T-022w
Ali >C6-C8 (w)$_A^{\#}$	6	8	4	<1	<1	<1	78	µg/l	1	A-T-022w
Ali >C8-C10 (w)$_A^{\#}$	59	1120	<5	<5	<5	13	819	µg/l	5	A-T-055w
Ali >C10-C12 (w)$_A^{\#}$	486	5230	<5	5	<5	35	3920	µg/l	5	A-T-055w
Ali >C12-C16 (w)$_A^{\#}$	2210	18600	<5	6	<5	196	14300	µg/l	5	A-T-055w
Ali >C16-C21 (w)$_A^{\#}$	1400	11100	<5	6	<5	171	9180	µg/l	5	A-T-055w
Ali >C21-C35 (w)$_A^{\#}$	247	1830	<5	12	<5	43	976	µg/l	5	A-T-055w
Total Aliphatics (w)$_A^{\#}$	4410	37900	<5	29	<5	458	29300	µg/l	5	Calc-As Recd
Aro >C5-C7 (w)$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-022w
Aro >C7-C8 (w)$_A^{\#}$	<1	2	<1	<1	<1	<1	<1	µg/l	1	A-T-022w
Aro >C8-C10 (w)$_A$	30	413	<5	112	<5	38	441	µg/l	5	A-T-055w
Aro >C10-C12 (w)$_A^{\#}$	275	3190	<5	341	<5	391	3000	µg/l	5	A-T-055w
Aro >C12-C16 (w)$_A^{\#}$	1490	13600	<5	243	12	883	11800	µg/l	5	A-T-055w
Aro >C16-C21 (w)$_A^{\#}$	601	4890	8	66	29	217	4490	µg/l	5	A-T-055w
Aro >C21-C35 (w)$_A^{\#}$	54	433	<10	19	12	32	462	µg/l	10	A-T-055w
Total Aromatics (w)$_A^{\#}$	2450	22500	<10	781	53	1560	20200	µg/l	10	Calc-As Recd
TPH (Ali & Aro >C5-C35) (w)$_A$	6860	60400	12	810	53	2020	49500	µg/l	10	Calc-As Recd
BTEX - Benzene (w)$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-022w
BTEX - Toluene (w)$_A^{\#}$	<1	2	<1	<1	<1	<1	<1	µg/l	1	A-T-022w
BTEX - Ethyl Benzene (w)$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-022w
BTEX - m & p Xylene (w)$_A^{\#}$	<1	4	<1	3	<1	<1	3	µg/l	1	A-T-022w
BTEX - o Xylene (w)$_A^{\#}$	<1	3	<1	<1	<1	<1	2	µg/l	1	A-T-022w
MTBE (w)$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-022w

Envirolab Job Number: 25/09456

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/09456/15	25/09456/16						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH205 (d)	BH01								
Depth to Top	7.16	2.34								
Depth To Bottom										
Date Sampled	27-Aug-25	27-Aug-25								
Sample Type	WATER - GW	WATER - GW								
Sample Matrix Code	N/A	N/A								
pH (w)$_{A}^{\#}$	6.56	6.82						pH	0.01	A-T-031w
Hardness Total$_{A}^{\#}$	180.7	51.8						mg/l Ca CO3	4	A-T-049w
DOC - Dissolved Organic Carbon (w)$_{A}^{\#}$	2.8	<2.0						mg/l	2	A-T-032w
Arsenic (dissolved)$_{A}^{\#}$	15	11						µg/l	1	A-T-025w
Boron (dissolved)$_{A}^{\#}$	14	10						µg/l	10	A-T-025w
Cadmium (dissolved)$_{A}^{\#}$	<0.2	<0.2						µg/l	0.2	A-T-025w
Copper (dissolved)$_{A}^{\#}$	4	4						µg/l	4	A-T-025w
Chromium (dissolved)$_{A}^{\#}$	4	<1						µg/l	1	A-T-025w
Chromium (hexavalent) (w)$_{A}^{\#}$	<0.05	<0.05						mg/l	0.05	A-T-040w
Lead (dissolved)$_{A}^{\#}$	7.1	0.8						µg/l	0.1	A-T-025w
Mercury (dissolved)$_{A}^{\#}$	<0.1	<0.1						µg/l	0.1	A-T-025w
Nickel (dissolved)$_{A}^{\#}$	6	<2						µg/l	2	A-T-025w
Selenium (dissolved)$_{A}^{\#}$	1	<1						µg/l	1	A-T-025w
Zinc (dissolved)$_{A}^{\#}$	73	5						µg/l	2	A-T-025w

Envirolab Job Number: 25/09456

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/09456/15	25/09456/16						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH205 (d)	BH01								
Depth to Top	7.16	2.34								
Depth To Bottom										
Date Sampled	27-Aug-25	27-Aug-25								
Sample Type	WATER - GW	WATER - GW								
Sample Matrix Code	N/A	N/A								
PAH 16MS (w)										
Acenaphthene (w)$_A^{\#}$	0.02	12.5						µg/l	0.01	A-T-019w
Acenaphthylene (w)$_A^{\#}$	0.01	9.64						µg/l	0.01	A-T-019w
Anthracene (w)$_A^{\#}$	0.03	3.14						µg/l	0.01	A-T-019w
Benzo(a)anthracene (w)$_A^{\#}$	0.01	<1.00						µg/l	0.01	A-T-019w
Benzo(a)pyrene (w)$_A^{\#}$	<0.01	<1.00						µg/l	0.01	A-T-019w
Benzo(b)fluoranthene (w)$_A^{\#}$	<0.01	<1.00						µg/l	0.01	A-T-019w
Benzo(ghi)perylene (w)$_A^{\#}$	<0.01	<1.00						µg/l	0.01	A-T-019w
Benzo(k)fluoranthene (w)$_A^{\#}$	<0.01	<1.00						µg/l	0.01	A-T-019w
Chrysene (w)$_A^{\#}$	<0.01	1.80						µg/l	0.01	A-T-019w
Dibenzo(ah)anthracene (w)$_A^{\#}$	<0.01	<1.00						µg/l	0.01	A-T-019w
Fluoranthene (w)$_A^{\#}$	<0.01	2.03						µg/l	0.01	A-T-019w
Fluorene (w)$_A^{\#}$	0.02	28.7						µg/l	0.01	A-T-019w
Indeno(123-cd)pyrene (w)$_A^{\#}$	<0.01	<1.00^{U}						µg/l	0.01	A-T-019w
Naphthalene (w)$_A^{\#}$	0.15	4.48						µg/l	0.01	A-T-019w
Phenanthrene (w)$_A^{\#}$	0.02	26.4						µg/l	0.01	A-T-019w
Pyrene (w)$_A^{\#}$	0.02	4.26						µg/l	0.01	A-T-019w
Total PAH 16MS (w)$_A^{\#}$	0.28	93						µg/l	0.01	A-T-019w

Lab Sample ID	25/09456/15	25/09456/16						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH205 (d)	BH01								
Depth to Top	7.16	2.34								
Depth To Bottom										
Date Sampled	27-Aug-25	27-Aug-25								
Sample Type	WATER - GW	WATER - GW								
Sample Matrix Code	N/A	N/A								
SVOC (excluding PAH-16) (w)										
1,2,4-Trichlorobenzene$_A$	<1	<10						µg/l	1	A-T-052w
1,2-Dichlorobenzene$_A$	<1	<10						µg/l	1	A-T-052w
1,3-Dichlorobenzene$_A$	<1	<10						µg/l	1	A-T-052w
1,4-Dichlorobenzene$_A$	<1	<10						µg/l	1	A-T-052w
2,4,5-Trichlorophenol$_A$	<1	<10						µg/l	1	A-T-052w
2,4,6-Trichlorophenol$_A$	<1	<10						µg/l	1	A-T-052w
2,4-Dichlorophenol$_A$	<1	<10						µg/l	1	A-T-052w
2,4-Dimethylphenol$_A$	<1	<10						µg/l	1	A-T-052w
2,4-Dinitrotoluene$_A$	<1	<10						µg/l	1	A-T-052w
2,6-Dinitrotoluene$_A$	<1	<10						µg/l	1	A-T-052w
2-Chloronaphthalene$_A$	<1	<10						µg/l	1	A-T-052w
2-Chlorophenol$_A$	<1	<10						µg/l	1	A-T-052w
2-Methylnaphthalene$_A$	<1	<10						µg/l	1	A-T-052w
2-Methylphenol$_A$	<1	<10						µg/l	1	A-T-052w
2-Nitrophenol$_A$	<1	<10						µg/l	1	A-T-052w
4-Bromophenyl phenyl ether$_A$	<1	<10						µg/l	1	A-T-052w
4-Chloro-3-methylphenol$_A$	<1	<10						µg/l	1	A-T-052w
Bis(2-chloroisopropyl)ether$_A$	<1	<10						µg/l	1	A-T-052w
3+4-Methylphenol$_A$	<1	<10						µg/l	1	A-T-052w
4-Nitrophenol$_A$	<1	<10						µg/l	1	A-T-052w
Bis(2-chloroethyl)ether$_A$	<1	<10						µg/l	1	A-T-052w
Bis(2-chloroethoxy)methane$_A$	<1	<10						µg/l	1	A-T-052w
Bis(2-ethylhexyl)phthalate$_A$	<10	<100						µg/l	10	A-T-052w
Butylbenzyl phthalate$_A$	<1	<10						µg/l	1	A-T-052w
Carbazole$_A$	<1	<10						µg/l	1	A-T-052w
Dibenzofuran$_A$	<1	<10						µg/l	1	A-T-052w
n-Dibutylphthalate$_A$	<1	<10						µg/l	1	A-T-052w
n-Dioctylphthalate$_A$	<10	<100						µg/l	10	A-T-052w
n-Nitroso-n-dipropylamine$_A$	<1	<10						µg/l	1	A-T-052w
Diethyl phthalate$_A$	<1	<10						µg/l	1	A-T-052w
Dimethyl phthalate$_A$	<1	<10						µg/l	1	A-T-052w
Hexachlorobutadiene$_A$	<1	<10						µg/l	1	A-T-052w

Envirolab Job Number: 25/09456 **Client Project Name: Parrs Wood**

Client Project Ref: 2333

Lab Sample ID	25/09456/15	25/09456/16						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH205 (d)	BH01								
Depth to Top	7.16	2.34								
Depth To Bottom										
Date Sampled	27-Aug-25	27-Aug-25								
Sample Type	WATER - GW	WATER - GW								
Sample Matrix Code	N/A	N/A								
Hexachlorobenzene SVOC$_A$	<1	<10						µg/l	1	A-T-052w
Pentachlorophenol SVOC$_A$	<1	<10						µg/l	1	A-T-052w
Phenol$_A$	<1	<10						µg/l	1	A-T-052w
Hexachloroethane$_A$	<1	<10						µg/l	1	A-T-052w
Nitrobenzene$_A$	<1	<10						µg/l	1	A-T-052w
Isophorone$_A$	<1	<10						µg/l	1	A-T-052w
Perylene$_A$	<1	<10						µg/l	1	A-T-052w

Envirolab Job Number: 25/09456

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/09456/15	25/09456/16						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH205 (d)	BH01								
Depth to Top	7.16	2.34								
Depth To Bottom										
Date Sampled	27-Aug-25	27-Aug-25								
Sample Type	WATER - GW	WATER - GW								
Sample Matrix Code	N/A	N/A								
VOC excl. BTEX										
Dichlorodifluoromethane$_{A}$	<1	<1						µg/l	1	A-T-006w
Chloromethane$_{A}$	<10	<10						µg/l	10	A-T-006w
Vinyl Chloride$_{A}^{\#}$	<3	<3						µg/l	1	A-T-006w
Bromomethane$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
Chloroethane$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
Trichlorofluoromethane$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
trans 1,2-Dichloroethene$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
Dichloromethane$_{A}$	<5	<5						µg/l	5	A-T-006w
Carbon Disulphide$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
1,1-Dichloroethene$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
1,1-Dichloroethane$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
cis 1,2-Dichloroethene$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
Bromochloromethane$_{A}^{\#}$	<5	<5						µg/l	5	A-T-006w
Chloroform$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
2,2-Dichloropropane$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
1,2-Dichloroethane$_{A}^{\#}$	<2	<2						µg/l	2	A-T-006w
1,1,1-Trichloroethane$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
1,1-Dichloropropene$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
Carbon Tetrachloride$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
Dibromomethane$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
1,2-Dichloropropane$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
Bromodichloromethane$_{A}^{\#}$	<10	<10						µg/l	10	A-T-006w
Trichloroethene$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
cis 1,3-Dichloropropene$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
trans 1,3-Dichloropropene$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
1,1,2-Trichloroethane$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
1,3-Dichloropropane$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
Dibromochloromethane$_{A}^{\#}$	<3	<3						µg/l	3	A-T-006w
1,2-Dibromoethane$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
Tetrachloroethene$_{A}$	<1	<1						µg/l	1	A-T-006w
1,1,1,2-Tetrachloroethane$_{A}$	3	<1						µg/l	1	A-T-006w
Chlorobenzene$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w

Envirolab Job Number: 25/09456

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/09456/15	25/09456/16						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH205 (d)	BH01								
Depth to Top	7.16	2.34								
Depth To Bottom										
Date Sampled	27-Aug-25	27-Aug-25								
Sample Type	WATER - GW	WATER - GW								
Sample Matrix Code	N/A	N/A								
Bromoform$_{A}^{\#}$	7	<3						µg/l	3	A-T-006w
Styrene$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
1,1,2,2-Tetrachloroethane$_{A}$	<1	<1						µg/l	1	A-T-006w
1,2,3-Trichloropropane$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
Isopropylbenzene$_{A}^{\#}$	<1	5						µg/l	1	A-T-006w
Bromobenzene$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
2-Chlorotoluene$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
n-propylbenzene$_{A}^{\#}$	<1	7						µg/l	1	A-T-006w
4-Chlorotoluene$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
1,2,4-Trimethylbenzene$_{A}^{\#}$	<1	84						µg/l	1	A-T-006w
4-Isopropyltoluene$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
1,3,5-Trimethylbenzene$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
1,2-Dichlorobenzene$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
1,4-Dichlorobenzene$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
sec-Butylbenzene$_{A}^{\#}$	<1	4						µg/l	1	A-T-006w
tert-Butylbenzene$_{A}^{\#}$	<2	<2						µg/l	2	A-T-006w
1,3-Dichlorobenzene$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w
n-butylbenzene$_{A}^{\#}$	<1	2						µg/l	1	A-T-006w
1,2-Dibromo-3-chloropropane$_{A}^{\#}$	<2	<2						µg/l	2	A-T-006w
1,2,4-Trichlorobenzene$_{A}^{\#}$	<3	<3						µg/l	3	A-T-006w
1,2,3-Trichlorobenzene$_{A}^{\#}$	<3	<3						µg/l	3	A-T-006w
Hexachlorobutadiene$_{A}^{\#}$	<1	<1						µg/l	1	A-T-006w

Envirolab Job Number: 25/09456

Client Project Name: Parrs Wood

Client Project Ref: 2333

Lab Sample ID	25/09456/15	25/09456/16						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH205 (d)	BH01								
Depth to Top	7.16	2.34								
Depth To Bottom										
Date Sampled	27-Aug-25	27-Aug-25								
Sample Type	WATER - GW	WATER - GW								
Sample Matrix Code	N/A	N/A								
TPH CWG (w) with Clean Up										
Ali >C5-C6 (w)$_A^{\#}$	<1	1						µg/l	1	A-T-022w
Ali >C6-C8 (w)$_A^{\#}$	6	19						µg/l	1	A-T-022w
Ali >C8-C10 (w)$_A^{\#}$	<5	176						µg/l	5	A-T-055w
Ali >C10-C12 (w)$_A^{\#}$	15	1040						µg/l	5	A-T-055w
Ali >C12-C16 (w)$_A^{\#}$	193	4040						µg/l	5	A-T-055w
Ali >C16-C21 (w)$_A^{\#}$	209	2480						µg/l	5	A-T-055w
Ali >C21-C35 (w)$_A^{\#}$	52	451						µg/l	5	A-T-055w
Total Aliphatics (w)$_A^{\#}$	475	8210						µg/l	5	Calc-As Recd
Aro >C5-C7 (w)$_A^{\#}$	<1	<1						µg/l	1	A-T-022w
Aro >C7-C8 (w)$_A^{\#}$	<1	<1						µg/l	1	A-T-022w
Aro >C8-C10 (w)$_A$	21	489						µg/l	5	A-T-055w
Aro >C10-C12 (w)$_A^{\#}$	108	1750						µg/l	5	A-T-055w
Aro >C12-C16 (w)$_A^{\#}$	351	5360						µg/l	5	A-T-055w
Aro >C16-C21 (w)$_A^{\#}$	212	1680						µg/l	5	A-T-055w
Aro >C21-C35 (w)$_A^{\#}$	32	235						µg/l	10	A-T-055w
Total Aromatics (w)$_A^{\#}$	724	9510						µg/l	10	Calc-As Recd
TPH (Ali & Aro >C5-C35) (w)$_A$	1200	17700						µg/l	10	Calc-As Recd
BTEX - Benzene (w)$_A^{\#}$	<1	<1						µg/l	1	A-T-022w
BTEX - Toluene (w)$_A^{\#}$	<1	<1						µg/l	1	A-T-022w
BTEX - Ethyl Benzene (w)$_A^{\#}$	<1	<1						µg/l	1	A-T-022w
BTEX - m & p Xylene (w)$_A^{\#}$	<1	1						µg/l	1	A-T-022w
BTEX - o Xylene (w)$_A^{\#}$	<1	1						µg/l	1	A-T-022w
MTBE (w)$_A^{\#}$	<1	<1						µg/l	1	A-T-022w

Report Notes

General

•This report shall not be reproduced, except in full, without written approval from Envirolab.
•The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client and can affect the validity of results.
•The results reported herein relate only to the material supplied to the laboratory.
•The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **four weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
•Analytical results reflect the quality of the sample at the time of analysis only.
•Opinions and Interpretations expressed are outside our scope of accreditation.
•A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
•If a sample is outside of the calibration range or affected by interferences then it may need diluting. This will result in the limit of detection (LOD) being raised.
•Subcontracted Analysis: Please see the appended report for any deviations, current LODs and accreditation status of the test.

Key

Superscript "#"	Accredited to ISO 17025
Superscript "M"	Accredited to MCertS
Superscript "U"	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript "A"	Analysis performed on as-received Sample
Subscript "D"	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript "D" on Asbestos	Analysis performed on a dried aliquot of sample provided.
Subscript "^"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
Trace	Asbestos found not suitable for Gravimetric Quantification – not enough to accurately weigh.
N/A	Not applicable

Asbestos

Identification: Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis
"Trace Asbestos Identified" will be reported if there is not enough present to verify the type.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs
Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.					

Soil Chemical Analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH by method A-T-007:
For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:
EPH CWG results have humics mathematically subtracted through instrument calculation.
Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:
Results greater than 12900µS/cm @ 25^0C / 11550µS/cm @ 20^0C fall outside the calibration range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Hattersley Science & Technology Park, Stockport Road, Hattersley, SK14 3QU
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Westlakes Engineering Ltd, Unit 2.1, 20 Dale Street, Manchester, Greater Manchester , UK, M1 1EZ

Project: Parrs Wood

Clients Project No: 2333

Project No: 25/09456

Date Received: 28/08/2025 (am)

Cool Box Temperatures (°C): 14.7 - 15.8

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	25/09456/1	25/09456/2	25/09456/3	25/09456/4	25/09456/5	25/09456/6	25/09456/7	25/09456/8	25/09456/9	25/09456/10	25/09456/11	25/09456/12
Client Sample No												
Client Sample ID/Depth	BH303 (s) 2.88m	BH303 (d) 7.01m	BH302 (s) 3.60m	BH302 (d) 7.10m	BH301 (s) 4.18m	BH301 (d) 7.33m	BH202 7.12m	BH201 (s) 2.65m	BH201 (d) 2.67m	BH204 (s) 5.97m	BH204 (d) 7.64m	BH203 (d) 7.18m
Date Sampled	26/08/25	26/08/25	26/08/25	26/08/25	26/08/25	26/08/25	26/08/25	26/08/25	26/08/25	26/08/25	26/08/25	26/08/25
A-T-006w	01/09/2025	01/09/2025	01/09/2025	01/09/2025	01/09/2025	01/09/2025	01/09/2025	01/09/2025	01/09/2025	01/09/2025	01/09/2025	01/09/2025
A-T-019w	08/09/2025	02/09/2025	08/09/2025	08/09/2025	08/09/2025	05/09/2025	02/09/2025	05/09/2025	08/09/2025	02/09/2025	02/09/2025	02/09/2025
A-T-022w	01/09/2025	01/09/2025	01/09/2025	01/09/2025	01/09/2025	01/09/2025	01/09/2025	01/09/2025	01/09/2025	01/09/2025	01/09/2025	01/09/2025
A-T-025w	10/09/2025	10/09/2025	10/09/2025	10/09/2025	10/09/2025	10/09/2025	10/09/2025	10/09/2025	10/09/2025	10/09/2025	10/09/2025	10/09/2025
A-T-031w	29/08/2025	29/08/2025	29/08/2025	29/08/2025	29/08/2025	29/08/2025	29/08/2025	29/08/2025	29/08/2025	29/08/2025	29/08/2025	29/08/2025
A-T-032w	09/09/2025	09/09/2025	09/09/2025	09/09/2025	09/09/2025	09/09/2025	09/09/2025	09/09/2025	09/09/2025	09/09/2025	09/09/2025	09/09/2025
A-T-040w	29/08/2025	29/08/2025	29/08/2025	29/08/2025	29/08/2025	29/08/2025	29/08/2025	29/08/2025	29/08/2025	29/08/2025	29/08/2025	29/08/2025
A-T-049w	12/09/2025	12/09/2025	12/09/2025	12/09/2025	12/09/2025	12/09/2025	12/09/2025	12/09/2025	12/09/2025	10/09/2025	10/09/2025	10/09/2025
A-T-052w	10/09/2025	08/09/2025	10/09/2025	10/09/2025	10/09/2025	08/09/2025	08/09/2025	08/09/2025	08/09/2025	08/09/2025	08/09/2025	08/09/2025
A-T-055w	03/09/2025	01/09/2025	03/09/2025	01/09/2025	04/09/2025	01/09/2025	01/09/2025	03/09/2025	03/09/2025	01/09/2025	01/09/2025	01/09/2025
Calc-As Recd	03/09/2025	01/09/2025	03/09/2025	01/09/2025	04/09/2025	01/09/2025	01/09/2025	03/09/2025	03/09/2025	01/09/2025	01/09/2025	01/09/2025

Lab Sample ID	25/09456/13	25/09456/14	25/09456/15	25/09456/16
Client Sample No				
Client Sample ID/Depth	BH203 (s) 3.51m	BH205 (s) 5.82m	BH205 (d) 7.16m	BH01 2.34m
Date Sampled	26/08/25	27/08/25	27/08/25	27/08/25
A-T-006w	01/09/2025	01/09/2025	01/09/2025	01/09/2025
A-T-019w	02/09/2025	08/09/2025	02/09/2025	08/09/2025
A-T-022w	01/09/2025	01/09/2025	01/09/2025	01/09/2025
A-T-025w	10/09/2025	10/09/2025	10/09/2025	10/09/2025
A-T-031w	29/08/2025	29/08/2025	29/08/2025	29/08/2025
A-T-032w	09/09/2025	09/09/2025	10/09/2025	10/09/2025
A-T-040w	29/08/2025	29/08/2025	29/08/2025	29/08/2025
A-T-049w	10/09/2025	10/09/2025	10/09/2025	10/09/2025
A-T-052w	08/09/2025	10/09/2025	08/09/2025	10/09/2025
A-T-055w	01/09/2025	03/09/2025	01/09/2025	03/09/2025
Calc-As Recd	01/09/2025	03/09/2025	01/09/2025	03/09/2025

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.3 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

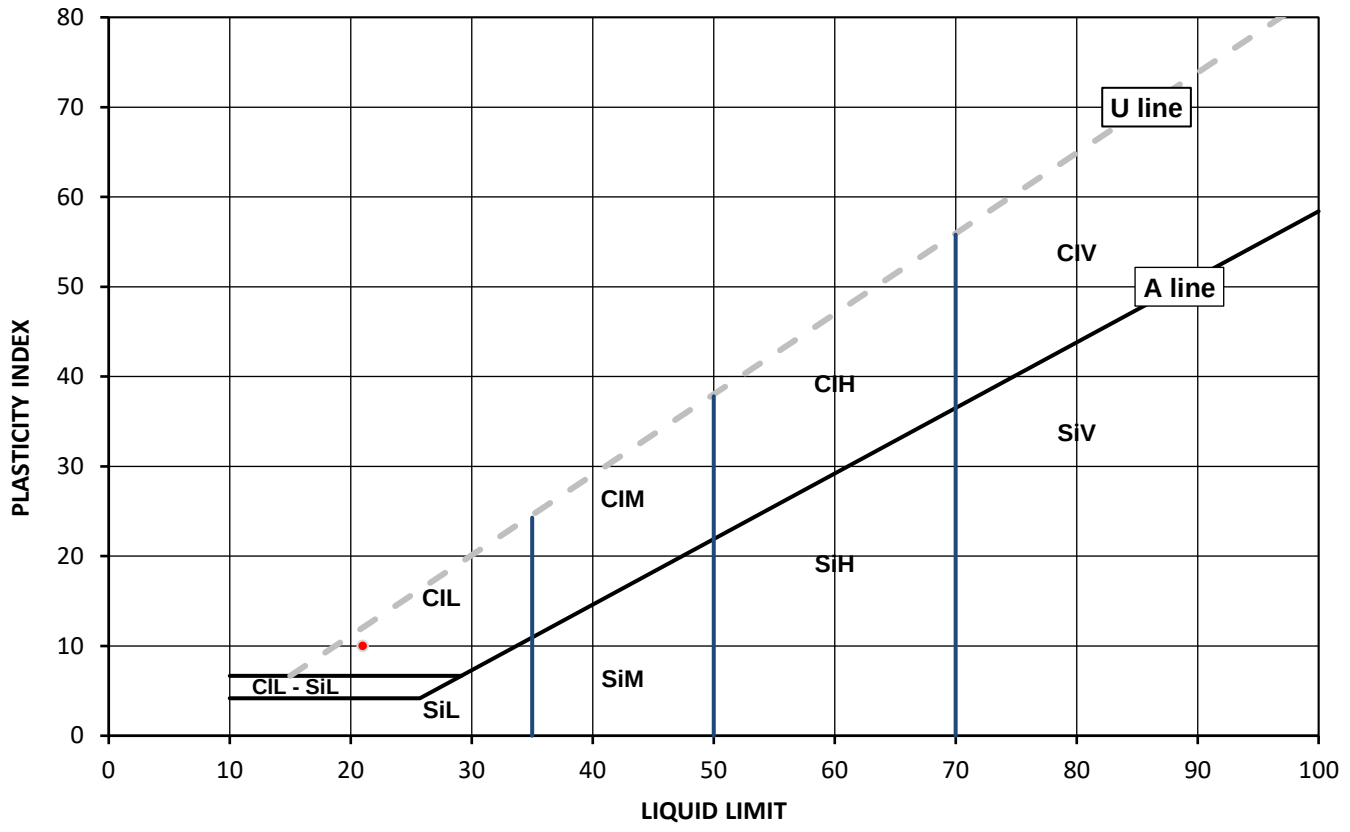
Client:	Westlakes Consulting	Client Reference:	2333
Client Address:	Unit 2.1, 20 Dale Street, Manchester, M1 1EZ	Job Number:	24-005292-1
		Date Sampled:	Not Given
		Date Received:	26/02/2024
Contact:	Helen Brown	Date Tested:	06/03/2024
Site Address:	Parrs Wood Lane Additional Gl	Sampled By:	Client - TW

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	127269	Depth Top [m]:	5.00
Hole No.:	BH202	Depth Base [m]:	5.45
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brown slightly gravelly clayey SAND		
Sample Preparation:	Tested after >425um removed by hand		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
10	21	11	10	94



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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Date Reported: 15/03/2024

