

Ref DJ/LG/21226/LET/GE01

22 November 2023

Mr S Walters
Persimmon Homes South Midlands
Aspen House
Birmingham Road
Studley
Warwickshire
B80 7BG



Dear Spencer

Wykham Park Farm, Oxfordshire – Formation Level Testing, Plots 1 to 24

Further to our recent correspondence, we understand that there is an existing NHBC Condition relating to the elevated arsenic concentrations identified within the natural strata. In accordance with our email proposal dated 3 November 2023, we have carried out some additional sampling to determine whether the existing near surface soils pose an unacceptable risk to future occupiers of the site and consequently whether any remedial measures would be required. Details of the works and findings are summarised in the following letter.

A site investigation was previously undertaken by Hydrock Consultants Limited the results of which are detailed in their Site Investigation Report issued April 2017. The investigation typically confirmed the recorded geological mapping; for the Persimmon Homes proposed development area, the near-surface natural soils typically comprise brown slightly gravelly clay of the Whitby Mudstone Formation.

The Whitby Mudstone was identified as having naturally elevated concentrations of arsenic (typically ranging from 47mg/kg to 270mg/kg). Bioaccessibility Testing (PBET) and analysis undertaken by Hydrock on these deposits indicated that the concentrations of arsenic, whilst elevated, were below the calculated site-specific assessment criteria (SSAC) derived for the site. The bioaccessibility testing indicated that the available fraction of arsenic was relatively low, ranging between 2.5% and 9.3%. The SSAC derived by Hydrock for the Whitby Mudstone Formation using the most conservative bioaccessibility fraction of 9.3% was 234mg/kg for the proposed land use i.e. 'residential with plant uptake'.

Underlying the Whitby Mudstone Formation is strata of the Marlstone Rock Formation which indicated consistently elevated concentrations of arsenic (up to 920mg/kg), greater than the SSAC derived using the bioaccessibility fractions (i.e. 359mg/kg). On this basis, the weathered Marlstone Rock was considered to be unsuitable for retention within the upper 600mm of the garden and landscape areas.

Following receipt of proposed levels across the site, an assessment has been undertaken to confirm which plots, if any, are likely to encounter shallow Marlstone Rock that may pose a risk to future occupiers of the site. The spreadsheet, attached as Appendix 1, provides a summary of the assessment and outlines the following:

- Plots where gardens are being raised greater than 600mm (no remedial works required);
- Plots being raised less than 600mm but Marlstone Rock not identified within 600mm of the proposed ground level (no remedial works required);
- Plots being raised less than 600mm but where Marlstone Rock may be within 600mm of the proposed garden level (possible remedial works required).

It is understood that levels have not been altered significantly in this area therefore it is anticipated that the soils within the garden areas of the first build phase (Plots 1 to 24) are likely to comprise soils from the Whitby Mudstone Formation and should not be derived from the Marlstone Rock Formation.

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Following the top soil strip in the initial build area, it is understood that the gardens are at approximately 150mm to 300mm below finished ground level; on this basis there will be no requirement to raise the garden areas with site won sub soil.

In order to provide a better assessment of the ground conditions within the first build phase (Plots 1 to 24), a Travis Baker Ltd engineer attended site on 9 November 2023 to take samples at an approximate frequency of 1 in 4 plots at varying depths beneath the formation level.

Eight samples were taken at depths of between 0.2m and 0.4m below existing ground level and tested at an accredited soils laboratory for a suite of metals including arsenic. The results are attached as Appendix 2 and summarised in Table 1. The results are within a similar range as identified in the SI.

Table 1 – Summary of Arsenic Concentrations – Initial Build Phase (Plots 1 to 24)

Sample Ref	Sample Depth (m bgl)	Arsenic Concentration (mg/kg)	SSAC (mg/kg)	Recorded Concentration Above SSAC?
Plot 1	0.3	110	234	No
Plot 4	0.4	91		No
Plot 7	0.2	84		No
Plot 10	0.2	130		No
Plot 12	0.4	100		No
Plot 15	0.3	100		No
Plot 21	0.2	95		No
Plot 24	0.3	110		No

The recorded concentrations of arsenic within the initial build phase (Plots 1 – 24) indicate that the near-surface soils are below their SSAC and are deemed suitable for re-use within the proposed garden and landscaping. On this basis, no specific remediation is considered necessary for Plots 1 – 24.

