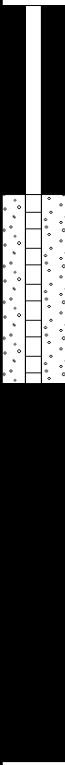
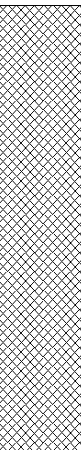
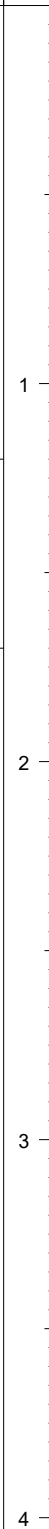
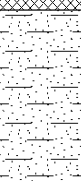
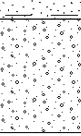
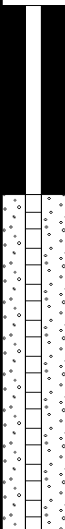
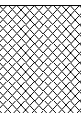
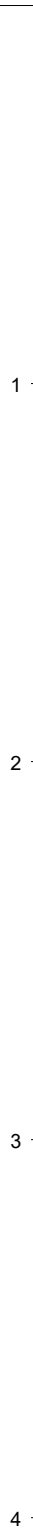
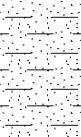
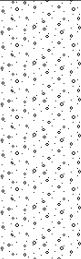
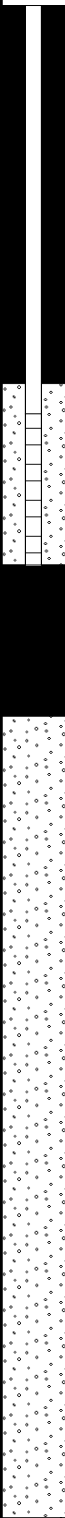
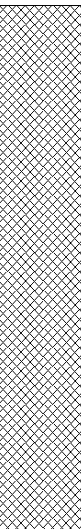
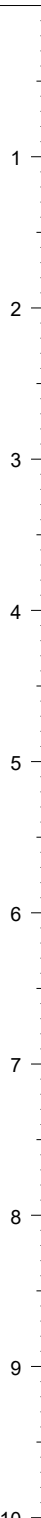
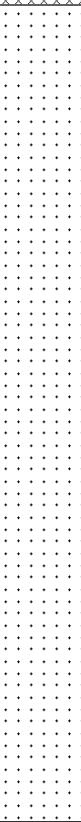


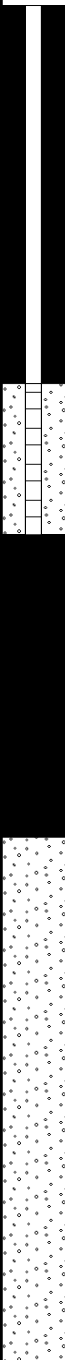
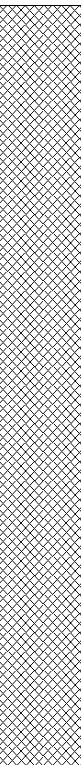
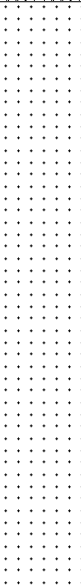
					Borehole Log			Borehole No. WS14 Sheet 1 of 1			
Project Name: Cudworth Parkway					Project No. 4674		Co-ords: 439067.48 - 410369.85		Hole Type WS		
Location: Barnsley					Level: 77.10		Scale 1:20		Logged By LB		
Client: Fenwood Estates Limited					Dates: 04/04/2024 - 04/04/2024						
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
								MADE GROUND: Brown sandy clayey coarse angular GRAVEL of concrete, brick, macadam and sandstone. (GRANULAR MADE GROUND)			
					1.20	75.90		Brown gravelly clayey fine to medium SAND. Gravel is medium angular of sandstone. (GRANULAR RESIDUAL SOIL)			
					1.70	75.40		Yellowish brown sandy coarse angular GRAVEL of sandstone. (GRANULAR RESIDUAL SOIL)			
					2.00	75.10	 <i>Refusal at 2.0m.</i> End of borehole at 2.00 m				
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.											

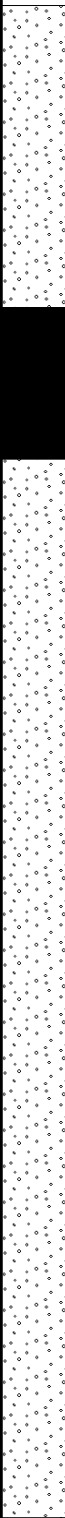
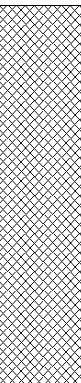
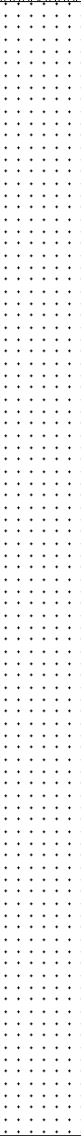
					Borehole Log			Borehole No. WS15 Sheet 1 of 1			
Project Name: Cudworth Parkway					Project No. 4674		Co-ords: 439158.68 - 410359.00		Hole Type WS		
Location: Barnsley					Level: 76.95		Scale 1:20		Logged By LB		
Client: Fenwood Estates Limited					Dates: 04/04/2024 - 04/04/2024						
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
					0.30	76.65		MADE GROUND: Brown slightly gravelly clayey SAND. Gravel is fine to coarse angular of glass, brick, sandstone and coal. (MADE GROUND TOPSOIL)			
					0.70	76.25		Yellowish brown gravelly clayey SAND. Gravel is angular fine to coarse of sandstone. (GRANULAR RESIDUAL SOIL)			
					1.40	75.55		Yellowish brown sandy coarse angular GRAVEL of sandstone. (GRANULAR RESIDUAL SOIL)			
							<u>Refusal at 1.4m.</u> End of borehole at 1.40 m				
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.											

Appendix I
Probehole Logs

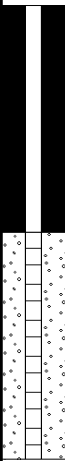
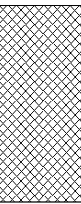
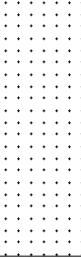
					Borehole Log			Borehole No. PH01 Sheet 1 of 2			
Project Name: Cudworth Parkway					Project No. 4674		Co-ords: 439097.32 - 410281.07		Hole Type PH		
Location: Barnsley					Level: 80.80		Scale 1:50		Logged By LB		
Client: Fenwood Estates Limited					Dates: 03/04/2024 - 03/04/2024						
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
								MADE GROUND: Dark brown overburden.			
					3.50	77.30		Orangish brown SAND and GRAVEL. (GRANULAR RESIDUAL SOIL)			
					3.80	77.00		Light grey SILTSTONE. (MEXBOROUGH ROCK)			
					4.60	76.20		Orangish brown SANDSTONE. (MEXBOROUGH ROCK)			
Continued on next sheet									10		
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.											

					Borehole Log			Borehole No. PH01 Sheet 2 of 2	
Project Name: Cudworth Parkway					Project No. 4674		Co-ords: 439097.32 - 410281.07		Hole Type PH
Location: Barnsley					Level: 80.80		Scale 1:50		Logged By LB
Client: Fenwood Estates Limited					Dates: 03/04/2024 - 03/04/2024				
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					10.50	70.30		End of borehole at 10.50 m	
									11
									12
									13
									14
									15
									16
									17
									18
									19
									20
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.									

					Borehole Log			Borehole No. PH02 Sheet 1 of 1			
Project Name: Cudworth Parkway					Project No. 4674		Co-ords: 439118.89 - 410272.78		Hole Type PH		
Location: Barnsley					Level: 80.95		Scale 1:50		Logged By LB		
Client: Fenwood Estates Limited					Dates: 04/04/2024 - 04/04/2024						
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
								MADE GROUND: Dark brown overburden.	1		
									2		
									3		
									4		
					5.10	75.85			5		
								Light brown SANDSTONE. (MEXBOROUGH ROCK)	6		
									7		
									8		
					9.00	71.95			9		
								End of borehole at 9.00 m	10		
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.											

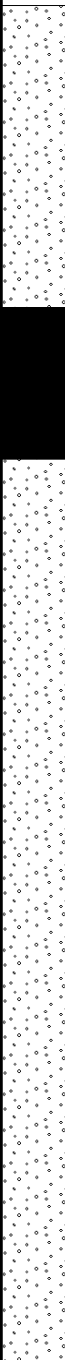
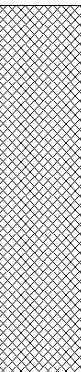
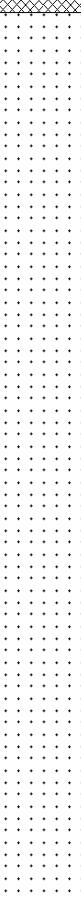
					Borehole Log			Borehole No. PH03 Sheet 1 of 2		
Project Name: Cudworth Parkway					Project No. 4674		Co-ords: 439173.09 - 410313.07		Hole Type PH	
Location: Barnsley					Level: 77.85		Scale 1:50		Logged By LB	
Client: Fenwood Estates Limited					Dates: 04/04/2024 - 04/04/2024					
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
					2.50	75.35		MADE GROUND: Dark brown overburden.	1	
										Light brown SANDSTONE. (MEXBOROUGH ROCK)
									3	
									4	
									5	
									6	
									7	
									8	
									9	
								10		
Continued on next sheet										
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.										

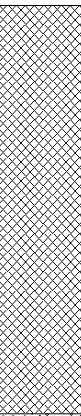
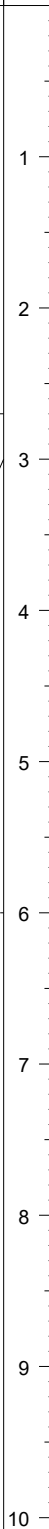
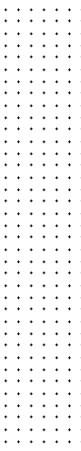
					Borehole Log			Borehole No. PH03 Sheet 2 of 2	
Project Name: Cudworth Parkway					Project No. 4674		Co-ords: 439173.09 - 410313.07		Hole Type PH
Location: Barnsley					Level: 77.85		Scale 1:50		Logged By LB
Client: Fenwood Estates Limited					Dates: 04/04/2024 - 04/04/2024				
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					10.50	67.35		End of borehole at 10.50 m	
									11
									12
									13
									14
									15
									16
									17
									18
									19
									20
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.									

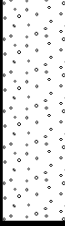
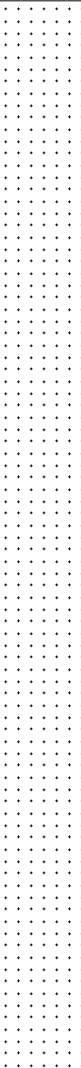
					Borehole Log			Borehole No. PH04 Sheet 1 of 1	
Project Name: Cudworth Parkway					Project No. 4674		Co-ords: 439190.74 - 410301.34		Hole Type PH
Location: Barnsley					Level: 78.20		Scale 1:50		
Client: Fenwood Estates Limited					Dates: 04/04/2024 - 04/04/2024		Logged By LB		
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					1.30	76.90		MADE GROUND: Dark brown overburden.	1
					3.00	75.20		Light brown SANDSTONE. (MEXBOROUGH ROCK)	2
								End of borehole at 3.00 m	3
									4
									5
									6
									7
									8
									9
									10
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.									

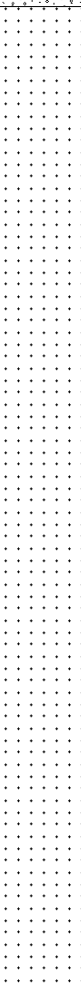


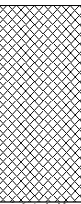
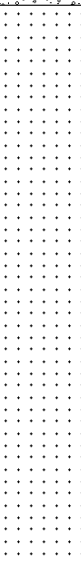
					Borehole Log			Borehole No. PH05 Sheet 2 of 2	
Project Name: Cudworth Parkway					Project No. 4674		Co-ords: 439156.05 - 410294.10		Hole Type PH
Location: Barnsley					Level: 78.75		Scale 1:50		
Client: Fenwood Estates Limited					Dates: 04/04/2024 - 04/04/2024		Logged By LB		
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					10.50	68.25		End of borehole at 10.50 m	
									11
									12
									13
									14
									15
									16
									17
									18
									19
									20
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.									

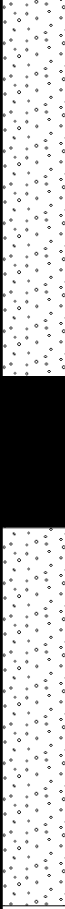
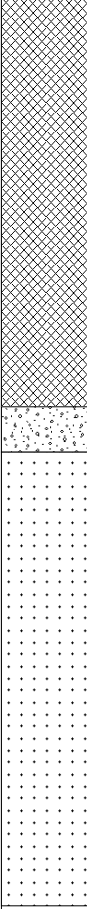
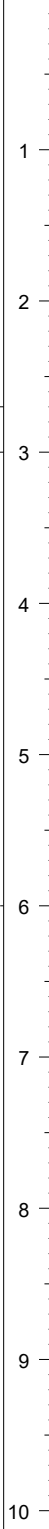
					Borehole Log			Borehole No. PH06 Sheet 1 of 1			
Project Name: Cudworth Parkway					Project No. 4674		Co-ords: 439101.02 - 410312.98		Hole Type PH		
Location: Barnsley					Level: 79.50		Scale 1:50		Logged By LB		
Client: Fenwood Estates Limited					Dates: 04/04/2024 - 04/04/2024						
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
					2.50	77.00		MADE GROUND: Dark brown overburden.	1 2		
								Light brown SANDSTONE. (MEXBOROUGH ROCK)		3 4 5 6 7 8	
					8.50	71.00		Light grey SILTSTONE interbedded with dark grey MUDSTONE. (MEXBOROUGH ROCK)	9 10		
Remarks											
1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.											

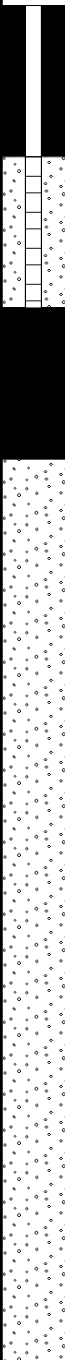
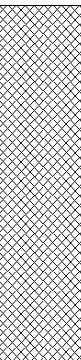
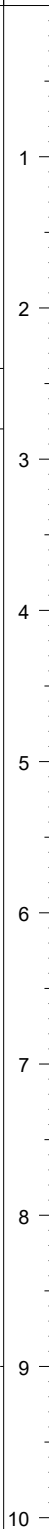
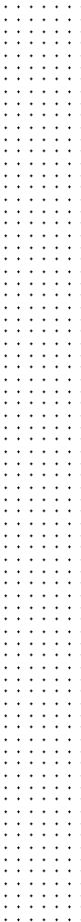
					Borehole Log			Borehole No. PH07 Sheet 1 of 1			
Project Name: Cudworth Parkway					Project No. 4674		Co-ords: 439115.38 - 410326.58		Hole Type PH		
Location: Barnsley					Level: 79.20		Scale 1:50		Logged By LB		
Client: Fenwood Estates Limited					Dates: 05/04/2024 - 05/04/2024						
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
								MADE GROUND: Dark brown overburden.			
					2.70	76.50		POSSIBLE MADE GROUND: Dark orangish brown SAND and GRAVEL. (REWORKED NATURAL GROUND)			
					3.00	76.20		Light brown SANDSTONE. (MEXBOROUGH ROCK)			
					6.00	73.20		End of borehole at 6.00 m			
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.											

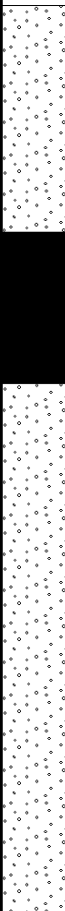
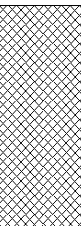
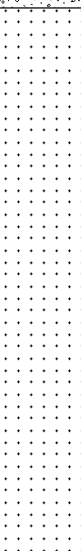
					Borehole Log			Borehole No. PH08 Sheet 1 of 1		
Project Name: Cudworth Parkway					Project No. 4674		Co-ords: 439146.06 - 410331.25		Hole Type PH	
Location: Barnsley					Level: 78.15		Scale 1:50		Logged By LB	
Client: Fenwood Estates Limited					Dates: 05/04/2024 - 05/04/2024					
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
					1.90	76.25		Orangish brown SAND and GRAVEL. (GRANULAR RESIDUAL SOIL)	1	
								Light brown becoming orangish brown SANDSTONE. (MEXBOROUGH ROCK)	2	
									3	
									4	
									5	
									6	
									7	
									8	
									9	
	10									
End of borehole at 9.00 m										
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.										
										

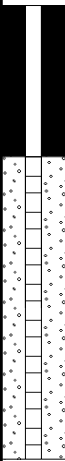
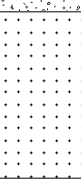
					Borehole Log			Borehole No. PH09 Sheet 1 of 1		
Project Name: Cudworth Parkway					Project No. 4674		Co-ords: 439086.82 - 410382.00		Hole Type PH	
Location: Barnsley					Level: 75.80		Scale 1:50			
Client: Fenwood Estates Limited					Dates: 05/04/2024 - 05/04/2024		Logged By LB			
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
					1.80	74.00		MADE GROUND: Dark brown overburden.	1	
					2.50	73.30		Yellowish brown SAND and GRAVEL. (GRANULAR RESIDUAL SOIL)	2	
									Light brown SANDSTONE. (MEXBOROUGH ROCK)	3
									4	
										5
										6
										7
										8
										9
										10
					9.00	66.80		End of borehole at 9.00 m		
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.										

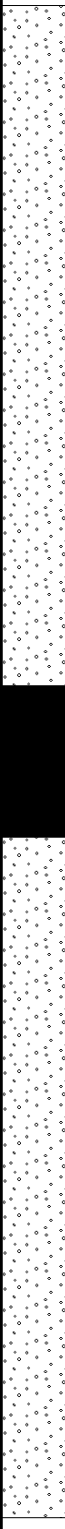
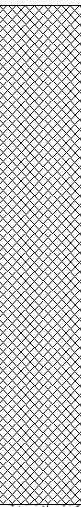
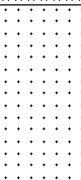
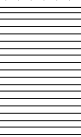
					Borehole Log			Borehole No. PH10 Sheet 1 of 1		
Project Name: Cudworth Parkway					Project No. 4674		Co-ords: 439076.58 - 410392.21		Hole Type PH	
Location: Barnsley					Level: 75.40		Scale 1:50		Logged By LB	
Client: Fenwood Estates Limited					Dates: 05/05/2024 - 05/05/2025					
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
					1.30	74.10		MADE GROUND: Dark brown overburden.	1	
					2.30	73.10		Light brown SAND and GRAVEL. (GRANULAR RESIDUAL SOIL)	2	
									Light brown SANDSTONE. (MEXBOROUGH ROCK)	3
									4	
									5	
					6.00	69.40		End of borehole at 6.00 m	6	
									7	
									8	
									9	
									10	
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.										

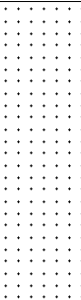
					Borehole Log			Borehole No. PH11 Sheet 1 of 1			
Project Name: Cudworth Parkway					Project No. 4674		Co-ords: 439094.99 - 410368.98		Hole Type PH		
Location: Barnsley					Level: 76.65		Scale 1:50		Logged By LB		
Client: Fenwood Estates Limited					Dates: 05/05/2024 - 05/05/2024						
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
								MADE GROUND: Dark brown overburden.			
					2.70	73.95		Orangish brown SAND and GRAVEL. (GRANULAR RESIDUAL SOIL)			
					3.00	73.65		Light brown SANDSTONE. (MEXBOROUGH ROCK)			
					6.00	70.65		End of borehole at 6.00 m			
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion. 											

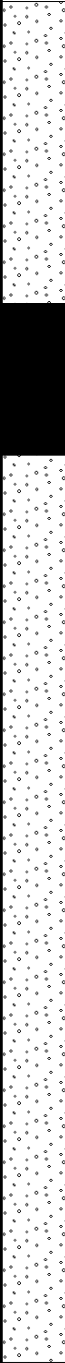
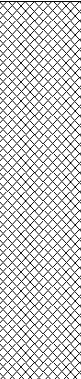
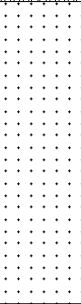
					Borehole Log			Borehole No. PH12 Sheet 1 of 1			
Project Name: Cudworth Parkway					Project No. 4674		Co-ords: 439097.55 - 410353.51		Hole Type PH		
Location: Barnsley					Level: 77.55		Scale 1:50		Logged By LB		
Client: Fenwood Estates Limited					Dates: 05/05/2024 - 05/05/2024						
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
					2.40	75.15		MADE GROUND: Dark brown overburden.			
										Orangish brown SAND and GRAVEL. (GRANULAR RESIDUAL SOIL)	
											Light brown SANDSTONE. (MEXBOROUGH ROCK)
					9.00	68.55		End of borehole at 9.00 m			
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.											

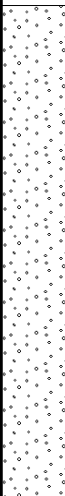
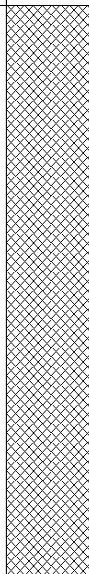
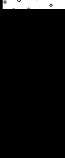
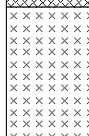
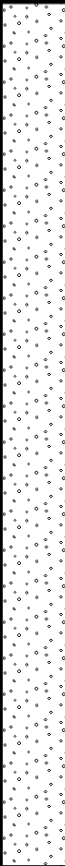
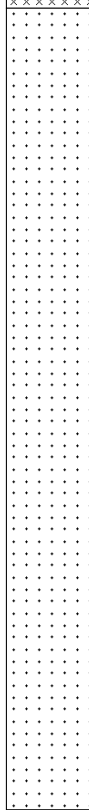
					Borehole Log			Borehole No. PH13 Sheet 1 of 1			
Project Name: Cudworth Parkway					Project No. 4674		Co-ords: 439079.71 - 410324.33		Hole Type PH		
Location: Barnsley					Level: 79.60		Scale 1:50		Logged By LB		
Client: Fenwood Estates Limited					Dates: 05/05/2024 - 05/05/2024						
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
					1.50	78.10		MADE GROUND: Dark brown overburden.	1		
					2.10	77.50		Orangish brown SAND and GRAVEL. (GRANULAR RESIDUAL SOIL)	2		
								Brown SANDSTONE. (MEXBOROUGH ROCK)	3		
					5.80	73.80		Grey SILTSTONE. (MEXBOROUGH ROCK)	6		
					6.00	73.60		End of borehole at 6.00 m	6		
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.											

				Borehole Log				Borehole No. PH14 Sheet 1 of 1	
Project Name: Cudworth Parkway				Project No. 4674		Co-ords: 438885.10 - 410229.75		Hole Type PH	
Location: Barnsley				Level: 83.85		Scale 1:50		Logged By LB	
Client: Fenwood Estates Limited				Dates: 08/04/2024 - 08/04/2024					
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					1.90	81.95		Topsoil over orangish brown SAND and GRAVEL. (GRANULAR RESIDUAL SOIL)	1
								Orangish brown SANDSTONE. (MEXBOROUGH ROCK)	2
						3.00	80.85	End of borehole at 3.00 m	
									4
									5
									6
									7
									8
									9
									10
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.									

					Borehole Log			Borehole No. PH15 Sheet 1 of 2			
Project Name: Cudworth Parkway					Project No. 4674		Co-ords: 439066.58 - 410310.51		Hole Type PH		
Location: Barnsley					Level: 80.50		Scale 1:50		Logged By LB		
Client: Fenwood Estates Limited					Dates: 08/04/2024 - 08/04/2024						
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
					3.30	77.20		MADE GROUND: Dark brown overburden.	1		
					4.80	75.70		Orangish brown SAND and GRAVEL. (GRANULAR RESIDUAL SOIL)	4		
					5.30	75.20		Orangish brown SANDSTONE. (MEXBOROUGH ROCK)	5		
					5.80	74.70		Grey SILTSTONE. (MEXBOROUGH ROCK)			
					6.00	74.50		Orangish brown SANDSTONE. (MEXBOROUGH ROCK)	6		
								Grey SILTSTONE interbedded with brown SANDSTONE and black carbonaceous MUDSTONE. (MEXBOROUGH ROCK)	7		
					7.80	72.70		Light brown SANDSTONE. (MEXBOROUGH ROCK)	8		
					9.00	71.50		Light grey MUDSTONE. (MEXBOROUGH ROCK)	9		
					9.90	70.60			10		
	Continued on next sheet										
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.											

