

Appendix D Exploratory hole location plan, exploratory hole logs and photographs

Exploratory hole location plan



Exploratory hole logs



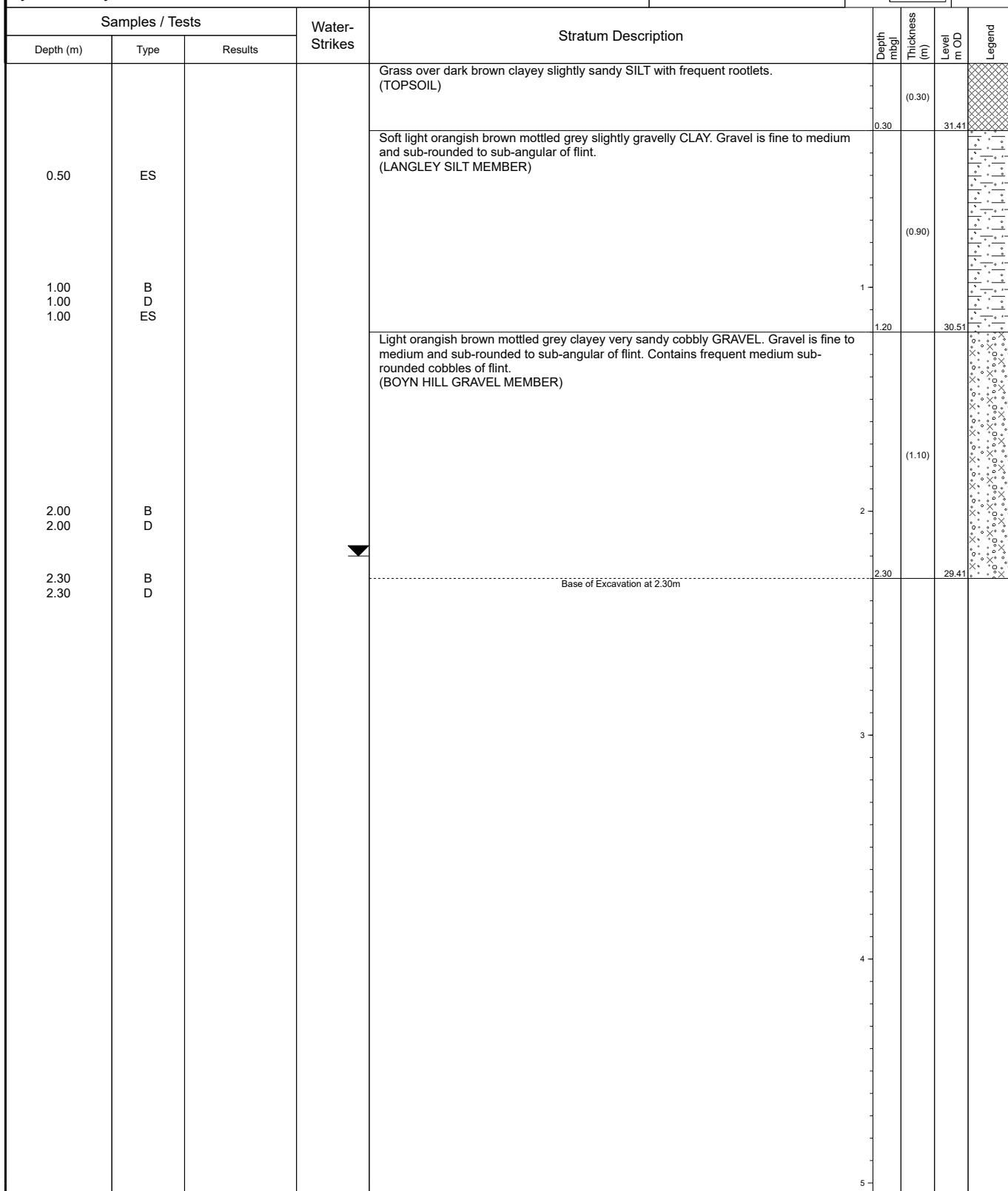
Project: Meadow High School

Trialpit No

SA01

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Method: Trial Pit	Date(s): 11/04/2023	Logged By: EC	Checked By: KG
Client: ISG Construction Ltd	Co-ords: 506403.13, 181614.74	Stability: Unstable - collapse at 2.0m bgl	Dimensions: 2.60m 0.60m
Hydrock Project No: 27834	Ground Level: 31.71m OD	Plant: JCB 3CX	Scale: 1:25



General Remarks:

1. Terminated at 2.30m bgl and backfilled with gravel to 1.30m bgl and arises to 0.0m bgl.
2. Water ingress at 2.20m bgl.
3. Slight collapse from 2.0m bgl.