Given the findings of the initial build area, we consider that it would be appropriate to reduce the frequency of testing across the wider site area where Marlstone Rock is likely to be greater than 0.6m below the proposed gardens. The findings of this initial assessment should be provided to the NHBC for their comment / approval as soon as possible so that the conditions can be updated, as appropriate.

We trust the above and attached are suitable for the discharge of the relevant NHBC land quality condition for Plots 1-24 and update in testing frequency for the remainder of the site. However, please do not hesitate to contact us if you have any queries or require clarification on any matter.

Yours sincerely,

Lindsey Geddes

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Reviewed by

David James
Director

Enc.

Appendix 1 – Assessment of Proposed Garden Levels and Remedial Requirements

Appendix 2 - Laboratory Chemical Test Report



APPENDICES

APPENDIX 1

Assessment of Proposed Garden Levels and Remedial Requirements

Wykham Park Farm, Banbury
Assessment of Proposed Garden Levels and Remedial Requirements - 1 March 2023

Plot Number	Elevation (m AOD) EGL	Elevation (minus 300mm Top Soil Strip)	Finished Floor Level (m AOD)	Finished Ground Level (m AOD)	Fill Required in Garden Area (mm)	Garden Formation to be potentially reduced by (mm)	Finished garden level minus 600mm	Depth to subsoil From EGL	Depth to Marlstone Rock From EGL
1	132.75	132.45	133.15	133.00	550	50	132.40	0.35	1.50
2	132.83	132.53	133.15	133.00	470	130	132.40	0.43	1.50
3	132.70	132.40	133.15	133.00	600	-	132.40	-	-
4	132.76	132.46	133.15	133.00	540	60	132.40	0.36	1.25
5	132.69	132.39	133.15	133.00	610	-	132.40	-	-
6	132.70	132.40	133.45	133.30	900	-	132.70	-	-
7	133.10	132.80	133.45	133.30	500	100	132.70	0.40	1.00
8-9	132.85	132.55	133.20	133.05	500	100	132.45	0.40	0.75
10	132.88	132.58	133.25	133.10	520	80	132.50	0.38	0.75
11	132.88	132.58	133.25	133.10	520	80	132.50	0.38	0.75
12	132.85	132.55	133.10	132.95	400	200	132.35	0.50	0.75
13	132.85	132.55	133.10	132.95	400	200	132.35	0.50	0.75
14	132.84	132.54	132.975	132.825	285	315	132.23	0.62	0.75
15	132.80	132.50	133.10	132.95	450	150	132.35	0.45	0.75
16	132.75	132.45	133.25	133.10	650	-	132.50	-	-
17	132.75	132.45	133.25	133.10	650	-	132.50	-	-
18	132.80	132.50	132.95	132.80	300	300	132.20	0.60	1.00
19	132.75	132.45	132.70	132.55	100	500	131.95	0.80	1.00
20	132.72	132.42	132.60	132.45	30	570	131.85	0.87	1.00
21	132.70	132.40	132.60	132.45	50	550	131.85	0.85	1.00
22	132.68	132.38	133.10	132.95	570	30	132.35	0.33	1.00
23	132.65	132.35	133.10	132.95	600	-	132.35	-	-
24	132.70	132.40	133.10	132.95	550	50	132.35	0.35	1.00
25	132.65	132.35	133.45	133.30	950	-	132.70	-	-
26	132.82	132.52	133.45	133.30	780	-	132.70	-	-
27	132.75	132.45	133.45	133.30	850	-	132.70	-	-
28	132.80	132.50	133.30	133.15	650	-	132.55	-	-
29	132.85	132.55	133.30	133.15	600	-	132.55	-	-
30	132.85	132.55	133.45	133.30	750	-	132.70	-	-
31	132.78	132.48	132.85	132.70	220	380	132.10	0.68	0.75
32	132.80	132.50	133.00	132.85	350	250	132.25	0.55	0.75
33	132.78	132.48	133.15	133.00	520	80	132.40	0.38	0.75
34	132.75	132.45	133.15	133.00	550	50	132.40	0.35	0.75
35	132.70	132.40	133.15	133.00	600	-	132.40	-	-
36	132.60	132.30	133.15	133.00	700	-	132.40	-	-