GF 236.13

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.3 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

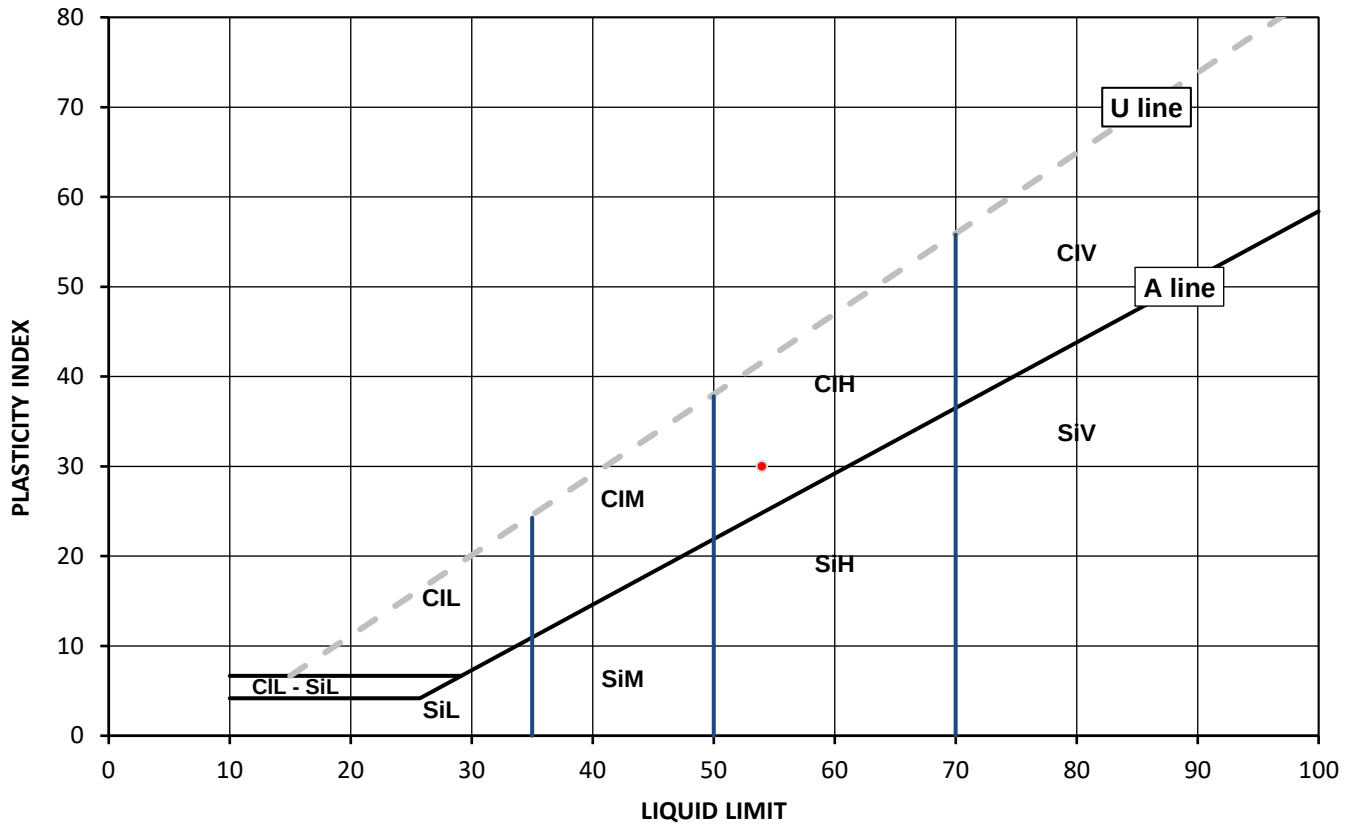
Client:	Westlakes Consulting	Client Reference:	2333
Client Address:	Unit 2.1, 20 Dale Street, Manchester, M1 1EZ	Job Number:	24-005292-1
		Date Sampled:	Not Given
		Date Received:	26/02/2024
Contact:	Helen Brown	Date Tested:	06/03/2024
Site Address:	Parrs Wood Lane Additional Gl	Sampled By:	Client - TW

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	127272	Depth Top [m]:	12.00
Hole No.:	BH202	Depth Base [m]:	12.45
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brown slightly sandy CLAY		
Sample Preparation:	Tested in natural condition		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
24	54	24	30	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

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Reporting Specialist
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Date Reported: 15/03/2024

GF 236.13

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TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.3 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Environmental Science

Client:	Westlakes Consulting	Client Reference:	2333
Client Address:	Unit 2.1, 20 Dale Street, Manchester, M1 1EZ	Job Number:	24-005292-1
		Date Sampled:	Not Given
		Date Received:	26/02/2024
Contact:	Helen Brown	Date Tested:	06/03/2024
Site Address:	Parrs Wood Lane Additional Gl	Sampled By:	Client - TW

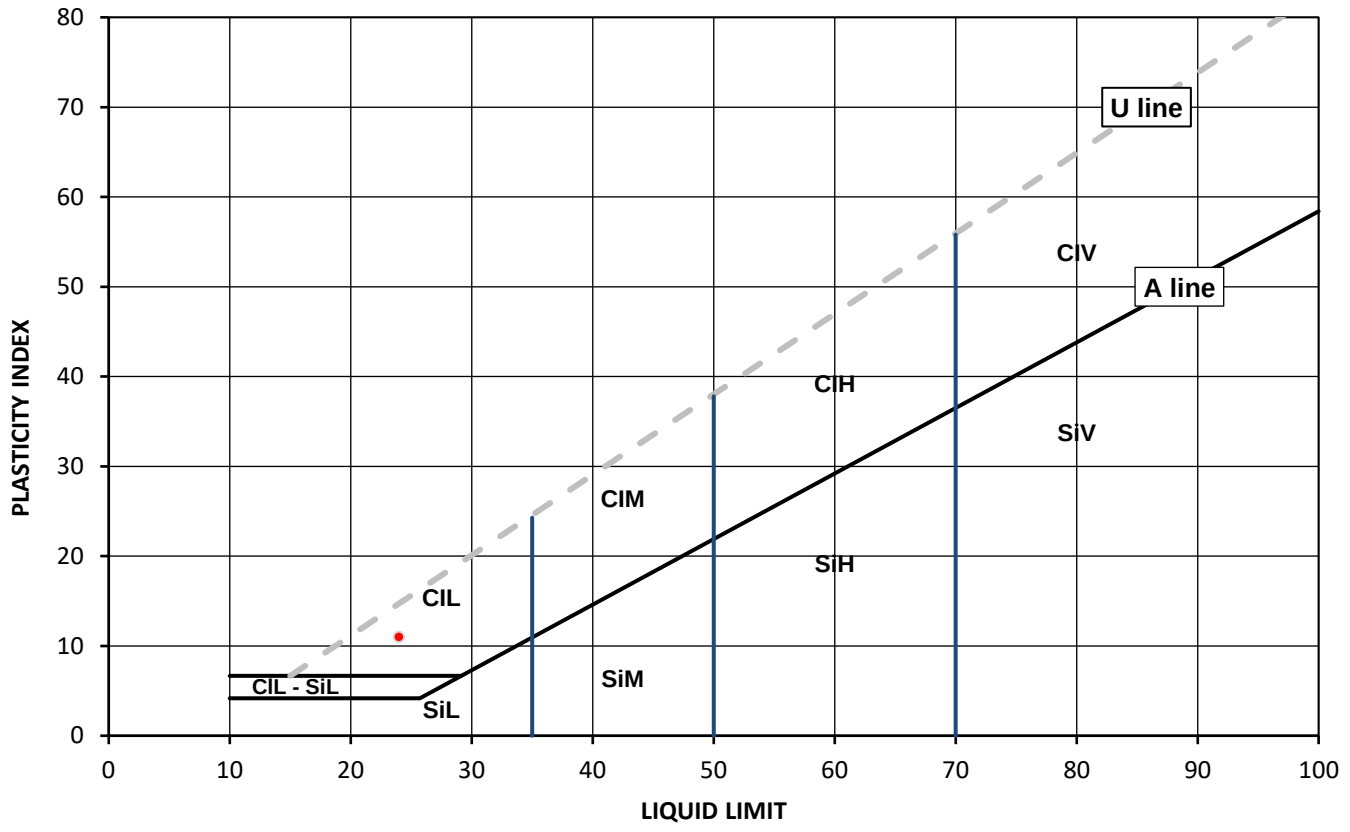
Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	127274	Depth Top [m]:	4.00
Hole No.:	BH203	Depth Base [m]:	4.45
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brown gravelly clayey SAND		

Sample Preparation: Tested after washing to remove >425um

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
10	24	13	11	57



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

Monika Siewior
Reporting Specialist
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Date Reported: 15/03/2024

GF 236.13

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.3 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client:	Westlakes Consulting	Client Reference:	2333
Client Address:	Unit 2.1, 20 Dale Street, Manchester, M1 1EZ	Job Number:	24-005292-1
		Date Sampled:	Not Given
		Date Received:	26/02/2024
Contact:	Helen Brown	Date Tested:	06/03/2024
Site Address:	Parrs Wood Lane Additional Gl	Sampled By:	Client - TW

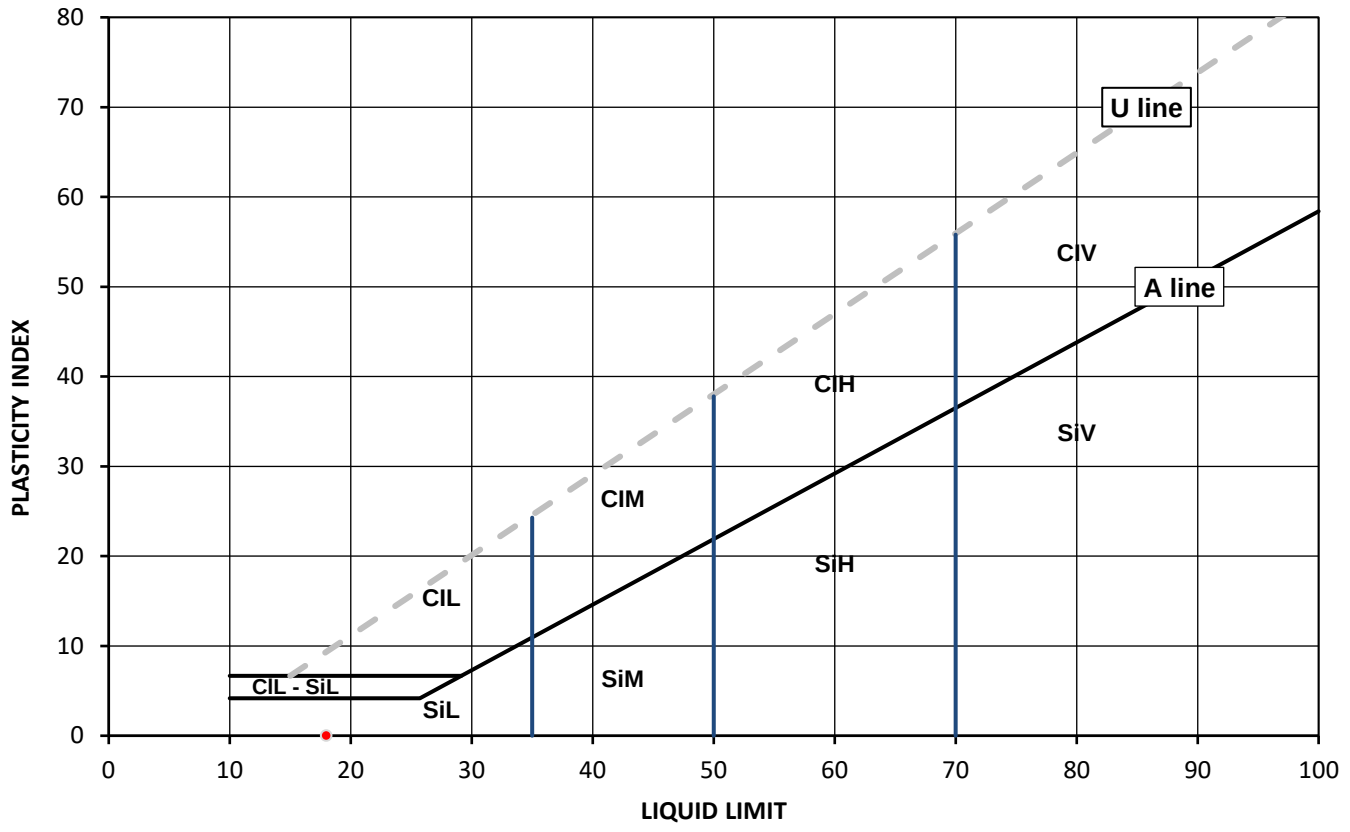
Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	127278	Depth Top [m]:	8.00
Hole No.:	BH204	Depth Base [m]:	8.50
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brown slightly gravelly SAND		

Sample Preparation: Tested after >425um removed by hand

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
16	18	NP	NP	96



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks: NP - non plastic

Signed:
Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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 Date Reported: 15/03/2024 **GF 236.13**

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.3 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

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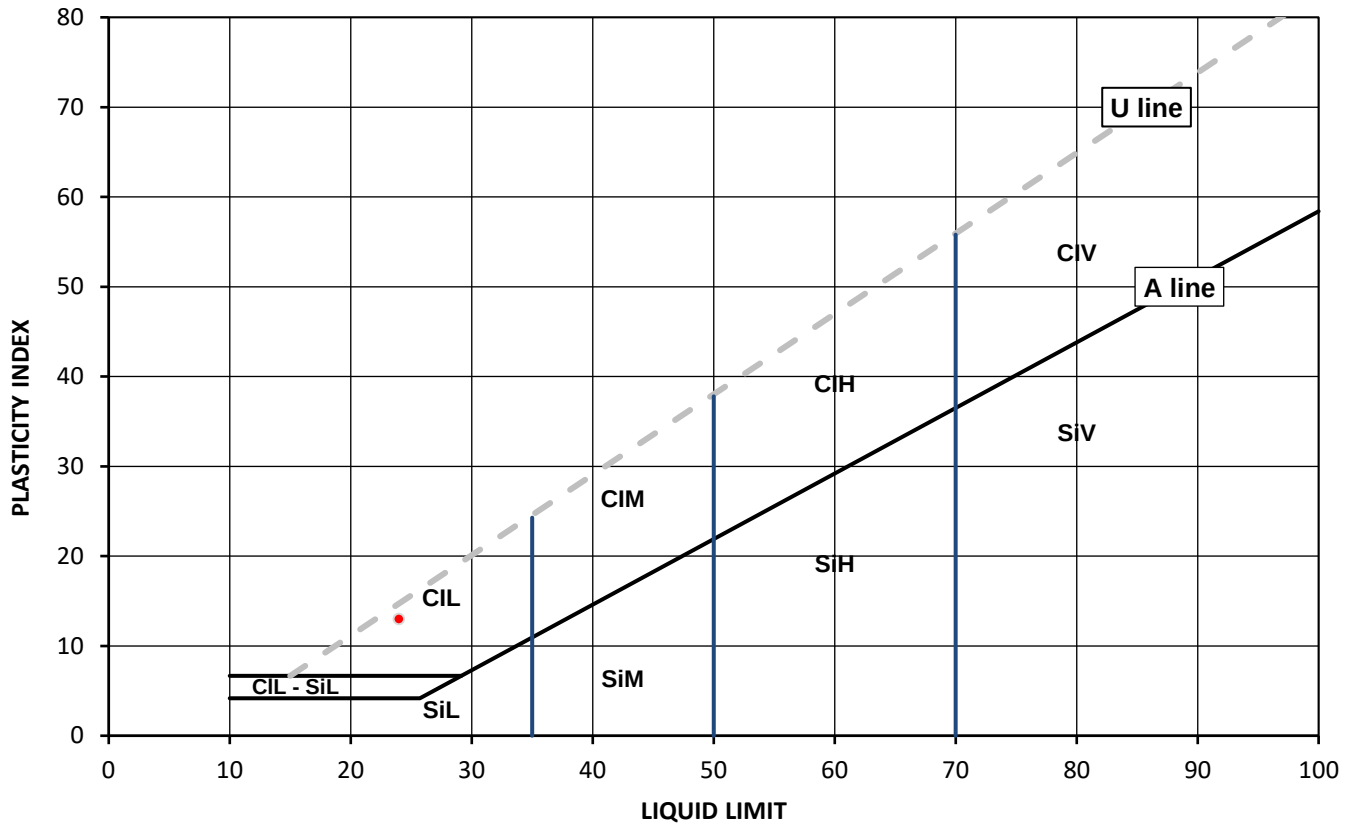
Client:	Westlakes Consulting	Client Reference:	2333
Client Address:	Unit 2.1, 20 Dale Street, Manchester, M1 1EZ	Job Number:	24-005292-1
		Date Sampled:	Not Given
		Date Received:	26/02/2024
Contact:	Helen Brown	Date Tested:	06/03/2024
Site Address:	Parrs Wood Lane Additional Gl	Sampled By:	Client - TW

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	127279	Depth Top [m]:	4.00
Hole No.:	BH205	Depth Base [m]:	4.45
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brown slightly gravelly clayey SAND		
Sample Preparation:	Tested after washing to remove >425um		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
12	24	11	13	89



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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Date Reported: 15/03/2024

GF 236.13

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.3 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
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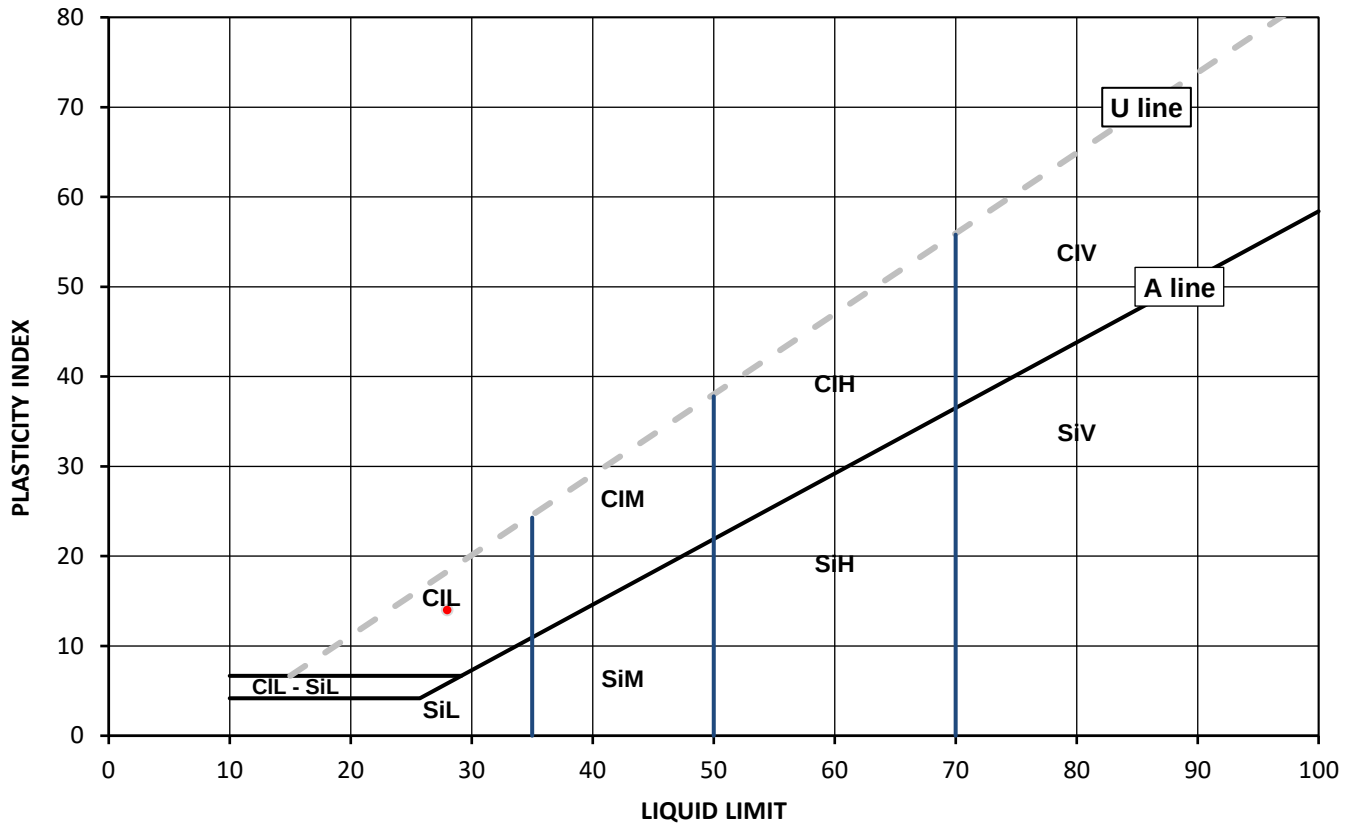
Client:	Westlakes Consulting	Client Reference:	2333
Client Address:	Unit 2.1, 20 Dale Street, Manchester, M1 1EZ	Job Number:	24-005292-1
		Date Sampled:	Not Given
		Date Received:	26/02/2024
Contact:	Helen Brown	Date Tested:	06/03/2024
Site Address:	Parrs Wood Lane Additional Gl	Sampled By:	Client - TW

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	127280	Depth Top [m]:	6.00
Hole No.:	BH205	Depth Base [m]:	6.45
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brown slightly gravelly very sandy CLAY		
Sample Preparation:	Tested after >425um removed by hand		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
13	28	14	14	99



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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Date Reported: 15/03/2024

GF 236.13

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.3 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

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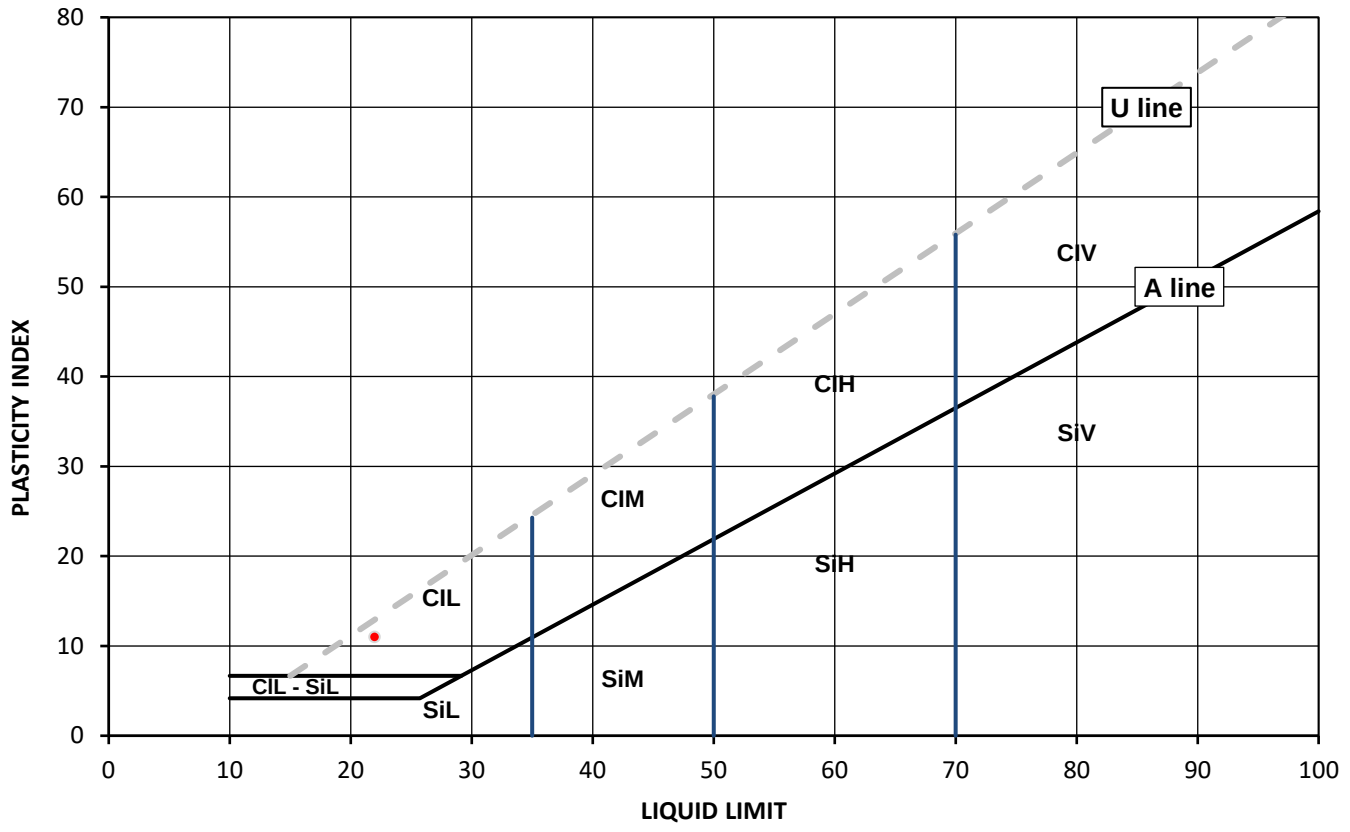
Client:	Westlakes Consulting	Client Reference:	2333
Client Address:	Unit 2.1, 20 Dale Street, Manchester, M1 1EZ	Job Number:	24-005292-1
		Date Sampled:	Not Given
		Date Received:	26/02/2024
Contact:	Helen Brown	Date Tested:	06/03/2024
Site Address:	Parrs Wood Lane Additional Gl	Sampled By:	Client - TW

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	127281	Depth Top [m]:	7.50
Hole No.:	BH205	Depth Base [m]:	7.95
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brown slightly gravelly clayey SAND		
Sample Preparation:	Tested after >425um removed by hand		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
11	22	11	11	94



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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Date Reported: 15/03/2024

GF 236.13

SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

Water Content by BS 1377-2:1990: Clause 3.2Atterberg by BS 1377-2: 1990: Clause 4.3 (4 Point Test), Clause 4.4 (1 Point Test) and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Westlakes Consulting

Client Address: Unit 2.1, 20 Dale Street, Manchester, M1 1EZ

Contact: Helen Brown

Site Address: Parrs Wood Lane Additional GI

Client Reference: 2333
Job Number: 24-005292-1
Date Sampled: Not Given
Date Received: 26/02/2024
Date Tested: 06/03/2024
Sampled By: Client - TW

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Water Content BS 1377-2 [W]	Water Content BS EN ISO 17892-2 [W]	Atterberg				Density			Total Porosity#		
		Reference	Depth Top	Depth Base	Type					% Passing 425um	WL	Wp	Ip	bulk	dry	PD			
			m	m				%	%	%	%	%	%	Mg/m3	Mg/m3	Mg/m3	%		
127269	BH202	Not Given	5.00	5.45	D	Brown slightly gravelly clayey SAND	Atterberg 4 Point	10		94	21	11	10						
127272	BH202	Not Given	12.00	12.45	D	Brown slightly sandy CLAY	Atterberg 4 Point	24		100	54	24	30						
127274	BH203	Not Given	4.00	4.45	D	Brown gravelly clayey SAND	Atterberg 4 Point	10		57	24	13	11						
127278	BH204	Not Given	8.00	8.50	D	Brown slightly gravelly SAND	Atterberg 4 Point	16		96	18	NP	NP						
127279	BH205	Not Given	4.00	4.45	D	Brown slightly gravelly clayey SAND	Atterberg 4 Point	12		89	24	11	13						
127280	BH205	Not Given	6.00	6.45	D	Brown slightly gravelly very sandy CLAY	Atterberg 4 Point	13		99	28	14	14						
127281	BH205	Not Given	7.50	7.95	D	Brown slightly gravelly clayey SAND	Atterberg 4 Point	11		94	22	11	11						

Note: # Non accredited; NP - Non plastic

Comments:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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Date Reported: 15/03/2024

GF 238.16

SUMMARY REPORT

DETERMINATION OF WATER CONTENT

Tested in Accordance with: BS 1377-2: 1990: Clause 3.2

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Westlakes Consulting

Client Address: Unit 2.1, 20 Dale Street,
Manchester, M1 1EZ

Contact: Helen Brown

Site Address: Parrs Wood Lane Additional GI

Client Reference: 2333
Job Number: 24-005292-1
Date Sampled: Not Given
Date Received: 26/02/2024
Date Tested: 06/03/2024
Sampled By: Client - TW

