



Appendix

a. Field Work

Site Plan
Borehole Records
Borehole Photographs
Trial Pit Records
Trial Pit Photographs
Trial Trench Drawings
Trial Trench Photographs
Trial Pit Soakage Results
Insitu DCP Test Results
Gas Monitoring Results

b. Lab Testing

Geotechnical Test Results
SPT / Depth Graph
Chemical Test Results
Generic Risk Based Screening Values
Generic Risk Based Groundwater Screening Values

c. Desk Study

Risk Assessment Tables
Envirocheck Extracts
Historical Maps
UXO Preliminary Risk Assessment
Consultants Coal Mining Report



appendix a

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Gas Monitoring Results

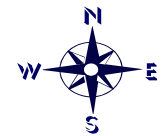
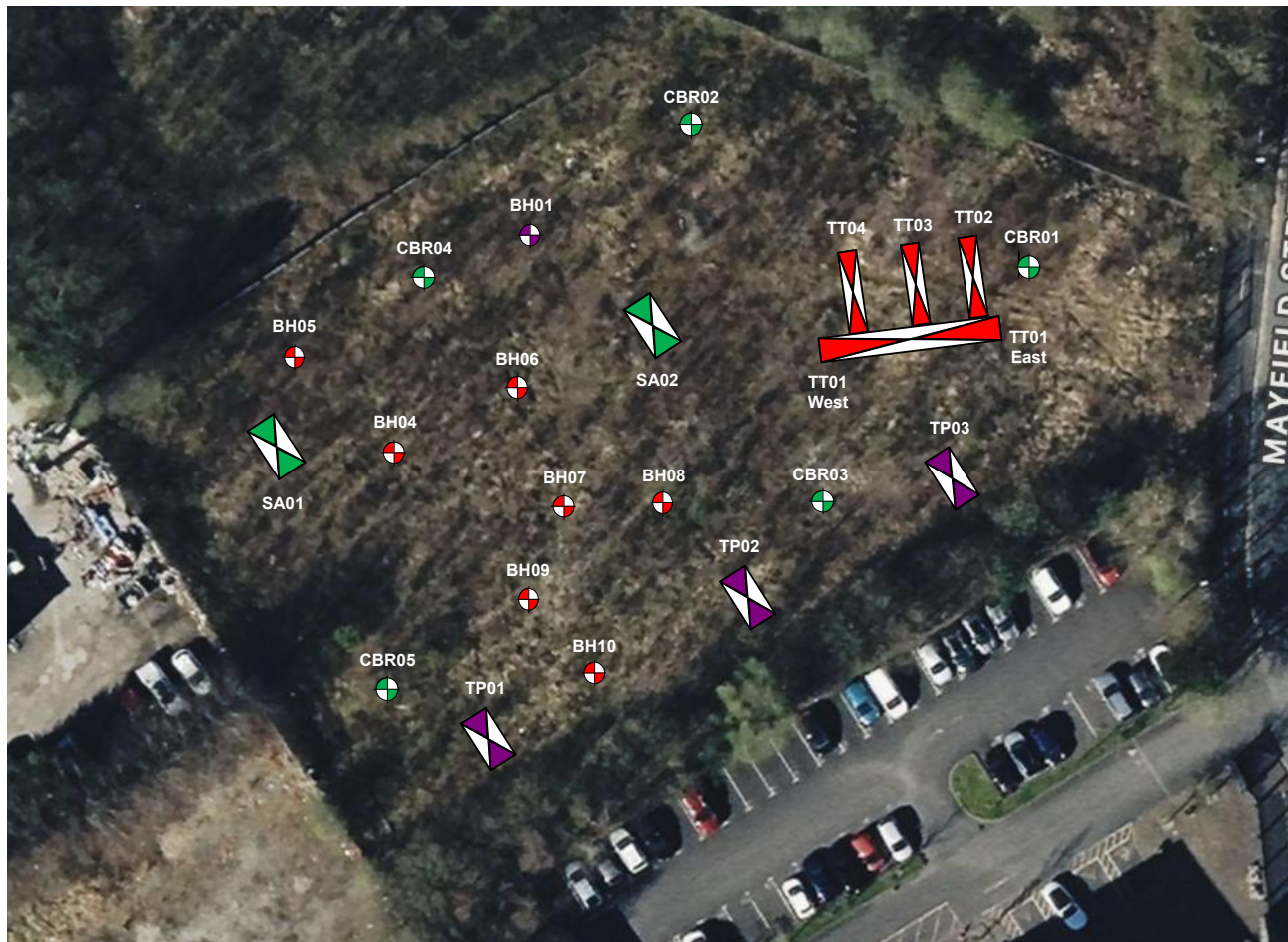
Site Brownhill School SEN Hub, Rochdale

Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
1 / 2



Key:

-  Cable Percussion Borehole
-  Open-drive Borehole
-  TRRL-DCP Test Location
-  Trial Pit Location
-  Trial Trench Location
-  Trial Pit Soakage Location

Approximate scale in metres



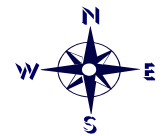
Site Brownhill School SEN Hub, Rochdale

Client Rochdale Borough School

Engineer Adept Consulting Engineers

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J25291

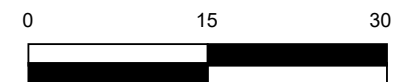
Sheet
2 / 2



Key:

-  Cable Percussion Borehole
-  Open-drive Borehole
-  TRRL-DCP Test Location
-  Trial Pit Location
-  Trial Trench Location

Approximate scale in metres



Key to exploratory hole symbols and abbreviations

SAMPLE TYPES

ACM - Asbestos sample	AMAL - Amalgamated sample	B - Bulk disturbed sample
BLK - Block sample	C - Core sample	CBR - CBR test sample
D - Disturbed sample	ES - Environmental sample	EW - Environmental water sample
G - Gas sample	J - Jar sample	L - Liner sample
TW - Pushed thin wall sample	U - Undisturbed sample	UT - Undisturbed thin wall sample
W - Water sample		

IN-SITU TESTS

HV - Hand shear vane	HV(r) - Hand shear vane residual	PID - Photo ionisation detector
PP - Hand penetrometer	SPT - Standard penetration test	SPT(C) - SPT using cone

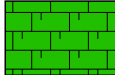
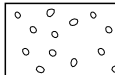
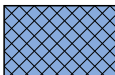
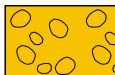
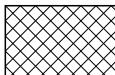
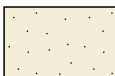
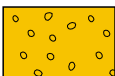
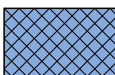
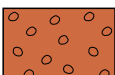
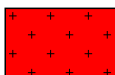
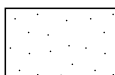
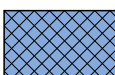
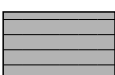
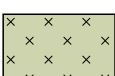
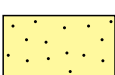
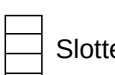
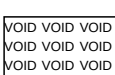
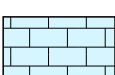
GROUNDWATER

 Groundwater strike	 Groundwater rest level
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ROTARY CORE DETAILS

TCR - Total core recovery (%)	SCR - Solid core recovery (%)	RQD - Rock quality designation (%)
FI - Fracture index	NI - Non-intact core	AZCL - Assumed zone of core loss

LEGEND

 Topsoil	 Clay	 Chalk	 Sand backfill
 Peat	 Silt	 Breccia	 Gravel backfill
 Made ground	 Sand	 Conglomerate	 Arising
 Concrete	 Gravel	 Metamorphic	 Bentonite
 Wood	 Cobbles	 Igneous	 Concrete
 Brick	 Boulders		 Grout
 Bituminous material	 Mudstone		 Plain pipe
 Gypsum	 Siltstone		
 Coal	 Sandstone		 Slotted pipe
 Void	 Limestone		



GEA

Cable Percussion Log

BH01

Sheet 1 of 2

Hole Type CP	Easting 390752.00	Northing 414129.00	Ground Level (m) 128.00	Scale 1:50
Project Name Brownhill School SEN Hub, Rochdale	Project No. J25291	Start Date 2025-10-06	End Date 2025-10-07	

Client Rochdale Borough Council	Consultant Adept Consulting Engineers	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests		Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref			Legend	Description	
		0.00-0.50	B 1	127.85	(0.15)		MADE GROUND: (Shrubs over dark greyish brown slightly sandy gravelly humic silt with fragments of brick, concrete, sandstone and decaying plant matter and frequent rootlets). [MADE GROUND]	0.5
		0.30	ES 1	127.60	0.15 (0.25) 0.40			
				127.20	0.80			1.0
				126.80	(0.40)			1.5
		1.20	SPT B 2		1.20		MADE GROUND: (Grey and brown mottled very sandy silty gravel of concrete, brick and sandstone). [MADE GROUND]	2.0
		1.20-1.65						2.5
								3.0
								3.5
		2.00	SPT B 3				MADE GROUND: (Reddish brown sandy gravel of brick). [MADE GROUND]	4.0
		2.00-2.45						4.5
								5.0
								5.5
		3.00	SPT B 4				MADE GROUND: (Grey slightly sandy slightly gravelly clay with fragments of sandstone and brick). [MADE GROUND]	6.0
		3.00-3.45						6.5
								7.0
								7.5
		4.00	SPT B 5				MADE GROUND: (Reddish brown sandy gravel of brick). [MADE GROUND]	8.0
		4.00-4.45						8.5
								9.0
								9.5
		5.00	SPT B 6				MADE GROUND: (Grey slightly sandy slightly gravelly clay with fragments of sandstone and brick). [MADE GROUND]	10.0
		5.00-5.45						
		6.00-6.00	B 7	122.40	5.60		Stiff to very stiff dark greyish brown slightly sandy slightly gravelly silty CLAY with a low cobble content. Gravel is fine to coarse predominantly fine to medium of sandstone, mudstone and coal. [GLACIAL TILL]	
		6.00-6.45	U 8					
		6.45-6.70	D 9					
		7.50	SPT B 10				Stiff to very stiff dark greyish brown slightly sandy slightly gravelly silty CLAY with a low cobble content. Gravel is fine to coarse predominantly fine to medium of sandstone, mudstone and coal. [GLACIAL TILL]	
		7.50-7.95						
		9.00-9.45	U 11				Stiff to very stiff dark greyish brown slightly sandy slightly gravelly silty CLAY with a low cobble content. Gravel is fine to coarse predominantly fine to medium of sandstone, mudstone and coal. [GLACIAL TILL]	
		9.45-9.70	D 12					
				118.00	10.00			
Continued on next page								

Remarks 1. Position scanned with CAT and Genny prior to excavation. 2. Inspection pit hand dug to a depth of 1.20 m. 3. Position completed at 15.45 m depth. 4. Groundwater encountered as slow seepages from 0.80 m to 5.60 m depth. 5. 50 mm diameter gas/groundwater standpipe installed to a depth of 1.00 m, with a response zone between 0.50 m and 1.00 m depth ...	Method, Plant, Stability, Dimensions 0.00 - 15.45m CP Dando 2000	Logger L.Montgomery
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Checked By: MCooper Approved By: SBranch Status: FINAL

SPT N60 = N(raw) * (Hammer Energy Ratio / 60) to nearest whole number

Created using Pebble Geo



GEA

Cable Percussion Log

BH01

Sheet 2 of 2

Hole Type CP	Easting 390752.00	Northing 414129.00	Ground Level (m) 128.00	Scale 1:50
Project Name Brownhill School SEN Hub, Rochdale	Project No. J25291	Start Date 2025-10-06	End Date 2025-10-07	

Client Rochdale Borough Council	Consultant Adept Consulting Engineers	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests		Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref			Legend	Description	
		10.50 10.50-10.95	SPT B 13				Very stiff dark greyish brown slightly sandy slightly gravelly silty CLAY with a low cobble content. Gravel is fine to coarse predominantly fine to medium of sandstone, mudstone and coal. [GLACIAL TILL]	10.5
								11.0
		12.00-12.45	U 14					11.5
		12.45-12.70	D 15					12.0
								12.5
					(5.45)			13.0
		13.50 13.50-13.95	SPT B 16					13.5
								14.0
								14.5
		15.00-15.45	U 17					15.0
								15.5
				112.55	15.45		End of Borehole at 15.45m	16.0
								16.5
								17.0
								17.5
								18.0
								18.5
								19.0
								19.5
								20.0

Remarks 1. Position scanned with CAT and Genny prior to excavation. 2. Inspection pit hand dug to a depth of 1.20 m. 3. Position completed at 15.45 m depth. 4. Groundwater encountered as slow seepages from 0.80 m to 5.60 m depth. 5. 50 mm diameter gas/groundwater standpipe installed to a depth of 1.00 m, with a response zone between 0.50 m and 1.00 m depth ...	Method, Plant, Stability, Dimensions 0.00 - 15.45m CP Dando 2000	Logger L.Montgomery

Checked By: MCooper Approved By: SBranch Status: FINAL

SPT N60 = N(raw) * (Hammer Energy Ratio / 60) to nearest whole number

Created using Pebble Geo



BH02

Hole Type	Easting	Northing	Ground Level (m)	Scale
CP	390751.00	414162.00	134.20	1:50
Project Name	Project No.		Start Date	End Date
Brownhill School SEN Hub, Rochdale	J25291		2025-10-07	2025-10-10

Client Rochdale Borough Council	Consultant Adept Consulting Engineers	Contractor
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Continued on next page

Remarks	1. Position scanned with CAI and Genny prior to excavation. 2. Inspection pit hand dug to a depth of 1.20 m. 3. Position completed at 35.45 m depth. 4. Groundwater encountered at a depth of 7.70 m, rising to a depth of 6.03 m after 20 minutes. 5. Groundwater encountered at a depth of 26.50 m, rising to a depth of 17.20 m after 20 minutes. 6. 50 mm diameter gas/groundwater standpipe installed to a depth of 8.50 m, with a response zone between ...
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Logger
LMontgomery

Checked By: MCooper Approved By: SBranch Status: FINAL



GEA

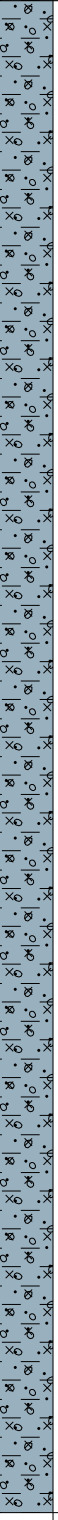
Cable Percussion Log

BH02

Sheet 2 of 4

Hole Type CP	Easting 390751.00	Northing 414162.00	Ground Level (m) 134.20	Scale 1:50
Project Name Brownhill School SEN Hub, Rochdale	Project No. J25291	Start Date 2025-10-07	End Date 2025-10-10	

Client Rochdale Borough Council	Consultant Adept Consulting Engineers	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (thickness) (m)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		10.50-10.95	U 12	Blows: 56, Recovery: 100%					10.5
		10.95-11.20	D 13						11.0
									11.5
		12.00 12.00-12.45	SPT B 14	N=30 (4,5/7,7,7,9) N60=33					12.0
									12.5
									13.0
		13.50-13.95	U 15	Blows: 49, Recovery: 100%					13.5
		13.95-14.20	D 16						14.0
									14.5
		15.00 15.00-15.45	SPT B 17	N=16 (2,3/3,4,4,5) N60=17					15.0
									15.5
									16.0
		16.50-16.95	U 18	Blows: 38, Recovery: 80%					16.5
		16.95-17.20	D 19						17.0
			17.5						
			18.0						
			18.5						
			19.0						
			19.5						
			20.0						
Continued on next page									

Remarks 1. Position scanned with CAT and Genny prior to excavation. 2. Inspection pit hand dug to a depth of 1.20 m. 3. Position completed at 35.45 m depth. 4. Groundwater encountered at a depth of 7.70 m, rising to a depth of 6.03 m after 20 minutes. 5. Groundwater encountered at a depth of 26.50 m, rising to a depth of 17.20 m after 20 minutes. 6. 50 mm diameter gas/groundwater standpipe installed to a depth of 8.50 m, with a response zone between ...	Method, Plant, Stability, Dimensions 0.00 - 35.45m CP Dando 2000	Logger L.Montgomery
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Checked By: MCooper Approved By: SBranch Status: FINAL

SPT N60 = N(raw) * (Hammer Energy Ratio / 60) to nearest whole number

Created using Pebble Geo



GEA

Cable Percussion Log

BH02

Sheet 3 of 4

Hole Type CP	Easting 390751.00	Northing 414162.00	Ground Level (m) 134.20	Scale 1:50
Project Name Brownhill School SEN Hub, Rochdale	Project No. J25291	Start Date 2025-10-07	End Date 2025-10-10	

Client Rochdale Borough Council	Consultant Adept Consulting Engineers	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests		Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref			Legend	Description	
				114.00	20.20		As previous page.	
							Stiff dark greyish brown silty CLAY with occasional lenses of brown fine to medium sand. [GLACIAL TILL]	20.5
		21.00 21.00-21.45	SPT B 23					21.0
								21.5
								22.0
		22.50-22.95	U 24					22.5
		22.95-23.20	D 25					23.0
					(6.60)			23.5
		24.00 24.00-24.45	SPT B 26					24.0
								24.5
								25.0
		25.50-25.95	U 27					25.5
		25.95-26.20	D 28					26.0
								26.5
		27.00 27.00-27.45	SPT B 29	107.40	26.80		Medium dense dark greyish brown very gravelly silty fine to coarse SAND. Gravel is fine to coarse predominantly fine to medium of sandstone and quartzite. [GLACIAL TILL]	27.0
								27.5
					(2.30)			28.0
		28.50 28.50-28.95	SPT B 30					28.5
		29.10-30.00	B 31	105.10	29.10		Stiff locally thinly laminated dark greyish brown silty CLAY [GLACIAL TILL]	29.0
					(1.40)			29.5
								30.0
Continued on next page								

Remarks 1. Position scanned with CAT and Genny prior to excavation. 2. Inspection pit hand dug to a depth of 1.20 m. 3. Position completed at 35.45 m depth. 4. Groundwater encountered at a depth of 7.70 m, rising to a depth of 6.03 m after 20 minutes. 5. Groundwater encountered at a depth of 26.50 m, rising to a depth of 17.20 m after 20 minutes. 6. 50 mm diameter gas/groundwater standpipe installed to a depth of 8.50 m, with a response zone between ...	Method, Plant, Stability, Dimensions 0.00 - 35.45m CP Dando 2000	Logger L.Montgomery
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Checked By: MCooper Approved By: SBranch Status: FINAL

SPT N60 = N(raw) * (Hammer Energy Ratio / 60) to nearest whole number

Created using Pebble Geo



GEA

Cable Percussion Log

BH02

Sheet 4 of 4

Hole Type CP	Easting 390751.00	Northing 414162.00	Ground Level (m) 134.20	Scale 1:50
Project Name Brownhill School SEN Hub, Rochdale	Project No. J25291	Start Date 2025-10-07	End Date 2025-10-10	

Client Rochdale Borough Council	Consultant Adept Consulting Engineers	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		30.00-30.45	U 32	Blows: 72, Recovery: 100%				As previous page.	
		30.45-30.70 30.50-31.00	D 33 B 34		103.70	30.50 (0.90)		Medium dense greyish brown very gravelly very silty fine to coarse SAND. Gravel is subangular to subrounded of sandstone and quartzite. [GLACIAL TILL]	30.5 31.0
		31.50 31.50-31.95	SPT(C) B 35	N=28 (4,4/5,7,7,9) N60=30	102.80	31.40		Medium dense becoming dense dark greyish brown and grey mottled very sandy silty subangular to subrounded fine to coarse GRAVEL of sandstone and quartzite. [GLACIAL TILL]	31.5 32.0
		33.00 33.00-33.45	SPT(C) B 36	N=20 (2,3/4,5,5,6) N60=22		(4.05)			32.5 33.0 33.5
		34.50 34.50-34.95	SPT(C) B 37	N=41 (5,7/9,10,10,12) N60=44					34.0 34.5
		35.00 35.00-35.45	SPT(C) B 38	N=43 (6,8/9,10,12,12) N60=47					35.0
					98.75	35.45		End of Borehole at 35.45m	35.5
									36.0 36.5 37.0 37.5 38.0 38.5 39.0 39.5 40.0

Remarks 1. Position scanned with CAT and Genny prior to excavation. 2. Inspection pit hand dug to a depth of 1.20 m. 3. Position completed at 35.45 m depth. 4. Groundwater encountered at a depth of 7.70 m, rising to a depth of 6.03 m after 20 minutes. 5. Groundwater encountered at a depth of 26.50 m, rising to a depth of 17.20 m after 20 minutes. 6. 50 mm diameter gas/groundwater standpipe installed to a depth of 8.50 m, with a response zone between ...	Method, Plant, Stability, Dimensions 0.00 - 35.45m CP Dando 2000	Logger L.Montgomery
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Checked By: MCooper Approved By: SBranch Status: FINAL

SPT N60 = N(raw) * (Hammer Energy Ratio / 60) to nearest whole number

Created using Pebble Geo



BH03

Hole Type	Easting	Northing	Ground Level (m)	Scale
CP	390764.00	414190.00	135.45	1:50
Project Name	Project No.		Start Date	End Date
Brownhill School SEN Hub, Rochdale	J25291		2025-10-13	2025-10-14

Inst/ er els	Samples and Tests	Level	Depth	Strata
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1. Position scanned with CAT and Genny prior to excavation.
2. Inspection pit hand dug to a depth of 1.20 m.
3. Position completed at 15.45 m depth.
4. Groundwater not encountered.
5. 50 mm diameter gas/groundwater standpipe installed to a depth of 4.60 m, with a response zone between 0.60 m and 4.60 m depth ...

LMontgomery

Created using Pebble Geo



Cable Percussion Log

BH03
Sheet 2 of 2

Hole Type CP	Easting 390764.00	Northing 414190.00	Ground Level (m) 135.45	Scale 1:50
Project Name Brownhill School SEN Hub, Rochdale	Project No. J25291	Start Date 2025-10-13	End Date 2025-10-14	

Client Rochdale Borough Council	Consultant Adept Consulting Engineers	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		10.50 10.50-10.95	SPT B 15	N=25 (5,6/6,6,6,7) N60=27					10.5
									11.0
		11.50-11.70	B 16					cobbles of coal. (11.50 - 11.70m)	11.5
		12.00-12.45	U 17	Blows: 52, Recovery: 100%					12.0
		12.45-12.70	D 18						12.5
									13.0
		13.50 13.50-13.95	SPT B 19	N=20 (4,4/4,4,5,7) N60=22					13.5
									14.0
									14.5
		15.00 15.00-15.45	SPT B 20	N=20 (3,4/4,5,5,6) N60=22					15.0
					120.00	15.45		End of Borehole at 15.45m	15.5
									16.0
									16.5
									17.0
									17.5
									18.0
									18.5
									19.0
									19.5
									20.0

Remarks 1. Position scanned with CAT and Genny prior to excavation. 2. Inspection pit hand dug to a depth of 1.20 m. 3. Position completed at 15.45 m depth. 4. Groundwater not encountered. 5. 50 mm diameter gas/groundwater standpipe installed to a depth of 4.60 m, with a response zone between 0.60 m and 4.60 m depth ...	Method, Plant, Stability, Dimensions 0.00 - 15.45m CP Dando 2000	Logger L.Montgomery
	Checked By: MCooper Approved By: SBranch Status: FINAL	



GEA

Dynamic (Windowless) Sampler

BH04

Sheet 1 of 1

Hole Type WLS	Easting 390740.00	Northing 414109.00	Ground Level (m) 128.20	Scale 1:50
Project Name Brownhill School SEN Hub, Rochdale	Project No. J25291		Start Date 2025-10-08	End Date 2025-10-08

Client Rochdale Borough Council	Consultant Adept Consulting Engineers	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (thickness) (m)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.30-0.35	ES 1	N=3 (0,0/0,0,1,2) N60=4	128.00	(0.20)		MADE GROUND: (Shrubs over dark greyish brown slightly sandy gravelly humic silt with fragments of brick, concrete, sandstone and decaying plant matter and frequent rootlets). [MADE GROUND]	0.5
					127.70	(0.30)			
		0.80-0.90	D 1		127.30	(0.40)		MADE GROUND: (Greyish brown and reddish brown mottled sandy very clayey gravel with fragments of brick, clinker and concrete and occasional pockets of grey clay). [MADE GROUND]	1.0
		1.00	SPT						
		1.20-1.30	D 2	N=5 (0,0/0,2,1,2) N60=6	1.45		Stiff grey slightly sandy slightly gravelly silty CLAY. Gravel is angular to subangular of sandstone. [ALLUVIUM]	1.5	
		1.80-2.00	D 3		125.85	(0.55)		Soft light brown speckled orange-brown clayey SILT with rare relict rootlets. [ALLUVIUM]	2.0
		2.00	SPT						
		2.50-2.80	D 4	N=8 (1,2/1,2,2,3) N60=9	125.30	(0.50)		mottled light bluish grey. (1.60 - 2.35m)	2.5
		3.00	SPT		124.80	3.40		Light grey sandy SILT with very closely spaced thin laminations of grey fine sand. [ALLUVIUM]	3.0
		3.00-3.30	D 5						
				N=10 (1,1/2,3,2,3) N60=12	1.05		Brown pseudofibrous PEAT with a slight putrid odour. [ALLUVIUM]	3.5	
		3.80-4.00	D 6		123.75	4.45		Firm grey slightly gravelly silty CLAY. Gravel is subangular fine to medium of mudstone. [ALLUVIUM]	4.0
		4.00	SPT						
							End of Borehole at 4.45m		4.5
									5.0
									5.5
									6.0
									6.5
									7.0
									7.5
									8.0
									8.5
									9.0
									9.5
									10.0

Remarks 1. Position scanned with CAT and Genny prior to excavation. 2. Position completed at 4.45 m depth. 3. Groundwater not encountered. 4. 50 mm diameter standpipe installed to a depth of 3.40 m, with a response zone between 2.90 m and 3.40 m depth.	Method, Plant, Stability, Dimensions 0.00 - 4.45m WLS Dando Terrier	Logger L.Montgomery

Checked By: MCooper Approved By: SBranch Status: FINAL

SPT N60 = N(raw) * (Hammer Energy Ratio / 60) to nearest whole number

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GEA

Dynamic (Windowless) Sampler

BH05
Sheet 1 of 1

Hole Type WLS	Easting 390732.00	Northing 414117.00	Ground Level (m) 128.30	Scale 1:50
Project Name Brownhill School SEN Hub, Rochdale	Project No. J25291	Start Date 2025-10-08	End Date 2025-10-08	

Client Rochdale Borough Council	Consultant Adept Consulting Engineers	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.80-1.00	ES 1		128.10	(0.20) 0.20		MADE GROUND: (Shrubs over dark greyish brown slightly sandy gravelly humic silt with fragments of brick, concrete, sandstone and decaying plant matter and frequent rootlets). [MADE GROUND]	0.5
		1.00	SPT	N=17 (3,4/4,4,4,5) N60=20	127.30	(0.20) 1.20		MADE GROUND: (Dark greyish brown and reddish brown mottled sandy very clayey gravel with fragments of brick, clinker, ceramic, ash and concrete and occasional pockets of grey clay). [MADE GROUND]	1.0
		1.80-2.00	D 1		127.10	(1.50)		Light brown silty fine to medium SAND. [ALLUVIUM]	1.5
		2.00	SPT	N=13 (2,3/3,3,3,4) N60=15				Soft light greyish brown slightly sandy clayey SILT with rare relict rootlets. Sand is fine to medium. [ALLUVIUM]	2.0
								mottled light bluish grey. (1.60 - 2.35m)	2.5
		2.80-3.00	D 2		125.60	2.70		Firm grey slightly gravelly silty CLAY. Gravel is subangular fine to medium of mudstone. [ALLUVIUM]	3.0
		3.00	SPT	N=13 (1,2/2,3,4,4) N60=15		(0.75)			3.5
					124.85	3.45		End of Borehole at 3.45m	3.5
									4.0
									4.5
									5.0
									5.5
									6.0
									6.5
									7.0
									7.5
									8.0
									8.5
									9.0
									9.5
									10.0

Remarks	Method, Plant, Stability, Dimensions	Logger
1. Position scanned with CAT and Genny prior to excavation. 2. Position completed at 3.45 m depth. 3. Groundwater encountered at a depth of 1.20 m, remaining at the same depth after 20 minutes. 4. Borehole backfilled with arisings upon completion.	0.00 - 3.45m WLS Dando Terrier	L.Montgomery

Checked By: MCooper Approved By: SBranch Status: FINAL



GEA

Dynamic (Windowless) Sampler

BH06
Sheet 1 of 1

Hole Type WLS	Easting 390752.00	Northing 414115.00	Ground Level (m) 127.90	Scale 1:50
Project Name Brownhill School SEN Hub, Rochdale	Project No. J25291	Start Date 2025-10-08	End Date 2025-10-08	

Client Rochdale Borough Council	Consultant Adept Consulting Engineers	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
					127.70	(0.20) 0.20		MADE GROUND: (Shrubs over dark greyish brown slightly sandy gravelly humic silt with fragments of brick, concrete, sandstone and decaying plant matter and frequent rootlets). [MADE GROUND]	0.5
					127.30	0.60 (0.20)			
		1.00	SPT	N=0 (0,0/0,0,0,0) N60=0	127.10	0.80 (0.30)		MADE GROUND: (Dark greyish brown and reddish brown mottled sandy very clayey gravel with fragments of brick, clinker, ceramic, ash and concrete and occasional pockets of grey clay). [MADE GROUND]	1.0
		1.30-1.50	D 1		126.80	1.10		MADE GROUND: (Dark greyish brown slightly gravelly clay with fragments of brick and sandstone). [MADE GROUND]	1.5
						(0.90)			
		2.00	SPT	N=3 (1,0/1,0,1,1) N60=4	125.90	2.00		Dark grey brown slightly sandy silty CLAY. Sand is fine to medium. [ALLUVIUM]	2.0
		2.50-2.70	D 2			(1.20)		Soft light bluish grey becoming light greyish brown slightly sandy silty CLAY with frequent relict rootlets and occasional lenses of fine to medium sand. [ALLUVIUM]	2.5
		3.00	SPT	N=7 (2,1/1,2,2,2) N60=8	124.70	3.20		thin bed of dark grey slight organic clay. (1.90 - 2.00m) Greyish brown slightly gravelly slightly sandy silty CLAY. Gravel is angular of sandstone. [ALLUVIUM]	3.0
		3.50-3.70	D 3			(1.25)		Greyish brown slightly sandy clayey SILT. Sand is fine to medium. [ALLUVIUM]	3.5
		4.00	SPT	N=12 (2,2/3,3,3,3) N60=14					4.0
					123.45	4.45		End of Borehole at 4.45m	4.5
									5.0
									5.5
									6.0
									6.5
									7.0
									7.5
									8.0
									8.5
									9.0
									9.5
									10.0

Remarks 1. Position scanned with CAT and Genny prior to excavation. 2. Position completed at 4.45 m depth. 3. Groundwater encountered at a depth of 3.00 m, remaining at the same depth after 20 minutes. 4. Borehole backfilled with arisings upon completion.	Method, Plant, Stability, Dimensions 0.00 - 4.45m WLS Dando Terrier	Logger L.Montgomery
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Checked By: MCooper Approved By: SBranch Status: FINAL



GEA

Dynamic (Windowless) Sampler

BH07
Sheet 1 of 1

Hole Type WLS	Easting 390756.00	Northing 414104.00	Ground Level (m) 127.70	Scale 1:50
Project Name Brownhill School SEN Hub, Rochdale	Project No. J25291		Start Date 2025-10-08	End Date 2025-10-08

Client Rochdale Borough Council	Consultant Adept Consulting Engineers	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.60-0.80	ES 1		127.50	(0.20) 0.20		MADE GROUND: (Shrubs over dark greyish brown slightly sandy gravelly humic silt with fragments of brick, concrete, sandstone and decaying plant matter and frequent rootlets). [MADE GROUND]	0.5
		1.00	SPT	N=5 (2,1/1,1,1,2) N60=6	126.90	(0.60) 0.80		MADE GROUND: (Grey, dark greyish brown and reddish brown mottled sandy very clayey gravel with fragments of brick, clinker, ceramic, ash and concrete and occasional pockets of grey clay). [MADE GROUND]	1.0
		1.30-1.50	D 1			(1.10)		Yellowish brown, grey and brown mottled sandy silty CLAY with rare lenses of light grey fine to medium sand. [ALLUVIUM]	1.5
		2.00	SPT	N=0 (0,0/0,0,0,0) N60=0	125.80	1.90 (0.30)		Grey slightly gravelly slightly sandy silty CLAY. Gravel is angular of sandstone. [ALLUVIUM]	2.0
		2.50-2.70	D 2		125.50	2.20		Light grey clayey SILT with frequent relict rootlets. [ALLUVIUM]	2.5
		3.00	SPT	N=3 (0,0/0,1,1,1) N60=4		(1.10)			3.0
		3.50-3.80	D 3		124.40	3.30 (0.50)		Brown and dark grey mottled pseudofibrous PEAT with a slight putrid odour. [ALLUVIUM]	3.5
		4.00	SPT	N=8 (0,1/2,2,2,2) N60=9	123.90	3.80 (0.65)		Firm grey slightly gravelly silty CLAY. Gravel is subangular fine to medium of mudstone. [ALLUVIUM]	4.0
					123.25	4.45		End of Borehole at 4.45m	4.5
									5.0
									5.5
									6.0
									6.5
									7.0
									7.5
									8.0
									8.5
									9.0
									9.5
									10.0

Remarks 1. Position scanned with CAT and Genny prior to excavation. 2. Position completed at 4.45 m depth. 3. Groundwater not encountered. 4. Borehole backfilled with arisings upon completion.	Method, Plant, Stability, Dimensions 0.00 - 4.45m WLS Dando Terrier	Logger L.Montgomery
	Checked By: MCooper Approved By: SBranch Status: FINAL	



Dynamic (Windowless) Sampler

BH08
Sheet 1 of 1

Hole Type WLS	Easting 390764.00	Northing 414105.00	Ground Level (m) 127.70	Scale 1:50
Project Name Brownhill School SEN Hub, Rochdale	Project No. J25291	Start Date 2025-10-08	End Date 2025-10-08	

Client Rochdale Borough Council	Consultant Adept Consulting Engineers	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.30-0.40	ES 1		127.55	(0.15) 0.15		MADE GROUND: (Shrubs over dark greyish brown slightly sandy gravelly humic silt with fragments of brick, concrete, sandstone and decaying plant matter and frequent rootlets). [MADE GROUND]	0.5
						(2.15)		MADE GROUND: (Dark grey, brown and grey mottled very sandy very clayey gravel of fragments of brick, ash, clinker, metal, glass, ceramic and concrete). [MADE GROUND]	1.0 1.5 2.0
					125.40	2.30 (0.40)		MADE GROUND: (Dark grey gravelly silty sand with fragmant of brick and sandstone and occasional pockets of yellowish brown clay). [MADE GROUND]	2.5
					125.00	2.70		End of Borehole at 2.70m	3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5 10.0

Remarks 1. Position scanned with CAT and Genny prior to excavation. 2. Position refused suddenly at 2.70 m depth. 3. Groundwater not encountered. 4. Borehole backfilled with arisings upon completion.	Method, Plant, Stability, Dimensions 0.00 - 2.70m WLS Dando Terrier	Logger L.Montgomery
	Checked By: MCooper Approved By: SBranch Status: FINAL	



BH09

Hole Type	Easting	Northing	Ground Level (m)	Scale
WLS	390752.00	414096.00	127.47	1:50
Project Name	Project No.	Start Date	End Date	
Brownhill School SEN Hub, Rochdale	J25291	2025-10-08	2025-10-08	

Client Rochdale Borough Council	Consultant Adept Consulting Engineers	Contractor
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Remarks 1. Position scanned with CAT and Genny prior to excavation. 2. Position terminated at 4.00 m depth due to borehole collapsing back to 2.40 m depth. 3. Groundwater not encountered. 4. Borehole backfilled with arisings upon completion.	<table border="1"> <tr> <th data-bbox="983 1946 1153 1951">Method, Plant, Stability, Dimensions</th> <th data-bbox="1153 1946 1498 1951">Logger</th> </tr> <tr> <td data-bbox="983 1951 1153 1962">0.00 - 4.00m WLS Dando Terrier</td> <td data-bbox="1153 1951 1498 1962">LMontgomery</td> </tr> </table>	Method, Plant, Stability, Dimensions	Logger	0.00 - 4.00m WLS Dando Terrier	LMontgomery
Method, Plant, Stability, Dimensions	Logger				
0.00 - 4.00m WLS Dando Terrier	LMontgomery				

Checked By: MCooper Approved By: SBranch Status: FINAL

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Dynamic (Windowless) Sampler

BH10
Sheet 1 of 1

Hole Type WLS	Easting 390757.00	Northing 414089.00	Ground Level (m) 127.25	Scale 1:50
Project Name Brownhill School SEN Hub, Rochdale	Project No. J25291	Start Date 2025-10-08	End Date 2025-10-08	

Client Rochdale Borough Council	Consultant Adept Consulting Engineers	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
					127.05	(0.20) 0.20		MADE GROUND: (Shrubs over dark greyish brown slightly sandy gravelly humic silt with fragments of brick, concrete, sandstone and decaying plant matter and frequent rootlets). [MADE GROUND]	0.5
						(1.00)		MADE GROUND: (Dark grey, brown and grey mottled very sandy very clayey gravel of fragments of brick, ash, clinker, metal, glass, ceramic and concrete). [MADE GROUND]	1.0
					126.05 125.95	1.20 (0.10) 1.30		MADE GROUND: (Grey concrete boulder). [MADE GROUND]	1.5
								End of Borehole at 1.30m	2.0
									2.5
									3.0
									3.5
									4.0
									4.5
									5.0
									5.5
									6.0
									6.5
									7.0
									7.5
									8.0
									8.5
									9.0
									9.5
									10.0

Remarks 1. Position scanned with CAT and Genny prior to excavation. 2. Position refused at 1.30 m depth on a concrete boulder. 3. Groundwater not encountered. 4. Borehole backfilled with arisings upon completion.	Method, Plant, Stability, Dimensions 0.00 - 1.30m WLS Dando Terrier	Logger L.Montgomery
	Checked By: MCooper Approved By: SBranch Status: FINAL	



GEA

Cable Percussion Log

BH11

Sheet 1 of 1

Hole Type CP	Easting 390729.00	Northing 414164.00	Ground Level (m) 135.00	Scale 1:50
Project Name Brownhill School SEN Hub, Rochdale	Project No. J25291	Start Date 2025-10-10	End Date 2025-10-10	

Client Rochdale Borough Council	Consultant Adept Consulting Engineers	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
					134.80	(0.20) 0.20		MADE GROUND: (Grass over dark greyish brown slightly sandy gravelly humic silt with fragments of brick, concrete, sandstone and frequent rootlets). [MADE GROUND]	0.5
						(1.80)		MADE GROUND: (Dark grey and grey mottled slightly sandy gravelly silty clay with fragments and cobbles of concrete, brick, ash, clinker, plastic, sandstone, metal and sandstone). [MADE GROUND]	1.0
					133.00	2.00		MADE GROUND: (Greyish brown locally mottled dark grey slightly sandy gravelly silty clay with fragments and cobbles of concrete, brick, ash, clinker, plastic, sandstone, metal and sandstone). [MADE GROUND]	2.0
						(2.70)			3.0
									3.5
					130.30	4.70 (0.30)		Firm greyish brown locally mottled orange-brown and grey slightly gravelly sandy silty CLAY. Gravel is fine to medium subangular of [ALLUVIUM]	4.5
					130.00	5.00			5.0
								End of Borehole at 5.00m	5.5
									6.0
									6.5
									7.0
									7.5
									8.0
									8.5
									9.0
									9.5
									10.0