Wykham Park Farm, Banbury
Assessment of Proposed Garden Levels and Remedial Requirements - 1 March 2023

Plot Number	Elevation (m AOD) EGL	Elevation (minus 300mm Top Soil Strip)	Finished Floor Level (m AOD)	Finished Ground Level (m AOD)	Fill Required in Garden Area (mm)	Garden Formation to be potentially reduced by (mm)	Finished garden level minus 600mm	Depth to subsoil From EGL	Depth to Marlstone Rock From EGL
37	132.42	132.12	133.30	133.15	1030	-	132.55	-	-
38	132.35	132.05	133.30	133.15	1100	-	132.55	-	-
39	132.40	132.10	133.30	133.15	1050	-	132.55	-	-
40	131.90	131.60	132.40	132.25	650	-	131.65	-	-
41	131.97	131.67	132.55	132.40	730	-	131.80	-	-
42	132.05	131.75	132.55	132.40	650	-	131.80	-	-
43	132.10	131.80	132.70	132.55	750	-	131.95	-	-
44	132.25	131.95	133.00	132.85	900	-	132.25	-	-
45	132.15	131.85	132.900	132.750	900	-	132.15	-	-
46	132.15	131.85	132.900	132.750	900	-	132.15	-	-
47-48	132.15	131.85	132.900	132.750	900	-	132.15	-	-
49	131.95	131.65	132.55	132.40	750	-	131.80	-	-
50	131.93	131.63	132.55	132.40	770	-	131.80	-	-
51	131.91	131.61	132.55	132.40	790	-	131.80	-	-
52	131.75	131.45	132.25	132.10	650	-	131.50	-	-
53	131.73	131.43	132.25	132.10	670	-	131.50	-	-
54	131.71	131.41	132.25	132.10	690	-	131.50	-	-
55	131.72	131.42	132.25	132.10	680	-	131.50	-	-
56	131.70	131.40	132.25	132.10	700	-	131.50	-	-
57	131.70	131.40	132.25	132.10	700	-	131.50	-	-
58	131.73	131.43	132.10	131.95	520	80	131.35	0.38	1.25
59	131.80	131.50	132.375	132.225	725	-	131.63	-	-
60	131.80	131.50	132.375	132.225	725	-	131.63	-	-
61	131.83	131.53	132.30	132.15	620	-	131.55	-	-
62	131.85	131.55	132.30	132.15	600	-	131.55	-	-
63	131.87	131.57	132.30	132.15	580	20	131.55	0.32	0.75
64	131.90	131.60	132.40	132.25	650	-	131.65	-	-
65	131.98	131.68	132.85	132.70	1020	-	132.10	-	-
66	132.00	131.70	132.85	132.70	1000	-	132.10	-	-
67	132.12	131.82	132.85	132.70	880	-	132.10	-	-
68	132.15	131.85	132.85	132.70	850	-	132.10	-	-
69-70	132.35	132.05	132.75	132.60	550	50	132.00	0.35	1.00
71	132.37	132.07	132.75	132.60	530	70	132.00	0.37	1.00
72	132.35	132.05	132.85	132.70	650	-	132.10	-	-
73	132.34	132.04	132.85	132.70	660	-	132.10	-	-