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC	Sample preparation / Oven temperature at the time of testing			
		Reference	Depth Top m	Depth Base m	Type			%				
127269	BH202	Not Given	5.00	5.45	D	Brown slightly gravelly clayey SAND		10	Sample was quartered, oven dried at 106.5 °C			
127272	BH202	Not Given	12.00	12.45	D	Brown slightly sandy CLAY		24	Sample was quartered, oven dried at 106.5 °C			
127274	BH203	Not Given	4.00	4.45	D	Brown gravelly clayey SAND		10	Sample was quartered, oven dried at 106.5 °C			
127278	BH204	Not Given	8.00	8.50	D	Brown slightly gravelly SAND		16	Sample was quartered, oven dried at 106.5 °C			
127279	BH205	Not Given	4.00	4.45	D	Brown slightly gravelly clayey SAND		12	Sample was quartered, oven dried at 106.5 °C			
127280	BH205	Not Given	6.00	6.45	D	Brown slightly gravelly very sandy CLAY		13	Sample was quartered, oven dried at 106.5 °C			
127281	BH205	Not Given	7.50	7.95	D	Brown slightly gravelly clayey SAND		11	Sample was quartered, oven dried at 106.5 °C			

Comments:

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Signed: [redacted]

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 15/03/2024

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

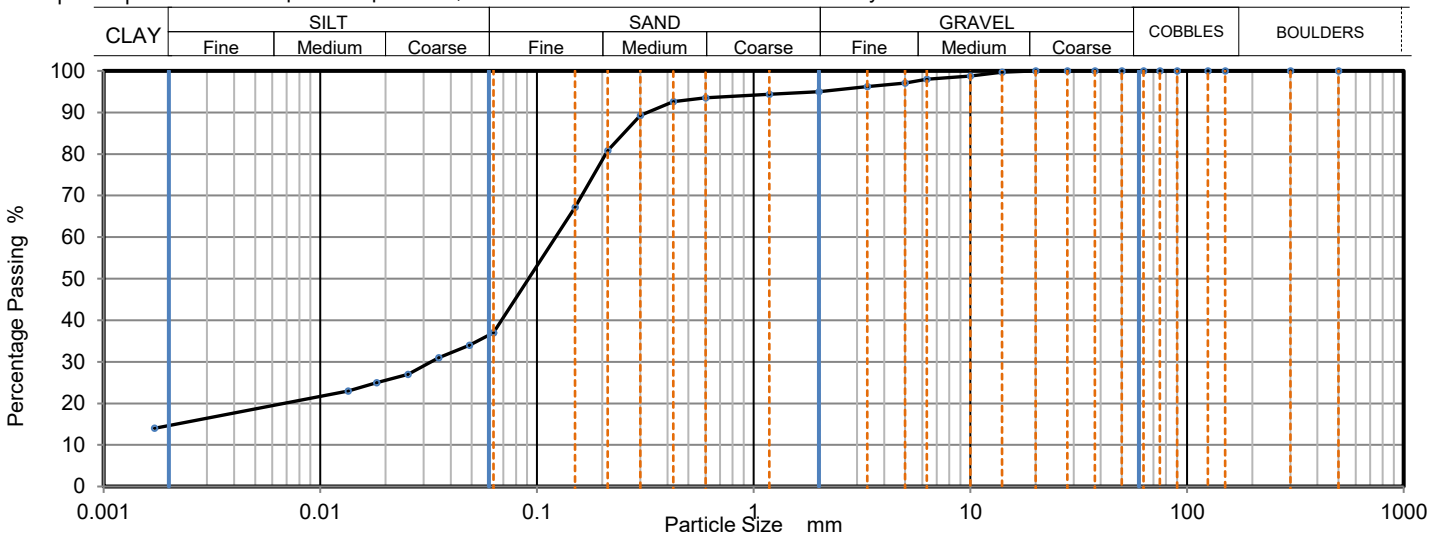
4041

Client:	Westlakes Consulting	Client Reference:	2333
Client Address:	Unit 2.1, 20 Dale Street, Manchester, M1 1EZ	Job Number:	24-005292-1
		Date Sampled:	Not Given
		Date Received:	26/02/2024
Contact:	Helen Brown	Date Tested:	05/03/2024
Site Address:	Parrs Wood Lane Additional Gl	Sampled By:	Client - TW

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	127270	Depth Top [m]:	6.00
Hole No.:	BH202	Depth Base [m]:	6.45
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown slightly gravelly very clayey SAND		
Sample Preparation:	Sample was quartered, oven dried at 106.7 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0630	37
300	100	0.0488	34
150	100	0.0352	31
125	100	0.0254	27
90	100	0.0182	25
75	100	0.0134	23
63	100	0.0017	14
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	99		
6.3	98		
5	97		
3.35	96	Particle density	(assumed)
2	95	2.65	Mg/m3
1.18	94		
0.6	94		
0.425	93		
0.3	89		
0.212	81		
0.15	67		
0.063	37		

Sample Proportions	% dry mass
Very coarse	0
Gravel	5
Sand	59
Silt	22
Clay	14

Grading Analysis		
D100	mm	20
D60	mm	0.122
D30	mm	0.0326
D10	mm	
Uniformity Coefficient		> 71
Curvature Coefficient		

Uniformity and Curvature Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Remarks:

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Signed: [redacted]

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 15/03/2024

GF 100.23

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

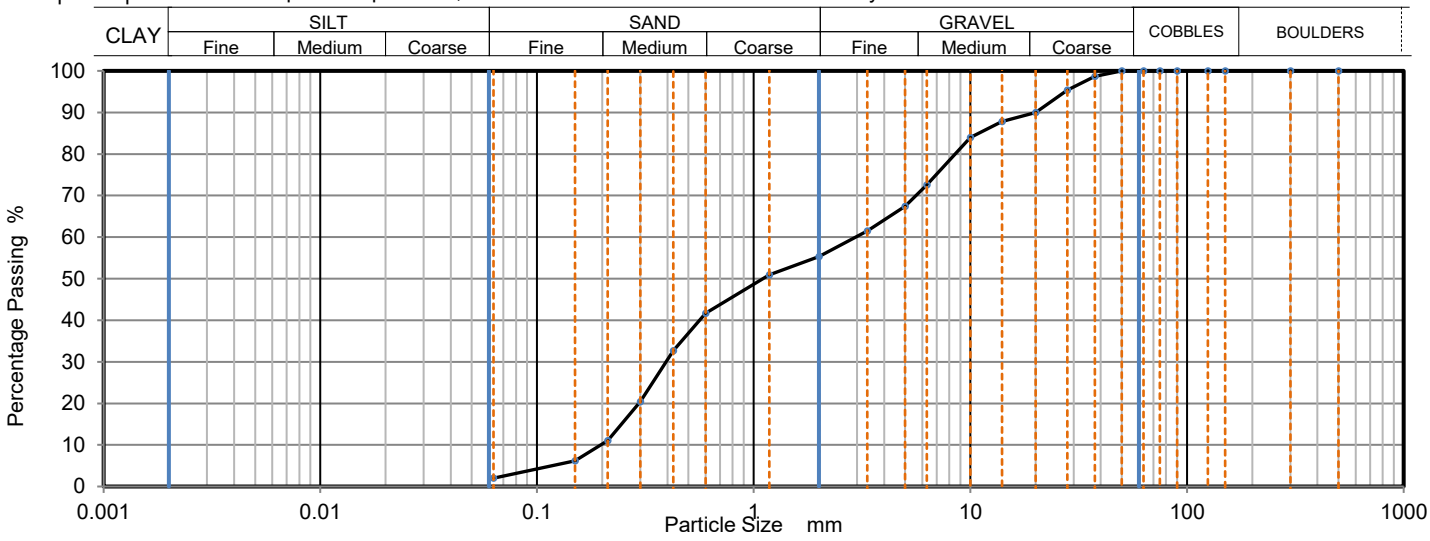
4041

Client:	Westlakes Consulting	Client Reference:	2333
Client Address:	Unit 2.1, 20 Dale Street, Manchester, M1 1EZ	Job Number:	24-005292-1
		Date Sampled:	Not Given
		Date Received:	26/02/2024
Contact:	Helen Brown	Date Tested:	05/03/2024
Site Address:	Parrs Wood Lane Additional GI	Sampled By:	Client - TW

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	127273	Depth Top [m]:	2.00
Hole No.:	BH203	Depth Base [m]:	2.45
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Dark brown very gravelly slightly clayey SAND		
Sample Preparation:	Sample was quartered, oven dried at 106.7 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	99		
28	95		
20	90		
14	88		
10	84		
6.3	73		
5	67		
3.35	62		
2	55		
1.18	51		
0.6	42		
0.425	33		
0.3	20		
0.212	11		
0.15	6		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0
Gravel	45
Sand	53
Fines <0.063mm	2

Grading Analysis		
D100	mm	50
D60	mm	2.95
D30	mm	0.393
D10	mm	0.197
Uniformity Coefficient		15
Curvature Coefficient		0.27

Uniformity and Curvature Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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Signed: [redacted]

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 15/03/2024

GF 100.23

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

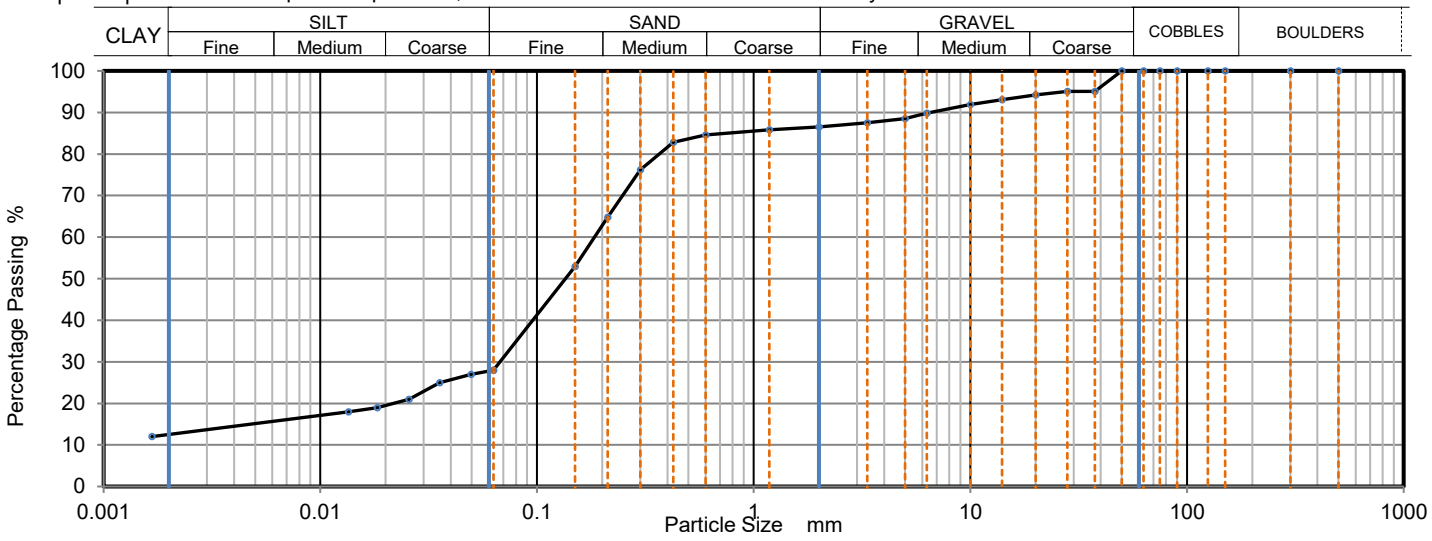
4041

Client:	Westlakes Consulting	Client Reference:	2333
Client Address:	Unit 2.1, 20 Dale Street, Manchester, M1 1EZ	Job Number:	24-005292-1
		Date Sampled:	Not Given
		Date Received:	26/02/2024
Contact:	Helen Brown	Date Tested:	05/03/2024
Site Address:	Parrs Wood Lane Additional Gl	Sampled By:	Client - TW

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	127275	Depth Top [m]:	5.50
Hole No.:	BH203	Depth Base [m]:	6.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown gravelly very clayey SAND		
Sample Preparation:	Sample was quartered, oven dried at 106.2 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0630	28
300	100	0.0496	27
150	100	0.0356	25
125	100	0.0256	21
90	100	0.0183	19
75	100	0.0135	18
63	100	0.0017	12
50	100		
37.5	95		
28	95		
20	94		
14	93		
10	92		
6.3	90		
5	89		
3.35	88	Particle density	(assumed)
2	87	2.65	Mg/m3
1.18	86		
0.6	85		
0.425	83		
0.3	76		
0.212	65		
0.15	53		
0.063	28		

Sample Proportions	% dry mass
Very coarse	0
Gravel	13
Sand	59
Silt	16
Clay	12

Grading Analysis		
D100	mm	50
D60	mm	0.184
D30	mm	0.0676
D10	mm	
Uniformity Coefficient		> 110
Curvature Coefficient		

Uniformity and Curvature Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Remarks:

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Signed: [redacted]

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 15/03/2024

GF 100.23

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

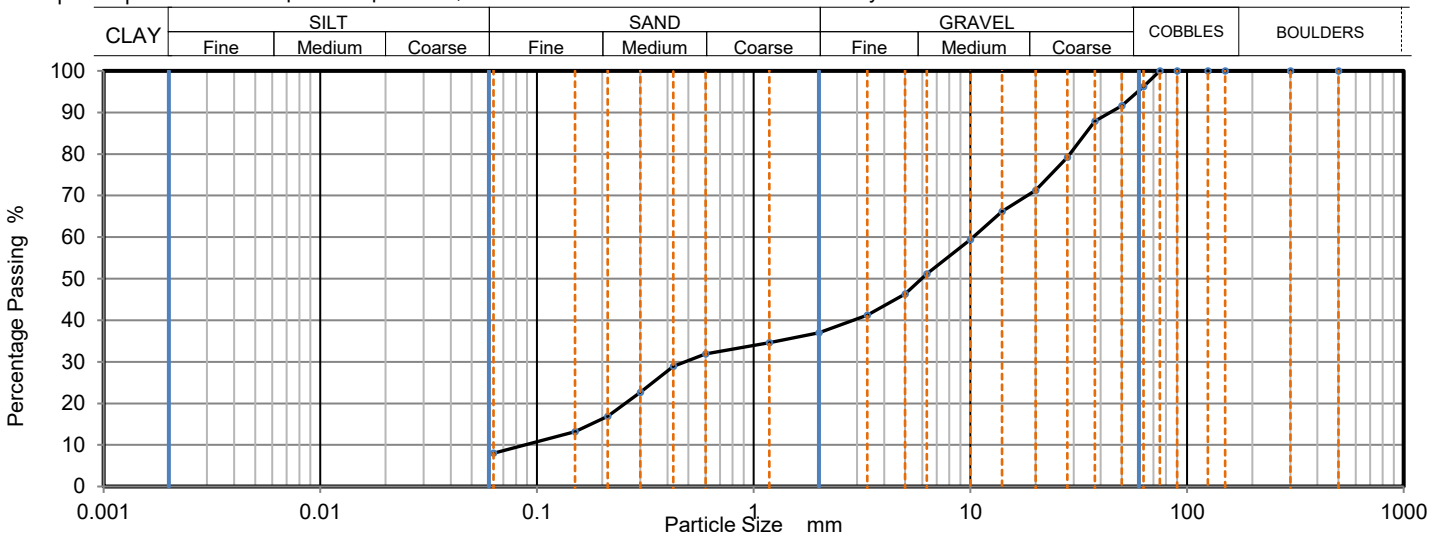
4041

Client:	Westlakes Consulting	Client Reference:	2333
Client Address:	Unit 2.1, 20 Dale Street, Manchester, M1 1EZ	Job Number:	24-005292-1
		Date Sampled:	Not Given
		Date Received:	26/02/2024
Contact:	Helen Brown	Date Tested:	05/03/2024
Site Address:	Parrs Wood Lane Additional GI	Sampled By:	Client - TW

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	127282	Depth Top [m]:	11.50
Hole No.:	BH205	Depth Base [m]:	12.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown very sandy clayey GRAVEL		
Sample Preparation:	Sample was quartered, oven dried at 108.8 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	96		
50	92		
37.5	88		
28	79		
20	71		
14	66		
10	59		
6.3	51		
5	46		
3.35	41		
2	37		
1.18	35		
0.6	32		
0.425	29		
0.3	23		
0.212	17		
0.15	13		
0.063	9		

Sample Proportions	% dry mass
Very coarse	4
Gravel	59
Sand	28
Fines <0.063mm	9

Grading Analysis		
D100	mm	75
D60	mm	10.3
D30	mm	0.482
D10	mm	0.0794
Uniformity Coefficient		130
Curvature Coefficient		0.28

Uniformity and Curvature Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

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Signed: [redacted]

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 15/03/2024

4041

TEST CERTIFICATE

DETERMINATION OF THE UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

Tested in Accordance with: BS 1377-7: 1990: Clause 8

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Environmental Science

Client:	Westlakes Consulting	Client Reference:	2333
Client Address:	Unit 2.1, 20 Dale Street, Manchester, M1 1EZ	Job Number:	24-005292-1
		Date Sampled:	Not Given
		Date Received:	26/02/2024
Contact:	Helen Brown	Date Tested:	07/03/2024
Site Address:	Parrs Wood Lane Additional Gl	Sampled By:	Client - TW

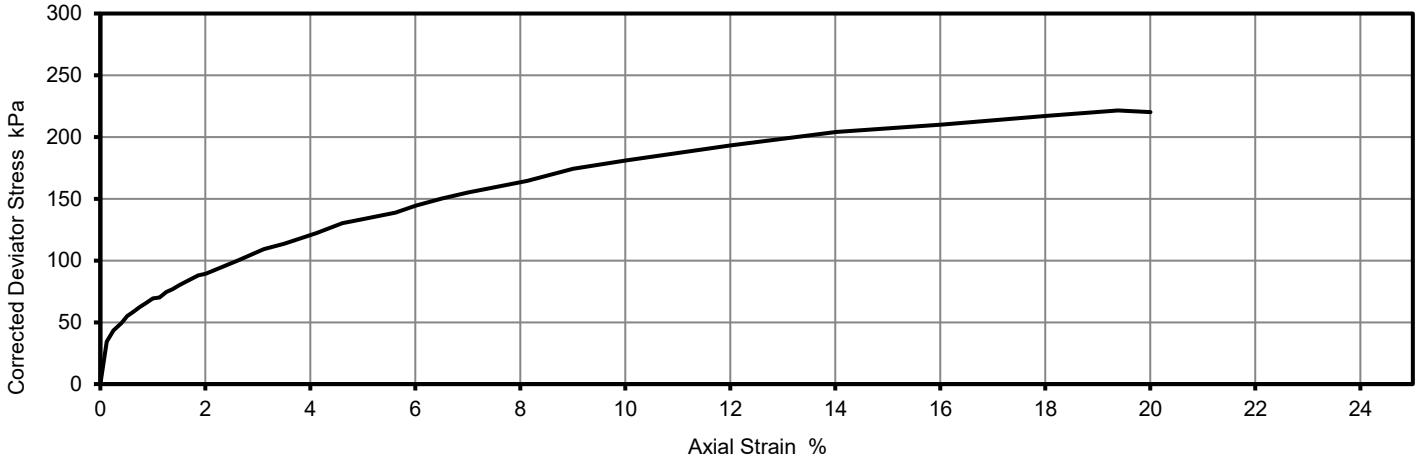
Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

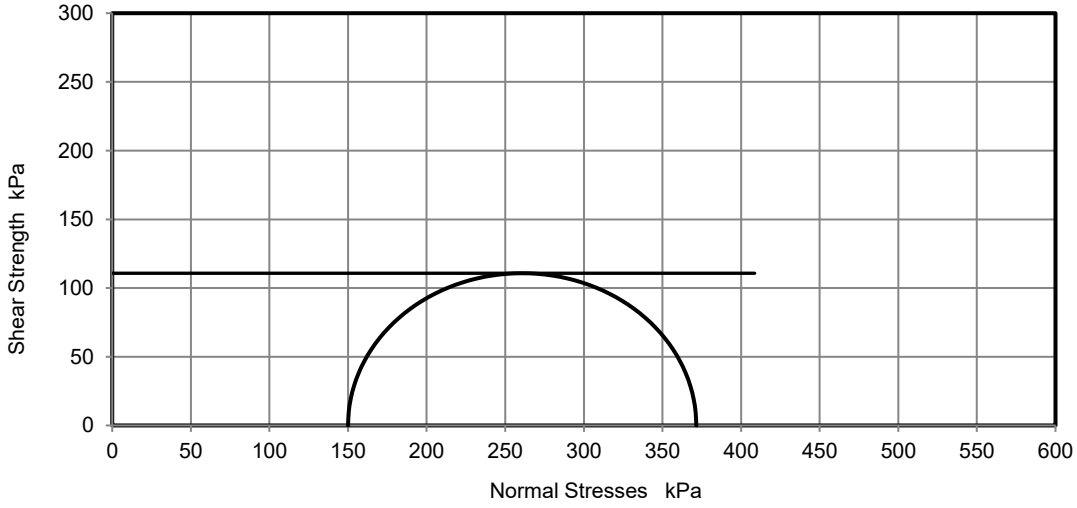
Laboratory Reference:	127271	Depth Top [m]:	7.50
Hole No.:	BH202	Depth Base [m]:	7.95
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Brown slightly gravelly CLAY		
Sample Preparation:	Sample prepared in accordance with BS 1377-1:2016 Clause 9.1.1.		

Test Number	1		Rate of Strain	1.50	%/min
Length	100.19	mm	Cell Pressure	150	kPa
Diameter	50.08	mm	Axial Strain at failure	19.4	%
Bulk Density	2.23	Mg/m3	Deviator Stress, (σ1 - σ3)f	222	kPa
Moisture Content	12	%	Undrained Shear Strength, cu	111	kPa ½(σ1 - σ3)f
Dry Density	2.00	Mg/m3	Mode of Failure	Compound	
Membrane Correction	1.57	kPa	Latex membrane thickness	0.21	mm

Deviator Stress v Axial Strain

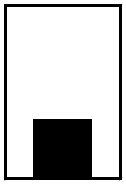


Mohr Circles





Position within sample



Note: Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377. This is provided for information only.

Remarks:

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Signed: [redacted]

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 15/03/2024

4041

TEST CERTIFICATE

DETERMINATION OF THE UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

Tested in Accordance with: BS 1377-7: 1990: Clause 8

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Environmental Science

Client:	Westlakes Consulting	Client Reference:	2333
Client Address:	Unit 2.1, 20 Dale Street, Manchester, M1 1EZ	Job Number:	24-005292-1
		Date Sampled:	Not Given
		Date Received:	26/02/2024
Contact:	Helen Brown	Date Tested:	07/03/2024
Site Address:	Parrs Wood Lane Additional Gl	Sampled By:	Client - TW

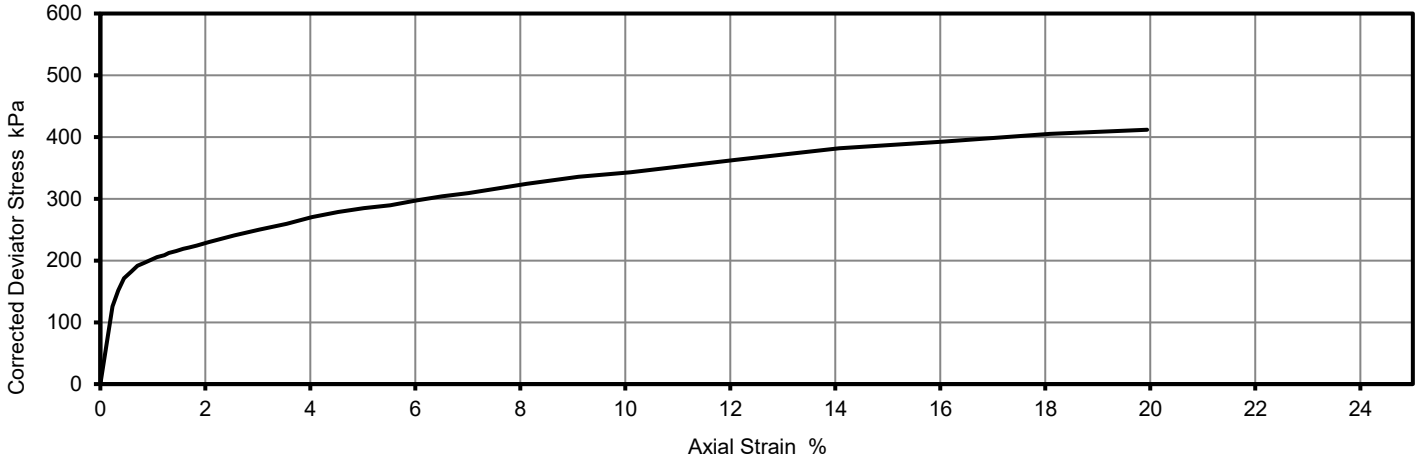
Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

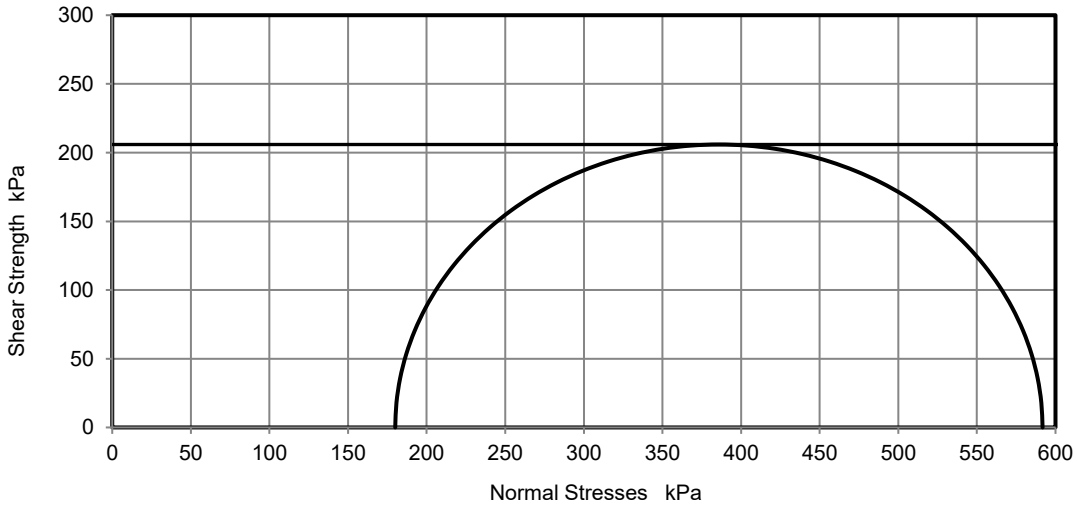
Laboratory Reference:	127276	Depth Top [m]:	9.00
Hole No.:	BH203	Depth Base [m]:	9.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Brown slightly gravelly CLAY		
Sample Preparation:	Sample prepared in accordance with BS 1377-1:2016 Clause 9.1.1.		

Test Number	1		Rate of Strain	1.50	%/min
Length	100.26	mm	Cell Pressure	180	kPa
Diameter	50.03	mm	Axial Strain at failure	19.9	%
Bulk Density	2.25	Mg/m3	Deviator Stress, (σ1 - σ3)f	412	kPa
Moisture Content	13	%	Undrained Shear Strength, cu	206	kPa ½(σ1 - σ3)f
Dry Density	2.00	Mg/m3	Mode of Failure	Compound	
Membrane Correction	1.53	kPa	Latex membrane thickness	0.20	mm

Deviator Stress v Axial Strain

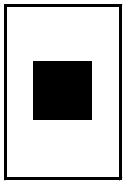


Mohr Circles





Position within sample



Note: Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377. This is provided for information only.