Remarks 1. Position scanned with CAT and Genny prior to excavation. 2. Inspection pit hand dug to a depth of 1.20 m. 3. Position completed at 5.00 m depth. 4. Groundwater not encountered. 5. 50 mm diameter gas/groundwater standpipe installed to a depth of 4.30 m, with a response zone between 0.30 m and 4.30 m depth ...	Method, Plant, Stability, Dimensions 0.00 - 5.00m CP Dando 2000	Logger L.Montgomery

Checked By: MCooper Approved By: SBranch Status: FINAL

SPT N60 = N(raw) * (Hammer Energy Ratio / 60) to nearest whole number

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Borehole Photographs

Site Brownhill School SEN HUB, Rochdale

Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
1 / 11



BH04 - Run 1 - 1.00 m to 2.00 m



BH04 - Run 2 - 2.00 m to 3.00 m





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Sheet
2 / 11



BH02 - Run 3 - 3.00 m to 4.00 m





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J25291

Sheet
3 / 11



BH05 - Run 1 - 1.00 m to 2.00 m



BH05 - Run 2 - 2.00 m to 3.00 m





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Sheet
4 / 11



BH06 - Run 1 - 1.00 m to 2.00 m



BH06 - Run 2 - 2.00 m to 3.00 m





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Job Number
J25291

Sheet
5 / 11



BH06 - Run 3 - 3.00 m to 4.00 m





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Job Number
J25291

Sheet
6 / 11



BH07 - Run 1 - 1.00 m to 2.00 m



BH05 - Run 2 - 2.00 m to 3.00 m





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Job Number
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Sheet
7 / 11



BH07 - Run 3 - 3.00 m to 4.00 m





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Job Number
J25291

Sheet
8 / 11



BH08 - Run 1 - 1.00 m to 2.00 m



BH08 - Run 2 - 2.00 m to 2.70 m





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Job Number
J25291

Sheet
9 / 11



BH09 - Run 1 - 1.00 m to 2.00 m



BH09 - Run 2 - 2.00 m to 3.00 m





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Job Number
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Sheet
10 / 11



BH09 - Run 3 - 3.00 m to 4.00 m





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Site Brownhill School SEN HUB, Rochdale

Client Rochdale Borough School

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Job Number
J25291

Sheet
11 / 11



BH10 - Run 1 - 1.00 m to 1.30 m



Key to exploratory hole symbols and abbreviations

SAMPLE TYPES

ACM - Asbestos sample	AMAL - Amalgamated sample	B - Bulk disturbed sample
BLK - Block sample	C - Core sample	CBR - CBR test sample
D - Disturbed sample	ES - Environmental sample	EW - Environmental water sample
G - Gas sample	J - Jar sample	L - Liner sample
TW - Pushed thin wall sample	U - Undisturbed sample	UT - Undisturbed thin wall sample
W - Water sample		

IN-SITU TESTS

HV - Hand shear vane	HV(r) - Hand shear vane residual	PID - Photo ionisation detector
PP - Hand penetrometer	SPT - Standard penetration test	SPT(C) - SPT using cone

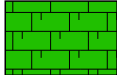
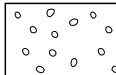
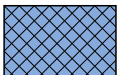
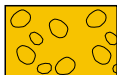
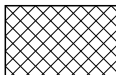
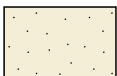
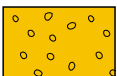
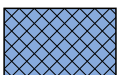
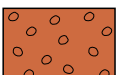
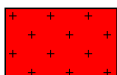
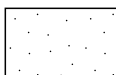
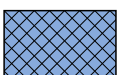
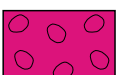
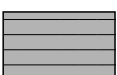
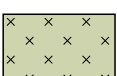
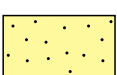
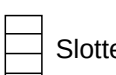
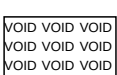
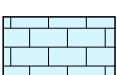
GROUNDWATER

 Groundwater strike	 Groundwater rest level
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ROTARY CORE DETAILS

TCR - Total core recovery (%)	SCR - Solid core recovery (%)	RQD - Rock quality designation (%)
FI - Fracture index	NI - Non-intact core	AZCL - Assumed zone of core loss

LEGEND

 Topsoil	 Clay	 Chalk	 Sand backfill
 Peat	 Silt	 Breccia	 Gravel backfill
 Made ground	 Sand	 Conglomerate	 Arisings
 Concrete	 Gravel	 Metamorphic	 Bentonite
 Wood	 Cobbles	 Igneous	 Concrete
 Brick	 Boulders		 Grout
 Bituminous material	 Mudstone		 Plain pipe
 Gypsum	 Siltstone		
 Coal	 Sandstone		 Slotted pipe
 Void	 Limestone		



Trial Pit

TP01
Sheet 1 of 1

Hole Type TP	Easting 390749.00	Northing 414084.00	Ground Level (m) 127.30	Scale 1:25
Project Name Brownhill School SEN Hub, Rochdale	Project No. J25291	Start Date 2025-10-07	End Date 2025-10-07	

Client Rochdale Borough Council	Consultant Adept Consulting Engineers	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m)	Strata	
		Depth (m)	Type/ Ref	Results			Legend	Description
		0.50	ES 1		127.10	(0.20)		MADE GROUND: (Shrubs over dark greyish brown slightly sandy gravelly humic silt with fragments of brick, concrete, sandstone and decaying plant matter and frequent rootlets). [MADE GROUND]
						0.20		
		0.50	ES 1		126.70	(0.40)		MADE GROUND: (Dark grey very sandy very clayey gravel with fragments and cobbles of brick, wood, ash, clinker, concrete, ceramic and sandstone and a slight organic odour). [MADE GROUND]
						0.60		
		0.50	ES 1		125.00	(1.70)		MADE GROUND: (Dark grey slightly sandy gravelly clay with fragments of brick, ash, clinker, sandstone, metal, plastic, concrete and wood and a slight organic odour). [MADE GROUND]
		2.40-2.50	D 1		124.70	2.30		Firm greyish brown and orange-brown mottled sandy silty clay with lenses of brown silt to fine sand. [ALLUVIUM]
						(0.30)		
		2.40-2.50	D 1		124.70	2.60		End of Trial Pit at 2.60m

Remarks 1. Position scanned with CAT and Genny prior to excavation. 2. Position completed at 2.50 m depth. 3. Groundwater encountered as a slight seepage at 2.20 m depth. 4. Trial pit backfilled with compacted arisings upon completion.	Method, Plant, Stability, Dimensions 0.00 - 2.50m TP JCB 3CX Unstable L = 3.35m W = 0.50m	Logger L.Montgomery
	Checked By: MCooper Approved By: SBranch Status: FINAL	



Trial Pit

TP02
Sheet 1 of 1

Hole Type TP	Easting 390772.00	Northing 414097.00	Ground Level (m) 127.50	Scale 1:25
Project Name Brownhill School SEN Hub, Rochdale	Project No. J25291	Start Date 2025-10-07	End Date 2025-10-07	

Client Rochdale Borough Council	Consultant Adept Consulting Engineers	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		1.00	ES 1		127.30	(0.20) 0.20		MADE GROUND: (Shrubs over dark greyish brown slightly sandy gravelly humic silt with fragments of brick, concrete, sandstone and decaying plant matter and frequent rootlets). [MADE GROUND]	
								MADE GROUND: (Dark grey slightly sandy gravelly clay with fragments of brick, ash, clinker, sandstone, metal, plastic, concrete and wood and a slight organic odour. [MADE GROUND]	0.5
						(2.60)			1.0
									1.5
									2.0
								relatively more sandy. (1.90 - 2.80m)	2.5
		2.40-2.50	D 1						3.0
					124.70 124.60	2.80 (0.10) 2.90		Firm brown and orange-brown mottled gleyed light bluish grey silty sandy CLAY with lenses of brown silt to fine sand. [ALLUVIUM]	3.5
								End of Trial Pit at 2.90m	4.0
									4.5
									5.0

Remarks 1. Position scanned with CAT and Genny prior to excavation. 2. Position completed at 2.90 m depth. 3. Groundwater encountered as a slight seepage at 2.50 m depth. 4. Trial pit backfilled with compacted arisings upon completion.	Method, Plant, Stability, Dimensions 0.00 - 2.90m Unstable L = 3.75m W = 0.55m	Logger TP JCB 3CX L.Montgomery
	Checked By: MCooper Approved By: SBranch Status: FINAL	



Trial Pit

TP03
Sheet 1 of 1

Hole Type TP	Easting 390789.00	Northing 414107.00	Ground Level (m) 127.45	Scale 1:25
Project Name Brownhill School SEN Hub, Rochdale	Project No. J25291	Start Date 2025-10-07	End Date 2025-10-07	

Client Rochdale Borough Council	Consultant Adept Consulting Engineers	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata	
		Depth (m)	Type/ Ref	Results			Legend	Description
		1.80	ES 1		127.15	(0.30)		MADE GROUND: (Shrubs over dark greyish brown slightly sandy gravelly humic silt with fragments of brick, concrete, sandstone and decaying plant matter and frequent rootlets). [MADE GROUND]
						0.30		MADE GROUND: (Greyish brown sandy gravelly clay with fragments and cobbles of brick, wood, ash, clinker, concrete and ceramic). [MADE GROUND]
		2.30	ES 1		125.75	(1.40)		
						1.70		MADE GROUND: (Greyish brown very gravelly silty sand with fragments and cobbles of brick, wood and concrete). [MADE GROUND]
		2.40-2.50	D 1		125.20	2.25 (0.15)		MADE GROUND: (Black and dark grey mottled slightly gravelly sandy clay with fragments of coal and brick). [MADE GROUND]
					125.05	2.40 (0.10)		
					124.95	2.50		Firm grey slightly gravelly sandy silty CLAY. Gravel is subangular of sandstone and quartzite. [ALLUVIUM]
								End of Trial Pit at 2.50m

Remarks 1. Position scanned with CAT and Genny prior to excavation. 2. Position completed at 2.50 m depth. 3. Groundwater encountered as a slight seepage at 2.20 m depth. 4. Trial pit backfilled with compacted arisings upon completion.	Method, Plant, Stability, Dimensions 0.00 - 2.50m TP JCB 3CX Unstable L = 3.30m W = 0.52m	Logger L.Montgomery
	Checked By: MCooper Approved By: SBranch Status: FINAL	



Trial Pit

TP04
Sheet 1 of 1

Hole Type TP	Easting 390803.00	Northing 414194.00	Ground Level (m) 134.40	Scale 1:25
Project Name Brownhill School SEN Hub, Rochdale	Project No. J25291	Start Date 2025-10-07	End Date 2025-10-07	

Client Rochdale Borough Council	Consultant Adept Consulting Engineers	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level	Depth	Strata					
		Depth (m)	Type/ Ref	Results	(m)	(m) (thickness)	Legend	Description				
		1.10	ES 1		133.90	0.50		MADE GROUND: (Grass over dark greyish brown slightly sandy gravelly humic silt with fragments of brick, concrete, sandstone and frequent rootlets). [MADE GROUND]	0.5			
						(0.70)		MADE GROUND: (Dark grey sandy gravelly clayey silt with fragments of brick, ash, clinker, concrete, wood and plastic). [MADE GROUND] <i>fragments of adhesive-like material containing metal wiring. (0.65 - 0.70m)</i>		1.0		
						133.20		1.20		MADE GROUND: (Brown and greyish brown mottled sandy very clayey gravel with frequent pockets of brown clay). [MADE GROUND]	1.5	
		2.90-3.00	ES 1			131.70	2.70		MADE GROUND: (Brown locally mottled light orange-brown sandy gravel with fragments of brick, ceramic and sandstone). [MADE GROUND]	3.0		
							(0.40)					
							131.30		3.10		MADE GROUND: (Black and dark grey mottled slightly gravelly sandy clay with fragments of coal and brick and a slight organic odour). [MADE GROUND]	
							(0.20)					
3.30-3.40	D 1			131.10	3.30		Firm grey slightly gravelly sandy silty CLAY. Gravel is subangular of sandstone and quartzite. [ALLUVIUM]	3.5				
				131.00	3.40							
							End of Trial Pit at 3.40m					

Remarks 1. Position scanned with CAT and Genny prior to excavation. 2. Position completed at 3.40 m depth. 3. Groundwater encountered as a slight seepage at 3.05 m depth. 4. Trial pit backfilled with compacted arisings upon completion.	Method, Plant, Stability, Dimensions 0.00 - 3.40m TP JCB 3CX Unstable L = 3.39m W = 0.60m	Logger L.Montgomery
	Checked By: MCooper Approved By: SBranch Status: FINAL	



Trial Pit

TP05
Sheet 1 of 1

Hole Type TP	Easting 390752.00	Northing 414209.00	Ground Level (m) 135.22	Scale 1:25
Project Name Brownhill School SEN Hub, Rochdale	Project No. J25291	Start Date 2025-10-07	End Date 2025-10-07	

Client Rochdale Borough Council	Consultant Adept Consulting Engineers	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata	
		Depth (m)	Type/ Ref	Results			Legend	Description
		0.80	ES 1		135.02	(0.20) 0.20		MADE GROUND: (Grass over dark greyish brown slightly sandy gravelly humic silt with fragments of brick, concrete, sandstone and frequent rootlets). [MADE GROUND]
								MADE GROUND: (Dark grey mottled dark brown sandy gravelly silty clay with fragments of brick, ash, clinker, concrete, wood, plastic and metal). [MADE GROUND] geotextile membrane. (0.60m)
						(2.30)		
					132.72	2.50		MADE GROUND: (Dark grey and black mottled gravelly clayey silt with fragments of brick and coal and a slight organic odour. [MADE GROUND]
					132.42	2.80 (0.10)		Firm grey slightly gravelly sandy silty CLAY. Gravel is subangular of sandstone and quartzite. [ALLUVIUM]
					132.32	2.90		End of Trial Pit at 2.90m

Remarks 1. Position scanned with CAT and Genny prior to excavation. 2. Position completed at 2.90 m depth. 3. Groundwater encountered as a slight seepage at 0.85 m depth. 4. Trial pit backfilled with compacted arisings upon completion.	Method, Plant, Stability, Dimensions 0.00 - 2.90m TP JCB 3CX Unstable L = 3.16m W = 0.65m	Logger L.Montgomery
	Checked By: MCooper Approved By: SBranch Status: FINAL	



Trial Pit

TP06
Sheet 1 of 1

Hole Type TP	Easting 390745.00	Northing 414180.00	Ground Level (m) 135.30	Scale 1:25
Project Name Brownhill School SEN Hub, Rochdale	Project No. J25291	Start Date 2025-10-07	End Date 2025-10-07	

Client Rochdale Borough Council	Consultant Adept Consulting Engineers	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		1.20	ES 1		135.00	(0.30) 0.30		MADE GROUND: (Grass over dark greyish brown slightly sandy gravelly humic silt with fragments of brick, concrete, sandstone and frequent rootlets). [MADE GROUND]	
						(0.80)		MADE GROUND: (Dark grey mottled dark brown sandy gravelly silty clay with fragments of brick, ash, clinker, concrete, wood, plastic and metal). [MADE GROUND]	0.5
					134.20	1.10		MADE GROUND: (Brown and greyish brown mottled silty sandy gravel of sandstone). [MADE GROUND]	1.0
						(2.00)			1.5
					132.20	3.10 (0.15)			2.0
					132.05	3.25		Firm grey slightly gravelly sandy silty CLAY. Gravel is subangular of sandstone and quartzite. [ALLUVIUM]	2.5
								End of Trial Pit at 3.25m	3.0
									3.5
									4.0
									4.5
									5.0

Remarks 1. Position scanned with CAT and Genny prior to excavation. 2. Position completed at 3.25 m depth. 3. Groundwater encountered as a slight seepage at 2.20 m depth. 4. Trial pit backfilled with compacted arisings upon completion.	Method, Plant, Stability, Dimensions 0.00 - 3.25m TP JCB 3CX Unstable L = 3.30m W = 0.50m	Logger L.Montgomery
	Checked By: MCooper Approved By: SBranch Status: FINAL	



GEA

Trial Pit

TP07

Sheet 1 of 1

Hole Type TP	Easting 390779.00	Northing 414179.00	Ground Level (m) 134.50	Scale 1:25
Project Name Brownhill School SEN Hub, Rochdale	Project No. J25291	Start Date 2025-10-07	End Date 2025-10-07	

Client Rochdale Borough Council	Consultant Adept Consulting Engineers	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (thickness) (m)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.60	ES 1		134.00	(0.50)		MADE GROUND: (Grass over dark greyish brown slightly sandy gravelly humic silt with fragments of brick, concrete, sandstone and frequent rootlets). [MADE GROUND]	0.5
						0.50		MADE GROUND: (Dark grey sandy gravelly clayey silt with fragments of brick, ash, clinker, concrete, wood and plastic). [MADE GROUND]	
						(0.65)			
						133.35			
		3.30-3.40	D 1		133.00	1.15		MADE GROUND: (Brown and greyish brown mottled silty sandy gravel of sandstone). [MADE GROUND]	1.5
						(0.35)			
						1.50		MADE GROUND: (Dark grey very silty very sandy gravel with fragments of ash, clinker, sandstone, brick, concrete and plastic). [MADE GROUND]	
								geotextile membrane. (1.50m)	
						(1.60)			
				131.40	3.10		MADE GROUND: (Dark grey and black mottled gravelly clayey silt with fragments of brick and coal with a slight organic odour). [MADE GROUND]	3.0	
					(0.20)				
					131.20		3.30		
(0.10)	131.10	3.40	Firm light grey slightly sandy SILT. Sand is fine to medium. [ALLUVIUM]	3.5					
End of Trial Pit at 3.40m									

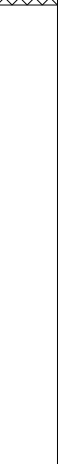


Trial Pit

TP08
Sheet 1 of 1

Hole Type TP	Easting 390712.00	Northing 414178.00	Ground Level (m) 135.20	Scale 1:25
Project Name Brownhill School SEN Hub, Rochdale	Project No. J25291	Start Date 2025-10-09	End Date 2025-10-09	

Client Rochdale Borough Council	Consultant Adept Consulting Engineers	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.80	ES 1		134.95	(0.25) 0.25		MADE GROUND: (Grass over dark greyish brown slightly sandy gravelly humic silt with fragments of brick, concrete, sandstone and frequent rootlets). [MADE GROUND]	0.5
						(0.75)		MADE GROUND: (Brown and grey mottled very sandy very clayey gravel with fragments and cobbles of brick, concrete, ash, clinker, sandstone, glass and metal). [MADE GROUND]	
		3.40-3.50	D 1		134.20	1.00		MADE GROUND: (Brown and grey mottled very sandy very clayey gravel with fragments and cobbles of brick, concrete, ash, clinker, sandstone, glass and metal and pockets of light grey and orange-brown clay). [MADE GROUND]	1.0
						(2.35)			1.5
									2.0
									3.0
					131.85	3.35		Firm grey slightly gravelly sandy silty CLAY with lenses of orange-brown fine sand and silt. Gravel is subangular of sandstone and quartzite. [ALLUVIUM]	3.5
					131.65	(0.20) 3.55			
								<i>End of Trial Pit at 3.55m</i>	4.0
									5.0

Remarks 1. Position scanned with CAT and Genny prior to excavation. 2. Position completed at 3.55 m depth. 3. Groundwater not encountered. 4. Trial pit backfilled with compacted arisings upon completion.	Method, Plant, Stability, Dimensions 0.00 - 3.55m TP JCB 3CX Unstable L = 3.10m W = 0.70m	Logger L.Montgomery
	Checked By: MCooper Approved By: SBranch Status: FINAL	



Trial Pit

TP09
Sheet 1 of 1

Hole Type TP	Easting 390774.00	Northing 414200.00	Ground Level (m) 135.20	Scale 1:25
Project Name Brownhill School SEN Hub, Rochdale	Project No. J25291	Start Date 2025-10-09	End Date 2025-10-09	

Client Rochdale Borough Council	Consultant Adept Consulting Engineers	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level	Depth	Strata		
		Depth (m)	Type/ Ref	Results	(m)	(m)	Legend	Description	
		0.20	ES 1		134.95	(0.25)		MADE GROUND: (Grass over dark greyish brown slightly sandy gravelly humic silt with fragments of brick, concrete, sandstone and frequent rootlets).	0.5
						0.25		[MADE GROUND]	
						(0.65)		MADE GROUND: (Brown and grey mottled very sandy very clayey gravel with fragments and cobbles of brick, concrete, ash, clinker, sandstone, glass and metal).	
								[MADE GROUND]	
								134.30	
		[MADE GROUND]							
		(1.25)							
			133.05	2.15		MADE GROUND: (Dark grey very sandy gravel of ash, clinker, sandstone and brick).	2.5		
				[MADE GROUND]					
				(1.15)					
131.90	3.30							Firm grey slightly gravelly sandy silty CLAY with lenses of orange-brown fine sand and silt. Gravel is subangular of sandstone and quartzite.	3.5
	(0.30)	[ALLUVIUM]							
	131.60	3.60	End of Trial Pit at 3.60m						
					4.0				
		3.40-3.50	D 1						4.5
		3.40-3.50	D 1						5.0

Remarks 1. Position scanned with CAT and Genny prior to excavation. 2. Position completed at 3.50 m depth. 3. Groundwater encountered as a seepage at 3.30 m depth. 4. Trial pit backfilled with compacted arisings upon completion.	Method, Plant, Stability, Dimensions 0.00 - 3.50m TP JCB 3CX Unstable L = 3.25m W = 0.75m	Logger L.Montgomery
	Checked By: MCooper Approved By: SBranch Status: FINAL	



Trial Pit

SA01
Sheet 1 of 1

Hole Type TP	Easting 390730.00	Northing 414108.00	Ground Level (m) 128.35	Scale 1:25
Project Name Brownhill School SEN Hub, Rochdale	Project No. J25291	Start Date 2025-11-05	End Date 2025-11-05	

Client Rochdale Borough Council	Consultant Adept Consulting Engineers	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
						(1.10)		MADE GROUND: (Dark grey mottled reddish brown very sandy very clayey gravel with fragments and cobbles of brick, concrete, plastic, sandstone, ceramic and metal). [MADE GROUND]	0.5
					127.25	1.10 (0.40)		Dark grey slightly gravelly silty CLAY. Gravel is angular fine to medium of sandstone. [ALLUVIUM]	1.0
					126.85	1.50		End of Trial Pit at 1.50m	1.5
									2.0
									2.5
									3.0
									3.5
									4.0
									4.5
									5.0

Remarks 1. Position scanned with CAT and Genny prior to excavation. 2. Position completed at 1.50 m depth. 3. Three soakage tests completed. 4. Trial pit backfilled with compacted arisings upon completion.	Method, Plant, Stability, Dimensions 0.00 - 1.50m TP Tracked Excavator Unstable L = 2.00m W = 0.80m	Logger JSwindells
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Checked By: MCooper Approved By: SBranch Status: FINAL



GEA

Trial Pit

SA02
Sheet 1 of 1

Hole Type TP	Easting 390762.00	Northing 414120.00	Ground Level (m) 127.90	Scale 1:25
Project Name Brownhill School SEN Hub, Rochdale	Project No. J25291	Start Date 2025-11-05	End Date 2025-11-05	

Client Rochdale Borough Council	Consultant Adept Consulting Engineers	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
						(1.20)		MADE GROUND: (Dark grey mottled reddish brown very sandy very clayey gravel with fragments and cobbles of brick, concrete, plastic, sandstone, ceramic and metal). [MADE GROUND]	0.5
					126.70	1.20		Light brown mottled light grey clayey fine SAND. [ALLUVIUM]	1.0
					126.10	1.80			1.5
								End of Trial Pit at 1.80m	2.0
									2.5
									3.0
									3.5
									4.0
									4.5
									5.0

Remarks 1. Position scanned with CAT and Genny prior to excavation. 2. Position completed at 1.80 m depth. 3. Three soakage tests completed. 4. Trial pit backfilled with compacted arisings upon completion.	Method, Plant, Stability, Dimensions 0.00 - 1.80m TP Tracked Excavator Unstable L = 2.10m W = 0.80m	Logger JSwindells
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Checked By: MCooper Approved By: SBranch Status: FINAL



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Trial Pit Photographs

Site Brownhill School SEN HUB, Rochdale

Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
1 / 36



TP01 - Excavated to a depth of 2.60 m - looking
north



TP01 - Excavated to a depth of 2.60 m - looking
west





Site Brownhill School SEN HUB, Rochdale

Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
2 / 36



TP01 - Closer view of the base of the pit



TP01 - Alluvium at the base of the pit





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Trial Pit Photographs

Site Brownhill School SEN HUB, Rochdale

Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
3 / 36



TP01 - Spoil



TP01 - Spoil





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Trial Pit Photographs

Site Brownhill School SEN HUB, Rochdale

Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
4 / 36



TP01 - Backfilled





Site Brownhill School SEN HUB, Rochdale

Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
5 / 36



TP02 - Excavated to a depth of 2.90 m - looking
north



TP02 - Excavated to a depth of 2.90 m - looking
west





Site Brownhill School SEN HUB, Rochdale

Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
6 / 36



TP02 - Closer view of the base of the pit



TP02 - Alluvium at the base of the pit





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Trial Pit Photographs

Site Brownhill School SEN HUB, Rochdale

Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
7 / 36



TP02 - Spoil



TP02 - Spoil





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Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
8 / 36



TP02 - Backfilled





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Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
9 / 36



TP03 - Excavated to a depth of 2.50 m - looking
north



TP03 - Excavated to a depth of 2.50 m - looking
west





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Site Brownhill School SEN HUB, Rochdale

Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
10 / 36



TP03 - Closer view of the base of the pit



TP03 - Alluvium at the base of the pit





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Site Brownhill School SEN HUB, Rochdale

Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
11 / 36



TP03 - Spoil



TP03 - Spoil





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Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
12 / 36



TP03 - Backfilled





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Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
13 / 36



TP04 - Excavated to a depth of 3.40 m - looking
west



TP04 - Excavated to a depth of 3.40 m - looking
north





Site Brownhill School SEN HUB, Rochdale

Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
14 / 36



TP04 - Closer view of the base of the pit



TP04 - Alluvium at the base of the pit





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Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
15 / 36



TP04 - Spoil



TP04 - Spoil





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Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
16 / 36



TP04 - Backfilled





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Site Brownhill School SEN HUB, Rochdale

Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
17 / 36



TP05 - Excavated to a depth of 2.90 m - looking
northwest



TP05 - Excavated to a depth of 2.90 m - looking
southwest





Site Brownhill School SEN HUB, Rochdale

Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
18 / 36



TP05 - Closer view of the base of the pit



TP05 - Alluvium at the base of the pit





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Site Brownhill School SEN HUB, Rochdale

Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
19 / 36



TP05 - Spoil



TP05 - Spoil





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Site Brownhill School SEN HUB, Rochdale

Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
20 / 36



TP05 - Backfilled





Site Brownhill School SEN HUB, Rochdale

Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
21 / 36



TP06 - Excavated to a depth of 3.25 m - looking
north



TP06 - Excavated to a depth of 3.25 m - looking
west





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Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
22 / 36



TP06 - Closer view of the base of the pit



TP06 - Alluvium at the base of the pit





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Site Brownhill School SEN HUB, Rochdale

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Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
23 / 36



TP06 - Spoil



TP06 - Spoil





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Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
24 / 36



TP06 - Backfilled





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Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
25 / 36



TP07 - Excavated to a depth of 3.40 m - looking
north



TP07 - Excavated to a depth of 3.40 m - looking
west





Site Brownhill School SEN HUB, Rochdale

Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
26 / 36



TP07 - Closer view of the base of the pit



TP07 - Alluvium at the base of the pit





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Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
27 / 36



TP07 - Spoil



TP07 - Spoil





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Job Number
J25291

Sheet
28 / 36



TP07 - Backfilled





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Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
29 / 36



TP08 - Excavated to a depth of 3.55 m - looking
east



TP08 - Excavated to a depth of 3.55 m - looking
south





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Site Brownhill School SEN HUB, Rochdale

Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
30 / 36



TP08 - Closer view of the base of the pit



TP08 - Alluvium at the base of the pit





Site Brownhill School SEN HUB, Rochdale

Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
31 / 36



TP08 - Spoil



TP08 - Spoil





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Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
32 / 36



TP08 - Backfilled





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Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
33 / 36



TP09 - Excavated to a depth of 3.60 m - looking
north



TP09 - Excavated to a depth of 3.60 m - looking
west





Site Brownhill School SEN HUB, Rochdale

Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
34 / 36



TP09 - Closer view of the base of the pit



TP09 - Alluvium at the base of the pit





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Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
35 / 36



TP09 - Spoil



TP09 - Spoil





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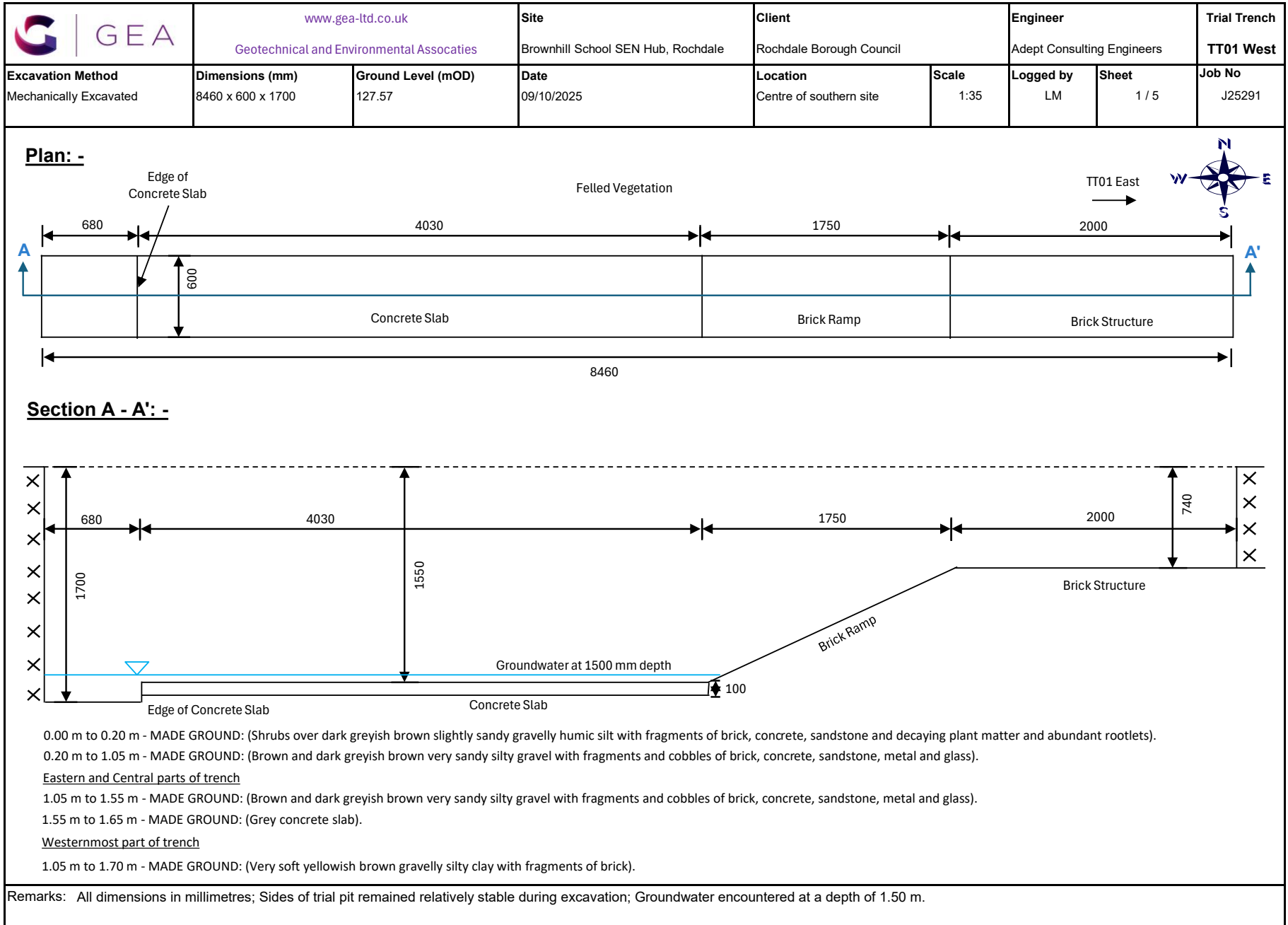
Job Number
J25291