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74	132.33	132.03	132.85	132.70	670	-	132.10	-	-
75	132.31	132.01	132.70	132.55	540	60	131.95	0.36	1.00
76	132.10	131.80	132.70	132.55	750	-	131.95	-	-
77	132.05	131.75	132.30	132.15	400	200	131.55	0.50	0.75
78	131.99	131.69	132.30	132.15	460	140	131.55	0.44	0.75
79	131.97	131.67	132.30	132.15	480	120	131.55	0.42	0.75
80	131.95	131.65	132.30	132.15	500	100	131.55	0.40	0.75
81	131.90	131.60	132.80	132.65	1050	-	132.05	-	-
82	131.90	131.60	132.80	132.65	1050	-	132.05	-	-
83	131.95	131.65	132.80	132.65	1000	-	132.05	-	-
84	132.00	131.70	132.80	132.65	950	-	132.05	-	-
85	132.10	131.80	133.10	132.95	1150	-	132.35	-	-
86	132.20	131.90	133.10	132.95	1050	-	132.35	-	-
87	132.25	131.95	133.10	132.95	1000	-	132.35	-	-
88	132.30	132.00	133.10	132.95	950	-	132.35	-	-
89	132.35	132.05	133.40	133.25	1200	-	132.65	-	-
90	132.38	132.08	133.40	133.25	1170	-	132.65	-	-
91	132.40	132.10	133.40	133.25	1150	-	132.65	-	-
92	132.44	132.14	133.40	133.25	1110	-	132.65	-	-
93	132.46	132.16	133.40	133.25	1090	-	132.65	-	-
94	132.70	132.40	133.25	133.10	700	-	132.50	-	-
95	132.75	132.45	133.15	133.00	550	50	132.40	0.35	1.00
96	132.50	132.20	133.275	133.125	925	-	132.53	-	-
97	132.65	132.35	133.275	133.125	775	-	132.53	-	-
98	132.55	132.25	133.25	133.10	850	-	132.50	-	-
99	132.53	132.23	133.25	133.10	870	-	132.50	-	-
100	132.30	132.00	132.95	132.80	800	-	132.20	-	-
101	132.28	131.98	132.95	132.80	820	-	132.20	-	-
102	132.25	131.95	132.95	132.80	850	-	132.20	-	-
103	132.20	131.90	132.95	132.80	900	-	132.20	-	-
104	132.10	131.80	132.95	132.80	1000	-	132.20	-	-
105	131.85	131.55	132.30	132.15	600	-	131.55	-	-
106	131.80	131.50	132.30	132.15	650	-	131.55	-	-
107	131.80	131.50	132.30	132.15	650	-	131.55	-	-
108	131.75	131.45	132.05	131.90	450	150	131.30	0.45	1.00

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109	131.70	131.40	132.05	131.90	500	100	131.30	0.40	1.00
110	131.70	131.40	132.05	131.90	500	100	131.30	0.40	1.00
111	131.72	131.42	132.05	131.90	480	120	131.30	0.42	1.00
112	131.72	131.42	132.05	131.90	480	120	131.30	0.42	1.00
113	131.73	131.43	132.05	131.90	470	130	131.30	0.43	1.00
114	131.71	131.41	131.70	131.55	140	460	130.95	0.76	1.00
115	131.68	131.38	131.70	131.55	170	430	130.95	0.73	1.00
116	131.65	131.35	131.70	131.55	200	400	130.95	0.70	1.00
117	131.55	131.25	131.70	131.55	300	300	130.95	0.60	1.00
118	131.50	131.20	131.70	131.55	350	250	130.95	0.55	1.00
119	131.45	131.15	131.70	131.55	400	200	130.95	0.50	1.00
120	131.38	131.08	132.225	132.075	995	-	131.48	-	-
121	131.38	131.08	132.225	132.075	995	-	131.48	-	-
122	131.37	131.07	132.225	132.075	1005	-	131.48	-	-
123	131.37	131.07	132.225	132.075	1005	-	131.48	-	-
124	131.53	131.23	132.60	132.45	1220	-	131.85	-	-
125	131.56	131.26	132.60	132.45	1190	-	131.85	-	-
126	131.60	131.30	132.60	132.45	1150	-	131.85	-	-
127	131.75	131.45	132.525	132.375	925	-	131.78	-	-
128	131.66	131.36	132.425	132.275	915	-	131.68	-	-
129	131.89	131.59	132.325	132.175	585	15	131.58	0.31	1.00
130	131.35	131.05	132.125	131.975	925	-	131.38	-	-
131	131.36	131.06	132.00	131.85	790	-	131.25	-	-
132	131.38	131.08	132.00	131.85	770	-	131.25	-	-
133	131.38	131.08	132.00	131.85	770	-	131.25	-	-
134	131.35	131.05	132.20	132.05	1000	-	131.45	-	-
135	131.55	131.25	132.40	132.25	1000	-	131.65	-	-
136	131.55	131.25	132.45	132.30	1050	-	131.70	-	-
137	131.55	131.25	132.50	132.35	1100	-	131.75	-	-
138	131.58	131.28	132.425	132.275	995	-	131.68	-	-
139	131.60	131.30	132.50	132.35	1050	-	131.75	-	-
140	131.60	131.30	132.50	132.35	1050	-	131.75	-	-
141	131.50	131.20	132.40	132.25	1050	-	131.65	-	-
142	131.47	131.17	132.40	132.25	1080	-	131.65	-	-
143	131.55	131.25	132.00	131.85	600	-	131.25	-	-