Remarks:

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Signed: [redacted]

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 15/03/2024

4041

TEST CERTIFICATE

DETERMINATION OF THE UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

Tested in Accordance with: BS 1377-7: 1990: Clause 8

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Environmental Science

Client:	Westlakes Consulting	Client Reference:	2333
Client Address:	Unit 2.1, 20 Dale Street, Manchester, M1 1EZ	Job Number:	24-005292-1
		Date Sampled:	Not Given
		Date Received:	26/02/2024
Contact:	Helen Brown	Date Tested:	07/03/2024
Site Address:	Parrs Wood Lane Additional Gl	Sampled By:	Client - TW

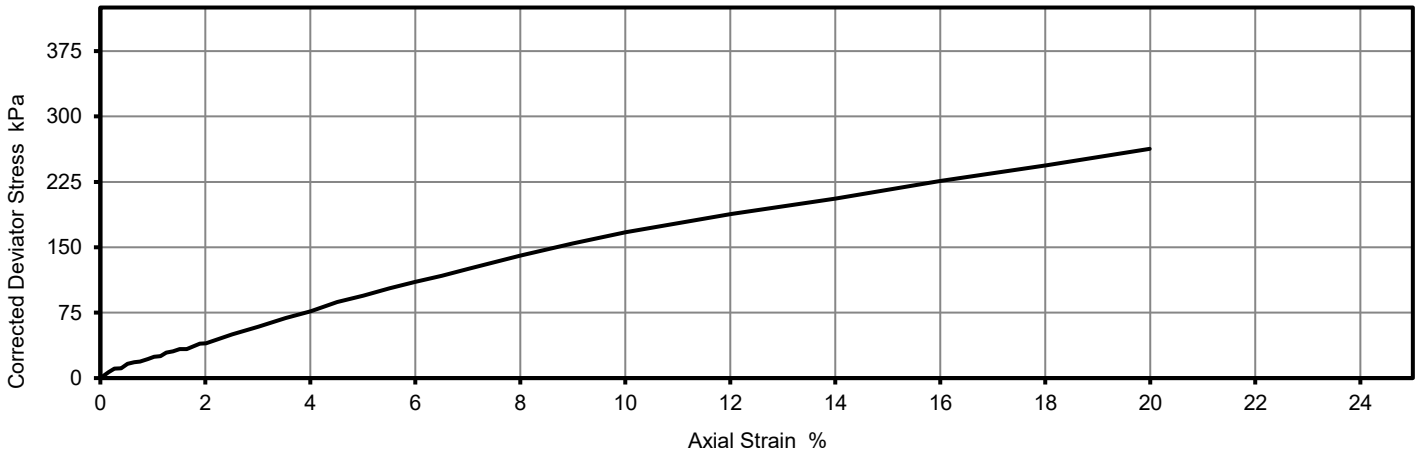
Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

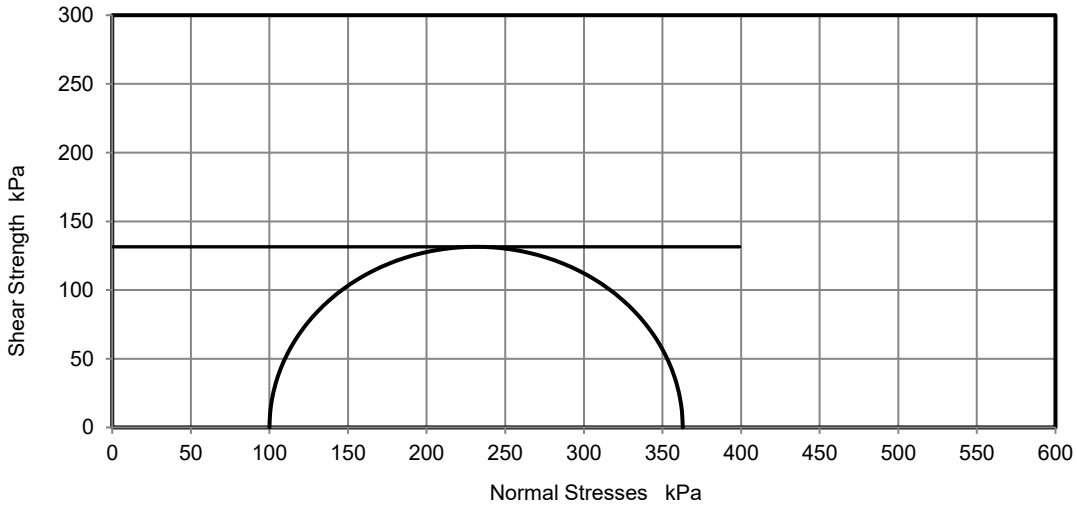
Laboratory Reference:	127277	Depth Top [m]:	5.00
Hole No.:	BH204	Depth Base [m]:	5.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Brown slightly gravelly slightly sandy CLAY		
Sample Preparation:	Sample prepared in accordance with BS 1377-1:2016 Clause 9.1.1.		

Test Number	1		Rate of Strain	1.50	%/min
Length	100.36	mm	Cell Pressure	100	kPa
Diameter	49.80	mm	Axial Strain at failure	20.0	%
Bulk Density	2.11	Mg/m3	Deviator Stress, (σ1 - σ3)f	263	kPa
Moisture Content	19	%	Undrained Shear Strength, cu	131	kPa ½(σ1 - σ3)f
Dry Density	1.77	Mg/m3	Mode of Failure	Compound	
Membrane Correction	1.70	kPa	Latex membrane thickness	0.22	mm

Deviator Stress v Axial Strain

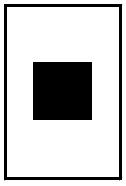


Mohr Circles





Position within sample



Note: Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377. This is provided for information only.

Remarks:

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Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 15/03/2024

Site: Parrs Wood Lane, Didsbury

Project No: 2333

Date: 30/11/2023

Personnel: TW

Monitoring point reference	Flow rate Litres/hr		Atmospheric pressure range	Methane % V/V		Carbon dioxide % V/V		Oxygen % V/V		Balance %	Balance %	VOCs ppm	Water Level from GL	Well Depth from GL	Notes
	Steady	Peak	mb	Steady	Peak	Steady	Peak	Steady	Min	Steady	Peak	Peak	m bgl	m bgl	
Start	-	-	1006	0.0	0.0	0.0	0.0	21.0	21.0	88.2	88.2	-	-	-	
BH201s	**0.2**	**0.2**	**1006**	**0.0**	**0.0**	**0.0**	**0.0**	**18.7**	**18.7**	**81.2**	**81.2**	**26.80**	**2.50**	**3.11**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH201d	**0.3**	**0.3**	**1006**	**0.2**	**0.2**	**0.1**	**0.1**	**20.0**	**20.0**	**79.0**	**79.0**	**30.60**	**2.91**	**6.90**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
WS201	**0.2**	**0.2**	**1006**	**0.0**	**0.0**	**6.4**	**6.4**	**8.9**	**8.9**	**84.6**	**84.6**	**0.60**	**1.60**	**1.75**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
WS202	**0.1**	**0.1**	**1006**	**0.0**	**0.0**	**0.7**	**0.7**	**21.0**	**15.6**	**78.0**	**78.0**	**0.00**	**Dry**	**1.65**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH01	**0.2**	**0.2**	**1006**	**0.0**	**0.0**	**4.2**	**4.2**	**16.3**	**16.3**	**79.3**	**79.3**	**7.90**	**2.58**	**9.40**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BHa	**0.1**	**0.1**	**1006**	**0.1**	**0.1**	**9.2**	**9.2**	**3.9**	**3.9**	**86.8**	**86.8**	**0.10**	**Dry**	**4.00**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BHb	**0.2**	**0.2**	**1006**	**0.0**	**0.0**	**4.5**	**4.5**	**11.6**	**11.6**	**83.7**	**83.7**	**0.00**	**3.00**	**3.60**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BHc	**0.2**	**0.2**	**1006**	**0.0**	**0.1**	**6.5**	**6.5**	**9.7**	**9.7**	**83.8**	**83.8**	**0.00**	**Dry**	**2.75**	

Notes:

Atmospheric Pressure: 1006 (Steady)

Ground conditions: Dry, Icy, Cold

All boreholes monitored for gas for 3-5 minutes.

PID Monitor (MiniRae Lite) used to record VOC concentrations within boreholes.
Groundwater was abstracted and stored to develop BH201 and BH01 for sampling on Visit 2.

Site: Parrs Wood Lane, Didsbury

Project No: 2333

Date: 12/05/2023

Personnel: TW

Monitoring point reference	Flow rate Litres/hr		Atmospheric pressure range	Methane % V/V		Carbon dioxide % V/V		Oxygen % V/V		Balance %	Balance %	VOCs ppm	Water Level from GL	Well Depth from GL	Notes
	Steady	Peak	mb	Steady	Peak	Steady	Peak	Steady	Min	Steady	Peak	Peak	m bgl	m bgl	
Start	-	-	**1015**	0.0	0.0	0.0	0.0	21.0	21.0	88.2	88.2	-	-	-	
BH201s	**0.2**	**0.2**	**1015**	**0.1**	**0.1**	**0.0**	**0.0**	**15.4**	**15.4**	**84.5**	**84.5**	**0.00**	**2.63**	**3.11**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH201d	**0.3**	**0.3**	**1015**	**0.1**	**0.1**	**0.0**	**0.0**	**20.4**	**20.4**	**83.7**	**83.7**	**0.10**	**2.81**	**6.90**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
WS201	**0.2**	**0.2**	**1016**	**0.0**	**0.0**	**5.9**	**5.9**	**8.9**	**8.9**	**84.6**	**84.6**	**0.00**	**1.63**	**1.75**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
WS202	**0.1**	**0.1**	**1016**	**0.0**	**0.0**	**1.1**	**1.1**	**17.5**	**17.5**	**82.2**	**82.2**	**0.00**	**Dry**	**1.65**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH01	**0.1**	**0.1**	**1015**	**0.1**	**0.1**	**4.8**	**4.8**	**15.3**	**15.3**	**81.0**	**81.0**	**0.10**	**2.60**	**9.40**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BHa	**0.1**	**0.1**	**1015**	**0.1**	**0.1**	**7.6**	**7.6**	**4.8**	**4.8**	**87.3**	**87.3**	**0.00**	**Dry**	**4.00**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BHb	**0.1**	**0.1**	**1015**	**0.0**	**0.0**	**4.2**	**4.2**	**12.4**	**12.4**	**82.1**	**82.1**	**0.00**	**2.95**	**3.60**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BHc	**0.1**	**0.1**	**1016**	**0.0**	**0.1**	**5.7**	**5.7**	**11.2**	**11.2**	**84.4**	**84.4**	**0.00**	**Dry**	**2.75**	

Notes:

Atmospheric Pressure: 1015 (Rising)

Ground conditions: Dry, Cold, Dark

All boreholes monitored for gas for 3-5 minutes.

PID Monitor (MiniRae Lite) used to record VOC concentrations within boreholes.

Groundwater samples collected from BH01 and BH201d.

Interface probe used to determine if the is any Non-Aqueuos Phase Liquid (NAPL) within water column. None was detected.

Site: Parrs Wood Lane, Didsbury

Project No: 2333

Date: 15/12/2023

Personnel: TW

Monitoring point reference	Flow rate Litres/hr		Atmospheric pressure range	Methane % V/V		Carbon dioxide % V/V		Oxygen % V/V		Balance %	Balance %	VOCs ppm	Water Level from GL	Well Depth from GL	Notes
	Steady	Peak	mb	Steady	Peak	Steady	Peak	Steady	Min	Steady	Peak	Peak	m bgl	m bgl	
Start	-	-	1034	0.0	0.0	0.0	0.0	21.2	21.2	89.4	89.4	-	-	-	
BH201s	**0.2**	**0.2**	**1034**	**0.0**	**0.0**	**0.2**	**0.2**	**18.2**	**18.2**	**82.3**	**82.3**	**0.00**	**2.55**	**3.11**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH201d	**0.2**	**0.2**	**1034**	**0.1**	**0.1**	**0.3**	**0.3**	**19.3**	**19.3**	**80.1**	**80.1**	**0.10**	**3.04**	**6.90**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
WS201	**0.1**	**0.2**	**1034**	**0.0**	**0.0**	**6.9**	**6.9**	**11.1**	**11.1**	**81.6**	**81.6**	**0.00**	**1.70**	**1.75**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
WS202	**0.1**	**0.3**	**1034**	**0.0**	**0.0**	**1.2**	**1.2**	**19.6**	**19.2**	**79.6**	**79.6**	**0.00**	**Dry**	**1.65**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH01	**0.3**	**0.3**	**1034**	**0.1**	**0.1**	**4.8**	**4.8**	**14.8**	**14.8**	**80.5**	**80.5**	**0.10**	**2.68**	**9.40**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BHa	**0.1**	**0.1**	**1034**	**0.0**	**0.0**	**8.8**	**8.8**	**2.7**	**2.7**	**83.2**	**83.2**	**0.00**	**Dry**	**4.00**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BHb	**0.1**	**0.1**	**1034**	**0.0**	**0.0**	**4.1**	**4.1**	**13.5**	**13.5**	**84.1**	**84.1**	**0.00**	**3.11**	**3.60**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BHc	**0.1**	**0.1**	**1034**	**0.0**	**0.1**	**5.6**	**5.6**	**12.1**	**12.1**	**82.2**	**82.2**	**0.00**	**Dry**	**2.75**	

Notes:

Atmospheric Pressure: 1034 (Steady)

Ground conditions: Dry, Cold

All boreholes monitored for gas for 3-5 minutes.

PID Monitor (MiniRae Lite) used to record VOC concentrations within boreholes.
Interface probe used to determine if the is any Non-Aqueuos Phase Liquid (NAPL) within water column. None was detected.

Site: Parrs Wood Lane, Didsbury

Project No: 2333

Date: 29/02/2024

Personnel: TW

Monitoring point reference	Flow rate Litres/hr		Atmospheric pressure range	Methane % V/V		Carbon dioxide % V/V		Oxygen % V/V		Balance %	Balance %	VOCs ppm	Water Level from GL	Well Depth from GL	Notes
	Steady	Peak	mb	Steady	Peak	Steady	Peak	Steady	Min	Steady	Peak	Peak	m bgl	m bgl	
Start	-	-	1002	0.0	0.0	0.0	0.0	21.0	21.0	87.5	87.5	-	-	-	
BH201s	**0.1**	**0.1**	**1002**	**0.0**	**0.0**	**1.9**	**1.9**	**16.2**	**16.2**	**81.8**	**81.8**	**3.30**	**2.48**	**3.11**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH201d	**0.1**	**0.1**	**1002**	**0.0**	**0.0**	**0.1**	**0.1**	**19.9**	**19.7**	**80.0**	**80.0**	**33.70**	**2.60**	**6.90**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
WS201	**0.2**	**0.2**	**1002**	**0.0**	**0.0**	**3.8**	**3.8**	**9.7**	**9.7**	**86.3**	**86.3**	**0.10**	**1.62**	**1.75**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
WS202	**0.1**	**0.1**	**1001**	**0.0**	**0.0**	**0.4**	**0.4**	**17.2**	**17.2**	**77.9**	**77.9**	**0.00**	**Dry**	**1.65**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH01			**1001**										**1.53**	**9.40**	**Free phase hydrocarbons detected from 1.53m to 1.60m bgl using interface probe**
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BHa	**0.0**	**0.0**	**1001**	**0.0**	**0.0**	**7.3**	**7.3**	**7.8**	**7.8**	**84.9**	**84.9**	**0.80**	**Dry**	**4.00**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BHb	**0.1**	**0.1**	**1001**	**0.0**	**0.0**	**3.6**	**3.6**	**13.9**	**13.9**	**82.4**	**82.4**	**0.60**	**Dry**	**3.60**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BHc	**0.0**	**0.0**	**1001**	**0.0**	**0.1**	**5.0**	**5.0**	**12.2**	**12.2**	**82.7**	**82.7**	**0.00**	**Dry**	**2.75**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH202	**-2.1**	**-2.7**	**1001**	**11.4**	**11.4**	**0.1**	**0.1**	**16.3**	**16.3**	**72.3**	**72.3**	**0.80**	**6.44**	**13.50**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH203s	**0.1**	**0.1**	**1001**	**0.5**	**0.5**	**0.8**	**0.8**	**16.3**	**16.3**	**82.3**	**82.3**	**13.60**	**3.34**	**7.17**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH203d	**0.1**	**0.1**	**1001**	**0.4**	**0.4**	**1.8**	**1.8**	**15.6**	**15.6**	**82.1**	**82.1**	**12.70**	**6.75**	**13.76**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH204s	**0.2**	**0.2**	**1002**	**0.0**	**0.0**	**2.8**	**2.8**	**14.5**	**14.5**	**82.6**	**82.6**	**11.70**	**6.94**	**7.95**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH204d	**0.2**	**0.2**	**1002**	**0.0**	**0.0**	**0.2**	**0.2**	**20.1**	**20.1**	**79.3**	**79.3**	**13.70**	**6.90**	**9.50**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH205s	**0.1**	**0.1**	**1002**	**6.0**	**6.0**	**2.1**	**2.1**	**16.5**	**16.5**	**75.5**	**75.5**	**4.40**	**3.80**	**9.15**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH205d	**0.1**	**0.2**	**1002**	**37.3**	**37.3**	**4.3**	**4.3**	**3.7**	**3.7**	**54.7**	**54.7**	**1.30**	**6.30**	**12.50**	

Notes:

Atmospheric Pressure: 1002 (Falling)

Ground conditions: Dry, Windy

All boreholes monitored for gas for 3-5 minutes.

BH01 had no gas bung so no gas monitoring was undertaken.
PID Monitor (MiniRae Lite) used to record VOC concentrations within boreholes.
Groundwater was abstracted and stored to develop BH202 to BH205 for sampling on Visit 5.

Site: Parrs Wood Lane, Didsbury

Project No: 2333

Date: 07/03/2024

Personnel: TW

Monitoring point reference	Flow rate Litres/hr		Atmospheric pressure range	Methane % V/V		Carbon dioxide % V/V		Oxygen % V/V		Balance %	Balance %	VOCs ppm	Water Level from GL	Well Depth from GL	Notes
	Steady	Peak	mb	Steady	Peak	Steady	Peak	Steady	Min	Steady	Peak	Peak	m bgl	m bgl	
Start	-	-	1023	0.0	0.0	0.0	0.0	21.0	21.0	87.5	87.5	-	-	-	
BH201s	**0.1**	**0.1**	**1022**	**0.0**	**0.0**	**1.9**	**1.9**	**17.0**	**17.0**	**81.0**	**81.0**	**11.90**	**1.78**	**3.11**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH201d	**0.1**	**0.2**	**1022**	**0.0**	**0.0**	**0.0**	**0.0**	**21.0**	**21.0**	**78.8**	**78.8**	**22.80**	**2.65**	**6.90**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
WS201	**0.1**	**0.1**	**1023**	**0.0**	**0.0**	**2.7**	**2.7**	**16.8**	**16.8**	**80.3**	**80.3**	**0.90**	**1.62**	**1.75**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
WS202	**0.1**	**0.1**	**1023**	**0.0**	**0.0**	**0.3**	**0.3**	**20.1**	**20.1**	**79.5**	**79.5**	**0.10**	**Dry**	**1.65**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH01			**1022**										**1.59**	**9.40**	**Free phase hydrocarbons detected from 1.59m to 1.64m bgl using interface probe**
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BHa	**0.1**	**0.1**	**1023**	**0.0**	**0.0**	**7.5**	**7.5**	**8.2**	**8.2**	**84.1**	**84.1**	**0.20**	**Dry**	**4.00**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BHb	**0.1**	**0.2**	**1022**	**0.0**	**0.0**	**3.7**	**3.7**	**14.0**	**14.0**	**82.2**	**82.2**	**0.10**	**3.11**	**3.60**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BHc	**0.1**	**0.1**	**1022**	**0.0**	**0.1**	**5.2**	**5.2**	**12.4**	**12.4**	**82.3**	**82.3**	**0.10**	**Dry**	**2.75**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH202	**-2.0**	**-4.2**	**1022**	**3.3**	**3.3**	**0.1**	**0.1**	**18.6**	**18.6**	**78.0**	**78.0**	**5.40**	**6.45**	**13.50**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH203s	**-1.0**	**-2.5**	**1022**	**0.0**	**0.0**	**0.9**	**0.9**	**16.8**	**16.8**	**82.0**	**82.0**	**11.70**	**3.35**	**7.17**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH203d	**0.1**	**0.1**	**1022**	**0.7**	**0.8**	**0.9**	**1.0**	**17.9**	**17.9**	**80.6**	**80.6**	**3.10**	**6.78**	**13.76**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH204s	**0.1**	**0.1**	**1022**	**0.0**	**0.0**	**2.6**	**2.6**	**14.4**	**14.4**	**83.0**	**83.0**	**10.70**	**5.98**	**7.95**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH204d	**0.1**	**0.1**	**1022**	**0.0**	**0.0**	**0.2**	**0.2**	**20.8**	**20.8**	**78.9**	**78.9**	**8.90**	**7.00**	**9.50**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH205s	**0.1**	**0.1**	**1023**	**41.0**	**41.0**	**4.4**	**4.4**	**1.3**	**1.3**	**53.0**	**53.0**	**5.30**	**5.02**	**9.15**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH205d	**0.1**	**0.2**	**1023**	**11.4**	**11.4**	**4.3**	**4.3**	**12.3**	**12.3**	**72.0**	**72.0**	**3.70**	**6.35**	**12.50**	

Notes:

Atmospheric Pressure: 1023 (Falling)

Ground conditions: Dry, Windy

All boreholes monitored for gas for 3-5 minutes.

BH01 had no gas bung so no gas monitoring was undertaken.
PID Monitor (MiniRae Lite) used to record VOC concentrations within boreholes.
Groundwater sampled for chemical testing from BH01, BH201d, BH202, BH203s, BH203d, BH204s, BH204d, BH205s and BH205d.

Site: Parrs Wood Lane, Didsbury

Project No: 2333

Date: 15/03/2024

Personnel: TW

Monitoring point reference	Flow rate Litres/hr		Atmospheric pressure range	Methane % V/V		Carbon dioxide % V/V		Oxygen % V/V		Balance %	Balance %	VOCs ppm	Water Level from GL	Well Depth from GL	Notes
	Steady	Peak	mb	Steady	Peak	Steady	Peak	Steady	Min	Steady	Peak	Peak	m bgl	m bgl	
Start	-	-	1001	0.0	0.0	0.0	0.0	20.9	20.9	89.2	89.2	-	-	-	
BH201s	**0.2**	**0.2**	**1002**	**0.0**	**0.0**	**2.1**	**2.1**	**16.3**	**16.3**	**70.4**	**70.4**	**8.80**	**1.82**	**3.11**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH201d	**0.1**	**0.2**	**1002**	**0.0**	**0.0**	**0.2**	**0.2**	**20.5**	**20.5**	**77.3**	**77.3**	**11.90**	**2.34**	**6.90**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
WS201	**0.0**	**0.0**	**1001**	**0.0**	**0.0**	**1.9**	**1.9**	**17.9**	**17.9**	**81.2**	**81.2**	**0.30**	**1.69**	**1.75**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
WS202	**0.1**	**0.2**	**1002**	**0.0**	**0.0**	**0.1**	**0.1**	**20.4**	**20.4**	**80.1**	**80.1**	**0.00**	**Dry**	**1.65**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH01			**1002**										**1.66**	**9.40**	**Free phase hydrocarbons detected from 1.60m to 1.63m bgl using interface probe**
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BHa	**0.2**	**0.2**	**1001**	**0.0**	**0.0**	**6.8**	**6.8**	**11.1**	**11.1**	**82.2**	**82.2**	**0.10**	**Dry**	**4.00**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BHb	**0.1**	**0.2**	**1001**	**0.0**	**0.0**	**3.9**	**3.9**	**12.2**	**12.2**	**81.0**	**81.0**	**0.00**	**3.06**	**3.60**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BHc	**0.2**	**0.2**	**1001**	**0.0**	**0.0**	**4.3**	**4.3**	**14.7**	**14.7**	**83.3**	**83.3**	**0.10**	**Dry**	**2.75**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH202	**-1.4**	**-3.2**	**1002**	**2.1**	**2.1**	**0.3**	**0.3**	**16.2**	**16.2**	**75.3**	**75.3**	**6.60**	**6.33**	**13.50**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH203s	**-0.3**	**-1.1**	**1001**	**0.0**	**0.0**	**1.3**	**1.3**	**17.8**	**17.8**	**80.5**	**80.5**	**12.60**	**3.40**	**7.17**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH203d	**0.2**	**0.2**	**1001**	**1.1**	**1.1**	**1.4**	**1.4**	**16.2**	**16.2**	**79.7**	**79.7**	**4.40**	**6.56**	**13.76**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH204s	**0.3**	**0.3**	**1001**	**0.0**	**0.0**	**3.3**	**3.3**	**12.2**	**12.2**	**80.9**	**80.9**	**9.70**	**5.88**	**7.95**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH204d	**0.2**	**0.2**	**1001**	**0.0**	**0.0**	**0.4**	**0.4**	**19.3**	**19.3**	**77.4**	**77.4**	**5.70**	**6.98**	**9.50**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH205s	**0.2**	**0.2**	**1001**	**20.2**	**20.2**	**3.6**	**3.6**	**2.7**	**2.7**	**66.3**	**66.3**	**6.80**	**4.99**	**9.15**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH205d	**0.2**	**0.2**	**1001**	**8.3**	**8.3**	**3.9**	**3.9**	**10.1**	**10.1**	**70.8**	**70.8**	**4.40**	**6.22**	**12.50**	

Notes:

Atmospheric Pressure: 1001 (Rising)

Ground conditions: Dry, Windy

All boreholes monitored for gas for 3-5 minutes.

PID Monitor (MiniRae Lite) used to record VOC concentrations within boreholes.

Site: Parrs Wood Lane, Didsbury

Project No: 2333

Date: 22/04/2024

Personnel: TW

Monitoring point reference	Flow rate Litres/hr		Atmospheric pressure range	Methane % V/V		Carbon dioxide % V/V		Oxygen % V/V		Balance %	Balance %	VOCs ppm	Water Level from GL	Well Depth from GL	Notes
	Steady	Peak	mb	Steady	Peak	Steady	Peak	Steady	Min	Steady	Peak	Peak	m bgl	m bgl	
Start	-	-	1029	0.0	0.0	0.0	0.0	21.0	21.0	87.8	87.8	-	-	-	
BH201s	**0.2**	**0.2**	**1028**	**0.0**	**0.0**	**3.0**	**3.0**	**15.2**	**15.2**	**76.3**	**76.3**	**11.20**	**1.77**	**3.11**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH201d	**0.0**	**0.0**	**1028**	**0.0**	**0.0**	**1.7**	**1.7**	**21.1**	**21.1**	**77.3**	**77.3**	**5.30**	**2.60**	**6.90**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
WS201	**0.1**	**0.1**	**1029**	**0.0**	**0.0**	**3.8**	**3.8**	**13.7**	**13.7**	**77.4**	**77.4**	**1.20**	**1.63**	**1.75**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
WS202	**0.2**	**0.2**	**1028**	**0.0**	**0.0**	**0.1**	**0.1**	**20.4**	**20.4**	**80.1**	**80.1**	**2.20**	**Dry**	**1.65**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH01			**1028**										**1.58**	**9.40**	**Free phase hydrocarbons detected from 1.58m to 1.60m bgl using interface probe**
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BHa	**0.1**	**0.1**	**1029**	**0.0**	**0.0**	**5.4**	**5.4**	**8.7**	**8.7**	**87.4**	**87.4**	**0.40**	**3.10**	**4.00**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BHb	**0.1**	**0.1**	**1029**	**0.0**	**0.0**	**3.8**	**3.8**	**14.3**	**14.3**	**84.1**	**84.1**	**0.30**	**Dry**	**3.60**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BHc	**0.1**	**0.1**	**1029**	**0.0**	**0.0**	**4.2**	**4.2**	**13.7**	**13.7**	**82.2**	**82.2**	**0.20**	**Dry**	**2.75**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH202	**-2.8**	**-4.3**	**1028**	**0.0**	**0.0**	**1.4**	**1.5**	**19.3**	**19.3**	**78.8**	**78.8**	**9.40**	**6.00**	**13.50**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH203s	**0.1**	**0.1**	**1028**	**0.0**	**0.0**	**1.7**	**1.7**	**19.2**	**19.2**	**79.2**	**79.2**	**0.90**	**3.30**	**7.17**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH203d	**0.2**	**0.2**	**1028**	**0.0**	**0.0**	**1.8**	**1.8**	**18.8**	**18.8**	**79.7**	**79.7**	**5.90**	**6.90**	**13.76**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH204s	**0.2**	**0.2**	**1028**	**0.0**	**0.0**	**2.2**	**2.2**	**14.7**	**14.7**	**83.0**	**83.0**	**6.90**	**5.23**	**7.95**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH204d	**0.2**	**0.2**	**1028**	**0.0**	**0.0**	**1.8**	**1.8**	**19.7**	**19.7**	**77.4**	**77.4**	**4.30**	**6.99**	**9.50**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH205s	**0.2**	**0.2**	**1001**	**15.7**	**15.7**	**3.3**	**3.3**	**7.5**	**7.5**	**75.7**	**75.7**	**2.20**	**5.20**	**9.15**	
After	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH205d	**0.0**	**-0.2**	**1028**	**6.7**	**6.7**	**3.7**	**3.7**	**7.6**	**7.6**	**82.3**	**82.3**	**2.70**	**6.07**	**12.50**	

Notes:

Atmospheric Pressure: 1029 (Falling)

Ground conditions: Dry, Windy

All boreholes monitored for gas for 3-5 minutes.