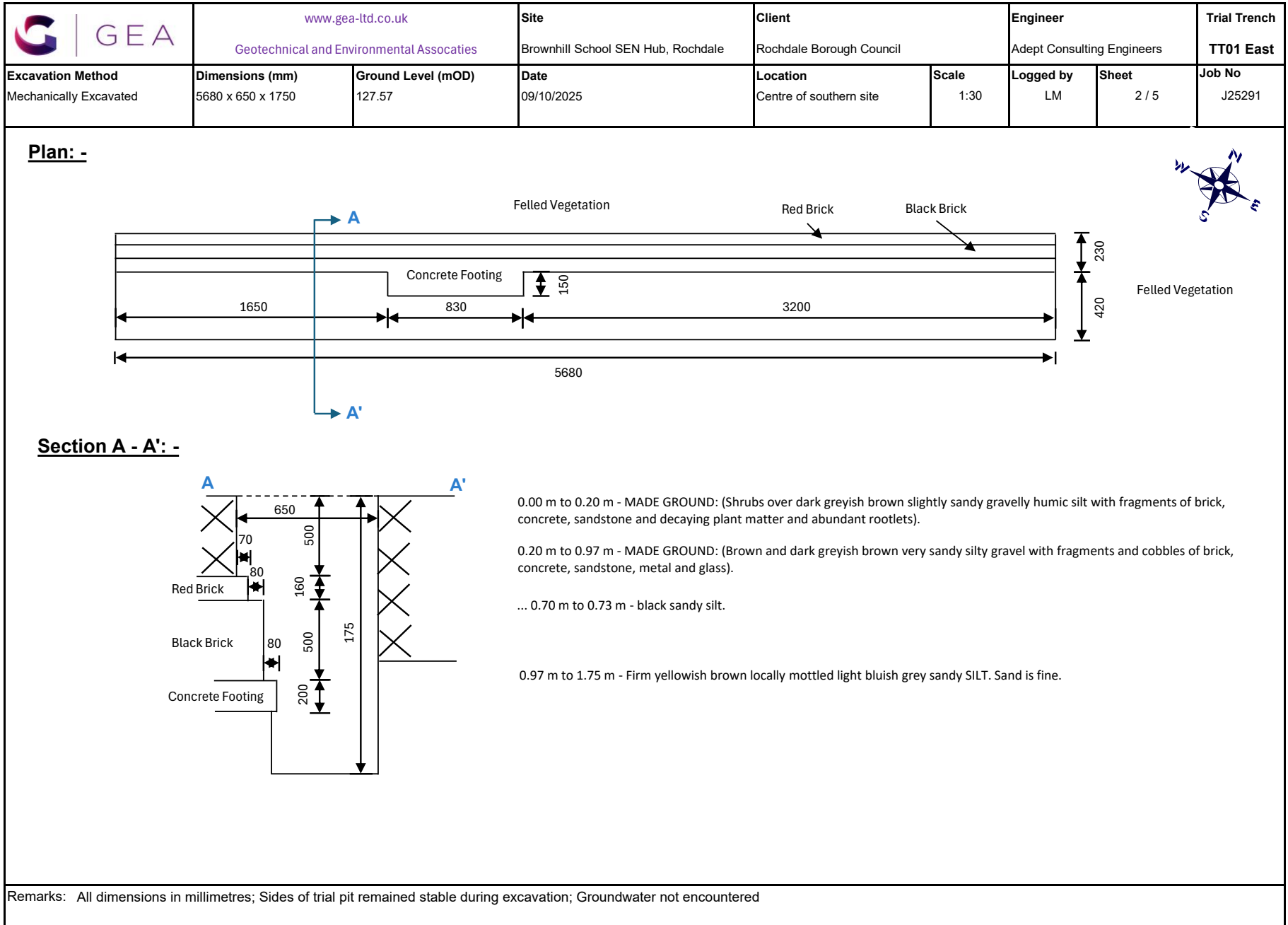
Sheet
36 / 36

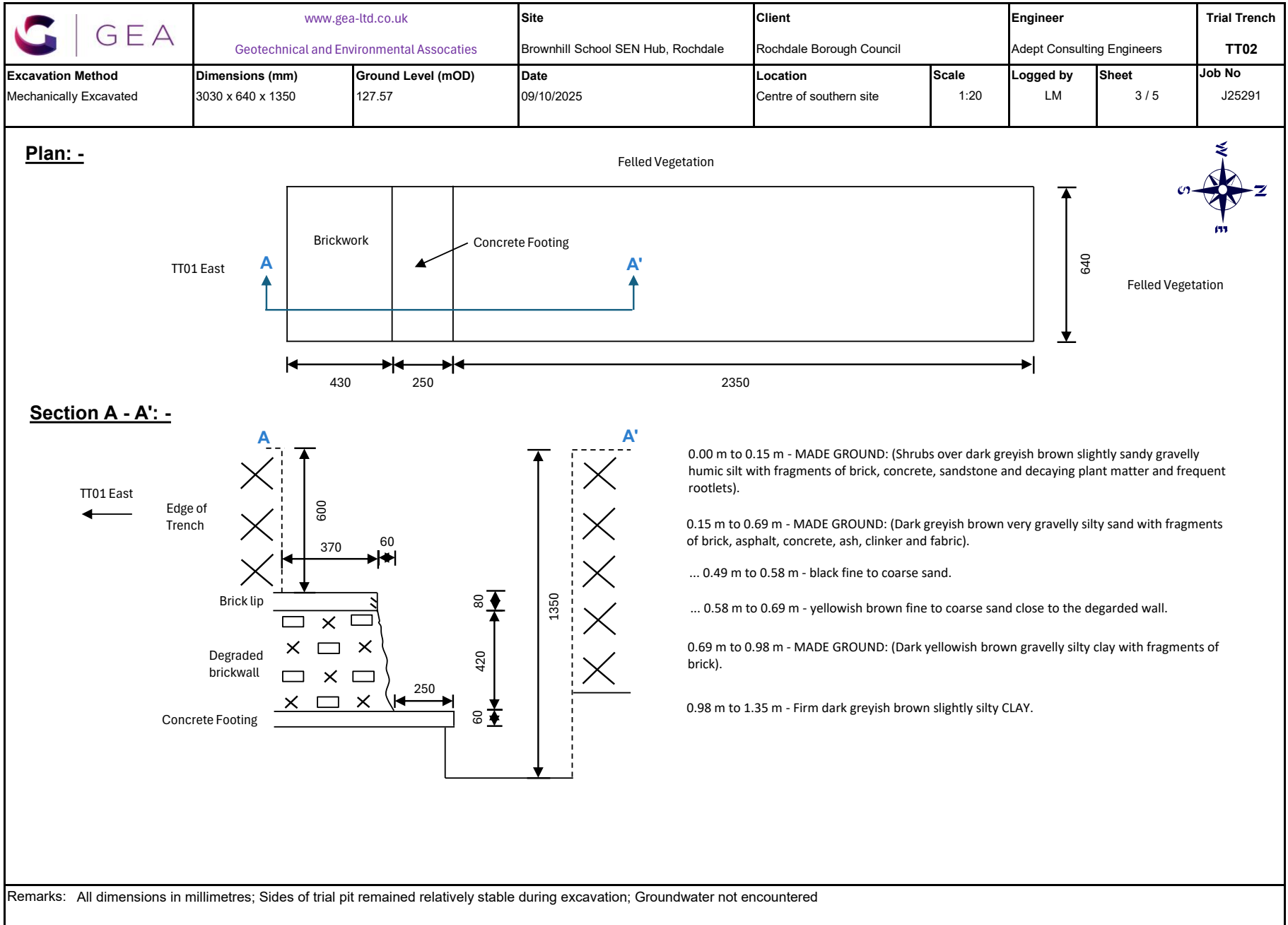


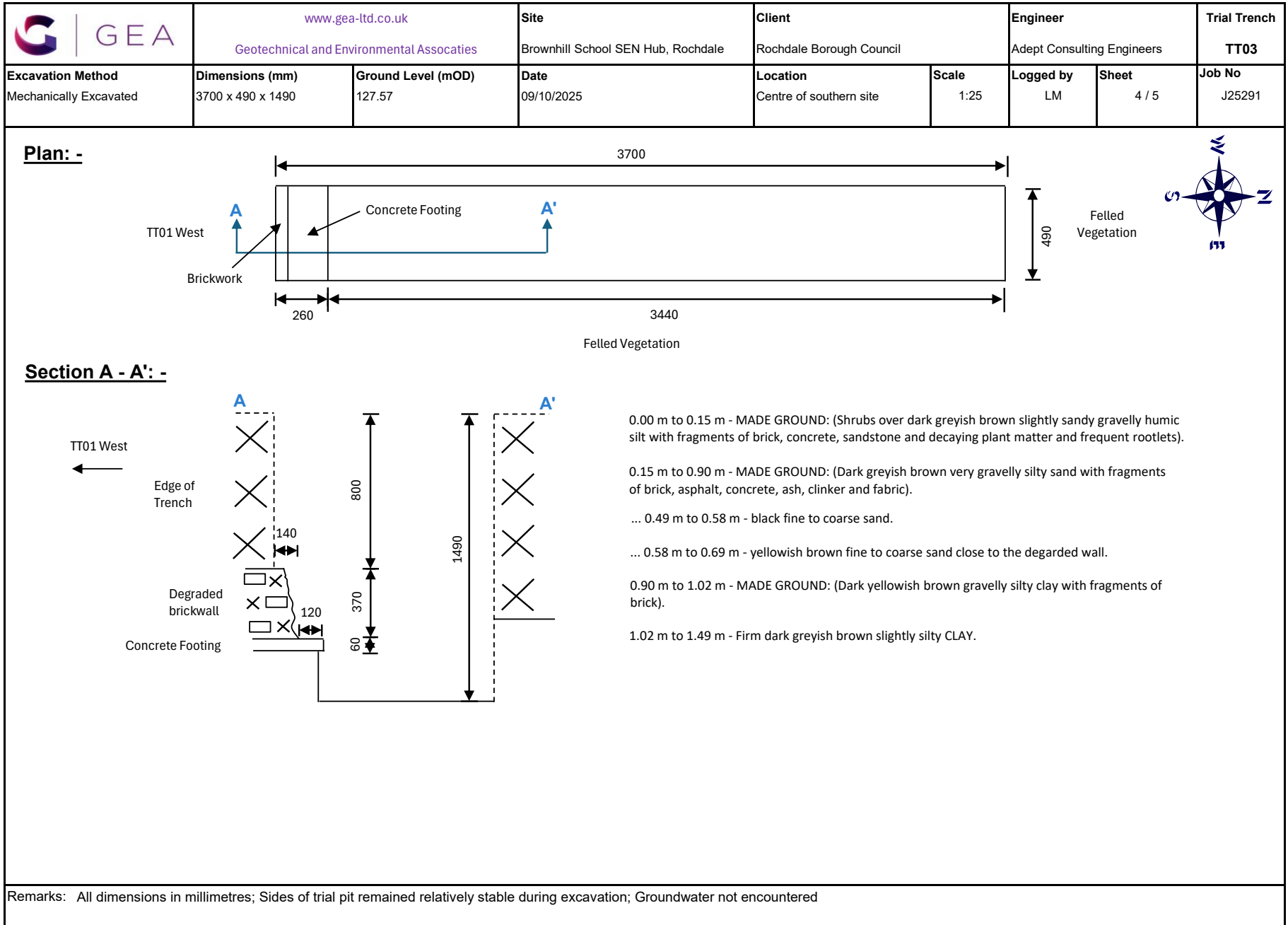
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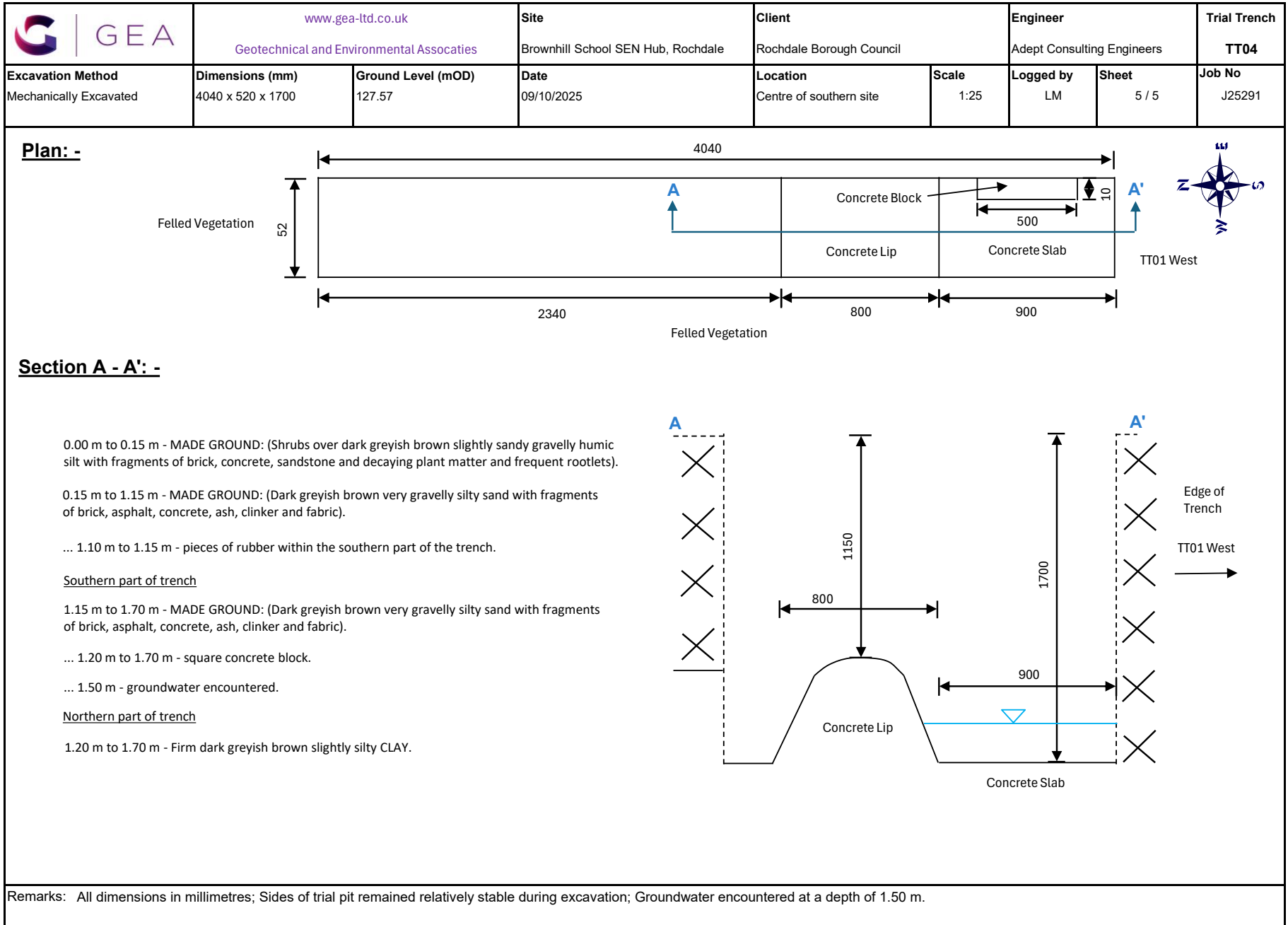














Site Brownhill School SEN HUB, Rochdale

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Job Number
J25291

Sheet
1 / 11



TT01 West - looking east



*TT01 West - western part of the pit containing
concrete slab*





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Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
2 / 11



*TT01 West - eastern part of the pit containing
brick slope*



TT01 East - looking west





Site Brownhill School SEN HUB, Rochdale

Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
3 / 11



TT01 East - Brick wall and footings



TT01 East - Brick wall and footings





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Job Number
J25291

Sheet
4 / 11



TT01 East - Brick wall and footings





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Site Brownhill School SEN HUB, Rochdale

Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
5 / 11



TT02 - Excavated to a depth of 1.49 m - looking south



TT02 - Excavated to a depth of 1.49 m - looking east





Site Brownhill School SEN HUB, Rochdale

Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
6 / 11



*TT02 - Closer view of the footing on southern
edge of the pit*





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Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
7 / 11



TT03 - Excavated to a depth of 1.49 m - looking south



TT03 - Closer view of the footing on southern edge of the pit





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Client Rochdale Borough School

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Job Number
J25291

Sheet
8 / 11



*TT03 - Closer view of the footing on southern
edge of the pit*





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Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
9 / 11



TT04 - Excavated to a depth of 1.70 m - looking south



TT04 - Excavated to a depth of 1.70 m - looking east





Site Brownhill School SEN HUB, Rochdale

Client Rochdale Borough School

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
10 / 11



TT04 - Closer view of concrete block in southern part of the trench



TT04 - Closer view of southern part of the trench





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Client Rochdale Borough School

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Job Number
J25291

Sheet
11 / 11



TT04 - Closer view of northern part of the trench



Trial trench area reinstated





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Trial Pit Soakage Results

Site Brownhill School SEN Hub

Client Rochdale Borough Council

Engineer Adept Consulting Engineers

Job Number

J25291

Sheet

1 / 4

Borehole No. SA01

Soakage Test No. 1

Length (m)

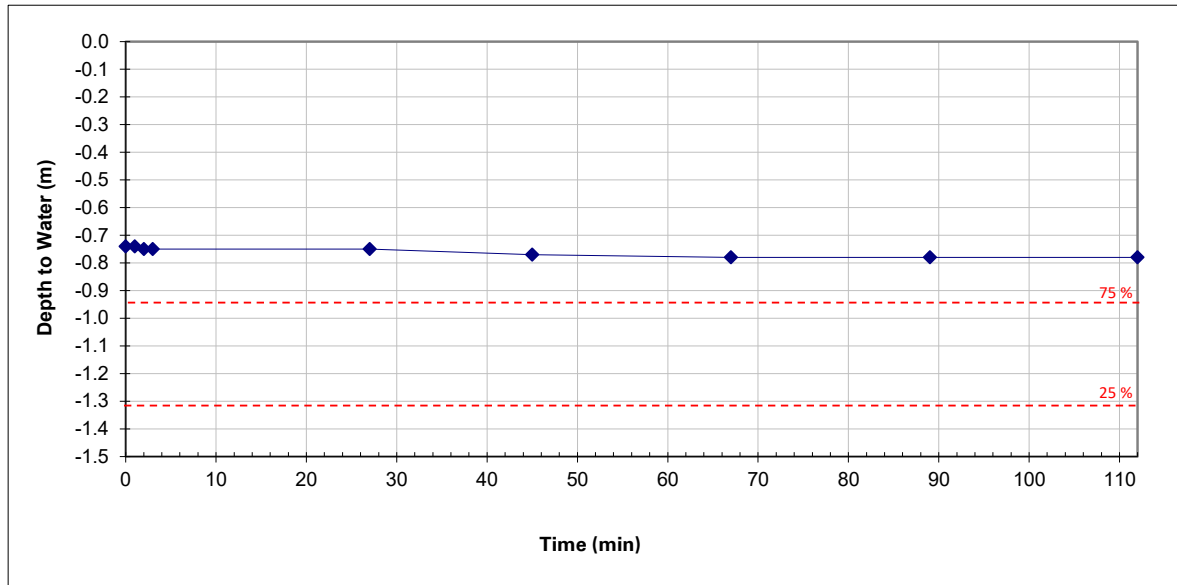
2

Width (m)

0.8

Depth (m)

1.5



Design Soakage Rate

1.7E-06

m/s

(based on linear portion of graph)

0.14

m/day

Borehole No. SA01

Soakage Test No. 2

Length (m)

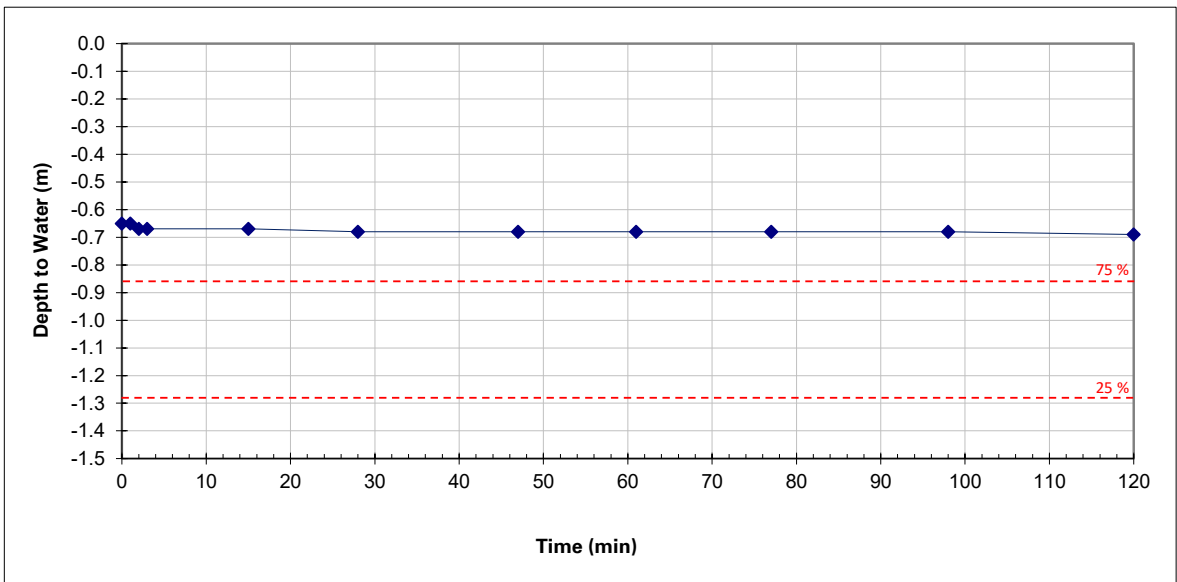
2

Width (m)

0.8

Depth (m)

2



Design Soakage Rate

1.4E-06

m/s

(based on linear portion of graph as shown)

0.12

m/day



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Trial Pit Soakage Results

Site Brownhill School SEN Hub

Client Rochdale Borough Council

Engineer Adept Consulting Engineers

Job Number

J25291

Sheet

2 / 4

Borehole No. SA01

Soakage Test No. 3

Length (m)

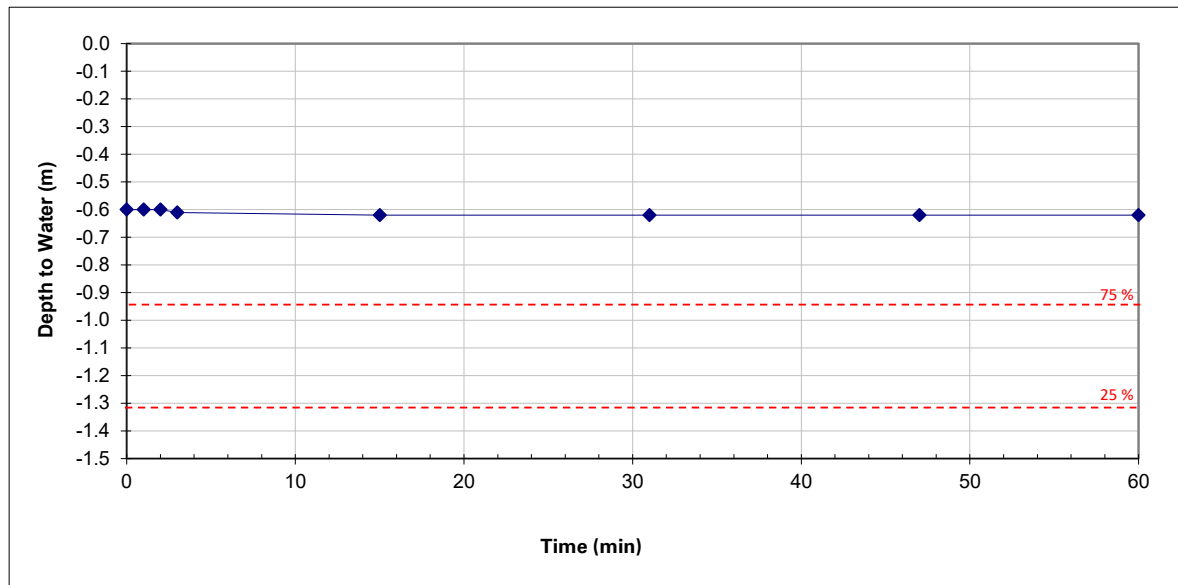
2

Width (m)

0.8

Depth (m)

1.5



Design Soakage Rate

1.4E-06

m/s

(based on linear portion of graph)

0.12

m/day



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Trial Pit Soakage Results

Site Brownhill School SEN Hub

Client Rochdale Borough Council

Engineer Adept Consulting Engineers

Job Number

J25291

Sheet

3 / 4

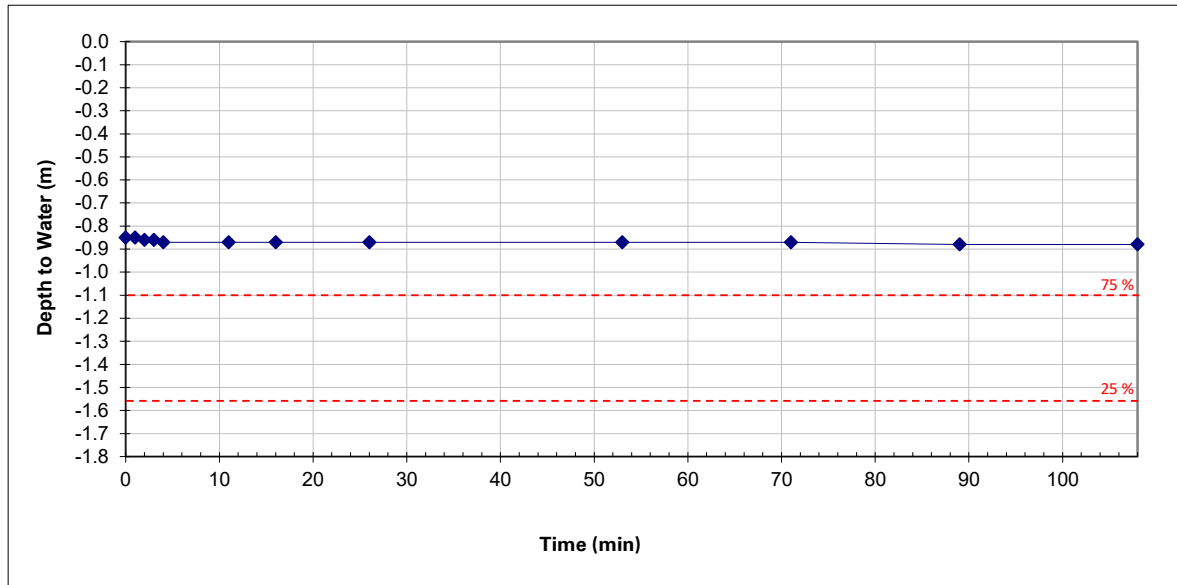
Borehole No. SA02

Soakage Test No. 1

Length (m) 2.1

Width (m) 0.8

Depth (m) 1.8



Design Soakage Rate

1.1E-06

m/s

(based on linear portion of graph)

0.09

m/day

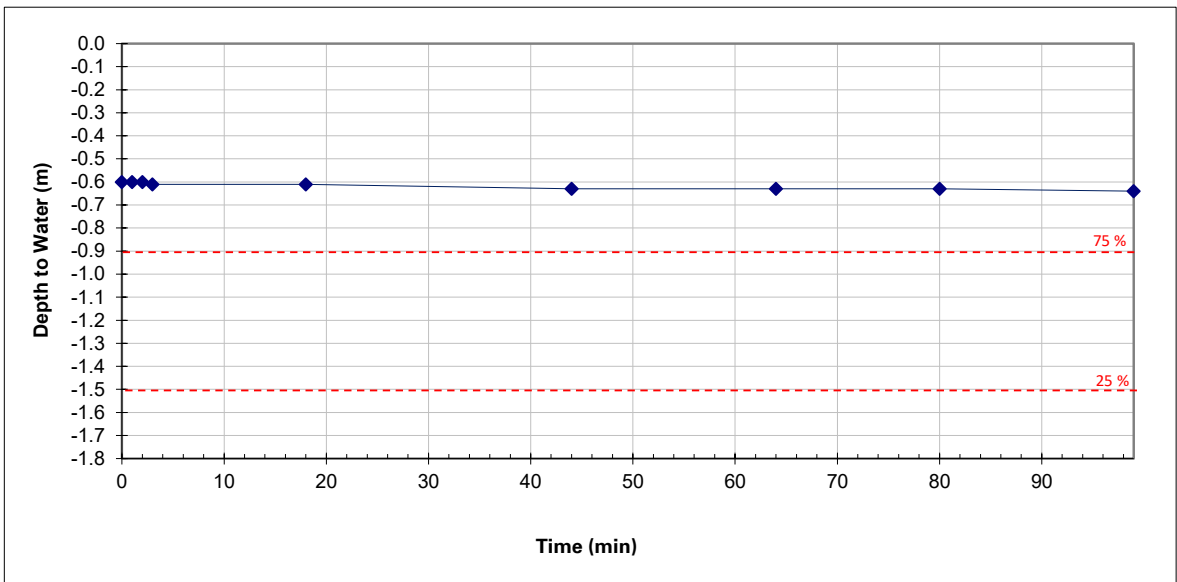
Borehole No. SA02

Soakage Test No. 2

Length (m) 2.1

Width (m) 0.8

Depth (m) 2



Design Soakage Rate

1.3E-06

m/s

(based on linear portion of graph as shown)

0.11

m/day



Trial Pit Soakage Results

Site Brownhill School SEN Hub

Client Rochdale Borough Council

Engineer Adept Consulting Engineers

Job Number

J25291

Sheet

4 / 4

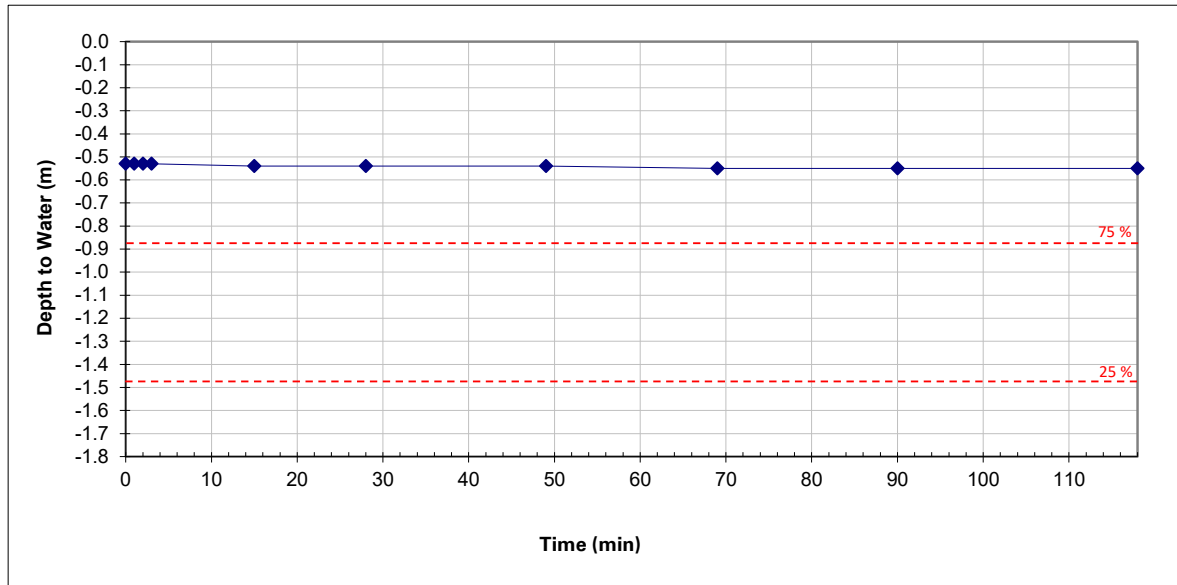
Borehole No. SA02

Soakage Test No. 3

Length (m) 2.1

Width (m) 0.8

Depth (m) 1.8



Design Soakage Rate

5.3E-07

m/s

(based on linear portion of graph)

0.05

m/day



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Insitu DCP Test Results

Site	Brownhill School SEN Hub, Rochdale	Job Number	J25291
Client	Rochdale Borough Council	Sheet	1 / 10
Engineer	Adept Consulting Engineers		

Co-Ordinates
E: 390795 N: 414126

Ground Level (m OD)
127.90

CBR01

Blows No.	Penetration mm	Equivalent CBR %	Blows No.	Penetration mm	Equivalent CBR %	Blows No.	Penetration mm	Equivalent CBR %
0	47	-	28	168	119			
1	72	8	33	180	108			
2	92	10	38	197	73			
3	100	28	43	205	170			
4	102	133	48	215	133			
5	105	84	Testing stopped due to lack of penetration					
6	110	48						
7	113	84						
8	115	133						
13	129	91						
18	141	108						
23	157	78						

Results for hand held Dynamic Cone Penetrometer (DCP) test carried out from ground level.
Significant variability in the results with depth indicates inconsistent ground conditions and an unreliable CBR value



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Insitu DCP Test Results

Site	Brownhill School SEN Hub, Rochdale	Job Number	J25291
Client	Rochdale Borough Council	Sheet	2 / 10
Engineer	Adept Consulting Engineers		

Co-Ordinates
E: 390765 N: 414137

Ground Level (m OD)
128.20

CBR02

Blows No.	Penetration mm	Equivalent CBR %	Blows No.	Penetration mm	Equivalent CBR %	Blows No.	Penetration mm	Equivalent CBR %
0	109	-	28	331	91			
1	165	3	33	343	108			
2	210	4	38	356	99			
3	225	14	43	376	61			
4	236	20	48	395	65			
5	245	25	53	421	46			
6	253	28	58	460	29			
7	260	33	63	487	44			
8	262	133	68	503	78			
13	276	91	78	545	58			
18	295	65	88	564	141			
23	317	55	Test stopped due to weight bouncing					

Results for hand held Dynamic Cone Penetrometer (DCP) test carried out from ground level.
Significant variability in the results with depth indicates inconsistent ground conditions and an unreliable CBR value



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Insitu DCP Test Results

Site Brownhill School SEN Hub, Rochdale

Client Rochdale Borough Council

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
3 / 10

Co-Ordinates
E: 390780 N: 414106

Ground Level (m OD)
127.49

CBR03

Blows No.	Penetration mm	Equivalent CBR %	Blows No.	Penetration mm	Equivalent CBR %	Blows No.	Penetration mm	Equivalent CBR %
0	54	-	12	395	9	36	770	22
1	113	3	13	419	8	41	821	21
2	162	4	14	441	9	46	900	13
3	193	6	15	481	5	49	954	11
4	216	9	16	521	5			
5	234	11	17	560	5			
6	251	12	18	597	5			
7	263	18	19	612	14			
8	290	7	20	620	28			
9	317	7	21	630	22			
10	343	8	26	682	21			
11	372	7	31	720	30			

Results for hand held Dynamic Cone Penetrometer (DCP) test carried out from ground level.
Significant variability in the results with depth indicates inconsistent ground conditions and an unreliable CBR value



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Insitu DCP Test Results

Site	Brownhill School SEN Hub, Rochdale	Job Number J25291
Client	Rochdale Borough Council	Sheet 4 / 10
Engineer	Adept Consulting Engineers	

Co-Ordinates
E: 390743 N: 414125

Ground Level (m OD)
128.10

CBR04

Blows No.	Penetration mm	Equivalent CBR %	Blows No.	Penetration mm	Equivalent CBR %	Blows No.	Penetration mm	Equivalent CBR %
0	61	-						
1	145	2						
2	170	8						
3	183	16						
4	194	20						
5	201	33						
10	234	35						
15	251	73						
17	260	54						
Deflected and refused on suspected boulder								

Results for hand held Dynamic Cone Penetrometer (DCP) test carried out from ground level.
Significant variability in the results with depth indicates inconsistent ground conditions and an unreliable CBR value



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Insitu DCP Test Results

Site Brownhill School SEN Hub, Rochdale

Client Rochdale Borough Council

Engineer Adept Consulting Engineers

Job Number
J25291Sheet
5 / 10Co-Ordinates
E: 390739 N: 414088Ground Level (m OD)
127.42

CBR05

Blows No.	Penetration mm	Equivalent CBR %	Blows No.	Penetration mm	Equivalent CBR %	Blows No.	Penetration mm	Equivalent CBR %
0	71	-	34	525	6	50	800	5
1	134	3	35	546	10	51	819	11
2	167	6	36	568	9	52	841	9
3	187	10	37	588	10	53	862	10
4	200	16	38	605	12	54	888	8
5	210	22	39	611	39	55	890	133
6	220	22	40	615	61	56	915	8
13	265	36	45	684	15	57	935	10
18	281	78	46	704	10			
23	320	29	47	721	12			
28	389	15	48	745	8			
33	495	9	49	759	15			

Results for hand held Dynamic Cone Penetrometer (DCP) test carried out from ground level.
Significant variability in the results with depth indicates inconsistent ground conditions and an unreliable CBR value



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Insitu DCP Test Results

Site	Brownhill School SEN Hub, Rochdale	Job Number	J25291
Client	Rochdale Borough Council	Sheet	6 / 10
Engineer	Adept Consulting Engineers		

Co-Ordinates
E: 390763 N: 414207

Ground Level (m OD)
135.28

CBR06

Blows No.	Penetration mm	Equivalent CBR %	Blows No.	Penetration mm	Equivalent CBR %	Blows No.	Penetration mm	Equivalent CBR %
0	113	-	38	446	108			
1	205	2	48	460	198			
2	231	8	58	481	126			
3	250	11	Test stopped due to weight bouncing					
4	266	13						
5	319	3						
6	333	15						
7	343	22						
8	347	61						
13	370	52						
18	387	73						
28	422	71						

Results for hand held Dynamic Cone Penetrometer (DCP) test carried out from ground level.
Significant variability in the results with depth indicates inconsistent ground conditions and an unreliable CBR value



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Insitu DCP Test Results

Site	Brownhill School SEN Hub, Rochdale	Job Number	J25291
Client	Rochdale Borough Council	Sheet	7 / 10
Engineer	Adept Consulting Engineers		

Co-Ordinates
E: 390731 N: 414193

Ground Level (m OD)
135.40

CBR07

Blows No.	Penetration mm	Equivalent CBR %	Blows No.	Penetration mm	Equivalent CBR %	Blows No.	Penetration mm	Equivalent CBR %
0	96	-	12	406	15			
1	147	4	13	416	22			
2	191	4	18	475	18			
3	232	5	23	544	15			
4	262	6	28	623	13			
5	280	11	33	716	11			
6	293	16	38	775	18			
7	305	18	43	847	15			
8	317	18	48	947	10			
9	337	10						
10	365	7						
11	392	7						

Results for hand held Dynamic Cone Penetrometer (DCP) test carried out from ground level.
Significant variability in the results with depth indicates inconsistent ground conditions and an unreliable CBR value



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Insitu DCP Test Results

Site Brownhill School SEN Hub, Rochdale

Client Rochdale Borough Council

Engineer Adept Consulting Engineers

Job Number
J25291Sheet
8 / 10Co-Ordinates
E: 390760 N: 414174Ground Level (m OD)
134.80

CBR08

Blows No.	Penetration mm	Equivalent CBR %	Blows No.	Penetration mm	Equivalent CBR %	Blows No.	Penetration mm	Equivalent CBR %
0	43	-	12	396	28	80	778	30
1	112	3	13	404	28	85	808	39
2	195	2	18	441	31	90	835	44
3	222	7	23	463	55	95	865	39
4	240	11	28	508	25	100	894	40
5	262	9	33	580	15	105	925	37
6	287	8	38	617	31	110	950	48
7	310	9	43	640	52			
8	330	10	51	650	225			
9	352	9						
10	374	9	70	711	21			
11	388	15	75	740	40			

Results for hand held Dynamic Cone Penetrometer (DCP) test carried out from ground level.
Significant variability in the results with depth indicates inconsistent ground conditions and an unreliable CBR value



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Insitu DCP Test Results

Site	Brownhill School SEN Hub, Rochdale	Job Number	J25291
Client	Rochdale Borough Council	Sheet	9 / 10
Engineer	Adept Consulting Engineers		

Co-Ordinates
E: 390795 N: 414170

Ground Level (m OD)
133.90

CBR09

Blows No.	Penetration mm	Equivalent CBR %	Blows No.	Penetration mm	Equivalent CBR %	Blows No.	Penetration mm	Equivalent CBR %
0	95	-	12	375	10			
1	200	2	13	396	10			
2	220	10	14	420	8			
3	235	14	15	450	6			
4	244	25	16	472	9			
5	254	22	21	666	5			
6	267	16	26	785	8			
7	283	13	31	954	6			
8	300	12						
9	317	12						
10	335	11						
11	355	10						

Results for hand held Dynamic Cone Penetrometer (DCP) test carried out from ground level.
Significant variability in the results with depth indicates inconsistent ground conditions and an unreliable CBR value



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Insitu DCP Test Results

Site	Brownhill School SEN Hub, Rochdale	Job Number	J25291
Client	Rochdale Borough Council	Sheet	10 / 10
Engineer	Adept Consulting Engineers		

Co-Ordinates
E: 390739 N: 414156

Ground Level (m OD)
134.50

CBR10

Blows No.	Penetration mm	Equivalent CBR %	Blows No.	Penetration mm	Equivalent CBR %	Blows No.	Penetration mm	Equivalent CBR %
0	44	-	34	370	259			
1	144	2	44	385	183			
2	162	11	Test stopped due to weight bouncing					
3	186	8						
4	236	4						
5	266	6						
6	300	6						
7	331	6						
8	339	28						
9	340	288						
14	345	288						
24	359	198						

Results for hand held Dynamic Cone Penetrometer (DCP) test carried out from ground level.
Significant variability in the results with depth indicates inconsistent ground conditions and an unreliable CBR value



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Gas Monitoring Results

Site	Brownhill School SEN Hub, Rochdale			Job Number
				J25291
				Sheet 1 / 12
Client	Rochdale Borough Council			
Engineer	Adept Consulting Engineers			
Date	19/11/2025			
Visit No	1			
Borehole No	BH01	BH03	BH04	
Barometric Pressure (mB)	995	995	997	
Air Temperature °C	4	4	5	
Standpipe Depth (m)	1.20	4.74	3.38	
Condition of Standpipe	Good	Good	Good	
Combustible gas (CH4) % LEL	>	54.00	>	
Combustible gas (CH4) % vol	0.00	2.30	0.00	
Carbon Dioxide (CO2) % vol	0.00	4.30	3.20	
Oxygen (O2) % vol	17.50	0.50	11.90	
Carbon Monoxide (ppm)	0.00	10.00	10.00	
Hydrogen Sulphide (H2S) (ppm)	0.00	0.00	0.00	
Flow Rate (max) l/hr	0.00	0.00	0.00	
Relative Downhole Pressure (mb)	0.00	0.00	0.00	
Water Level (m)	0.68	DRY	2.00	
Remarks	Purged three times well volume	Purged dry	Purged dry	



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Gas Monitoring Results

Site	Brownhill School SEN Hub, Rochdale			Job Number
Client	Rochdale Borough Council			J25291
Engineer	Adept Consulting Engineers			Sheet
				2 / 12
Date	19/11/2025			
Visit No	1			
Borehole No	BH11			
Barometric Pressure (mB)	996			
Air Temperature °C	5			
Standpipe Depth (m)	4.68			
Condition of Standpipe	Good			
Combustible gas (CH4) % LEL	>100			
Combustible gas (CH4) % vol	23.30			
Carbon Dioxide (CO2) % vol	8.20			
Oxygen (O2) % vol	1.60			
Carbon Monoxide (ppm)	10.00			
Hydrogen Sulphide (H2S) (ppm)	2.50			
Flow Rate (max) l/hr	0.10			
Relative Downhole Pressure (mb)	0.00			
Water Level (m)	DRY			
Remarks	Purged dry			



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Gas Monitoring Results

Site	Brownhill School SEN Hub, Rochdale			Job Number
				J25291
				Sheet
Client	Rochdale Borough Council			3 / 12
Engineer	Adept Consulting Engineers			
Date	05/12/2025			
Visit No	2			
Borehole No	BH01	BH03	BH04	
Barometric Pressure (mB)	983	982	984	
Air Temperature °C	7	8	6	
Standpipe Depth (m)	1.20	4.74	3.33	
Condition of Standpipe	Good	Good	Good	
Combustible gas (CH4) % LEL	0.00	27.60	0.00	
Combustible gas (CH4) % vol	0.00	1.20	0.00	
Carbon Dioxide (CO2) % vol	0.50	3.20	2.30	
Oxygen (O2) % vol	20.10	3.70	16.00	
Carbon Monoxide (ppm)	0.00	0.00	0.00	
Hydrogen Sulphide (H2S) (ppm)	0.00	0.00	0.00	
Flow Rate (max) l/hr	0.00	0.00	0.00	
Relative Downhole Pressure (mb)	0.00	0.00	0.00	
Water Level (m)	0.45	3.47	0.65	
Remarks	PID meter - 0.00 ppm	PID meter - 0.00 ppm	PID meter - 0.00 ppm	