Project: Meadow High School

Trialpit No

SA02

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Method: Trial Pit			Date(s): 11/04/2023	Logged By: EC Stability: Stable - sides remained vertical throughout	Checked By: KG	
Client: ISG Construction Ltd			Co-ords: 506406.62, 181713.78	Dimensions: 2.60m 0.60m		Scale: 1:25
Hydrock Project No: 27834			Ground Level: 32.23m OD	Plant: JCB 3CX		
Samples / Tests			Water-Strikes	Stratum Description	Depth mngl	Thickness (m)
Depth (m)	Type	Results			Level m OD	Legend
0.10	ES			Grass over dark brown clayey slightly sandy SILT with frequent rootlets. (TOPSOIL)	0.20	32.03
0.50	B			Soft light brown silty CLAY. (LANGLEY SILT MEMBER)		(1.00)
0.50	D					
1.00	B				1	
1.00	D					
1.00	ES				1.20	31.03
1.50	B			Light orangish brown mottled grey clayey silty GRAVEL. Gravel is medium and rounded of flint. Contains pockets of soft light orangish brown clay. (BOYN HILL GRAVEL MEMBER)		
1.50	D					(1.00)
				... At 1.90m bgl: Gravel coarsening and more frequent cobbles	2	
2.20	B				2.20	30.03
2.20	D					
				Base of Excavation at 2.20m	3	
					4	
					5	

General Remarks:

General Remarks: 1. Terminated at 2.20m bql and backfilled with gravel to 1.20m bql and risings to 0.0m bql. 2. Water ingress at 2.20m bql.