PID Monitor (MiniRae Lite) used to record VOC concentrations within boreholes.

Groundwater sampled for chemical testing from BH01, BH201d, BH202, BH203s, BH203d, BH204s, BH204d, BH205s and BH205d.

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APPENDIX D

GEOSYNTEC CONSULTANTS
Photographic Record

Client: Westlakes Engineering **Project Number: GCU0400001**

Site Name: Didsbury Parrs Wood **Site Location: East Didsbury, Manchester M20 5ND**

Photograph ID: 1 **Date: 21/04/2026** **Direction: Undefined** **Comments: WS201**	
Photograph ID: 2 **Date: 21/04/2026** **Direction: Undefined** **Comments: BH205**	

GEOSYNTEC CONSULTANTS
Photographic Record

Client: Westlakes Engineering **Project Number: GCU0400001**

Site Name: Didsbury Parrs Wood **Site Location: East Didsbury, Manchester M20 5ND**

Photograph ID: 3 **Date: 21/04/2026** **Direction: Undefined** **Comments: BH201**	
Photograph ID: 4 **Date: 21/04/2026** **Direction: Undefined** **Comments: BH204**	

GEOSYNTEC CONSULTANTS
Photographic Record

Client: Westlakes Engineering **Project Number: GCU0400001**

Site Name: Didsbury Parrs Wood **Site Location: East Didsbury, Manchester M20 5ND**

Photograph ID: 5 **Date: 21/04/2026** **Direction: Undefined** **Comments: BH206**	
Photograph ID: 6 **Date: 21/04/2026** **Direction: Undefined** **Comments: BH202**	

GEOSYNTEC CONSULTANTS
Photographic Record

Client: Westlakes Engineering **Project Number: GCU0400001**

Site Name: Didsbury Parrs Wood **Site Location: East Didsbury, Manchester M20 5ND**

Photograph ID: 7 **Date: 21/04/2026** **Direction: Undefined** **Comments: BH03**	
Photograph ID: 8 **Date: 21/04/2026** **Direction: Undefined** **Comments: BHA**	

GEOSYNTEC CONSULTANTS
Photographic Record

Client: Westlakes Engineering **Project Number: GCU0400001**

Site Name: Didsbury Parrs Wood **Site Location: East Didsbury, Manchester M20 5ND**

Photograph ID: 9 **Date: 21/04/2026** **Direction: Undefined** **Comments: BH203**	
Photograph ID: 10 **Date: 21/04/2026** **Direction: Undefined** **Comments: BH301**	

GEOSYNTEC CONSULTANTS
Photographic Record

Client: Westlakes Engineering **Project Number: GCU0400001**

Site Name: Didsbury Parrs Wood **Site Location: East Didsbury, Manchester M20 5ND**

Photograph ID: 11 **Date: 21/04/2026** **Direction: Undefined** **Comments: BH302**	
Photograph ID: 12 **Date: 21/04/2026** **Direction: Undefined** **Comments: BH303**	

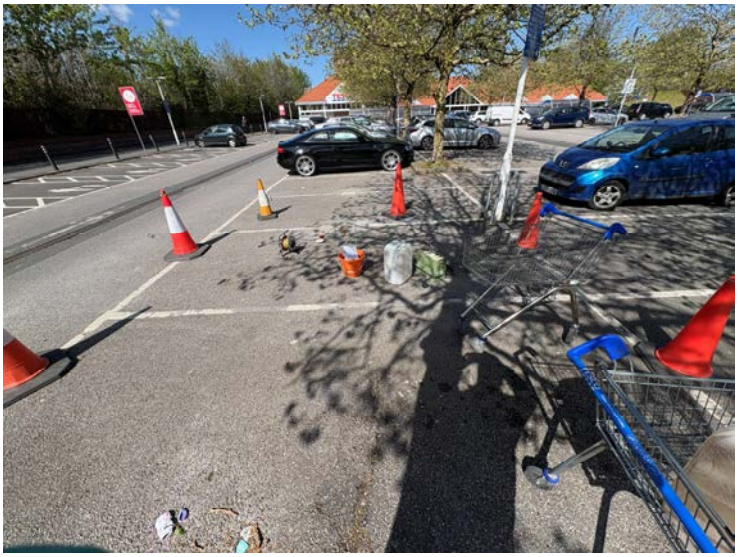
GEOSYNTEC CONSULTANTS Photographic Record	
Client: Westlakes Engineering	**Project Number: GCU0400001**
Site Name: Didsbury Parrs Wood	**Site Location: East Didsbury, Manchester M20 5ND**

Photograph ID: 13 **Date: 21/04/2026** **Direction: NW** **Comments: Chapter 8 barrier setup for road closure**	

Photograph ID: 14 **Date: 21/04/2026** **Direction: Undefined** **Comments: BH303 Mud**	

GEOSYNTEC CONSULTANTS Photographic Record	
Client: Westlakes Engineering	**Project Number: GCU0400001**
Site Name: Didsbury Parrs Wood	**Site Location: East Didsbury, Manchester M20 5ND**

Photograph ID: 15 **Date: 21/04/2026** **Direction: Undefined** **Comments: BH303 well-cover flooding**	

Photograph ID: 16 **Date: 21/04/2026** **Direction: N** **Comments: Car park well setup**	

GEOSYNTEC CONSULTANTS Photographic Record	
Client: Westlakes Engineering	**Project Number: GCU0400001**
Site Name: Didsbury Parrs Wood	**Site Location: East Didsbury, Manchester M20 5ND**

Photograph ID: 17 **Date: 21/04/2026** **Direction: NE** **Comments: Cones for car park section closure**	
Photograph ID: 18 **Date: 21/04/2026** **Direction: SE** **Comments: Roadway well barrier setup**	

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APPENDIX E

UK (SoBRA) GAC: Groundwater (Inhalation Risk)			Borehole Identifier	BH303 (s)	BH303 (d)	BH302 (s)	BH302 (d)	BH301 (s)	BH301 (d)	BH202	BH201 (s)	BH201 (d)	BH204 (s)	BH204 (d)	BH203 (d)	BH203 (s)	BH205 (s)	BH205 (d)	BH01	BH201 (L)	BH201 (L)	BH201 (L)	BH201 (L)	BH303 (L)	BH303(L)	BH303(L)	BH303	BH302(L)	BH302(L)	BH302(L)
			Depth (m)																											
			Date	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	27-Aug-25	27-Aug-25	27-Aug-25	15-Nov-23	15-Nov-23	15-Nov-23	15-Nov-23	30-Jul-25	31-Jul-25	31-Jul-25	30-Jul-25	28-Jul-25	28-Jul-25	29-Jul-25
Compound	**Unit**	**LOD**	**Residential**																											
TPH-CWG																														
Aliphatics																														
>C5-C6	µg/l	1	1,900.00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2.00	<1	1.00	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1
>C6-C8	µg/l	1	1,500.00	23.00	4.00	12.00	7.00	18.00	7.00	<1	6.00	8.00	4.00	<1	<1	<1	78.00	6.00	19.00	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1
>C8-C10	µg/l	5	57.00	679.00	8.00	99.00	28.00	507.00	<5	<5	59.00	1120.00	<5	<5	<5	13.00	819.00	<5	176.00	< 1.0	< 1.0	< 1.0	< 1.0	<10	<10	<10	<10	<10	<10	<10
>C10-C12	µg/l	5	37.00	2410.00	25.00	510.00	100.00	2840.00	<5	<5	486.00	5230.00	<5	5.00	<5	35.00	3920.00	15.00	1040.00	< 10	< 10	< 10	< 10	<10	<10	<10	<10	<10	<10	<10
>C12-C16	µg/l	5	-	7030.00	117.00	2630.00	512.00	10900.00	11.00	<5	2210.00	18600.00	<5	6.00	<5	196.00	14300.00	193.00	4040.00	< 10	< 10	< 10	< 10	<10	<10	<10	<10	<10	<10	<10
>C16-C21	µg/l	5	-	4670.00	119.00	1720.00	392.00	7520.00	10.00	<5	1400.00	11100.00	<5	6.00	<5	171.00	9180.00	209.00	2480.00	< 10	< 10	< 10	< 10	<10	<10	<10	<10	<10	<10	<10
>C21-C35	µg/l	5	-	629.00	26.00	253.00	63.00	1400.00	11.00	<5	247.00	1830.00	<5	12.00	<5	43.00	976.00	52.00	451.00	< 10	< 10	< 10	< 10	<20	<20	<20	<20	<20	<20	<20
Total aliphatics C5-35	µg/l	5	-																	< 10	< 10	< 10	< 10	<20	<20	<20	<20	<20	<20	<20
Aromatics																														
>C5-EC7	µg/l	10	210,000.00	<1	<1	<1	<1	4.00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1
>EC7-EC8	µg/l	10	220,000.00	<1	1.00	<1	1.00	<1	<1	<1	<1	2.00	<1	<1	<1	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1
>EC8-EC10	µg/l	10	1,900.00	552.00	24.00	154.00	213.00	273.00	12.00	<5	30.00	413.00	<5	112.00	<5	38.00	441.00	21.00	489.00	< 1.0	< 1.0	< 1.0	< 1.0	<10	<10	<10	<10	<10	<10	<10
>EC10-EC12	µg/l	10	6,800.00	2780.00	72.00	910.00	521.00	2100.00	20.00	<5	275.00	3190.00	<5	341.00	<5	391.00	3000.00	108.00	1750.00	15.00	< 10	130.00	< 10	37.00	<10	<10	<10	**44.00**	<10	<10
>EC12-EC16	µg/l	10	39,000.00	8590.00	180.00	2100.00	881.00	6640.00	82.00	<5	1490.00	13600.00	<5	243.00	12.00	883.00	11800.00	351.00	5360.00	60.00	< 10	220.00	< 10	130.00	<10	<10	**11.00**	**145.00**	**10.00**	<10
>EC16-EC21	µg/l	10	-	2530.00	86.00	669.00	277.00	2710.00	59.00	6.00	601.00	4890.00	8.00	66.00	29.00	217.00	4490.00	212.00	1680.00	50.00	< 10	100.00	< 10	68.00	10.00	<10	<10	**66.00**	**13.00**	<10
>EC21-EC35	µg/l	10	-	295.00	20.00	82.00	35.00	319.00	14.00	<10	54.00	433.00	<10	19.00	12.00	32.00	462.00	32.00	235.00	< 10	< 10	20.00	< 10	<20	<20	<20	<20	<20	<20	<20
Total aromatics C5-35	µg/l	10	-	14700.00	383.00	3920.00	1930.00	12000.00	187.00	<10	2450.00	22500.00	<10	781.00	53.00	1560.00	20200.00	724.00	9510.00	130.00	< 10	460.00	< 10	280.00	<20	<20	<20	**251.00**	**26.00**	<20
VOC																														
Dichlorodifluoromethane	µg/l	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											<1
Chloromethane	µg/l	10	14.00	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10											<10
Vinyl Chloride	µg/l	1	12.00	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3											<1
Bromomethane	µg/l	1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
Chloroethane	µg/l	1	10,000.00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
Trichlorofluoromethane	µg/l	1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
trans-1-2-Dichloroethene	µg/l	1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
Dichloromethane (DCM)	µg/l	5	3,300.00	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5											<5
Carbon Disulphide	µg/l	1	56.00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
1,1-Dichloroethene (DCE)	µg/l	1	160.00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
1,1-Dichloroethane	µg/l	1	2,700.00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
cis-1-2-Dichloroethene	µg/l	1	370.00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
Bromochloromethane	µg/l	5	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5											<5
Chloroform (Trichloromethane)	µg/l	1	790.00	<1	2.00	<1	<1	<1	2.00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
2,2-Dichloropropane	µg/l	1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
1,2-Dichloropropane	µg/l	2	22.00	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2											<1
1,1,1-Trichloroethane	µg/l	1	3,000.00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
1,1-Dichloropropene	µg/l	1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
Carbon tetrachloride	µg/l	1	5.30	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
Dibromomethane	µg/l	1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
1,2-Dichloropropane	µg/l	1	22.00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
Bromodichloromethane	µg/l	10	17.00	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10											<10
Trichloroethene (TCE)	µg/l	1	3.20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.00	<1	<1	<1	<1	<1											<1
cis-1-3-Dichloropropene	µg/l	1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
trans-1-3-Dichloropropene	µg/l	1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
1,1,2-Trichloroethane	µg/l	1	520.00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
1,3-Dichloropropane	µg/l	1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
Dibromochloromethane	µg/l	3	-	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3											<3
1,2-Dibromoethane	µg/l	1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
Tetrachloroethene (PCE)	µg/l	1	61.00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
1,1,1,2-Tetrachloroethane	µg/l	1	240.00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	3.00	<1											<1
Chlorobenzene	µg/l	1	98.00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
Bromoform	µg/l	3	3,100.00	<3	10.00	<3	<3	<3	8.00	<3	<3	<3	<3	<3	<3	<3	<3	7.00	<3											<3
Styrene	µg/l	1	8,800.00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
1,1,2,2-Tetrachloroethane	µg/l	1	1,600.00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
1,2,3-Trichloropropane	µg/l	1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
Isopropylbenzene	µg/l	1	850.00	20.00	2.00	14.00	5.00	19.00	<1	<1	<1	<1	<1	<1	<1	<1	6.00	<1	5.00											<1
Bromobenzene	µg/l	1	220.00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
2-Chlorotoluene	µg/l	1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
n-propylbenzene	µg/l	1	-	27.00	1.00	13.00	2.00	26.00	<1	<1	<1	<1	<1	<1	<1	<1	6.00	<1	7.00											<1
4-Chlorotoluene	µg/l	1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
1,2,4-Trimethylbenzene	µg/l	1	24.00	<1	2.00	4.00	14.00	2.00	1.00	<1	<1	11.00	<1	10.00	<1	<1	14.00	<1	84.00											
4-Isopropyltoluene	µg/l	1	-	<1	<1	<1	1.00	<1	<1	<1	<1	1.00	<1	2.00	<1	<1	2.00	<1	<1											<1
1,3,5-Trimethylbenzene	µg/l	1	-	<1	<1	1.00	4.00	<1	<1	<1	<1	4.00	<1	7.00	<1	<1	5.00	<1	<1											<1
1,2-Dichlorobenzene	µg/l	1	2,000.00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
1,4-Dichlorobenzene	µg/l	1	5,000.00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
sec-Butylbenzene	µg/l	1	-	32.00	1.00	11.00	2.00	26.00	<1	<1	<1	<1	<1	<1	<1	2.00	8.00	<1	4.00											<1
tert-Butylbenzene	µg/l	2	-	4.00	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2											<2
1,3-Dichlorobenzene	µg/l	1	31.00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
n-Butylbenzene	µg/l	1	-	42.00	<1	5.00	2.00	25.00	<1	<1	<1	2.00	<1	<1	<1	1.00	7.00	<1	2.00											<1
1,2-Dichloroethane	µg/l	2	160.00																											<2
1,2-Dibromo-3-chloropropane	µg/l	2	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2											<2
1,2,4-Trichlorobenzene	µg/l	3	68.00	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3											<3
1,2,3-Trichlorobenzene	µg/l	3	35.00	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3											<3
Isopropylbutadiene																														<1
Hexachlorobutadiene	µg/l	1	1.70	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1											<1
Benzene	µg/l	1	500.00	<1	<1	<1	<1	4.00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	< 3.0	< 3.0	< 3.0	< 3.0	<1	<1	<1	<1	<1	<1	<1
Toluene	µg/l	1	230,000.00	<1	1.00	<1	1.00	<1	<1	<1	<1	2.00	<1	<1	<1	<1	<1	<1	<1	< 3.0	< 3.0	< 3.0	< 3.0	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	µg/l	1	10,000.00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	< 3.0	< 3.0	< 3.0	< 3.0	<1	<1	<1	<1	<1	<1	<1
p/m-Xylene	µg/l	1	9,500.00	<1	1.00	2.00	9.00	<1	<1	<1	<1	4.00	<1	3.00	<1	<1	3.00	<1	1.00	< 3.0	< 3.0	< 3.0	< 3.0	<1	<1	<1	<1	<1	<1	<1
o-Xylene	µg/l	1	12,000.00	1.00	<1	<1	1.00	1.00	<1	<1	<1	3.00	<1	<1	<1	<1	2.00	<1	1.00	< 3.0	< 3.0	< 3.0	< 3.0	<1	<1	<1	<1	<1	<1	<1
Methyl Tertiary Butyl Ether	µg/l	1	83,000.00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	< 10	< 10	< 10	< 10	<1	<1	<1	<1	<1	<1	<1
SVOC																														
1,2,4-Trichlorobenzene	µg/l	1	68.00	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
1,2-Dichlorobenzene	µg/l	1	2,000.00	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
1,3-Dichlorobenzene	µg/l	1	31.00	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
1,4-Dichlorobenzene	µg/l	1	5,000.00	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
2,4-Dichlorophenol																														<2
1,1,1-Trichloroethane	µg/l	1	3,000.00	<10	<1	<10	<10	<10	<1	<1	1.0	<1	<1	<1	<1	<1	<10	<1	<10											
2,4,5-Trichlorophenol	µg/l	1	-	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
2,4,6-Trichlorophenol	µg/l	1	-	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
2,4-Dimethylphenol	µg/l	1	-	<10	<1	<10	<10	<10	<1	<1	2.0	<1	<1	<1	<1	<1	<10	<1	<10											<2
2,4-Dimethylphenol	µg/l	1	-	21.0	5.0	<10	<10	<10	<1	<1	<1	<1	<1	<1	2.0	4.0	<10	<1	<10											
2,6-Dinitrotoluene	µg/l	1	-	<10	<1	<10	<10	<10	2.0	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
2,4-Dinitrotoluene	µg/l	1	-																											<2
2-Chloronaphthalene	µg/l	1	160.00	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
2-Chlorophenol	µg/l	1	-	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
2-Methylnaphthalene	µg/l	1	-	<10	2.0	12.0	32.0	<10	<1	<1	<1	<1	<1	2.0	<1	<1	<10	<1	<10											<2
2-Methylphenol	µg/l	1	-	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
2-Nitrophenol	µg/l	1	-	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
4-Bromophenyl phenyl ether	µg/l	1	-	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
4-Chloro-3-methylphenol	µg/l	1	-	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
Bis(2-chloroisopropyl)ether	µg/l	1	-	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
3+4-Methylphenol	µg/l	1	-	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
4-Nitrophenol	µg/l	1	-	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
Bis(2-chloroethyl)ether	µg/l	1	-	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
Bis(2-chloroethoxy)methane	µg/l	1	-	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	18.0	<1	<10											<2
Bis(2-ethylhexyl)phthalate	µg/l	10	-	<100	<10	<100	<100	<100	<10	<10	<10	<10	<10	<10	<10	<10	<100	<10	<100											<4
Butylbenzyl phthalate	µg/l	1	-	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
Carbazole	µg/l	1	-	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
Dibenzofuran	µg/l	1	-	<10	1.0	<10	<10	10.0	<1	<1	<1	<1	<1	<1	<1	2.0	<10	<1	<10											<2
n-Dibutylphthalate	µg/l	1	-	<10	<1	<10	<10	<10	7.0	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
n-Dioctylphthalate	µg/l	10	-	<100	<10	<100	<100	<100	<10	<10	<10	<10	<10	<10	<10	<10	<100	<10	<100											<10
n-Nitroso-n-dipropylamine	µg/l	1	-	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
Diethyl phthalate	µg/l	1	-	<10	1.0	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
Dimethyl phthalate	µg/l	1	-	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
Hexachlorobutadiene	µg/l	1	1.70	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
Hexachlorobenzene SVOC	µg/l	1	-	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
Pentachlorophenol SVOC	µg/l	1	-	<10	<1	<10	<10	24.0	<1	<1	3.0	<1	<1	<1	<1	<1	22.0	<1	<10											<2
Phenol	µg/l	1	-	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
Hexachloroethane	µg/l	1	8.50	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
Nitrobenzene	µg/l	1	-	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
Isophorone	µg/l	1	-	<10	<1	<10	<10	13.0	<1	<1	<1	<1	<1	<1	<1	<1	25.0	<1	<10											<2
Perylene	µg/l	1	-	<10	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10											<2
PAH																														
Acenaphthene	µg/l	0.01	170,000.00	113.00	1.01	15.60	2.35	29.10	<0.01	<0.01	<0.01	7.76	<0.01	0.93	<0.01	2.25	20.90	0.02	12.50	0.54	< 0.01	1.30	< 0.01	0.10	<0.02	<0.02	<0.02	0.09	<0.02	<0.02
Acenaphthylene	µg/l	0.01	220,000.00	73.60	0.46	5.40	<1.00	15.40	<0.01	<0.01	<0.01	4.29	<0.01	0.10	<0.01	0.43	26.50	0.01	9.64	0.17	< 0.01	0.28	< 0.01	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Anthracene	µg/l	0.01	-	19.20	0.17	2.92	<1.00	6.41	<0.01	<0.01	<0.01	1.58	<0.01	<0.01	<0.01	0.15	9.92	0.03	3.14	< 0.01	< 0.01	0.10	< 0.01	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Benz(a)anthracene	µg/l	0.01	-	3.60	<0.01	1.68	<1.00	<1.00	<0.01	0.01	<0.01	<1.00	<0.01	<0.01	<0.01	<0.01	<1.00	0.01	<1.00	< 0.01	< 0.01	< 0.01	< 0.01	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo(a)pyrene	µg/l	0.01	-	3.27	<0.01	<1.00	<1.00	<1.00	<0.01	0.01	<0.01	<1.00	<0.01	<0.01	<0.01	<0.01	<1.00	<0.01	<1.00	< 0.01	< 0.01	< 0.01	< 0.01	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo(b)fluoranthene	µg/l	0.01	-	3.70	<0.01	<1.00	<1.00	<1.00	<0.01	0.01	<0.01	<1.00	<0.01	<0.01	<0.01	<0.01	<1.00	<0.01	<1.00	< 0.01	< 0.01	< 0.01	< 0.01	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo(ghi)perylene	µg/l	0.01	-	2.57	<0.01	<1.00	<1.00	<1.00	<0.01	0.01	<0.01	<1.00	<0.01	<0.01	<0.01	<0.01	<1.00	<0.01	<1.00	< 0.01	< 0.01	< 0.01	< 0.01	0.06	<0.02	<0.02	0.03	<0.02	<0.02	<0.02
Benzo(k)fluoranthene	µg/l	0.01	-	1.96	<0.01	<1.00	<1.00	<1.00	<0.01	0.01	<0.01	<1.00	<0.01	<0.01	<0.01	<0.01	<1.00	<0.01	<1.00	< 0.01	< 0.01	< 0.01	< 0.01	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chrysene	µg/l	0.01	-	7.96	0.02	2.34	<1.00	2.06	<0.01	0.02	<0.01	1.10	<0.01	<0.01	<0.01	0.01	2.03	<0.01	1.80	< 0.01	< 0.01	< 0.01	< 0.01	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Dibenzo(ah)anthracene	µg/l	0.01	-	<1.00	<0.01	<1.00	<1.00	<1.00	<0.01	0.01	<0.01	<1.00	<0.01	<0.01	<0.01	<0.01	<1.00	<0.01	<1.00	< 0.01	< 0.01	< 0.01	< 0.01	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Fluoranthene	µg/l	0.01	-	14.10	0.05	4.76	<1.00	2.13	<0.01	0.01	<0.01	<1.00	<0.01	<0.01	<0.01	0.04	2.64	<0.01	2.03	< 0.01	< 0.01	< 0.01	< 0.01	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Fluorene	µg/l	0.01	210,000.00	377.00	1.58	23.90	2.91	76.60	0.02	0.01	0.03	11.70	<0.01	1.03	<0.01	3.77	92.40	0.02	28.70	0.74	< 0.01	1.60	< 0.01	0.08	<0.02	<0.02	<0.02	0.04	<0.02	<0.02
Indeno(123cd)pyrene	µg/l	0.01	-	2.24	<0.01	<1.00	<1.00	<1.00	<0.01	<0.01	<0.01	<1.00	<0.01	<0.01	<0.01	<0.01	<1.00	<0.01	<1.00	< 0.01	< 0.01	< 0.01	< 0.01	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Naphthalene	µg/l	0.01	1,400.00	12.20	0.79	9.94	23.30	6.88	<0.01	<0.01	0.01	14.90	<0.01	5.26	<0.01	0.52	10.00	0.15	4.48	0.70	< 0.01	67.00	< 0.01	0.04	<0.02	<0.02	<0.02	0.02	<0.02	0.05
Phenanthrene	µg/l	0.01	-	219.00	1.49	30.80	3.84	80.00	0.03	0.02	<0.01	9.65	<0.01	0.12	<0.01	1.16	53.10	0.02	26.40	0.32	< 0.01	0.89	< 0.01	0.04	<0.02	<0.02	0.03	<0.02	<0.02	<0.02
Pyrene	µg/l	0.01	-	15.50	0.14	7.90	<1.00	5.17	<0.01	0.01	<0.01	1.81	<0.01	<0.01	<0.01	0.07	6.61	0.02	4.26	< 0.01	< 0.01	< 0.01	< 0.01	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Metals																														
Arsenic	µg/l	1	-	8.00	10.00	13.00	3.00	37.00	3.00	5.00	3.00	3.00	2.00	4.00	2.00	7.00	6.00	15.00	11.00	< 1.0	< 1.0	5.40	< 1.0	1.00	<1	<1	3.00	1.00	<1	1.00
Boron	µg/l	10	-	24.00	36.00	57.00	50.00	<50	53.00	59.00	11.00	11.00	16.00	29.00	17.00	16.00	<20	14.00	10.00	< 10	< 10	< 10	< 10							
Cadmium	µg/l	0.2	-	0.60	0.50	9.50	<0.2	2.80	<0.2	<0.2	0.30	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	< 0.08	< 0.08	< 0.08	< 0.08	<1	<1	<1	<1	<1	<1	<1
Copper	µg/l	4	-	14.00	21.00	32.00	<4	53.00	<4	<4	5.00	<4	<4	<4	<4	<4	<8	4.00	4.00	< 5.0	< 5.0	< 5.0	< 5.0	<4	6.00	<4	<4	<4	9.00	<4
Chromium	µg/l	1	-	6.00	9.00	44.00	2.00	11.00	2.00	<1	1.00	2.00	<1	<1	<1	2.00	4.00	4.00	<1	< 0.4	< 0.4	1.00	< 0.4	<1	<1	<1	<1	<1	<1	<1
Chromium (VI)	µg/l	0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	8.60	2.70	6.80	4.00							
Lead	µg/l	0.1	-	27.20	15.60	235.00	2.50	39.00	2.50	0.70	2.50	4.00	0.90	0.30	0.70	2.80	3.70	7.10	0.80	2.30	< 1.0	1.40	< 1.0	1.00	2.00	<1	<1	1.00	3.00	<1
Mercury	µg/l	0.1	-	<0.1	<0.1	<0.5	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	< 0.5	< 0.5	< 0.5	< 0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	µg/l	2	-	5.00	18.00	39.00	6.00	25.00	4.00	2.00	<2	3.00	<2	<2	<2	2.00	6.00	6.00	<2	0.60	0.50	2.80	< 0.3	<2	<2	<2	<2	<2	3.00	<2
Selenium	µg/l	1	-	1.00	3.00	14.00	<1	6.00	<1	<1	<1	<1	<1	<1	<1	<1	<2	1.00	<1	< 4.0	< 4.0	< 4.0	< 4.0	<1	<1	<1	<1	<1	<1	<1
Zinc	µg/l	2	-	26.00	249.00	595.00	76.00	78.00	49.00	5.00	25.00	28.00	4.00	5.00	3.00	12.00	39.00	73.00	5.00	9.00	2.30	6.70	11.00	3.00	12.00	4.00	9.00	3.00	13.00	3.00
Miscellaneous compounds																														
pH (w)	pH	0.01		6.39	7.04	6.50	6.63	6.44	7.05	7.35	6.96	6.93	6.80	7.18	6.69	6.74	6.58	6.56	6.82											
Hardness Total	mg/l Ca CO3	4		186.70	579.20	745.70	326.40	314.20	383.90	374.30	60.10	80.80	157.50	283.60	182.80	202.50	321.40	180.70	51.80											
DOC - Dissolved Organic Carbon (w)	mg/l	2		10.80	5.50	24.30	8.80	7.80	5.10	2.30	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.60	2.80	<2.0											

Notes:

(shaded) Exceeds Residential SoBRA

\- No screening criteria promulgated

UK (SoBRA) GAC - Soil vapour GAC derived using SoBRA groundwater vapour GAC methodology. The screening criteria is for inhalation risk of dissolved compounds in groundwater:
Society of Brownfield Risk Assessment,September 2024. *Development of* Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater. Version 2.0.
(Other screening criteria may be requested from client, in which case screening criteria will need to be entered manually).