Wykham Park Farm, Banbury
Assessment of Proposed Garden Levels and Remedial Requirements - 1 March 2023

Plot Number	Elevation (m AOD) EGL	Elevation (minus 300mm Top Soil Strip)	Finished Floor Level (m AOD)	Finished Ground Level (m AOD)	Fill Required in Garden Area (mm)	Garden Formation to be potentially reduced by (mm)	Finished garden level minus 600mm	Depth to subsoil From EGL	Depth to Marlstone Rock From EGL
144	131.55	131.25	132.15	132.00	750	-	131.40	-	-
145	131.60	131.30	132.15	132.00	700	-	131.40	-	-
146	131.60	131.30	132.30	132.15	850	-	131.55	-	-
147	131.60	131.30	132.45	132.30	1000	-	131.70	-	-
148	131.40	131.10	132.30	132.15	1050	-	131.55	-	-
149	131.38	131.08	132.30	132.15	1070	-	131.55	-	-
150	131.33	131.03	132.40	132.25	1220	-	131.65	-	-
151	131.42	131.12	132.60	132.45	1330	-	131.85	-	-
152	131.42	131.12	132.60	132.45	1330	-	131.85	-	-
153	131.38	131.08	132.30	132.15	1070	-	131.55	-	-
154	131.16	130.86	131.80	131.65	790	-	131.05	-	-
155	131.16	130.86	131.80	131.65	790	-	131.05	-	-
156	131.14	130.84	131.95	131.80	960	-	131.20	-	-
157	131.12	130.82	131.95	131.80	980	-	131.20	-	-
158	130.95	130.65	131.90	131.75	1100	-	131.15	-	-
159	131.00	130.70	131.90	131.75	1050	-	131.15	-	-
160	131.15	130.85	131.85	131.70	850	-	131.10	-	-
161	131.20	130.90	131.85	131.70	800	-	131.10	-	-
162	131.15	130.85	131.85	131.70	850	-	131.10	-	-
163	131.10	130.80	131.85	131.70	900	-	131.10	-	-
164	130.88	130.58	131.15	131.00	420	180	130.40	0.48	0.75
165	131.00	130.70	130.85	130.70	0	600	130.10	0.90	0.75
166	131.00	130.70	130.85	130.70	0	600	130.10	0.90	0.75
167	131.00	130.70	130.85	130.70	0	600	130.10	0.90	0.75
168	131.04	130.74	131.10	130.95	210	390	130.35	0.69	0.75
169	131.05	130.75	131.10	130.95	200	400	130.35	0.70	0.75
170	131.08	130.78	131.10	130.95	170	430	130.35	0.73	0.75
171	131.10	130.80	131.10	130.95	150	450	130.35	0.75	0.75
172	131.15	130.85	131.10	130.95	100	500	130.35	0.80	0.75
173	131.18	130.88	131.10	130.95	70	530	130.35	0.83	0.75
174	131.25	130.95	131.55	131.40	450	150	130.80	0.45	0.75
175	131.25	130.95	132.20	132.05	1100	-	131.45	-	-
176	131.23	130.93	132.20	132.05	1120	-	131.45	-	-
177	131.24	130.94	132.35	132.20	1260	-	131.60	-	-
178	131.24	130.94	132.35	132.20	1260	-	131.60	-	-

Wykham Park Farm, Banbury
Assessment of Proposed Garden Levels and Remedial Requirements - 1 March 2023