					Borehole Log			Borehole No. PH15 Sheet 2 of 2	
Project Name: Cudworth Parkway					Project No. 4674		Co-ords: 439066.58 - 410310.51		Hole Type PH
Location: Barnsley					Level: 80.50		Scale 1:50		
Client: Fenwood Estates Limited					Dates: 08/04/2024 - 08/04/2024		Logged By LB		
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					12.00	68.50		Light brown SANDSTONE. (MEXBOROUGH ROCK)	11
								End of borehole at 12.00 m	12
									13
									14
									15
									16
									17
									18
									19
									20
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.									

					Borehole Log			Borehole No. PH16 Sheet 1 of 1	
Project Name: Cudworth Parkway					Project No. 4674		Co-ords: 439045.57 - 410293.76		Hole Type PH
Location: Barnsley					Level: 81.80		Scale 1:50		Logged By LB
Client: Fenwood Estates Limited					Dates: 08/04/2024 - 08/04/2024				
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					2.50	79.30		MADE GROUND: Dark brown overburden.	1
					4.50	77.30		Orangish brown SANDSTONE. (MEXBOROUGH ROCK)	3
					5.30	76.50		Grey SILTSTONE. (MEXBOROUGH ROCK)	5
									6
							Orangish brown SANDSTONE. (MEXBOROUGH ROCK)	7	
								8	
					9.00	72.80		End of borehole at 9.00 m	9
									10
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.									

					Borehole Log			Borehole No. PH17 Sheet 1 of 2			
Project Name: Cudworth Parkway					Project No. 4674		Co-ords: 439032.16 - 410284.29		Hole Type PH		
Location: Barnsley					Level: 82.80		Scale 1:50		Logged By LB		
Client: Fenwood Estates Limited					Dates: 08/04/2024 - 08/04/2024						
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
								MADE GROUND: Dark brown overburden.	1		
					3.80	79.00		Light grey SILTSTONE. (MEXBOROUGH ROCK)	4		
					4.70	78.10		Brown SANDSTONE. (MEXBOROUGH ROCK)	5		
									6		
									7		
									8		
									9		
									10		
Continued on next sheet											
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.											
											



PH17

Sheet 2 of 2

Project Name: Cudworth Parkway

Project No.
4674

Co-ords: 439032.16 - 410284.29

Hole Type
PH

Location: Barnsley

Level: 82.80

Scale
1:50

Client: Fenwood Estates Limited

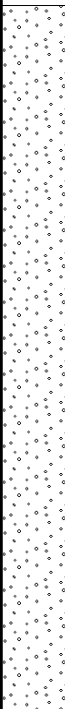
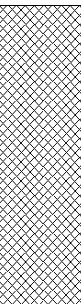
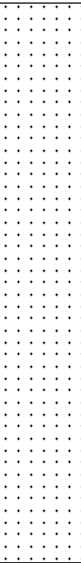
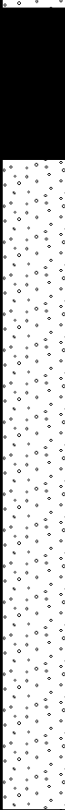
Dates: 08/04/2024 - 08/04/2024

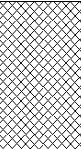
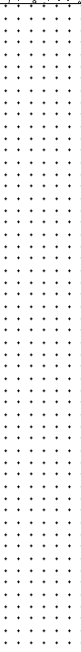
Logged By
LB

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					12.00	70.80		End of borehole at 12.00 m	11
									12
							13		
							14		
							15		
							16		
							17		
							18		
							19		
							20		

Remarks
1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.

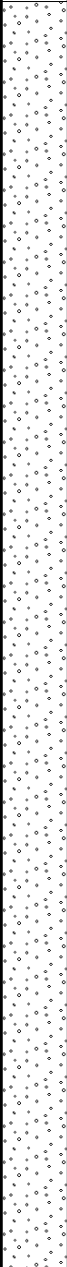
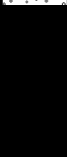
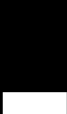


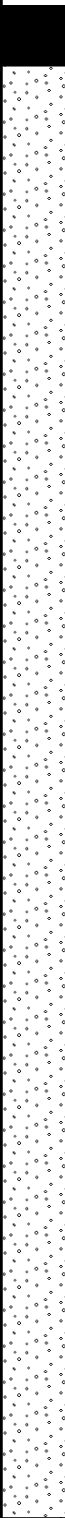
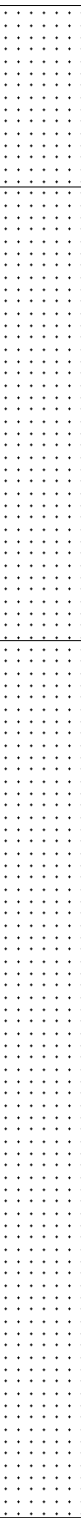
					Borehole Log			Borehole No. PH18 Sheet 1 of 2		
Project Name: Cudworth Parkway					Project No. 4674		Co-ords: 439074.33 - 410281.03		Hole Type PH	
Location: Barnsley					Level: 82.15		Scale 1:50		Logged By LB	
Client: Fenwood Estates Limited					Dates: 08/04/2024 - 08/04/2024					
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
					2.00	80.15		MADE GROUND: Dark brown overburden.	1	
								Brown SAND and GRAVEL. (GRANULAR RESIDUAL SOIL)		2
								Light grey SILTSTONE. (MEXBOROUGH ROCK)		5
								Brown SANDSTONE. (MEXBOROUGH ROCK)		6
					5.20	76.95			5	
					6.30	75.85			6	
									7	
									8	
									9	
									10	
Continued on next sheet										
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.										
										

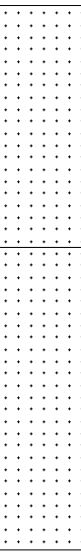
					Borehole Log			Borehole No. PH19 Sheet 1 of 1	
Project Name: Cudworth Parkway					Project No. 4674		Co-ords: 439017.86 - 410280.40		Hole Type PH
Location: Barnsley					Level: 82.95		Scale 1:50		
Client: Fenwood Estates Limited					Dates: 08/04/2024 - 08/04/2024		Logged By LB		
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					1.00	81.95		MADE GROUND: Dark brown overburden.	1
					1.70	81.25		POSSIBLE MADE GROUND: Dark brown SAND and GRAVEL. (REWORKED NATURAL GROUND)	
					6.00	76.95		Light brown SANDSTONE. (MEXBOROUGH ROCK)	2 3 4 5 6 7 8 9 10
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion. 									

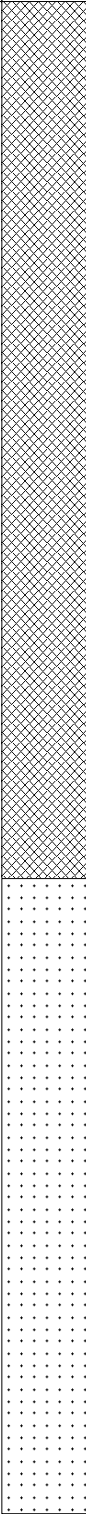
Appendix J

Cored Borehole Logs

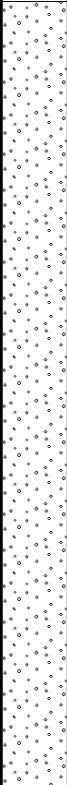
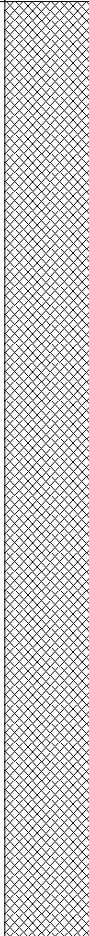
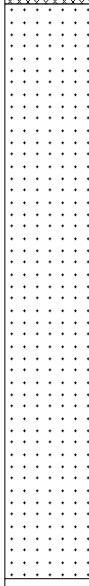
				Rotary Core Log					Borehole No. RC01 Sheet 1 of 3			
Project Name: Cudworth Parkway				Project No. 4674		Co-ords: 439065.04 - 410290.32			Hole Type RC			
Location: Barnsley				Level: 81.65			Scale 1:25		Logged By LW			
Client: Fenwood Estates Limited				Dates: 02/04/2024 - 02/04/2024								
Well	Water Strikes	Depth (m)	Type / Fl	Coring			Depth (m)	Level (m)	Legend	Stratum Description		
				TCR	SCR	RQD						
										MADE GROUND: Dark brown overburden.	1	
												2
												3
							4.20	77.45		Orangish brown SAND and GRAVEL. (GRANULAR RESIDUAL SOIL)	4	
												5
							4.70	76.95		From 0.0m to 4.7m, borehole advanced by rotary open holing. Weak thickly laminated to very thinly bedded greyish brown medium grained SANDSTONE	5	
Continued on next sheet												
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion. 4. Borehole backfilled on completion, including a bentonite seal 4.2m to 5.2m												
												

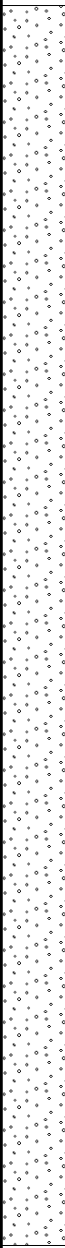
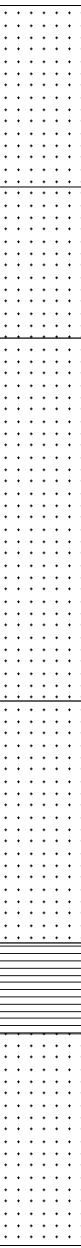
				Rotary Core Log				Borehole No. RC01 Sheet 2 of 3			
Project Name: Cudworth Parkway				Project No. 4674		Co-ords: 439065.04 - 410290.32		Hole Type RC			
Location: Barnsley				Level: 81.65		Scale 1:25		Logged By LW			
Client: Fenwood Estates Limited				Dates: 02/04/2024 - 02/04/2024							
Well	Water Strikes	Depth (m)	Type / FI	Coring			Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD					
		4.70 - 5.80	30	73	45	10	5.60	76.05		with very closely spaced thin to thick laminations of black carbonaceous mudstone. Discontinuities are sub-horizontal extremely closely to very closely spaced undulating rough moderately wide with some orangish brown staining on surfaces. (MEXBOROUGH ROCK) <i>From 4.7m to 11.8m, borehole advanced by rotary coring.</i> <i>From 4.7m to 5.0m, AZCL.</i> <i>From 5.45m to 5.6m, extremely weak thinly laminated grey SILTSTONE.</i>	6
		5.80 - 7.30	160	100	93	85				Medium strong thinly bedded brown medium grained SANDSTONE with very closely spaced cross laminations. Discontinuities are sub-horizontal closely to medium spaced predominantly planar (occasionally undulating) rough open with pervasive orangish brown staining. (MEXBOROUGH ROCK) <i>From 5.8m to 5.9m, AZCL.</i>	
		7.30 - 8.80	220	93	93	83	7.10	74.55	Medium strong very thinly to thinly bedded greyish brown medium grained SANDSTONE with very closely to closely spaced thin laminations of dark brown sandstone. Discontinuities are sub-horizontal closely to medium spaced planar to undulating rough open with occasional orangish brown staining on surfaces. (MEXBOROUGH ROCK)	8	
		8.80 - 10.30		105	89	86			At 9.35m, wide horizontal discontinuity with dark brown staining on surface and medium sand infill.		
Continued on next sheet											10
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion. 4. Borehole backfilled on completion, including a bentonite seal 4.2m to 5.2m											

				Rotary Core Log				Borehole No. RC01 Sheet 3 of 3			
Project Name: Cudworth Parkway				Project No. 4674		Co-ords: 439065.04 - 410290.32		Hole Type RC			
Location: Barnsley				Level: 81.65		Scale 1:25		Logged By LW			
Client: Fenwood Estates Limited				Dates: 02/04/2024 - 02/04/2024							
Well	Water Strikes	Depth (m)	Type / Fl	Coring			Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD					
											
		10.30 - 11.80		101	78	67	10.80	70.85		Medium strong very thinly to thinly bedded light brown medium grained SANDSTONE. Discontinuities are sub-horizontal predominantly closely spaced undulating rough open with occasional orangish brown staining on surfaces and silty sand infill. (MEXBOROUGH ROCK) <i>From 10.9m to 11.0m, recovered as angular medium to coarse gravel.</i> <i>From 11.0m to 11.3m, sub-vertical undulating rough partly open clean discontinuity (possibly drilling induced).</i>	11
			100				11.80	69.85		End of borehole at 11.80 m	12
											13
											14
											15
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion. 4. Borehole backfilled on completion, including a bentonite seal 4.2m to 5.2m											

				Rotary Core Log					Borehole No. RC02 Sheet 1 of 2		
Project Name: Cudworth Parkway				Project No. 4674		Co-ords: 439123.95 - 410340.44			Hole Type RC		
Location: Barnsley				Level: 77.95			Scale 1:25		Logged By LW		
Client: Fenwood Estates Limited				Dates: 03/04/3034 - 03/04/2024							
Well	Water Strikes	Depth (m)	Type / Fl	Coring			Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD					
										MADE GROUND: Dark brown overburden.	1
										From 0.0m to 2.9m, borehole advanced by rotary open holing.	2
											3
											4
											5
		2.90 - 4.40		79	79	76	2.90	75.05		Medium strong very thinly to thinly bedded light brown medium grained SANDSTONE. Discontinuities are sub-horizontal closely to medium spaced (occasionally very closely) planar rough open clean with some pervasive orangish brown staining. (MEXBOROUGH ROCK) From 2.9m to 3.0m, AZCL. From 2.9m to 8.9m, borehole advanced by rotary coring. From 3.9m to 4.5m, sub-vertical undulating rough open discontinuity with orange silt infill. At 4.4m, recovered as subangular fine to coarse gravel of predominantly sandstone with coal, burnt shale and sandstone (likely collapsed material from base of the casing). From 4.55m to 4.6m, recovered as angular fine to coarse gravel. From 4.7m to 4.9m, AZCL.	
Continued on next sheet											
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion. 4. Borehole backfilled on completion, including a bentonite seal 2.4m to 3.4m											
											



				Rotary Core Log					Borehole No. RC03 Sheet 1 of 2											
Project Name: Cudworth Parkway				Project No. 4674		Co-ords: 439128.52 - 410292.07			Hole Type RC											
Location: Barnsley				Level: 80.10			Scale 1:25		Logged By LW											
Client: Fenwood Estates Limited				Dates: 03/04/3034 - 03/04/2024																
Well	Water Strikes	Depth (m)	Type / Fl	Coring			Depth (m)	Level (m)	Legend	Stratum Description										
				TCR	SCR	RQD														
							3.10	77.00		MADE GROUND: Dark brown overburden.	1									
																				2
																				3
		3.10 - 4.60	70	91	55	37				Medium strong very thinly to thinly bedded greyish brown medium grained SANDSTONE. Discontinuities are sub-horizontal predominantly closely spaced planar rough open clean with orangish brown staining on surfaces. Discontinuities are sub-vertical closely spaced undulating rough open to moderately wide with orangish brown silt infill and orangish brown staining on surfaces and pervasive within the rock mass. (MEXBOROUGH ROCK) <u>From 3.1m to 3.2m, AZCL.</u>	4									
										Continued on next sheet	5									
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion. 4. Borehole backfilled on completion, including a bentonite seal 2.6m to 3.6m																				

				Rotary Core Log				Borehole No. RC03 Sheet 2 of 2			
Project Name: Cudworth Parkway				Project No. 4674		Co-ords: 439128.52 - 410292.07		Hole Type RC			
Location: Barnsley				Level: 80.10		Scale 1:25		Logged By LW			
Client: Fenwood Estates Limited				Dates: 03/04/3034 - 03/04/2024							
Well	Water Strikes	Depth (m)	Type / FI	Coring			Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD					
		4.60 - 6.10		100	21	17	5.60	74.50		Medium strong thinly bedded brown medium to coarse grained SANDSTONE with closely spaced thin and cross laminations of black carbonaceous mudstone. Discontinuities are sub-horizontal very closely to closely spaced undulating rough open with dark grey sandy infill. (MEXBOROUGH ROCK) <i>From 5.6m to 5.7m, recovered as angular to subangular fine to coarse gravel.</i> Medium strong very thinly to thinly bedded light brown medium grained SANDSTONE. Discontinuities are horizontal to sub-horizontal closely to medium spaced undulating rough open clean with pervasive orangish brown staining. (MEXBOROUGH ROCK) <i>At 6.7m, wide (20mm) sub-horizontal undulating rough light orangish brown clayey sand infill.</i> <i>From 7.2m to 7.3m, closely spaced thin laminations of grey SILTSTONE.</i> Medium strong thickly laminated to thinly bedded light grey fine SANDSTONE with very closely to closely spaced thin and cross laminations of grey siltstone and brown sandstone. Discontinuities are sub-horizontal very closely to closely spaced undulating smooth open with a grey clay infill. (MEXBOROUGH ROCK) <i>From 7.5m to 7.55m pervasive orangish brown staining throughout rock mass.</i> Extremely weak thinly laminated dark grey MUDSTONE. Discontinuities are sub-horizontal and sub-vertical planar smooth open to moderately wide with grey clay infill. (MEXBOROUGH ROCK) Weak to medium strong very thickly laminated to thinly bedded light grey fine SANDSTONE interbedded with weak thinly laminated grey siltstone. Discontinuities are sub-horizontal extremely closely to very closely spaced planar to undulating smooth open to moderately wide with a grey clay infill. (MEXBOROUGH ROCK) End of borehole at 9.10 m	6 7 8 9 10
			80				6.10	74.00			
		6.10 - 7.60	100				7.30	72.80			
			120				8.10	72.00			
		7.60 - 9.10	0	91	63	26	8.40	71.70			
			30				9.10	71.00			

Remarks

1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Exploratory hole surveyed in (level and co-ordinates) on completion. 4. Borehole backfilled on completion, including a bentonite seal 2.6m to 3.6m



Appendix K
Soakaway Calculation Sheets

SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365: 1991

Client:	Fenwood Estates Limited
Engineer:	Cameron Daniel
Job Name:	Cudworth Parkway, Barnsley
Job No.:	4674



Date:	27/03/2024
Trial Pit No.	TP16
Test No.	1

Original depth of pit 1.8m but rose to 1.6m.

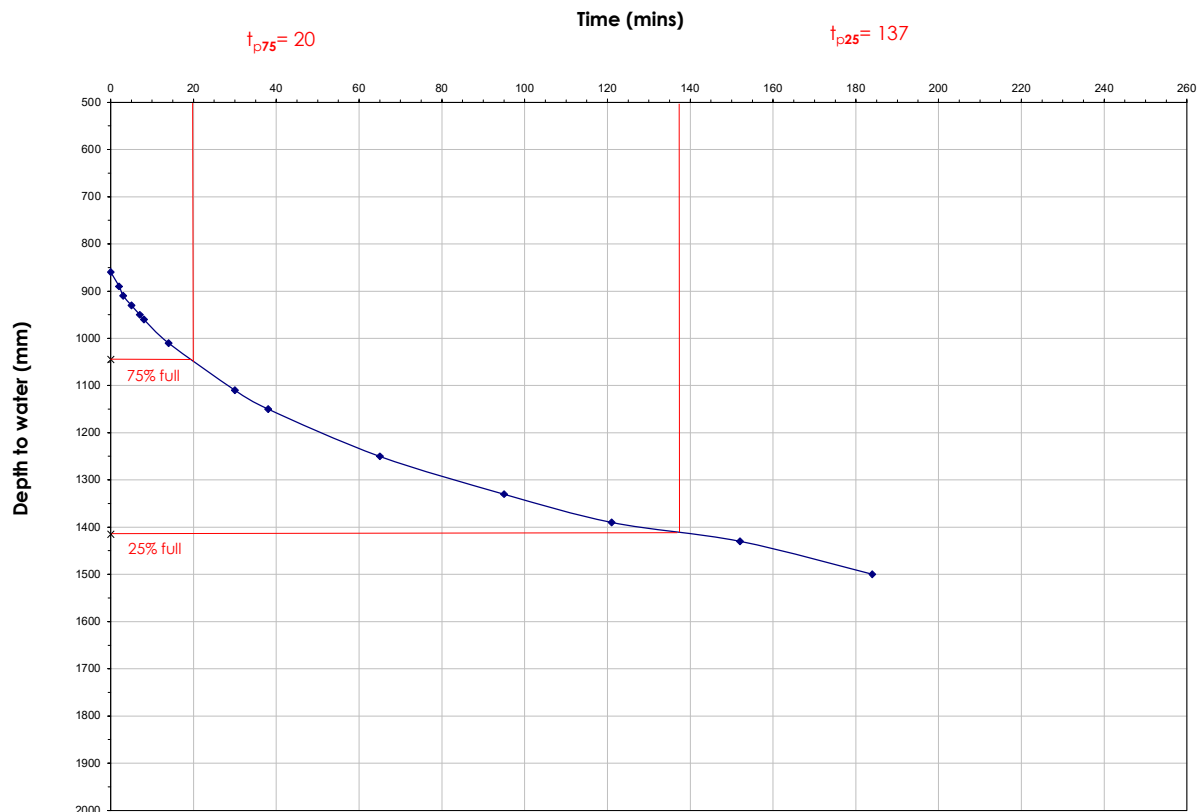
Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
08:38	0	0.86	860
08:40	2	0.89	890
08:41	3	0.91	910
08:43	5	0.93	930
08:45	7	0.95	950
08:46	8	0.96	960
08:52	14	1.01	1010
09:08	30	1.11	1110
09:16	38	1.15	1150
09:43	65	1.25	1250
10:13	95	1.33	1330
10:39	121	1.39	1390
11:10	152	1.43	1430
11:42	184	1.50	1500

SOAKAWAY TRIAL PIT			
Dimensions		(m)	(mm)
Length	=	2.30	2300
Width	=	0.65	650
Depth	=	1.60	1600
Effective Depth (% full)		(mm)	(m)
0.25	=	1415	1.42
0.50	=	1230	1.23
0.75	=	1045	1.05

Depth at start of test (mm)	=	860
Depth at end of test (mm)	=	1500

Base area of pit	=	1.495
a_{p50} - 50% internal surface area inc. base	=	3.678
V_{p75-25} - Volume 75 - 25%	=	0.55315

Read from the graph:			
t_{p75} (min)	=	20	
t_{p25} (min)	=	137	



Soil infiltration rate, f , (m/s) = 2.14E-05

SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365: 1991

Client:	Fenwood Estates Limited
Engineer:	Cameron Daniel
Job Name:	Cudworth Parkway, Barnsley
Job No.:	4674



Date:	27/03/2024
Trial Pit No.	TP16
Test No.	2

Ran out of water during filling.