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Gas Monitoring Results

Site	Brownhill School SEN Hub, Rochdale			Job Number
Client	Rochdale Borough Council			J25291
Engineer	Adept Consulting Engineers			Sheet
				4 / 12
Date	05/12/2025			
Visit No	2			
Borehole No	BH11			
Barometric Pressure (mB)	982			
Air Temperature °C	7			
Standpipe Depth (m)	4.54			
Condition of Standpipe	Good			
Combustible gas (CH4) % LEL	>100			
Combustible gas (CH4) % vol	24.30			
Carbon Dioxide (CO2) % vol	16.60			
Oxygen (O2) % vol	0.00			
Carbon Monoxide (ppm)	0.00			
Hydrogen Sulphide (H2S) (ppm)	0.00			
Flow Rate (max) l/hr	0.00			
Relative Downhole Pressure (mb)	0.00			
Water Level (m)	4.06			
Remarks	PID meter - 0.00 ppm			



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Gas Monitoring Results

Site Brownhill School SEN Hub, Rochdale		Job Number J25291	
		Client Rochdale Borough Council	
		Engineer Adept Consulting Engineers	
Date 16/12/2025		Sheet 5 / 12	
Visit No 3			
Borehole No	BH01	BH03	BH04
Barometric Pressure (mB)	994	995	994
Air Temperature °C	6	7	5
Standpipe Depth (m)	1.25	4.74	3.33
Condition of Standpipe		Good	
Combustible gas (CH4) % LEL		54.00	
Combustible gas (CH4) % vol		2.30	
Carbon Dioxide (CO2) % vol		4.30	
Oxygen (O2) % vol		0.50	
Carbon Monoxide (ppm)		10.00	
Hydrogen Sulphide (H2S) (ppm)		0.00	
Flow Rate (max) l/hr		0.00	
Relative Downhole Pressure (mb)		0.00	
Water Level (m)	0.32	3.52	0.67
Remarks	Position flooded	Occasional spikes of methane, the highest being 1.0 ppm PID meter - 0.00 ppm	Position flooded



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Gas Monitoring Results

Site	Brownhill School SEN Hub, Rochdale			Job Number
Client	Rochdale Borough Council			J25291
Engineer	Adept Consulting Engineers			Sheet
				6 / 12
Date	16/12/2025			
Visit No	3			
Borehole No	BH11			
Barometric Pressure (mB)	995			
Air Temperature °C	7			
Standpipe Depth (m)	4.54			
Condition of Standpipe	Good			
Combustible gas (CH4) % LEL	0.00			
Combustible gas (CH4) % vol	0.00			
Carbon Dioxide (CO2) % vol	0.10			
Oxygen (O2) % vol	20.20			
Carbon Monoxide (ppm)	0.00			
Hydrogen Sulphide (H2S) (ppm)	0.00			
Flow Rate (max) l/hr	0.00			
Relative Downhole Pressure (mb)	0.00			
Water Level (m)	3.94			
Remarks	PID meter - 0.00 ppm			



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Gas Monitoring Results

Site Brownhill School SEN Hub, Rochdale		Job Number J25291	
		Client Rochdale Borough Council	
		Engineer Adept Consulting Engineers	
Date 12/01/2026		Sheet 7 / 12	
Visit No 4			
Borehole No	BH01	BH03	BH04
Barometric Pressure (mB)	995	992	994
Air Temperature °C	5	5	5
Standpipe Depth (m)	1.24	4.65	3.33
Condition of Standpipe	Good	Good	Good
Combustible gas (CH4) % LEL	0.00	0.00	0.00
Combustible gas (CH4) % vol	0.00	0.00	0.00
Carbon Dioxide (CO2) % vol	0.10	2.30	2.70
Oxygen (O2) % vol	21.10	9.70	15.10
Carbon Monoxide (ppm)	0.00	0.00	0.00
Hydrogen Sulphide (H2S) (ppm)	0.00	0.00	0.00
Flow Rate (max) l/hr	0.00	0.00	0.00
Relative Downhole Pressure (mb)	0.00	0.00	0.00
Water Level (m)	0.48	3.49	0.69
Remarks			



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Gas Monitoring Results

Site	Brownhill School SEN Hub, Rochdale			Job Number
Client	Rochdale Borough Council			J25291
Engineer	Adept Consulting Engineers			Sheet
				8 / 12
Date	12/01/2026			
Visit No	4			
Borehole No	BH11			
Barometric Pressure (mB)	992			
Air Temperature °C	5			
Standpipe Depth (m)	4.48			
Condition of Standpipe	Good			
Combustible gas (CH4) % LEL	0.00			
Combustible gas (CH4) % vol	0.00			
Carbon Dioxide (CO2) % vol	1.40			
Oxygen (O2) % vol	19.70			
Carbon Monoxide (ppm)	0.00			
Hydrogen Sulphide (H2S) (ppm)	25.00			
Flow Rate (max) l/hr	0.00			
Relative Downhole Pressure (mb)	0.00			
Water Level (m)	4.15			
Remarks				



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Gas Monitoring Results

Site	Brownhill School SEN Hub, Rochdale			Job Number
				J25291
				Sheet
Client	Rochdale Borough Council			9 / 12
Engineer	Adept Consulting Engineers			
Date	17/02/2026			
Visit No	5			
Borehole No	BH01	BH03	BH04	
Barometric Pressure (mB)	998	997	999	
Air Temperature °C	7	8	6	
Standpipe Depth (m)	1.26	4.70	3.40	
Condition of Standpipe	Good	Good	Good	
Combustible gas (CH4) % LEL	0.00	0.00	0.00	
Combustible gas (CH4) % vol	0.00	0.00	0.00	
Carbon Dioxide (CO2) % vol	0.20	0.00	1.20	
Oxygen (O2) % vol	20.90	21.10	17.60	
Carbon Monoxide (ppm)	0.00	0.00	0.00	
Hydrogen Sulphide (H2S) (ppm)	0.00	0.00	0.00	
Flow Rate (max) l/hr	0.00	0.00	0.00	
Relative Downhole Pressure (mb)	0.00	0.00	0.00	
Water Level (m)	0.46	3.49	0.70	
Remarks				



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Gas Monitoring Results

Site	Brownhill School SEN Hub, Rochdale			Job Number
Client	Rochdale Borough Council			J25291
Engineer	Adept Consulting Engineers			Sheet
				10 / 12
Date	17/02/2026			
Visit No	5			
Borehole No	BH11			
Barometric Pressure (mB)	998			
Air Temperature °C	7			
Standpipe Depth (m)	4.71			
Condition of Standpipe	Good			
Combustible gas (CH4) % LEL	0.00			
Combustible gas (CH4) % vol	0.00			
Carbon Dioxide (CO2) % vol	0.00			
Oxygen (O2) % vol	21.10			
Carbon Monoxide (ppm)	0.00			
Hydrogen Sulphide (H2S) (ppm)	0.00			
Flow Rate (max) l/hr	-0.40			
Relative Downhole Pressure (mb)	-3.00			
Water Level (m)	4.06			
Remarks				



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Gas Monitoring Results

Site	Brownhill School SEN Hub, Rochdale			Job Number
				J25291
				Sheet
Client	Rochdale Borough Council			11 / 12
Engineer	Adept Consulting Engineers			
Date	06/03/2026			
Visit No	6			
Borehole No	BH01	BH03	BH04	
Barometric Pressure (mB)	1006	1003	1005	
Air Temperature °C	12	12	12	
Standpipe Depth (m)	1.26	4.58	3.3	
Condition of Standpipe	Good	Good	Good	
Combustible gas (CH4) % LEL	0.00	0.00	0.00	
Combustible gas (CH4) % vol	0.00	0.00	0.00	
Carbon Dioxide (CO2) % vol	0.30	0.50	1.30	
Oxygen (O2) % vol	21.10	17.50	13.10	
Carbon Monoxide (ppm)	0.00	0.00	0.00	
Hydrogen Sulphide (H2S) (ppm)	0.00	0.00	0.00	
Flow Rate (max) l/hr	0.00	0.00	0.00	
Relative Downhole Pressure (mb)	0.00	0.00	0.00	
Water Level (m)	0.46	3.47	0.36	
Remarks				



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Gas Monitoring Results

Site	Brownhill School SEN Hub, Rochdale			Job Number
Client	Rochdale Borough Council			J25291
Engineer	Adept Consulting Engineers			Sheet
				12 / 12
Date	06/03/2026			
Visit No	6			
Borehole No	BH11			
Barometric Pressure (mB)	1004			
Air Temperature °C	12			
Standpipe Depth (m)	4.58			
Condition of Standpipe	Good			
Combustible gas (CH4) % LEL	0.00			
Combustible gas (CH4) % vol	0.00			
Carbon Dioxide (CO2) % vol	0.40			
Oxygen (O2) % vol	19.60			
Carbon Monoxide (ppm)	0.00			
Hydrogen Sulphide (H2S) (ppm)	0.00			
Flow Rate (max) l/hr	0.00			
Relative Downhole Pressure (mb)	0.00			
Water Level (m)	4.26			
Remarks				



appendix b

Lab Testing

Geotechnical Test Results
SPT / Depth Graph
Chemical Test Results
Generic Risk Based Screening Values
Generic Risk Based Groundwater Screening Values

TEST REPORT

Client GEA Geotechnical & Environmental Associates

Address Peter House
Oxford Street
Manchester
M1 5AN

Contract J25291 -
Brownhill School SEN Hub

Job Number MRN 25044/19
Date of Issue 03 November 2025
Page 1 of 27

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870
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TEST CERTIFICATE
PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

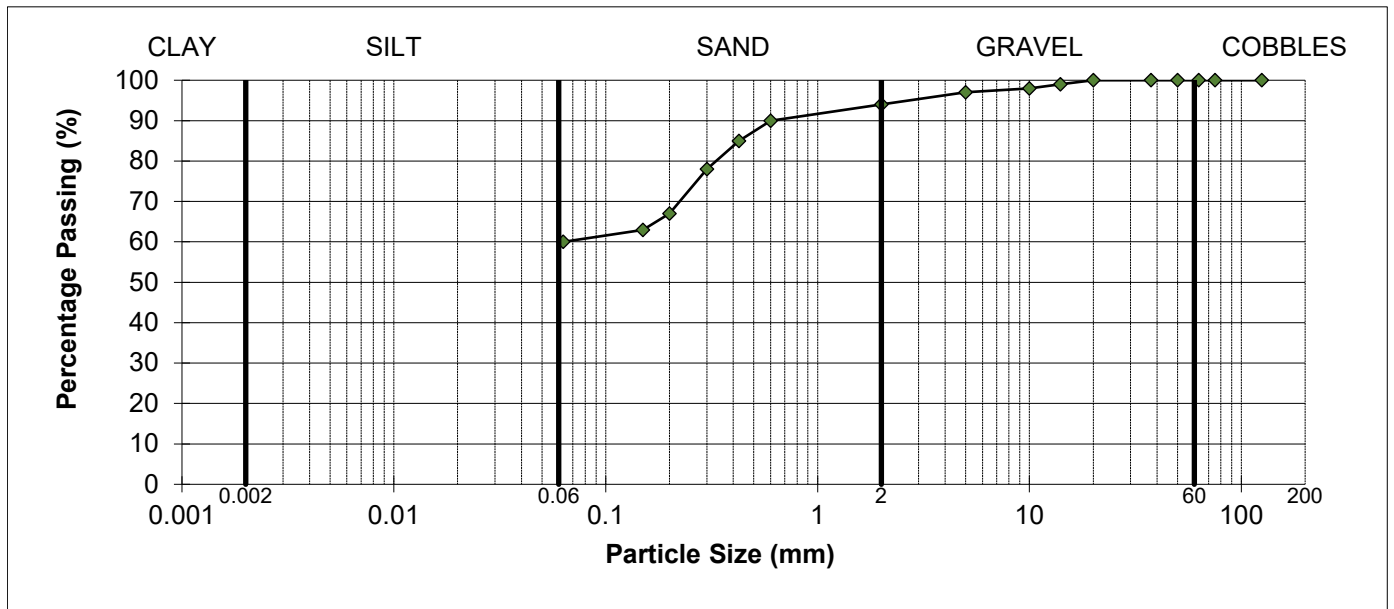
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	GEA Geotechnical & Environmental Associates
SITE	J25291 - Brownhill School SEN Hub
JOB NUMBER	MRN 25044/19

SAMPLE LABEL	BH01 3.0-3.45m B	DATE SAMPLED	Not advised
LAB SAMPLE No	5196558	DATE RECEIVED	14-Oct-25
DATE TESTED	22-Oct-25	SAMPLED BY	Client

MATERIAL	Brown silty sandy slightly gravelly CLAY
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		5	97	
75	100		2	94	
63	100		0.6	90	
50	100		0.425	85	
37.5	100		0.3	78	
20	100		0.2	67	
14	99		0.15	63	
10	98		0.063	60	



REMARKS

SIGNED



NAME

O.P. Davies BA (Hons)
(Director / Head of Laboratory)

DATE

03-Nov-25

TEST CERTIFICATE
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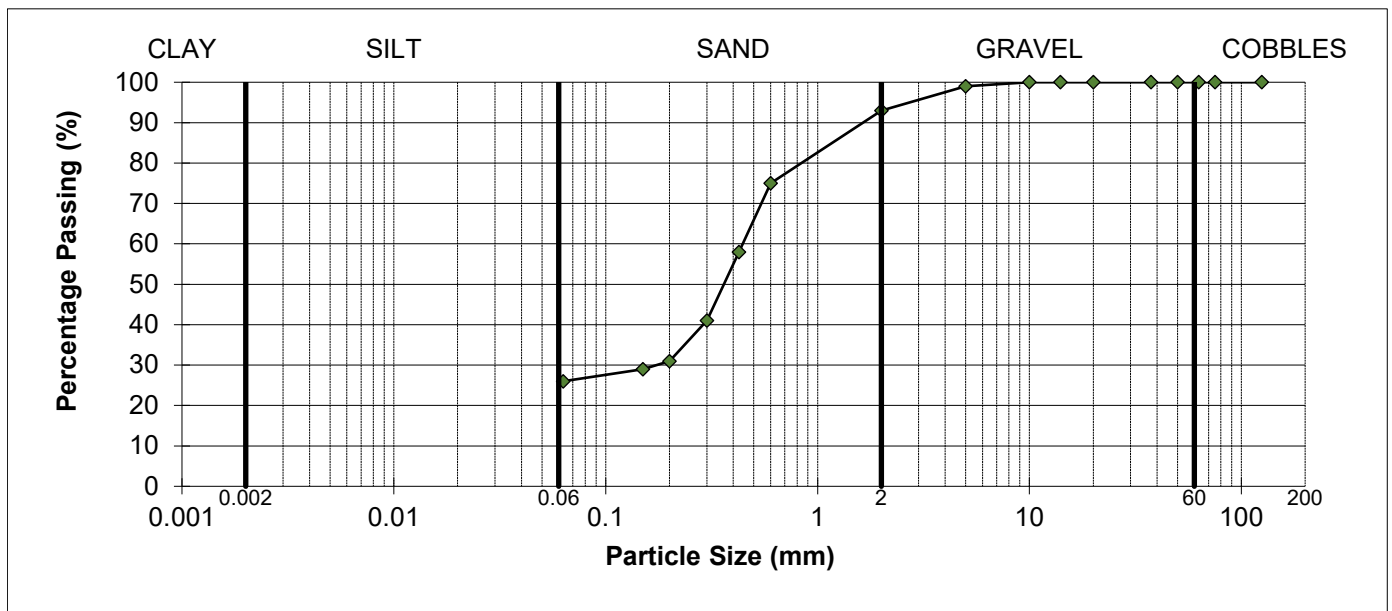
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	GEA Geotechnical & Environmental Associates		
SITE	J25291 - Brownhill School SEN Hub		
JOB NUMBER	MRN 25044/19		

SAMPLE LABEL	BH02 27.0-27.45m B	DATE SAMPLED	Not advised
LAB SAMPLE No	5196580	DATE RECEIVED	14-Oct-25
DATE TESTED	22-Oct-25	SAMPLED BY	Client

MATERIAL	Brown silty gravelly SAND
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		5	99	
75	100		2	93	
63	100		0.6	75	
50	100		0.425	58	
37.5	100		0.3	41	
20	100		0.2	31	
14	100		0.15	29	
10	100		0.063	26	



REMARKS

SIGNED



NAME

O.P. Davies BA (Hons)
(Director / Head of Laboratory)

DATE

03-Nov-25

TEST CERTIFICATE
PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

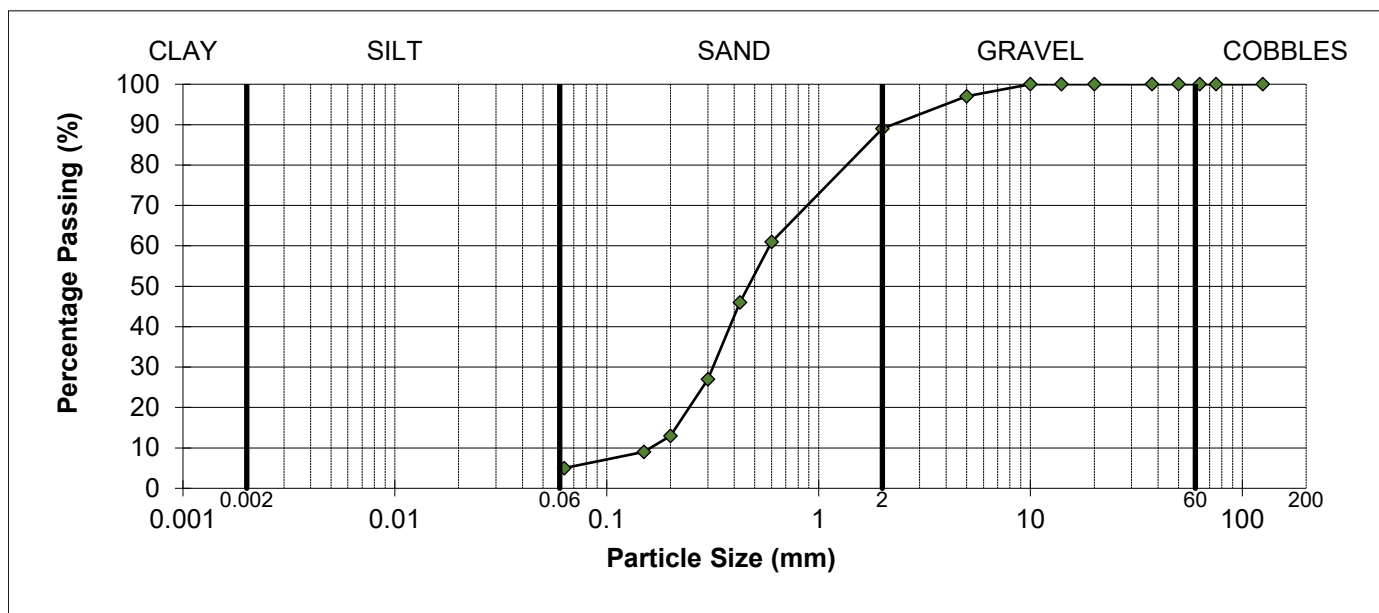
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	GEA Geotechnical & Environmental Associates
SITE	J25291 - Brownhill School SEN Hub
JOB NUMBER	MRN 25044/19

SAMPLE LABEL	BH02 30.5-31.0m B	DATE SAMPLED	Not advised
LAB SAMPLE No	5196583	DATE RECEIVED	14-Oct-25
DATE TESTED	22-Oct-25	SAMPLED BY	Client

MATERIAL	Brown silty very gravelly SAND
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		5	97	
75	100		2	89	
63	100		0.6	61	
50	100		0.425	46	
37.5	100		0.3	27	
20	100		0.2	13	
14	100		0.15	9	
10	100		0.063	5	



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NAME

O.P. Davies BA (Hons)
(Director / Head of Laboratory)

DATE

03-Nov-25

TEST CERTIFICATE
PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

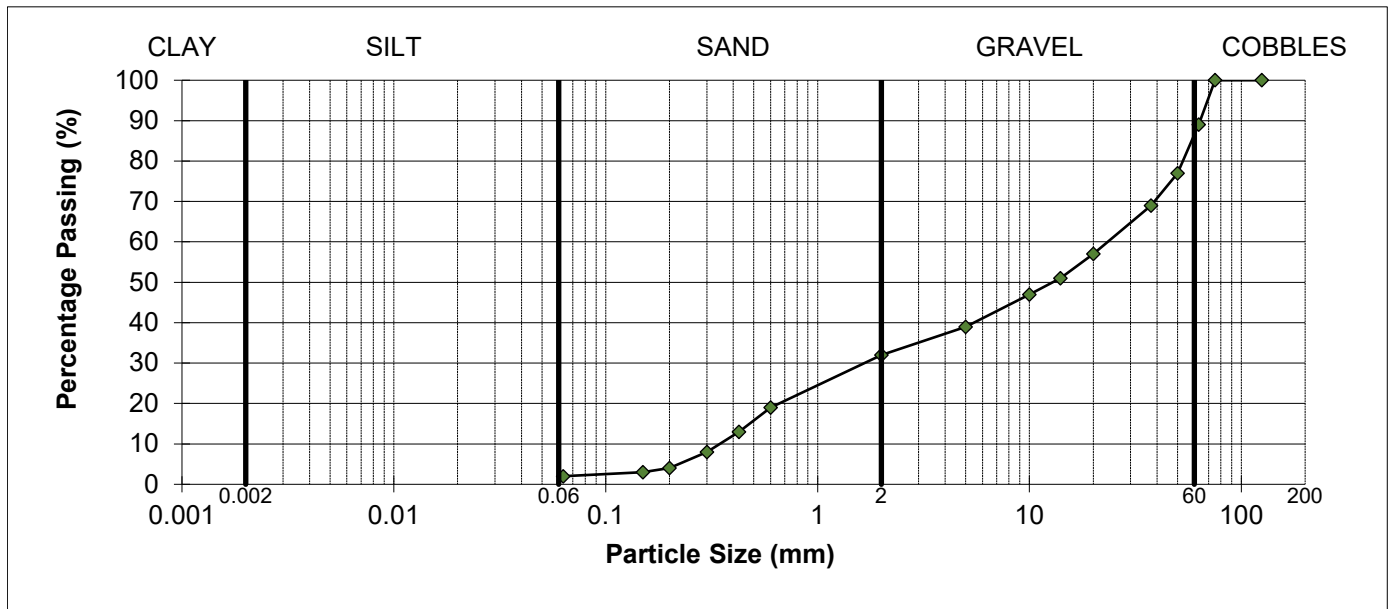
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	GEA Geotechnical & Environmental Associates
SITE	J25291 - Brownhill School SEN Hub
JOB NUMBER	MRN 25044/19

SAMPLE LABEL	BH02 34.5-34.95m B	DATE SAMPLED	Not advised
LAB SAMPLE No	5196586	DATE RECEIVED	14-Oct-25
DATE TESTED	22-Oct-25	SAMPLED BY	Client

MATERIAL	Brown slightly silty very sandy GRAVEL
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		5	39	
75	100		2	32	
63	89		0.6	19	
50	77		0.425	13	
37.5	69		0.3	8	
20	57		0.2	4	
14	51		0.15	3	
10	47		0.063	2	



REMARKS

SIGNED



NAME

O.P. Davies BA (Hons)
(Director / Head of Laboratory)

DATE

03-Nov-25

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

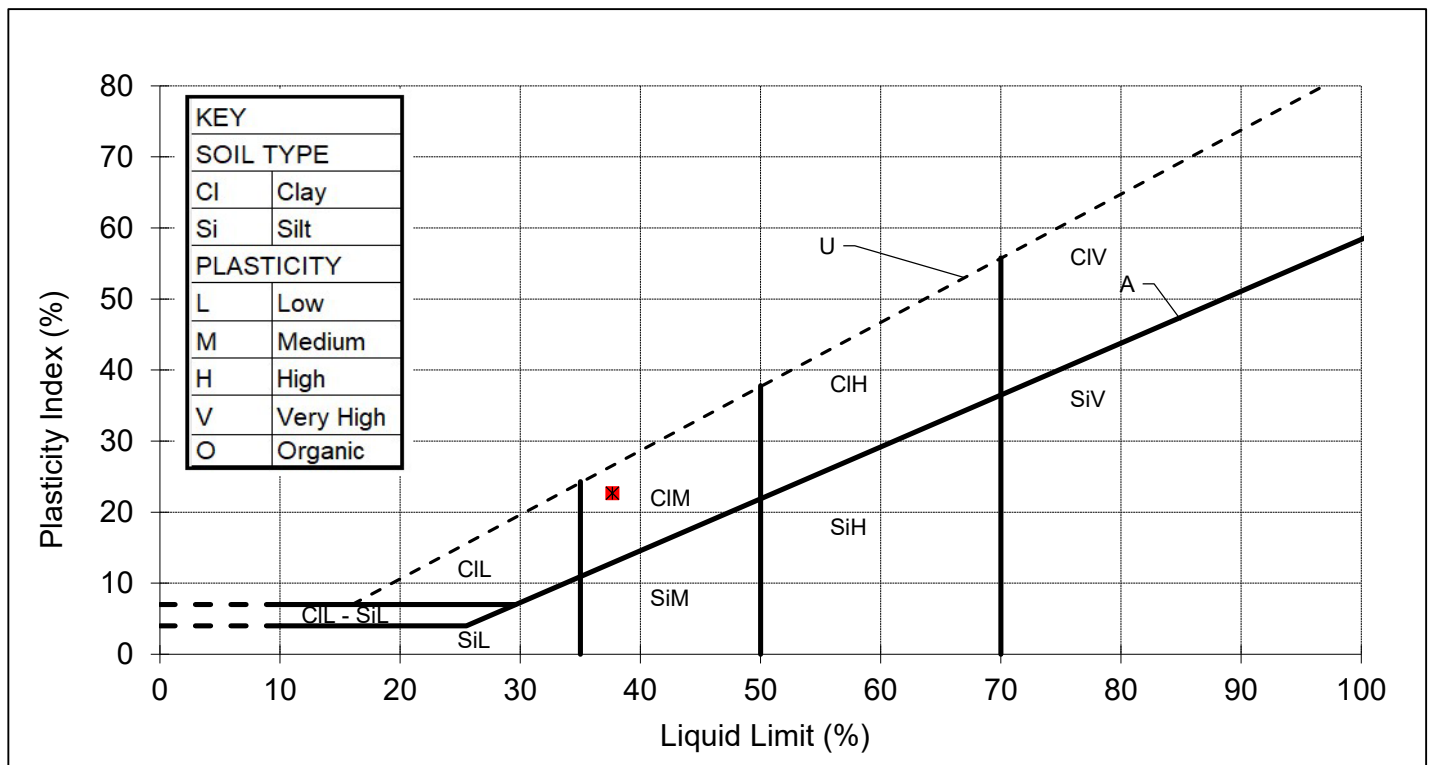
CLIENT	GEA Geotechnical & Environmental Associates		
SITE	J25291 - Brownhill School SEN Hub		
JOB NUMBER	MRN 25044/19		

SAMPLE LABEL	BH01 2.0-2.45m B	DATE SAMPLED	Not advised
SAMPLE No.	5196557	DATE RECEIVED	14-Oct-25
DATE TESTED	22-Oct-25	SAMPLED BY	Client

MATERIAL	Dark brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	20.5	37.9	0.991	
Determination 2 (avg)	20.6	38.1		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
29.0	38	15	23	86



REMARKS

SIGNED

NAME

O.P. Davies BA (Hons)
(Director / Head of Laboratory)

DATE

03-Nov-25

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

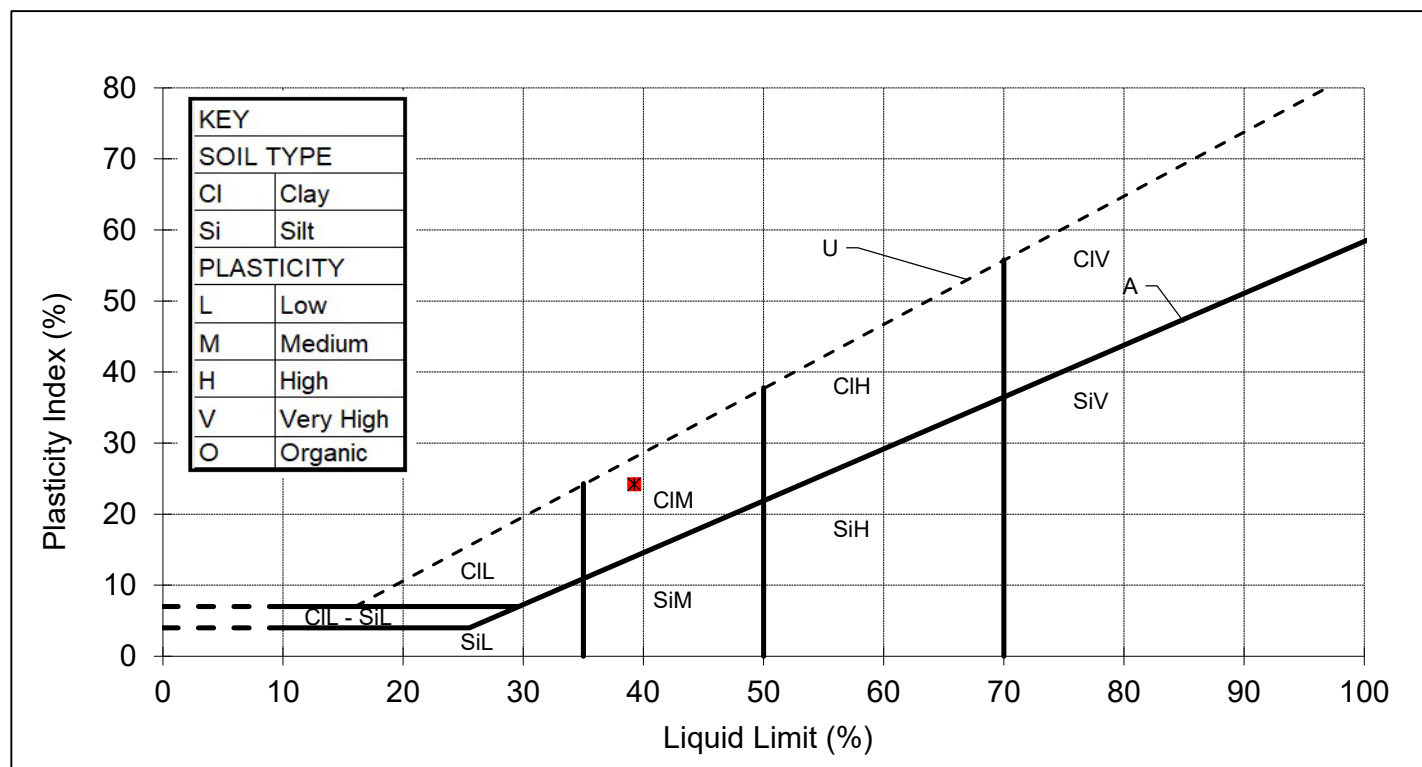
CLIENT	GEA Geotechnical & Environmental Associates		
SITE	J25291 - Brownhill School SEN Hub		
JOB NUMBER	MRN 25044/19		

SAMPLE LABEL	BH01 5.0-5.45m B	DATE SAMPLED	Not advised
SAMPLE No.	5196560	DATE RECEIVED	14-Oct-25
DATE TESTED	22-Oct-25	SAMPLED BY	Client

MATERIAL	Dark brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	19.5	38.8	1.011	
Determination 2 (avg)	19.4	38.8		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
35.9	39	15	24	92



REMARKS

SIGNED

NAME

O.P. Davies BA (Hons)
(Director / Head of Laboratory)

DATE

03-Nov-25

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TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

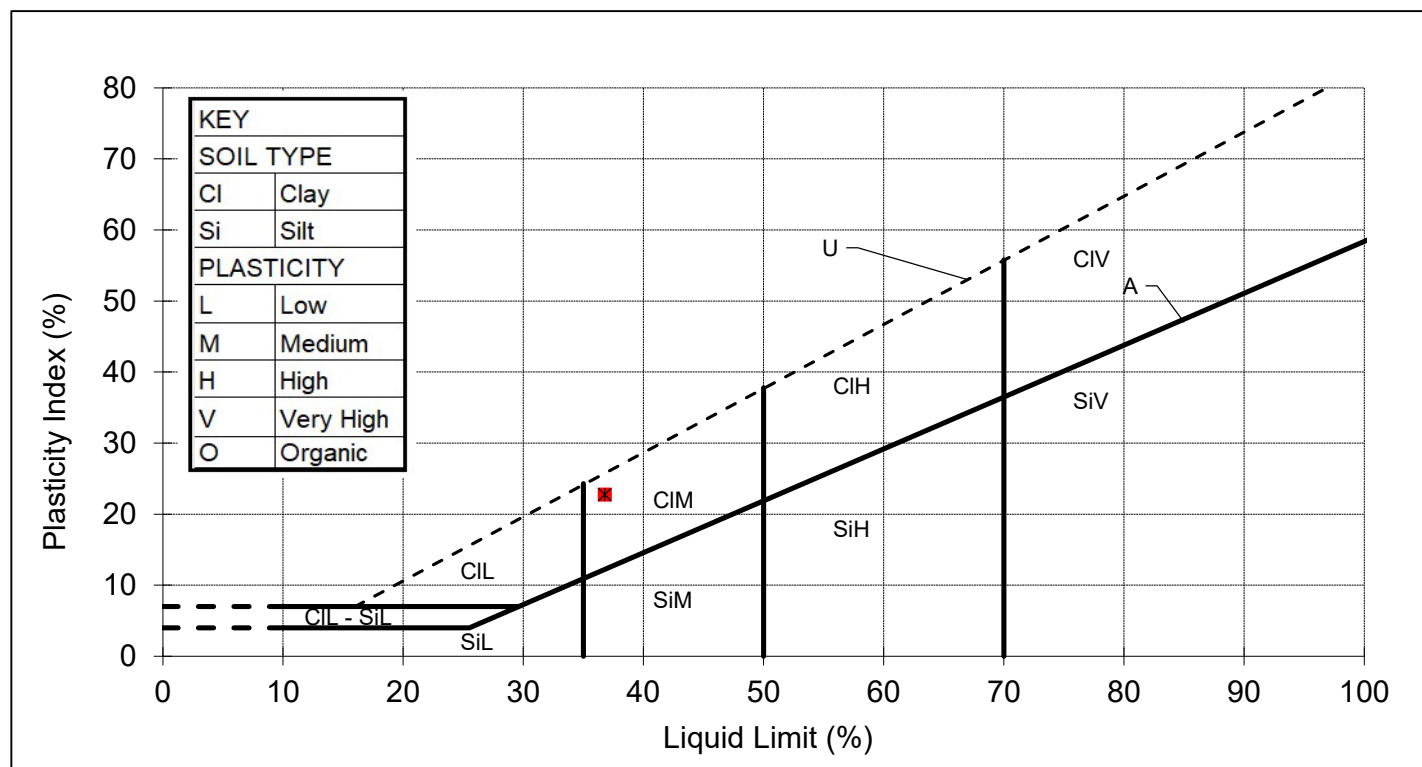
CLIENT	GEA Geotechnical & Environmental Associates
SITE	J25291 - Brownhill School SEN Hub
JOB NUMBER	MRN 25044/19

SAMPLE LABEL	BH01 12.45-12.7m D	DATE SAMPLED	Not advised
SAMPLE No.	5196517	DATE RECEIVED	14-Oct-25
DATE TESTED	22-Oct-25	SAMPLED BY	Client

MATERIAL	Dark brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)	Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	20.5	36.9	
Determination 2 (avg)	20.6	37.3	

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
15.5	37	14	23	87



REMARKS

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PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

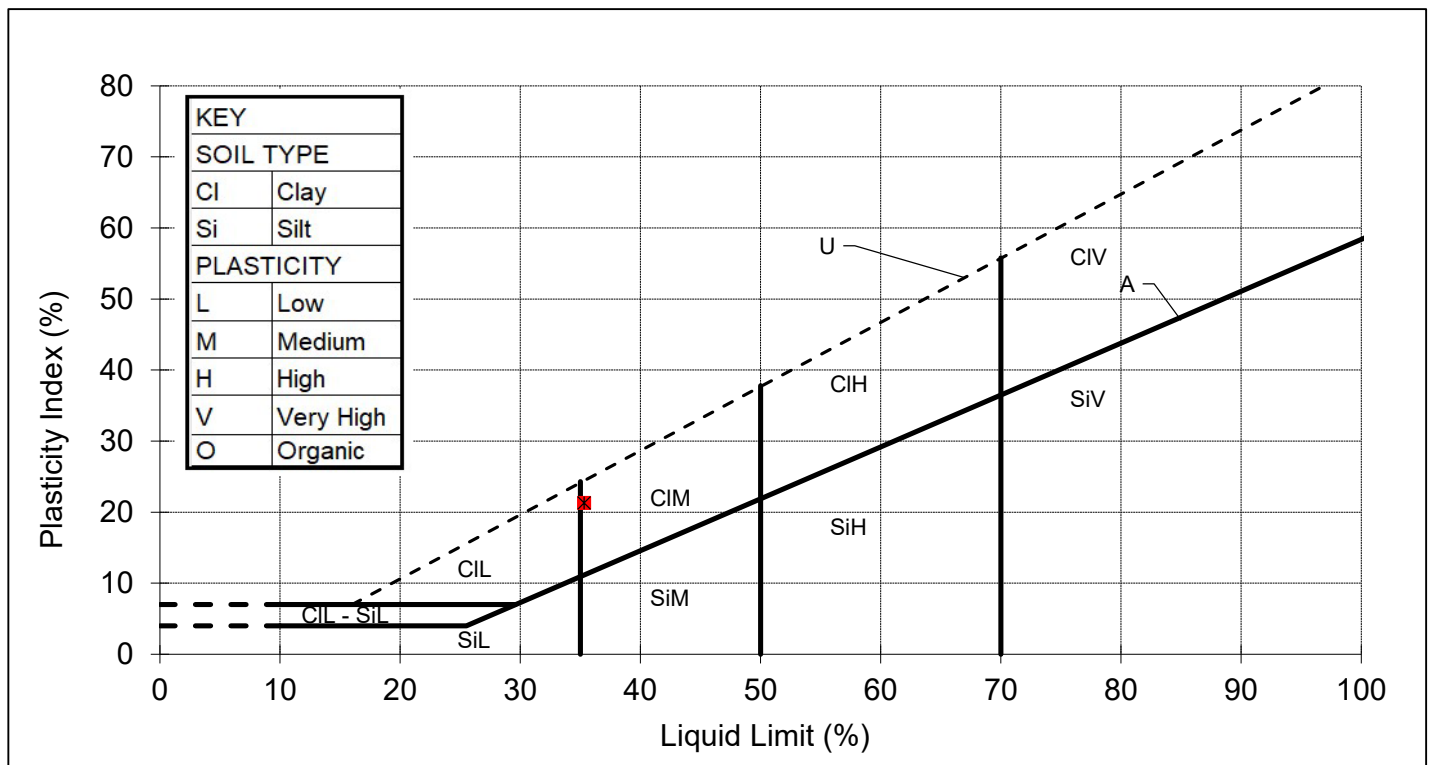
CLIENT	GEA Geotechnical & Environmental Associates		
SITE	J25291 - Brownhill School SEN Hub		
JOB NUMBER	MRN 25044/19		

SAMPLE LABEL	BH02 13.95-14.2m D	DATE SAMPLED	Not advised
SAMPLE No.	5196521	DATE RECEIVED	14-Oct-25
DATE TESTED	22-Oct-25	SAMPLED BY	Client