Table App E2
Soil Sampling Results

Compound	LOD	Units	UK Soil Screening Level [a]	Soil Results																				
			Residential without Homegrown Consumption	BH201	BH201	BH201	BH201	BH202	SA201	SA201	WS201	WS202	WS203	BH301	BH301	BH301	BH301	BH303	BH303	BH303	BH303	BH302	BH302	BH302
Depth of sample (m)				3	4	6.5	8	0.8	0.4	0.9	0.6	2.8	0.5	3.5	5	6	12.5	3	5	8	13	3.2	4.5	12
Strata																								
Date of sample				15/11/2023	15/11/2023	15/11/2023	16/11/2023	16/11/2023	16/11/2023	16/11/2023	15/11/2023	15/11/2023	15/11/2023	23/07/2025	24/07/2025	24/07/2025	24/07/2025	30/07/2025	31/07/2025	31/07/2025	30/07/2025	28/07/2025	28/07/2025	29/07/2025
METALS																								
Arsenic	0.5		40	4.00	2.90	4	5.90	2.30	2.50	4.50	5.50	1.70	2.80	1.00	3.00	<1	<1	1.00	4.00	2.00	<1.0	2.00	<1.0	1.00
Boron	0.1		11000	< 0.2	0.3	0.2	0.2	< 0.2	0.8	0.4	0.3	< 0.2	< 0.2											
Cadmium	0.1		150	< 0.2	< 0.2	< 0.2	< 0.2	0.8	0.5	< 0.2	0.5	0.5	0.7	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium (VI)	0.3		21	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8											
Chromium	0.5		-	13	13	13	17	6.5	7.5	12	10	4.2	5.7	7	10	19	5	7	10	13	6	8	15	6
Copper	1	mg/kg	7100	8.2	12	15	17	6.3	7.8	11	18	3.5	7.4	7	10	25	4	7	10	13	2	4	15	3
Lead	5		310	5.4	5.9	7.6	8	46	11	15	180	4.8	16	4	15	10	3	5	6	6	2	3	7	2
Mercury	0.1		300	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Nickel	0.7		180	15	14	16	22	5.6	7.8	11	8.7	2.9	8.5	10	10	30	7	11	15	17	7	10	21	6
Selenium	1		430	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Zinc	5		40000	32	25	35	42	46	24	27	75	14	34	22	22	61	15	21	26	34	13	17	36	17
VOC MS																								
Chloromethane	0.005		0.0085	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.01	<0.01	<0.0250	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0250	<0.01
Chloroethane	0.005		8.4	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
Bromomethane	0.005		-	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
Vinyl Chloride	0.005		0.015	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
Trichlorofluoromethane	0.005		-	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
1,1-Dichloroethene (DCE)	0.005		0.23	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
1,1-Dichloropropene	0.005		-											<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
1,1,2-Trichloroethane	0.005		0.88	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
trans-1-2-Dichloroethene	0.005		0.93	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
Methyl Tertiary Butyl Ether	0.005		73	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01
1,1-Dichloroethane	0.005		2.5	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
2,2-Dichloropropane	0.005		-	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
Chloroform (Trichloromethane)	0.005		1.2	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
1,1,1-Trichloroethane	0.005		9	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
1,2-Dichloroethane	0.005		0.16	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.002	<0.002	<0.0050	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0050	<0.002
1,2-Dichloropropene	0.005		-	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-											
cis-1-2-Dichloroethene	0.005		0.5	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001	<0.025	<0.001
Benzene	0.005		0.89	< 0.005	< 0.005	0.074	< 0.005	-	-	-	-	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01
Carbon tetrachloride	0.005		0.026	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
1,2-Dichloropropane	0.005		0.024	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
Trichloroethene (TCE)	0.005		0.0097	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001	<0.025	<0.001
Dibromomethane	0.005		-	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
Bromodichloromethane	0.005		0.019	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.01	<0.01	<0.0250	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0250	<0.01
cis-1-3-Dichloropropene	0.005		-	< 0.005	< 0.005^	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
trans-1-3-Dichloropropene	0.005		-	< 0.005	< 0.005^	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
Toluene	0.005		880	< 0.005	< 0.005	89	< 0.005	-	-	-	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01
1,1,2-Trichloroethane	0.005		0.88	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
1,3-Dichloropropane	0.005		-	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
Dibromochloromethane	0.005	mg/kg	-	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.003	<0.003	<0.075	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.075	<0.003
Tetrachloroethene (PCE)	0.005		0.32	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<4	<4	<0.001	<0.001	<0.025	<0.001
1,2-Dibromoethane	0.005		-	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
Chlorobenzene	0.005		0.46	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
1,1,1,2-Tetrachloroethane	0.005		1.5	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
Ethylbenzene	0.005		83	< 0.005	< 0.005	0.13	0.23	-	-	-	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	0.15	<0.01
p/m-Xylene	0.005		-	< 0.005	< 0.005	0.38	0.76	-	-	-	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	0.11	<0.01
Styrene	0.005		35	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
Bromoform	0.005		5.2	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.003	<0.003	<0.075	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.075	<0.003
o-Xylene	0.005		88	< 0.005	< 0.005	0.2	0.25	-	-	-	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	0.02	<0.01
Isopropylbenzene	0.005		12	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	0.019	<0.001	<0.025	<0.001	0.02	<0.001	<0.001	<0.001	0.015	0.098	<0.001
1,1,2,2-Tetrachloroethane	0.005		3.9	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
Bromobenzene	0.005		0.91	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
N-Propylbenzene	0.005		-	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	0.03	<0.001	<0.025	<0.001	0.03	<0.001	<0.001	<0.001	0.025	0.128	<0.001
2-Chlorotoluene	0.005		-	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
4-Chlorotoluene	0.005		-	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
1,3,5-Trimethylbenzene	0.005		-	< 0.005	< 0.005	0.32	1.3	-	-	-	-	-	-	0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.137	<0.001
tert-Butylbenzene	0.005		-	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.002	<0.002	<0.0050	<0.002	0.007	<0.002	<0.002	<0.002	<0.002	<0.0050	<0.002
1,2,4-Trimethylbenzene	0.005		0.41	< 0.005	< 0.005	0.7	2.3	-	-	-	-	-	-	0.029	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.525	<0.001
sec-Butylbenzene	0.005		-	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.0039	<0.001	<0.025	<0.001	<41	<0.001	<0.001	<0.001	0.049	0.155	<0.001
1,3-Dichlorobenzene	0.005		0.44	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
P-Isopropyltoluene	0.005		-	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-											
1,4-Dichlorobenzene	0.005		61	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
1,2-Dichlorobenzene	0.005		24	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
Butylbenzene	0.005		-	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-											
1,2-Dibromo-3-chloropropane	0.005		-	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.002	<0.002	<0.0050	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0050	<0.002
1,2,4-Trichlorobenzene	0.005		2.6	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.003	<0.003	<0.075	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.075	<0.003
Hexachlorobutadiene	0.005		0.32	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.001	<0.001	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.001
1,2,3-Trichlorobenzene	0.005		1.5	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	-	-	-	<0.003	<0.003	<0.075	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.075	<0.003
SVOC MS																								
Aniline	0.1		-	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	-											
1,2,4-Trichlorobenzene	0		2.6											<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Phenol	0.2		440	<0.2	<0.2	<0.2	<0.2	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Chlorophenol	0.1		-	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Bis(2-chloroethyl)ether	0.2		-	<0.2	<0.2	<0.2	<0.2	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,3-Dichlorobenzene	0.2		0.44	<0.2	<0.2	<0.2	<0.2	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,2-Dichlorobenzene	0.1		24	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,4-Dichlorobenzene	0.2		61	<0.2	<0.2	<0.2	<0.2	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Bis(2-chloroisopropyl)ether	0.1		-	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Methylphenol	0.3		-	<0.3	<0.3	<0.3	<0.3	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Hexachloroethane	0.05		0.22	< 0.05	< 0.05	< 0.05	< 0.05	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrobenzene	0.3		-	<0.3	<0.3	<0.3	<0.3	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Methylphenol	0.2		-	<0.2	<0.2	<0.2	<0.2	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Isophorone	0.2		-	<0.2	<0.2	<0.2	<0.2	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Pentachlorophenol	0		-											<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
n-Nitroso-n-dipropylamine	0		-											<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Nitrophenol	0.3		-	<0.3	<0.3	<0.3	<0.3	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Nitrophenol	0		-											<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2,4-Dimethylphenol	0.3		82	<0.3	<0.3	<0.3	<0.3	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Bis(2-chloroethoxy)methane	0.3		-	<0.3	<0.3	<0.3	<0.3	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Bis(2-ethylhexyl) phthalate	0		-											<<0.5	<<0.5	2.93	<<0.5	<<0.5	<<0.5	<<0.5	<<0.5	<<0.5	<<0.5	<<0.5
1,2,4-Trichlorobenzene	0.3		2.6	<0.3	<0.3	<0.3	<0.3	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Naphthalene	0.05		15	<0.05	<0.05	12	0.34	-	-	-	-	-	-											
2,4-Dichlorophenol	0.3		-	<0.3	<0.3	<0.3	<0.3	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Chloroaniline	0.1		-	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	-											
Hexachlorobutadiene	0.1		0.32	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Chloro-3-methylphenol	0.1		-	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2,4,6-Trichlorophenol	0.1		-	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2,4,5-Trichlorophenol	0.2		-	<0.2	<0.2	<0.2	<0.2	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Methylnaphthalene	0.1		-	0.1	0.1	1<0.50	0.4	-	-	-	-	-	-	1.31	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.216	11.9	0.135
2-Chloronaphthalene	0.1		-	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Dimethylphthalate	0.1		-	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2,4-Dinitrotoluene	0	µg/kg	170											<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	1.25	<0.010
2,6-Dinitrotoluene	0.1		78	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Acenaphthylene	0.05		2900	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-											
Acenaphthene	0.05		3000	<0.05	<0.05	<0.05	0.05	-	-	-	-	-	-											
2,4-Dinitrotoluene	0.2		170	<0.2	<0.2	<0.2	<0.2	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	1.25	<0.010
Dibenzofuran	0.2		-	<0.2	<0.2	1.8	<0.2	-	-	-	-	-	-	0.222	<0.010	<0.010	<0.010	0.326	<0.010	<0.010	<0.010	<0.010	0.352	<0.010
4-Chlorophenyl phenyl ether	0.3		-	<0.3	<0.3	<0.3	<0.3	-	-	-	-	-	-											
Diethyl phthalate	0.2		1800	<0.2	<0.2	<0.2	<0.2	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Dimethyl phthalate	0		-											<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Nitroaniline	0.2		-	<0.2	<0.2	<0.2	<0.2	-	-	-	-	-	-											
Fluorene	0.05		2800	<0.05	<0.05	4.1	0.07	-	-	-	-	-	-											
Azobenzene	0.3		-	<0.3	<0.3	<0.3	<0.3	-	-	-	-	-	-											
4-Bromophenyl phenyl ether	0		-											<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Bromophenyl phenyl ether	0.2		-	<0.2	<0.2	<0.2	<0.2	-	-	-	-	-	-											
Hexachlorobenzene	0.3		4.1	<0.3	<0.3	<0.3	<0.3	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Phenanthrene	0.05		1300	<0.05	<0.05	4.2	0.16	-	-	-	-	-	-											
Anthracene	0.05		31000	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-											
Carbazole	0.3		-	<0.3	<0.3	<0.3	<0.3	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.49	<0.010
Dibutyl phthalate	0.2		-	<0.2	<0.2	<0.2	<0.2	-	-	-	-	-	-											
Anthraquinone	0.3		-	<0.3	<0.3	<0.3	<0.3	-	-	-	-	-	-											
Fluoranthene	0.05		1500	<0.05	<0.05	0.45	<0.05	-	-	-	-	-	-											
Perylene	0		-											<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Pyrene	0.05		3700	<0.05	<0.05	0.44	< 0.05	-	-	-	-	-	-											
Butyl benzyl phthalate	0.3		-	<0.3	<0.3	<0.3	<0.3	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(a)anthracene	0.05		11	<0.05	<0.05	0.08	<0.05	-	-	-	-	-	-											
n-Dibutylphthalate	0		-											<0.010	0.121	0.203	0.123	<0.010	<0.010	<0.010	0.124	<0.010	0.16	0.163
n-Dioctylphthalate	0		-											<<0.5	<<0.5	<<0.5	<<0.5	<<0.5	<<0.5	<<0.5	<<0.5	<<0.5	<<0.5	<<0.5
Chrysene	0.05		30	<0.05	<0.05	0.08	<0.05	-	-	-	-	-	-											
Benzo(b)fluoranthene	0.05		3.9	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-											
Benzo(k)fluoranthene	0.05		110	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-											
Benzo(a)pyrene	0.05		5.3	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-											
Indeno(1,2,3-cd)pyrene	0.05		45	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-											
Dibenz(a,h)anthracene	0.05		-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-											
Benzo(ghi)perylene	0.05		360	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-											
PAH MS																								
Speciated Total EPA-16 PAHs	0.8		-	< 0.80	< 0.80	21.1	< 0.80	10.1	2.7	< 0.80	2.27	< 0.80	1.04	0.56	<0.08	<0.08	<0.08	1.81	<0.08	<0.08	<0.08	0.57	3.22	<0.08
Naphthalene	0.05		15	< 0.05	< 0.05	12	0.34	3.3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.1	<0.03	<0.03	<0.03	0.06	<0.03	<0.03	<0.03	<0.05	2.47	<0.03
Acenaphthylene	0.05		2900	< 0.05	< 0.05	< 0.05	< 0.05	0.27	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.02	<0.01	<0.01	<0.01	0.14	<0.01	<0.01	<0.01	<0.04	<0.04	<0.01
Acenaphthene	0.05		3000	< 0.05	< 0.05	< 0.05	0.05	0.39	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.07	<0.01	<0.01	<0.01	0.2	<0.01	<0.01	<0.01	0.06	<0.16	<0.01
Fluorene	0.05		2800	< 0.05	< 0.05	4.1	0.07	0.95	0.09	0.12	0.1	< 0.05	< 0.05	0.16	<0.01	0.01	<0.01	0.67	<0.01	0.01	<0.01	0.18	0.29	<0.01
Phenanthrene	0.05		1300	< 0.05	< 0.05	4.2	0.16	1.1	0.36	0.13	0.2	< 0.05	0.06	0.21	<0.03	<0.03	<0.03	0.66	<0.03	0.04	<0.03	0.33	0.46	<0.03
Anthracene	0.05		31000	< 0.05	< 0.05	< 0.05	< 0.05	0.2	0.09	< 0.05	0.06	< 0.05	< 0.05	<0.02	<0.02	<0.02	<0.02	0.08	<0.02	<0.02	<0.02	<0.03	<0.02	<0.02
Fluoranthene	0.05		1500	< 0.05	< 0.05	0.45	< 0.05	0.73	0.5	0.1	0.34	< 0.05	0.16	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
Pyrene	0.05	mg/kg	3700	< 0.05	< 0.05	0.44	< 0.05	0.64	0.45	0.11	0.34	< 0.05	0.21	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Benzo(a)anthracene	0.05		11	< 0.05	< 0.05	0.08	< 0.05	0.33	0.21	< 0.05	0.15	< 0.05	0.09	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Chrysene	0.05		30	< 0.05	< 0.05	0.08	< 0.05	0.37	0.24	< 0.05	0.19	< 0.05	0.13	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Benzo(b)fluoranthene	0.05		3.9	< 0.05	< 0.05	< 0.05	< 0.05	0.44	0.21	< 0.05	0.23	< 0.05	0.17	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	0.05		110	< 0.05	< 0.05	< 0.05	< 0.05	0.16	0.11	< 0.05	0.09	< 0.05	0.1	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Benzo(a)pyrene	0.05		5.3	< 0.05	< 0.05	< 0.05	< 0.05	0.43	0.18	< 0.05	0.2	< 0.05	0.12	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Indeno(1,2,3-cd)pyrene	0.05		45	< 0.05	< 0.05	< 0.05	< 0.05	0.28	0.12	< 0.05	0.16	< 0.05	< 0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Dibenz(a,h)anthracene	0.05		-	< 0.05	< 0.05	< 0.05	< 0.05	0.07	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Benzo(ghi)perylene	0.05		360	< 0.05	< 0.05	< 0.05	< 0.05	0.47	0.14	< 0.05	0.21	< 0.05	< 0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TPH CWG			-																					
Aliphatics			-																					
>C5-C6	0.02		42	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01
>C6-C8	0.02		-	< 0.020	< 0.020	< 0.020	1.7	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	0.12	0.02	<0.01	<0.01	0.48	<0.05	<0.05	<0.01	0.06	0.33	<0.01
>C8-C10	0.05		27	< 0.050	< 0.050	2.7	14	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	12	<1	<1	<1	24	<1	<1	<1	8	19	<1
>C10-C12	1	mg/kg	130	< 1.0	< 1.0	130	1.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	55	<1	<1	<1	129	<1	<1	<1	30	89	<1
>C12-C16	2		1100	5.6	< 2.0	780	14	9.5	6.7	< 2.0	2.8	< 2.0	5.8	244	<1	5	<1	569	2	4	5	134	319	<1
>C16-C21	8		65000	18	< 8.0	710	27	16	11	< 8.0	< 8.0	< 8.0	13	205	<1	5	<1	397	2	4	5	96	213	<1
>C21-C35	8		65000	< 8.0	< 8.0	140	13	100	42	< 8.0	25	< 8.0	83	42	2	6	<1	56	2	3	1	11	27	<1
Total aliphatics C5-35	10		-	26	< 10	1800	71	130	61	< 10	35	< 10	100	557	2	16	<1	1180	7	12	11	278	668	<1
Aromatics			-																					
>C5-EC7	0.01		370	< 0.010	< 0.010	0.091	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01
>EC7-EC8	0.01		860	< 0.010	< 0.010	0.08	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01
>EC8-EC10	0.05		-	< 0.050	< 0.050	0.85	1.4	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	7	<1	2	<1	17	<1	<1	<1	2	26	<1
>EC10-EC12	1	mg/kg	250	< 1.0	< 1.0	56	< 1.0	3.6	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	41	<1	2	<1	42	<1	1	<1	19	88	<1
>EC12-EC16	2		1800	< 2.0	< 2.0	260	< 2.0	5.6	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	199	<1	8	<1	292	3	4	4	98	281	<1
>EC16-EC21	10		1900	< 10	< 10	210	< 10	< 10	< 10	< 10	< 10	< 10	< 10	107	<1	6	<1	118	3	5	2	41	80	<1
>EC21-EC35	-		1900	< 10	< 10	110	< 10	82	41	< 10	< 10	< 10	91	27	1	8	<1	25	10	15	1	7	16	<1
Total aromatics C5-35	10		-	< 10	< 10	640	< 10	97	48	< 10	< 10	< 10	91	380	1	28	<1	494	16	26	7	167	490	<1
Asbestos Screen & Identification																								
pH - Automated	pH Units	N/A	-	8.4	7.7	8.6	8.6	8	10.7	8.7	9	9.5	9.1	8.27	8.35	7.6	9.15	9.77	8.52	8.55	9.04	7.9	6.4	8.72
Electrical Conductivity	µS/cm	10	-	91	96	100	100	93	270	290	270	92	110											
Total Sulphate as SO4	mg/kg	50	-	80	58	150	170	300	1200	160	1400	110	210											
Total Sulphur	mg/kg	50	-	150	220	540	710	200	450	89	570	82	140											
Asbestos in Soil	-	None	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND				ND				ND		

Notes:
The soil samples were collected on XXXXXX
Only compounds detected in at least one sample are shown
Soil screening levels are LQM/CIEH S4UL (2015) criteria except:
As, Cd, CrVI, Pb, inorganic mercury, benzene, benzo(a)pyrene, naphthalene, trichloroethene, tetrachloroethene, cis 1,2 dichloroethene, trans 1,2 dichloroethene, 1-2 dichloroethane and vinyl chloride which are DEFRA/ CL:AIRE C4SL (2012-2024) criteria
Mo, Sb, Ba and VOCs and SVOCs not included within C4SL and S4UL reports are CL:AIRE GAC (2010) criteria

"-"	No screening criteria listed
"<"	Not detected above laboratory reporting limit
mg/kg	Milligrams per kilogram
µg/kg	Micrograms per kilogram
NAD	No Asbestos detected
25	Concentration above laboratory limit of detection but below screening levels
	Detected concentration is greater than the Residential without Homegrown Consumption soil screening level