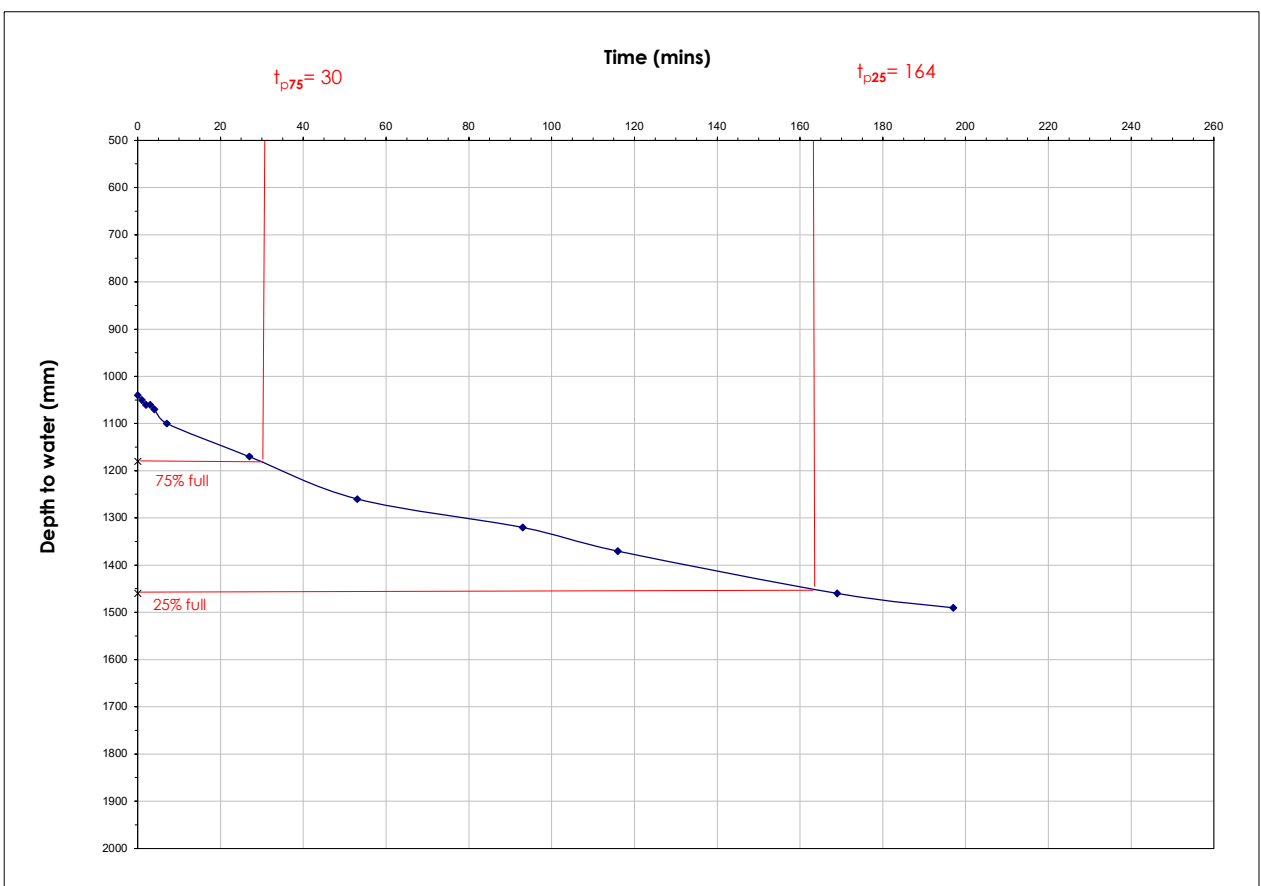
Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
11:49	0	1.04	1040
11:50	1	1.05	1050
11:51	2	1.06	1060
11:52	3	1.06	1060
11:53	4	1.07	1070
11:56	7	1.10	1100
12:16	27	1.17	1170
12:42	53	1.26	1260
13:22	93	1.32	1320
13:45	116	1.37	1370
14:38	169	1.46	1460
15:06	197	1.49	1490

SOAKAWAY TRIAL PIT			
Dimensions		(m)	(mm)
Length	=	2.30	2300
Width	=	0.65	650
Depth	=	1.60	1600
Effective Depth (% full)		(mm)	(m)
0.25	=	1460	1.46
0.50	=	1320	1.32
0.75	=	1180	1.18

Depth at start of test (mm)	=	1040
Depth at end of test (mm)	=	1490

Base area of pit	=	1.495
a_{p50} - 50% internal surface area inc. base	=	3.147
V_{p75-25} - Volume 75 - 25%	=	0.4186

Read from the graph:			
t_{p75} (min)	=	30	
t_{p25} (min)	=	164	



Soil infiltration rate, f , (m/s) = $1.65E-05$

SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365: 1991

Client:	Fenwood Estates Limited
Engineer:	Cameron Daniel
Job Name:	Cudworth Parkway, Barnsley
Job No.:	4674



Date:	27/03/2024
Trial Pit No.	TP17
Test No.	1

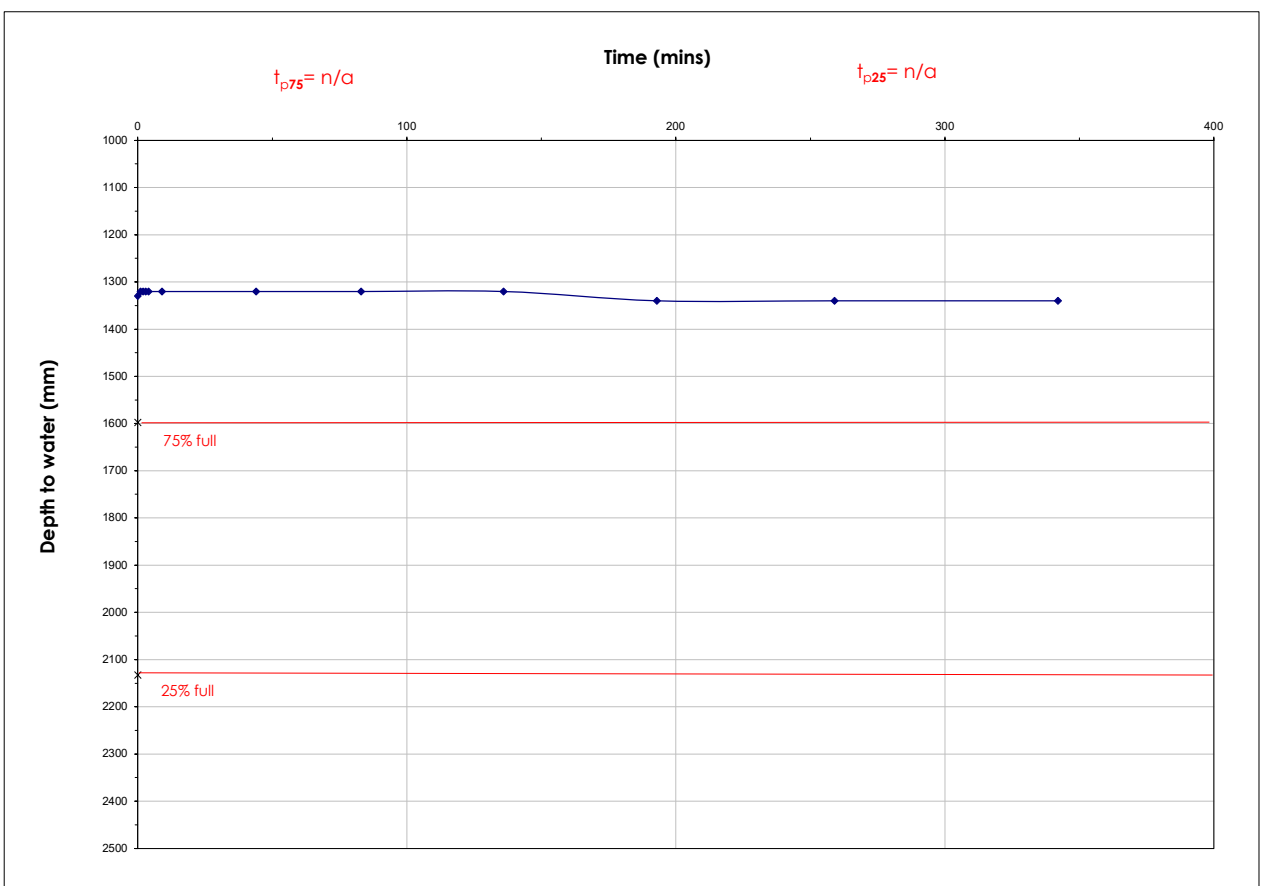
Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
09:01	0	1.33	1330
09:02	1	1.32	1320
09:03	2	1.32	1320
09:04	3	1.32	1320
09:05	4	1.32	1320
09:10	9	1.32	1320
09:45	44	1.32	1320
10:24	83	1.32	1320
11:17	136	1.32	1320
12:14	193	1.34	1340
13:20	259	1.34	1340
14:43	342	1.34	1340

SOAKAWAY TRIAL PIT			
Dimensions		(m)	(mm)
Length	=	0.60	600
Width	=	2.10	2100
Depth	=	2.40	2400
Effective Depth (% full)		(mm)	(m)
0.25	=	2132.5	2.13
0.50	=	1865	1.87
0.75	=	1597.5	1.60

Depth at start of test (mm)	=	1330
Depth at end of test (mm)	=	1340

Base area of pit	=	1.26
α_{p50} - 50% internal surface area inc. base	=	4.149
V_{p75-25} - Volume 75 - 25%	=	0.6741

Read from the graph:			
t_{p75} (min)	=	n/a	
t_{p25} (min)	=	n/a	



Test did not attain 25% Effective depth. Unable to calculate soil infiltration rate

SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365: 1991

Client:	Fenwood Estates Limited
Engineer:	Cameron Daniel
Job Name:	Cudworth Parkway, Barnsley
Job No.:	4674



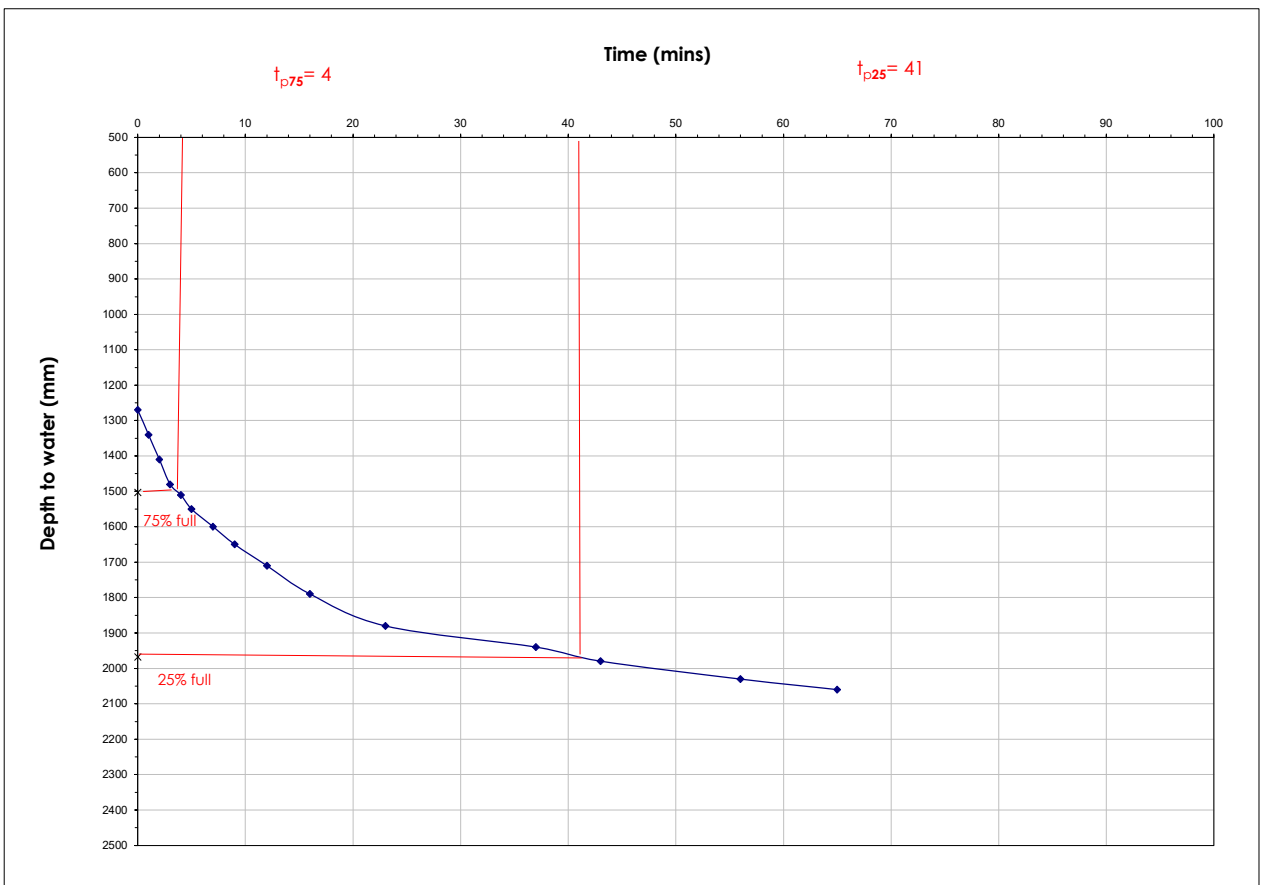
Date:	27/03/2024
Trial Pit No.	TP18
Test No.	1

Original depth of pit 2.4m but rose to 2.2m. SW side of pit collapsed

Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
09:25	0	1.27	1270
09:26	1	1.34	1340
09:27	2	1.41	1410
09:28	3	1.48	1480
09:29	4	1.51	1510
09:30	5	1.55	1550
09:32	7	1.60	1600
09:34	9	1.65	1650
09:37	12	1.71	1710
09:41	16	1.79	1790
09:48	23	1.88	1880
10:02	37	1.94	1940
10:08	43	1.98	1980
10:21	56	2.03	2030
10:30	65	2.06	2060

SOAKAWAY TRIAL PIT			
Dimensions		(m)	(mm)
Length	=	2.20	2200
Width	=	0.65	650
Depth	=	2.20	2200
Effective Depth (% full)		(mm)	(m)
0.25	=	1967.5	1.97
0.50	=	1735	1.74
0.75	=	1502.5	1.50
Depth at start of test (mm)		=	1270
Depth at end of test (mm)		=	2060
Base area of pit		=	1.43
a _{p50} - 50% internal surface area inc. base		=	4.0805
V _{p75-25} - Volume 75 - 25%		=	0.66495

Read from the graph:			
t _{p 75} (min)	=	4	
t _{p 25} (min)	=	41	



Soil infiltration rate, f, (m/s) = 7.34E-05

LITHOS
CONSULTING

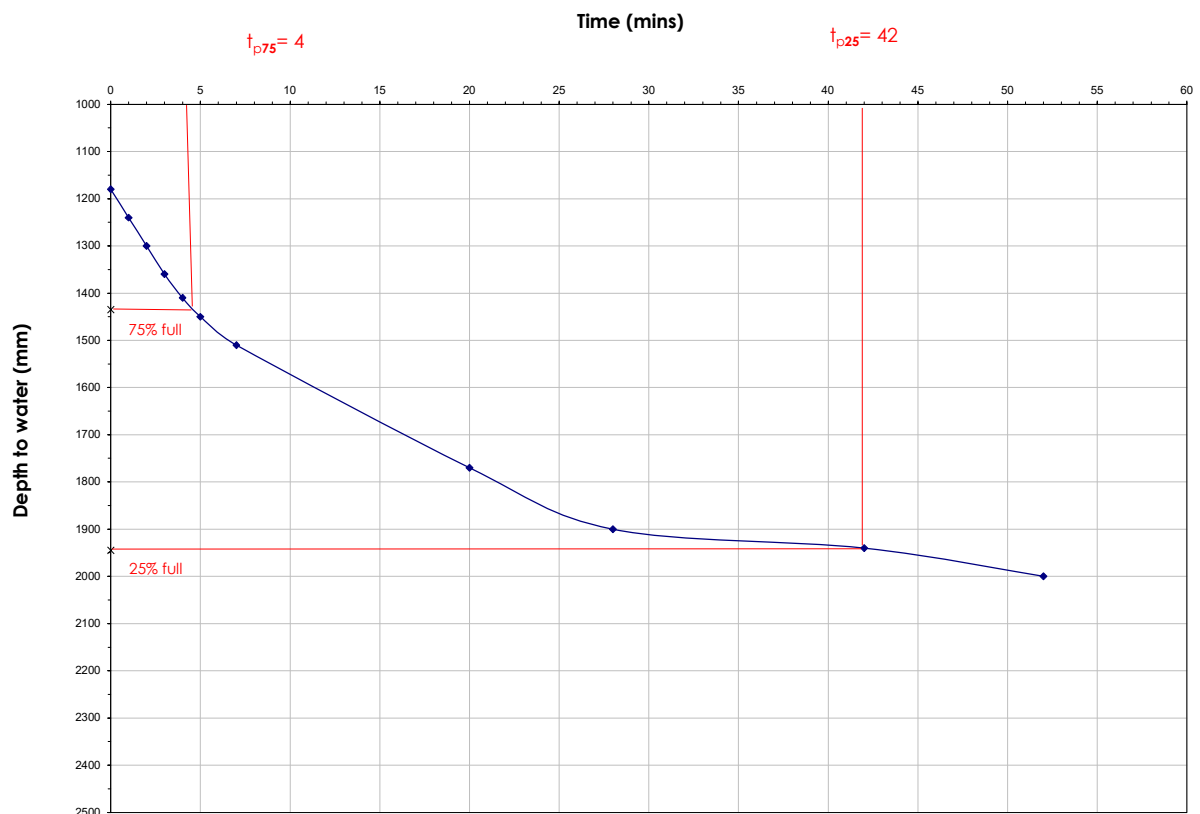
Client:	Ferwood Estates Limited
Engineer	Cameron Daniel
Job Name:	Cudworth Parkway, Barnsley
Job No.:	4674

Date:	27/03/2024
Trial Pit No.	TP18
Test No.	2

Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
10:45	0	1.18	1180
10:46	1	1.24	1240
10:47	2	1.30	1300
10:48	3	1.36	1360
10:49	4	1.41	1410
10:50	5	1.45	1450
10:52	7	1.51	1510
11:05	20	1.77	1770
11:13	28	1.90	1900
11:27	42	1.94	1940
11:37	52	2.00	2000

SOAKAWAY TRIAL PIT			
Dimensions		(m)	(mm)
Length	=	2.20	2200
Width	=	0.65	650
Depth	=	2.20	2200
Effective Depth (% full)		(mm)	(m)
0.25	=	1945	1.95
0.50	=	1690	1.69
0.75	=	1435	1.44
Depth at start of test (mm)		=	1180
Depth at end of test (mm)		=	2000
Base area of pit		=	1.43
a _{p50} - 50% internal surface area inc. base		=	4.337
V _{p75-25} - Volume 75 - 25%		=	0.7293

Read from the graph:		
$t_{p\ 75}$ (min)	=	4
$t_{p\ 25}$ (min)	=	42



Soil infiltration rate, f , (m/s) = 7.38E-05

SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365: 1991

Client:	Fenwood Estates Limited
Engineer:	Cameron Daniel
Job Name:	Cudworth Parkway, Barnsley
Job No.:	4674



Date:	27/03/2024
Trial Pit No.	TP19
Test No.	1

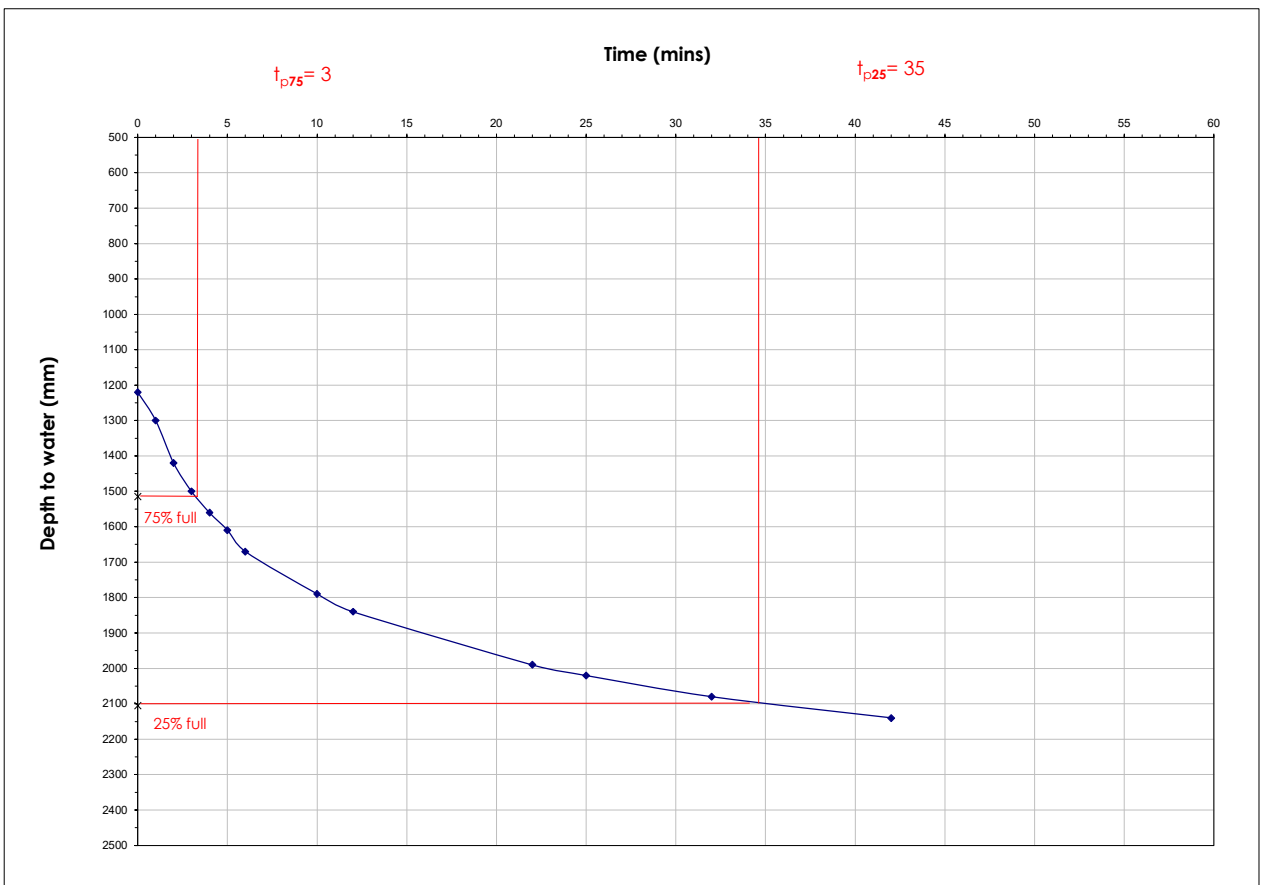
Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
09:54	0	1.22	1220
09:55	1	1.30	1300
09:56	2	1.42	1420
09:57	3	1.50	1500
09:58	4	1.56	1560
09:59	5	1.61	1610
10:00	6	1.67	1670
10:04	10	1.79	1790
10:06	12	1.84	1840
10:16	22	1.99	1990
10:19	25	2.02	2020
10:26	32	2.08	2080
10:36	42	2.14	2140

SOAKAWAY TRIAL PIT			
Dimensions		(m)	(mm)
Length	=	3.40	3400
Width	=	0.70	700
Depth	=	2.40	2400
Effective Depth (% full)		(mm)	(m)
0.25	=	2105	2.11
0.50	=	1810	1.81
0.75	=	1515	1.52

Depth at start of test (mm)	=	1220
Depth at end of test (mm)	=	2140

Base area of pit	=	2.38
a_{p50} - 50% internal surface area inc. base	=	7.218
V_{p75-25} - Volume 75 - 25%	=	1.4042

Read from the graph:			
t_{p75} (min)	=	3	
t_{p25} (min)	=	35	



Soil infiltration rate, f , (m/s) = 1.01E-04

LITHOS
CONSULTING

Client:	Ferwood Estates Limited
Engineer	Cameron Daniel
Job Name:	Cudworth Parkway, Barnsley
Job No.:	4674

Date:	27/03/2024
Trial Pit No.	TP19
Test No.	2

[illegible]

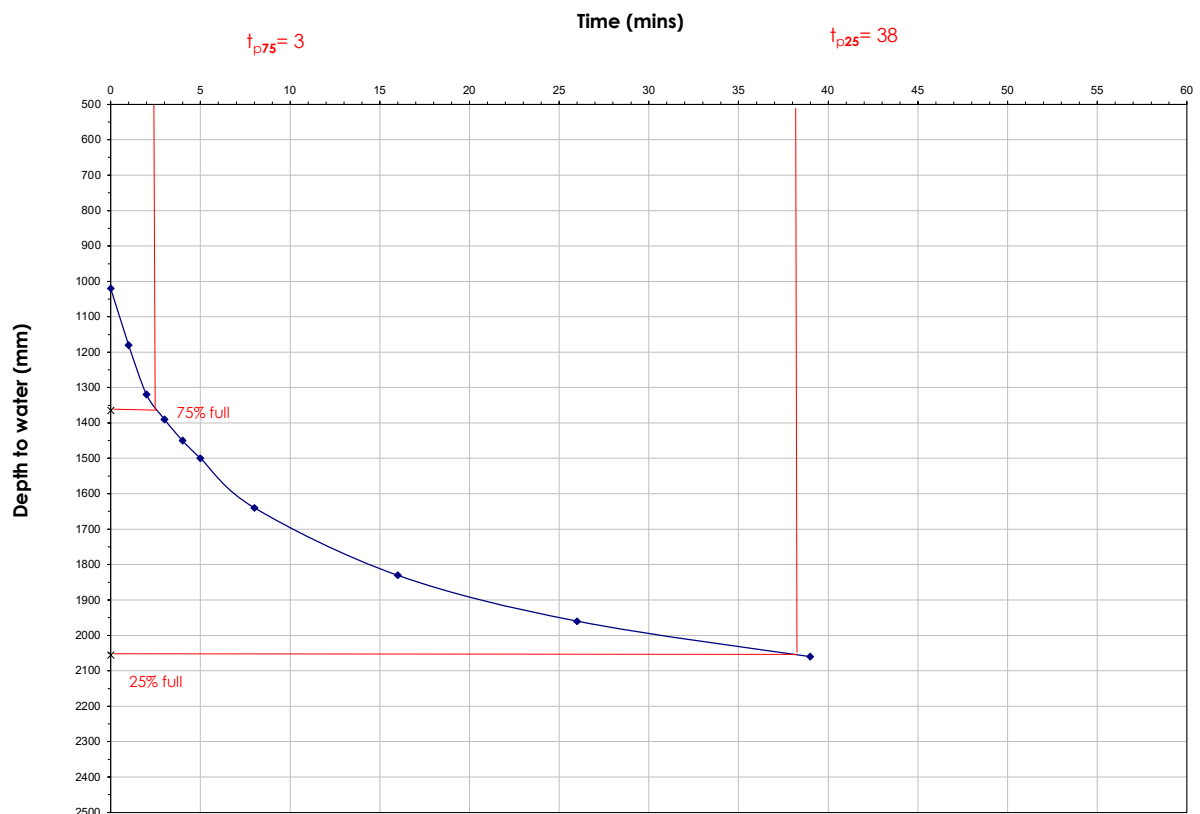
SOAKAWAY TRIAL PIT			
Dimensions		(m)	(mm)
Length	=	3.40	3400
Width	=	0.70	700
Depth	=	2.40	2400

Effective Depth (% full)		(mm)	(m)
0.25	=	2055	2.06
0.50	=	1710	1.71
0.75	=	1365	1.37

Depth at start of test (mm)	=	1020
Depth at end of test (mm)	=	2060

Base area of pit	=	2.38
A_{p50} - 50% internal surface area inc. base	=	8.038
V_{p75-25} - Volume 75 - 25%	=	1.6422

Read from the graph:		
$t_{p\ 75}$ (min)	=	3
$t_{p\ 25}$ (min)	=	38



Soil infiltration rate, f , (m/s) = $9.73\text{E-}05$

SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365: 1991

Client:	Fenwood Estates Limited
Engineer:	Cameron Daniel
Job Name:	Cudworth Parkway, Barnsley
Job No.:	4674



Date:	28/03/2024
Trial Pit No.	TP29
Test No.	1

Original depth of pit 1.7m but rose to 1.6m.

Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
08:35:30	0	0.67	670
08:36	0.5	0.69	690
08:37	1.5	0.71	710
08:38	2.5	0.73	730
08:39	3.5	0.74	740
08:40	4.5	0.75	750
08:41	5.5	0.77	770
08:42	6.5	0.78	780
08:44	8.5	0.80	800
08:49	13.5	0.85	850
09:03	27.5	0.96	960
09:26	50.5	1.05	1050
09:50	74.5	1.13	1130
10:16	100.5	1.21	1210
10:57	141.5	1.29	1290
11:25	169.5	1.32	1320
12:20	224.5	1.41	1410
12:32	236.5	1.42	1420

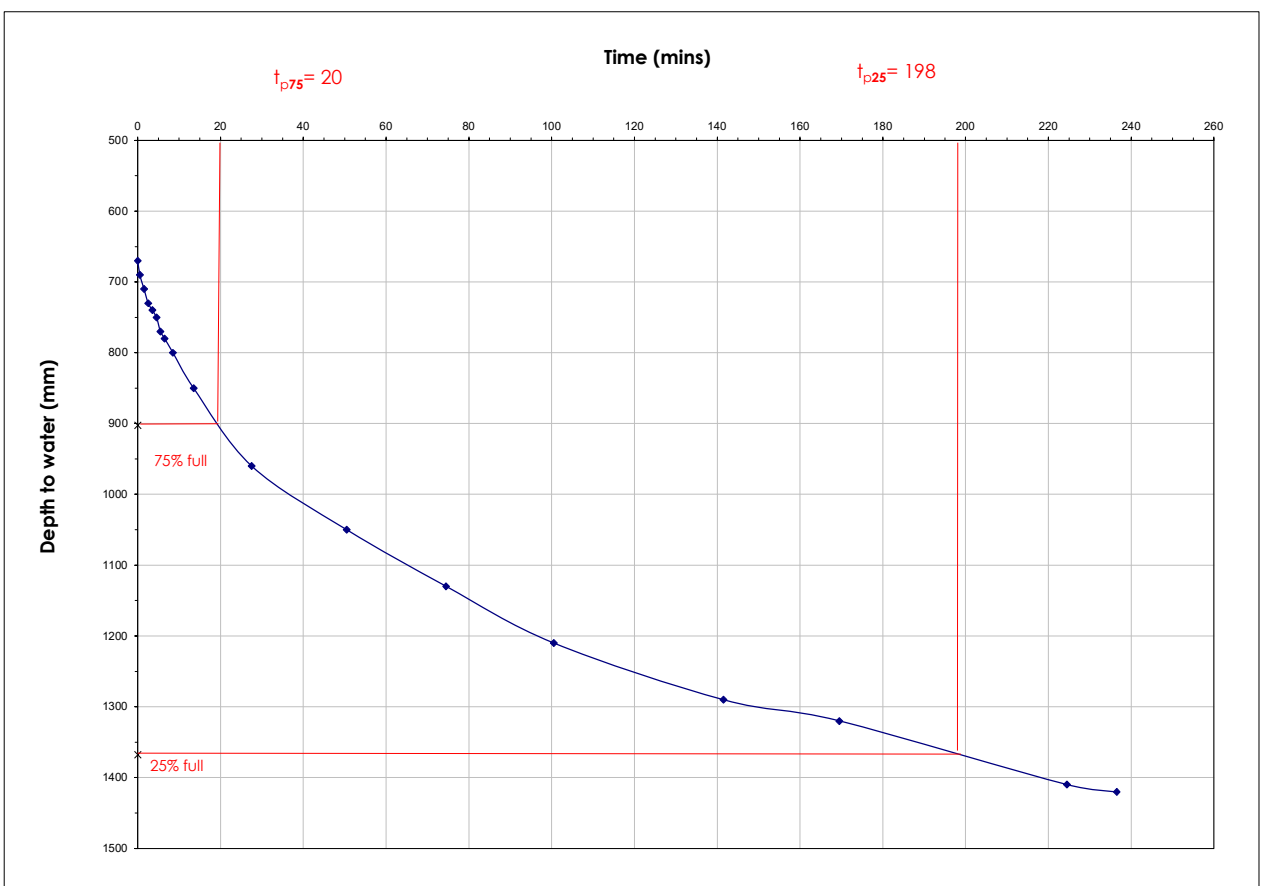
SOAKAWAY TRIAL PIT			
Dimensions		(m)	(mm)
Length	=	2.30	2300
Width	=	0.65	650
Depth	=	1.60	1600

Effective Depth (% full)		(mm)	(m)
0.25	=	1367.5	1.37
0.50	=	1135	1.14
0.75	=	902.5	0.90

Depth at start of test (mm)	=	670
Depth at end of test (mm)	=	1420

Base area of pit	=	1.495
a_{p50} - 50% internal surface area inc. base	=	4.2385
V_{p75-25} - Volume 75 - 25%	=	0.695175

Read from the graph:			
t_{p75} (min)	=	20	
t_{p25} (min)	=	198	



Soil infiltration rate, f , (m/s) = $1.54E-05$

LITHOS
CONSULTING

Client:	Ferwood Estates Limited
Engineer	Cameron Daniel
Job Name:	Cudworth Parkway, Barnsley
Job No.:	4674

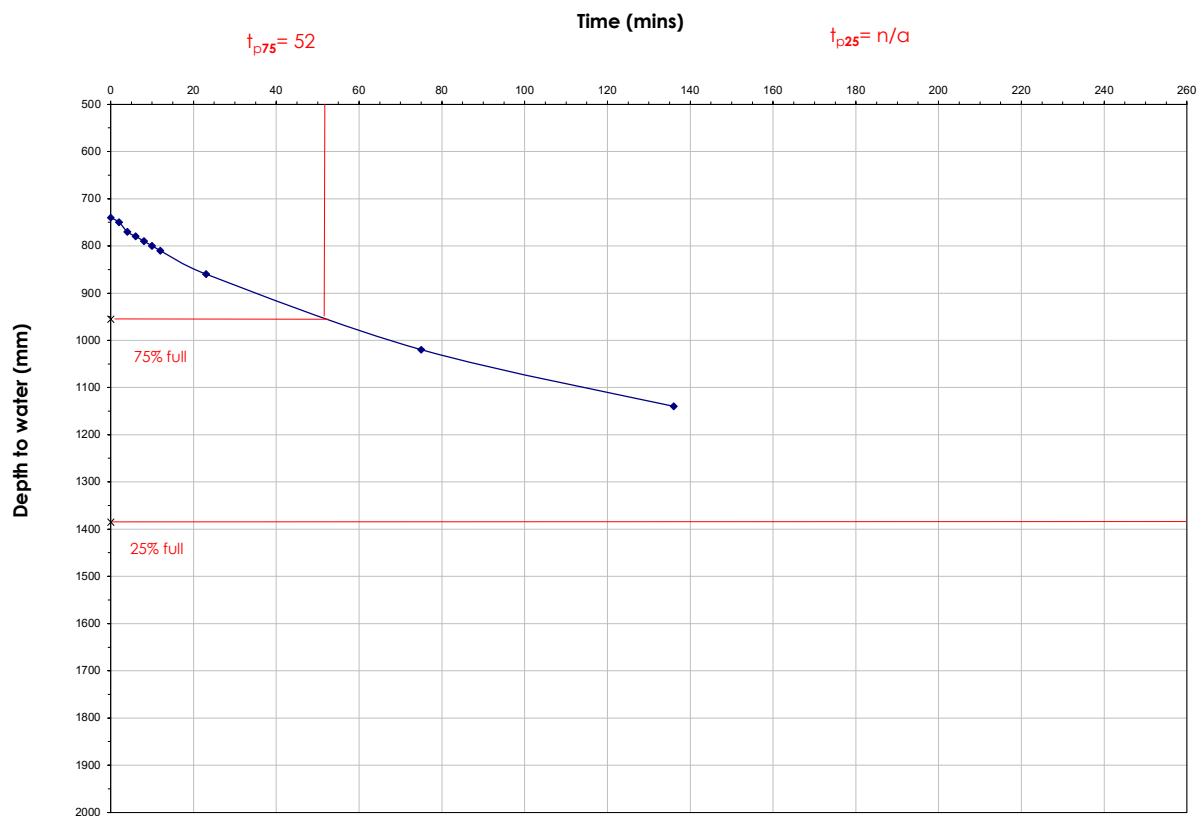
Date:	28/03/2024
Trial Pit No.	TP29
Test No.	2

[illegible]

SOAKAWAY TRIAL PIT			
Dimensions		(m)	(mm)
Length	=	2.30	2300
Width	=	0.65	650
Depth	=	1.60	1600
Effective Depth (% full)		(mm)	(m)
0.25	=	1385	1.39
0.50	=	1170	1.17
0.75	=	955	0.96
Depth at start of test (mm)		=	740
Depth at end of test (mm)		=	1140

Base area of pit	=	1.495
A_{p50} - 50% internal surface area inc. base	=	4.032
V_{p75-25} - Volume 75 - 25%	=	0.64285

Read from the graph:		
$t_{p\ 75}$ (min)	=	52
$t_{p\ 25}$ (min)	=	n/a



Test did not attain 25% Effective depth. Unable to calculate soil infiltration rate

SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365: 1991

Client:	Fenwood Estates Limited
Engineer:	Cameron Daniel
Job Name:	Cudworth Parkway, Barnsley
Job No.:	4674



Date:	28/03/2024
Trial Pit No.	TP31
Test No.	1

Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
09:16	0	1.71	1710
09:17	1	1.73	1730
09:18	2	1.76	1760
09:19	3	1.78	1780
09:20	4	1.82	1820
09:23	7	1.91	1910
09:28	12	2.02	2020
09:32	16	2.06	2060
09:52	36	2.33	2330
10:21	65	2.36	2360
10:54	98	2.39	2390
11:19	123	2.40	2400
12:18	182	2.43	2430
12:50	214	2.44	2440
13:56	280	2.45	2450
14:47	331	2.47	2470

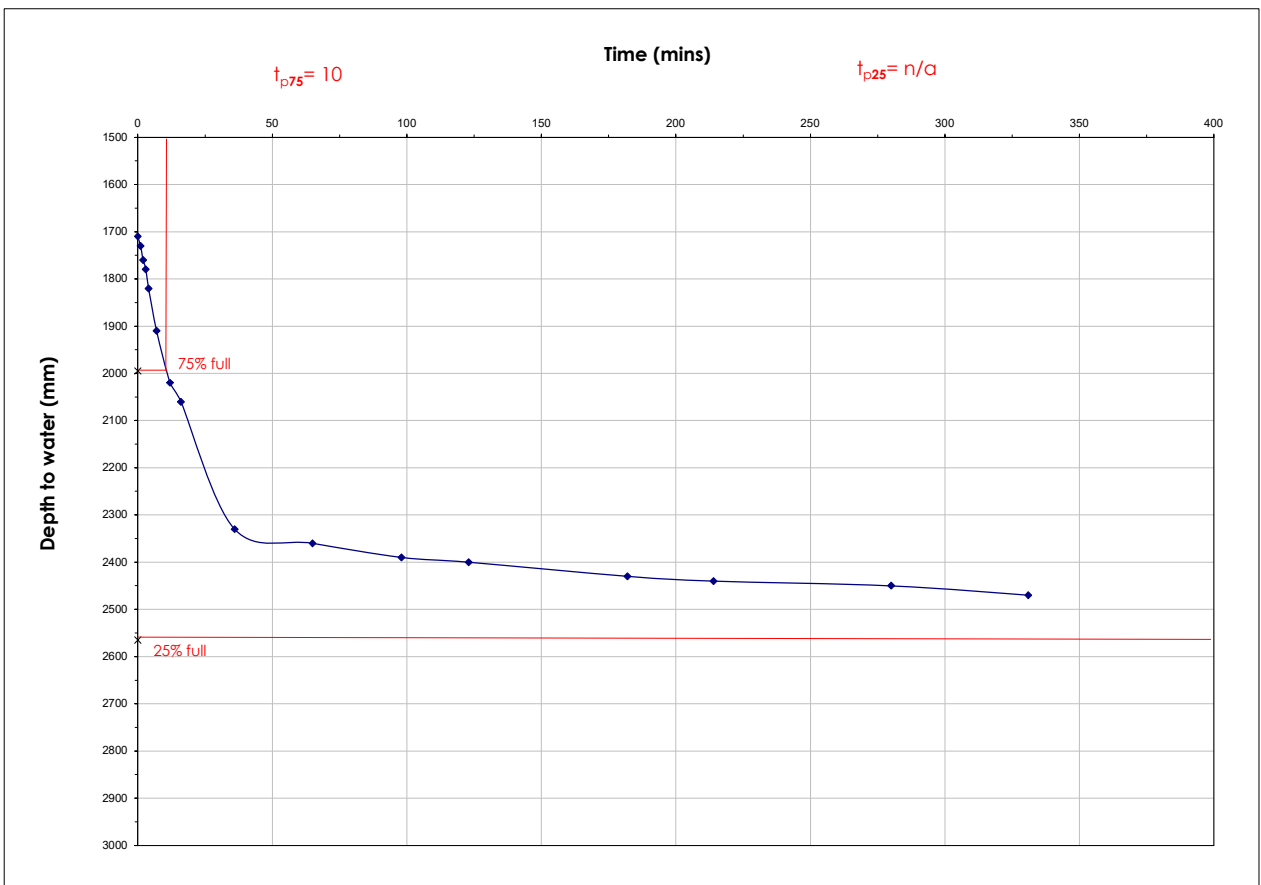
SOAKAWAY TRIAL PIT			
Dimensions		(m)	(mm)
Length	=	2.10	2100
Width	=	0.65	650
Depth	=	2.85	2850

Effective Depth (% full)		(mm)	(m)
0.25	=	2565	2.57
0.50	=	2280	2.28
0.75	=	1995	2.00

Depth at start of test (mm)	=	1710
Depth at end of test (mm)	=	2470

Base area of pit	=	1.365
a_{p50} - 50% internal surface area inc. base	=	4.5
V_{p75-25} - Volume 75 - 25%	=	0.77805

Read from the graph:			
t_{p75} (min)	=	10	
t_{p25} (min)	=	n/a	



Test did not attain 25% Effective depth. Unable to calculate soil infiltration rate

SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365: 1991

Client:	Fenwood Estates Limited
Engineer:	Cameron Daniel
Job Name:	Cudworth Parkway, Barnsley
Job No.:	4674



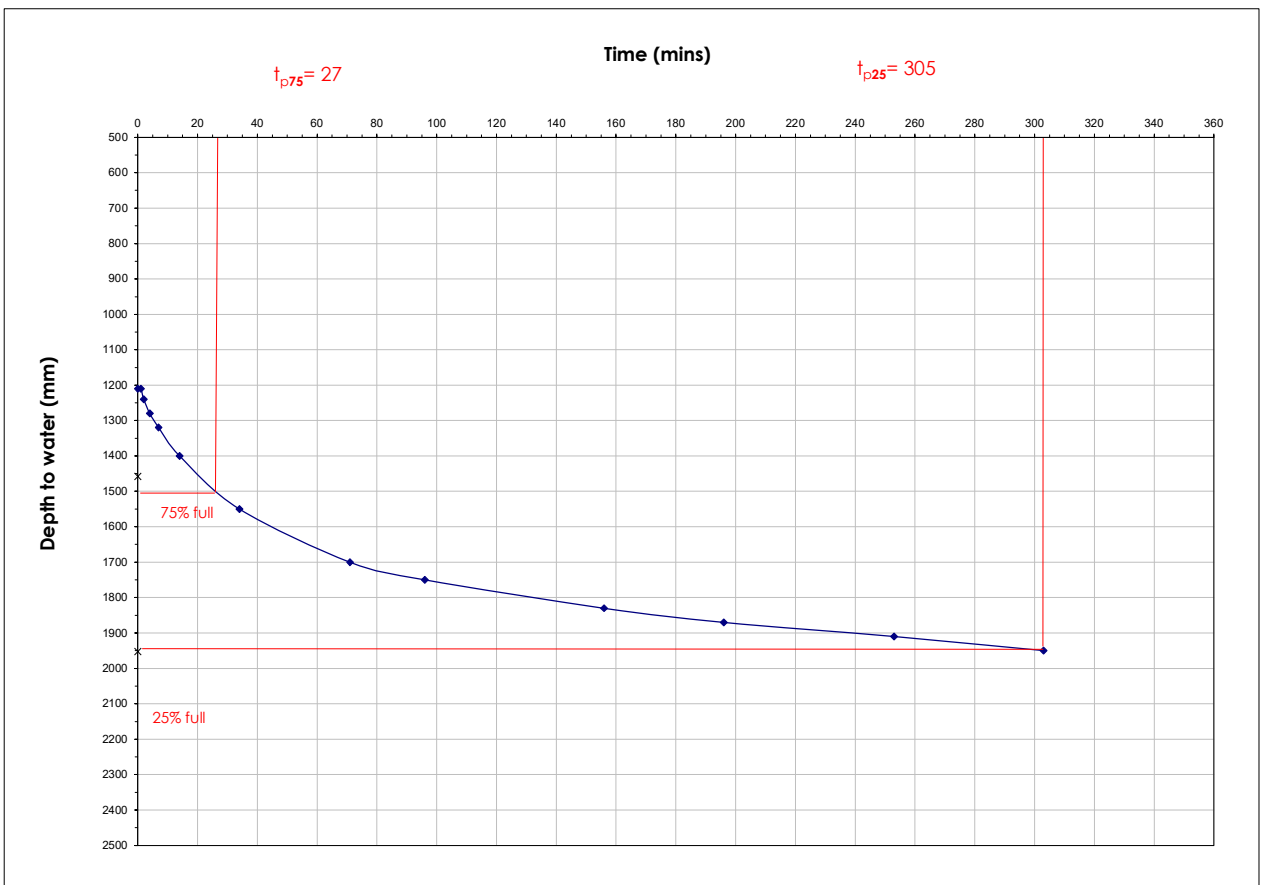
Date:	28/03/2024
Trial Pit No.	TP32
Test No.	1

Original depth of pit 2.4m but rose to 2.2m.

Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
09:40	0	1.21	1210
09:41	1	1.21	1210
09:42	2	1.24	1240
09:44	4	1.28	1280
09:47	7	1.32	1320
09:54	14	1.40	1400
10:14	34	1.55	1550
10:51	71	1.70	1700
11:16	96	1.75	1750
12:16	156	1.83	1830
12:56	196	1.87	1870
13:53	253	1.91	1910
14:43	303	1.95	1950

SOAKAWAY TRIAL PIT			
Dimensions		(m)	(mm)
Length	=	2.50	2500
Width	=	0.70	700
Depth	=	2.20	2200
Effective Depth (% full)		(mm)	(m)
0.25	=	1952.5	1.95
0.50	=	1705	1.71
0.75	=	1457.5	1.46
Depth at start of test (mm)		=	1210
Depth at end of test (mm)		=	1950
Base area of pit		=	1.75
a _{p50} - 50% internal surface area inc. base		=	4.918
V _{p75-25} - Volume 75 - 25%		=	0.86625

Read from the graph:			
t _{p 75} (min)	=	27	
t _{p 25} (min)	=	305	



Soil infiltration rate, f, (m/s) = 1.06E-05

SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365: 1991

Client:	Fenwood Estates Limited
Engineer:	Cameron Daniel
Job Name:	Cudworth Parkway, Barnsley
Job No.:	4674



Date:	28/03/2024
Trial Pit No.	TP33
Test No.	1

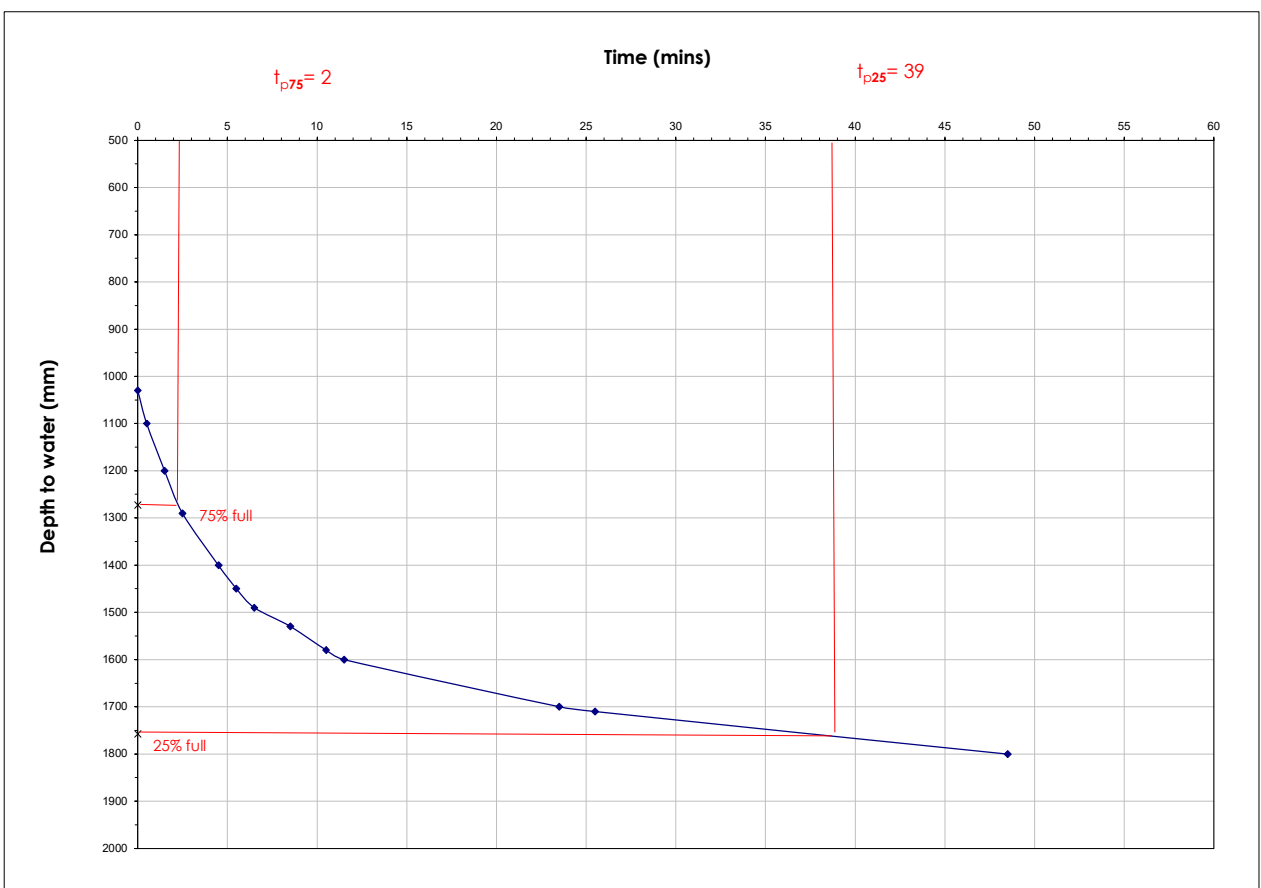
Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
10:00:30	0	1.03	1030
10:01	0.5	1.10	1100
10:02	1.5	1.20	1200
10:03	2.5	1.29	1290
10:05	4.5	1.40	1400
10:06	5.5	1.45	1450
10:07	6.5	1.49	1490
10:09	8.5	1.53	1530
10:11	10.5	1.58	1580
10:12	11.5	1.60	1600
10:24	23.5	1.70	1700
10:26	25.5	1.71	1710
10:49	48.5	1.80	1800