Project: Meadow High School

Borehole No

WS01

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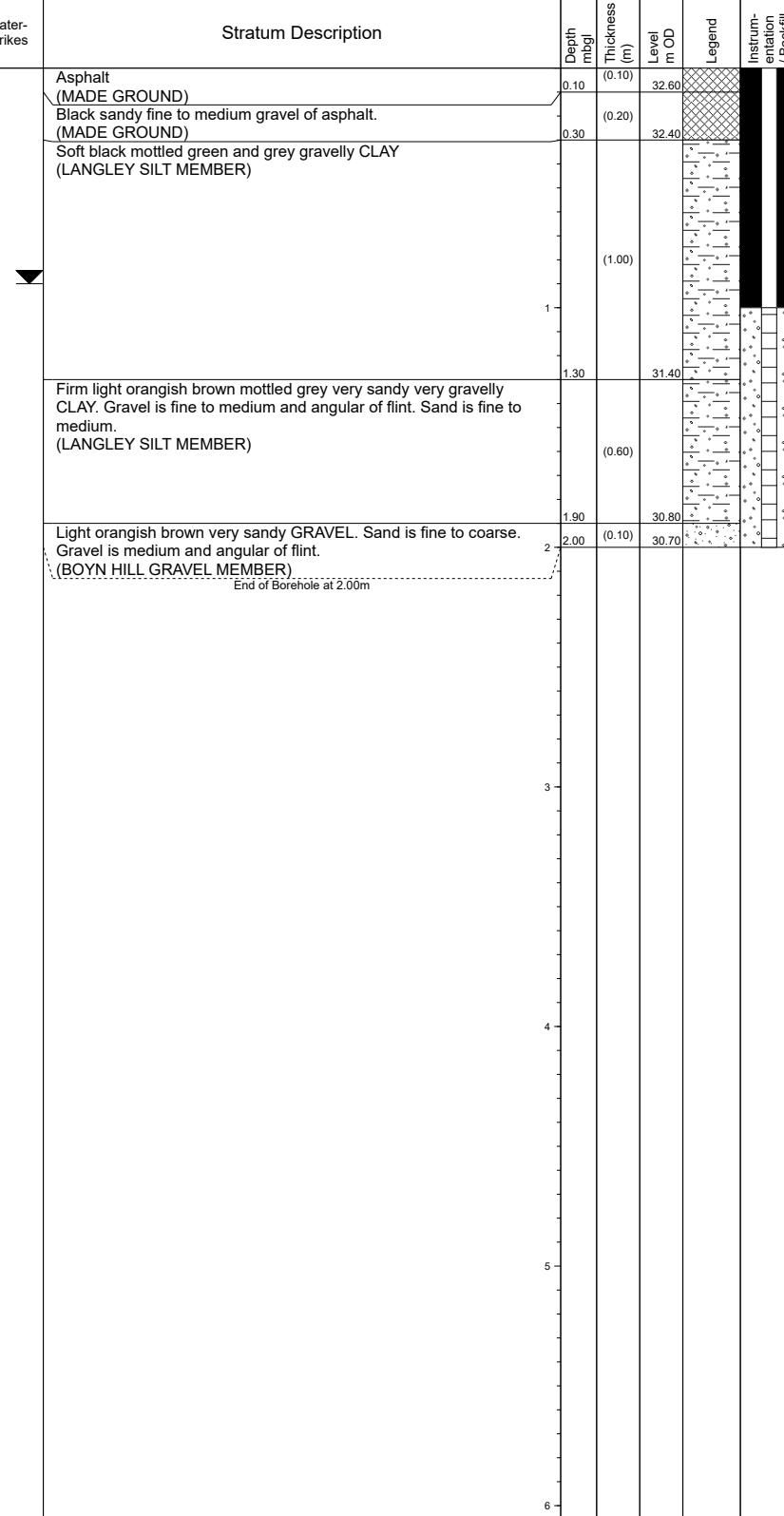
Method: Window Sampler				Date(s): 12/04/2023		Logged By: EC		Drilled By: Oaklands SI		
Client: ISG Construction Ltd				Co-ords: 506402.74, 181612.38		Checked By: KG		Rig: Dando Terrier		
Hydrock Project No: 27834				Ground Level: 31.68m OD				Scale: 1:30		
Sample Run Info			Testing		Water- Strikes	Stratum Description			Instrumentation Backfill	
Sample Run	Run Ø	Recovery	Depth (m)	Type						
			0.10	ES		Grass over dark brown clayey slightly sandy SILT with frequent rootlets. (TOPSOIL)				
			0.50	ES		Dark brown clayey slightly sandy SILT. Sand is fine to medium. (SUBSOIL)				
		0.50 - 1.20	0.50	B		Soft light orangish brown silty sandy slightly gravelly CLAY. Gravel is fine and angular of flint. (ANGLEY SILT MEMBER)				
		1.20	1.00	SPT		1 1.10				
		1.20 - 2.00	1.20 - 2.00	B		Light orangish brown clayey very sandy GRAVEL. Sand is medium. Gravel is fine to medium and angular of flint. (BOYN HILL GRAVEL MEMBER)				
		2.00	2.00	SPT		2 2.00				
		2.00	2.00	ES		End of Borehole at 2.00m 3 4 5 6				

General Remarks:

General Remarks:
1. Handpitted to 1.20m bgl. 2. Terminated at 2.0m bgl due to refusal within gravels. 3. Installed with plain pipe from 0.0 to 1.0m bgl and backfilled with bentonite and arisings. 4. Installed with slotted pipe from 1.0 to 2.0m bgl and backfilled with gravel.

Method: Window Sampler			Date(s): 12/04/2023			Logged By: EC		Drilled By: Oaklands SI										
Client: ISG Construction Ltd			Co-ords: 506403.25, 181714.03			Checked By: KG		Rig: Dando Terrier										
Hydrock Project No: 27834			Ground Level: 32.22m OD			Scale: 1:30												
Sample Run Info		Testing		Water-Strikes	Stratum Description			Legend	Instrumentation / Backfill									
Sample Run	Run Ø	Recovery	Depth (m)		Type	Results	Depth (mgl)			Thickness (m)	Level OD m							
			0.10	ES														
			0.50	B														
			0.50	D														
			1.00	SPT														
			1.00	ES	N=42 (3,7,7,9,10,16)													
			1.50	D														
			1.50 - 2.00	B														
			2.00	SPT	N=67 (5,11,14,16,17,20)													
						End of Borehole at 2.00m												
General Remarks:																		
1. Handpitted to 1.20m bgl. 2. Terminated at 2.0m bgl due to refusal within gravels. 3. Installed with plain pipe from 0.0 to 1.0m bgl and backfilled with bentonite and arisings. 4. Installed with slotted pipe from 1.0 to 2.0m bgl and backfilled with gravel.																		
Logged in general accordance with BS5930:2015																		