Plot Number	Elevation (m AOD) EGL	Elevation (minus 300mm Top Soil Strip)	Finished Floor Level (m AOD)	Finished Ground Level (m AOD)	Fill Required in Garden Area (mm)	Garden Formation to be potentially reduced by (mm)	Finished garden level minus 600mm	Depth to subsoil From EGL	Depth to Marlstone Rock From EGL
179	131.32	131.02	131.95	131.80	780	-	131.20	-	-
180	131.25	130.95	132.20	132.05	1100	-	131.45	-	-
181	131.25	130.95	132.20	132.05	1100	-	131.45	-	-
182	131.21	130.91	132.35	132.20	1290	-	131.60	-	-
183	131.23	130.93	132.35	132.20	1270	-	131.60	-	-
184	131.18	130.88	132.40	132.25	1370	-	131.65	-	-
185	131.15	130.85	132.45	132.30	1450	-	131.70	-	-
186	131.25	130.95	132.30	132.15	1200	-	131.55	-	-
187	131.25	130.95	132.15	132.00	1050	-	131.40	-	-
188	131.20	130.90	132.15	132.00	1100	-	131.40	-	-
189	131.15	130.85	132.15	132.00	1150	-	131.40	-	-
190	131.10	130.80	132.00	131.85	1050	-	131.25	-	-
191	131.05	130.75	132.50	132.35	1600	-	131.75	-	-
192	131.07	130.77	132.35	132.20	1430	-	131.60	-	-
193	131.10	130.80	132.05	131.90	1100	-	131.30	-	-
194	131.10	130.80	131.90	131.75	950	-	131.15	-	-
195	131.10	130.80	131.90	131.75	950	-	131.15	-	-
196-197	130.98	130.68	131.70	131.55	870	-	130.95	-	-
198	131.05	130.75	131.75	131.60	850	-	131.00	-	-
199	131.10	130.80	131.75	131.60	800	-	131.00	-	-
200	131.10	130.80	131.65	131.50	700	-	130.90	-	-
201	131.12	130.82	131.65	131.50	680	-	130.90	-	-
202	131.16	130.86	131.55	131.40	540	60	130.80	0.36	0.75
203	130.75	130.45	131.30	131.15	700	-	130.55	-	-
204	130.75	130.45	131.30	131.15	700	-	130.55	-	-
205	130.75	130.45	131.30	131.15	700	-	130.55	-	-
206	130.75	130.45	131.30	131.15	700	-	130.55	-	-
207	130.85	130.55	131.30	131.15	600	-	130.55	-	-
208	130.95	130.65	131.45	131.30	650	-	130.70	-	-
209	131.00	130.70	131.45	131.30	600	-	130.70	-	-
210	130.95	130.65	131.775	131.625	975	-	131.03	-	-
211-212	130.90	130.60	131.53	131.70	1100	-	131.10	-	-
213	130.90	130.60	131.23	131.70	1100	-	131.10	-	-
214	130.88	130.58	131.23	131.70	1120	-	131.10	-	-
215	130.85	130.55	131.15	131.50	950	-	130.90	-	-

Wykham Park Farm, Banbury
Assessment of Proposed Garden Levels and Remedial Requirements - 1 March 2023

Plot Number	Elevation (m AOD) EGL	Elevation (minus 300mm Top Soil Strip)	Finished Floor Level (m AOD)	Finished Ground Level (m AOD)	Fill Required in Garden Area (mm)	Garden Formation to be potentially reduced by (mm)	Finished garden level minus 600mm	Depth to subsoil From EGL	Depth to Marlstone Rock From EGL
216	130.83	130.53	131.15	131.50	970	-	130.90	-	-
217	130.85	130.55	131.15	131.30	750	-	130.70	-	-
218	130.85	130.55	131.15	131.30	750	-	130.70	-	-
219	130.87	130.57	131.30	131.15	580	20	130.55	0.32	1.00
220	130.87	130.57	131.30	131.15	580	20	130.55	0.32	1.00
221	130.83	130.53	131.30	131.15	620	-	130.55	-	-
222	130.82	130.52	131.30	131.15	630	-	130.55	-	-
223	130.83	130.53	131.375	131.225	695	-	130.63	-	-
224	130.95	130.65	131.575	131.43	775	-	130.83	-	-
225	130.97	130.67	131.575	131.43	755	-	130.83	-	-
226-227	130.98	130.68	131.575	131.43	745	-	130.83	-	-
228	130.98	130.68	131.85	131.70	1020	-	131.10	-	-
229	130.98	130.68	131.85	131.70	1020	-	131.10	-	-
230	130.97	130.67	132.15	132.00	1330	-	131.40	-	-
231	130.97	130.67	132.15	132.00	1330	-	131.40	-	-
232	130.97	130.67	132.15	132.00	1330	-	131.40	-	-
233	131.05	130.75	132.10	131.95	1200	-	131.35	-	-
234	131.05	130.75	131.85	131.70	950	-	131.10	-	-
235	131.05	130.75	131.55	131.40	650	-	130.80	-	-
236	130.95	130.65	131.40	131.25	600	-	130.65	-	-
237	130.95	130.65	131.30	131.15	500	100	130.55	0.40	1.00