SOAKAWAY TRIAL PIT			
Dimensions		(m)	(mm)
Length	=	2.30	2300
Width	=	0.70	700
Depth	=	2.00	2000
Effective Depth (% full)		(mm)	(m)
0.25	=	1757.5	1.76
0.50	=	1515	1.52
0.75	=	1272.5	1.27

Depth at start of test (mm)	=	1030
Depth at end of test (mm)	=	1800

Base area of pit	=	1.61
a_{p50} - 50% internal surface area inc. base	=	4.52
V_{p75-25} - Volume 75 - 25%	=	0.78085

Read from the graph:			
t_{p75} (min)	=	2	
t_{p25} (min)	=	39	



Soil infiltration rate, f , (m/s) = 7.78E-05

LITHOS
CONSULTING

Client:	Ferwood Estates Limited
Engineer	Cameron Daniel
Job Name:	Cudworth Parkway, Barnsley
Job No.:	4674

Date:	28/03/2024
Trial Pit No.	TP33
Test No.	2

Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
11:05:30	0	0.79	790
11:06	0.5	0.90	900
11:07	1.5	1.04	1040
11:08	2.5	1.16	1160
11:09	3.5	1.24	1240
11:10	4.5	1.32	1320
11:12	6.5	1.41	1410
11:13	7.5	1.44	1440
11:15	9.5	1.50	1500
11:29	23.5	1.68	1680
11:47	41.5	1.75	1750
11:50	44.5	1.77	1770

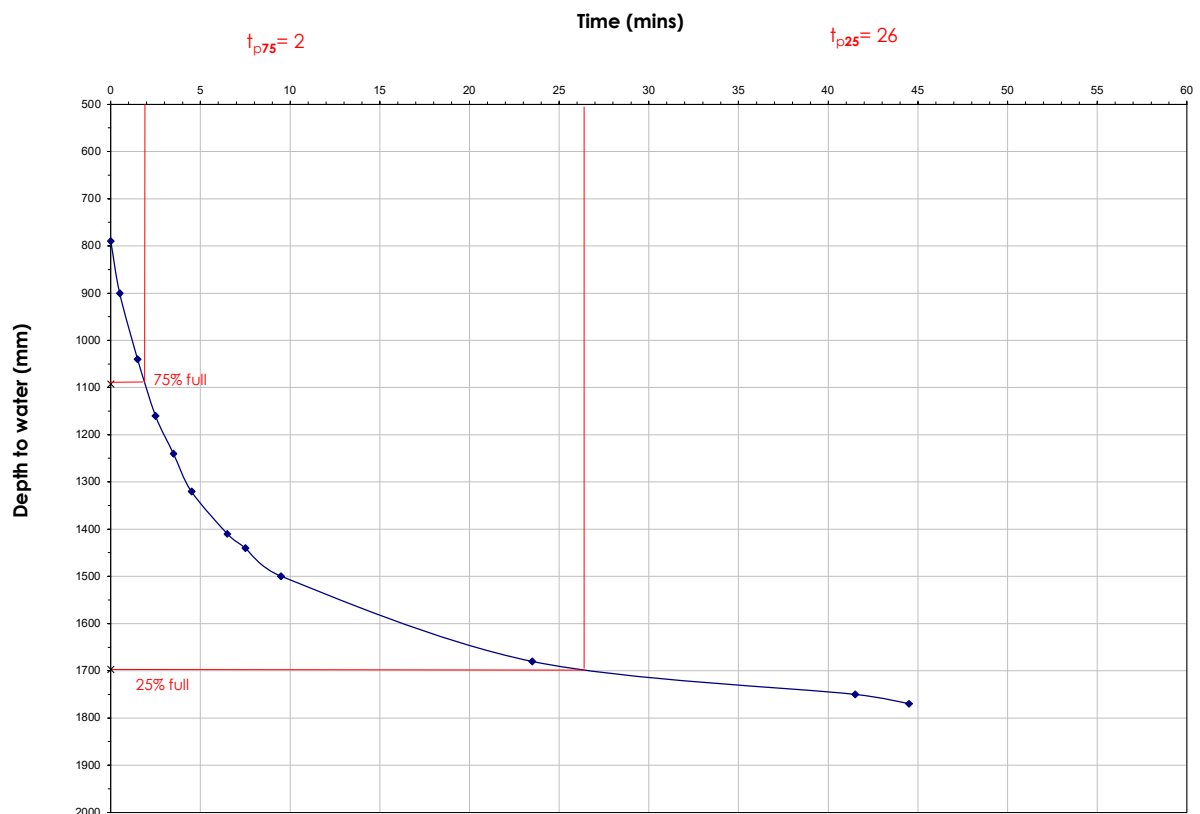
SOAKAWAY TRIAL PIT			
Dimensions		(m)	(mm)
Length	=	2.30	2300
Width	=	0.70	700
Depth	=	2.00	2000

Effective Depth (% full)		(mm)	(m)
0.25	=	1697.5	1.70
0.50	=	1395	1.40
0.75	=	1092.5	1.09

Depth at start of test (mm)	=	790
Depth at end of test (mm)	=	1770

Base area of pit	=	1.61
A_{p50} - 50% internal surface area inc. base	=	5.24
V_{p75-25} - Volume 75 - 25%	=	0.97405

Read from the graph:		
t_{p75} (min)	=	2
t_{p25} (min)	=	26



Soil infiltration rate, f , (m/s) = 1.29E-04

SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365: 1991

Client:	Fenwood Estates Limited
Engineer:	Cameron Daniel
Job Name:	Cudworth Parkway, Barnsley
Job No.:	4674



Date:	28/03/2024
Trial Pit No.	TP33
Test No.	3

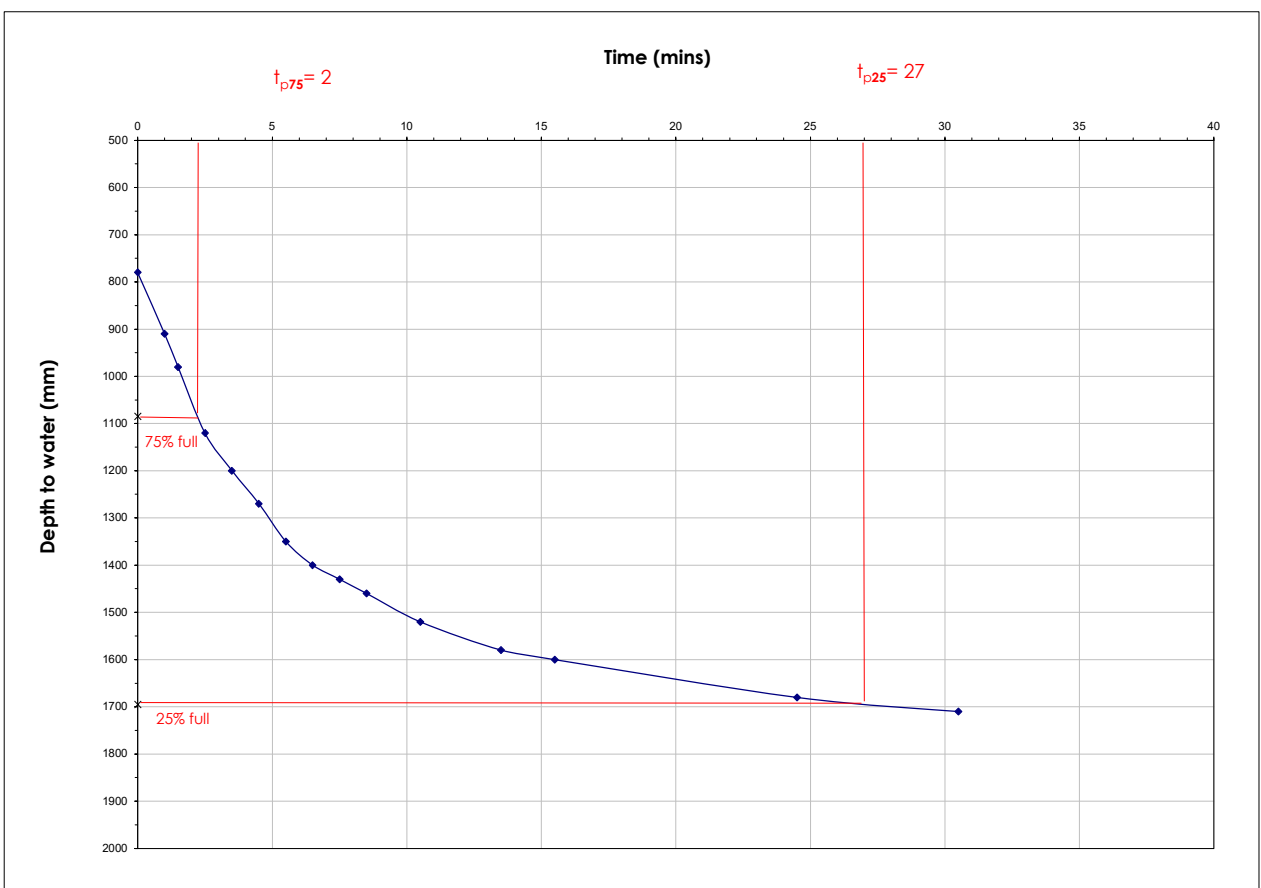
Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
11:58:30	0	0.78	780
11:59:30	1	0.91	910
12:00	1.5	0.98	980
12:01	2.5	1.12	1120
12:02	3.5	1.20	1200
12:03	4.5	1.27	1270
12:04	5.5	1.35	1350
12:05	6.5	1.40	1400
12:06	7.5	1.43	1430
12:07	8.5	1.46	1460
12:09	10.5	1.52	1520
12:12	13.5	1.58	1580
12:14	15.5	1.60	1600
12:23	24.5	1.68	1680
12:29	30.5	1.71	1710

SOAKAWAY TRIAL PIT			
Dimensions		(m)	(mm)
Length	=	2.30	2300
Width	=	0.70	700
Depth	=	2.00	2000
Effective Depth (% full)		(mm)	(m)
0.25	=	1695	1.70
0.50	=	1390	1.39
0.75	=	1085	1.09

Depth at start of test (mm)	=	780
Depth at end of test (mm)	=	1710

Base area of pit	=	1.61
a_{p50} - 50% internal surface area inc. base	=	5.27
V_{p75-25} - Volume 75 - 25%	=	0.9821

Read from the graph:			
t_{p75} (min)	=	2	
t_{p25} (min)	=	27	



Soil infiltration rate, f , (m/s) = 1.24E-04

Appendix L

Chemical Test Results



Certificate of Analysis

Certificate Number 24-06798

Issued: 15-Apr-24

Client Lithos Consulting Ltd
Parkhill
Walton Rd
Wetherby
LS22 5DZ

Our Reference 24-06798

Client Reference ~ 4674

Order No ~ PO22173

Contract Title ~ CUDWORTH PARKWAY

Description 52 Soil samples, 3 Misc samples.

Date Received 03-Apr-24

Date Started 03-Apr-24

Date Completed 15-Apr-24

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager



Normec DETS Limited

Unit 2, Park Road Industrial Estate South, Consett, Co Durham, DH8 5PY

Symbol key at end of report Tel: 01207 582333 • email: info@dets.co.uk • www.dets.co.uk

Page 1 of 24

Summary of Chemical Analysis

Soil/Misc Samples

Our Ref 24-06798

Client Ref ~ 4674

Contract Title ~ CUDWORTH PARKWAY

Lab No	2319905	2319906	2319907	2319908	2319909	2319910
Sample ID ~	TP01	TP02	TP04	TP16	TP17	TP18
Depth ~	0.10	0.10	0.10	0.10	0.10	0.10
Other ID ~						
Sample Type ~	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	28/03/2024	25/03/2024	25/03/2024	25/03/2024	28/03/2024	27/03/2024
Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Preparation									
Stones >10mm	DETSC 1003*	1	% m/m	9.0	6.0	4.0	13	2.0	3.0
Moisture Content	DETSC 1004	0.1	%	17	15	17	18	21	16
Metals									
Arsenic	DETSC 2301#	0.2	mg/kg	9.7	11	11	9.7	11	9.8
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	< 0.2	0.3	< 0.2	< 0.2	0.3	0.3
Cadmium	DETSC 2301#	0.1	mg/kg	0.2	0.2	0.3	0.2	0.3	0.2
Chromium	DETSC 2301#	0.15	mg/kg	8.7	12	14	8.8	12	12
Chromium III	DETSC 2301*	0.15	mg/kg	8.7	12	14	8.8	12	12
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	15	18	20	15	19	17
Lead	DETSC 2301#	0.3	mg/kg	21	28	36	29	33	28
Magnesium Aqueous Extract (2:1)	DETSC 2076*	10	mg/l						
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	0.07	0.08	0.06	0.08	0.06
Nickel	DETSC 2301#	1	mg/kg	13	16	15	11	13	15
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	16	21	22	16	18	20
Zinc	DETSC 2301#	1	mg/kg	60	61	73	53	73	62
Inorganics									
pH	DETSC 2008#		pH	7.1	7.7	7.4	7.0	6.7	6.8
Total Organic Carbon	DETSC 2084#	0.5	%	1.4	1.6	1.9	1.7	2.3	1.6
Chloride Aqueous Extract (2:1)	DETSC 2055	1	mg/l						
Nitrate Aqueous Extract as NO3 (2:1)	DETSC 2055	1	mg/l						
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l						
Petroleum Hydrocarbons									
VPH (C6-C10)	DETSC 3321*	0.1	mg/kg						
EPH (C10-C12)	DETSC 3311	10	mg/kg						
EPH (C12-C16)	DETSC 3311	10	mg/kg						
EPH (C16-C21)	DETSC 3311	10	mg/kg						
EPH (C21-C35)	DETSC 3311	10	mg/kg						
EPH (C35-C40)	DETSC 3311	10	mg/kg						
EPH (C10-C40)	DETSC 3311#	10	mg/kg						
PAHs									
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.04	0.04	0.05	0.05	0.04	0.06
Pyrene	DETSC 3303#	0.03	mg/kg	0.03	0.04	0.04	0.04	0.03	0.05
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03



Summary of Chemical Analysis Soil/Misc Samples

Our Ref 24-06798

Client Ref ~ 4674

Contract Title ~ CUDWORTH PARKWAY

Lab No	2319905	2319906	2319907	2319908	2319909	2319910
Sample ID ~	TP01	TP02	TP04	TP16	TP17	TP18
Depth ~	0.10	0.10	0.10	0.10	0.10	0.10
Other ID ~						
Sample Type ~	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	28/03/2024	25/03/2024	25/03/2024	25/03/2024	28/03/2024	27/03/2024
Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.11

Summary of Chemical Analysis

Soil/Misc Samples

Our Ref 24-06798

Client Ref ~ 4674

Contract Title ~ CUDWORTH PARKWAY

Lab No	2319911	2319912	2319913	2319914	2319915	2319916
Sample ID ~	TP23	TP28	TP29	TP31	TP32	TP35
Depth ~	0.10	0.10	0.10	0.10	0.10	0.10
Other ID ~						
Sample Type ~	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	27/03/2024	27/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Preparation									
Stones >10mm	DETSC 1003*	1	% m/m	5.0	4.0	2.0	4.0	7.0	9.0
Moisture Content	DETSC 1004	0.1	%	17	17	15	18	16	19
Metals									
Arsenic	DETSC 2301#	0.2	mg/kg	12	15	19	20	17	13
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	0.3	0.3	0.4	0.3	0.3	0.2
Cadmium	DETSC 2301#	0.1	mg/kg	0.2	0.2	0.3	0.3	0.2	0.2
Chromium	DETSC 2301#	0.15	mg/kg	14	13	12	24	14	13
Chromium III	DETSC 2301*	0.15	mg/kg	14	13	12	24	14	13
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	19	31	30	35	27	24
Lead	DETSC 2301#	0.3	mg/kg	36	45	55	59	45	48
Magnesium Aqueous Extract (2:1)	DETSC 2076*	10	mg/l						
Mercury	DETSC 2325#	0.05	mg/kg	0.11	0.10	0.11	0.11	0.07	0.08
Nickel	DETSC 2301#	1	mg/kg	14	17	16	17	14	15
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	21	23	22	31	21	21
Zinc	DETSC 2301#	1	mg/kg	68	89	100	120	80	82
Inorganics									
pH	DETSC 2008#		pH	6.0	6.1	6.4	6.1	5.9	5.7
Total Organic Carbon	DETSC 2084#	0.5	%	2.2	5.0	4.4	6.6	4.0	3.9
Chloride Aqueous Extract (2:1)	DETSC 2055	1	mg/l						
Nitrate Aqueous Extract as NO3 (2:1)	DETSC 2055	1	mg/l						
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l						
Petroleum Hydrocarbons									
VPH (C6-C10)	DETSC 3321*	0.1	mg/kg						
EPH (C10-C12)	DETSC 3311	10	mg/kg						
EPH (C12-C16)	DETSC 3311	10	mg/kg						
EPH (C16-C21)	DETSC 3311	10	mg/kg						
EPH (C21-C35)	DETSC 3311	10	mg/kg						
EPH (C35-C40)	DETSC 3311	10	mg/kg						
EPH (C10-C40)	DETSC 3311#	10	mg/kg						
PAHs									
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.05	0.08	0.21	0.06	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	0.04	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.04	0.13	0.18	0.46	0.14	0.07
Pyrene	DETSC 3303#	0.03	mg/kg	0.04	0.11	0.16	0.39	0.13	0.06
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	0.05	0.06	0.16	0.05	< 0.03

Summary of Chemical Analysis

Soil/Misc Samples

Our Ref 24-06798

Client Ref ~ 4674

Contract Title ~ CUDWORTH PARKWAY

Lab No	2319911	2319912	2319913	2319914	2319915	2319916
Sample ID ~	TP23	TP28	TP29	TP31	TP32	TP35
Depth ~	0.10	0.10	0.10	0.10	0.10	0.10
Other ID ~						
Sample Type ~	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	27/03/2024	27/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03	0.06	0.08	0.21	0.06	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	0.05	0.07	0.21	0.05	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	0.09	< 0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.03	0.04	0.15	0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	0.08	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	0.08	< 0.03	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	< 0.10	0.44	0.66	2.1	0.49	0.12

Summary of Chemical Analysis

Soil/Misc Samples

Our Ref 24-06798

Client Ref ~ 4674

Contract Title ~ CUDWORTH PARKWAY

Lab No	2319917	2319918	2319919	2319920	2319921	2319922
Sample ID ~	TP37	TP38	TP40	TP43	TP05	TP19
Depth ~	0.10	0.10	0.10	0.10	0.10	0.10
Other ID ~						
Sample Type ~	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	28/03/2024	28/03/2024	28/03/2024	28/03/2024	25/03/2024	27/03/2024
Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Preparation									
Stones >10mm	DETSC 1003*	1	% m/m	14	6.0	3.0	15	8.0	4.0
Moisture Content	DETSC 1004	0.1	%	15	16	16	22	15	15
Metals									
Arsenic	DETSC 2301#	0.2	mg/kg	14	12	17	15	11	9.6
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	0.3	0.3	0.4	0.3	0.3	0.3
Cadmium	DETSC 2301#	0.1	mg/kg	0.2	0.3	0.2	0.3	0.3	0.2
Chromium	DETSC 2301#	0.15	mg/kg	13	15	11	73	24	17
Chromium III	DETSC 2301*	0.15	mg/kg	13	15	11	73	24	17
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	22	29	35	31	26	17
Lead	DETSC 2301#	0.3	mg/kg	55	51	44	65	44	31
Magnesium Aqueous Extract (2:1)	DETSC 2076*	10	mg/l						
Mercury	DETSC 2325#	0.05	mg/kg	0.06	0.07	0.07	0.10	0.09	0.06
Nickel	DETSC 2301#	1	mg/kg	16	14	17	17	16	14
Selenium	DETSC 2301#	0.5	mg/kg	0.5	< 0.5	< 0.5	1.1	< 0.5	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	21	22	23	35	24	20
Zinc	DETSC 2301#	1	mg/kg	94	130	81	67	85	65
Inorganics									
pH	DETSC 2008#		pH	6.7	6.2	6.2	8.0	7.8	7.7
Total Organic Carbon	DETSC 2084#	0.5	%	2.1	2.6	5.7	4.7	2.2	2.4
Chloride Aqueous Extract (2:1)	DETSC 2055	1	mg/l						
Nitrate Aqueous Extract as NO3 (2:1)	DETSC 2055	1	mg/l						
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l						
Petroleum Hydrocarbons									
VPH (C6-C10)	DETSC 3321*	0.1	mg/kg						
EPH (C10-C12)	DETSC 3311	10	mg/kg						
EPH (C12-C16)	DETSC 3311	10	mg/kg						
EPH (C16-C21)	DETSC 3311	10	mg/kg						
EPH (C21-C35)	DETSC 3311	10	mg/kg						
EPH (C35-C40)	DETSC 3311	10	mg/kg						
EPH (C10-C40)	DETSC 3311#	10	mg/kg						
PAHs									
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.03	0.06	0.06	0.09	0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.04	0.07	0.15	0.18	0.26	0.07
Pyrene	DETSC 3303#	0.03	mg/kg	0.03	0.06	0.13	0.16	0.24	0.07
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.05	0.07	0.10	0.03



Summary of Chemical Analysis Soil/Misc Samples

Our Ref 24-06798

Client Ref ~ 4674

Contract Title ~ CUDWORTH PARKWAY

Lab No	2319917	2319918	2319919	2319920	2319921	2319922
Sample ID ~	TP37	TP38	TP40	TP43	TP05	TP19
Depth ~	0.10	0.10	0.10	0.10	0.10	0.10
Other ID ~						
Sample Type ~	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	28/03/2024	28/03/2024	28/03/2024	28/03/2024	25/03/2024	27/03/2024
Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03	0.03	0.06	0.09	0.12	0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.06	0.10	0.12	0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	0.04	0.05	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.03	0.07	0.08	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	0.04	0.04	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	0.04	0.05	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	< 0.10	0.13	0.51	0.81	1.2	0.14

Summary of Chemical Analysis

Soil/Misc Samples

Our Ref 24-06798

Client Ref ~ 4674

Contract Title ~ CUDWORTH PARKWAY

Lab No	2319923	2319927	2319928	2319929	2319930	2319931
Sample ID ~	TP21	TP09	TP10	TP12	TP34	TP24
Depth ~	0.10	0.10	0.40	0.50	0.20	0.40
Other ID ~						
Sample Type ~	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	27/03/2024	26/03/2024	26/03/2024	26/03/2024	28/03/2024	28/03/2024
Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Preparation									
Stones >10mm	DETSC 1003*	1	% m/m	5.0	17	16	20	3.0	24
Moisture Content	DETSC 1004	0.1	%	22	16	13	18	23	11
Metals									
Arsenic	DETSC 2301#	0.2	mg/kg	12	49	42	54	12	17
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	0.5	0.9	0.7	1.1	1.0	0.9
Cadmium	DETSC 2301#	0.1	mg/kg	0.3	0.5	0.1	0.7	1.1	0.2
Chromium	DETSC 2301#	0.15	mg/kg	15	61	30	73	22	20
Chromium III	DETSC 2301*	0.15	mg/kg	15	61	30	73	22	20
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	21	210	34	600	200	100
Lead	DETSC 2301#	0.3	mg/kg	51	200	36	240	100	56
Magnesium Aqueous Extract (2:1)	DETSC 2076*	10	mg/l		< 10	< 10	< 10	< 10	
Mercury	DETSC 2325#	0.05	mg/kg	0.10	1.0	0.08	0.50	< 0.05	0.09
Nickel	DETSC 2301#	1	mg/kg	16	41	23	40	20	21
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	0.5	< 0.5	< 0.5	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	23	38	17	65	21	19
Zinc	DETSC 2301#	1	mg/kg	95	370	67	370	530	110
Inorganics									
pH	DETSC 2008#		pH	7.0	7.7	7.7	7.9	7.7	8.0
Total Organic Carbon	DETSC 2084#	0.5	%	2.8	19	11	18	4.6	8.1
Chloride Aqueous Extract (2:1)	DETSC 2055	1	mg/l		6.9	8.5	11	6.0	
Nitrate Aqueous Extract as NO3 (2:1)	DETSC 2055	1	mg/l		5.7	1.8	1.1	13	
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l		54	73	49	38	
Petroleum Hydrocarbons									
VPH (C6-C10)	DETSC 3321*	0.1	mg/kg		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
EPH (C10-C12)	DETSC 3311	10	mg/kg		< 10	< 10	< 10	< 10	< 10
EPH (C12-C16)	DETSC 3311	10	mg/kg		< 10	< 10	< 10	< 10	< 10
EPH (C16-C21)	DETSC 3311	10	mg/kg		13	< 10	16	< 10	< 10
EPH (C21-C35)	DETSC 3311	10	mg/kg		43	< 10	76	< 10	< 10
EPH (C35-C40)	DETSC 3311	10	mg/kg		< 10	< 10	< 10	< 10	< 10
EPH (C10-C40)	DETSC 3311#	10	mg/kg		60	< 10	100	< 10	< 10
PAHs									
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.04	< 0.03	< 0.03	0.04
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	0.04	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.32	0.10	0.25	0.06	0.12
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	0.09	< 0.03	0.04	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.06	1.1	0.24	0.75	0.10	0.32
Pyrene	DETSC 3303#	0.03	mg/kg	0.06	1.1	0.24	0.77	0.10	0.32
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	0.46	0.10	0.32	0.04	0.11