MATERIAL	Dark brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	20.8	35.7	0.988	
Determination 2 (avg)	20.7	35.8		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
14.0	35	14	21	76



REMARKS

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TEST CERTIFICATE

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PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

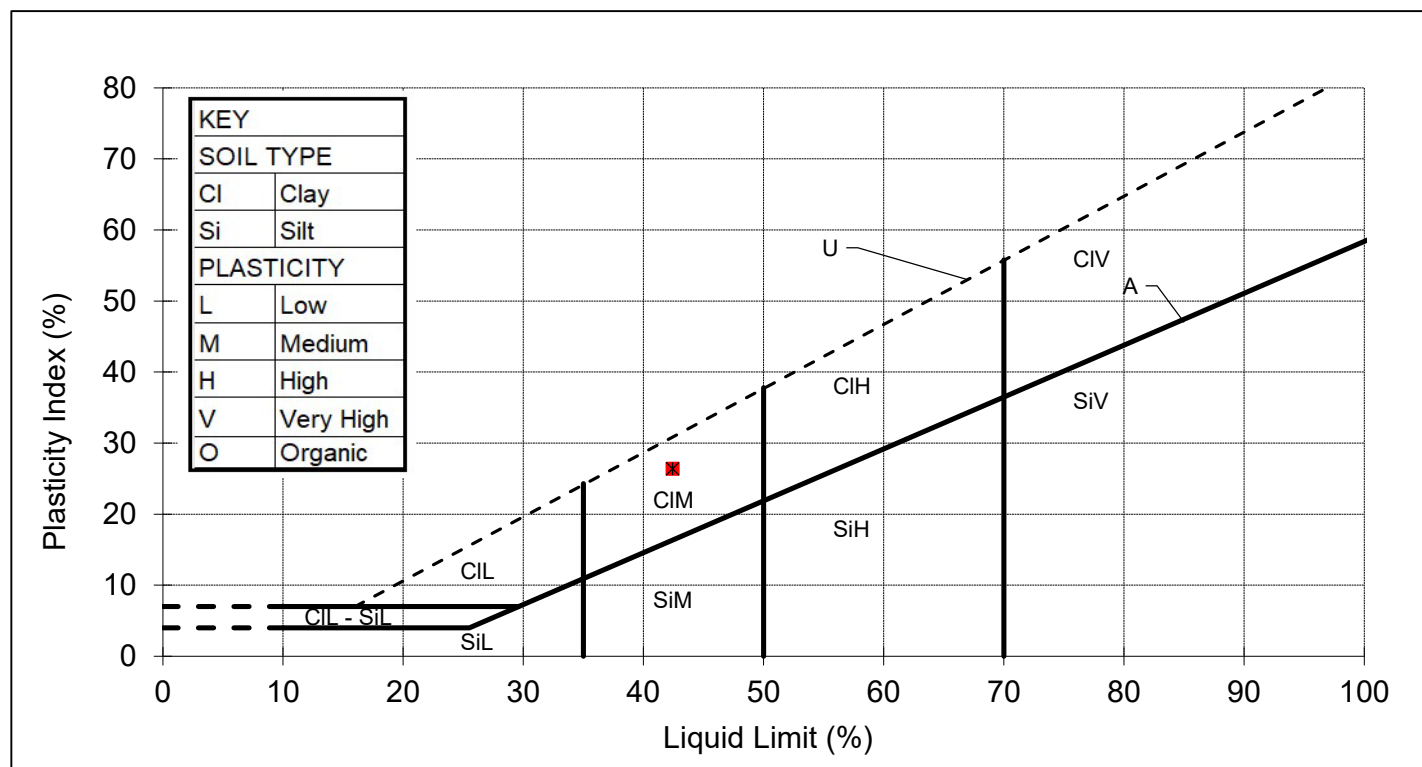
CLIENT	GEA Geotechnical & Environmental Associates
SITE	J25291 - Brownhill School SEN Hub
JOB NUMBER	MRN 25044/19

SAMPLE LABEL	BH02 29.1-30.0m B	DATE SAMPLED	Not advised
SAMPLE No.	5196582	DATE RECEIVED	14-Oct-25
DATE TESTED	22-Oct-25	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)	Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	19.5	42.1	
Determination 2 (avg)	19.4	41.8	

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
23.4	42	16	26	90



REMARKS

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PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

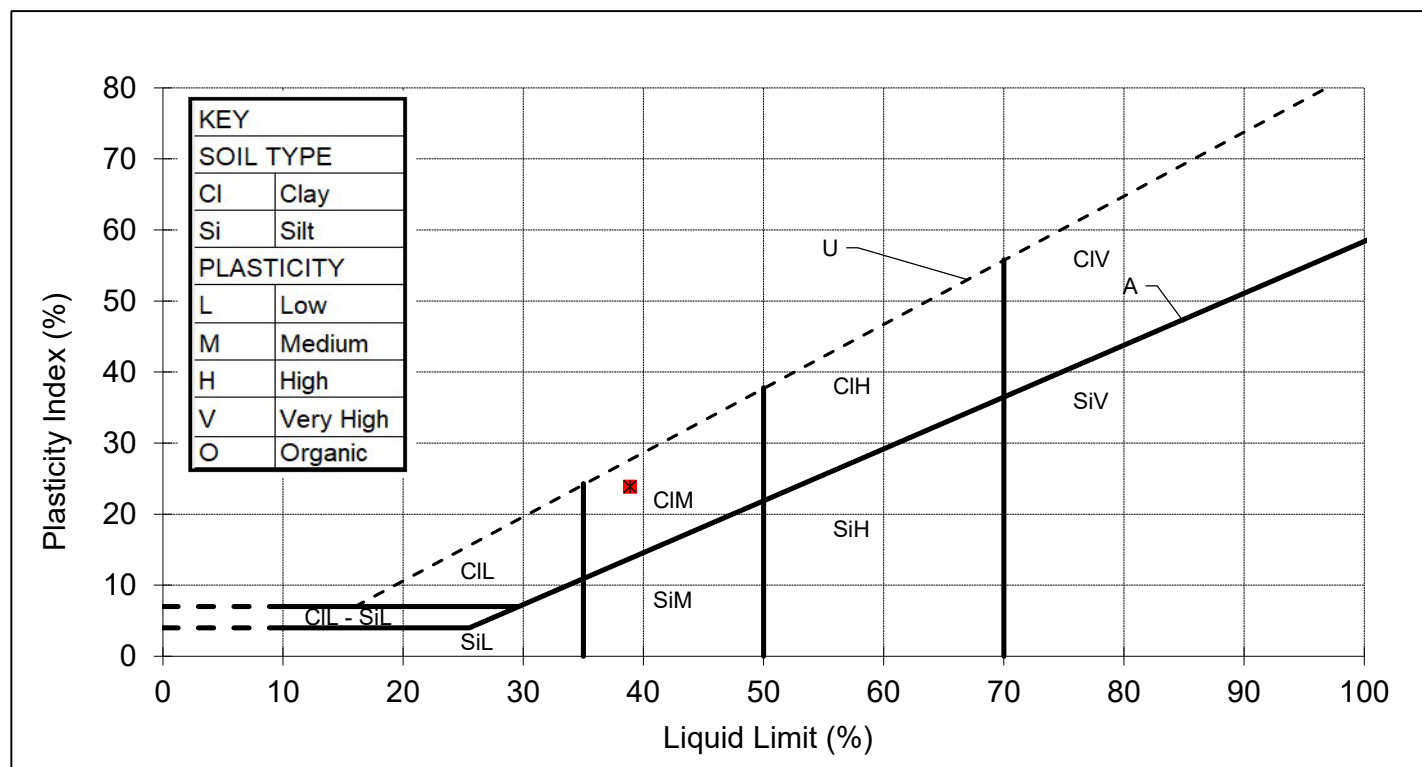
CLIENT	GEA Geotechnical & Environmental Associates
SITE	J25291 - Brownhill School SEN Hub
JOB NUMBER	MRN 25044/19

SAMPLE LABEL	BH03 4.0-5.0m B	DATE SAMPLED	Not advised
SAMPLE No.	5196592	DATE RECEIVED	14-Oct-25
DATE TESTED	22-Oct-25	SAMPLED BY	Client

MATERIAL	Dark brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)	Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	20.0	38.9	
Determination 2 (avg)	20.2	39.0	

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
30.7	39	15	24	87



REMARKS

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NAME

O.P. Davies BA (Hons)
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DATE

03-Nov-25

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TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

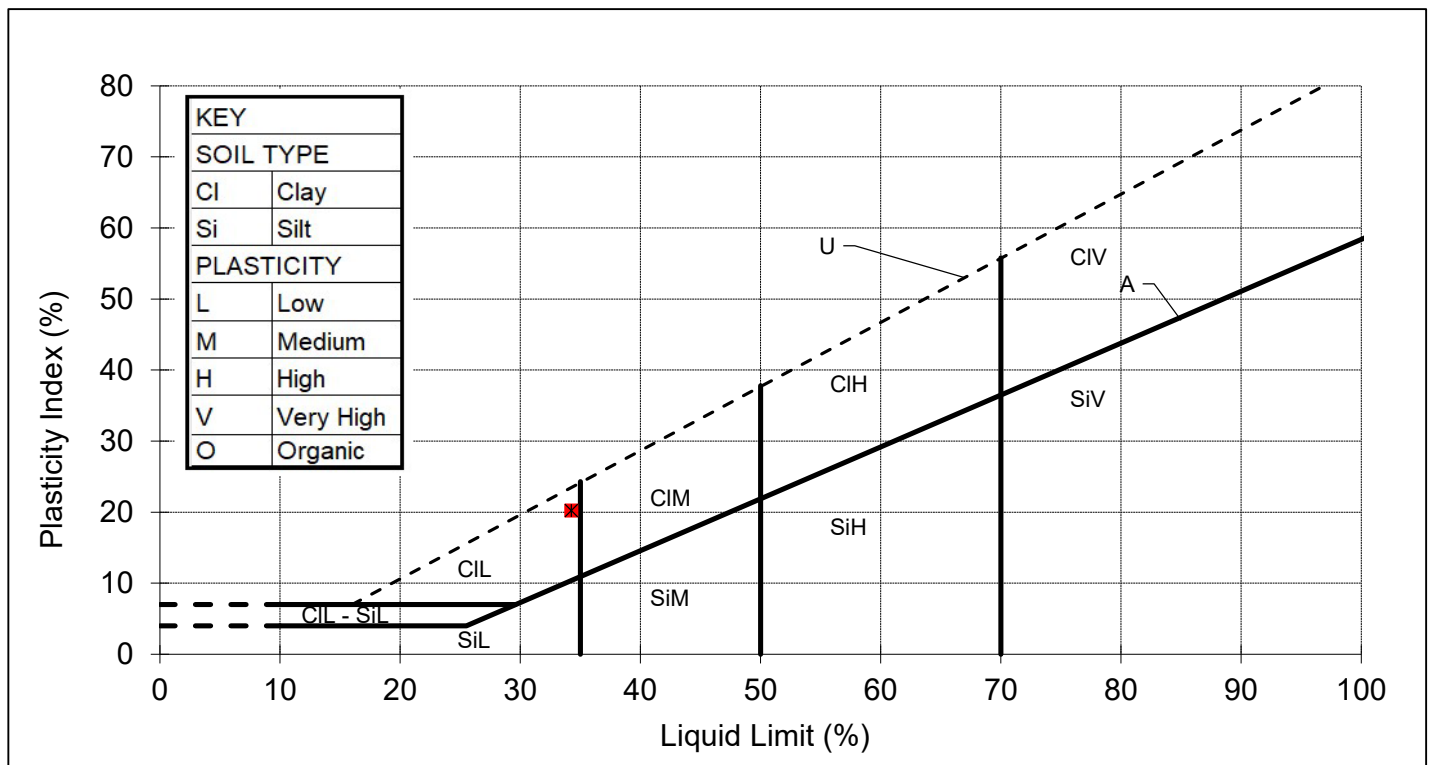
CLIENT	GEA Geotechnical & Environmental Associates		
SITE	J25291 - Brownhill School SEN Hub		
JOB NUMBER	MRN 25044/19		

SAMPLE LABEL	BH03 6.45-6.7m D	DATE SAMPLED	Not advised
SAMPLE No.	5196526	DATE RECEIVED	14-Oct-25
DATE TESTED	22-Oct-25	SAMPLED BY	Client

MATERIAL	Dark brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	19.4	33.9	1.011	
Determination 2 (avg)	19.2	33.9		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
14.6	34	14	20	92



REMARKS

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TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD
PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5
WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

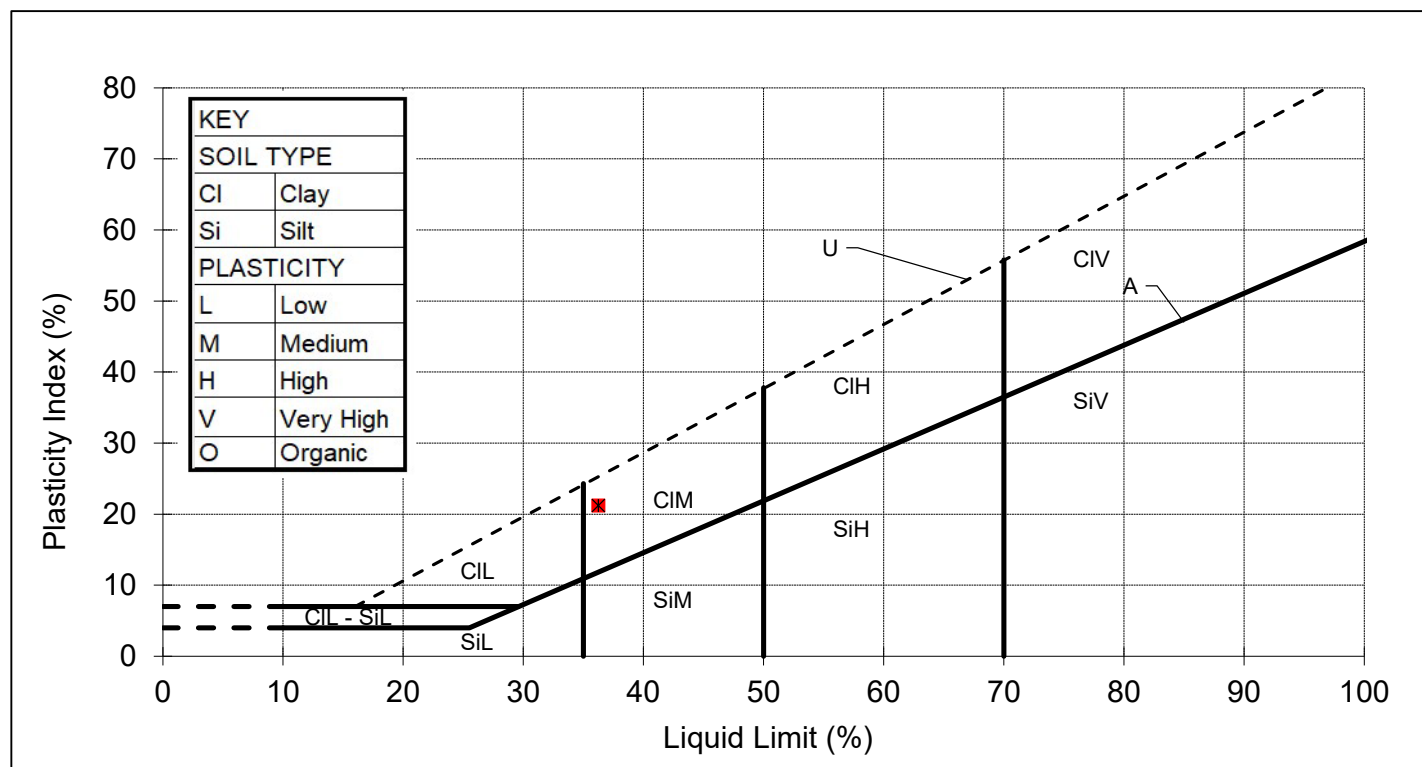
CLIENT	GEA Geotechnical & Environmental Associates
SITE	J25291 - Brownhill School SEN Hub
JOB NUMBER	MRN 25044/19

SAMPLE LABEL	BH03 10.0-10.5m B	DATE SAMPLED	Not advised
SAMPLE No.	5196597	DATE RECEIVED	14-Oct-25
DATE TESTED	22-Oct-25	SAMPLED BY	Client

MATERIAL	Dark brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)	Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	20.0	36.3	
Determination 2 (avg)	20.0	36.2	

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
17.6	36	15	21	87



REMARKS

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DATE

03-Nov-25

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TEST CERTIFICATE
DETERMINATION OF WATER-SOLUBLE SULPHATE IN SOIL
& DETERMINATION OF THE pH VALUE
BS 1377-3:2018+A1:2021, Cl. 7.3 & Cl. 12

CLIENT	GEA Geotechnical & Environmental Associates
SITE	J25291 - Brownhill School SEN Hub
JOB NUMBER	MRN 25044/19

DATE TESTED	01-May-25	DATE SAMPLED	Not advised
SAMPLED BY	Client	DATE RECEIVED	23, 28-Apr-25
PRE-TREATMENT	Air Dried	ADVISED SOURCE	Site Investigation Samples

Sample Number	Sample Label	Material	% Ret. 2mm	pH Value	Water Soluble Sulphate as SO ₄ (mg/l)
5196556	BH01 1.2-1.65m B	Dark brown silty slightly sandy slightly gravelly CLAY	13	7.6	130
5196501	BH01 6.0-6.45m U	Dark brown silty slightly sandy gravelly CLAY	36	7.2	110
5196503	BH01 12.0-12.45m U	Dark brown silty slightly sandy slightly gravelly CLAY	17	7.1	110
5196579	BH02 24.0-24.45m B	Brown silty slightly sandy slightly gravelly CLAY	24	7.0	150
5196581	BH02 28.5-28.95m B	Dark brown silty slightly sandy slightly gravelly CLAY	13	7.0	130
5196582	BH02 29.1-30.0m B	Brown silty slightly sandy slightly gravelly CLAY	8	6.9	80
5196593	BH03 5.0-5.45m B	Dark brown silty slightly sandy slightly gravelly CLAY	22	7.3	120
5196599	BH03 15.0-15.45m B	Dark brown silty slightly sandy slightly gravelly CLAY	19	7.2	60
5196585	BH02 33.0-33.45m B	Dark brown silty slightly sandy slightly gravelly CLAY	7	7.0	70

REMARKS

SIGNED



NAME

O.P. Davies BA (Hons)
(Director / Head of Laboratory)

DATE

03-Nov-25

MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS EN ISO 17892-8:2018

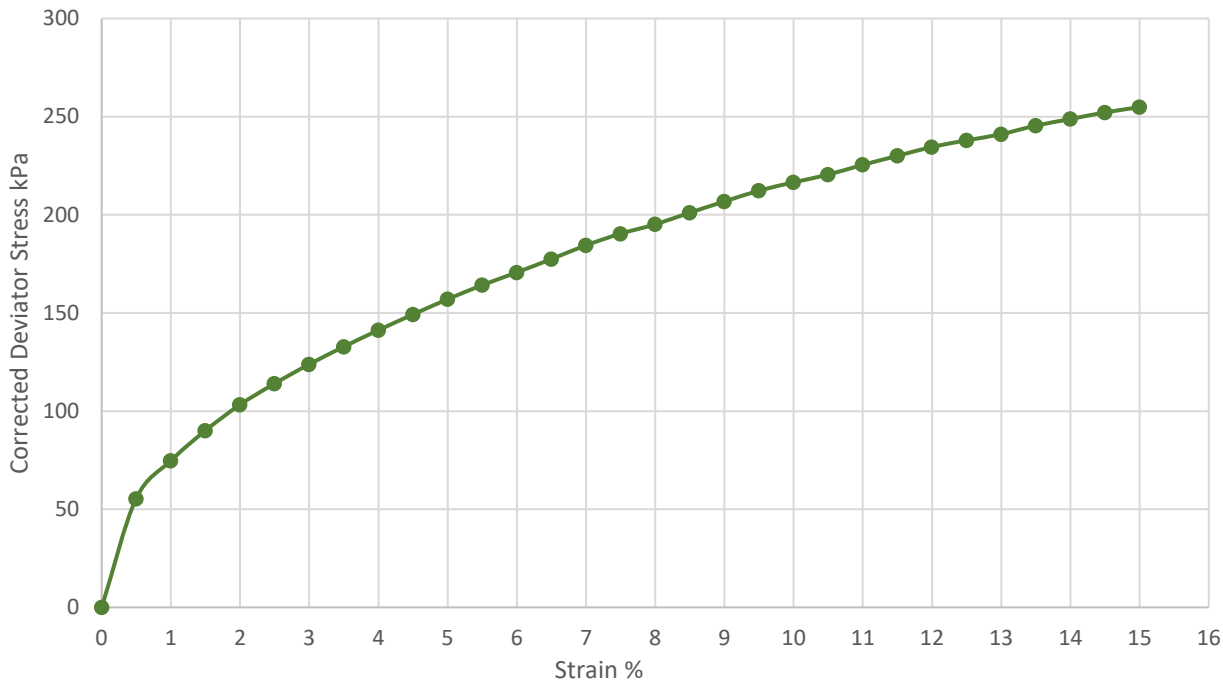
CLIENT	GEA Geotechnical & Environmental Associates
SITE	J25291 - Brownhill School SEN Hub
JOB NUMBER	MRN 25044/19

SAMPLE LABEL	BH01 6.0-6.45m U	DATE SAMPLED	Not advised
LAB SAMPLE No.	5196501	DATE RECEIVED	14-Oct-25
DATE TESTED	22-Oct-25	SAMPLED BY	Client
MATERIAL	Dark brown silty slightly sandy gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

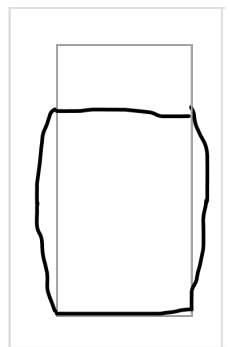
Specimen Location		Sample Length (mm)	320	Specimen depth from top of Sample (mm)	30
		Sample Orientation	Vertical	Specimen Condition	Undisturbed
		Specimen Length (mm)	203	Specimen Water Content (%)	12.5
		Specimen Diameter (mm)	101	Specimen Bulk Density (Mg/m3)	2.21
		Membrane Thickness (mm)	0.4	Specimen Dry Density (Mg/m3)	1.96
		Membrane Correction	3.39		

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
SINGLE STAGE

SKETCH OF
SPECIMEN AT
FAILURE



PLASTIC

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
120	15.0	2.0	255	127

Remarks/Abnormalities

Name O.P. Davies BA (Hons)
(Director / Head of Laboratory)

Signed

Date 03 November 2025

MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS EN ISO 17892-8:2018

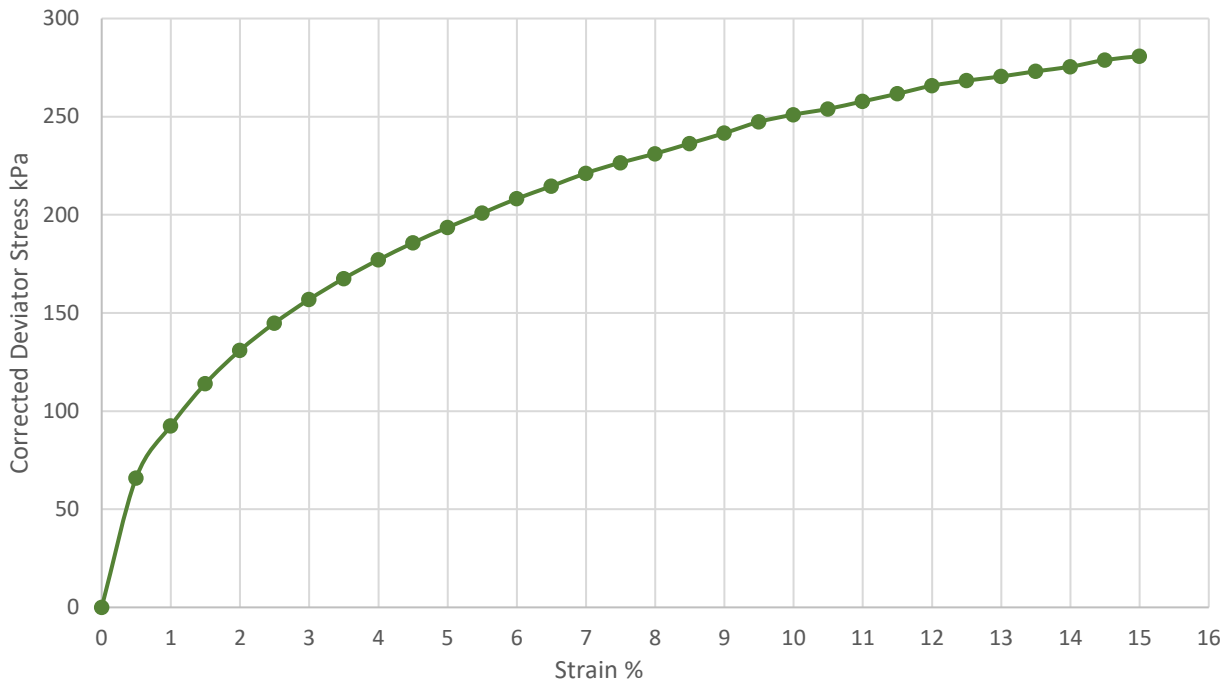
CLIENT	GEA Geotechnical & Environmental Associates
SITE	J25291 - Brownhill School SEN Hub
JOB NUMBER	MRN 25044/19

SAMPLE LABEL	BH01 9.0-9.45m U	DATE SAMPLED	Not advised
LAB SAMPLE No.	5196502	DATE RECEIVED	14-Oct-25
DATE TESTED	22-Oct-25	SAMPLED BY	Client
MATERIAL	Dark brown silty slightly sandy gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

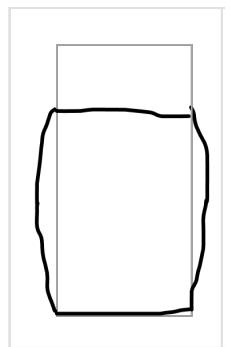
Specimen Location 	Sample Length (mm)	445	Specimen depth from top of Sample (mm)	80
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	201	Specimen Water Content (%)	13.4
	Specimen Diameter (mm)	101	Specimen Bulk Density (Mg/m3)	2.13
	Membrane Thickness (mm)	0.4	Specimen Dry Density (Mg/m3)	1.88
	Membrane Correction	3.39		

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
SINGLE STAGE

SKETCH OF
SPECIMEN AT
FAILURE



PLASTIC

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
120	15.0	2.0	281	140

Remarks/Abnormalities

Name O.P. Davies BA (Hons)
(Director / Head of Laboratory)

Signed

Date 03 November 2025

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS EN ISO 17892-8:2018

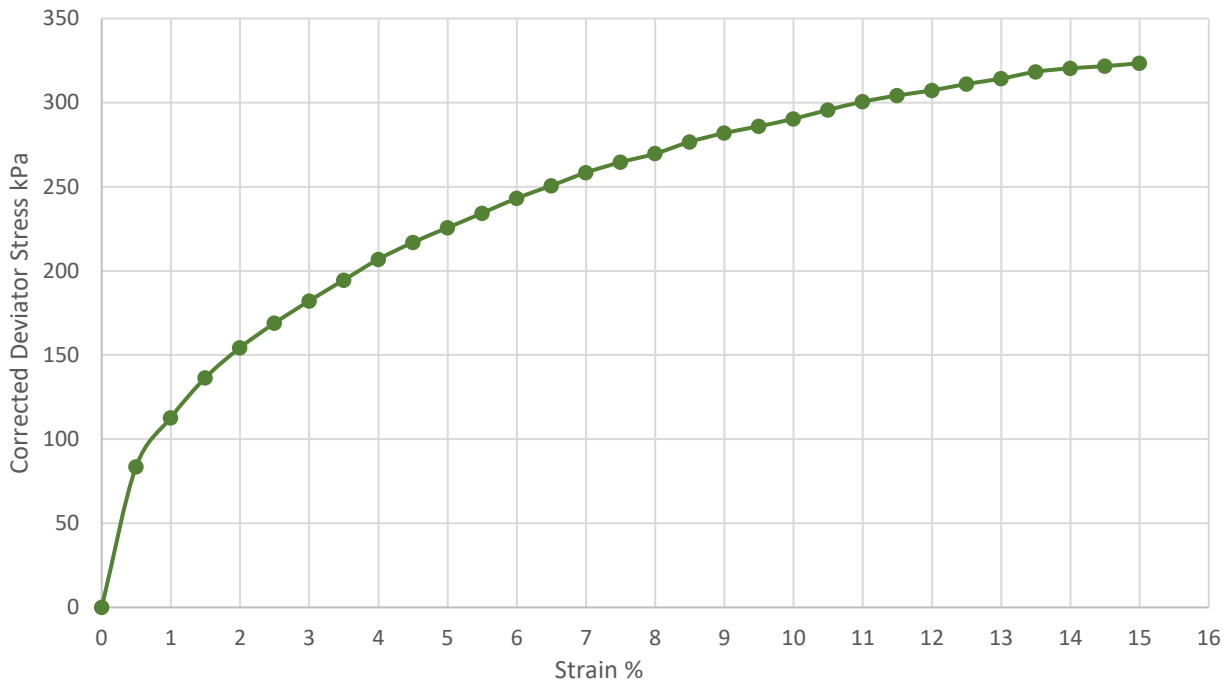
CLIENT	GEA Geotechnical & Environmental Associates
SITE	J25291 - Brownhill School SEN Hub
JOB NUMBER	MRN 25044/19

SAMPLE LABEL	BH01 15.0-15.45m U	DATE SAMPLED	Not advised
LAB SAMPLE No.	5196504	DATE RECEIVED	14-Oct-25
DATE TESTED	22-Oct-25	SAMPLED BY	Client
MATERIAL	Dark brown silty slightly sandy gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

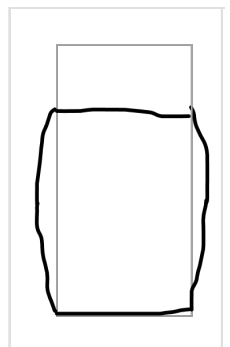
Specimen Location 	Sample Length (mm)	415	Specimen depth from top of Sample (mm)	60
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	200	Specimen Water Content (%)	11.6
	Specimen Diameter (mm)	102	Specimen Bulk Density (Mg/m3)	2.16
	Membrane Thickness (mm)	0.4	Specimen Dry Density (Mg/m3)	1.94
	Membrane Correction	3.39		

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
SINGLE STAGE

SKETCH OF
SPECIMEN AT
FAILURE



PLASTIC

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
300	15.0	2.0	323	162

Remarks/Abnormalities

Name O.P. Davies BA (Hons)
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TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS EN ISO 17892-8:2018

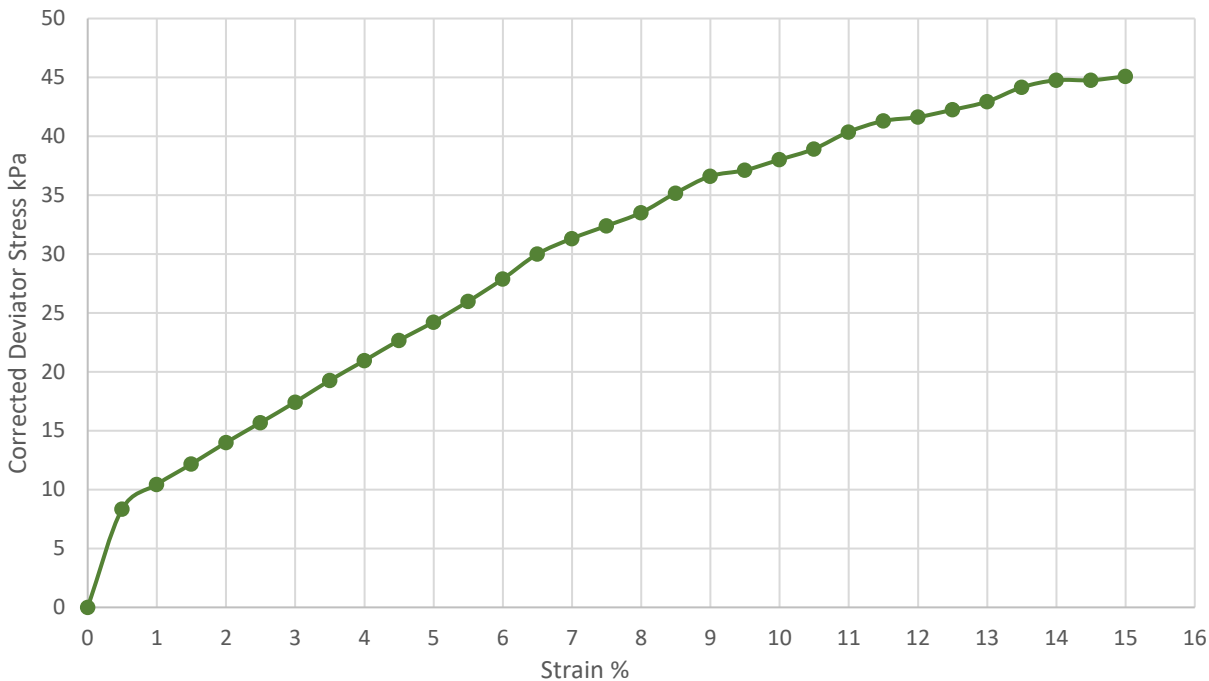
CLIENT	GEA Geotechnical & Environmental Associates
SITE	J25291 - Brownhill School SEN Hub
JOB NUMBER	MRN 25044/19

SAMPLE LABEL	BH02 7.5-7.95m U	DATE SAMPLED	Not advised
LAB SAMPLE No.	5196505	DATE RECEIVED	14-Oct-25
DATE TESTED	22-Oct-25	SAMPLED BY	Client
MATERIAL	Dark brown silty slightly sandy gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

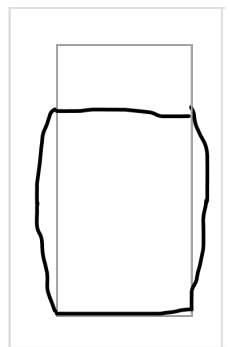
Specimen Location 	Sample Length (mm)	280	Specimen depth from top of Sample (mm)	20
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	198	Specimen Water Content (%)	20.2
	Specimen Diameter (mm)	100	Specimen Bulk Density (Mg/m3)	2.16
	Membrane Thickness (mm)	0.4	Specimen Dry Density (Mg/m3)	1.80
	Membrane Correction	3.39		

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
SINGLE STAGE

SKETCH OF
SPECIMEN AT
FAILURE



PLASTIC

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
150	15.0	2.0	45	23

Remarks/Abnormalities

Name O.P. Davies BA (Hons)
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Signed

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TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS EN ISO 17892-8:2018

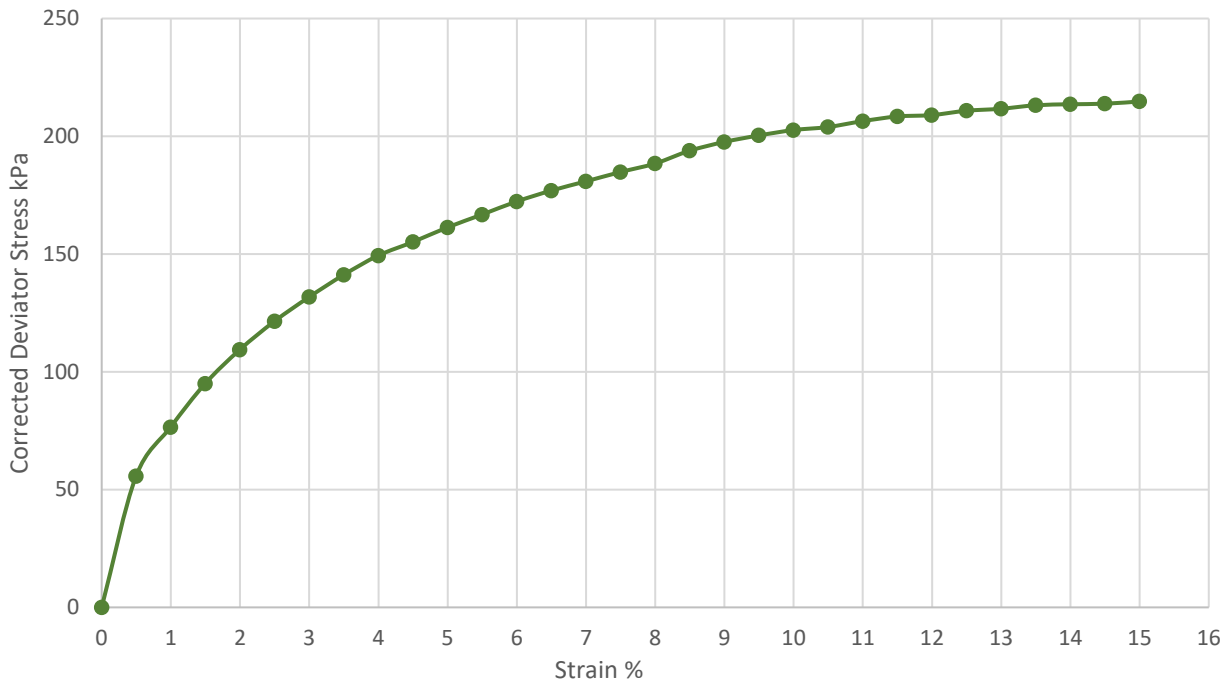
CLIENT	GEA Geotechnical & Environmental Associates
SITE	J25291 - Brownhill School SEN Hub
JOB NUMBER	MRN 25044/19

SAMPLE LABEL	BH02 13.5-13.95m U	DATE SAMPLED	Not advised
LAB SAMPLE No.	5196507	DATE RECEIVED	14-Oct-25
DATE TESTED	22-Oct-25	SAMPLED BY	Client
MATERIAL	Dark brown silty slightly sandy gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

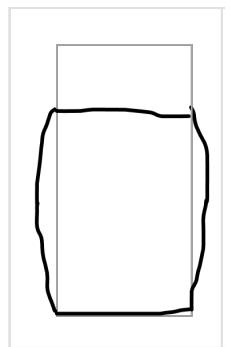
Specimen Location 	Sample Length (mm)	440	Specimen depth from top of Sample (mm)	70
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	202	Specimen Water Content (%)	14.8
	Specimen Diameter (mm)	102	Specimen Bulk Density (Mg/m3)	2.18
	Membrane Thickness (mm)	0.4	Specimen Dry Density (Mg/m3)	1.90
	Membrane Correction	3.39		

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
SINGLE STAGE

SKETCH OF
SPECIMEN AT
FAILURE



PLASTIC

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
270	15.0	2.0	215	107

Remarks/Abnormalities

Name O.P. Davies BA (Hons)
(Director / Head of Laboratory)