Finished floor levels based on darwing provided on 23 February 2023 ref. FFLs for TB
These were revised following email dated 24 February 2023

- Plot gardens being raised greater than 600mm - no requirement to reduce garden levels
- Plot being raised less than 600m, no Marlstone Rock within 600mm of proposed ground level - no requirement to to reduce garden levels
- Plot being raised less than 600mm, Marlstone Rock within 600mm of proposed garden level - remdial works required to reduce levels in proposed garden

APPENDIX 2

Laboratory Chemical Test Results (Report No. 23-68881)



Harry Crane
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Analytical Report Number : 23-68881

Project / Site name:	Wykham Park Farm	Samples received on:	14/11/2023
Your job number:	21226	Samples instructed on/ Analysis started on:	14/11/2023
Your order number:		Analysis completed by:	20/11/2023
Report Issue Number:	1	Report issued on:	20/11/2023
Samples Analysed:	8 soil samples		

Signed: _____

Dominika Warjan
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.

Analytical Report Number: 23-68881
Project / Site name: Wykham Park Farm

Lab Sample Number	2878963	2878964	2878965	2878966	2878967			
Sample Reference	Plot 1	Plot 4	Plot 7	Plot 10	Plot 12			
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Depth (m)	0.30	0.40	0.20	0.20	0.40			
Date Sampled	11/09/2023	11/09/2023	11/09/2023	11/09/2023	11/09/2023			
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	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	20	17	19	20	21
Total mass of sample received	kg	0.001	NONE	0.2	0.3	0.2	0.3	0.2

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	110	91	84	130	100
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	110	93	70	95	96
Copper (aqua regia extractable)	mg/kg	1	MCERTS	28	15	19	18	16
Lead (aqua regia extractable)	mg/kg	1	MCERTS	39	31	35	43	41
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	76	72	71	62	66
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	120	110	100	110	120

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 23-68881
Project / Site name: Wykham Park Farm

Lab Sample Number	2878968	2878969	2878970			
Sample Reference	Plot 15	Plot 21	Plot 24			
Sample Number	None Supplied	None Supplied	None Supplied			
Depth (m)	0.30	0.20	0.30			
Date Sampled	11/09/2023	11/09/2023	11/09/2023			
Time Taken	None Supplied	None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	21	20	21
Total mass of sample received	kg	0.001	NONE	0.3	0.2	0.3

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	100	95	110
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	100	89	110
Copper (aqua regia extractable)	mg/kg	1	MCERTS	18	17	12
Lead (aqua regia extractable)	mg/kg	1	MCERTS	42	35	47
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	64	66	62
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	120	130	120

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



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Environmental Science

Analytical Report Number : 23-68881

Project / Site name: Wykham Park Farm

* 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 *
2878963	Plot 1	None Supplied	0.3	Brown clay.
2878964	Plot 4	None Supplied	0.4	Brown clay.
2878965	Plot 7	None Supplied	0.2	Brown clay.
2878966	Plot 10	None Supplied	0.2	Brown clay.
2878967	Plot 12	None Supplied	0.4	Brown clay.
2878968	Plot 15	None Supplied	0.3	Brown clay.
2878969	Plot 21	None Supplied	0.2	Brown clay.
2878970	Plot 24	None Supplied	0.3	Brown clay.



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Environmental Science

Analytical Report Number : 23-68881
Project / Site name: Wykham Park Farm

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
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
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
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

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.