Summary of Chemical Analysis

Soil/Misc Samples

Our Ref 24-06798

Client Ref ~ 4674

Contract Title ~ CUDWORTH PARKWAY

Lab No	2319923	2319927	2319928	2319929	2319930	2319931
Sample ID ~	TP21	TP09	TP10	TP12	TP34	TP24
Depth ~	0.10	0.10	0.40	0.50	0.20	0.40
Other ID ~						
Sample Type ~	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	27/03/2024	26/03/2024	26/03/2024	26/03/2024	28/03/2024	28/03/2024
Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03	0.48	0.13	0.29	0.05	0.13
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	0.60	0.37	0.38	0.05	0.17
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	0.22	0.14	0.12	< 0.03	0.05
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.44	0.24	0.20	< 0.03	0.11
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.23	0.22	0.14	< 0.03	0.07
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	0.06	0.05	< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	0.27	0.31	0.17	< 0.03	0.08
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	0.12	5.4	2.2	3.4	0.40	1.5

Summary of Chemical Analysis

Soil/Misc Samples

Our Ref 24-06798

Client Ref ~ 4674

Contract Title ~ CUDWORTH PARKWAY

Lab No	2319932	2319933	2319934	2319935	2319936	2319937
Sample ID ~	TP13	TP08	TP15	TP42	TP11	TP07
Depth ~	1.50	1.80	2.40	0.20	0.30	0.40
Other ID ~						
Sample Type ~	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	27/03/2024	26/03/2024	26/03/2024	28/03/2024	26/03/2024	26/03/2024
Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Preparation									
Stones >10mm	DETSC 1003*	1	% m/m	9.0	28	12	9.0	10	17
Moisture Content	DETSC 1004	0.1	%	15	10	25	17	11	16
Metals									
Arsenic	DETSC 2301#	0.2	mg/kg	15	42	25	15	13	5.6
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	0.8	2.2	2.1	0.6	1.4	0.9
Cadmium	DETSC 2301#	0.1	mg/kg	0.6	0.2	8.3	0.5	2.0	0.1
Chromium	DETSC 2301#	0.15	mg/kg	43	65	22	48	250	53
Chromium III	DETSC 2301*	0.15	mg/kg	43	65	22	48	250	53
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	120	43	85	56	48	18
Lead	DETSC 2301#	0.3	mg/kg	95	39	240	81	99	19
Magnesium Aqueous Extract (2:1)	DETSC 2076*	10	mg/l	34	19	72	< 10	25	< 10
Mercury	DETSC 2325#	0.05	mg/kg	0.14	0.11	0.22	0.10	0.14	< 0.05
Nickel	DETSC 2301#	1	mg/kg	25	26	27	19	18	8.6
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	0.6	< 0.5	0.5	1.4	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	34	28	28	38	85	38
Zinc	DETSC 2301#	1	mg/kg	330	94	4400	160	940	54
Inorganics									
pH	DETSC 2008#		pH	8.1	9.0	7.8	8.1	8.5	9.5
Total Organic Carbon	DETSC 2084#	0.5	%	4.5	12	5.4	4.4	4.9	3.9
Chloride Aqueous Extract (2:1)	DETSC 2055	1	mg/l	18	11	14	17	14	6.7
Nitrate Aqueous Extract as NO3 (2:1)	DETSC 2055	1	mg/l	15	< 1.0	1.1	1.9	3.5	3.8
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	1600	370	1400	97	590	90
Petroleum Hydrocarbons									
VPH (C6-C10)	DETSC 3321*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
EPH (C10-C12)	DETSC 3311	10	mg/kg	< 10	< 10	< 10	< 10	< 10	< 10
EPH (C12-C16)	DETSC 3311	10	mg/kg	< 10	< 10	< 10	< 10	26	52
EPH (C16-C21)	DETSC 3311	10	mg/kg	33	< 10	38	22	200	610
EPH (C21-C35)	DETSC 3311	10	mg/kg	180	< 10	150	99	1100	1600
EPH (C35-C40)	DETSC 3311	10	mg/kg	19	< 10	< 10	11	240	210
EPH (C10-C40)	DETSC 3311#	10	mg/kg	230	< 10	200	140	1600	2500
PAHs									
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	0.12	< 0.03	< 0.03	0.17	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	0.11	< 0.03	< 0.03	< 0.03	0.12	0.09
Acenaphthene	DETSC 3303#	0.03	mg/kg	0.04	0.23	0.03	0.04	0.82	0.17
Fluorene	DETSC 3303	0.03	mg/kg	0.09	0.14	0.06	< 0.03	0.59	0.11
Phenanthrene	DETSC 3303#	0.03	mg/kg	1.0	0.70	0.35	0.39	4.4	1.7
Anthracene	DETSC 3303	0.03	mg/kg	0.20	0.20	0.07	0.06	1.1	0.42
Fluoranthene	DETSC 3303#	0.03	mg/kg	2.8	1.8	0.73	0.72	8.8	7.9
Pyrene	DETSC 3303#	0.03	mg/kg	2.7	1.6	0.65	0.65	8.8	8.4
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	1.0	0.46	0.21	0.22	4.8	4.7

Summary of Chemical Analysis

Soil/Misc Samples

Our Ref 24-06798

Client Ref ~ 4674

Contract Title ~ CUDWORTH PARKWAY

Lab No	2319932	2319933	2319934	2319935	2319936	2319937
Sample ID ~	TP13	TP08	TP15	TP42	TP11	TP07
Depth ~	1.50	1.80	2.40	0.20	0.30	0.40
Other ID ~						
Sample Type ~	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	27/03/2024	26/03/2024	26/03/2024	28/03/2024	26/03/2024	26/03/2024
Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Chrysene	DETSC 3303	0.03	mg/kg	0.81	0.46	0.26	0.25	3.5	3.1
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	1.1	0.43	0.26	0.28	5.4	4.9
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	0.42	0.17	0.10	0.11	2.3	2.0
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	0.79	0.30	0.14	0.16	5.3	4.4
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	0.39	0.16	0.11	0.12	1.5	1.6
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	0.10	0.04	< 0.03	0.03	0.39	0.39
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	0.44	0.19	0.12	0.14	2.2	2.1
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	12	7.0	3.1	3.1	50	42

Summary of Chemical Analysis

Soil/Misc Samples

Our Ref 24-06798

Client Ref ~ 4674

Contract Title ~ CUDWORTH PARKWAY

Lab No	2319938	2319939	2319940	2319941	2319942	2319943
Sample ID ~	TP26	TP15	TP22	TP27	TP09	TP22
Depth ~	0.50	0.60	0.60	0.90	1.50	1.80
Other ID ~						
Sample Type ~	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	26/03/2024	27/03/2024	28/03/2024	28/03/2024	27/03/2024	26/03/2024
Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Preparation									
Stones >10mm	DETSC 1003*	1	% m/m	31	7.0	21	14	11	7.0
Moisture Content	DETSC 1004	0.1	%	8.5	14	18	7.6	17	19
Metals									
Arsenic	DETSC 2301#	0.2	mg/kg	6.9	15	25	6.3	13	17
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	1.0	0.6	0.9	1.8	0.7	0.8
Cadmium	DETSC 2301#	0.1	mg/kg	0.3	0.3	0.2	0.4	0.3	2.0
Chromium	DETSC 2301#	0.15	mg/kg	150	45	42	220	110	29
Chromium III	DETSC 2301*	0.15	mg/kg	150	45	42	220	110	29
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	36	29	48	24	36	59
Lead	DETSC 2301#	0.3	mg/kg	33	380	55	36	380	79
Magnesium Aqueous Extract (2:1)	DETSC 2076*	10	mg/l	< 10			< 10	< 10	< 10
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	0.09	0.11	< 0.05	0.09	0.19
Nickel	DETSC 2301#	1	mg/kg	22	17	26	12	23	19
Selenium	DETSC 2301#	0.5	mg/kg	1.0	< 0.5	< 0.5	1.8	< 0.5	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	69	31	45	110	58	34
Zinc	DETSC 2301#	1	mg/kg	140	130	120	97	110	620
Inorganics									
pH	DETSC 2008#		pH	10.4	8.0	9.0	10.5	8.6	8.7
Total Organic Carbon	DETSC 2084#	0.5	%	4.6	4.6	5.9	5.1	4.0	6.0
Chloride Aqueous Extract (2:1)	DETSC 2055	1	mg/l	8.3			35	8.3	9.0
Nitrate Aqueous Extract as NO3 (2:1)	DETSC 2055	1	mg/l	2.2			2.5	2.8	6.3
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	300			620	420	110
Petroleum Hydrocarbons									
VPH (C6-C10)	DETSC 3321*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
EPH (C10-C12)	DETSC 3311	10	mg/kg	< 10	< 10	< 10	< 10	< 10	< 10
EPH (C12-C16)	DETSC 3311	10	mg/kg	96	< 10	< 10	15	< 10	19
EPH (C16-C21)	DETSC 3311	10	mg/kg	670	15	< 10	95	< 10	130
EPH (C21-C35)	DETSC 3311	10	mg/kg	2100	87	21	630	31	270
EPH (C35-C40)	DETSC 3311	10	mg/kg	330	23	< 10	150	< 10	29
EPH (C10-C40)	DETSC 3311#	10	mg/kg	3200	130	35	890	41	450
PAHs									
Naphthalene	DETSC 3303#	0.03	mg/kg	0.08	< 0.03	< 0.03	0.50	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	0.12	< 0.03	< 0.03	0.25	< 0.03	< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	0.64	< 0.03	< 0.03	1.3	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	0.70	< 0.03	< 0.03	0.93	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	4.7	0.31	0.11	4.8	0.10	0.19
Anthracene	DETSC 3303	0.03	mg/kg	1.2	0.06	< 0.03	1.5	< 0.03	0.04
Fluoranthene	DETSC 3303#	0.03	mg/kg	10	0.81	0.24	10	0.31	0.33
Pyrene	DETSC 3303#	0.03	mg/kg	10	0.77	0.24	9.1	0.30	0.31
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	6.6	0.34	0.09	4.0	0.15	0.11

Summary of Chemical Analysis

Soil/Misc Samples

Our Ref 24-06798

Client Ref ~ 4674

Contract Title ~ CUDWORTH PARKWAY

Lab No	2319938	2319939	2319940	2319941	2319942	2319943
Sample ID ~	TP26	TP15	TP22	TP27	TP09	TP22
Depth ~	0.50	0.60	0.60	0.90	1.50	1.80
Other ID ~						
Sample Type ~	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	26/03/2024	27/03/2024	28/03/2024	28/03/2024	27/03/2024	26/03/2024
Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Chrysene	DETSC 3303	0.03	mg/kg	4.4	0.22	0.08	3.8	0.11	0.09
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	6.0	0.27	0.11	4.4	0.13	0.10
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	2.6	0.11	0.04	1.7	0.05	0.04
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	6.3	0.17	0.07	3.7	0.10	0.07
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	1.6	0.08	0.04	1.8	0.06	0.06
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	0.45	< 0.03	< 0.03	0.48	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	2.2	0.09	0.04	2.3	0.07	0.09
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	58	3.2	1.1	51	1.4	1.4

Summary of Chemical Analysis

Soil/Misc Samples

Our Ref 24-06798

Client Ref ~ 4674

Contract Title ~ CUDWORTH PARKWAY

Lab No	2319944	2319945	2319946	2319947	2319948	2319949
Sample ID ~	TP24	TP07	TP10	TP08	TP21	TP01
Depth ~	2.00	1.00	1.60	2.80	0.60	0.70
Other ID ~						
Sample Type ~	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	26/03/2024	26/03/2024	26/03/2024	26/03/2024	27/03/2024	25/03/2024
Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Preparation									
Stones >10mm	DETSC 1003*	1	% m/m	8.0	10	23	5.0		
Moisture Content	DETSC 1004	0.1	%	17	12	10	14		
Metals									
Arsenic	DETSC 2301#	0.2	mg/kg	11	7.8	16	14		
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	1.5	0.4	0.2	1.6		
Cadmium	DETSC 2301#	0.1	mg/kg	0.3	0.1	< 0.1	0.1		
Chromium	DETSC 2301#	0.15	mg/kg	160	15	15	18		
Chromium III	DETSC 2301*	0.15	mg/kg	160	15	15	18		
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0		
Copper	DETSC 2301#	0.2	mg/kg	75	17	11	33		
Lead	DETSC 2301#	0.3	mg/kg	77	88	11	37		
Magnesium Aqueous Extract (2:1)	DETSC 2076*	10	mg/l	28					
Mercury	DETSC 2325#	0.05	mg/kg	0.07	0.34	< 0.05	0.07		
Nickel	DETSC 2301#	1	mg/kg	23	16	16	22		
Selenium	DETSC 2301#	0.5	mg/kg	0.9	< 0.5	0.7	0.6		
Vanadium	DETSC 2301#	0.8	mg/kg	55	16	16	20		
Zinc	DETSC 2301#	1	mg/kg	140	63	51	78		
Inorganics									
pH	DETSC 2008#		pH	8.6	8.3	7.3	8.5	6.0	7.2
Total Organic Carbon	DETSC 2084#	0.5	%	3.3	1.2	0.8	12		
Chloride Aqueous Extract (2:1)	DETSC 2055	1	mg/l	17					
Nitrate Aqueous Extract as NO3 (2:1)	DETSC 2055	1	mg/l	16					
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	1700				18	13
Petroleum Hydrocarbons									
VPH (C6-C10)	DETSC 3321*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1		
EPH (C10-C12)	DETSC 3311	10	mg/kg	< 10	< 10	< 10	< 10		
EPH (C12-C16)	DETSC 3311	10	mg/kg	< 10	< 10	< 10	11		
EPH (C16-C21)	DETSC 3311	10	mg/kg	< 10	70	< 10	100		
EPH (C21-C35)	DETSC 3311	10	mg/kg	38	300	< 10	290		
EPH (C35-C40)	DETSC 3311	10	mg/kg	< 10	32	< 10	35		
EPH (C10-C40)	DETSC 3311#	10	mg/kg	49	410	< 10	440		
PAHs									
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	0.18		
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	0.04	< 0.03	< 0.03		
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	0.29		
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	0.05	< 0.03	0.23		
Phenanthrene	DETSC 3303#	0.03	mg/kg	0.09	0.58	< 0.03	1.1		
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	0.08	< 0.03	0.23		
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.29	1.2	< 0.03	1.2		
Pyrene	DETSC 3303#	0.03	mg/kg	0.29	1.2	< 0.03	1.0		
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	0.13	0.52	< 0.03	0.33		

Summary of Chemical Analysis Soil/Misc Samples

Our Ref 24-06798

Client Ref ~ 4674

Contract Title ~ CUDWORTH PARKWAY

Lab No	2319944	2319945	2319946	2319947	2319948	2319949
Sample ID ~	TP24	TP07	TP10	TP08	TP21	TP01
Depth ~	2.00	1.00	1.60	2.80	0.60	0.70
Other ID ~						
Sample Type ~	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	26/03/2024	26/03/2024	26/03/2024	26/03/2024	27/03/2024	25/03/2024
Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Chrysene	DETSC 3303	0.03	mg/kg	0.10	0.39	< 0.03	0.35		
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.15	0.55	< 0.03	0.30		
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	0.06	0.20	< 0.03	0.12		
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	0.11	0.43	< 0.03	0.22		
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	0.08	0.21	< 0.03	0.10		
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	0.05	< 0.03	0.03		
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	0.09	0.27	< 0.03	0.12		
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	1.4	5.8	< 0.10	5.8		

Summary of Chemical Analysis

Soil/Misc Samples

Our Ref 24-06798

Client Ref ~ 4674

Contract Title ~ CUDWORTH PARKWAY

Lab No	2319950	2319951	2319952	2319953	2319954	2319955
Sample ID ~	TP05	TP19	TP33	TP23	TP26	TP28
Depth ~	0.70	0.80	0.90	1.00	1.00	1.10
Other ID ~						
Sample Type ~	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	25/03/2024	27/03/2024	28/03/2024	27/03/2024	27/03/2024	27/03/2024
Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Preparation									
Stones >10mm	DETSC 1003*	1	% m/m						
Moisture Content	DETSC 1004	0.1	%						
Metals									
Arsenic	DETSC 2301#	0.2	mg/kg						
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg						
Cadmium	DETSC 2301#	0.1	mg/kg						
Chromium	DETSC 2301#	0.15	mg/kg						
Chromium III	DETSC 2301*	0.15	mg/kg						
Chromium, Hexavalent	DETSC 2204*	1	mg/kg						
Copper	DETSC 2301#	0.2	mg/kg						
Lead	DETSC 2301#	0.3	mg/kg						
Magnesium Aqueous Extract (2:1)	DETSC 2076*	10	mg/l						
Mercury	DETSC 2325#	0.05	mg/kg						
Nickel	DETSC 2301#	1	mg/kg						
Selenium	DETSC 2301#	0.5	mg/kg						
Vanadium	DETSC 2301#	0.8	mg/kg						
Zinc	DETSC 2301#	1	mg/kg						
Inorganics									
pH	DETSC 2008#		pH	7.9	7.7	7.8	7.0	8.4	6.8
Total Organic Carbon	DETSC 2084#	0.5	%						
Chloride Aqueous Extract (2:1)	DETSC 2055	1	mg/l						
Nitrate Aqueous Extract as NO3 (2:1)	DETSC 2055	1	mg/l						
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	190	< 10	< 10	13	15	< 10
Petroleum Hydrocarbons									
VPH (C6-C10)	DETSC 3321*	0.1	mg/kg						
EPH (C10-C12)	DETSC 3311	10	mg/kg						
EPH (C12-C16)	DETSC 3311	10	mg/kg						
EPH (C16-C21)	DETSC 3311	10	mg/kg						
EPH (C21-C35)	DETSC 3311	10	mg/kg						
EPH (C35-C40)	DETSC 3311	10	mg/kg						
EPH (C10-C40)	DETSC 3311#	10	mg/kg						
PAHs									
Naphthalene	DETSC 3303#	0.03	mg/kg						
Acenaphthylene	DETSC 3303#	0.03	mg/kg						
Acenaphthene	DETSC 3303#	0.03	mg/kg						
Fluorene	DETSC 3303	0.03	mg/kg						
Phenanthrene	DETSC 3303#	0.03	mg/kg						
Anthracene	DETSC 3303	0.03	mg/kg						
Fluoranthene	DETSC 3303#	0.03	mg/kg						
Pyrene	DETSC 3303#	0.03	mg/kg						
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg						



Summary of Chemical Analysis Soil/Misc Samples

Our Ref 24-06798

Client Ref ~ 4674

Contract Title ~ CUDWORTH PARKWAY

Lab No	2319950	2319951	2319952	2319953	2319954	2319955
Sample ID ~	TP05	TP19	TP33	TP23	TP26	TP28
Depth ~	0.70	0.80	0.90	1.00	1.00	1.10
Other ID ~						
Sample Type ~	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	25/03/2024	27/03/2024	28/03/2024	27/03/2024	27/03/2024	27/03/2024
Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Chrysene	DETSC 3303	0.03	mg/kg						
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg						
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg						
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg						
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg						
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg						
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg						
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg						

Summary of Chemical Analysis

Soil/Misc Samples

Our Ref 24-06798

Client Ref ~ 4674

Contract Title ~ CUDWORTH PARKWAY

Lab No	2319956	2319957	2319958	2319959
Sample ID ~	TP29	TP39	TP19	TP42
Depth ~	1.50	1.50	1.80	2.00
Other ID ~				
Sample Type ~	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	28/03/2024	25/03/2024	28/03/2024	28/03/2024
Sampling Time ~	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
Preparation							
Stones >10mm	DETSC 1003*	1	% m/m				
Moisture Content	DETSC 1004	0.1	%				
Metals							
Arsenic	DETSC 2301#	0.2	mg/kg				
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg				
Cadmium	DETSC 2301#	0.1	mg/kg				
Chromium	DETSC 2301#	0.15	mg/kg				
Chromium III	DETSC 2301*	0.15	mg/kg				
Chromium, Hexavalent	DETSC 2204*	1	mg/kg				
Copper	DETSC 2301#	0.2	mg/kg				
Lead	DETSC 2301#	0.3	mg/kg				
Magnesium Aqueous Extract (2:1)	DETSC 2076*	10	mg/l				
Mercury	DETSC 2325#	0.05	mg/kg				
Nickel	DETSC 2301#	1	mg/kg				
Selenium	DETSC 2301#	0.5	mg/kg				
Vanadium	DETSC 2301#	0.8	mg/kg				
Zinc	DETSC 2301#	1	mg/kg				
Inorganics							
pH	DETSC 2008#		pH	7.2	6.7	7.8	8.0
Total Organic Carbon	DETSC 2084#	0.5	%				
Chloride Aqueous Extract (2:1)	DETSC 2055	1	mg/l				
Nitrate Aqueous Extract as NO3 (2:1)	DETSC 2055	1	mg/l				
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	< 10	< 10	88	12
Petroleum Hydrocarbons							
VPH (C6-C10)	DETSC 3321*	0.1	mg/kg				
EPH (C10-C12)	DETSC 3311	10	mg/kg				
EPH (C12-C16)	DETSC 3311	10	mg/kg				
EPH (C16-C21)	DETSC 3311	10	mg/kg				
EPH (C21-C35)	DETSC 3311	10	mg/kg				
EPH (C35-C40)	DETSC 3311	10	mg/kg				
EPH (C10-C40)	DETSC 3311#	10	mg/kg				
PAHs							
Naphthalene	DETSC 3303#	0.03	mg/kg				
Acenaphthylene	DETSC 3303#	0.03	mg/kg				
Acenaphthene	DETSC 3303#	0.03	mg/kg				
Fluorene	DETSC 3303	0.03	mg/kg				
Phenanthrene	DETSC 3303#	0.03	mg/kg				
Anthracene	DETSC 3303	0.03	mg/kg				
Fluoranthene	DETSC 3303#	0.03	mg/kg				
Pyrene	DETSC 3303#	0.03	mg/kg				
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg				

Summary of Chemical Analysis

Soil/Misc Samples

Our Ref 24-06798

Client Ref ~ 4674

Contract Title ~ CUDWORTH PARKWAY

Lab No	2319956	2319957	2319958	2319959
Sample ID ~	TP29	TP39	TP19	TP42
Depth ~	1.50	1.50	1.80	2.00
Other ID ~				
Sample Type ~	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	28/03/2024	25/03/2024	28/03/2024	28/03/2024
Sampling Time ~	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
Chrysene	DETSC 3303	0.03	mg/kg				
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg				
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg				
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg				
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg				
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg				
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg				
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg				

Summary of Asbestos Analysis

Soil Samples

Our Ref 24-06798

Client Ref ~ 4674

Contract Title ~ CUDWORTH PARKWAY

Lab No	Sample ID	Sample Location	Material Type*	Result	Comment*	Analyst
2319905	TP01 0.10		SOIL	NAD	none	Ben Barsby
2319906	TP02 0.10		SOIL	NAD	none	Ben Barsby
2319907	TP04 0.10		SOIL	NAD	none	Ben Barsby
2319908	TP16 0.10		SOIL	NAD	none	Ben Barsby
2319909	TP17 0.10		SOIL	NAD	none	Ben Barsby
2319910	TP18 0.10		SOIL	NAD	none	Ben Barsby
2319911	TP23 0.10		SOIL	NAD	none	Ben Barsby
2319912	TP28 0.10		SOIL	NAD	none	Ben Barsby
2319913	TP29 0.10		SOIL	NAD	none	Ben Barsby
2319914	TP31 0.10		SOIL	NAD	none	Ben Barsby
2319915	TP32 0.10		SOIL	NAD	none	Ben Barsby
2319916	TP35 0.10		SOIL	NAD	none	Ben Barsby
2319917	TP37 0.10		SOIL	NAD	none	Ben Barsby
2319918	TP38 0.10		SOIL	Chrysotile	Chrysotile present as fibre bundles	Ben Barsby
2319919	TP40 0.10		SOIL	NAD	none	Ben Barsby
2319920	TP43 0.10		SOIL	NAD	none	Ben Barsby
2319921	TP05 0.10		SOIL	NAD	none	Ben Barsby
2319922	TP19 0.10		SOIL	NAD	none	Ben Barsby
2319923	TP21 0.10		SOIL	NAD	none	Ben Barsby
2319924	TP34 0.30		Cement	Chrysotile	none	Ben Barsby
2319925	TP42 0.30		Cement	Chrysotile Crocidolite	none	Ben Barsby
2319926	TP09 1.70		Cement	Chrysotile	none	Ben Barsby
2319927	TP09 0.10		SOIL	NAD	none	Ben Barsby
2319928	TP10 0.40		SOIL	NAD	none	Ben Barsby
2319929	TP12 0.50		SOIL	NAD	none	Ben Barsby
2319930	TP34 0.20		SOIL	NAD	none	Ben Barsby
2319931	TP24 0.40		SOIL	NAD	none	Ben Barsby
2319932	TP13 1.50		SOIL	Chrysotile	Chrysotile present as fibre bundles	Ben Barsby
2319933	TP08 1.80		SOIL	NAD	none	Ben Barsby
2319934	TP15 2.40		SOIL	Chrysotile	Chrysotile present as fibre bundles	Ben Barsby
2319935	TP42 0.20		SOIL	Chrysotile	Chrysotile present in microscopic insulation debris	Ben Barsby
2319936	TP11 0.30		SOIL	NAD	none	Ben Barsby
2319937	TP07 0.40		SOIL	NAD	none	Ben Barsby
2319938	TP26 0.50		SOIL	NAD	none	Ben Barsby
2319939	TP15 0.60		SOIL	NAD	none	Ben Barsby
2319940	TP22 0.60		SOIL	NAD	none	Ben Barsby
2319941	TP27 0.90		SOIL	Chrysotile	Chrysotile present as fibre bundles	Ben Barsby
2319942	TP09 1.50		SOIL	NAD	none	Ben Barsby
2319943	TP22 1.80		SOIL	NAD	none	Ben Barsby
2319944	TP24 2.00		SOIL	NAD	none	Ben Barsby
2319945	TP07 1.00		SOIL	NAD	none	Ben Barsby
2319946	TP10 1.60		SOIL	NAD	none	Ben Barsby
2319947	TP08 2.80		SOIL	NAD	none	Ben Barsby

Summary of Asbestos Analysis Soil Samples

Our Ref 24-06798

Client Ref ~ 4674

Contract Title ~ CUDWORTH PARKWAY

Material

Lab No	Sample ID	Sample Location	Type*	Result	Comment*	Analyst
Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.						