Signed



Date 03 November 2025

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS EN ISO 17892-8:2018

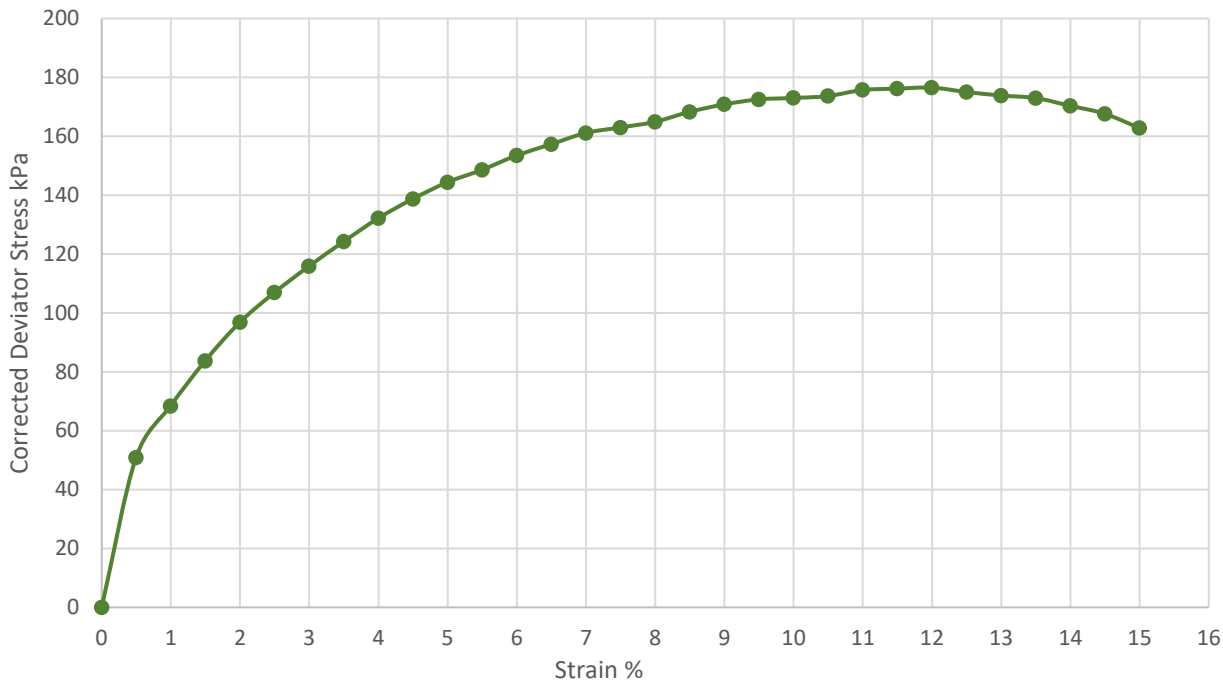
CLIENT	GEA Geotechnical & Environmental Associates
SITE	J25291 - Brownhill School SEN Hub
JOB NUMBER	MRN 25044/19

SAMPLE LABEL	BH02 19.5-19.95m U	DATE SAMPLED	Not advised
LAB SAMPLE No.	5196509	DATE RECEIVED	14-Oct-25
DATE TESTED	22-Oct-25	SAMPLED BY	Client
MATERIAL	Dark brown silty slightly sandy gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

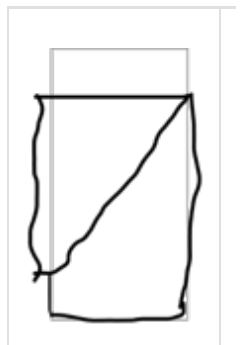
Specimen Location		Sample Length (mm)	450	Specimen depth from top of Sample (mm)	40
		Sample Orientation	Vertical	Specimen Condition	Undisturbed
		Specimen Length (mm)	202	Specimen Water Content (%)	16.4
		Specimen Diameter (mm)	101	Specimen Bulk Density (Mg/m3)	2.19
		Membrane Thickness (mm)	0.4	Specimen Dry Density (Mg/m3)	1.88
		Membrane Correction	3.39		

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
SINGLE STAGE

SKETCH OF
SPECIMEN AT
FAILURE



SIMPLE_SHEAR

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
390	12.0	2.0	177	88

Remarks/Abnormalities

Name O.P. Davies BA (Hons)
(Director / Head of Laboratory)

Signed

Date 03 November 2025

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS EN ISO 17892-8:2018

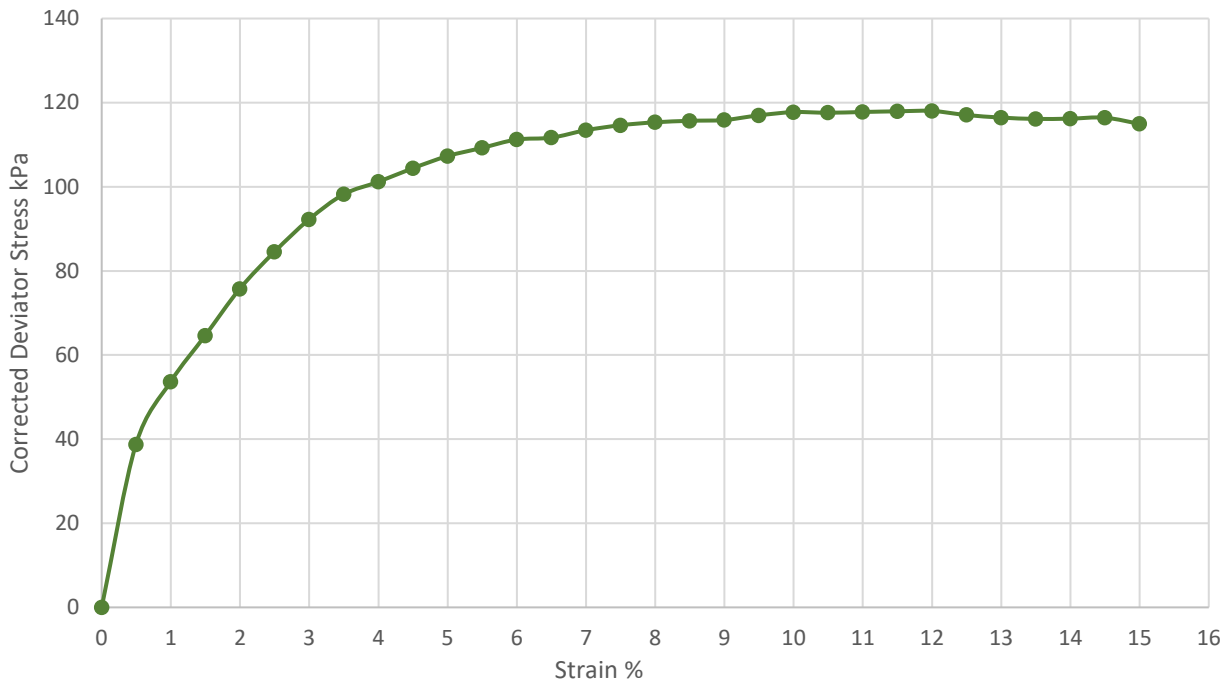
CLIENT	GEA Geotechnical & Environmental Associates
SITE	J25291 - Brownhill School SEN Hub
JOB NUMBER	MRN 25044/19

SAMPLE LABEL	BH02 25.5-25.95m U	DATE SAMPLED	Not advised
LAB SAMPLE No.	5196511	DATE RECEIVED	14-Oct-25
DATE TESTED	22-Oct-25	SAMPLED BY	Client
MATERIAL	Dark brown silty slightly sandy gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

Specimen Location		Sample Length (mm)	450	Specimen depth from top of Sample (mm)	40
		Sample Orientation	Vertical	Specimen Condition	Undisturbed
		Specimen Length (mm)	203	Specimen Water Content (%)	20.7
		Specimen Diameter (mm)	100	Specimen Bulk Density (Mg/m3)	2.05
		Membrane Thickness (mm)	0.4	Specimen Dry Density (Mg/m3)	1.70
		Membrane Correction	3.39		

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
SINGLE STAGE

SKETCH OF
SPECIMEN AT
FAILURE



COMBINED

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
510	12.0	2.0	118	59

Remarks/Abnormalities

Name O.P. Davies BA (Hons)
(Director / Head of Laboratory)

Signed

Date 03 November 2025

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DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS EN ISO 17892-8:2018

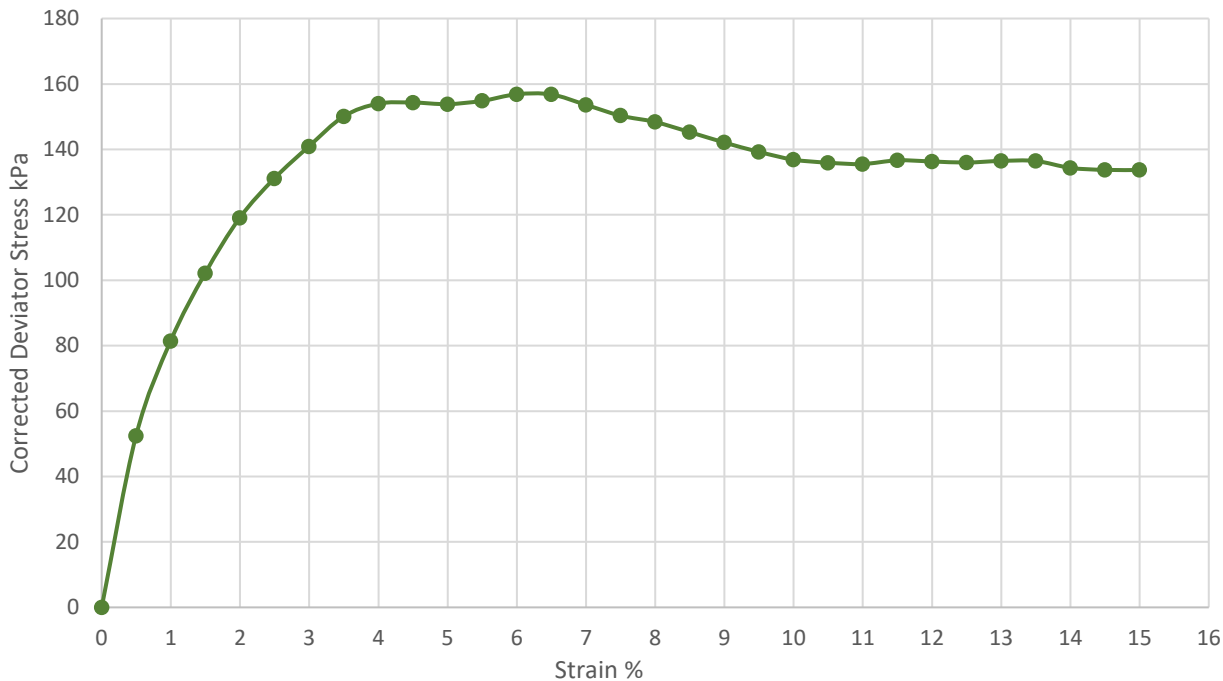
CLIENT	GEA Geotechnical & Environmental Associates
SITE	J25291 - Brownhill School SEN Hub
JOB NUMBER	MRN 25044/19

SAMPLE LABEL	BH02 30.0-30.45m U	DATE SAMPLED	Not advised
LAB SAMPLE No.	5196512	DATE RECEIVED	14-Oct-25
DATE TESTED	22-Oct-25	SAMPLED BY	Client
MATERIAL	Dark brown silty slightly sandy gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

Specimen Location 	Sample Length (mm)	430	Specimen depth from top of Sample (mm)	200
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	203	Specimen Water Content (%)	20.7
	Specimen Diameter (mm)	103	Specimen Bulk Density (Mg/m3)	1.98
	Membrane Thickness (mm)	0.4	Specimen Dry Density (Mg/m3)	1.64
	Membrane Correction	3.39		

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
SINGLE STAGE

SKETCH OF
SPECIMEN AT
FAILURE



COMBINED

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
600	6.0	2.0	157	78

Remarks/Abnormalities

Name O.P. Davies BA (Hons)
(Director / Head of Laboratory)

Signed

Date 03 November 2025

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DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS EN ISO 17892-8:2018

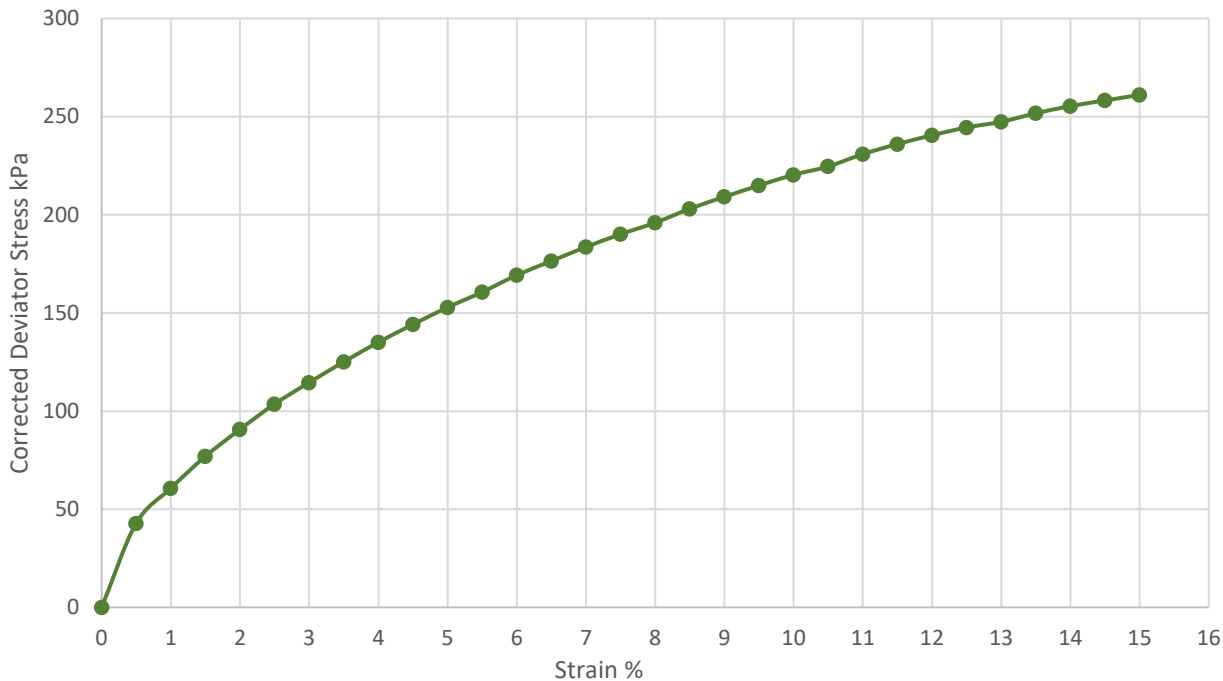
CLIENT	GEA Geotechnical & Environmental Associates
SITE	J25291 - Brownhill School SEN Hub
JOB NUMBER	MRN 25044/19

SAMPLE LABEL	BH03 6.0-6.45m U	DATE SAMPLED	Not advised
LAB SAMPLE No.	5196513	DATE RECEIVED	14-Oct-25
DATE TESTED	23-Oct-25	SAMPLED BY	Client
MATERIAL	Dark brown silty slightly sandy gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

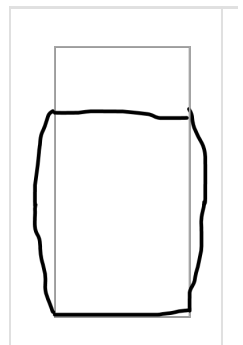
Specimen Location		Sample Length (mm)	300	Specimen depth from top of Sample (mm)	50
		Sample Orientation	Vertical	Specimen Condition	Undisturbed
		Specimen Length (mm)	201	Specimen Water Content (%)	13.0
		Specimen Diameter (mm)	102	Specimen Bulk Density (Mg/m3)	2.20
		Membrane Thickness (mm)	0.4	Specimen Dry Density (Mg/m3)	1.95
		Membrane Correction	3.39		

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
SINGLE STAGE

SKETCH OF
SPECIMEN AT
FAILURE



PLASTIC

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
120	15.0	2.0	261	131

Remarks/Abnormalities

Name O.P. Davies BA (Hons)
(Director / Head of Laboratory)

Signed

Date 03 November 2025

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS EN ISO 17892-8:2018

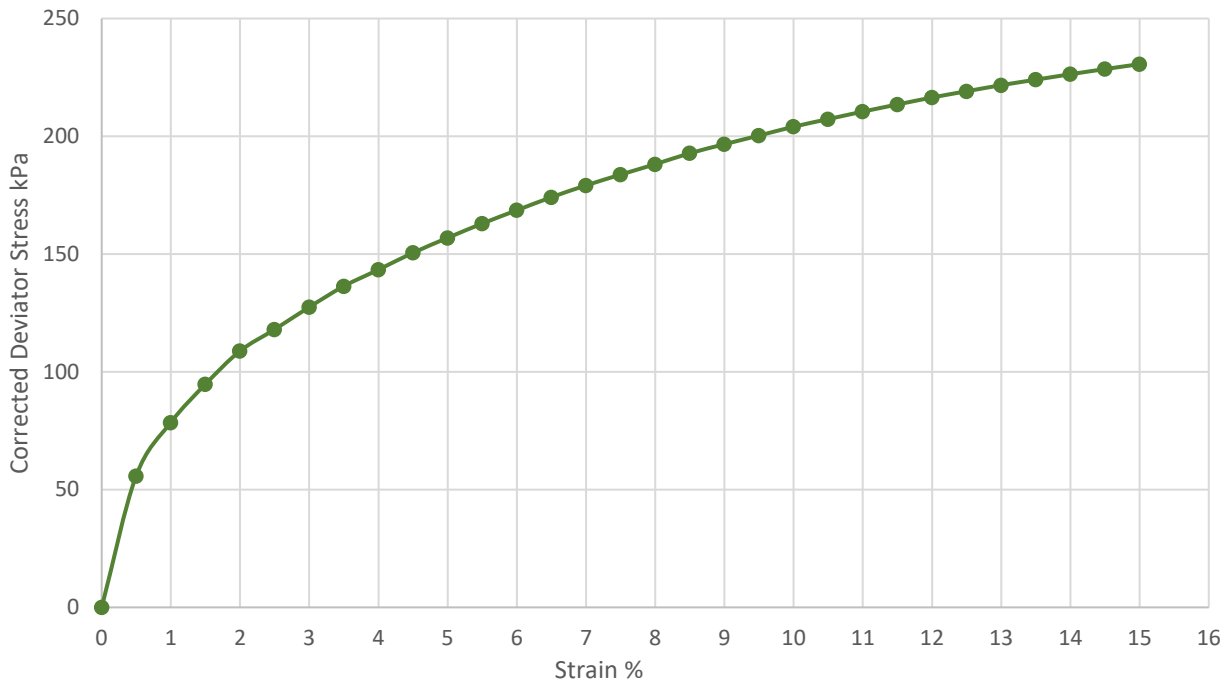
CLIENT	GEA Geotechnical & Environmental Associates
SITE	J25291 - Brownhill School SEN Hub
JOB NUMBER	MRN 25044/19

SAMPLE LABEL	BH03 9.0-9.45m U	DATE SAMPLED	Not advised
LAB SAMPLE No.	5196514	DATE RECEIVED	14-Oct-25
DATE TESTED	23-Oct-25	SAMPLED BY	Client
MATERIAL	Dark brown silty slightly sandy gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

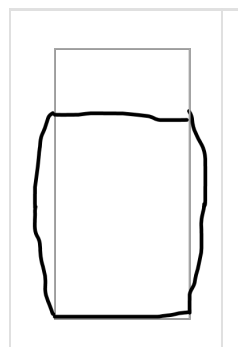
Specimen Location		Sample Length (mm)	435	Specimen depth from top of Sample (mm)	130
		Sample Orientation	Vertical	Specimen Condition	Undisturbed
		Specimen Length (mm)	204	Specimen Water Content (%)	13.4
		Specimen Diameter (mm)	101	Specimen Bulk Density (Mg/m3)	2.22
		Membrane Thickness (mm)	0.4	Specimen Dry Density (Mg/m3)	1.96
		Membrane Correction	3.39		

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
SINGLE STAGE

SKETCH OF
SPECIMEN AT
FAILURE



PLASTIC

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
180	15.0	2.0	231	115

Remarks/Abnormalities

Name O.P. Davies BA (Hons)
(Director / Head of Laboratory)

Signed

Date 03 November 2025

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
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TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS EN ISO 17892-8:2018

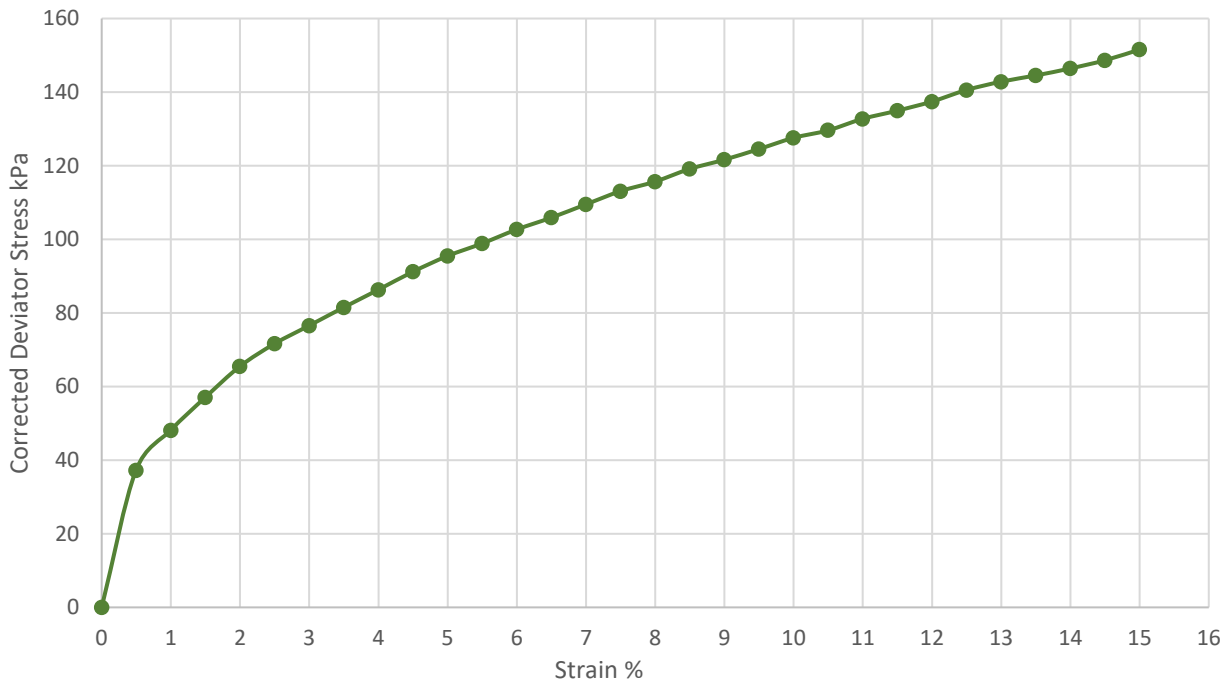
CLIENT	GEA Geotechnical & Environmental Associates
SITE	J25291 - Brownhill School SEN Hub
JOB NUMBER	MRN 25044/19

SAMPLE LABEL	BH03 12.0-12.45m U	DATE SAMPLED	Not advised
LAB SAMPLE No.	5196515	DATE RECEIVED	14-Oct-25
DATE TESTED	23-Oct-25	SAMPLED BY	Client
MATERIAL	Dark brown silty slightly sandy gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

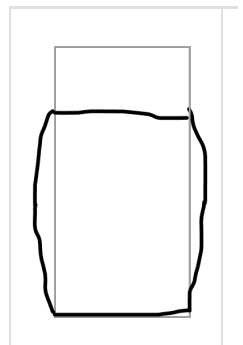
Specimen Location		Sample Length (mm)	410	Specimen depth from top of Sample (mm)	160
		Sample Orientation	Vertical	Specimen Condition	Undisturbed
		Specimen Length (mm)	199	Specimen Water Content (%)	15.1
		Specimen Diameter (mm)	102	Specimen Bulk Density (Mg/m3)	2.20
		Membrane Thickness (mm)	0.4	Specimen Dry Density (Mg/m3)	1.91
		Membrane Correction	3.39		

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
SINGLE STAGE

SKETCH OF
SPECIMEN AT
FAILURE



PLASTIC

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
240	15.0	2.0	152	76

Remarks/Abnormalities

Name O.P. Davies BA (Hons)
(Director / Head of Laboratory)

Signed

Date 03 November 2025

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP 2.5kg RAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

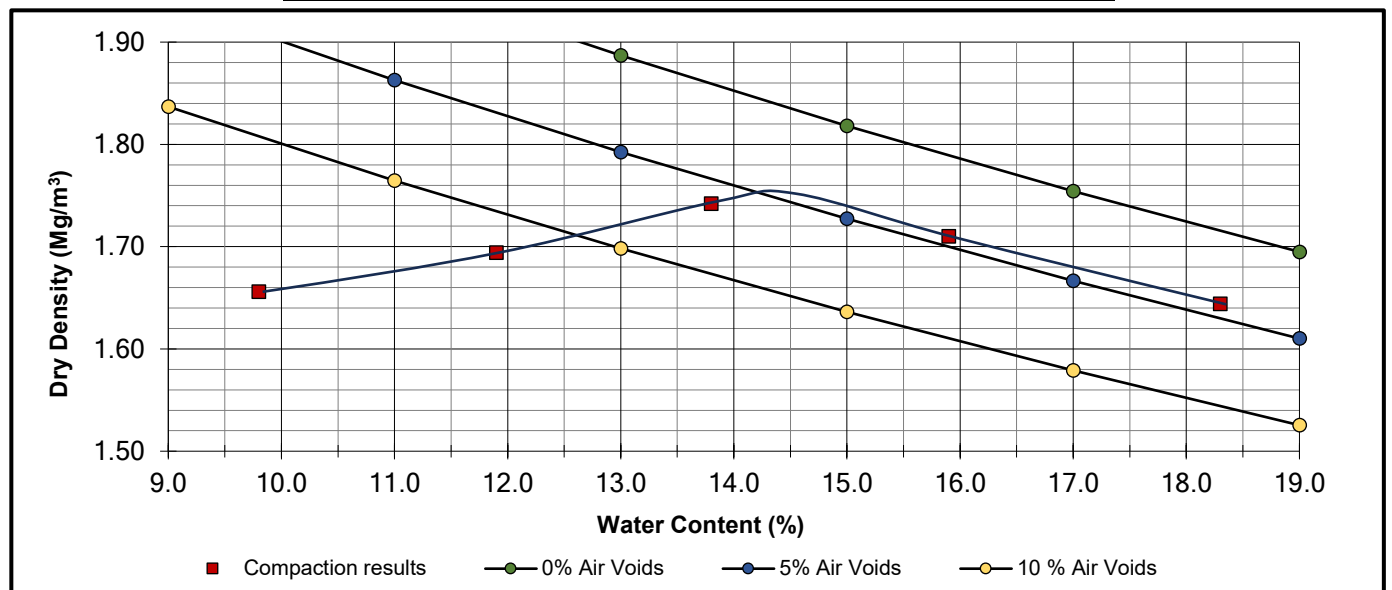
CLIENT	GEA Geotechnical & Environmental Associates		
SITE	J25291 - Brownhill School SEN Hub		
JOB NUMBER	MRN 25044/19		

SAMPLE LABEL	BH02 0-1.0m B	DATE SAMPLED	Not advised
SAMPLE NUMBER	5196565	DATE RECEIVED	14-Oct-25
DATE TESTED	24-Oct-25	SAMPLED BY	Client

MATERIAL	MADE GROUND		
ADVISED SOURCE	Site Investigation Sample		
PRE TREATMENT	Air Dried / Single Sample		

RETAINED 37.5mm	7 %	GRADING ZONE	Zone 5
RETAINED 20mm	15 %	PARTICLE DENSITY	2.50 Mg/m ³ (Assumed)

POINT NUMBER	WATER CONTENT (%)	DRY DENSITY (Mg/m ³)
1	9.8	1.656
2	11.9	1.694
3	13.8	1.742
4	15.9	1.710
5	18.3	1.644



OPTIMUM WATER CONTENT	14	(%)
MAXIMUM DRY DENSITY	1.75	(Mg/m ³)

REMARKS

NAME O.P. Davies BA (Hons)
(Director / Head of Laboratory)

SIGNED

DATE 03-Nov-25

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP 4.5kg RAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

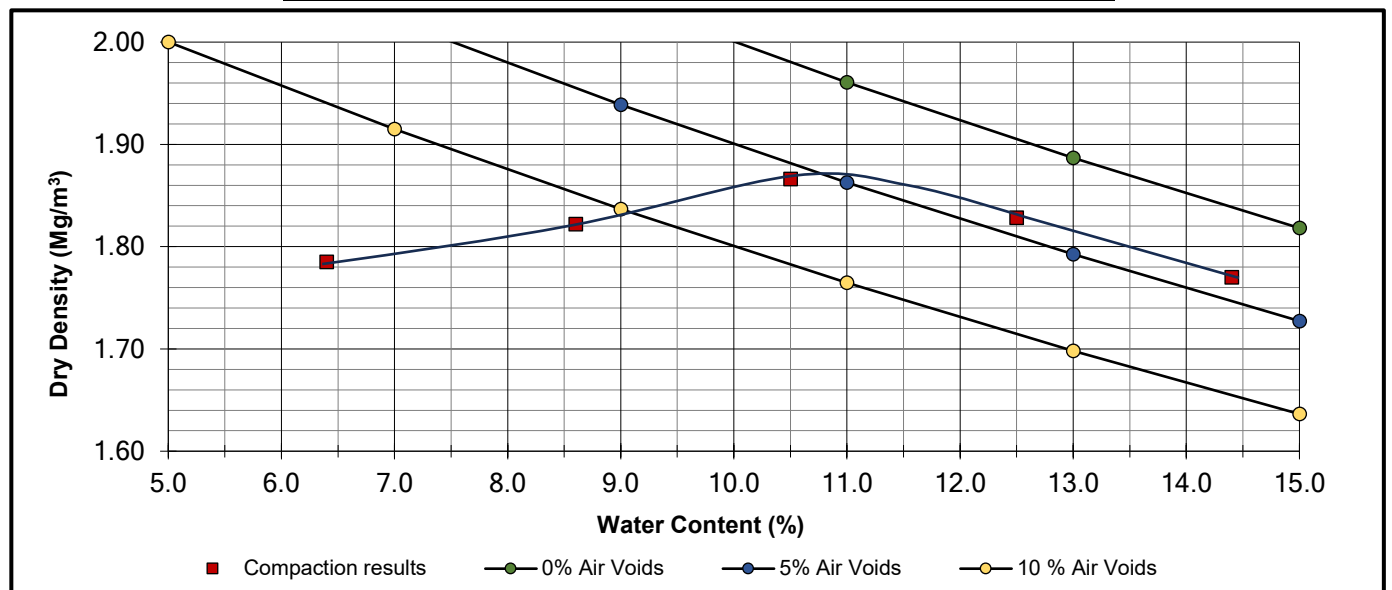
CLIENT	GEA Geotechnical & Environmental Associates		
SITE	J25291 - Brownhill School SEN Hub		
JOB NUMBER	MRN 25044/19		

SAMPLE LABEL	0	DATE SAMPLED	00-Jan-00
SAMPLE NUMBER		DATE RECEIVED	00-Jan-00
DATE TESTED	24-Oct-25	SAMPLED BY	Client

MATERIAL	MADE GROUND		
ADVISED SOURCE	Site Investigation Sample		
PRE TREATMENT	Air Dried / Single Sample		

RETAINED 37.5mm	3	%	GRADING ZONE	Zone 4
RETAINED 20mm	15	%	PARTICLE DENSITY	2.50 Mg/m ³ (Assumed)

POINT NUMBER	WATER CONTENT (%)	DRY DENSITY (Mg/m ³)
1	6.4	1.785
2	8.6	1.822
3	10.5	1.866
4	12.5	1.828
5	14.4	1.770



OPTIMUM WATER CONTENT	11	(%)
MAXIMUM DRY DENSITY	1.87	(Mg/m ³)

REMARKS

NAME O.P. Davies BA (Hons)
(Director / Head of Laboratory)

SIGNED

DATE 03-Nov-25



GEA

www.gea-ltd.co.uk

Geotechnical and Environmental Associates

**SPT N60 / Depth Graph -
Northern**

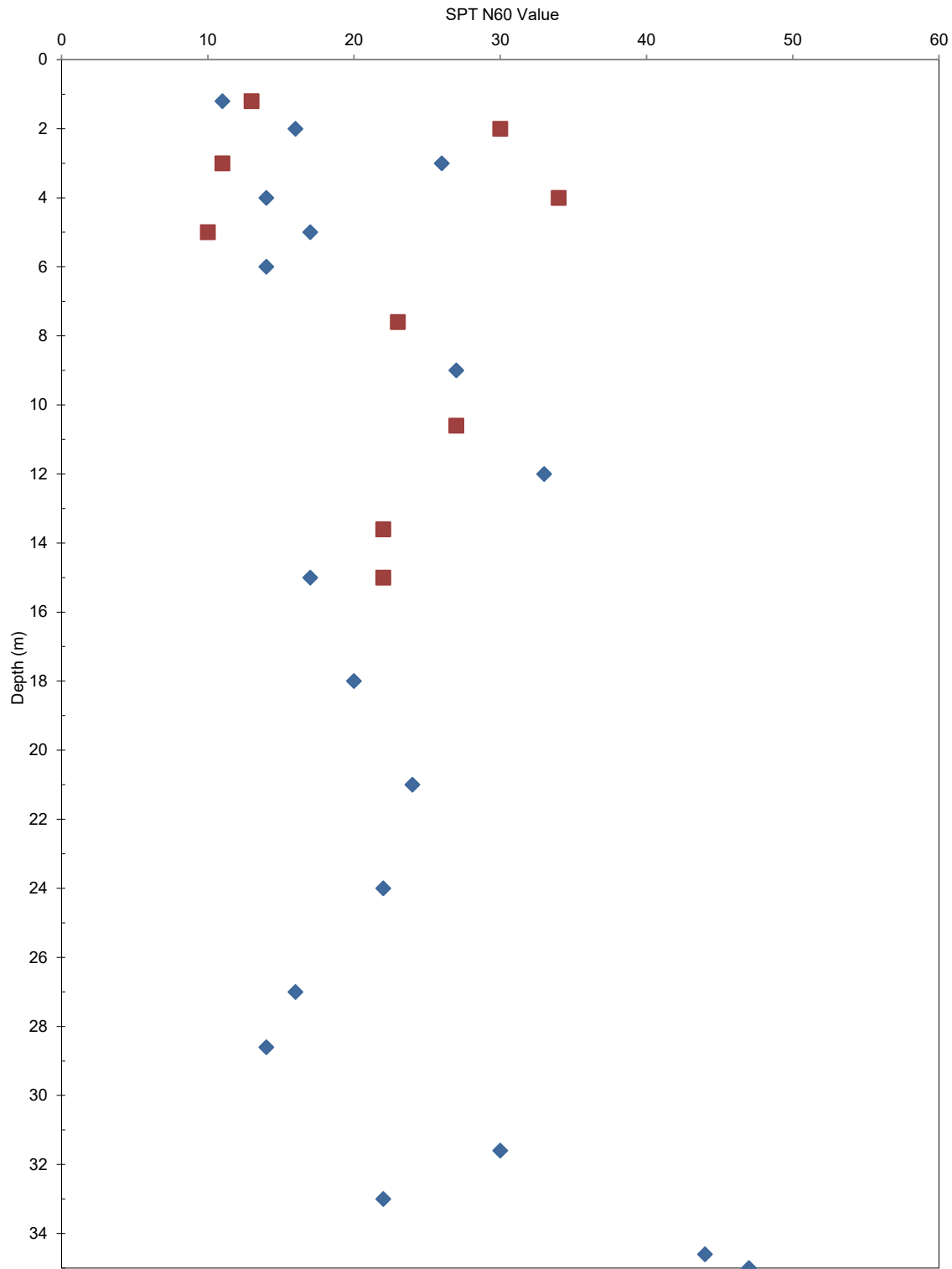
Site Brownhill School SEN Hub, Rochdale

Client Rochdale Borough Council

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
1 / 2





GEA

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Geotechnical and Environmental Associates

**SPT N60 / Depth Graph -
Southern**

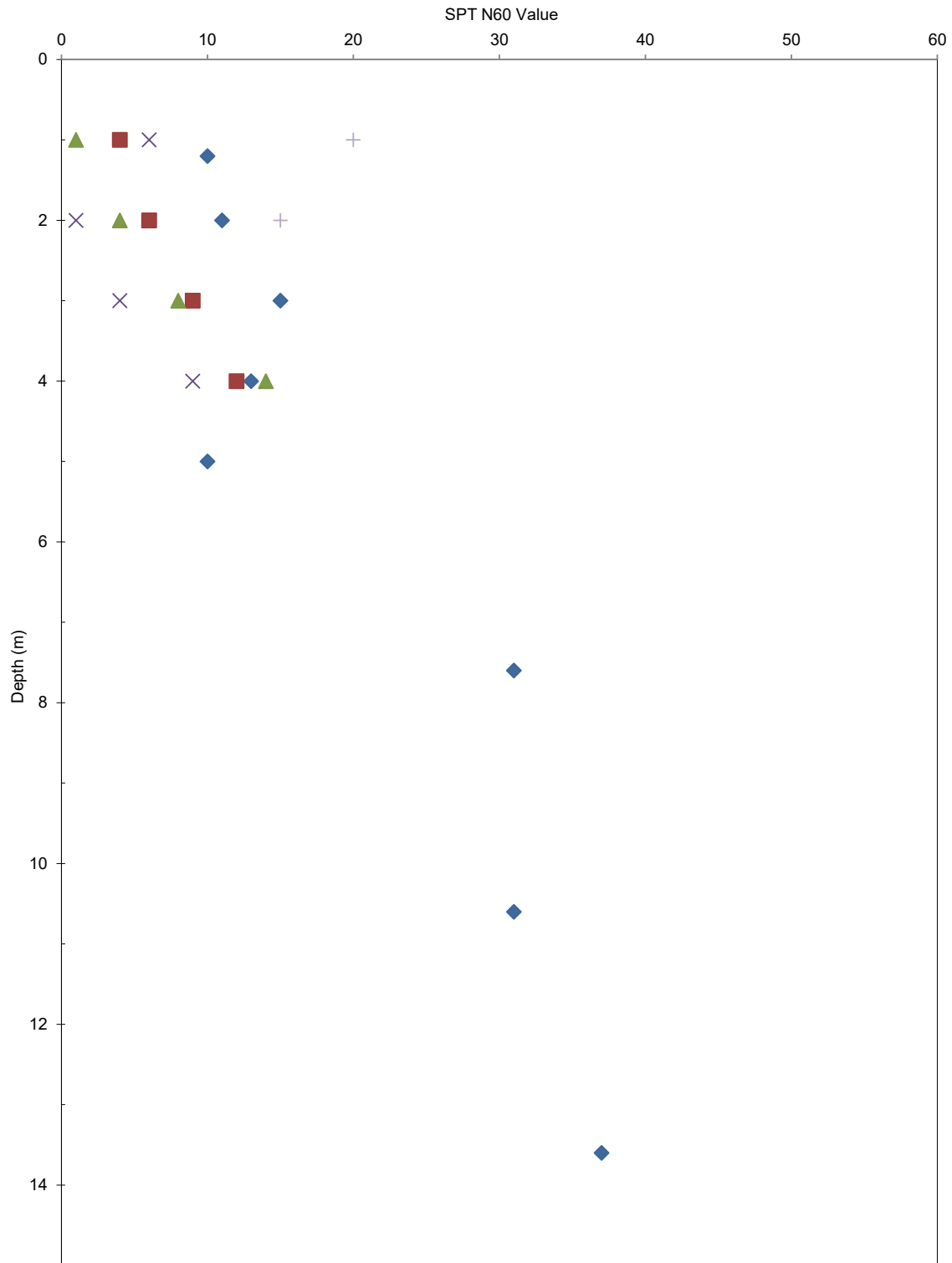
Site Brownhill School SEN Hub, Rochdale

Client Rochdale Borough Council

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
2 / 2



Geotechnical & Environmental Associates
Widbury Barn
Widbury Hill
Ware
Hertfordshire
SG12 7QE

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t:
e: Luke@gea-ltd.co.uk

t: 01923 225404
f: 01923 237404
e: info-i2analytical@normecgroup.com

Analytical Report Number : 25-057021

Project / Site name:	Brownhill School SEN Hub, Rochdale	Samples received on:	16/10/2025
Your job number:	J25291	Samples instructed on/ Analysis started on:	17/10/2025
Your order number:	PO-0514	Analysis completed by:	31/10/2025
Report Issue Number:	1	Report issued on:	31/10/2025
Samples Analysed:	18 soil samples - 2 water samples - 2 leachate samples		



Signed:

Anna Goc
PL Head of Reporting Team
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
air	- once the analysis is complete

Excel copies of reports are only valid when accompanied by this PDF certificate.