Method: Window Sampler			Date(s): 12/04/2023			Logged By: EC		Drilled By: Oaklands SI	
Client: ISG Construction Ltd			Co-ords: 506452.92, 181706.17			Checked By: KG		Rig: Dando Terrier	
Hydrock Project No: 27834			Ground Level: 32.70m OD			Scale: 1:30			
Sample Run Info	Testing		Water-Strikes	Stratum Description			Depth (mgl)	Thickness (m)	Level OD m
Sample Run	Run Ø	Recovery		Depth (m)	Type	Results			



Asphalt (MADE GROUND)
Black sandy fine to medium gravel of asphalt. (MADE GROUND)
Soft black mottled green and grey gravelly CLAY (ANGLEY SILT MEMBER)
Firm light orangish brown mottled grey very sandy very gravelly CLAY. Gravel is fine to medium and angular of flint. Sand is fine to medium. (ANGLEY SILT MEMBER)
Light orangish brown very sandy GRAVEL. Sand is fine to coarse. Gravel is medium and angular of flint. (BOYN HILL GRAVEL MEMBER)
End of Borehole at 2.00m

General Remarks:

1. Handpitted to 1.20m bgl. 2. Terminated at 2.0m bgl due to refusal within gravels. 3. Installed with plain pipe from 0.0 to 1.0m bgl and backfilled with bentonite and arisings. 4. Installed with slotted pipe from 1.0 to 2.0m bgl and backfilled with gravel.



Project: Meadow High School

Borehole No

WS04

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General Remarks:

General Remarks:
1. Handpitted to 1.20m bgl. 2. Terminated at 2.0m bgl due to refusal within gravels. 3. Installed with plain pipe from 0.0 to 1.0m bgl and backfilled with bentonite and arisings. 4. Installed with slotted pipe from 1.0 to 2.0m bgl and backfilled with gravel.

Exploratory hole photographs

Site Investigation Photograph 1	
Date: 11/04/2023	
Direction Photograph Taken: n/a.	
Description: SA02 excavation showing Langley Silt over Boyn Hill Gravel member.	

Site Investigation Photograph 2	
Date: 11/04/2023	
Direction Photograph Taken: n/a.	
Description: SA02 showing water ingress at 2.20m bgl.	

Site Investigation Photograph 3	
Date: 11/04/2023	
Direction Photograph Taken: n/a.	
Description: SA02 showing Boyn Hill Gravel Member.	

Site Investigation Photograph 4	
Date: 11/04/2023	
Direction Photograph Taken: n/a.	
Description: SA01 showing water ingress at 2.20m bgl.	

Site Investigation Photograph 5	
Date: 11/04/2023	
Direction Photograph Taken: n/a.	
Description: SA01 spoil showing Boyn Hill Gravel Member.	

Site Investigation Photograph 6	
Date: 12/04/2023	
Direction Photograph Taken: n/a.	
Description: WS02 showing Made Ground over Langley Silt and Boyn Hill Gravel.	

Site Investigation Photograph 7	
Date: 12/04/2023	
Direction Photograph Taken: n/a.	
Description: WS01 handpit spoil showing Made Ground over Langley Silt.	 A photograph showing a pile of brown, crumbly soil or spoil resting on a dark blue tarp. The tarp is laid out on a grassy area. In the background, a white bag is visible on the grass.

Site Investigation Photograph 8	
Date: 12/04/2023	
Direction Photograph Taken: n/a.	
Description: WS03 showing Made Ground over Langley Silt with black staining.	 A photograph showing a pile of dark, granular material, likely made ground, resting on a dark blue tarp. The material has some black staining. A few yellowish, cylindrical objects are visible within the pile. The tarp is laid out on a concrete or paved surface.

Site Investigation Photograph 9	
Date: 12/04/2023	
Direction Photograph Taken: n/a.	
Description: WS04 showing Made Ground with black staining and brick cobbles.	

Site Investigation Photograph 10	
Date: 12/04/2023	
Direction Photograph Taken: n/a.	
Description: WS04 showing Made Ground over Langley Silt.	