Information in Support of the Analytical Results

Our Ref 24-06798
 Client Ref ~ 4674
 Contract ~ CUDWORTH PARKWAY

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date Sampled ~	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2319905	TP01 0.10 SOIL	28/03/24	GJ 250ml, GJ 60ml, PT 1L		
2319906	TP02 0.10 SOIL	25/03/24	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
2319907	TP04 0.10 SOIL	25/03/24	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
2319908	TP16 0.10 SOIL	25/03/24	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
2319909	TP17 0.10 SOIL	28/03/24	GJ 250ml, GJ 60ml, PT 1L		
2319910	TP18 0.10 SOIL	27/03/24	GJ 250ml, GJ 60ml, PT 1L		
2319911	TP23 0.10 SOIL	27/03/24	GJ 250ml, GJ 60ml, PT 1L		
2319912	TP28 0.10 SOIL	27/03/24	GJ 250ml, PT 1L		
2319913	TP29 0.10 SOIL	28/03/24	GJ 250ml, PT 1L		
2319914	TP31 0.10 SOIL	28/03/24	GJ 250ml, PT 1L		
2319915	TP32 0.10 SOIL	28/03/24	GJ 250ml, PT 1L		
2319916	TP35 0.10 SOIL	28/03/24	GJ 250ml, PT 1L		
2319917	TP37 0.10 SOIL	28/03/24	GJ 250ml, PT 1L		
2319918	TP38 0.10 SOIL	28/03/24	GJ 250ml, PT 1L		
2319919	TP40 0.10 SOIL	28/03/24	GJ 250ml		
2319920	TP43 0.10 SOIL	28/03/24	GJ 250ml, PT 1L		
2319921	TP05 0.10 SOIL	25/03/24	GJ 250ml, PT 1L	pH + Conductivity (7 days)	
2319922	TP19 0.10 SOIL	27/03/24	GJ 250ml, PT 1L		
2319923	TP21 0.10 SOIL	27/03/24	GJ 250ml, PT 1L		
2319924	TP34 0.30 MISC	28/03/24	PT 1L		
2319925	TP42 0.30 MISC	26/03/24	PT 1L		
2319926	TP09 1.70 MISC	26/03/24	PT 1L		
2319927	TP09 0.10 SOIL	26/03/24	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
2319928	TP10 0.40 SOIL	26/03/24	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
2319929	TP12 0.50 SOIL	26/03/24	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
2319930	TP34 0.20 SOIL	28/03/24	GJ 250ml, GJ 60ml, PT 1L		
2319931	TP24 0.40 SOIL	28/03/24	GJ 250ml, GJ 60ml, PT 1L		
2319932	TP13 1.50 SOIL	27/03/24	GJ 250ml, GJ 60ml, PT 1L		
2319933	TP08 1.80 SOIL	26/03/24	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
2319934	TP15 2.40 SOIL	26/03/24	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
2319935	TP42 0.20 SOIL	28/03/24	GJ 250ml, GJ 60ml, PT 1L		
2319936	TP11 0.30 SOIL	26/03/24	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
2319937	TP07 0.40 SOIL	26/03/24	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
2319938	TP26 0.50 SOIL	26/03/24	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
2319939	TP15 0.60 SOIL	27/03/24	GJ 250ml, GJ 60ml, PT 1L		
2319940	TP22 0.60 SOIL	28/03/24	GJ 250ml, GJ 60ml, PT 1L		
2319941	TP27 0.90 SOIL	28/03/24	GJ 250ml, GJ 60ml, PT 1L		
2319942	TP09 1.50 SOIL	27/03/24	GJ 250ml, GJ 60ml, PT 1L		
2319943	TP22 1.80 SOIL	26/03/24	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
2319944	TP24 2.00 SOIL	26/03/24	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
2319945	TP07 1.00 SOIL	26/03/24	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
2319946	TP10 1.60 SOIL	26/03/24	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	

Information in Support of the Analytical Results

Our Ref 24-06798
Client Ref ~ 4674
Contract ~ CUDWORTH PARKWAY

Lab No	Sample ID ~	Date Sampled ~	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2319947	TP08 2.80 SOIL	26/03/24	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
2319948	TP21 0.60 SOIL	27/03/24	PT 1L		
2319949	TP01 0.70 SOIL	25/03/24	PT 1L	pH + Conductivity (7 days)	
2319950	TP05 0.70 SOIL	25/03/24	PT 1L	pH + Conductivity (7 days)	
2319951	TP19 0.80 SOIL	27/03/24	PT 1L		
2319952	TP33 0.90 SOIL	28/03/24	PT 1L		
2319953	TP23 1.00 SOIL	27/03/24	PT 1L		
2319954	TP26 1.00 SOIL	27/03/24	PT 1L		
2319955	TP28 1.10 SOIL	27/03/24	PT 1L		
2319956	TP29 1.50 SOIL	28/03/24	PT 1L		
2319957	TP39 1.50 SOIL	25/03/24	PT 1L	pH + Conductivity (7 days)	
2319958	TP19 1.80 SOIL	28/03/24	PT 1L		
2319959	TP42 2.00 SOIL	28/03/24	PT 1L		

Key: P-Plastic T-Tub G-Glass J-Jar

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

Our Ref 24-06798
Client Ref ~ 4674
Contract ~ CUDWORTH PARKWAY

Key:

~ Sample details are provided by the client and can affect the validity of the results
* -not accredited.
-MCERTS (accreditation only applies if report carries the MCERTS logo).
\$ -subcontracted.
n/s -not supplied.
I/S -insufficient sample.
U/S -unsuitable sample.
t/f -to follow.
nd -not detected.

End of Report



Certificate of Analysis

Certificate Number 24-07751-0

Issued: 22-Apr-24

Client Lithos Consulting Ltd
Parkhill
Walton Rd
Wetherby
LS22 5DZ

Our Reference 24-07751-0

Client Reference ~ 4674

Order No ~ PO22173

Contract Title ~ CUDWORTH PARKWAY

Description 8 Soil samples, 13 Leachate prepared by DETS samples.

Date Received 03-Apr-24

Date Started 16-Apr-24

Date Completed 22-Apr-24

Test Procedures Identified by prefix DETSn (details on request).

Notes **This report supersedes 24-07751, amendments made**

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

A handwritten signature in black ink, appearing to read "K. Bridgewood".

Kirk Bridgewood
General Manager



Normec DETS Limited

Unit 2, Park Road Industrial Estate South, Consett, Co Durham, DH8 5PY

Symbol key at end of report Tel: 01207 582333 • email: info@dets.co.uk • www.dets.co.uk

Page 1 of 9

Summary of Chemical Analysis

Soil Samples

Our Ref 24-07751-0
 Client Ref ~ 4674
 Contract Title ~ CUDWORTH PARKWAY

Lab No	2325223	2325228	2325230	2325231	2325235	2325239	2325240	2325241
Sample ID ~	TP38	TP13	TP15	TP42	TP27	TP15 Sub Sample 1	TP15 Sub Sample 2	TP15 Sub Sample 3
Depth ~	0.10	1.50	2.40	0.20	0.90	2.40	2.40	2.40
Other ID ~								
Sample Type ~	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	28/03/2024	27/03/2024	26/03/2024	28/03/2024	28/03/2024	27/03/2024	27/03/2024	27/03/2024
Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units								
Asbestos Quantification	DETSC 1102	0.001	%	0.002	< 0.001	0.002	0.025	< 0.001			
Metals											
Zinc	DETSC 2301#	1	mg/kg						3200	3400	3600

Summary of Chemical Analysis

Leachate Samples

Our Ref 24-07751-0

Client Ref ~ 4674

Contract Title ~ CUDWORTH PARKWAY

Lab No	2325224	2325225	2325226	2325227	2325229	2325232	2325233	2325234	2325236	2325237	2325238
Sample ID ~	TP09	TP10	TP12	TP34	TP08	TP11	TP26	TP15	TP09	TP22	TP13
Depth ~	0.10	0.40	0.50	0.20	1.80	0.30	0.50	0.60	1.50	1.80	1.50
Other ID ~											
Sample Type ~	LEACHATE	LEACHATE	LEACHATE	LEACHATE	LEACHATE	LEACHATE	LEACHATE	LEACHATE	LEACHATE	LEACHATE	LEACHATE
Sampling Date ~	26/03/2024	26/03/2024	26/03/2024	28/03/2024	26/03/2024	26/03/2024	26/03/2024	27/03/2024	27/03/2024	26/03/2024	27/03/2024
Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units											
Preparation														
NRA Leachate Preparation	DETSC 1009*			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Metals														
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	1.2	0.79	0.71	2.3	1.8	0.55	2.7	0.79	1.4	2.7	0.79
Boron, Dissolved	DETSC 2306*	12	ug/l	57	< 12	21	< 12	< 12	< 12	< 12	< 12	24	< 12	< 12
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	0.26	0.21	< 0.03	0.04	< 0.03	0.05	< 0.03	0.07	< 0.03	< 0.03	0.07
Chromium, Dissolved	DETSC 2306	0.25	ug/l	54	1.7	0.51	< 0.25	< 0.25	0.60	1.6	< 0.25	0.56	1.6	< 0.25
Copper, Dissolved	DETSC 2306	0.4	ug/l	2.4	0.9	1.6	4.0	1.7	0.9	1.5	1.3	1.8	1.5	1.3
Lead, Dissolved	DETSC 2306	0.09	ug/l	3.4	0.91	0.60	0.83	0.45	0.20	0.38	< 0.09	0.40	0.38	< 0.09
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.05	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Nickel, Dissolved	DETSC 2306	0.5	ug/l	0.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Selenium, Dissolved	DETSC 2306	0.25	ug/l	2.0	0.65	0.48	< 0.25	0.32	< 0.25	< 0.25	< 0.25	0.37	< 0.25	< 0.25
Zinc, Dissolved	DETSC 2306	1.3	ug/l	20	5.3	5.5	8.2	2.0	1.8	3.2	2.4	6.4	3.2	2.4
Inorganics														
pH	DETSC 2008		pH	6.7	6.6	6.6	7.1	6.8	7.6	7.8	7.2	7.3	7.4	6.9

Summary of Chemical Analysis

Leachate Samples

Our Ref 24-07751-0

Client Ref ~ 4674

Contract Title ~ CUDWORTH PARKWAY

Lab No	2325242	2325243
Sample ID ~	TP15	TP27
Depth ~	2.40	0.90
Other ID ~		
Sample Type ~	LEACHATE	LEACHATE
Sampling Date ~	26/03/2024	28/03/2024
Sampling Time ~	n/s	n/s

Test	Method	LOD	Units		
Preparation					
NRA Leachate Preparation	DETSC 1009*			Y	Y
Metals					
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	4.2	1.4
Boron, Dissolved	DETSC 2306*	12	ug/l	85	24
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	0.05	< 0.03
Chromium, Dissolved	DETSC 2306	0.25	ug/l	0.31	0.56
Copper, Dissolved	DETSC 2306	0.4	ug/l	1.3	1.8
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.63	0.40
Mercury, Dissolved	DETSC 2306	0.01	ug/l	< 0.01	< 0.01
Nickel, Dissolved	DETSC 2306	0.5	ug/l	0.6	< 0.5
Selenium, Dissolved	DETSC 2306	0.25	ug/l	0.41	0.37
Zinc, Dissolved	DETSC 2306	1.3	ug/l	11	6.4
Inorganics					
pH	DETSC 2008		pH	7.1	7.5

Summary of Asbestos Analysis Samples

Our Ref 24-07751-0

Client Ref ~ 4674

Contract Title ~ CUDWORTH PARKWAY

Lab No	Sample ID	Sample Location	Material Type	Result	Comment*	Analyst
Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.						

Summary of Asbestos Quantification Analysis

Soil Samples

Our Ref 24-07751-0

Client Ref ~ 4674

Contract Title ~ CUDWORTH PARKWAY

Lab No	2325223	2325228	2325230	2325231
Sample ID ~	TP38	TP13	TP15	TP42
Depth ~	0.10	1.50	2.40	0.20
Other ID ~				
Sample Type ~				
Sampling Date ~	28/03/2024	27/03/2024	26/03/2024	28/03/2024
Sampling Time ~				

Test	Method	Units				
Total Mass% Asbestos (a+b+c)	DETSC 1102	Mass %	0.002	< 0.001	0.002	0.025
Gravimetric Quantification (a)	DETSC 1102	Mass %	na	na	na	0.025
Detailed Gravimetric Quantification (b)	DETSC 1102	Mass %	0.002	<0.001	0.002	na
Quantification by PCOM (c)	DETSC 1102	Mass %	na	na	na	na
Potentially Respirable Fibres (d)	DETSC 1102	Fibres/g	na	na	na	na

Breakdown of Gravimetric Analysis (a)

Mass of Sample		g	976.89	883.81	779.19	958.29
ACMs present*		type				Insulation
Mass of ACM in sample		g				0.28
% ACM by mass		%				0.03
% asbestos in ACM		%				85
% asbestos in sample		%				0.025

Breakdown of Detailed Gravimetric Analysis (b)

% Amphibole bundles in sample		Mass %	na	na	na	na
% Chrysotile bundles in sample		Mass %	0.002	<0.001	0.002	na

Breakdown of PCOM Analysis (c)

% Amphibole fibres in sample		Mass %	na	na	na	na
% Chrysotile fibres in sample		Mass %	na	na	na	na

Breakdown of Potentially Respirable Fibre Analysis (d)

Amphibole fibres		Fibres/g	na	na	na	na
Chrysotile fibres		Fibres/g	na	na	na	na

* Denotes test or material description outside of UKAS accreditation.
 % asbestos in Asbestos Containing Materials (ACMs) is determined by
 by reference to HSG 264.
 Recommended sample size for quantification is approximately 1kg
 # denotes deviating sample

Summary of Asbestos Quantification Analysis Soil Samples

Our Ref 24-07751-0

Client Ref ~ 4674

Contract Title ~ CUDWORTH PARKWAY

Lab No	2325235
Sample ID ~	TP27
Depth ~	0.90
Other ID ~	
Sample Type ~	
Sampling Date ~	28/03/2024
Sampling Time ~	

Test	Method	Units	
Total Mass% Asbestos (a+b+c)	DETSC 1102	Mass %	< 0.001
Gravimetric Quantification (a)	DETSC 1102	Mass %	na
Detailed Gravimetric Quantification (b)	DETSC 1102	Mass %	<0.001
Quantification by PCOM (c)	DETSC 1102	Mass %	na
Potentially Respirable Fibres (d)	DETSC 1102	Fibres/g	na

Breakdown of Gravimetric Analysis (a)

Mass of Sample		g	1127.75
ACMs present*		type	
Mass of ACM in sample		g	
% ACM by mass		%	
% asbestos in ACM		%	
% asbestos in sample		%	

Breakdown of Detailed Gravimetric Analysis (b)

% Amphibole bundles in sample		Mass %	na
% Chrysotile bundles in sample		Mass %	<0.001

Breakdown of PCOM Analysis (c)

% Amphibole fibres in sample		Mass %	na
% Chrysotile fibres in sample		Mass %	na

Breakdown of Potentially Respirable Fibre Analysis (d)

Amphibole fibres		Fibres/g	na
Chrysotile fibres		Fibres/g	na

* Denotes test or material description outside of UKAS accreditation.
% asbestos in Asbestos Containing Materials (ACMs) is determined by
by reference to HSG 264.
Recommended sample size for quantification is approximately 1kg
denotes deviating sample

Information in Support of the Analytical Results

Our Ref 24-07751-0
 Client Ref ~ 4674
 Contract ~ CUDWORTH PARKWAY

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date Sampled ~	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2325223	TP38 0.10 SOIL	28/03/24	GJ 250ml, PT 1L		
2325224	TP09 0.10 LEACHATE	26/03/24	GJ 250ml, GJ 60ml, PT 1L		
2325225	TP10 0.40 LEACHATE	26/03/24	GJ 250ml, GJ 60ml, PT 1L		
2325226	TP12 0.50 LEACHATE	26/03/24	GJ 250ml, GJ 60ml, PT 1L		
2325227	TP34 0.20 LEACHATE	28/03/24	GJ 250ml, GJ 60ml, PT 1L		
2325228	TP13 1.50 SOIL	27/03/24	GJ 250ml, GJ 60ml, PT 1L		
2325229	TP08 1.80 LEACHATE	26/03/24	GJ 250ml, GJ 60ml, PT 1L		
2325230	TP15 2.40 SOIL	26/03/24	GJ 250ml, GJ 60ml, PT 1L		
2325231	TP42 0.20 SOIL	28/03/24	GJ 250ml, GJ 60ml, PT 1L		
2325232	TP11 0.30 LEACHATE	26/03/24	GJ 250ml, GJ 60ml, PT 1L		
2325233	TP26 0.50 LEACHATE	26/03/24	GJ 250ml, GJ 60ml, PT 1L		
2325234	TP15 0.60 LEACHATE	27/03/24	GJ 250ml, GJ 60ml, PT 1L		
2325235	TP27 0.90 SOIL	28/03/24	GJ 250ml, GJ 60ml, PT 1L		
2325236	TP09 1.50 LEACHATE	27/03/24	GJ 250ml, GJ 60ml, PT 1L		
2325237	TP22 1.80 LEACHATE	26/03/24	GJ 250ml, GJ 60ml, PT 1L		
2325238	TP13 1.50 LEACHATE	27/03/24	GJ 250ml, GJ 60ml, PT 1L		
2325239	TP15 Sub Sample 1 2.40 SOIL	27/03/24	GJ 250ml, GJ 60ml, PT 1L		
2325240	TP15 Sub Sample 2 2.40 SOIL	27/03/24	GJ 250ml, GJ 60ml, PT 1L		
2325241	TP15 Sub Sample 3 2.40 SOIL	27/03/24	GJ 250ml, GJ 60ml, PT 1L		
2325242	TP15 2.40 LEACHATE	26/03/24	GJ 250ml, GJ 60ml, PT 1L		
2325243	TP27 0.90 LEACHATE	28/03/24	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Key:

~ Sample details are provided by the client and can affect the validity of the results

* -not accredited.

-MCERTS (accreditation only applies if report carries the MCERTS logo).

\$ -subcontracted.

n/s -not supplied.

I/S -insufficient sample.

U/S -unsuitable sample.

t/f -to follow.

Information in Support of the Analytical Results

Our Ref 24-07751-0

Client Ref ~ 4674

Contract ~ CUDWORTH PARKWAY

nd -not detected.

End of Report



Certificate of Analysis

Certificate Number 24-08207

Issued: 23-Apr-24

Client Lithos Consulting Ltd
Parkhill
Walton Rd
Wetherby
LS22 5DZ

Our Reference 24-08207

Client Reference ~ 4674

Order No ~ PO22173

Contract Title ~ CUDWORTH PARKWAY

Description 3 Soil samples.

Date Received 03-Apr-24

Date Started 22-Apr-24

Date Completed 23-Apr-24

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager



Normec DETS Limited

Unit 2, Park Road Industrial Estate South, Consett, Co Durham, DH8 5PY

Symbol key at end of report Tel: 01207 582333 • email: info@dets.co.uk • www.dets.co.uk

Page 1 of 3

Summary of Chemical Analysis

Soil Samples

Our Ref 24-08207

Client Ref ~ 4674

Contract Title ~ CUDWORTH PARKWAY

Lab No	2327728	2327729	2327730
Sample ID ~	TP09	TP10	TP12
Depth ~	0.10	0.40	0.50
Other ID ~			
Sample Type ~	SOIL	SOIL	SOIL
Sampling Date ~	26/03/2024	26/03/2024	26/03/2024
Sampling Time ~	n/s	n/s	n/s

Test	Method	LOD	Units			
Inorganics						
Calorific Value	DETSC 5008	1	MJ/kg	7.3	4.7	6.8

Information in Support of the Analytical Results

Our Ref 24-08207
 Client Ref ~ 4674
 Contract ~ CUDWORTH PARKWAY

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date Sampled ~	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2327728	TP09 0.10 SOIL	26/03/24	GJ 250ml, GJ 60ml, PT 1L		
2327729	TP10 0.40 SOIL	26/03/24	GJ 250ml, GJ 60ml, PT 1L		
2327730	TP12 0.50 SOIL	26/03/24	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Key:

~ Sample details are provided by the client and can affect the validity of the results

* -not accredited.

-MCERTS (accreditation only applies if report carries the MCERTS logo).

\$ -subcontracted.

n/s -not supplied.

I/S -insufficient sample.

U/S -unsuitable sample.

t/f -to follow.

nd -not detected.

End of Report



Certificate of Analysis

Certificate Number 24-07979

Issued: 30-Apr-24

Client Lithos Consulting Ltd
Parkhill
Walton Rd
Wetherby
LS22 5DZ

Our Reference 24-07979

Client Reference ~ 4674

Order No ~ PO22259

Contract Title ~ Cudworth Parkway

Description 2 Soil samples, 2 Leachate prepared by DETS samples.

Date Received 18-Apr-24

Date Started 19-Apr-24

Date Completed 30-Apr-24

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

A handwritten signature in black ink, appearing to read "K. Bridgewood".