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

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: 25-057021

Project / Site name: Brownhill School SEN Hub, Rochdale

Your Order No: PO-0514

Lab Sample Number	723427				723428	723429	723430	723431
Sample Reference	BH01				BH02	BH04	BH05	BH07
Sample Number	None Supplied				None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A				N/A	N/A	N/A	N/A
Depth (m)	0.30				0.50	0.30-0.50	0.80-1.00	0.60-0.80
Date Sampled	05/08/2025				05/08/2025	08/10/2025	08/10/2025	08/10/2025
Time Taken	None Supplied				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					

Stone Content	%	0.1	NONE	52.8	< 0.1	< 0.1	< 0.1	19.9
Moisture Content	%	0.01	NONE	11	19	12	20	17
Total mass of sample received	kg	0.1	NONE	1	0.6	0.9	0.7	0.8

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Detected	Detected	Detected
Asbestos Analyst ID	N/A	N/A	N/A	MJN	MJN	MJN	MJN	MJN
Analysis completed	N/A	N/A	N/A	25/10/2025	25/10/2025	25/10/2025	25/10/2025	25/10/2025
Actinolite detected	Type	N/A	ISO 17025	-	-	Not-detected	Not-detected	Not-detected
Amosite detected	Type	N/A	ISO 17025	-	-	Detected	Not-detected	Not-detected
Anthophyllite detected	Type	N/A	ISO 17025	-	-	Not-detected	Not-detected	Not-detected
Chrysotile detected	Type	N/A	ISO 17025	-	-	Detected	Detected	Detected
Crocidolite detected	Type	N/A	ISO 17025	-	-	Not-detected	Not-detected	Not-detected
Tremolite detected	Type	N/A	ISO 17025	-	-	Not-detected	Not-detected	Not-detected

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-	0.006	0.001	< 0.001
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	Loose Fibres, Loose Fibrous Debris	Loose Fibres,	Loose Fibres,
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General Inorganics

pH (L005B)	pH Units	N/A	MCERTS	-	-	-	-	-
pH (L099)	pH Units	N/A	MCERTS	10.4	7.9	8.9	8.2	7.5
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	2500	460	710	1000	670
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	960	190	220	120	74
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.478	0.0943	0.109	0.0591	0.0368
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	478	94.3	109	59.1	36.8
Sulphide	mg/kg	1	MCERTS	2.1	1.6	2.8	4.4	3.1
Water Soluble Chloride (2:1)	mg/kg	1	MCERTS	16	5.5	11	5.9	7.3
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.4	2	1.5	1	3.3
Loss on Ignition @ 450°C	%	0.2	MCERTS	-	-	-	-	-
Acid Neutralisation Capacity	+/- mmol/kg	-9999	NONE	-	-	-	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Analytical Report Number: 25-057021

Project / Site name: Brownhill School SEN Hub, Rochdale

Your Order No: PO-0514

Lab Sample Number	723427	723428	723429	723430	723431
Sample Reference	BH01	BH02	BH04	BH05	BH07
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	0.30	0.50	0.30-0.50	0.80-1.00	0.60-0.80
Date Sampled	05/08/2025	05/08/2025	08/10/2025	08/10/2025	08/10/2025
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.33	0.17	0.15	0.22
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.06
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.47	0.19	0.19	0.56
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.35	0.21	0.14	0.46
Phenanthrene	mg/kg	0.05	MCERTS	0.32	3.2	1.8	1.5	4.4
Anthracene	mg/kg	0.05	MCERTS	0.08	0.64	0.6	0.27	1
Fluoranthene	mg/kg	0.05	MCERTS	0.65	4.6	3.2	1.8	7.5
Pyrene	mg/kg	0.05	MCERTS	0.6	4	2.8	1.9	6.6
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.42	2	1.5	0.89	3.7
Chrysene	mg/kg	0.05	MCERTS	0.41	2.3	1.6	1	3.5
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.52	2.6	1.7	0.99	4.1
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.24	0.86	0.53	0.31	1.9
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.43	2	1.3	0.85	3.6
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.25	0.87	0.57	0.37	1.5
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.15	0.1	0.07	0.4
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.32	0.95	0.62	0.45	2
Coronene	mg/kg	0.05	NONE	-	-	-	-	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	4.21	25.4	16.8	10.9	41.5
Total WAC-17 PAHs	mg/kg	0.85	NONE	-	-	-	-	-

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	5	12	10	11	14
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.5	0.4	0.7	0.2	1.7
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (VI) by IC	mg/kg	1.8	NONE	-	-	-	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20	27	25	20	230
Copper (aqua regia extractable)	mg/kg	1	MCERTS	30	59	81	43	86
Lead (aqua regia extractable)	mg/kg	1	MCERTS	75	120	300	510	150
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	0.6	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	16	26	21	15	30
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.2	< 1.0	< 1.0	< 1.0	1
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	78	120	140	120	250

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	-	-	-	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	-	-	-	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	-	-	-	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	-	-	-	-	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	-	-	-	-	3.3
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	-	-	-	-	18
TPHCWG - Aliphatic >EC16 - EC35 _{EH_CU_1D_AL}	mg/kg	10	MCERTS	-	-	-	-	160
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	-	-	-	-	140
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	-	-	-	-	160

Analytical Report Number: 25-057021

Project / Site name: Brownhill School SEN Hub, Rochdale

Your Order No: PO-0514

Lab Sample Number	723427	723428	723429	723430	723431
Sample Reference	BH01	BH02	BH04	BH05	BH07
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	0.30	0.50	0.30-0.50	0.80-1.00	0.60-0.80
Date Sampled	05/08/2025	05/08/2025	08/10/2025	08/10/2025	08/10/2025
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	MCERTS	-	-	-	-	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	MCERTS	-	-	-	-	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.02	MCERTS	-	-	-	-	< 0.020
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	-	-	-	-	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	-	-	-	-	8.1
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	-	-	-	-	45
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	-	-	-	-	250
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	-	-	-	-	300

TPH (>EC8 - EC10) HS_1D_TOTAL	mg/kg	0.02	MCERTS	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
TPH (>EC10 - EC12) EH_CU_1D_TOTAL	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH (>EC10 - EC35) EH_CU_1D_TOTAL	mg/kg	10	NONE	120	89	200	81	460
TPH (>EC12 - EC16) EH_CU_1D_TOTAL	mg/kg	4	MCERTS	< 4.0	9.2	5.9	5.3	11
TPH (>EC16 - EC21) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	16	25	18	17	63
TPH (>EC21 - EC35) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	97	54	170	57	390

TPH Total >EC8 - EC35 EH_CU+HS_1D_TOTAL	mg/kg	10	NONE	120	89	200	81	460
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TPH (EC10 - EC40) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	130	98	270	99	550
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Mineral Oil (EC10 - EC40) EH_CU_1D_AL	mg/kg	10	NONE	-	-	-	-	-
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VOCs

Benzene	µg/kg	5	MCERTS	-	-	-	-	< 5.0
Toluene	µg/kg	5	MCERTS	-	-	-	-	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	-	-	-	-	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	-	-	-	-	< 8.0
o-Xylene	µg/kg	5	MCERTS	-	-	-	-	< 5.0

Total BTEX	µg/kg	10	MCERTS	-	-	-	-	-
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PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	-	-	-

Total PCBs	mg/kg	0.007	MCERTS	-	-	-	-	-
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 25-057021

Project / Site name: Brownhill School SEN Hub, Rochdale

Your Order No: PO-0514

Lab Sample Number	723432				723433	723434	723435	723436
Sample Reference	BH08				TP01	TP02	TP03	TP03
Sample Number	None Supplied				None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A				N/A	N/A	N/A	N/A
Depth (m)	0.30-0.40				0.50	1.00	1.80	2.30
Date Sampled	07/10/2025				07/10/2025	07/10/2025	07/10/2025	07/10/2025
Time Taken	None Supplied				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					

Stone Content	%	0.1	NONE	19.2	< 0.1	48.4	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	8.8	16	11	17	24
Total mass of sample received	kg	0.1	NONE	0.9	2	1	0.9	0.8

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	-	Detected	Detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	JSW	-	JSW	JSW	JSW
Analysis completed	N/A	N/A	N/A	25/10/2025	-	25/10/2025	25/10/2025	25/10/2025
Actinolite detected	Type	N/A	ISO 17025	-	-	Not-detected	Not-detected	-
Amosite detected	Type	N/A	ISO 17025	-	-	Detected	Not-detected	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	Not-detected	Not-detected	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	Detected	Detected	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	Not-detected	Not-detected	-
Tremolite detected	Type	N/A	ISO 17025	-	-	Not-detected	Not-detected	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-	0.001	0.002	-
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	Loose Fibres	Loose Fibres, Loose Fibrous Debris	-
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General Inorganics

pH (L005B)	pH Units	N/A	MCERTS	-	7.6	-	-	-
pH (L099)	pH Units	N/A	MCERTS	8.3	-	8	7.6	7.2
Total Cyanide	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	840	-	5400	4600	930
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	89	-	3700	3900	630
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0444	-	1.84	1.93	0.316
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	44.4	-	1840	1930	316
Sulphide	mg/kg	1	MCERTS	< 1.0	-	3.6	8	9.1
Water Soluble Chloride (2:1)	mg/kg	1	MCERTS	2.3	-	4.3	5.9	5.5
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.6	2.4	1.6	1.9	3.7
Loss on Ignition @ 450°C	%	0.2	MCERTS	-	6	-	-	-
Acid Neutralisation Capacity	+/- mmol/kg	-9999	NONE	-	11	-	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	< 1.0
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Analytical Report Number: 25-057021

Project / Site name: Brownhill School SEN Hub, Rochdale

Your Order No: PO-0514

Lab Sample Number	723432	723433	723434	723435	723436
Sample Reference	BH08	TP01	TP02	TP03	TP03
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	0.30-0.40	0.50	1.00	1.80	2.30
Date Sampled	07/10/2025	07/10/2025	07/10/2025	07/10/2025	07/10/2025
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.09	1	0.2	0.37	0.06
Acenaphthylene	mg/kg	0.05	MCERTS	0.06	0.53	< 0.05	0.12	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.45	0.58	0.35	1.6	0.07
Fluorene	mg/kg	0.05	MCERTS	0.5	0.91	0.25	1.5	0.06
Phenanthrene	mg/kg	0.05	MCERTS	3.6	5.3	2.6	13	0.57
Anthracene	mg/kg	0.05	MCERTS	0.91	1.9	0.85	3.9	0.1
Fluoranthene	mg/kg	0.05	MCERTS	4.4	8.8	4.8	17	0.88
Pyrene	mg/kg	0.05	MCERTS	3.9	8.2	4.4	15	0.8
Benzo(a)anthracene	mg/kg	0.05	MCERTS	2.2	5.1	2.6	8.3	0.45
Chrysene	mg/kg	0.05	MCERTS	2.1	5	2.4	7.8	0.57
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	2.3	5.3	3.3	8.4	0.64
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	1.1	2.3	1.2	3.7	0.28
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2	4.9	2.6	7.5	0.42
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.79	1.8	1.1	3.2	0.24
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.24	0.39	0.3	0.53	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.88	2	1.4	3.4	0.26
Coronene	mg/kg	0.05	NONE	-	0.51	-	-	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	25.4	-	28.2	95.3	5.42
Total WAC-17 PAHs	mg/kg	0.85	NONE	-	54.4	-	-	-

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	15	-	12	17	30
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4	-	0.4	0.5	0.3
Chromium (hexavalent)	mg/kg	1.8	MCERTS	3.4	-	< 1.8	< 1.8	U/S ¹ U/S ⁹
Chromium (VI) by IC	mg/kg	1.8	NONE	-	-	-	-	< 1.80
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	26	-	30	34	23
Copper (aqua regia extractable)	mg/kg	1	MCERTS	110	-	44	60	60
Lead (aqua regia extractable)	mg/kg	1	MCERTS	310	-	240	300	190
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.3	-	< 0.3	< 0.3	0.6
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	28	-	23	26	32
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.4	-	< 1.0	1.2	1.6
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	190	-	190	220	98

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	-	-	-	-
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	-	-	-	-
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	-	-	-	-
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	-	-	-	-	-
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	-	-	-	-	-
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	-	-	-	-	-
TPHCWG - Aliphatic >EC16 - EC35 _{EH_CU_1D_AL}	mg/kg	10	MCERTS	-	-	-	-	-
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	-	-	-	-	-
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	-	-	-	-	-

Analytical Report Number: 25-057021

Project / Site name: Brownhill School SEN Hub, Rochdale

Your Order No: PO-0514

Lab Sample Number	723432	723433	723434	723435	723436
Sample Reference	BH08	TP01	TP02	TP03	TP03
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	0.30-0.40	0.50	1.00	1.80	2.30
Date Sampled	07/10/2025	07/10/2025	07/10/2025	07/10/2025	07/10/2025
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	MCERTS	-	-	-	-	-
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	MCERTS	-	-	-	-	-
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.02	MCERTS	-	-	-	-	-
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	-	-	-	-	-
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	-	-	-	-	-
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	-	-	-	-	-
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	-	-	-	-	-
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	-	-	-	-	-

TPH (>EC8 - EC10) HS_1D_TOTAL	mg/kg	0.02	MCERTS	< 0.02	-	< 0.02	< 0.02	< 0.02
TPH (>EC10 - EC12) EH_CU_1D_TOTAL	mg/kg	2	MCERTS	< 2.0	-	< 2.0	4.2	< 2.0
TPH (>EC10 - EC35) EH_CU_1D_TOTAL	mg/kg	10	NONE	240	-	190	400	62
TPH (>EC12 - EC16) EH_CU_1D_TOTAL	mg/kg	4	MCERTS	9.3	-	8.9	19	6
TPH (>EC16 - EC21) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	36	-	30	84	12
TPH (>EC21 - EC35) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	190	-	150	300	42

TPH Total >EC8 - EC35 EH_CU+HS_1D_TOTAL	mg/kg	10	NONE	240	-	190	400	62
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TPH (EC10 - EC40) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	280	-	220	460	75
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Mineral Oil (EC10 - EC40) EH_CU_1D_AL	mg/kg	10	NONE	-	150	-	-	-
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VOCs

Benzene	µg/kg	5	MCERTS	-	< 5.0	-	-	-
Toluene	µg/kg	5	MCERTS	-	< 5.0	-	-	-
Ethylbenzene	µg/kg	5	MCERTS	-	< 5.0	-	-	-
p & m-Xylene	µg/kg	8	MCERTS	-	< 8.0	-	-	-
o-Xylene	µg/kg	5	MCERTS	-	< 5.0	-	-	-

Total BTEX	µg/kg	10	MCERTS	-	< 10	-	-	-
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PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	-	< 0.001	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	< 0.001	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	< 0.001	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	< 0.001	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	< 0.001	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	< 0.001	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	< 0.001	-	-	-

Total PCBs	mg/kg	0.007	MCERTS	-	< 0.007	-	-	-
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 25-057021

Project / Site name: Brownhill School SEN Hub, Rochdale

Your Order No: PO-0514

Lab Sample Number	723437	723438	723439	723440	723441
Sample Reference	TP04	TP04	TP05	TP06	TP07
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	1.10	2.90-3.00	0.80	1.20	0.60
Date Sampled	07/10/2025	07/10/2025	07/10/2025	07/10/2025	07/10/2025
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	32.4	< 0.1	< 0.1	42.3	< 0.1
Moisture Content	%	0.01	NONE	12	43	13	7.6	19
Total mass of sample received	kg	0.1	NONE	0.9	0.7	1.7	1.1	1

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Detected	Detected	-	Not-detected	Detected
Asbestos Analyst ID	N/A	N/A	N/A	JSW	DSO	-	DSO	DSO
Analysis completed	N/A	N/A	N/A	25/10/2025	25/10/2025	-	25/10/2025	25/10/2025
Actinolite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	-	-	Not-detected
Amosite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	-	-	Not-detected
Anthophyllite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	-	-	Not-detected
Chrysotile detected	Type	N/A	ISO 17025	Detected	Detected	-	-	Detected
Crocidolite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	-	-	Not-detected
Tremolite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	-	-	Not-detected

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	< 0.001	< 0.001	-	-	< 0.001
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	Loose Fibres	Loose Fibres	-	-	Loose Fibres
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General Inorganics

pH (L005B)	pH Units	N/A	MCERTS	-	-	6.9	-	-
pH (L099)	pH Units	N/A	MCERTS	8.1	7.6	-	8.1	8
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	730	1400	-	360	420
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	70	170	-	160	49
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.035	0.0848	-	0.0823	0.0243
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	35	84.8	-	82.3	24.3
Sulphide	mg/kg	1	MCERTS	4.2	< 1.0	-	< 1.0	1.8
Water Soluble Chloride (2:1)	mg/kg	1	MCERTS	4.5	5.7	-	2.4	8.7
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	2.5	1.5	1.3	0.7	2.3
Loss on Ignition @ 450°C	%	0.2	MCERTS	-	-	3.4	-	-
Acid Neutralisation Capacity	+/- mmol/kg	-9999	NONE	-	-	-0.31	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
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Analytical Report Number: 25-057021

Project / Site name: Brownhill School SEN Hub, Rochdale

Your Order No: PO-0514

Lab Sample Number	723437	723438	723439	723440	723441
Sample Reference	TP04	TP04	TP05	TP06	TP07
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	1.10	2.90-3.00	0.80	1.20	0.60
Date Sampled	07/10/2025	07/10/2025	07/10/2025	07/10/2025	07/10/2025
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.74	0.32	1.3	< 0.05	1.4
Acenaphthylene	mg/kg	0.05	MCERTS	0.1	< 0.05	< 0.05	< 0.05	0.36
Acenaphthene	mg/kg	0.05	MCERTS	0.97	< 0.05	1.2	0.08	1.5
Fluorene	mg/kg	0.05	MCERTS	0.75	< 0.05	0.99	0.05	1.3
Phenanthrene	mg/kg	0.05	MCERTS	6.7	0.36	5.1	0.71	11
Anthracene	mg/kg	0.05	MCERTS	1.7	< 0.05	1.3	0.18	2.4
Fluoranthene	mg/kg	0.05	MCERTS	9.2	0.51	4.9	1.4	12
Pyrene	mg/kg	0.05	MCERTS	8.4	0.42	4.5	1.2	11
Benzo(a)anthracene	mg/kg	0.05	MCERTS	4.7	0.25	2.3	0.58	5.6
Chrysene	mg/kg	0.05	MCERTS	4.7	0.26	2.5	0.66	5.7
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	5.4	0.32	2.2	0.77	6.5
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	2.2	0.1	1.1	0.28	2.3
Benzo(a)pyrene	mg/kg	0.05	MCERTS	4.5	0.2	1.9	0.57	5.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	2	0.11	0.69	0.23	2.2
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.37	< 0.05	0.17	< 0.05	0.45
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	2.2	0.12	0.72	0.3	2.4
Coronene	mg/kg	0.05	NONE	-	-	0.15	-	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	54.4	2.98	-	7	71
Total WAC-17 PAHs	mg/kg	0.85	NONE	-	-	30.9	-	-

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	21	180	-	6.2	11
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	6.6	0.4	-	0.4	0.4
Chromium (hexavalent)	mg/kg	1.8	MCERTS	U/S ¹⁰ U/S _g	< 1.8	-	< 1.8	< 1.8
Chromium (VI) by IC	mg/kg	1.8	NONE	< 1.80	-	-	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	31	71	-	34	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	220	530	-	27	51
Lead (aqua regia extractable)	mg/kg	1	MCERTS	1700	150	-	45	160
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.4	< 0.3	-	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	37	84	-	29	21
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	4.5	-	1.2	1.4
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	550	530	-	130	120

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	-	-	-	-
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	-	-	-	-
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	-	-	-	-
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	-	-	-	-	-
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	-	-	-	-	-
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	-	-	-	-	-
TPHCWG - Aliphatic >EC16 - EC35 _{EH_CU_1D_AL}	mg/kg	10	MCERTS	-	-	-	-	-
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	-	-	-	-	-
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	-	-	-	-	-

Analytical Report Number: 25-057021

Project / Site name: Brownhill School SEN Hub, Rochdale

Your Order No: PO-0514

Lab Sample Number	723437			723438	723439	723440	723441
Sample Reference	TP04			TP04	TP05	TP06	TP07
Sample Number	None Supplied			None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A			N/A	N/A	N/A	N/A
Depth (m)	1.10			2.90-3.00	0.80	1.20	0.60
Date Sampled	07/10/2025			07/10/2025	07/10/2025	07/10/2025	07/10/2025
Time Taken	None Supplied			None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status				

TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	MCERTS	-	-	-	-	-
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	MCERTS	-	-	-	-	-
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.02	MCERTS	-	-	-	-	-
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	-	-	-	-	-
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	-	-	-	-	-
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	-	-	-	-	-
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	-	-	-	-	-
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	-	-	-	-	-

TPH (>EC8 - EC10) HS_1D_TOTAL	mg/kg	0.02	MCERTS	< 0.02	< 0.02	-	< 0.02	< 0.02
TPH (>EC10 - EC12) EH_CU_1D_TOTAL	mg/kg	2	MCERTS	3.2	< 2.0	-	< 2.0	< 2.0
TPH (>EC10 - EC35) EH_CU_1D_TOTAL	mg/kg	10	NONE	160	91	-	10	97
TPH (>EC12 - EC16) EH_CU_1D_TOTAL	mg/kg	4	MCERTS	8.3	< 4.0	-	< 4.0	7.8
TPH (>EC16 - EC21) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	41	14	-	< 10	26
TPH (>EC21 - EC35) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	110	75	-	< 10	62

TPH Total >EC8 - EC35 EH_CU+HS_1D_TOTAL	mg/kg	10	NONE	160	91	-	10	97
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TPH (EC10 - EC40) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	180	100	-	10	110
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Mineral Oil (EC10 - EC40) EH_CU_1D_AL	mg/kg	10	NONE	-	-	26	-	-
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VOCs

Benzene	µg/kg	5	MCERTS	-	-	< 5.0	-	-
Toluene	µg/kg	5	MCERTS	-	-	< 5.0	-	-
Ethylbenzene	µg/kg	5	MCERTS	-	-	< 5.0	-	-
p & m-Xylene	µg/kg	8	MCERTS	-	-	< 8.0	-	-
o-Xylene	µg/kg	5	MCERTS	-	-	< 5.0	-	-

Total BTEX	µg/kg	10	MCERTS	-	-	< 10	-	-
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PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	-	-	< 0.001	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	< 0.001	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	< 0.001	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	< 0.001	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	< 0.001	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	< 0.001	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	< 0.001	-	-

Total PCBs	mg/kg	0.007	MCERTS	-	-	< 0.007	-	-
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 25-057021

Project / Site name: Brownhill School SEN Hub, Rochdale

Your Order No: PO-0514

Lab Sample Number	723442	723443	723444
Sample Reference	TP08	TP09	TT01 East
Sample Number	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A
Depth (m)	0.80	0.20	1.00
Date Sampled	09/10/2025	09/10/2025	10/10/2025
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status

Stone Content	%	0.1	NONE	45.4	< 0.1	17.4
Moisture Content	%	0.01	NONE	9.7	30	12
Total mass of sample received	kg	0.1	NONE	0.9	0.7	0.5

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Detected	Detected	Detected
Asbestos Analyst ID	N/A	N/A	N/A	DSO	DSO	DSO
Analysis completed	N/A	N/A	N/A	25/10/2025	25/10/2025	25/10/2025
Actinolite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Amosite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Anthophyllite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Chrysotile detected	Type	N/A	ISO 17025	Detected	Detected	Detected
Crocidolite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Tremolite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	< 0.001	< 0.001	0.002
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	Loose Fibres	Loose Fibres	Loose Fibres
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General Inorganics

pH (L005B)	pH Units	N/A	MCERTS	-	-	-
pH (L099)	pH Units	N/A	MCERTS	8.3	7.9	8.3
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	460	500	940
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	71	42	85
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0357	0.021	0.0425
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	35.7	21	42.5
Sulphide	mg/kg	1	MCERTS	< 1.0	1	3.5
Water Soluble Chloride (2:1)	mg/kg	1	MCERTS	3.9	14	5.6
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.8	3.3	1.9
Loss on Ignition @ 450°C	%	0.2	MCERTS	-	-	-
Acid Neutralisation Capacity	+/- mmol/kg	-9999	NONE	-	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
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Analytical Report Number: 25-057021

Project / Site name: Brownhill School SEN Hub, Rochdale

Your Order No: PO-0514

Lab Sample Number	723442	723443	723444
Sample Reference	TP08	TP09	TT01 East
Sample Number	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A
Depth (m)	0.80	0.20	1.00
Date Sampled	09/10/2025	09/10/2025	10/10/2025
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.15	0.07	0.18
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.17
Acenaphthene	mg/kg	0.05	MCERTS	0.56	0.11	1.4
Fluorene	mg/kg	0.05	MCERTS	0.39	0.09	1.2
Phenanthrene	mg/kg	0.05	MCERTS	3.5	1.6	14
Anthracene	mg/kg	0.05	MCERTS	0.72	0.34	4.8
Fluoranthene	mg/kg	0.05	MCERTS	4.8	3	24
Pyrene	mg/kg	0.05	MCERTS	4.3	2.7	21
Benzo(a)anthracene	mg/kg	0.05	MCERTS	2.2	1.5	11
Chrysene	mg/kg	0.05	MCERTS	2.5	1.6	11
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	2.6	1.8	10
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	1.2	0.95	5.4
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.1	1.7	9.4
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.9	0.78	3.8
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.2	0.14	0.82
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.1	0.96	4
Coronene	mg/kg	0.05	NONE	-	-	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	27.1	17.2	121
Total WAC-17 PAHs	mg/kg	0.85	NONE	-	-	-

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	11	9.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4	0.5	0.4
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	U/S ^{U/S} g	< 1.8
Chromium (VI) by IC	mg/kg	1.8	NONE	-	< 1.80	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	21	18	32
Copper (aqua regia extractable)	mg/kg	1	MCERTS	45	36	45
Lead (aqua regia extractable)	mg/kg	1	MCERTS	130	73	250
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	23	17	19
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.2	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	120	94	170

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	-	-
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	-	-
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	-	-
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	-	-	-
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	-	-	-
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	-	-	-
TPHCWG - Aliphatic >EC16 - EC35 _{EH_CU_1D_AL}	mg/kg	10	MCERTS	-	-	-
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	-	-	-
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	-	-	-

Analytical Report Number: 25-057021

Project / Site name: Brownhill School SEN Hub, Rochdale

Your Order No: PO-0514

Lab Sample Number	723442	723443	723444
Sample Reference	TP08	TP09	TT01 East
Sample Number	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A
Depth (m)	0.80	0.20	1.00
Date Sampled	09/10/2025	09/10/2025	10/10/2025
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status

TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	MCERTS	-	-	-
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	MCERTS	-	-	-
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.02	MCERTS	-	-	-
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	-	-	-
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	-	-	-
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	-	-	-
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	-	-	-
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	-	-	-

TPH (>EC8 - EC10) HS_1D_TOTAL	mg/kg	0.02	MCERTS	< 0.02	< 0.02	< 0.02
TPH (>EC10 - EC12) EH_CU_1D_TOTAL	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0
TPH (>EC10 - EC35) EH_CU_1D_TOTAL	mg/kg	10	NONE	77	58	330
TPH (>EC12 - EC16) EH_CU_1D_TOTAL	mg/kg	4	MCERTS	5.6	4.6	8
TPH (>EC16 - EC21) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	16	12	57
TPH (>EC21 - EC35) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	56	42	270

TPH Total >EC8 - EC35 EH_CU+HS_1D_TOTAL	mg/kg	10	NONE	77	58	330
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TPH (EC10 - EC40) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	94	72	420
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Mineral Oil (EC10 - EC40) EH_CU_1D_AL	mg/kg	10	NONE	-	-	-
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VOCs

Benzene	µg/kg	5	MCERTS	-	-	-
Toluene	µg/kg	5	MCERTS	-	-	-
Ethylbenzene	µg/kg	5	MCERTS	-	-	-
p & m-Xylene	µg/kg	8	MCERTS	-	-	-
o-Xylene	µg/kg	5	MCERTS	-	-	-

Total BTEX	µg/kg	10	MCERTS	-	-	-
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PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	-

Total PCBs	mg/kg	0.007	MCERTS	-	-	-
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



4041

Analytical Report Number: **25-057021**
 Project / Site name: **Brownhill School SEN Hub, Rochdale**
 Your Order No: **PO-0514**

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample	Analysis completed	Analyst ID
723429	BH04	0.30-0.50	185	Loose Fibres, Loose Fibrous Debris	Amosite & Chrysotile	0.006	0.006	25/10/2025	MJN
723430	BH05	0.80-1.00	180	Loose Fibres,	Chrysotile	0.001	0.001	25/10/2025	MJN
723431	BH07	0.60-0.80	230	Loose Fibres,	Chrysotile	< 0.001	< 0.001	25/10/2025	MJN
723434	TP02	1.00-	258	Loose Fibres	Amosite & Chrysotile	0.001	0.001	25/10/2025	JSW
723435	TP03	1.80-	257	Loose Fibres, Loose Fibrous Debris	Chrysotile	0.002	0.002	25/10/2025	JSW
723437	TP04	1.10-	212	Loose Fibres	Chrysotile	< 0.001	< 0.001	25/10/2025	JSW
723438	TP04	2.90-3.00	110	Loose Fibres	Chrysotile	< 0.001	< 0.001	25/10/2025	DSO
723441	TP07	0.60-	205	Loose Fibres	Chrysotile	< 0.001	< 0.001	25/10/2025	DSO
723442	TP08	0.80-	229	Loose Fibres	Chrysotile	< 0.001	< 0.001	25/10/2025	DSO
723443	TP09	0.20-	200	Loose Fibres	Chrysotile	< 0.001	< 0.001	25/10/2025	DSO
723444	TT01 East	1.00-	212	Loose Fibres	Chrysotile	0.002	0.002	25/10/2025	DSO

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Analytical Report Number: 25-057021

Project / Site name: Brownhill School SEN Hub, Rochdale

Your Order No: PO-0514

Lab Sample Number	723445	723446
Sample Reference	TT01 West	Footpath
Sample Number	None Supplied	None Supplied
Water Matrix	Other water	Other water
Depth (m)	1.50	0.00
Date Sampled	10/10/2025	13/10/2025
Time Taken	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection
		Test Accreditation Status

General Inorganics

pH (L099)	pH Units	N/A	NONE	7.4	7.5
Electrical Conductivity at 20°C	µS/cm	10	NONE	920	670
Sulphate as SO ₄	mg/l	0.045	NONE	118	63.4
Sulphide	µg/l	5	NONE	< 5.0	< 5.0
Chloride	mg/l	0.15	NONE	11	15
Ammoniacal Nitrogen as NH ₃	µg/l	15	NONE	4200	26
Total Organic Carbon (TOC)	mg/l	0.1	NONE	16.6	4.92
Nitrate as N	mg/l	0.01	NONE	1.33	0.34
Nitrate as NO ₃	mg/l	0.05	NONE	5.88	1.52
Redox Potential	mV	-800	NONE	237.4	235.2

Total Phenols

Total Phenols (monohydric)	µg/l	10	NONE	< 10	< 10
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Speciated PAHs

Naphthalene	µg/l	0.01	NONE	< 0.01	0.08
Acenaphthylene	µg/l	0.01	NONE	0.04	< 0.01
Acenaphthene	µg/l	0.01	NONE	0.04	< 0.01
Fluorene	µg/l	0.01	NONE	0.04	< 0.01
Phenanthrene	µg/l	0.01	NONE	0.27	0.04
Anthracene	µg/l	0.01	NONE	0.16	< 0.01
Fluoranthene	µg/l	0.01	NONE	1.1	< 0.01
Pyrene	µg/l	0.01	NONE	1.2	< 0.01
Benzo(a)anthracene	µg/l	0.01	NONE	0.75	< 0.01
Chrysene	µg/l	0.01	NONE	0.74	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	NONE	1.1	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	NONE	0.44	< 0.01
Benzo(a)pyrene	µg/l	0.01	NONE	0.94	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	0.47	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	0.08	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	0.58	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	7.92	< 0.16
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	NONE	1.82	0.33
Cadmium (dissolved)	µg/l	0.02	NONE	0.05	0.02
Chromium (dissolved)	µg/l	0.2	NONE	3.3	0.3
Lead (dissolved)	µg/l	0.2	NONE	0.5	< 0.2
Mercury (dissolved)	µg/l	0.05	NONE	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	NONE	1.9	2.3

Analytical Report Number: 25-057021

Project / Site name: Brownhill School SEN Hub, Rochdale

Your Order No: PO-0514

Lab Sample Number	723445	723446
Sample Reference	TT01 West	Footpath
Sample Number	None Supplied	None Supplied
Water Matrix	Other water	Other water
Depth (m)	1.50	0.00
Date Sampled	10/10/2025	13/10/2025
Time Taken	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection
		Test Accreditation Status

Petroleum Hydrocarbons

TPH (>EC8 - EC10) HS_1D_TOTAL	µg/l	10	NONE	< 10	< 10
TPH (>EC10 - EC12) EH_1D_TOTAL_MS	µg/l	10	NONE	< 10	< 10
TPH (>EC12 - EC16) EH_1D_TOTAL_MS	µg/l	10	NONE	33	20
TPH (>EC16 - EC21) EH_1D_TOTAL_MS	µg/l	10	NONE	100	49
TPH (>EC21 - EC35) EH_1D_TOTAL_MS	µg/l	10	NONE	190	66

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

Analytical Report Number: 25-057021

Project / Site name: Brownhill School SEN Hub, Rochdale

Your Order No: PO-0514

Lab Sample Number	723433	723439
Sample Reference	TP01	TP05
Sample Number	None Supplied	None Supplied
Water Matrix	N/A	N/A
Depth (m)	0.50	0.80
Date Sampled	07/10/2025	07/10/2025
Time Taken	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Test Limit of detection
		Test Accreditation Status

10:1 WAC Leachate

Arsenic	mg/l	0.001	ISO 17025	0.00182	0.00159
Barium	mg/l	0.00005	ISO 17025	0.0481	0.0355
Cadmium	mg/l	0.0001	ISO 17025	< 0.000100	< 0.000100
Chromium	mg/l	0.0004	ISO 17025	0.0012	< 0.00040
Copper	mg/l	0.0007	ISO 17025	0.0087	0.0058
Mercury	mg/l	0.0005	ISO 17025	< 0.000500	< 0.000500
Molybdenum	mg/l	0.0004	ISO 17025	0.00298	0.00361
Nickel	mg/l	0.0003	ISO 17025	0.00086	0.00057
Lead	mg/l	0.001	ISO 17025	< 0.0010	0.002
Antimony	mg/l	0.0017	ISO 17025	0.0062	0.0026
Selenium	mg/l	0.004	ISO 17025	< 0.0040	< 0.0040
Zinc	mg/l	0.0004	ISO 17025	0.0065	0.011
Chloride	mg/l	0.15	ISO 17025	1.2	2
Fluoride	mg/l	0.05	ISO 17025	0.44	0.58
Sulphate	mg/l	0.045	ISO 17025	18	44
Total dissolved solids	mg/l	6	ISO 17025	75	110
Total monohydric phenols	mg/l	0.01	ISO 17025	< 0.010	< 0.010
Dissolved organic carbon	mg/l	0.1	NONE	6.43	6.44

10:1 WAC Leachate

Arsenic	mg/kg	0.01	NONE	0.0182	0.0159
Barium	mg/kg	0.0005	NONE	0.481	0.355
Cadmium	mg/kg	0.001	NONE	< 0.00100	< 0.00100
Chromium	mg/kg	0.004	NONE	0.012	< 0.0040
Copper	mg/kg	0.007	NONE	0.087	0.058
Mercury	mg/kg	0.005	NONE	< 0.00500	< 0.00500
Molybdenum	mg/kg	0.004	NONE	0.0298	0.0361
Nickel	mg/kg	0.003	NONE	0.0086	0.0057
Lead	mg/kg	0.01	NONE	< 0.010	0.02
Antimony	mg/kg	0.017	NONE	0.062	0.026
Selenium	mg/kg	0.04	NONE	< 0.040	< 0.040
Zinc	mg/kg	0.004	NONE	0.065	0.11
Chloride	mg/kg	1.5	NONE	12	20
Fluoride	mg/kg	0.5	NONE	4.4	5.8
Sulphate	mg/kg	0.45	NONE	180	440
Total dissolved solids	mg/kg	60	NONE	750	1100
Total monohydric phenols	mg/kg	0.1	NONE	< 0.10	< 0.10
Dissolved organic carbon	mg/kg	1	NONE	64.3	64.4

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

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Waste Acceptance Criteria Analytical Results

Report No:		25-057021					
					Client: Geotechnical &		
Location		Brownhill School SEN Hub, Rochdale					
Lab Reference (Sample Number)		723433			Landfill Waste Acceptance Criteria		
					Limits		
Sampling Date		07/10/2025			Inert Waste Landfill	Stable Non- reactive HAZARDOUS waste in non- hazardous Landfill	Hazardous Waste Landfill
Sample ID		TP01					
Depth (m)		0.50					
Solid Waste Analysis							
TOC (%)**		2.4			3%	5%	6%
Loss on Ignition (%) **		6			--	--	10%
BTEX (µg/kg) **		< 10			6000	--	--
Sum of PCBs (mg/kg) **		< 0.007			1	--	--
Mineral Oil (mg/kg) EH, 1D, CU, AL		150			500	--	--
Total PAH (WAC-17) (mg/kg)		54.4			100	--	--
pH (units)**		7.6			--	>6	--
Acid Neutralisation Capacity (mmol / kg)		11			--	To be evaluated	To be evaluated
Eluate Analysis		10:1		10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)		mg/l			mg/kg		
					using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *		0.00182		0.0182	0.5	2	25
Barium *		0.0481		0.481	20	100	300
Cadmium *		< 0.000100		< 0.00100	0.04	1	5
Chromium *		0.0012		0.012	0.5	10	70
Copper *		0.0087		0.087	2	50	100
Mercury *		< 0.000500		< 0.00500	0.01	0.2	2
Molybdenum *		0.00298		0.0298	0.5	10	30
Nickel *		0.00086		0.0086	0.4	10	40
Lead *		< 0.0010		< 0.010	0.5	10	50
Antimony *		0.0062		0.062	0.06	0.7	5
Selenium *		< 0.0040		< 0.040	0.1	0.5	7
Zinc *		0.0065		0.065	4	50	200
Chloride *		1.2		12	800	15000	25000
Fluoride*		0.44		4.4	10	150	500
Sulphate *		18		180	1000	20000	50000
TDS*		75		750	4000	60000	100000
Phenol Index (Monohydric Phenols) *		< 0.010		< 0.10	1	-	-
DOC		6.43		64.3	500	800	1000
Leach Test Information							
Stone Content (%)		< 0.1					
Sample Mass (kg)		2					
Dry Matter (%)		84					
Moisture (%)		16					
Results are expressed on a dry weight basis, after correction for moisture content where applicable. * = UKAS accredited (liquid eluate analysis only)							
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation ** = MCERTS accredited							
Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3. This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.							