Geosyntec
consultants

APPENDIX F

Table Appendix F - Controlled Waters GQRA Screening Table

Job
GCU0400001
Didsbury Parrs Wood Lane
Matrix
Groundwater
Receptor
Groundwater

				Sample ID	BH303 (s)	BH303 (s)	BH303 (d)	BH302 (s)	BH302 (d)	BH301 (s)	BH301 (d)	BH202	BH201 (s)	BH201 (d)	BH204 (s)	BH204 (d)	BH203 (d)	BH203 (s)	BH205 (s)	BH205 (d)	BH01	BH201 (L)	BH201 (L)	BH201 (L)	BH303 (L)	BH303 (L)	BH303(L)	BH303(L)	BH303 (L)	BH302(L)	BH302(L)
				Depth																											
				Sample Type	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	L	L	L	L	L	L	L	L	L	L
				Sampled Date	26/08/2025	26/08/2025	26/08/2025	26/08/2025	26/08/2025	26/08/2025	26/08/2025	26/08/2025	26/08/2025	26/08/2025	26/08/2025	26/08/2025	26/08/2025	27/08/2025	27/08/2025	27/08/2025	15/11/2023	15/11/2023	15/11/2023	15/11/2023	30/07/2025	31/07/2025	31/07/2025	30/07/2025	28/07/2025	28/07/2025	29/07/2025
				Sample Received Date																											
				EMT Sample No																											
				Batch Number																											
Determinand	Units	GAC	GAC Source	Lowest LoD																											
Dissolved Arsenic	ug/l	10	UK DWS 2018	1	8	10	13	3	37	3	5	3	3	2	4	2	7	6	15	11	1	1	5.4	1	1	1	1	3	1	1	1
Dissolved Boron	ug/l	1000	UK DWS 2018	10	24	36	57	50	50	53	59	11	11	16	29	17	16	20	14	10	10	10	10	10							
Dissolved Cadmium	ug/l	5	UK DWS 2018	0.2	0.6	0.5	9.5	0.2	2.8	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.4	0.2	0.2	0.08	0.08	0.08	0.08	1	1	1	1	1	1	1
Total Dissolved Chromium	ug/l	50	UK DWS 2018	1	6	9	44	2	11	2	1	1	2	1	1	1	2	4	4	1	0.4	0.4	1	0.4	1	1	1	1	1	1	1
Dissolved Copper	ug/l	2000	UK DWS 2018	4	14	21	32	4	53	4	4	5	4	4	4	4	4	8	4	4	5	5	5	5	4	6	4	4	4	9	4
Dissolved Lead	ug/l	10	UK DWS 2018	0.1	27.2	15.6	235	2.5	39	2.5	0.7	2.5	4	0.9	0.3	0.7	2.8	3.7	7.1	0.8	2.3	1	1.4	1	1	2	1	1	1	3	1
Dissolved Mercury	ug/l	1	UK DWS 2018	0.1	0.1	0.1	0.5	0.1	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Dissolved Nickel	ug/l	20	UK DWS 2018	2	5	18	39	6	25	4	2	2	3	2	2	2	2	6	6	2	0.6	0.5	2.8	0.3	2	2	2	2	2	3	2
Dissolved Selenium	ug/l	10	UK DWS 2018	1	1	3	14	1	6	1	1	1	1	1	1	1	1	2	1	1	4	4	4	4	1	1	1	1	1	1	1
Dissolved Zinc	ug/l	12.3	WFD 2015, EQS	2	26	249	595	76	78	49	5	25	28	4	5	3	12	39	73	5	9	2.3	6.7	11	3	12	4	9	3	13	3
Hexavalent Chromium	ug/l	50	UK DWS 2018	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	8.6	2.7	6.8	4							
pH	pH units	>6,5 <9.5	UK DWS 2018	0.01	6.39	7.04	6.5	6.63	6.44	7.05	7.35	6.96	6.93	6.8	7.18	6.69	6.74	6.58	6.56	6.82											
PAH MS																															
Naphthalene	ug/l		Refer BaP and PAH Sum of 4	0.01	12.2	0.79	9.94	23.3	6.88	0.01	0.01	0.01	14.9	0.01	5.26	0.01	0.52	10	0.15	4.48	0.7	0.01	67	0.01	0.04	0.02	0.02	0.02	0.02	0.02	0.05
Acenaphthylene	ug/l		Refer BaP and PAH Sum of 4	0.01	113	1.01	15.6	2.35	29.1	0.01	0.01	0.01	7.76	0.01	0.93	0.01	2.25	20.9	0.02	12.5	0.54	0.01	1.3	0.01	0.1	0.02	0.02	0.02	0.09	0.02	0.02
Acenaphthene	ug/l		Refer BaP and PAH Sum of 4	0.01	73.6	0.46	5.4	1	15.4	0.01	0.01	0.01	4.29	0.01	0.1	0.01	0.43	26.5	0.01	9.64	0.17	0.01	0.28	0.01	0.05	0.02	0.02	0.02	0.02	0.02	0.02
Fluorene	ug/l		Refer BaP and PAH Sum of 4	0.01	377	1.58	23.9	2.91	76.6	0.02	0.01	0.03	11.7	0.01	1.03	0.01	3.77	92.4	0.02	28.7	0.74	0.01	1.6	0.01	0.08	0.02	0.02	0.02	0.04	0.02	0.02
Phenanthrene	ug/l		Refer BaP and PAH Sum of 4	0.01	219	1.49	30.8	3.84	80	0.03	0.02	0.01	9.65	0.01	0.12	0.01	1.16	53.1	0.02	26.4	0.32	0.01	0.89	0.01	0.04	0.02	0.02	0.03	0.02	0.02	0.02
Anthracene	ug/l		Refer BaP and PAH Sum of 4	0.01	19.2	0.17	2.92	1	6.41	0.01	0.01	0.01	1.58	0.01	0.01	0.01	0.15	9.92	0.03	3.14	0.01	0.01	0.1	0.01	0.04	0.02	0.02	0.02	0.02	0.02	0.02
Fluoranthene	ug/l		Refer BaP and PAH Sum of 4	0.01	14.1	0.05	4.76	1	2.13	0.01	0.01	0.01	1	0.01	0.01	0.01	0.04	2.64	0.01	2.03	0.01	0.01	0.01	0.01	0.04	0.02	0.02	0.02	0.02	0.02	0.02
Pyrene	ug/l		Refer BaP and PAH Sum of 4	0.01	15.5	0.14	7.9	1	5.17	0.01	0.01	0.01	1.81	0.01	0.01	0.01	0.07	6.61	0.02	4.26	0.01	0.01	0.01	0.01	0.04	0.02	0.02	0.02	0.02	0.02	0.02
Benzo(a)anthracene	ug/l		Refer BaP and PAH Sum of 4	0.01	3.6	0.01	1.68	1	1	0.01	0.01	0.01	1	0.01	0.01	0.01	0.01	1	0.01	1	0.01	0.01	0.01	0.01	0.04	0.02	0.02	0.02	0.02	0.02	0.02
Chrysene	ug/l		Refer BaP and PAH Sum of 4	0.01	7.96	0.02	2.34	1	2.06	0.01	0.02	0.01	1.1	0.01	0.01	0.01	0.01	2.03	0.01	1.8	0.01	0.01	0.01	0.01	0.05	0.02	0.02	0.02	0.02	0.02	0.02
Benzo(bk)fluoranthene	ug/l		Refer BaP and PAH Sum of 4	0.01	3.27	0.01	1	1	1	0.01	0.01	0.01	1	0.01	0.01	0.01	0.01	1	0.01	1	0.01	0.01	0.01	0.01	0.05	0.02	0.02	0.02	0.02	0.02	0.02
Benzo(a)pyrene	ug/l	0.01	WHO DWG 2017	0.01	2.24	0.01	1	1	1	0.01	0.01	0.01	1	0.01	0.01	0.01	0.01	1	0.01	1	0.01	0.01	0.01	0.01	0.04	0.02	0.02	0.02	0.02	0.02	0.02
Indeno(123cd)pyrene	ug/l		Refer BaP and PAH Sum of 4	0.01	1	0.01	1	1	1	0.01	0.01	0.01	1	0.01	0.01	0.01	0.01	1	0.01	1	0.01	0.01	0.01	0.01	0.05	0.02	0.02	0.02	0.02	0.02	0.02
Dibenzo(ah)anthracene	ug/l		Refer BaP and PAH Sum of 4	0.01	2.57	0.01	1	1	1	0.01	0.01	0.01	1	0.01	0.01	0.01	0.01	1	0.01	1	0.01	0.01	0.01	0.01	0.06	0.02	0.02	0.03	0.02	0.02	0.02
PAH 16 Total	ug/l		Refer BaP and PAH Sum of 4	0.01	3.7	0.01	1	1	1	0.01	0.01	0.01	1	0.01	0.01	0.01	0.01	1	0.01	1	0.01	0.01	0.01	0.01	0.04	0.02	0.02	0.02	0.02	0.02	0.02
Benzo(b)fluoranthene	ug/l		Refer BaP and PAH Sum of 4	0.01	1.96	0.01	1	1	1	0.01	0.01	0.01	1	0.01	0.01	0.01	0.01	1	0.01	1	0.01	0.01	0.01	0.01	0.04	0.02	0.02	0.02	0.02	0.02	0.02
PAH Sum of 4	ug/l	0.1	WHO DWG 2017	0.02	4.27	0.02	2	2	2	0.02	0.02	0.02	2	0.02	0.02	0.02	0.02	2	0.02	2	0.02	0.02	0.02	0.02	0.1	0.04	0.04	0.04	0.04	0.04	0.04
MTBE	ug/l	15	WHO Odour Threshold 2008	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	10	10	10	1	1	1	1	1	1	1
Benzene	ug/l	1	UK DWS 2018	1	1	1	1	1	4	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	1	1	1	1	1	1	1
Toluene	ug/l	700	WHO DWG 2017	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	3	3	3	3	1	1	1	1	1	1	1
Ethylbenzene	ug/l	300	WHO DWG 2017	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	1	1	1	1	1	1	1
m/p-Xylene	ug/l		Refer to Total Xylenes	1	1	1	2	9	1	1	1	1	4	1	3	1	1	3	1	1	3	3	3	3	1	1	1	1	1	1	1
o-Xylene	ug/l		Refer to Total Xylenes	1	1	1	1	1	1	1	1	1	3	1	1	1	1	2	1	1	3	3	3	3	1	1	1	1	1	1	1
Total Xylenes	ug/l	500	WHO DWG 2017	10	2	2	3	10	2	2	2	2	7	2	4	2	2	5	2	2	6	6	6	6	2	2	2	2	2	2	2
TPH CWG																															
Aliphatics																															
>C5-C6	ug/l	1500	WHO DWG 2008	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1
>C6-C8	ug/l	1500	WHO DWG 2008	1	23	4	12	7	18	7	1	6	8	4	1	1	1	78	6	19	1	1	1	1	1	1	1	1	1	1	1
>C8-C10	ug/l	1500	WHO DWG 2008	5	679	8	99	28	507	5	5	59	1120	5	5	5	13	819	5	176	1	1	1	1	10	10	10	10	10	10	10
>C10-C12	ug/l	300	WHO DWG 2008	5	2410	25	510	100	2840	5	5	486	5230	5	5	5	35	3920	15	1040	10	10	10	10	10	10	10	10	10	10	10
>C12-C16	ug/l	300	WHO DWG 2008	5	7030	117	2630	512	10900	11	5	2210	18600	5	6	5	196	14300	193	4040	10	10	10	10	10	10	10	10	10	10	10
>C16-C21	ug/l	10	UK DWS 1989	5	4670	119	1720	392	7520	10	5	1400	11100	5	6	5	171	9180	209	2480	10	10	10	10	10	10	10	10	10	10	10
>C21-C35	ug/l	10	UK DWS 1989	5	629	26	253	63	1400	11	5	247	1830	5	12	5	43	976	52	451	10	10	10	10	20	20	20	20	20	20	20
Aromatics																															
>C5-EC7	ug/l	10	WHO DWG 2008	10	1	1	1	1	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
>EC7-EC8	ug/l	700	WHO DWG 2008	10	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
>EC8-EC10	ug/l	300	WHO DWG 2008	10	552	24	154	213	273	12	5	30	413	5	112	5	38	441	21	489	1	1	1	1	10	10	10	10	10	10	10
>EC10-EC12	ug/l	90	WHO DWG 2008	10	2780	72	910	521	2100	20	5	275	3190	5	341	5	391	3000	108	1750	15	10	130	10	37	10	10	10	44	10	10
>EC12-EC16	ug/l	90	WHO DWG 2008	10	8590	180	2100	881	6640	82	5	1490	13600	5	243	12	883	11800	351	5360	60	10	220	10	130	10	10	11	145	10	10
>EC16-EC21	ug/l	90	WHO DWG 2008	10	2530	86	669	277	2710	59	6	601	4890	8	66	29	217	4490	212	1680	50	10	100	10	68	10	10	10	66	13	10
>EC21-EC35	ug/l	90	WHO DWG 2008	10	295	20	82	35	319	14	10	54	433	10	19	12	32	462	32	235	10	10	20	10	20	20	20	20	20	20	20
VOC MS																															
Chloromethane	ug/l	200	ECHA PNEC FW	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10											10
Vinyl Chloride	ug/l	0.5	UK DWS 2018	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3											1
Bromomethane	ug/l		No GAC	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
Chloroethane	ug/l	58	ECHA PNEC FW	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
Trichlorofluoromethane	ug/l		No GAC	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
1,1-Dichloroethene (1,1 DCE)	ug/l	9.12	ECHA PNEC FW	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
Dichloromethane (DCM)	ug/l	130	ECHA PNEC FW	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5											5
trans-1-2-Dichloroethene	ug/l		Refer to Total 1,2 Dicholoroethene	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
1,1-Dichloroethane	ug/l		No GAC	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
cis-1-2-Dichloroethene	ug/l		Refer to Total 1,2 Dicholoroethene	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
2,2-Dichloropropane	ug/l		No GAC	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
Bromochloromethane	ug/l		No GAC	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5											5
Chloroform	ug/l	300	WHO DWG 2017	1	1	2	1	1	1	2	1	1	1	1	1	1	1	1	1	1											1
1,1,1-Trichloroethane	ug/l	0.1	UK MRV	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
1,1-Dichloropropene	ug/l		No GAC	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
Carbon tetrachloride	ug/l	4	WHO DWG 2017	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
1,2-Dichloroethane	ug/l	3	UK DWS 2018	2																											2
Trichloroethene (TCE)	ug/l		Refer to TCE + PCE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
1,2-Dichloropropane	ug/l	40	WHO DWG 2017	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2											1
Dibromomethane	ug/l		No GAC	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
Bromodichloromethane	ug/l	60	WHO DWG 2017	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10											10
cis-1-3-Dichloropropene	ug/l		Refer to Total 1,3 Dicholoropropene	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
trans-1-3-Dichloropropene	ug/l		Refer to Total 1,3 Dicholoropropene	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
1,1,2-Trichloroethane	ug/l	0.1	UK MRV	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
Tetrachloroethene (PCE)	ug/l		Refer to TCE + PCE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
1,3-Dichloropropane	ug/l		No GAC	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
Dibromochloromethane	ug/l	100	WHO DWG 2017	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3											3
1,2-Dibromoethane	ug/l	0.4	WHO DWG 2017	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
Chlorobenzene	ug/l	8	ECHA PNEC FW	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
1,1,1,2-Tetrachloroethane	ug/l		No GAC	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1											1
Styrene	ug/l	20	WHO DWG 2017	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
Bromoform	ug/l	100	WHO DWG 2017	3	3	10	3	3	3	8	3	3	3	3	3	3	3	3	7	3											3
Isopropylbenzene	ug/l	35	ECHA PNEC FW	1	20	2	14	5	19	1	1	1	1	1	1	1	1	6	1	5											1
1,1,2,2-Tetrachloroethane	ug/l		No GAC	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
Bromobenzene	ug/l		No GAC	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
1,2,3-Trichloropropane	ug/l	88	ECHA PNEC FW	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
2-Chlorotoluene	ug/l	2.8	ECHA PNEC FW	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
1,3,5-Trimethylbenzene	ug/l	101	ECHA PNEC FW	1	1	1	1	4	1	1	1	1	4	1	7	1	1	5	1	1											1
4-Chlorotoluene	ug/l	32	ECHA PNEC FW	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
tert-Butylbenzene	ug/l	100	ECHA PNEC FW	2	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2											2
1,2,4-Trimethylbenzene	ug/l	120	ECHA PNEC FW	1	1	2	4	14	2	1	1	1	11	1	10	1	1	14	1	84											
sec-Butylbenzene	ug/l		No GAC	1	32	1	11	2	26	1	1	1	1	1	1	1	2	8	1	4											1
4-Isopropyltoluene	ug/l	3.7	ECHA PNEC FW	1	1	1	1	1	1	1	1	1	1	1	2	1	1	2	1	1											1
1,3-Dichlorobenzene	ug/l	50	ECHA PNEC FW	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
1,4-Dichlorobenzene	ug/l	0.3	WHO DWG 2017	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
n-Butylbenzene	ug/l		No GAC	1	42	1	5	2	25	1	1	1	2	1	1	1	1	7	1	2											1
1,2-Dichlorobenzene	ug/l	1	WHO DWG 2017	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
1,2-Dibromo-3-chloropropane	ug/l	1	WHO DWG 2017	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2											2
1,2,4-Trichlorobenzene	ug/l	0.01	UK MRV	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3											3
Hexachlorobutadiene	ug/l	0.6	WHO DWG 2017	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											1
Total 1,2 dichloroethene	ug/l	50	WHO DWG 2017	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2											2
TCE + PCE	ug/l	10	UK DWS 2018	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2											2
Total 1,3 dichloropropene	ug/l	20	WHO DWG 2017	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4											3
Total Tetrachloroethane	ug/l	140	WFD 2015, EQS	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4	2											2
Total Trichlorobenzene	ug/l		Refer to Individual Compounds	7	13	4	13	13	13	4	4	4	4	4	4	4	4	13	4	13											5
SVOC MS																															
2-Chlorophenol	ug/l	0.1	UK MRV	1	10	1	10	10	10	1	1	1	1	1	1	1	1	10	1	10											**2**
2-Methylphenol (m - cresol)	ug/l		No GAC	1	10	1	10	10	10	1	1	1	1	1	1	1	1	10	1	10											**2**
2-Nitrophenol	ug/l		No GAC	1	10	1	10	10	10	1	1	1	1	1	1	1	1	10	1	10											**2**
2,4-Dichlorophenol	ug/l	4.2	WFD 2015, EQS	1																											**2**
2,4-Dimethylphenol	ug/l		No GAC	1	21	5	10	10	10	1	1	1	1	1	1	2	4	10	1	10											
2,4,5-Trichlorophenol	ug/l		No GAC	1	10	1	10	10	10	1	1	1	1	1	1	1	1	10	1	10											2
2,4,6-Trichlorophenol	ug/l		No GAC	1	10	1	10	10	10	1	1	1	1	1	1	1	1	10	1	10											2
4-Chloro-3-methylphenol	ug/l	0.1	UK MRV	1	10	1	10	10	10	1	1	1	1	1	1	1	1	10	1	10											2
4-Methylphenol (p - cresol)	ug/l	100	WFD 2015, EQS	1	10	1	10	10	10	1	1	1	1	1	1	1	1	10	1	10											2
4-Nitrophenol	ug/l		No GAC	1	10	1	10	10	10	1	1	1	1	1	1	1	1	10	1	10											2
Pentachlorophenol	ug/l	0.1	UK MRV	1	10	1	10	10	24	1	1	3	1	1	1	1	1	22	1	10											2
Phenol	ug/l	7.7	WFD 2015, EQS	1	10	1	10	10	10	1	1	1	1	1	1	1	1	10	1	10											2
2-Chloronaphthalene	ug/l		Refer BaP and PAH Sum of 4	1	10	1	10	10	10	1	1	1	1	1	1	1	1	10	1	10											2
2-Methylnaphthalene	ug/l		Refer BaP and PAH Sum of 4	1	10	2	12	32	10	1	1	1	1	1	2	1	1	10	1	10											2
Bis(2-ethylhexyl) phthalate	ug/l	8	WHO DWG 2017	10	100	10	100	100	100	10	10	10	10	10	10	10	10	100	10	100											4
Butylbenzyl phthalate	ug/l	7.5	WFD 2015, EQS	1	10	1	10	10	10	1	1	1	1	1	1	1	1	10	1	10											2
Diethyl phthalate	ug/l	12	ECHA PNEC FW	1	10	1	10	10	10	1	1	1	1	1	1	1	1	10	1	10											2
Dimethyl phthalate	ug/l	192	ECHA PNEC FW	1	10	1	10	10	10	1	1	1	1	1	1	1	1	10	1	10											2
1,2-Dichlorobenzene	ug/l	1	WHO DWG 2017	1	10	1	10	10	10	1	1	1	1	1	1	1	1	10	1	10											2
1,2,4-Trichlorobenzene	ug/l	0.01	UK MRV	1	10	1	10	10	10	1	1	1	1	1	1	1	1	10	1	10											2
1,3-Dichlorobenzene	ug/l	50	ECHA PNEC FW	1	10	1	10	10	10	1	1	1	1	1	1	1	1	10	1	10											2
1,4-Dichlorobenzene	ug/l	0.3	WHO DWG 2017	1	10	1	10	10	10	1	1	1	1	1	1	1	1	10	1	10											2
2,4-Dinitrotoluene	ug/l		No GAC	1																											2
2,6-Dinitrotoluene	ug/l		No GAC	1	10	1	10	10	10	2	1	1	1	1	1	1	1	10	1	10											2
4-Bromophenylphenylether	ug/l	0.14	WFD 2015, EQS	1	10	1	10	10	10	1	1	1	1	1	1	1	1	10	1	10											2
Bis(2-chloroethoxy)methane	ug/l	103	ECHA PNEC FW	1	10	1	10	10	10	1	1	1	1	1	1	1	1	18	1	10											2
Bis(2-chloroethyl)ether	ug/l	305	ECHA PNEC FW	1	10	1	10	10	10	1	1	1	1	1	1	1	1	10	1	10											2
Carbazole	ug/l		No GAC	1	10	1	10	10	10	1	1	1	1	1	1	1	1	10	1	10											2
Hexachlorobenzene	ug/l	0.001	UK MRV	1	10	1	10	10	10	1	1	1	1	1	1	1	1	10	1	10											2
Isophorone	ug/l	89	ECHA PNEC FW	1	10	1	10	10	13	1	1	1	1	1	1	1	1	25	1	10											2
Additional COPC																															

Key

10	Concentration > LoD and < GAC
1	Concentration < LoD or = LoD
100	Concentraton >LoD and > GAC

GAC

UK DWS 2018	ENGLAND AND WALES, The Water Supply (Water Quality) Regulations 2018
WHO DWG 2017	WHO (2017), Guidelines for Drinking-Water Quality, Fourth Edition
WHO DWG 2008	WHO (2008) Petroleum Products in Drinking-water: Background document for development of WHO Guidelines for Drinking-water Quality
UK MRV	UK government website, Hazardous substancs to groundwater: minimum reporting values, 13 January 2017
WFD 2015, EQS	The Water Framework Directive (Standards and Classification)Directions (England and Wales) 2015, Environmental Quality Standard
WFD 2010, EQS	The Water Framework Directive (Standards and Classification)Directions (England and Wales) 2010, Environmental Quality Standard
Non Stat EQS	Non Statutory Commonly Used Environmental Quality Standard
ECHA PNEC FW	European Chemical Agency, Point of New Exposure Concentration for Freshwater
NO GAC	No GAC Promulgated. Laboratory Limit of Detection Used

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APPENDIX G

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Parrs Wood Lane Didsbury

LNAPL Contextual Report

Prepared for

Westlakes Engineering Ltd

Project Number: GCU0400001a

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DRAFT

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1 LIGHT NON-AQUEOUS PHASE LIQUID

Groundwater contamination by Light Non-Aqueous Phase Liquids (LNAPL) is an issue at many contaminated sites across the world (Feenstra et al., 1991). LNAPLs are typically multi-component mixtures of hydrocarbons which are less dense than water and are usually found in the vadose zone and upper portions of the saturated zone. LNAPL is a functional description and does not refer specially to any one kind of liquid; only that it exists as a separate phase to water. The immiscibility of LNAPL and water is due to the difference in electrical properties: water is polar and LNAPL is non-polar. Therefore, they have a high interfacial tension and LNPL components are only sparingly soluble in the groundwater.

LNAPLs form following the release of oils to the subsurface. These are commonly fuels (e.g. petrol and diesel), machinery oils (e.g. hydraulic oil or lubricating oil) or solvents (e.g. toluene or xylene). The common aspect is that they are less dense than water and are therefore limited to the upper proportions of aquifers.

Following release, LNAPL will migrate downwards towards the saturated zone If there is sufficient driving head, it can displace some water and penetrate below the water table. However, water pressure increases faster (due to its higher density) than LNAPL pressure, so the water will prevent further downward movement. Typically, around 90% of the LNAPL mass in a static LNAPL body will be below the water table. The LNAPL body will therefore 'sit' in the upper section of the saturated zone and lower sections of the unsaturated / vadose zone.

A residual fraction will also remain at the point of release: this will be held by capillarity (the ability of soil to hold a liquid against gravity).

LNAPL generally stabilizes relatively quickly following the cessation of a driving head and is typically within 3 to 10 years (Hawthorne and Kirkman, 2011). However, it will dissolve into the groundwater slowly and may generate vapours.

The extent to which LNAPL dissolves and generate vapours (phase change) is linked to its composition. LNAPL which contain a greater fraction of smaller hydrocarbons (e.g., petrol or solvents) have greater solubility and volatility than heavier hydrocarbons found in, for example, hydraulic oil.

While these secondary aspects are discussed in this document, the main focus is on LNAPL itself, its characterisation, behavior, change over time and approaches to management.

2 ISSUES

There are three main impacts arising from LNAPL in the subsurface: direct impacts (the source), the presence of dissolved hydrocarbons in groundwater (a plume) and hydrocarbon vapours in the ground gas. They each have different risks and should be evaluated individually. They are shown together conceptually in Figure 1, below. The NAPL source in the figure below is DNAPL ('dense NAPL'), but the concepts remain the same: the source zone can be relatively small, and due to the minimal solubility of compounds the dissolved plume *can* extend over a much larger volume. The extent to which a plume will spread is determined by the groundwater velocity and microbial processes which biodegrade the hydrocarbons and is often much more limited than shown in Figure 1.

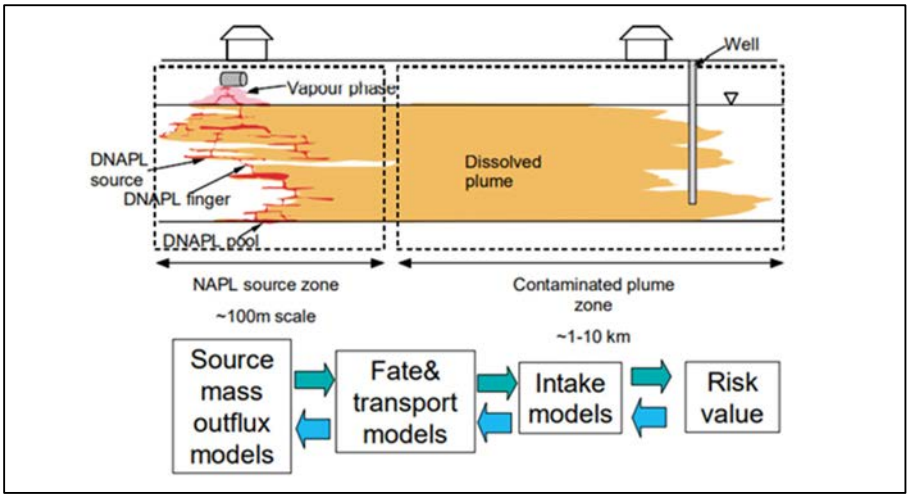


Figure 1. Source and plumes zones and risk evaluation. Modified from Soga et al., (2004).

2.1 Source zone

Direct impacts are the most serious but are the most limited in spatial impact. An example of a direct impact is shown in Figure 2.



Figure 2. LNAPL (heating oil) direct impact in an ornamental well. A sheen has developed following release of home heating oil from a nearby oil tank.

Directly impacted areas can be used to characterize the LNAPL body and estimate the mass of LNAPL. These directly impacted areas comprise the source zone of contamination. As LNAPL generally contains hazardous compounds, especially in recent spills, any direct contact can be detrimental for human health.

2.2 Plume: Dissolved phase impacts

The hydrocarbons in LNAPL are minimally soluble. Benzene, for example, has a solubility in pure water of 1.8 g/L, xylene between 160 and 200 mg/L depending on the isomer and naphthalene (a polyaromatic hydrocarbon) has a solubility of around 31 mg/L. In groundwater, the solubilities are lower due to the presence of other compounds which inhibit dissolution. This is the concept of effective solubility and is described by Raoult's Law[1] (Page et al., 2000; SoBRA 2023). Furthermore, once dissolved, hydrocarbons become biologically available and biodegradation will occur.

The groundwater in the LNAPL source zone will approach its saturation limits. Groundwater data where the effective solubility of a compound is greater than 1% of its theoretical maximum is often used as a 'rule of thumb' to indicate the presence of LNAPL in close proximity to the well (Pankow & Cherry, 1996; SoBRA 2023).

[1] Raoult's [Rah-oults] law states that the partial pressure of each component of an ideal mixture of liquids is equal to the vapor pressure of the pure component.

The Didsbury site had many instances where the measured hydrocarbon concentrations exceeded 1% of the pure phase solubility, yet alone effective solubility: this is a strong line of evidence to suggest LNAPL in proximity to monitoring wells.

The dissolved hydrocarbons pose risks in terms of human health (if groundwater is used for drinking water and not treated) and may be in exceedance of Environmental Quality Standards (EQS) or other regulatory limits.

2.3 Vapour impacts.

Vapours can be generated from LNAPL, should there be volatile components. These are found in petrol, fresh diesel and solvents as volatile organic contaminants (VOCs). They are almost absent in weather diesel, lubrication oil and hydraulic oils.

Vapours primarily pose risks to human health. In particular, they can build up in unventilated structures. VOCs can arise from volatilization of LNAPL components, but their movement in the soil can be complicated by biodegradation processes which themselves may generate gases (in particular, methane and carbon dioxide) (Lari et al., 2024).

The Didsbury site ground gas data showed only low levels of VOCs during sampling. This suggests that there is a general absence of volatile components in the LNAPL.

3 BEHAVIOUR AND MEASUREMENT

LNAPL moves into soils from the point of release under gravity. It can displace air (which is much less dense than LNAPL) in the soil pores, and will accumulate around the upper portions of the saturated zone. It will displace some water and 'share' the pore space with groundwater and above it, air. The fraction of the pore space occupied by LNAPL will vary over the impacted area. Soils with larger pores may have larger saturations: this is because less pressure is required for the LNAPL to move into larger pores and more pressure (driving head) is needed to move into smaller pores. This is the concept of pore entry pressure.

The Interstate Technology & Regulatory Council[2] (ITRC) divides LNAPL saturations into 'migrating' (which only happens shortly following release and in the absence of a driving head the LNAPL will come in equilibrium and stabilize), 'mobile' and 'residual' (ITRC, 2023). Mobile LNAPL has the ability to flow under an applied gradient, for example, into a monitoring well. Residual LNAPL is immobile. An LNAPL's ability to move is linked to its pore saturation for a given soil, where higher saturations

[2] The ITRC is a US state-led coalition which provides technical information to support decision making around contaminated land.

are more mobile and low saturations tend towards immobile or fully immobile (referred to as 'residual LNAPL saturation'). However, the distinction between 'mobile' and 'residual' LNAPL can be impractical; the difference in saturations between the two can be minute. It is therefore of practical use to use the concept of 'minimal mobility' (SoBRA, 2026).

The LNAPL head is generally greatest under the point of release, and therefore this area can have the largest LNAPL pore saturations. This is shown diagrammatically in Figure 3, below.

In real word aquifers, there are commonly heterogeneities at a range of scales. Zones where the permeability of the soil is lower and the pore size is smaller with a corresponding higher pore entry pressure will have less LNAPL mass than more permeable soils with larger and more well-connected pores, which have lower pore-entry pressures. Therefore, LNAPL saturation distribution can vary widely over a small area.