Appendix E Geotechnical test results and geotechnical plots

Geotechnical laboratory test results



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Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 23-29086

Project / Site name:	Meadow High School	Samples received on:	12/04/2023
Your job number:	27834	Samples instructed on/ Analysis started on:	18/04/2023
Your order number:	PO25434	Analysis completed by:	27/04/2023
Report Issue Number:	1	Report issued on:	27/04/2023
Samples Analysed:	2 soil samples		

Anna Goc
Signed:

Anna Goc
Junior 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: 23-29086

Project / Site name: Meadow High School

Your Order No: PO25434

Lab Sample Number		2652037	2652038
Sample Reference		WS04	WS03
Sample Number		None Supplied	None Supplied
Depth (m)		1.20-1.50	1.00-1.50
Date Sampled		12/04/2023	12/04/2023
Time Taken		None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status
Stone Content	%	0.1	NONE
Moisture Content	%	0.01	NONE
Total mass of sample received	kg	0.001	NONE

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8	7.7
Total Sulphate as SO4	mg/kg	50	MCERTS	170	200
Total Sulphate as SO4	%	0.005	MCERTS	0.017	0.02
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.028	0.056
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	27.5	55.6
Water Soluble Chloride (2:1)	mg/kg	1	MCERTS	55	87
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	27	44
Total Sulphur	mg/kg	50	MCERTS	100	170
Total Sulphur	%	0.005	MCERTS	0.01	0.017
Ammoniacal Nitrogen as NH4	mg/kg	0.5	MCERTS	1.2	6.7
Ammonium as NH4 (10:1 leachate equivalent)	mg/l	0.05	MCERTS	0.12	0.67
Water Soluble Nitrate (2:1) as NO3	mg/kg	2	NONE	3.8	4.1
Water Soluble Nitrate (2:1) as NO3 (leachate equivalent)	mg/l	5	NONE	< 5.0	< 5.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	6.7	7.7
Magnesium (leachate equivalent)	mg/l	2.5	NONE	3.4	3.9

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



Analytical Report Number : 23-29086

Project / Site name: Meadow High School

* 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 *
2652037	WS04	None Supplied	1.20-1.50	Brown clay.
2652038	WS03	None Supplied	1.00-1.50	Brown clay.



Analytical Report Number : 23-29086

Project / Site name: Meadow High School

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
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Nitrate, water soluble, in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	D	NONE
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
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
Ammonium as NH4 in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	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
Water Soluble Nitrate (leachate equivalent)	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	D	NONE
Sulphate, water soluble, in soil	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

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.