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Waste Acceptance Criteria Analytical Results

Report No:		25-057021					
					Client: Geotechnical &		
Location		Brownhill School SEN Hub, Rochdale					
Lab Reference (Sample Number)		723439			Landfill Waste Acceptance Criteria		
Sampling Date		10/07/2025			Limits		
Sample ID		TP05			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Depth (m)		0.80					
Solid Waste Analysis							
TOC (%)**		1.3			3%	5%	6%
Loss on Ignition (%) **		3.4			--	--	10%
BTEX (µg/kg) **		< 10			6000	--	--
Sum of PCBs (mg/kg) **		< 0.007			1	--	--
Mineral Oil (mg/kg) EH, 1D, CU, AL		26			500	--	--
Total PAH (WAC-17) (mg/kg)		30.9			100	--	--
pH (units)**		6.9			--	>6	--
Acid Neutralisation Capacity (mmol / kg)		-0.31			--	To be evaluated	To be evaluated
Eluate Analysis		10:1		10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)		mg/l			using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
		mg/kg					
Arsenic *		0.00159		0.0159	0.5	2	25
Barium *		0.0355		0.355	20	100	300
Cadmium *		< 0.000100		< 0.00100	0.04	1	5
Chromium *		< 0.00040		< 0.0040	0.5	10	70
Copper *		0.0058		0.058	2	50	100
Mercury *		< 0.000500		< 0.00500	0.01	0.2	2
Molybdenum *		0.00361		0.0361	0.5	10	30
Nickel *		0.00057		0.0057	0.4	10	40
Lead *		0.002		0.02	0.5	10	50
Antimony *		0.0026		0.026	0.06	0.7	5
Selenium *		< 0.0040		< 0.040	0.1	0.5	7
Zinc *		0.011		0.11	4	50	200
Chloride *		2		20	800	15000	25000
Fluoride*		0.58		5.8	10	150	500
Sulphate *		44		440	1000	20000	50000
TDS*		110		1100	4000	60000	100000
Phenol Index (Monohydric Phenols) *		< 0.010		< 0.10	1	-	-
DOC		6.44		64.4	500	800	1000
Leach Test Information							
Stone Content (%)		< 0.1					
Sample Mass (kg)		1.7					
Dry Matter (%)		87					
Moisture (%)		13					
</							

Analytical Report Number : 25-057021

Project / Site name: Brownhill School SEN Hub, Rochdale

* 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 *
723427	BH01	None Supplied	0.3	Brown sand with vegetation and stones
723428	BH02	None Supplied	0.5	Brown clay and sand with vegetation
723429	BH04	None Supplied	0.30-0.50	Brown sand with gravel and brick
723430	BH05	None Supplied	0.80-1.00	Brown sand with brick and vegetation
723431	BH07	None Supplied	0.60-0.80	Brown sand with stones
723432	BH08	None Supplied	0.30-0.40	Brown clay and sand with stones
723433	TP01	None Supplied	0.5	Brown clay and sand with gravel and vegetation
723434	TP02	None Supplied	1	Brown sand with stones
723435	TP03	None Supplied	1.8	Brown sand with gravel
723436	TP03	None Supplied	2.3	Brown clay
723437	TP04	None Supplied	1.1	Brown sand with vegetation and stones
723438	TP04	None Supplied	2.90-3.00	Brown sand
723439	TP05	None Supplied	0.8	Brown clay
723440	TP06	None Supplied	1.2	Brown sand with stones
723441	TP07	None Supplied	0.6	Brown clay and loam with vegetation
723442	TP08	None Supplied	0.8	Brown loam and sand with vegetation and stones
723443	TP09	None Supplied	0.2	Brown loam and clay with vegetation
723444	TT01 East	None Supplied	1	Brown sand with stones

Analytical Report Number : 25-057021

Project / Site name: Brownhill School SEN Hub, Rochdale

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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, 2021	A001B	D	ISO 17025
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode	In-house method	L010-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
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	L038B	D	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Total petroleum hydrocarbons by GC-FID in soil	Determination of total petroleum hydrocarbons in soil by GC-FID	In-house method	L076B	D	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil (Summed Bands)	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS (Summed Bands).	Calculation	L076B/L088-PL	D/W	NONE
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
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS
Total petroleum hydrocarbons by HS-GC-MS in soil	Determination of total petroleum hydrocarbons in soil by HS-GC/MS	In-house method	L088-PL	W	MCERTS

Analytical Report Number : 25-057021

Project / Site name: Brownhill School SEN Hub, Rochdale

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references	HSE Report No: 83/1996, HSG 248 (2021), HSG 264 (2012) & SCA Blue Book (draft)	A006B	D	ISO 17025
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID in soil	Determination of total petroleum hydrocarbons in soil by GC-FID with carbon banding aliphatic and aromatic	In-house method	L076B	D	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil (Summed Bands)	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic (Summed Bands).	Calculation	L076B/L088-PL	D/W	NONE
Total petroleum hydrocarbons with carbon banding by HS-GC/MS in soil	Determination of total petroleum hydrocarbons in soil by HS-GC/MS with carbon banding aliphatic and aromatic	In-house method	L088-PL	W	MCERTS
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by electrometric measurement	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031B	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1 ratio with a buffer solution followed by Ion Selective Electrode	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination	L033B	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Metals in leachate by ICP-OES	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	L039B	W	ISO 17025
One stage WAC 10:1 leachate preparation	One stage batch test at a liquid to solid ratio of 10 L/kg	BS EN 12457-2-2002	L043B	W	ISO 17025
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe	In-house method based on Guidance on Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046B	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047-PL	D	MCERTS

Analytical Report Number : 25-057021

Project / Site name: Brownhill School SEN Hub, Rochdale

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
Cr(VI) in soils by Ion chromatography	Determination of hexavalent chromium in alkaline soil extract by use of ion chromatography with spectrophotometric detection	In-house method	L130B	W	NONE
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited matrices: SW, PW, GW, except B - SW, GW, Hg - SW, PW, Al - SW, PW	In-house method based on USEPA Method 6020 & 200.8 for the determination of trace elements in water by ICP-MS	L012B	W	NONE
Sulphide in water	Determination of sulphide in water by ion selective electrode	In-house method	L029-PL	W	NONE
Electrical Conductivity at 20°C in water	Determination of electrical conductivity in water by electrochemical measurement. Accredited matrices: SW, PW, GW, FSE	In-house method	L031B	W	NONE
Total Organic Carbon in water	Determination of total organic carbon in water by TOC/DOC NDIR Analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Total Petroleum Hydrocarbons in water by GC-MS	Determination of total petroleum hydrocarbons in water by GC-MS. Accredited matrices (TPH C12-C35): SW, PW, GW	In-house method	L070B	W	NONE
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate followed by colorimetry. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08	L078-PL	W	NONE
Nitrate in water	Determination of nitrate by reaction with sodium salicylate followed by colorimetry. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08	L078-PL	W	NONE
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	NONE
Chloride in water	Determination of chloride in water by colorimetry using discrete analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house based on MEWAM Method ISBN 0117516260	L082B	W	NONE
Ammonia as NH3 in water	Determination of ammonium/ammonia/ammoniacal nitrogen by the colorimetric salicylate/nitroprusside method using discrete analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	NONE
Redox Potential of water	Determination of redox potential of water by potentiometric method	In-house method. The lab test is an indicator of Redox potential. For accuracy, this test should be completed on site due to its short stability.	L084-PL	W	NONE
Total Petroleum Hydrocarbons in water by HS-GC/MS	Determination of total petroleum hydrocarbons in water by headspace HS-GC/MS. Accredited matrices: SW, PW, GW	In-house method	L088-PL	W	NONE
pH of water at 20°C (automated)	Determination of pH of water by electrochemical measurement. Accredited matrices: SW, PW, GW, FSE, LL	In-house method	L099-PL	W	NONE

Analytical Report Number : 25-057021

Project / Site name: Brownhill School SEN Hub, Rochdale

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Speciated PAHs and/or Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds (including PAHs) in water by extraction in dichloromethane followed by GC-MS. Accredited matrices (PAHs): SW, PW, GW	In-house method based on USEPA 8270	L102B	W	NONE
Sulphate in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, PrW, DI PrW, FSE, LL	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	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.

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 - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

*U/S g- Unsuitable for analysis due to high colour intensity.

Analytical Report Number : 25-057021

Project / Site name: Brownhill School SEN Hub, Rochdale

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container/Insufficient material provided c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH01	N/A	S	723427	c	Chloride, water soluble, in soil	L082B	c
BH01	N/A	S	723427	c	Hexavalent chromium in soil	L080-PL	c
BH01	N/A	S	723427	c	Metals in soil by ICP-OES	L038B	c
BH01	N/A	S	723427	c	Monohydric phenols in soil	L080-PL	c
BH01	N/A	S	723427	c	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	c
BH01	N/A	S	723427	c	Sulphate, water soluble, in soil (16hr extraction)	L038B	c
BH01	N/A	S	723427	c	Sulphide in soil	L010-PL	c
BH01	N/A	S	723427	c	Total cyanide in soil	L080-PL	c
BH01	N/A	S	723427	c	Total organic carbon (Automated) in soil	L009B	c
BH01	N/A	S	723427	c	Total petroleum hydrocarbons by GC-FID in soil	L076B	c
BH01	N/A	S	723427	c	Total petroleum hydrocarbons by HS-GC-MS in soil	L088-PL	c
BH01	N/A	S	723427	c	Total sulphate (as SO ₄ in soil)	L038B	c
BH01	N/A	S	723427	c	pH in soil (automated)	L099-PL	c
BH02	N/A	S	723428	c	Chloride, water soluble, in soil	L082B	c
BH02	N/A	S	723428	c	Hexavalent chromium in soil	L080-PL	c
BH02	N/A	S	723428	c	Metals in soil by ICP-OES	L038B	c
BH02	N/A	S	723428	c	Monohydric phenols in soil	L080-PL	c
BH02	N/A	S	723428	c	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	c
BH02	N/A	S	723428	c	Sulphate, water soluble, in soil (16hr extraction)	L038B	c
BH02	N/A	S	723428	c	Sulphide in soil	L010-PL	c
BH02	N/A	S	723428	c	Total cyanide in soil	L080-PL	c
BH02	N/A	S	723428	c	Total organic carbon (Automated) in soil	L009B	c
BH02	N/A	S	723428	c	Total petroleum hydrocarbons by GC-FID in soil	L076B	c
BH02	N/A	S	723428	c	Total petroleum hydrocarbons by HS-GC-MS in soil	L088-PL	c
BH02	N/A	S	723428	c	Total sulphate (as SO ₄ in soil)	L038B	c
BH02	N/A	S	723428	c	pH in soil (automated)	L099-PL	c
BH04	N/A	S	723429	c	Monohydric phenols in soil	L080-PL	c
BH04	N/A	S	723429	c	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	c
BH04	N/A	S	723429	c	Sulphide in soil	L010-PL	c
BH04	N/A	S	723429	c	Total cyanide in soil	L080-PL	c
BH04	N/A	S	723429	c	Total petroleum hydrocarbons by GC-FID in soil	L076B	c
BH04	N/A	S	723429	c	Total petroleum hydrocarbons by HS-GC-MS in soil	L088-PL	c
BH05	N/A	S	723430	c	Monohydric phenols in soil	L080-PL	c
BH05	N/A	S	723430	c	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	c
BH05	N/A	S	723430	c	Sulphide in soil	L010-PL	c
BH05	N/A	S	723430	c	Total cyanide in soil	L080-PL	c
BH05	N/A	S	723430	c	Total petroleum hydrocarbons by GC-FID in soil	L076B	c
BH05	N/A	S	723430	c	Total petroleum hydrocarbons by HS-GC-MS in soil	L088-PL	c
BH07	N/A	S	723431	c	BTEX and/or Volatile organic compounds in soil	L073B	c
BH07	N/A	S	723431	c	Monohydric phenols in soil	L080-PL	c
BH07	N/A	S	723431	c	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	c
BH07	N/A	S	723431	c	Sulphide in soil	L010-PL	c
BH07	N/A	S	723431	c	Total cyanide in soil	L080-PL	c
BH07	N/A	S	723431	c	Total petroleum hydrocarbons by GC-FID in soil	L076B	c
BH07	N/A	S	723431	c	Total petroleum hydrocarbons by HS-GC-MS in soil	L088-PL	c
BH07	N/A	S	723431	c	Total petroleum hydrocarbons with carbon banding by GC-FID in soil	L076B	c
BH08	N/A	S	723432	c	Monohydric phenols in soil	L080-PL	c
BH08	N/A	S	723432	c	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	c
BH08	N/A	S	723432	c	Sulphide in soil	L010-PL	c
BH08	N/A	S	723432	c	Total cyanide in soil	L080-PL	c
BH08	N/A	S	723432	c	Total petroleum hydrocarbons by GC-FID in soil	L076B	c
BH08	N/A	S	723432	c	Total petroleum hydrocarbons by HS-GC-MS in soil	L088-PL	c
Footpath	N/A	W	723446	c	Ammonia as NH ₃ in water	L082B	c
Footpath	N/A	W	723446	c	Electrical Conductivity at 20°C in water	L031B	c
Footpath	N/A	W	723446	c	pH of water at 20°C (automated)	L099-PL	c
TP01	N/A	S	723433	c	BTEX and/or Volatile organic compounds in soil	L073B	c

Analytical Report Number : 25-057021

Project / Site name: Brownhill School SEN Hub, Rochdale

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container/Insufficient material provided c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TP01	N/A	S	723433	c	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	c
TP01	N/A	S	723433	c	Total petroleum hydrocarbons by GC-FID in soil	L076B	c
TP02	N/A	S	723434	c	Monohydric phenols in soil	L080-PL	c
TP02	N/A	S	723434	c	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	c
TP02	N/A	S	723434	c	Sulphide in soil	L010-PL	c
TP02	N/A	S	723434	c	Total cyanide in soil	L080-PL	c
TP02	N/A	S	723434	c	Total petroleum hydrocarbons by GC-FID in soil	L076B	c
TP02	N/A	S	723434	c	Total petroleum hydrocarbons by HS-GC-MS in soil	L088-PL	c
TP03	N/A	S	723435	c	Monohydric phenols in soil	L080-PL	c
TP03	N/A	S	723435	c	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	c
TP03	N/A	S	723435	c	Sulphide in soil	L010-PL	c
TP03	N/A	S	723435	c	Total cyanide in soil	L080-PL	c
TP03	N/A	S	723435	c	Total petroleum hydrocarbons by GC-FID in soil	L076B	c
TP03	N/A	S	723435	c	Total petroleum hydrocarbons by HS-GC-MS in soil	L088-PL	c
TP03	N/A	S	723436	c	Monohydric phenols in soil	L080-PL	c
TP03	N/A	S	723436	c	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	c
TP03	N/A	S	723436	c	Sulphide in soil	L010-PL	c
TP03	N/A	S	723436	c	Total cyanide in soil	L080-PL	c
TP03	N/A	S	723436	c	Total petroleum hydrocarbons by GC-FID in soil	L076B	c
TP03	N/A	S	723436	c	Total petroleum hydrocarbons by HS-GC-MS in soil	L088-PL	c
TP04	N/A	S	723437	c	Monohydric phenols in soil	L080-PL	c
TP04	N/A	S	723437	c	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	c
TP04	N/A	S	723437	c	Sulphide in soil	L010-PL	c
TP04	N/A	S	723437	c	Total cyanide in soil	L080-PL	c
TP04	N/A	S	723437	c	Total petroleum hydrocarbons by GC-FID in soil	L076B	c
TP04	N/A	S	723437	c	Total petroleum hydrocarbons by HS-GC-MS in soil	L088-PL	c
TP04	N/A	S	723438	c	Monohydric phenols in soil	L080-PL	c
TP04	N/A	S	723438	c	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	c
TP04	N/A	S	723438	c	Sulphide in soil	L010-PL	c
TP04	N/A	S	723438	c	Total cyanide in soil	L080-PL	c
TP04	N/A	S	723438	c	Total petroleum hydrocarbons by GC-FID in soil	L076B	c
TP04	N/A	S	723438	c	Total petroleum hydrocarbons by HS-GC-MS in soil	L088-PL	c
TP05	N/A	L	723439	bc	One stage WAC 10:1 leachate preparation	L043B	b
TP05	N/A	S	723439	bc	BTEX and/or Volatile organic compounds in soil	L073B	c
TP05	N/A	S	723439	bc	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	c
TP05	N/A	S	723439	bc	Total petroleum hydrocarbons by GC-FID in soil	L076B	c
TP06	N/A	S	723440	c	Monohydric phenols in soil	L080-PL	c
TP06	N/A	S	723440	c	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	c
TP06	N/A	S	723440	c	Sulphide in soil	L010-PL	c
TP06	N/A	S	723440	c	Total cyanide in soil	L080-PL	c
TP06	N/A	S	723440	c	Total petroleum hydrocarbons by GC-FID in soil	L076B	c
TP06	N/A	S	723440	c	Total petroleum hydrocarbons by HS-GC-MS in soil	L088-PL	c
TP07	N/A	S	723441	c	Monohydric phenols in soil	L080-PL	c
TP07	N/A	S	723441	c	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	c
TP07	N/A	S	723441	c	Sulphide in soil	L010-PL	c
TP07	N/A	S	723441	c	Total cyanide in soil	L080-PL	c
TP07	N/A	S	723441	c	Total petroleum hydrocarbons by GC-FID in soil	L076B	c
TP07	N/A	S	723441	c	Total petroleum hydrocarbons by HS-GC-MS in soil	L088-PL	c
TP08	N/A	S	723442	c	Sulphide in soil	L010-PL	c
TP09	N/A	S	723443	c	Sulphide in soil	L010-PL	c
TT01 East	N/A	S	723444	c	Sulphide in soil	L010-PL	c
TT01 West	N/A	W	723445	c	Ammonia as NH3 in water	L082B	c
TT01 West	N/A	W	723445	c	Electrical Conductivity at 20°C in water	L031B	c
TT01 West	N/A	W	723445	c	Metals in water by ICP-MS (dissolved)	L012B	c
TT01 West	N/A	W	723445	c	Sulphide in water	L029-PL	c
TT01 West	N/A	W	723445	c	Total Organic Carbon in water	L037B	c

Analytical Report Number : 25-057021

Project / Site name: Brownhill School SEN Hub, Rochdale

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container/Insufficient material provided c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TT01 West	N/A	W	723445	c	Total Petroleum Hydrocarbons in water by HS-GC/MS	L088-PL	c
TT01 West	N/A	W	723445	c	pH of water at 20°C (automated)	L099-PL	c

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 25/11906
Issue Number: 1

Date: 23 October, 2025

Client: Murray Rix (Northern) Ltd
Andrew House
Hadfield Street
Dukinfield
SK16 4QX

Project Manager: Enquires/Owain Davies
Project Name: J25291 Brownhill School SEN Hub
Project Ref: N/A
Order No: 25/476
Date Samples Received: 20/10/25
Date Instructions Received: 20/10/25
Date Analysis Completed: 23/10/25

Approved by:



Gemma Berrisford
Deputy Client Services Supervisor

Envirolab Job Number: 25/11906

Client Project Name: J25291 Brownhill School SEN Hub

Client Project Ref: N/A

Lab Sample ID	25/11906/1	25/11906/2						Units	Limit of Detection	Method ref
Client Sample No	5196537	5196550								
Client Sample ID	BH04	BH07								
Depth to Top	3.00	3.50								
Depth To Bottom	3.30	3.80								
Date Sampled										
Sample Type	SOIL - D	SOIL - D								
Sample Matrix Code	4A	4A								
% Stones >10mm _A	<0.1	<0.1						% w/w	0.1	A-T-044
Organic Matter ₀ ^{M#}	48.8	39.9						% w/w	0.14	A-T-032s

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 “A”	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°C / 11550µS/cm @ 20°C 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: Murray Rix (Northern) Ltd, Andrew House , Hadfield Street, Dukinfield, SK16 4QX

Project: J25291 Brownhill School SEN Hub
Clients Project No: N/A

Project No: 25/11906

Date Received: 20/10/2025 (am)

Cool Box Temperatures (°C): 16.1

Lab Sample ID	25/11906/1	25/11906/2
Client Sample No	5196537	5196550
Client Sample ID/Depth	BH04 3.00-3.30m	BH07 3.50-3.80m
Date Sampled		
Deviation Code		
E (no date)	✓	✓

Key
E (no date) No sampling date provided (all results affected if not provided)

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	25/11906/1	25/11906/2
Client Sample No	5196537	5196550
Client Sample ID/Depth	BH04 3.00-3.30m	BH07 3.50-3.80m
Date Sampled		
A-T-032s	23/10/2025	23/10/2025
A-T-044	23/10/2025	23/10/2025

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



4041

Geotechnical & Environmental Associates
Widbury Barn
Widbury Hill
Ware
Hertfordshire
SG12 7QE

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t:

e: Luke@gea-ltd.co.uk

t: 01923 225404

f: 01923 237404

e: info-i2analytical@normecgroup.com

Analytical Report Number : 25-063230

Project / Site name:	Brownhill School SEN Hub Rochdale	Samples received on:	20/11/2025
Your job number:	J25291	Samples instructed on/ Analysis started on:	20/11/2025
Your order number:	PO-0620	Analysis completed by:	27/11/2025
Report Issue Number:	1	Report issued on:	27/11/2025
Samples Analysed:	2 water samples		



Signed:

Anna Goc
PL Head of Reporting Team
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
air	- once the analysis is complete

Excel copies of reports are only valid when accompanied by this PDF certificate.

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

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.



4041

Analytical Report Number: 25-063230

Project / Site name: Brownhill School SEN Hub Rochdale

Your Order No: PO-0620

Lab Sample Number	758445	758446
Sample Reference	BH02	BH04
Sample Number	None Supplied	None Supplied
Water Matrix	Ground water	Ground water
Depth (m)	3.00	2.00
Date Sampled	19/11/2025	19/11/2025
Time Taken	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection
		Test Accreditation Status

General Inorganics

pH (L099)	pH Units	N/A	ISO 17025	7.1	7.3
Electrical Conductivity at 20°C	µS/cm	10	ISO 17025	990	540
Sulphate as SO ₄	mg/l	0.045	ISO 17025	156	29.6
Sulphide	µg/l	5	NONE	< 5.0	< 5.0
Chloride	mg/l	0.15	ISO 17025	9.6	10
Ammoniacal Nitrogen as NH ₃	µg/l	15	ISO 17025	250	430
Total Organic Carbon (TOC)	mg/l	0.1	ISO 17025	5.8	10.5
Nitrate as N	mg/l	0.01	ISO 17025	< 0.01	0.18
Nitrate as NO ₃	mg/l	0.05	ISO 17025	< 0.05	0.82
Redox Potential	mV	-800	NONE	191.7	179.5

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	0.02	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	0.02	0.02
Fluorene	µg/l	0.01	ISO 17025	0.02	0.02
Phenanthrene	µg/l	0.01	ISO 17025	0.03	0.04
Anthracene	µg/l	0.01	ISO 17025	0.02	0.02
Fluoranthene	µg/l	0.01	ISO 17025	0.03	0.05
Pyrene	µg/l	0.01	ISO 17025	0.03	0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	0.03
Chrysene	µg/l	0.01	ISO 17025	< 0.01	0.03
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	0.17	0.25
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	ISO 17025	1.46	0.79
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.15	0.03
Chromium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	0.6
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2
Mercury (dissolved)	µg/l	0.05	NONE	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	2.8	3.6



4041

Analytical Report Number: 25-063230

Project / Site name: Brownhill School SEN Hub Rochdale

Your Order No: PO-0620

Lab Sample Number				758445	758446
Sample Reference				BH02	BH04
Sample Number				None Supplied	None Supplied
Water Matrix				Ground water	Ground water
Depth (m)				3.00	2.00
Date Sampled				19/11/2025	19/11/2025
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Petroleum Hydrocarbons

TPH (>EC8 - EC10) HS_1D_TOTAL	µg/l	10	ISO 17025	< 10	< 10
TPH (>EC10 - EC12) EH_1D_TOTAL_MS	µg/l	10	NONE	< 10	< 10
TPH (>EC12 - EC16) EH_1D_TOTAL_MS	µg/l	10	NONE	< 10	< 10
TPH (>EC16 - EC21) EH_1D_TOTAL_MS	µg/l	10	NONE	< 10	< 10
TPH (>EC21 - EC35) EH_1D_TOTAL_MS	µg/l	10	NONE	< 10	< 10

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



4041

Analytical Report Number : 25-063230

Project / Site name: Brownhill School SEN Hub Rochdale

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI 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 water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited matrices: SW, PW, GW, except B - SW, GW, Hg - SW, PW, Al - SW, PW	In-house method based on USEPA Method 6020 & 200.8 for the determination of trace elements in water by ICP-MS	L012B	W	ISO 17025
Sulphide in water	Determination of sulphide in water by ion selective electrode	In-house method	L029-PL	W	NONE
Electrical Conductivity at 20°C in water	Determination of electrical conductivity in water by electrochemical measurement. Accredited matrices: SW, PW, GW, FSE	In-house method	L031B	W	ISO 17025
Total Organic Carbon in water	Determination of total organic carbon in water by TOC/DOC NDIR Analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	ISO 17025
Total Petroleum Hydrocarbons in water by GC-MS	Determination of total petroleum hydrocarbons in water by GC-MS. Accredited matrices (TPH C12-C35): SW, PW, GW	In-house method	L070B	W	NONE
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate followed by colorimetry. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate followed by colorimetry. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08	L078-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Chloride in water	Determination of chloride in water by colorimetry using discrete analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
Ammonia as NH3 in water	Determination of ammonium/ammonia/ammoniacal nitrogen by the colorimetric salicylate/nitroprusside method using discrete analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	ISO 17025
Redox Potential of water	Determination of redox potential of water by potentiometric method	In-house method. The lab test is an indicator of Redox potential. For accuracy, this test should be completed on site due to its short stability.	L084-PL	W	NONE
Total Petroleum Hydrocarbons in water by HS-GC/MS	Determination of total petroleum hydrocarbons in water by headspace HS-GC/MS. Accredited matrices: SW, PW, GW	In-house method	L088-PL	W	ISO 17025
pH of water at 20°C (automated)	Determination of pH of water by electrochemical measurement. Accredited matrices: SW, PW, GW, FSE, LL	In-house method	L099-PL	W	ISO 17025
Speciated PAHs and/or Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds (including PAHs) in water by extraction in dichloromethane followed by GC-MS. Accredited matrices (PAHs): SW, PW, GW	In-house method based on USEPA 8270	L102B	W	ISO 17025



4041

Analytical Report Number : 25-063230

Project / Site name: Brownhill School SEN Hub Rochdale

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI 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 in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, PrW, DI PrW, FSE, LL	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025

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 - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

 GEA		Geotechnical & Environmental Associates www.gea-ltd.co.uk		Generic Risk-Based Soil Screening Values	
Site Brownhill School SEN Hub, Rochdale				Job Number J25291	
Client Rochdale Borough Council				Sheet 1 / 2	
Engineer Adept Consulting Engineers					
Proposed End Use Residential without plant uptake					
Soil Organic Matter content % 6.0					
Contaminant			Contaminant		
Screening Value mg/kg			Screening Value mg/kg		
Data Source			Data Source		
Metals			Hydrocarbons		
Arsenic	40	C4SL	Banded TPH (8-10)	415	Calc1
Cadmium	149	C4SL	Banded TPH (10-12)	1846	Calc1
Chromium (III)	910	S4UL	Banded TPH (12-16)	3846	Calc1
Chromium (VI)	21	C4SL	Banded TPH (16-21)	2923	Calc1
Copper	7,100	S4UL	Banded TPH (21-35)	2923	Calc1
Lead	310	C4SL	Benzene	3.3	C4SL
Elemental Mercury	1.2	S4UL	Toluene	610	SGV
Inorganic Mercury	56	S4UL	Ethyl Benzene	350	SGV
Nickel	180	S4UL	Xylene	230	SGV
Selenium	595	SGV	Aliphatic C5-C6	160	S4UL
Zinc	40,000	S4UL	Aliphatic C6-C8	530	S4UL
Anions			Aliphatic C8-C10	150	S4UL
Soluble Sulphate	500 mg/l	Structures	Aliphatic C10-C12	770	S4UL
Sulphide	50	Structures	Aliphatic C12-C16	4400	S4UL
Chloride	400	Structures	Aliphatic C16-C35	110,000	S4UL
Others			Aromatic C6-C7	See Benzene	S4UL
Organic Carbon (%)	6	Methanogenic potential	Aromatic C7-C8	See Toluene	S4UL
Total Cyanide	140	WRAS	Aromatic C8-C10	270	S4UL
Total Mono Phenols	520	SGV	Aromatic C10-C12	1200	S4UL
PAH			Aromatic C12-C16	2500	S4UL
Naphthalene	13.10	S4UL	Aromatic C16-C21	1900	S4UL
Acenaphthylene	6,000	S4UL	Aromatic C21-C35	1900	S4UL
Acenaphthene	6,000	S4UL	PRO (C ₅ –C ₁₀)	1723	Calc2
Fluorene	4,500	S4UL	DRO (C ₁₂ –C ₂₈)	118,800	Calc2
Phenanthrene	1,500	S4UL	Lube Oil (C ₂₈ –C ₄₄)	111,900	Calc2
Anthracene	37,000	S4UL	TPH	500	Trigger to consider speciated testing
Fluoranthene	1,600	S4UL	Chlorinated Solvents		
Pyrene	3,800	S4UL	1,1,1 trichloroethane (TCA)	40	S4UL
Benzo(a)anthracene	15.0	S4UL	tetrachloroethane (PCA)	8.2	S4UL
Chrysene	32	S4UL	tetrachloroethene (PCE)	1.6	C4SL
Benzo(b)fluoranthene	4.0	S4UL	trichloroethene (TCE)	0.045	C4SL
Benzo(k)fluoranthene	110.0	S4UL	1,2-dichloroethane (DCA)	0.41	C4SL
Benzo(a)pyrene	5.30	C4SL	vinyl chloride (Chloroethene)	0.029	C4SL
Indeno(1 2 3 cd)pyrene	46.0	S4UL	tetrachloromethane (Carbon tetra	0.13	S4UL
Dibenz(a h)anthracene	0.32	S4UL	trichloromethane (Chloroform)	4.2	S4UL
Benzo (g h i)perylene	360	S4UL			
Total PAH Screen	75.7	B(a)P / 0.15			
Notes					
Concentrations measured below these screening values may be considered to represent 'uncontaminated conditions' which pose a 'LOW' risk to human health. Concentrations measured in excess of these values indicate a potential risk which require further, site specific risk assessment.					
C4SL - Defra Category 4 Screening value based on Low Level of Toxicological Risk					
SGV - Soil Guideline Value, derived from the CLEA model and published by Environment Agency 2009 - where not superseded by C4SL					
S4UL - LQM/CIEH Suitable for use Level (2015) based on 'minimal' level of risk					
Calc1 - sum of thresholds for Ali & Aro fractions - assuming a 35% Aro:65% Ali ratio as is commonly encountered in the soil					
Calc2 - sum of nearest available carbon range specified including BTEX for PRO fraction					
Total PAH based on B(a)P / 0.15 - GEA experience indicates that Benzo(a) pyrene rarely exceeds 15% of the total PAH concentration					



GEA

Geotechnical & Environmental Associates

www.gea-ltd.co.uk

Generic Risk-Based Soil Screening Values

Site Brownhill School SEN Hub, Rochdale

Client Rochdale Borough Council

Engineer Adept Consulting Engineers

Job Number
J25291

Sheet
2 / 2

Proposed End Use **Residential without plant uptake**

The key generic assumptions for this end use are as follows;

- ☐ that groundwater will not be a critical risk receptor;
- ☐ that the critical receptor for human health will be a young female aged 0 to 6 years old;
- ☐ that the exposure duration will be six years;
- ☐ that the building type equates to a terraced house.
- ☐ that the critical exposure pathways will be direct soil and indoor dust ingestion, skin contact with soils and dust, and inhalation of dust and vapours;

Where contaminant concentrations are measured at concentrations below the generic screening value it is considered that they pose an acceptable level of risk and thus further consideration of these contaminant concentrations is not required. However, where concentrations are measured in excess of the generic screening value there is considered to be a potential that they could pose an unacceptable risk and thus further action will be required which could include:

- ☐ additional testing to zone the extent of the contaminated material and thus reduce the uncertainty with regard to its potential risk;
- ☐ site specific risk assessment to refine the assessment criteria and allow an assessment to be made as to whether the concentration present would pose an unacceptable risk at this site; or
- ☐ soil remediation or risk management to mitigate the risk posed by the contaminant to a degree that it poses an acceptable risk.

**Tier 1 Groundwater Screening Values**

Site	Brownhill School SEN Hub, Rochdale	Job Number	J25291
Client	Rochdale Borough Council	Sheet	1 / 1
Engineer	Adept Consulting Engineers		

Contaminant	Screening Value µg/l	Rationale
Metals		
Arsenic	50	EQS
Boron	1,000	DWS
Cadmium	5	DWS
Chromium	50	DWS
Copper	60	EQS
Iron	200	DWS
Lead	10	DWS
Mercury	1	DWS
Nickel	20	DWS/EQS
Zinc	75	EQS
Anions		
Ammonium (NH ₄)	500	DWS
Bromate (BrO ₃)	10	DWS
Chloride	250,000	DWS
Fluoride	1,500	DWS
Nitrate	50,000	DWS
Sulphate	250,000	DWS
Hydrocarbons		
Benzene	10	CL:AIRE
Toluene	75	CL:AIRE
Ethyl Benzene	300	CL:AIRE
Xylene	30	CL:AIRE
Aliphatic C5-C6	15,000	CL:AIRE
Aliphatic C6-C8	5,400	Solubility limit
Aliphatic C8-C10	300	CL:AIRE
Aliphatic C10-C12	34	Solubility Limit
Aliphatic C12-C16	0.8	Solubility Limit
Aliphatic C16-C21	0.0013	Solubility Limit
Aliphatic C21-C35	0.0013	Solubility Limit
Aromatic C6-C7	10	See Benzene
Aromatic C7-C8	75	See Toluene
Aromatic C8-C10	500	CL:AIRE
Aromatic C10-C12	90	CL:AIRE
Aromatic C12-C16	90	CL:AIRE
Aromatic C16-C21	90	CL:AIRE
Aromatic C21-C35	90	CL:AIRE

Contaminant	Guideline Value µg/l	Data Source
Others		
Cyanide	50	DWS
Total Mono Phenols	10	EQS
Pentachlorophenol	0.4	EQS
Organochlorine pesticides	0.03	DWS
Other Pesticides	0.075	DWS
Total pesticides	0.5	DWS
Tributyltin	0.0015	EQS
pH	<6.5, >9.5	DWS
Electrical conductivity (µS/cm)	2,500	DWS
PAH		
Naphthalene	2.40	EQS
Anthracene	0.10	EQS
Fluoranthene	0.10	EQS
Benzo(b)fluoranthene	0.08	EQS
Benzo(g,h,i)perylene	0.002	Sum of both EQS
Indeno(1,2,3-cd)pyrene		
Benzo(a) pyrene	0.01	DWS
Total PAH	0.1	DWS
Chlorinated Solvents		
Trichloromethane (chloroform)	2.5	EQS
Tetrachloromethane (CCl ₄)	3	DWS
vinyl chloride (Chloroethene)	0.5	DWS
Cis 1,2-dichloroethene (DCE)	10	GEA
trichloroethene (TCE)	10	DWS/EQS
tetrachloroethene (PCE)	10	DWS/EQS
1,2-dichloroethane (DCA)	3	DWS
1,1,1 trichloroethane (TCA)	100	EQS
1,1,2 trichloroethane (TCA)	400	EQS

Notes

Concentrations measured above these screening values may indicate groundwater contamination and thus require further, site specific risk assessment.

DWS - Based on United Kingdom Drinking Water Standard - Drinking Water Inspectorate & Health Protection Agency, 2009

EQS - Generally based around Environmental Quality Standards for the longterm mean in Freshwater -Environment Agency, Dec 2011

WHO - Based on World Health Organisation, Guidelines for Drinking-water Quality, 2010

CL:AIRE - Based on recommendation in Petroleum Hydrocarbons in Groundwater 2017 using largely WHO data

GEA - estimation based on EQS for similar compounds

Solubility Limit - screening value set at the published solubility limit where other published threshold values exceed this concentration





appendix c

Desk Study

Risk Assessment Tables
Envirocheck Extracts
Historical Maps
UXO Preliminary Risk Assessment
Consultants Coal Mining Report

Envirocheck[®] Report:

Datasheet

Order Details:

Order Number:

386266087_1_1

Customer Reference:

J25291

National Grid Reference:

390760, 414150

Slice:

A

Site Area (Ha):

1.32

Search Buffer (m):

1000

Site Details:

Brownhill School SEN Hub
Off Mayfield Street
ROCHDALE
OL16 2UL

Client Details:

Mr Cooper
GEA Ltd
Unit 1
Church Farm
Gotham Road
Kingston on Soar
NG11 0DE



Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	43
Hazardous Substances	64
Geological	65
Industrial Land Use	79
Sensitive Land Use	134
Data Currency	135
Data Suppliers	141
Useful Contacts	142

Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination. For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency/Natural Resources Wales and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client. In this datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Information supplied from a joint dataset compiled by The British Geological Survey and Public Health England. The probability result is only valid for properties above ground. All basement and cellar areas are considered to be at additional risk from high radon levels. If an underground room such as a cellar or basement makes up part of the living or working accommodation, the property should be tested regardless of Radon Affected Area status.

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