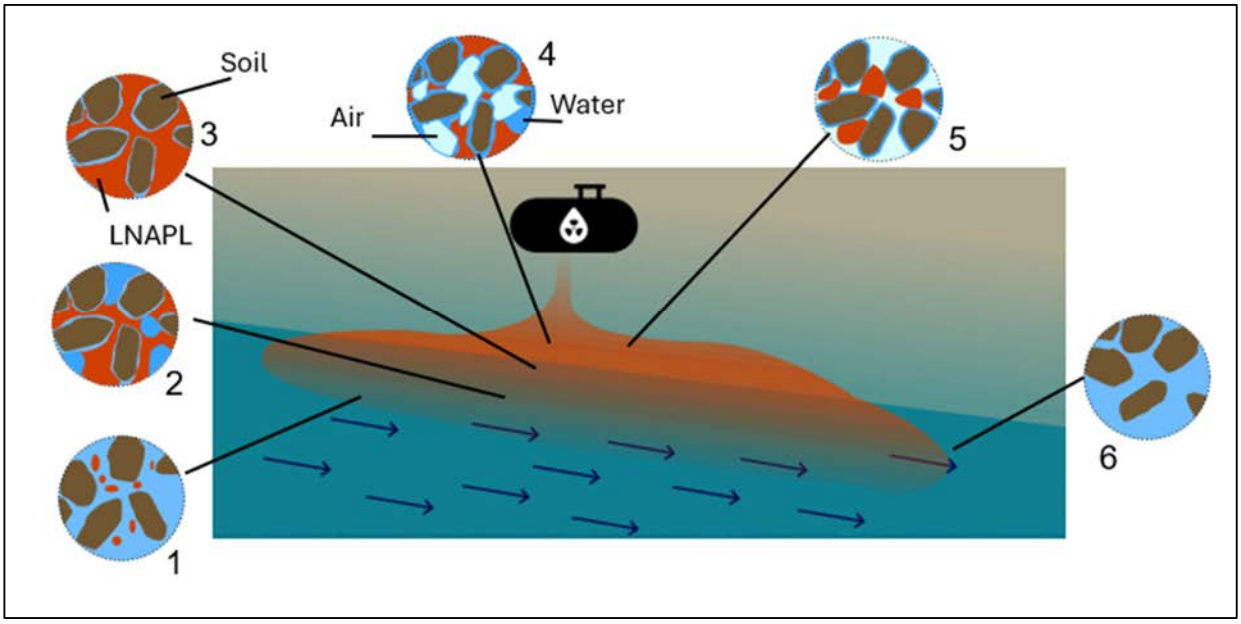


Figure 3. Idealised variation in LNAPL saturation across an LNAPL body. In '1', the LNAPL has penetrated below the water table, but has become discontinuous and has no mobility and is referred to as residual LNAPL. In '2', '3' and '4', the LNAPL forms a continuous fluid throughout the pore space (which is occupies with groundwater and air); it can therefore move in the soil and be recovered, though '4' would be much less mobile. In '5', the LNAPL is trapped by capillary and like '1' is discontinuous and separated by a second fluid, and in '6' there is no LNAPL, but there will be dissolved phase hydrocarbons.

The Didsbury site soil hydrocarbon data was used to calculate LNAPL soil saturation (Eq. 1, below). It showed that a small fraction of the pore space would be filled with LNAPL. The saturations were akin to diagram 1 in Figure 3. The LNAPL has penetrated below the water table, but has become discontinuous and has no mobility and is referred to as residual LNAPL

Estimates of the fraction of the pore space LNAPL occupies (the pore saturation) can be made from both soil samples and LNAPL accumulations in monitoring wells. The presence of LNAPL can be inferred from groundwater data (using the concept of effective solubility) and from ground gas (should VOCs be present), but these methods cannot be used to estimate the mass.

TPH data can be used to estimate the LNAPL pore saturation using the simple equation:

$$S_{LNAPL} = \frac{\rho_b \cdot TPH}{\rho_n \eta (10^6)} \qquad \text{Eq. 1}$$

Where S_{NAPL} is the LNAPL saturation, ρ_b is the soil bulk density (g/cm^3), ρ_n is the LNAPL density (g/cm^3) η is porosity and TPH units are mg/kg (Parker et al., 1994). Pore saturations of above 0.5% - 1% are interpreted as LNAPL, depending on the organic content of the soil. In addition, in soils heavily impacted with LNAPL, the TPH content may be too high for accurate laboratory measurement and sampling itself can be impractical due to LNAPL drainage and spillage.

The greater the pore saturation of LNAPL is for a given soil, the greater its ability to locally flow (the LNAPL mobility). Therefore, if an accumulation of LNAPL in a monitoring well is fast, there is a greater LNAPL pore saturation in the soils surrounding the well. A baildown test or skimming test can be performed to measure the LNAPL mobility: these both apply a stress to the LNAPL and monitor the LNAPLs response. A baildown test usually requires at least 15 cm of LNAPL accumulation in a well to be carried out and a skimming test around 6 cm. Both are prone to error due to measurement difficulties (SoBRA, 2022).

The LNAPL mobility (referred to as the 'LNAPL transmissivity') can then be linked to LNAPL saturation via use of simple analytical computer models, such as the American Petroleum Institute's (API) LNAPL Distribution and Recovery Model (LDRM). The LDRM also uses soil and LNAPL characteristics as input parameters.

However, LNAPL may be present but have zero or near-zero ability to move and is held by capillarity. This is referred to as 'residual LNAPL saturation'. Residual LNAPL saturation is *not* a fixed value and varies depending on soil, LNAPL type and maximum historical LNAPL saturation. It may still act as a source of dissolved hydrocarbons and soils vapour, which are a function of its composition.

The Didsbury site had only one well of twenty-two which showed < 5 mm of LNAPL. This would comprise minimally mobile LNAPL which is not readily recoverable.

For LNAPL to be recoverable, it needs to be mobile. Therefore, LNAPL with limited ability to flow and accumulate in monitoring wells has limited potential to be remediated through recovery by pumping. This is discussed further in Section 6 (Remediation Options and Sustainability).

4 CHANGES OVER TIME

The (minimally) soluble components of LNAPL will begin to dissolve immediately as LNAPL comes into contact with water, and any volatile components will partition into the gas-phase. Therefore, the LNAPL weathering process begins with an uncontrolled release.

The process is however slow and crude estimates of total dissolution time can be made using the following equation:

$$t = \frac{m}{v\eta_{eff}C_W A} \qquad \text{Eq. 2}$$

Where 'm' is the LNAPL mass, v is the groundwater velocity, η_{eff} is the effective / drainable porosity, A is the cross-sectional area of the LNAPL body and C_W is the dissolved concentration (Rivett et al., 2014). This equation suggests that *total* dissolution of even modest LNAPL bodies may take several hundred years. However, the risk-driving components are more soluble so dissolve out first and aquifer microbes use the source of carbon and actively degrade hydrocarbons, thus continuously lowering the dissolved concentrations. Neglecting the biological aspects and focusing on only the physical and chemical changes LNAPL undergoes can overestimate the persistence of LNAPL as a source (Atekwana et al., 2010). The volatile components of the LNAPL partition into the ground gas and also lead to changing LNAPL composition over time.

The change in chemical composition of a diesel fuel following weathering is shown in Figure 4, below.

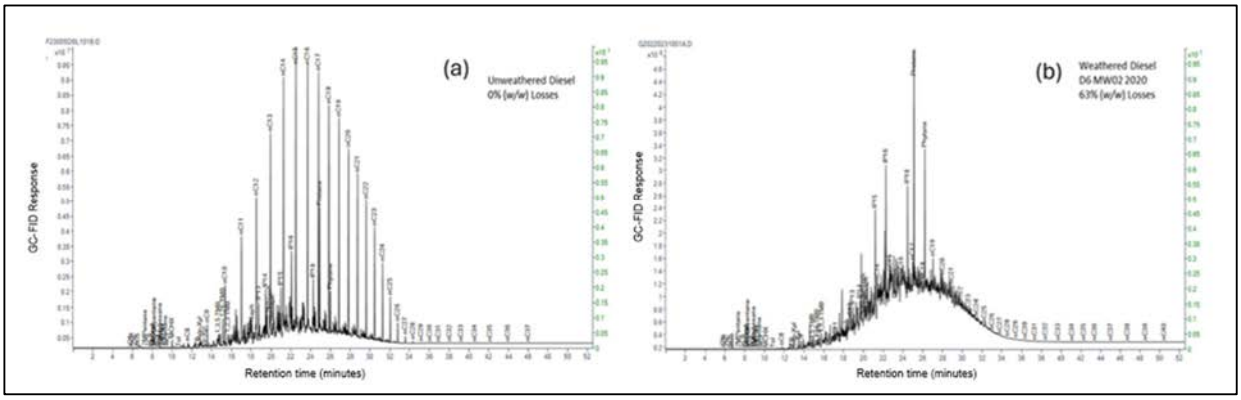


Figure 4. Comparison of fresh (left) and weathered (right) diesel chromatograms. Modified from Rayner et al., 2024

The weather diesel in Figure 4 had reportedly been in the subsurface for 40 to 50 years and was estimated to have had a mass loss of 38 to 63%. The weathered diesel shows a marked decrease in

A Bus Depot is understood to be the source of any hydrocarbon impacts and it closed in 1971: the diesel LNAPL would be expected to be quite weathered. The TPH data from Didsbury site is indeed indicative of a weathered diesel from the absence of VOCs and other risk-driving components.

compounds which elute first in the GC-FID analysis: i.e., the smaller, risk-driving components are much reduced in the weathered diesel.

Resultingly, the LNAPL itself changes composition and increases in density and viscosity as the smaller components are removed. Groundwater can also dissolve into the LNAPL, which can lead to a decrease in interfacial tension and increased mixing.

In practice, in particular for baildown tests, this can lead to difficulties in measuring LNAPL recharge in monitoring wells, and the electrical properties between LNAPL and water become less distinct (SoBRA, 2022).

The risks associated with LNAPL-groundwater plumes and vapours diminish over time. The physical, chemical and biological processes associated with LNAPL weathering lower the risks posed by the LNAPL and lower the potential to create problematic plumes.

5 BIOLOGICAL ASPECTS

The LNAPL partitions slowly into the groundwater. The dissolved phase hydrocarbons then become a carbon source for microbes. The increased microbial respiration generally exceeds the supply of dissolved oxygen and leads to reducing conditions. The biodegradation of hydrocarbons then takes place anaerobically, which can lead to the production of methane, which can be measured in the ground gas. The most simple and straightforward evidence that the LNAPL is dissolving and degrading is therefore reducing (low oxygen) conditions in groundwater and methane detections in either the gas or dissolved in the groundwater. The products of respiration, oxygen consumption rates and changes in ground gas composition can be used to demonstrate and estimate rates of hydrocarbon removal by microbes (biodegradation) (Atlas, 1991). A range of techniques exist to measure ground gas composition, from standard screening methods using gas samplers to carbon traps t dioxide and dynamic closed chambers (DCC) to measure carbon dioxide (Kulkarni et al., 2022).

More advanced characterisation tools also exist. The aquifer microbial community will become acclimated to the environmental change induced by the LNAPL and increase in available carbon and the species diversity and richness will increase. This is shown in Figure 5, below. These data are from a site which was impacted by the release of solvent LNAPL. The geology was chalk with a low background level of organic carbon. Furthermore, the unimpacted groundwater was aerobic, while the impacted groundwater was anaerobic.

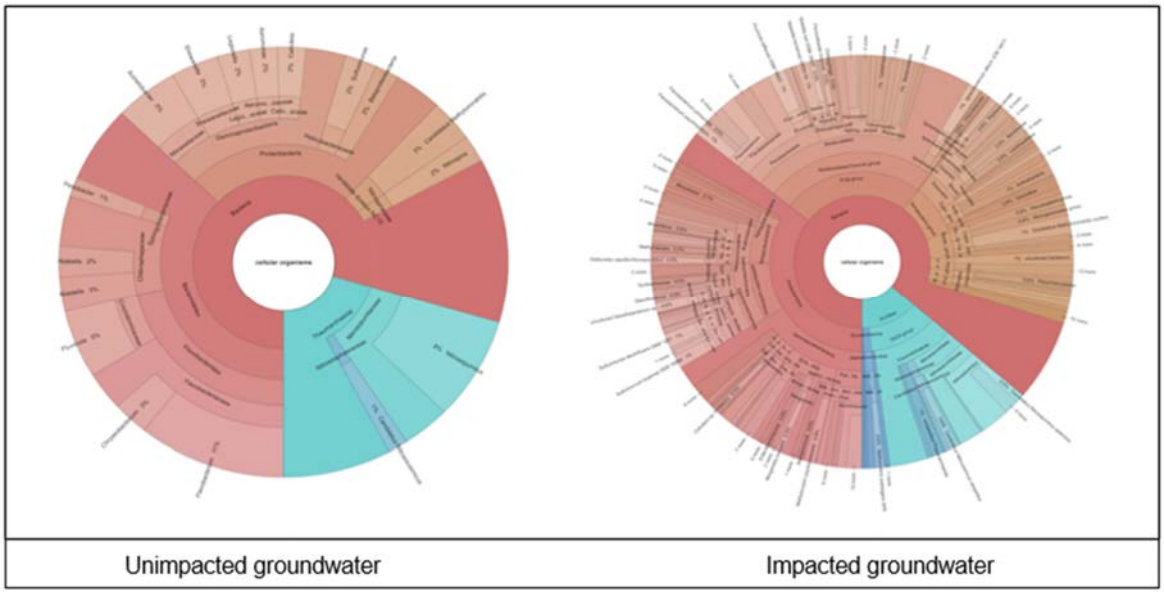


Figure 5. Comparison of the microbial communities between two groundwater samples from the same site. The image on the left shows the microbial community in a 'clean' well, which has a more limited microbial community. The impact on the right was from well with LNAPL impacts and shows are much more diverse microbial community.

The change in microbial community structure as shown in Figure 5 provides a line of evidence that hydrocarbons from the LNAPL are being degraded and that natural processes are able to reduce the risk posed by the LNAPL.

The Didsbury site likely has a well acclimated microbial community which is actively degrading the hydrocarbons, as evidence by the reducing conditions in the groundwater and carbon dioxide and methane in the ground gas.

The presence of genes used to degrade certain hydrocarbons can be used as a further line of evidence to indicate microbial degradation is taking place. The genes code for specific enzymes which take part in the removal of carbon atoms from hydrocarbons. An example for anaerobic degradation on benzene is shown in Figure 6. The data are from the same well as the impacted groundwater in Figure 5.

The presence of these genes demonstrates that the microbial community can degrade specific hydrocarbons. This is generally more important in sites impacted by more risk-driving LNAPLs, such as solvents which have a higher percentage of smaller and more soluble hydrocarbons, as opposed to mid and heavily end hydrocarbons ranging from diesel to hydraulic oils.

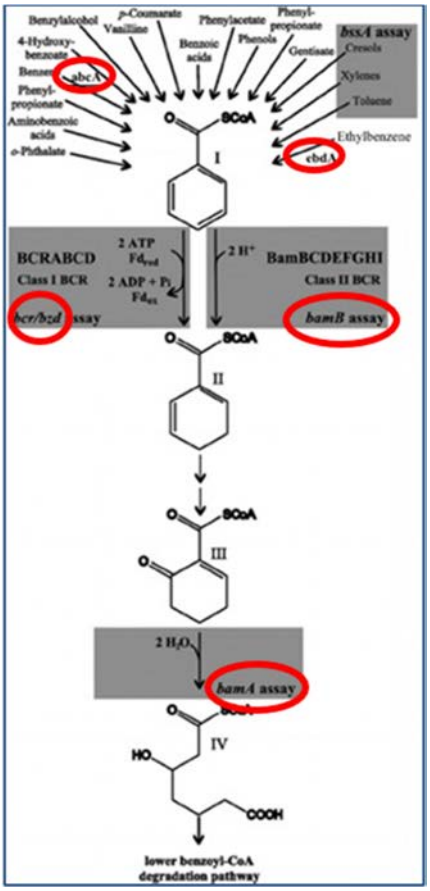


Figure 6. Specific genes involved in the biodegradation of benzene.

Additionally, tools are also available to directly demonstrate the rate of removal of specific hydrocarbons using stable isotope probes (SIPs). The SIP comprises a small amount of activated carbon which has been inoculated with ^{13}C containing hydrocarbon, which is generally benzene, toluene or a risk-driving hydrocarbon. The SIP is lowered into a monitoring well and left for several weeks, during which time the aquifer microbes degrade the inoculated hydrocarbon. The SIP is retrieved and the fate of the ^{13}C is tracked: the change in isotope ratio between ^{12}C and ^{13}C can be measured in the phospholipid fatty acids (PLFA) and dissolved inorganic carbon (DIC). The change in isotope ratios in the PLFA is evidence that the labeled hydrocarbon is being used by the microbe as a carbon source, and a change in the isotope ratio in the DIC demonstrates that the inoculated hydrocarbon is capable of being mineralized (fully degraded) by the aquifer microbial community. An example of the results from a benzene-SIP is given in Figure 7, below. These data are also from the same site (solvent in a chalk aquifer) as in Figure 5 and Figure 6.

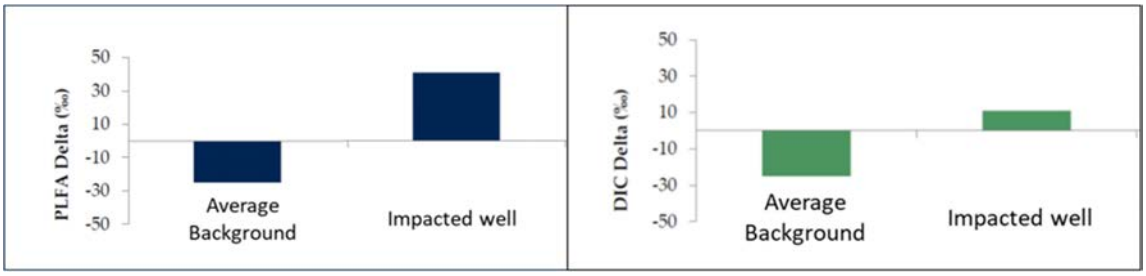


Figure 7. Results from a benzene Stable Isotope Probe showing a change in isotope ratios for 12C and 13C in both PLFA and DIC, thereby demonstrate uptake and mineralisation of benzene

The SIP works best when there are elevated concentrations of the target hydrocarbon. In the example in Figure 7, the benzene concentration in the groundwater was around 5 mg/L. At the Didsbury site, there was one detection of benzene at 4 µg/L – more than 3 orders of magnitude less. Therefore, an SIP would not be an appropriate method for the Didsbury site.

The biological process which takes place following an LNAPL release can be evidenced through several methods. The most straight forward of these is the establishment of reducing conditions followed by the presence of methane in the ground gas or dissolved in groundwater which is produced from the anerobic degradation of hydrocarbons.

More sophisticated tools to demonstrate LNAPL removal by assessing ground gas changes and microbial community shift, the presence of specific genes, demonstrate direct removal of hydrocarbons by using isotope-labelled hydrocarbon probes can also be used. The primary application of these tools is in Natural Source Zone Depletion (NSZD), which is becoming an increasingly accepted process to reduce LNAPL mass and change its composition, resulting in risk reduction and over time, LNAPL source depletion (Smith et al., 2022).

6 REMEDIATION OPTIONS AND SUSTAINABILITY

6.1 Remediation

Remediation of LNAPL impacted aquifers can be divided into three processes: physical, chemical and biological for both ex-situ and in-situ approaches. Ex-situ approaches are generally more applicable to shallow impacts are require earth moving equipment. The soil and groundwater can be treated on site or at specialized facilities, where soil washing (physical), or bio-pilling (biological) can be used to remove hydrocarbons. Soil washing can also be supplemented with the use of surfactants (chemical) to increase LNAPL and hydrocarbon separation from the excavated materials. In rare cases, thermal approaches (physical) can be used to desorb or combust LNAPL and hydrocarbons, but these are generally reserved for more grossly contaminated soils. Disposal to landfill remains an option for soil and is generally only viable for smaller volumes of soil.

Ex-situ approaches have the advantage that the source is removed but generally are more expensive and less sustainable than in-situ approaches: contaminated soils may have to be transported large distances by heavy vehicles.

Water can be treated using bioreactors and aerators, or dissolved hydrocarbons can be removed using activated carbon filters.

In situ approaches include direct pumping or multiphase extraction with or without thermal additions (physical), surfactant-enhanced recovery (physico-chemical), in-situ chemical oxidation (chemical), or by using bioremediation. Bioremediation can be further divided into biostimulation (where conditions are created to promote hydrocarbon degrading microbes) or bioaugmentation (where microbes are added to the aquifer). They can also be targeted towards changing the LNAPL saturation (i.e. mass recovery) or changing the LNAPL composition (removal of risk-driving VOC LNAPL components).

Physical methods for LNAPL remediation are most applicable to grossly contaminated sites. LNAPL recovery via pumping requires that the mobility of the LNAPL be such that it can flow into recovery wells; there are therefore limits to its use, and for low-saturation LNAPL it will be ineffective and unsustainable (Lari et al., 2018). Multiphase extraction involves applying a vacuum to the subsurface which will remove both groundwater and volatile hydrocarbons. It can be coupled with different thermal technologies to increase the volatilization rate.

Surfactant enhanced LNAPL recovery involves injecting and then extracting a surfactant. The surfactant lowers the interfacial tension between LNAPL and water and allows greater volumes of LNAPL to be recovered. The surfactant will also increase the dissolution of LNAPL. It can also be used to recover residual LNAPL (the immobile fraction of the LNAPL). However, comprehensive CSM and hydraulic control of the injection fluids are required to prevent off-site migration (Sharma et al., 2020).

In-Situ Chemical Oxidation (ISCO) can be used to mineralize dissolved phase hydrocarbons and can be coupled with surfactants to bring more of the LNAPL components into solution (Garcia-Cervilla, 2025). ISCO can however sometimes provide only short-term results: the dissolved hydrocarbons are oxidized, but remaining LNAPL will continue to partition into the groundwater and contaminant

concentrations can return to pre-remediation concentrations over time. This is 'contaminant rebound' (Krembs et al., 2010; Suthersan et al., 2017). ISCO may require several rounds of reagent injections, post-injection monitoring and subsequent reagent injections to meet remediation targets, especially in the soil impacted by LNAPL. Contact is required between the contaminant and oxidizing reagent, which can be challenging to achieve in the subsurface (Kitanidis et al., 2012). Furthermore, the issues around reagent-contaminant contact and contaminant rebound become more pronounced with soil heterogeneity.

Bioremediation can take the approach of biostimulation or bioaugmentation. Biostimulation aims to provide aquifer microbes with supplemental nutrients or environmental changes to promote biodegradation of hydrocarbons. Bioaugmentation add specific microbial cultures to the subsurface to promote biodegradation. They are often used in combination. Bioaugmentation is also more commonly used where there is a single or low number of risk-driving compounds, for example trichlorethylene, where there are limited microbial strains which can degrade the hydrocarbon. Injected microbes also have overcome the autochthonous load: aquifer microbiology may be complex, and existing microbes may inhibit injected cultures and lead to remediation failure. Additionally, microbes are sensitive to the environment, so a phase of laboratory work may be required to select the most appropriate culture.

The benefits of both biostimulation and bioaugmentation should be compared against the ability of aquifer microbes to degrade dissolved hydrocarbons from LNAPL alone in an NSDZ approach (as discussed in Section 5), especially in complex LNAPLs such as diesel or crude oil. An example is shown in Figure 8, below.

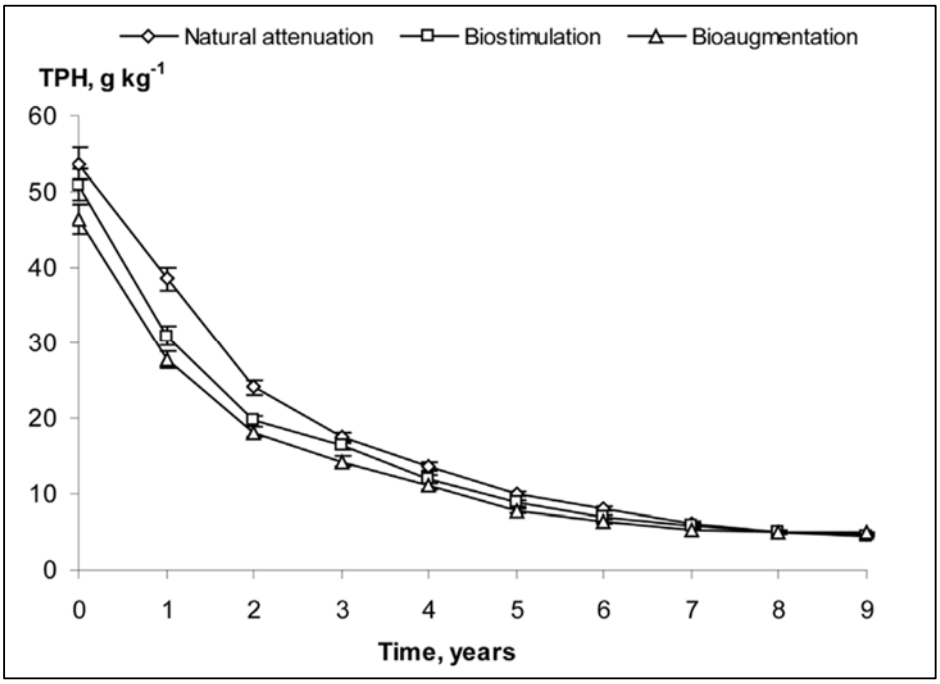


Figure 8. Comparison of Natural Attenuation, Biostimulation and Bioaugmentation for TPH reduction. The LNAPL was crude oil. Modified from Polyak et al., (2018).

Figure 8 shows that, in crude oil contaminated soils, there is no meaningful long-term difference between biostimulation, bioaugmentation or natural attenuation. There were differences in TPH concentration in the early years of the comparison, but by year 8 the results were the same for each approach. The natural microbes were able to affect the same change as engineered bioremediation techniques. This example is site specific but does highlight the potential for hydrocarbon removal over longer timeframes by aquifer microbes.

The LNAPL at Didsbury has likely been in the subsurface for over 50 years, and so any further biological stimulation or augmentation is not likely to produce any further benefit with regards to remediation.

Bioremediation is however often the lowest cost, safest and most sustainable approach to remediation. When NSDZ is employed, this can remove the need for aquifer injections while achieving the same results. Accordingly, NSZD is now viewed as a viable remediation approach, especially for sites where engineered, process-based based remediation is no longer sustainable (Statham et al., 2023) and industry guidance has been published in the UK (Rivett & Sweeney, 2019; CL:AiRE, 2024).

6.2 Sustainability

The purpose of LNAPL source zone remediation is to lower the risks posed by the LNAPL. The first step is to understand the risks and then assess how each technology can address them.

An LNAPL containing risk-driving components (soluble hydrocarbons and VOCs) poses the greatest risks when it is new. Over time, the risk driving components will partition into the groundwater and ground gas, where they will be subject to microbial degradation, in addition to dilution and dispersion.

Weathered LNAPL at low soil saturations poses few risks from either its composition or saturation. It cannot be recovered by simple pumping due to its near-zero mobility. Furthermore, the use of enhanced techniques such as surfactant injections may recover more LNAPL, but this may change the risk of the source zone in a very limited manner and therefore be unsustainable. ISCO may treat some of the dissolved hydrocarbons, but these will likely rebound and there will be no overall change to the risk.

Biological approaches may be useful to target specific components but may not increase degradation rates over that of natural attenuation, especially for aged LNAPL. Engineered bioremediation would also therefore comprise an intervention which does not bring added benefit and would be

The LNAPL present at the Didsbury site is weathered and there is strong evidence of biodegradation. There are no saturation concerns (it occupies a small fraction of the pore space; and there are limited composition concerns for controlled waters and none for human health. It is being removed and depleted by natural processes.

unsustainable. An NSZD approach is best suited for sites where LNAPL recovery or removal is impractical and where hydrocarbon degrading microbial communities have been able to become established. Ultimately, the requirement for remediation is driven by the risk a source zone poses, and the cost and effectiveness of the remediation technique.

7 SUMMARY

LNAPL is a widespread contaminant. It can pose risks from sparingly soluble components which impact ground gas and groundwater over extended periods of time. The characterisation of an LNAPL body can be practically challenging, and remediation may need to target with the LNAPL composition or LNAPL saturation. Hydrocarbons which partition into groundwater from LNAPL are amenable to bioremediation, but natural microbial processes can be as effective as engineered processes for remediation.

The need for any remediation is driven by risk. However, in cases where the LNAPL is degraded and immobile, the risks are very low, and monitoring of natural degradative processes comprise a more sustainable approach to LNAPL management.

8 IMPLICATIONS FOR THE DIDSBURY PARRS WOOD LANE SITE

The risk assessment for the Didsbury site showed that the LNAPL is immobile and at low pore saturation with evidence that the hydrocarbons are being naturally degraded. There were low levels of VOCs in the ground gas and no exceedances for human health under a 'residential without homegrown produce' scenario. There were some exceedances for controlled waters on site, however, the soils are clay-rich and so low permeability, and the hydraulic gradient is limited; there is therefore very low risk to any off-site receptors.

Therefore, the most appropriate course of action for the LNAPL on site may be continued monitoring and, in required, supplemental data to provide further evidence that natural processes are depleting the source.

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