Appendix F Site monitoring data and ground gas risk assessment

Ground gas risk assessment

<p>Site: Meadow High School Job number: 27834 Client: Hydrock</p> <p>Gas analyser: GA5000 SN: GN03249 Equipment check OK: Yes Service in date: Yes Calibration check OK: Yes Name of person monitoring: Alex Bucknall</p>								<p>Notes on site conditions: Overcast, 14°C</p> <p>Notes: LEL = lower explosive limit = 5%v/v. * where the flow is less than the limit of detection of the instrument, the detection limit is reported. GSVs are rounded to 3 places.</p>																				
Monitoring round		Borehole details						Pressure and flow			Gas concentrations								GSV		Local conditions							
Date	Time	Borehole	Single or dual gas tap	Response zone depth (m)	Volume of headspace in BH (well pipe & filter pack) (m³)	Depth to water or depth of hole if dry (m)	D denotes dry hole	Atm pressure falling / rising / steady	Relative BH pressure (hPa)	Atmospheric pressure (hPa)	VOC (as ppm using PID)	CH ₄ (%v/v)	CH ₄ (%LEL)	CO ₂ (%v/v)	O ₂ (%v/v)	Other Gases	GSV	Gas Screening Value (CO ₂) (l/hr)	Gas Screening Value (CH ₄) (l/hr)	Notes on condition of borehole and surrounding ground								
																				Summary statistics for this monitoring period.								
																				Summary statistics for this monitoring period.								
11/05/23	16:02:00	WS04A	Single	1	0.450		0.00115	1011	Steady	-0.05	0.2	0.2	0.8	0.0	0.0	0	0	0.0	0.1	20.9	20.6		0	0.0002				
11/05/23	16:22:00	WS03	Single	1	0.750		0.00280	1011	Steady	1.83	0.6	0.6	1.1	0.0	0.0	0	0	0.0	0.0	20.8	20.8		0	0				
11/05/23	16:38:00	WS02	Single	1	0.720			1011	Steady	-0.21	0.0	0.0	0.0	0.0	0.1	0	2	0.0	0.2	21.0	21.0		0	0				
11/05/23	16:56:00	WS01	Single	1	0.380			1011	Steady	-0.02	0.2	0.2	0.6	0.0	0.0	0	0	0.0	0.0	21.0	21.2		0	0				
18/05/23	16:13:00	WS04A	Single	1	0.670			1024	Steady	-0.54	-0.4	0.4	0.5	0.0	0.0	0	0	0.1	1.8	20.7	10.5		0	0.0072				
18/05/23	16:02:00	WS03	Single	1	0.380			1024	Steady	0.35	0.2	0.2	4.5	0.0	0.0	0	0	0.1	0.1	20.6	20.3		0	0.0002				
18/05/23	16:27:00	WS02	Single	1	0.820			1024	Steady	0.52	-0.1	0.1	0.7	0.0	0.0	0	0	0.1	0.1	20.5	21.0		0	0.0001				
18/05/23	16:38:00	WS01	Single	1	0.550			1024	Steady	0.57	0.1	0.1	0.2	0.0	0.0	0	0	0.1	0.0	21.0	21.4		0	0				
25/05/23	15:45:00	WS04A	Single	1	0.925			1026	Steady	-0.02	0.0	0.0	0.7	0.0	0.0	0	0	0.0	2.7	20.8	11.6		0	0				
25/05/23	15:54:00	WS03	Single	1	0.920			1026	Steady	-0.05	0.3	0.3	1.7	0.0	0.0	0	0	0.1	2.2	20.8	14.6		0	0.0066				
25/05/23	16:04:00	WS02	Single	1	1.030			1026	Steady	-0.14	0.3	0.3	0.6	0.0	0.0	0	0	0.1	0.4	20.8	20.5		0	0.0012				
25/05/23	16:16:00	WS01	Single	1	0.670			1026	Steady	-0.07	0.0	0.0	0.0	0.0	0.0	0	0	0.1	0.1	21.1	21.2		0	0				
01/06/23	15:21:00	WS04A	Single	1	0.960			1021	Steady	-0.02	0.0	0.0	0.5	0.0	0.0	0	0	0.0	1.7	20.8	17.5		0	0				
01/06/23	15:32:00	WS03	Single	1	0.970			1020	Steady	-0.11	0.2	0.2	0.4	0.0	0.0	0	0	0.1	0.2	20.9	20.3		0	0.0004				
01/06/23	15:50:00	WS02	Single	1	1.120			1020	Steady	-0.11	0.2	0.2	0.6	0.0	0.0	0	0	0.0	4.5	20.9	15.8		0	0.009				
01/06/23	16:18:00	WS01	Single	1	0.800			1020	Steady	-0.11	0.0	0.0	0.0	0.0	0.0	0	0	0.0	0.0	20.8	20.9		0	0				
05/06/23	15:45:00	WS04A	Single	1	0.990			1021	Steady	0.16	0.2	0.2	0.5	0.0	0.0	0	0	0.1	5.3	20.7	5.2		0	0.0106				
05/06/23	15:56:00	WS03	Single	1	0.965			1021	Steady	0.26	0.2	0.2	0.9	0.0	0.0	0	0	0.2	0.3	20.7	20.6		0	0.0006				
05/06/23	16:07:00	WS02	Single	1	1.200			1021	Steady	0.30	0.1	0.1	1.1	0.0	0.0	0	0	0.1	4.0	21.0	17.2		0	0.004				
05/06/23	16:19:00	WS01	Single	1	0.680			1021	Steady	0.33	0.1	0.1	0.2	0.0	0.0	0	0	0.1	0.1	20.9	20.9		0	0.0001				
18/05/23	15:30:00	WS04A	Single	1	0.8			1011	Steady	0.23	0.2	0.2	1.4	0	0	0	0	0.1	4.9	20.8	4.9		0	0.0098				
18/05/23	16:02:00	WS03	Single	1	0.750			1011	Steady	1.83	0.6	0.6	1.1	0.0	0.0	0	0	0.0	0.0	20.8	20.8		0	0				
18/05/23	16:22:00	WS02	Single	1	0.720			1011	Steady	-0.21	0.0	0.0	0.0	0.0	0.1	0	2	0.0	0.2	21.0	21.0		0	0				
18/05/23	16:38:00</td																											