Kirk Bridgewood
General Manager



Normec DETS Limited

Unit 2, Park Road Industrial Estate South, Consett, Co Durham, DH8 5PY

Symbol key at end of report Tel: 01207 582333 • email: info@dets.co.uk • www.dets.co.uk

Page 1 of 9

Summary of Chemical Analysis

Soil Samples

Our Ref 24-07979

Client Ref ~ 4674

Contract Title ~ Cudworth Parkway

Lab No	2326401	2326402
Sample ID ~	TT04A	TT12A
Depth ~	2.10	1.20
Other ID ~		
Sample Type ~	SOIL	SOIL
Sampling Date ~	03/04/2024	05/04/2024
Sampling Time ~	n/s	n/s

Test	Method	LOD	Units		
Preparation					
Stones >10mm	DETSC 1003*	1	% m/m	< 1.0	24
Moisture Content	DETSC 1004	0.1	%	27	19
Metals					
Arsenic	DETSC 2301#	0.2	mg/kg	230	840
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	0.8	< 0.2
Cadmium	DETSC 2301#	0.1	mg/kg	0.8	55
Chromium	DETSC 2301#	0.15	mg/kg	180	4.3
Chromium III	DETSC 2301*	0.15	mg/kg	180	4.3
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	220	39
Lead	DETSC 2301#	0.3	mg/kg	1200	39000
Magnesium Aqueous Extract (2:1)	DETSC 2076*	10	mg/l	< 10	< 10
Mercury	DETSC 2325#	0.05	mg/kg	0.65	38
Nickel	DETSC 2301#	1	mg/kg	130	4.1
Selenium	DETSC 2301#	0.5	mg/kg	3.8	4000
Vanadium	DETSC 2301#	0.8	mg/kg	130	6.3
Zinc	DETSC 2301#	1	mg/kg	380	50
Inorganics					
pH	DETSC 2008#		pH	6.9	4.8
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.2	0.4
Total Organic Carbon	DETSC 2084#	0.5	%	3.0	1.9
Chloride Aqueous Extract (2:1)	DETSC 2055	1	mg/l	5.4	3.3
Nitrate Aqueous Extract as NO3 (2:1)	DETSC 2055	1	mg/l	4.1	< 1.0
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	170	1500
Petroleum Hydrocarbons					
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	8.2
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	29
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	37
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10



Summary of Chemical Analysis Soil Samples

Our Ref 24-07979

Client Ref ~ 4674

Contract Title ~ Cudworth Parkway

Lab No	2326401	2326402
Sample ID ~	TT04A	TT12A
Depth ~	2.10	1.20
Other ID ~		
Sample Type ~	SOIL	SOIL
Sampling Date ~	03/04/2024	05/04/2024
Sampling Time ~	n/s	n/s

Test	Method	LOD	Units		
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	mg/kg	< 10	37
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
MTBE	DETSC 3321	0.01	mg/kg	< 0.01	< 0.01

Summary of Chemical Analysis

Soil Samples

Our Ref 24-07979

Client Ref ~ 4674

Contract Title ~ Cudworth Parkway

Lab No	2326401	2326402
Sample ID ~	TT04A	TT12A
Depth ~	2.10	1.20
Other ID ~		
Sample Type ~	SOIL	SOIL
Sampling Date ~	03/04/2024	05/04/2024
Sampling Time ~	n/s	n/s

Test	Method	LOD	Units		
VOCs					
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01

Summary of Chemical Analysis

Soil Samples

Our Ref 24-07979

Client Ref ~ 4674

Contract Title ~ Cudworth Parkway

Lab No	2326401	2326402
Sample ID ~	TT04A	TT12A
Depth ~	2.10	1.20
Other ID ~		
Sample Type ~	SOIL	SOIL
Sampling Date ~	03/04/2024	05/04/2024
Sampling Time ~	n/s	n/s

Test	Method	LOD	Units		
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Naphthalene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01
SVOCs					
Phenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Aniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2-Chlorophenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Benzyl Alcohol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Bis(2-chloroisopropyl)ether	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
3&4-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2,4-Dimethylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Bis-(dichloroethoxy)methane	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2,4-Dichlorophenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
1,2,4-Trichlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
4-Chloro-3-methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2-Methylnaphthalene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Hexachlorocyclopentadiene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2,4,6-Trichlorophenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2,4,5-Trichlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2-Chloronaphthalene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2,4-Dinitrotoluene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Acenaphthylene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
3-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Acenaphthene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
4-Nitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Dibenzofuran	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2,6-Dinitrotoluene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2,3,4,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Diethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
4-Chlorophenylphenylether	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Fluorene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1

Summary of Chemical Analysis

Soil Samples

Our Ref 24-07979

Client Ref ~ 4674

Contract Title ~ Cudworth Parkway

Lab No	2326401	2326402
Sample ID ~	TT04A	TT12A
Depth ~	2.10	1.20
Other ID ~		
Sample Type ~	SOIL	SOIL
Sampling Date ~	03/04/2024	05/04/2024
Sampling Time ~	n/s	n/s

Test	Method	LOD	Units		
4-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2-Methyl-4,6-Dinitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Diphenylamine	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
4-Bromophenylphenylether	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Hexachlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Pentachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Phenanthrene	DETSC 3433	0.1	mg/kg	0.1	< 0.1
Anthracene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Di-n-butylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Fluoranthene	DETSC 3433	0.1	mg/kg	0.3	< 0.1
Pyrene	DETSC 3433	0.1	mg/kg	0.2	< 0.1
Butylbenzylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Benzo(a)anthracene	DETSC 3433	0.1	mg/kg	0.1	< 0.1
Chrysene	DETSC 3433	0.1	mg/kg	0.1	< 0.1
Bis(2-ethylhexyl)phthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Di-n-octylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3433	0.1	mg/kg	0.1	< 0.1
Indeno(123cd)pyrene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Dibenzo(ah)anthracene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Benzo(ghi)perylene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
1,4-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Dimethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
1,3-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
1,2-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2,3,5,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Azobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Carbazole	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1

Summary of Chemical Analysis

Leachate Samples

Our Ref 24-07979

Client Ref ~ 4674

Contract Title ~ Cudworth Parkway

Lab No	2326403	2326404
Sample ID ~	TT04A	TT12A
Depth ~	2.10	1.20
Other ID ~		
Sample Type ~	LEACHATE	LEACHATE
Sampling Date ~	03/04/2024	05/04/2024
Sampling Time ~	n/s	n/s

Test	Method	LOD	Units		
Preparation					
NRA Leachate Preparation	DETSC 1009*			Y	Y
Metals					
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	13	5.8
Boron, Dissolved	DETSC 2306*	12	ug/l	14	< 12
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03	10
Chromium, Dissolved	DETSC 2306	0.25	ug/l	0.66	< 0.25
Copper, Dissolved	DETSC 2306	0.4	ug/l	3.1	1.6
Lead, Dissolved	DETSC 2306	0.09	ug/l	23	2000
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.04	0.01
Nickel, Dissolved	DETSC 2306	0.5	ug/l	< 0.5	0.9
Selenium, Dissolved	DETSC 2306	0.25	ug/l	0.58	18
Zinc, Dissolved	DETSC 2306	1.3	ug/l	6.1	89
Inorganics					
pH	DETSC 2008		pH	6.4	5.8

Summary of Asbestos Analysis

Soil Samples

Our Ref 24-07979

Client Ref ~ 4674

Contract Title ~ Cudworth Parkway

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2326401	TT04A 2.10	SOIL	NAD	none	Ben Rose
2326402	TT12A 1.20	SOIL	NAD	none	Ben Rose

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 24-07979
 Client Ref ~ 4674
 Contract ~ Cudworth Parkway

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date Sampled ~	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2326401	TT04A 2.10 SOIL	03/04/24	GJ 250ml, GJ 60ml, PT 1L	Aliphatics/Aromatics (14 days), BTEX / C5-C10 (14 days), pH + Conductivity (7 days), Cyanide/Mono pHoh (14 days), SVOC (14 days)	
2326402	TT12A 1.20 SOIL	05/04/24	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days), VOC (7 days)	
2326403	TT04A 2.10 LEACHATE	03/04/24	GJ 250ml, GJ 60ml, PT 1L		
2326404	TT12A 1.20 LEACHATE	05/04/24	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Key:

~ Sample details are provided by the client and can affect the validity of the results

* -not accredited.

-MCERTS (accreditation only applies if report carries the MCERTS logo).

\$ -subcontracted.

n/s -not supplied.

I/S -insufficient sample.

U/S -unsuitable sample.

t/f -to follow.

nd -not detected.

End of Report

Cudworth Parkway, Barnsley

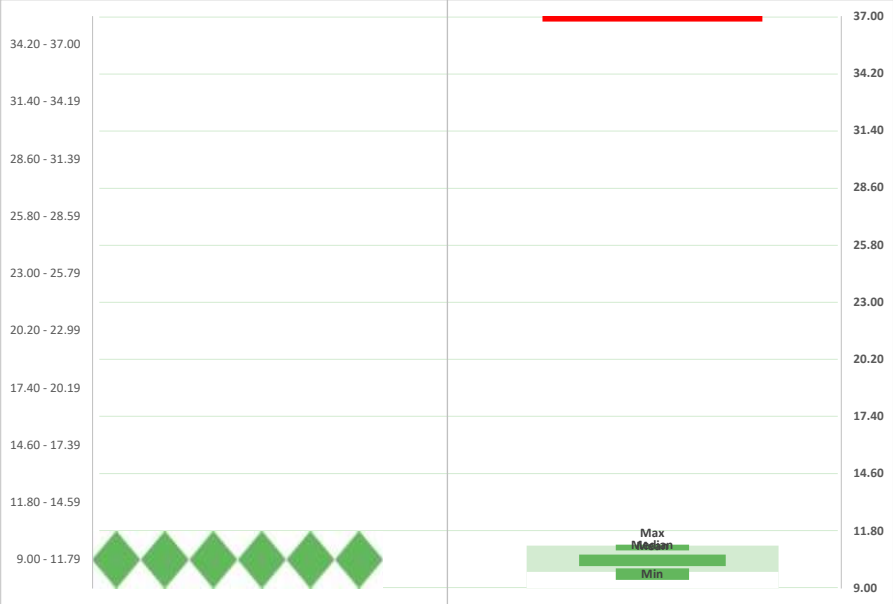
Job No: 4674
Engineer: LEW
Date: 14 May 2024



Topsoil - Area A: Dataset for As - Dot & Box Plots and Summary Statistics

Determinant	As
Critical concentration	37.00
No. samples	6.00
Max	11.00
Mean	10.37
Min	9.70
Median	10.40
Standard Deviation	0.69
Standard Error	0.28
T value	2.57
Upper Confidence Level (95%)	11.10
Upper Confidence Level (80%)	10.79
Lower Confidence Level (5%)	9.81
Transform data	Normal

Upper Confidence Level for chart 95%



Spatial distribution can show sampling clusters based on ground type it **does not** identify areas of contamination

Cudworth Parkway, Barnsley

Job No: 4674
Engineer: LEW
Date: 14 May 2024



Topsoil - Area A: Dataset for Pb - Dot & Box Plots and Summary Statistics

Determinant	Pb
Critical concentration	200.00
No. samples	6.00
Max	36.00
Mean	28.77
Min	21.00
Median	28.50
Standard Deviation	5.12
Standard Error	2.09
T value	2.57
Upper Confidence Level (95%)	34.14
Upper Confidence Level (80%)	31.85
Lower Confidence Level (5%)	24.68
Transform data	Normal

Upper Confidence Level for chart 95%



Spatial distribution can show sampling clusters based on ground type it **does not** identify areas of contamination

Cudworth Parkway, Barnsley

Job No: 4674
Engineer: LEW
Date: 14 May 2024



Topsoil - Area A: Dataset for B(a)P - Dot & Box Plots and Summary Statistics

Determinant	B(a)P
Critical concentration	5.00
No. samples	6.00
Max	0.10
Mean	0.10
Min	0.10
Median	0.10
Standard Deviation	0.00
Standard Error	0.00
T value	2.57
Upper Confidence Level (95%)	0.10
Upper Confidence Level (80%)	0.10
Lower Confidence Level (5%)	0.10
Transform data	Normal

Upper Confidence Level for chart 95%



Spatial distribution can show sampling clusters based on ground type it **does not** identify areas of contamination

Appendix M
Geotechnical Test Results



LABORATORY REPORT



Contract Number: PSL24/2887

Report Date: 15 May 2024
Client's Reference: 4674
Client Name: Lithos Consulting
Parkhill
Walton Road
Wetherby
North Yorkshire
LS22 5DZ

For the attention of: Lewis Whiteley/Alan Swales

Contract Title: Cudworth Parkway

Date Received: 24/4/2024
Date Commenced: 24/4/2024
Date Completed: 15/5/2024

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Managing Director)

R Berriman
(Associate Director)

S Royle
(Laboratory Manager)


L Knight
(Assistant Laboratory Manager)

S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

5 – 7 Hexthorpe Road,
Hexthorpe,
Doncaster,
DN4 0AR
Tel: 01302 768098
Email: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP01	2	B	0.20		Brown TOPSOIL.
TP02	2	B	0.20		Brown TOPSOIL.
TP40	2	B	0.20		Brown TOPSOIL.
TP28	2	B	0.20		Brown TOPSOIL.
TP37	2	B	0.20		Brown TOPSOIL.
TP19	2	B	0.20		Brown TOPSOIL.
TP10	2	D&B	0.60		MADE GROUND brown very gravelly very sandy clay.
TP25	1	D&B	1.20		MADE GROUND brown gravelly very sandy clay.
TP09	2	D&B	0.70		MADE GROUND brown sandy very clayey GRAVEL of cobbles.
TP13	2	D&B	0.90		MADE GROUND brown very gravelly very sandy clay.
TP22	2	D&B	1.00		MADE GROUND brown very sandy very clayey gravel.
TP47	2	D&B	1.30		MADE GROUND brown gravelly very clayey sand.
TP24	2	D&B	0.90		Brown clayey silty SAND & GRAVEL.
TP07	3	D&B	1.60		Brown very sandy clayey silty GRAVEL.
TP33	1	D	0.50		Brown gravelly very sandy CLAY.
TP18	2	D	0.70		Brown gravelly very sandy CLAY.
TP34	3	D&B	0.70		Brown very gravelly very sandy CLAY.
TP37	3	D	0.90		Brown gravelly very sandy CLAY.
TP44	2	D&B	0.90		Brown very gravelly very sandy CLAY.



Cudworth Parkway

Contract No:

PSL24/2887

Client Ref:

4674

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

Cudworth Parkway

Contract No:

PSL24/2887

Client Ref:

4674

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m ³ Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
TP10	2	D&B	0.60		18		2.22	37	20	17	50	Intermediate Plasticity CI
TP25	1	D&B	1.20		25		2.46	51	25	26	76	High Plasticity CH
TP09	2	D&B	0.70		18		2.52	41	23	18	25	Intermediate Plasticity CI
TP13	2	D&B	0.90		24		2.21	53	25	28	59	High Plasticity CH
TP22	2	D&B	1.00		41		2.13	80	36	44	41	Very High Plasticity CV
TP47	2	D&B	1.30		19		2.42	35	19	16	67	Intermediate Plasticity CI
TP24	2	D&B	0.90		16		2.62		NP			
TP07	3	D&B	1.60		15		2.59		NP			
TP33	1	D	0.50		20			40	21	19	76	Intermediate Plasticity CI
TP18	2	D	0.70		16			37	18	19	79	Intermediate Plasticity CI
TP34	3	D&B	0.70		20		2.63	45	23	22	57	Intermediate Plasticity CI
TP37	3	D	0.90		17			39	20	19	75	Intermediate Plasticity CI
TP44	2	D&B	0.90		19		2.62	40	19	21	64	Intermediate Plasticity CI
TP29	2	D&B	1.00		15		2.61		NP			
TP46	2	D	1.50		30			41	21	20	92	Intermediate Plasticity CI
TP31	3	D	2.50		33			35	19	16	85	Intermediate Plasticity CI

SYMBOLS : NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.



Cudworth Parkway

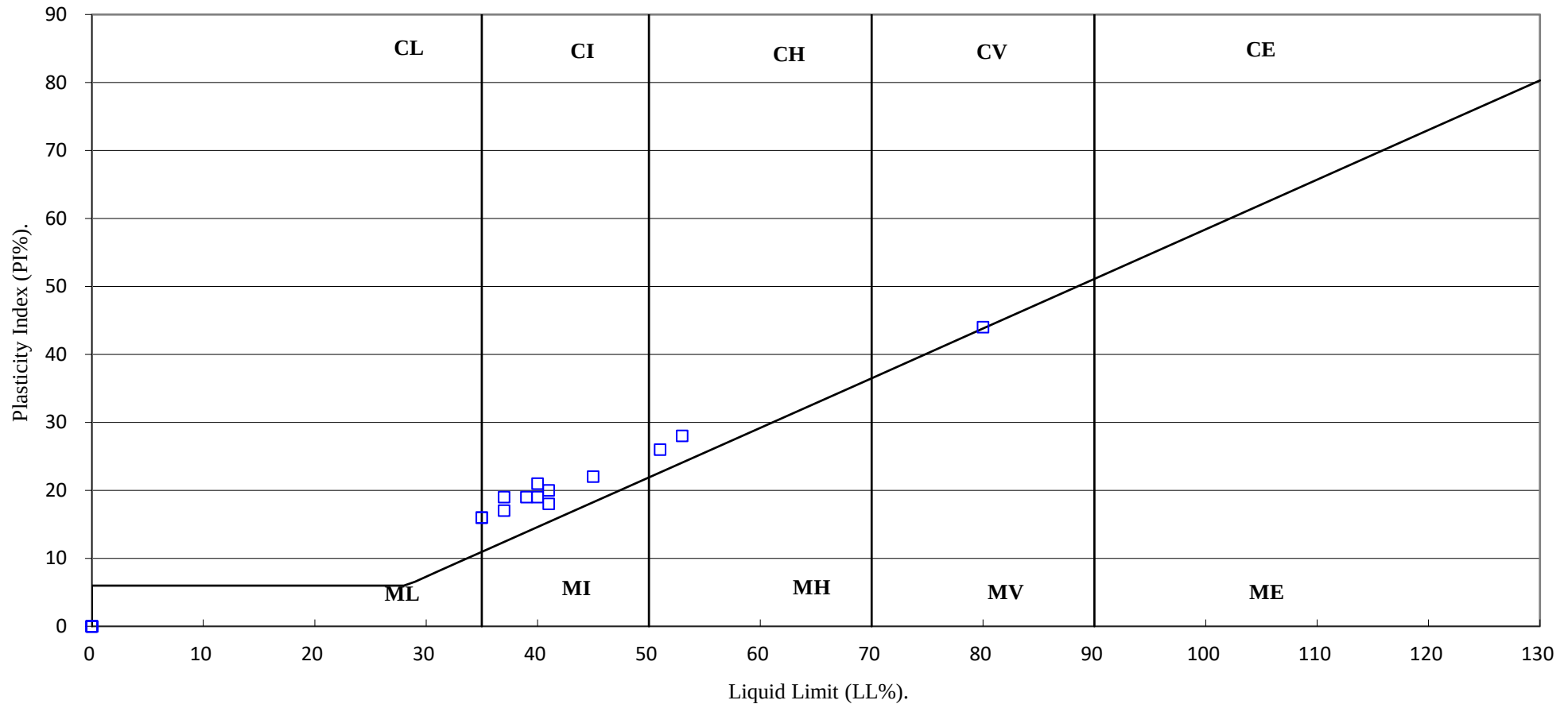
Contract No:

PSL24/2887

Client Ref:

4674

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



Cudworth Parkway

Contract No:

PSL24/2887

Client Ref:

4674

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

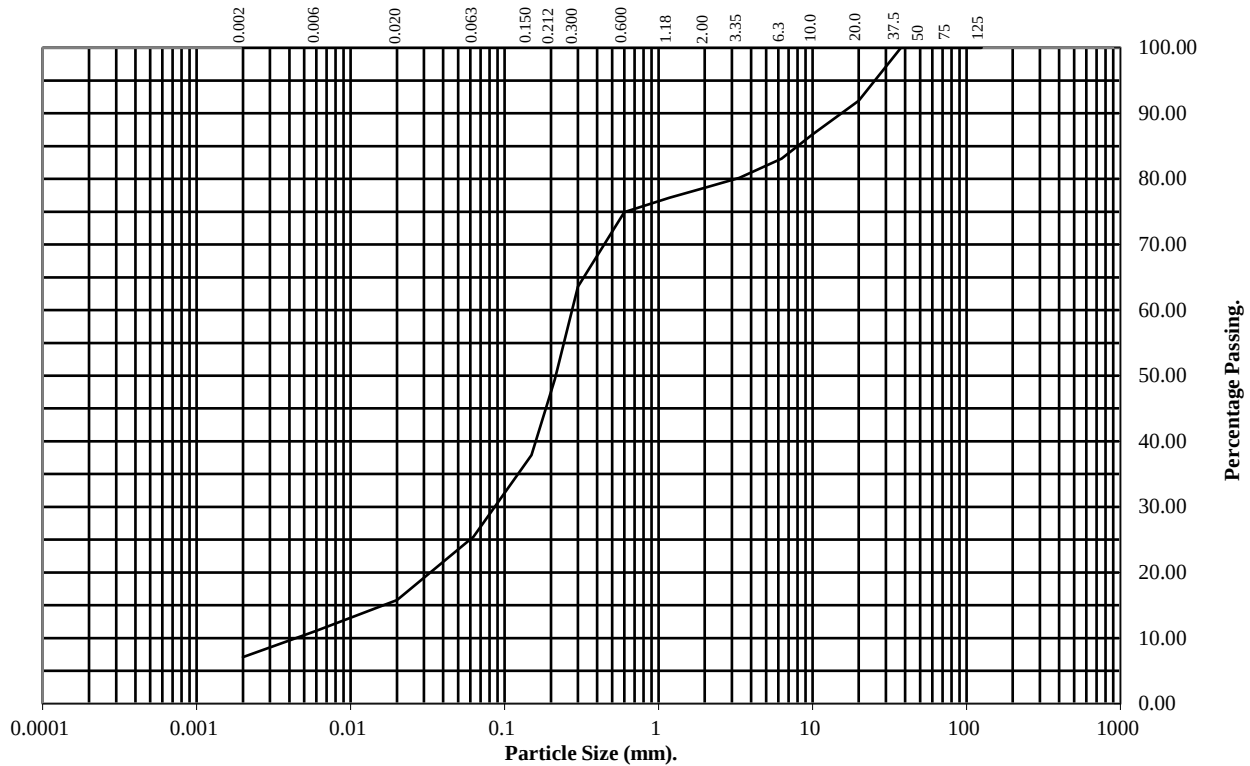
Hole Number: TP01

Top Depth (m): 0.20

Sample Number: 2

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
50	100
37.5	100
20	92
10	87
6.3	83
3.35	80
2	79
1.18	77
0.6	75
0.3	64
0.212	49
0.15	38
0.063	25

Particle Diameter	Percentage Passing
0.02	16
0.006	11
0.002	7

Soil Fraction	Total Percentage
Cobbles	0
Gravel	21
Sand	54
Silt	18
Clay	7

Remarks:

See Summary of Soil Descriptions



Cudworth Parkway

Contract No:
PSL24/2887
Client Ref:
4674

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

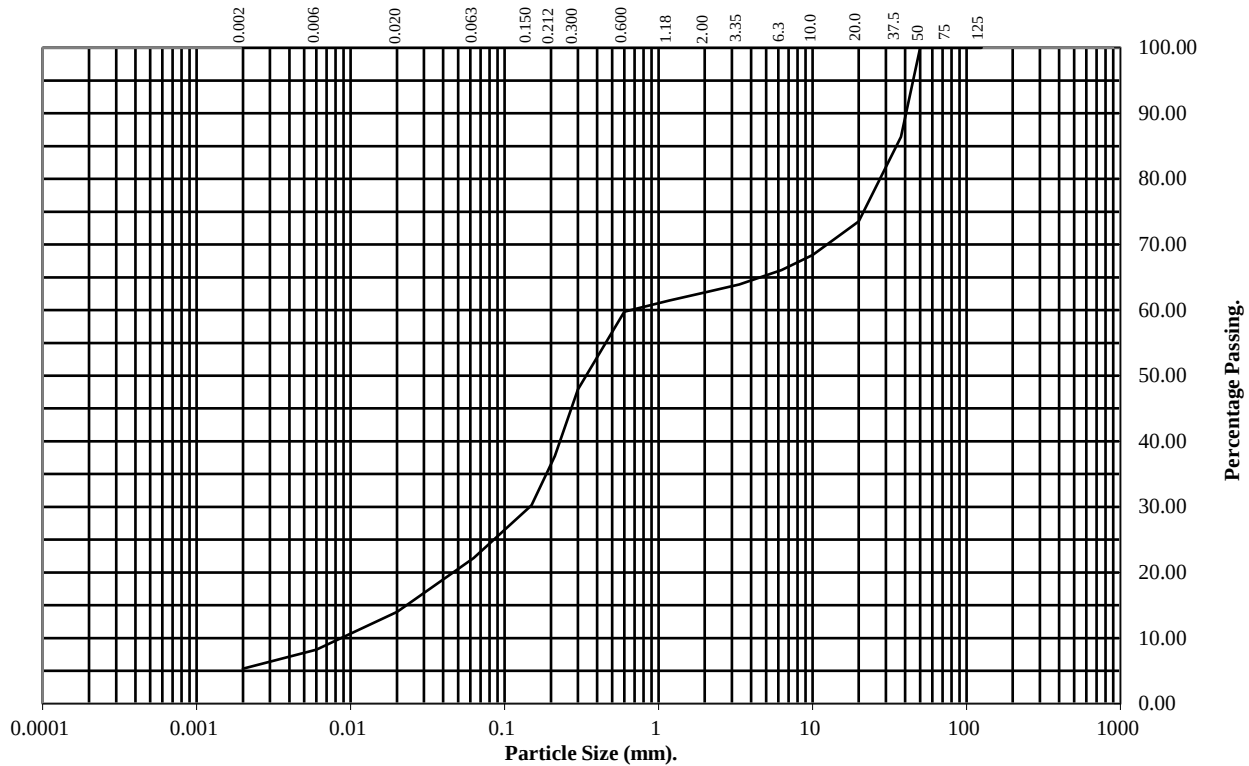
Hole Number: TP02

Top Depth (m): 0.20

Sample Number: 2

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
50	100
37.5	86
20	74
10	68
6.3	66
3.35	64
2	63
1.18	61
0.6	60
0.3	48
0.212	38
0.15	30
0.063	22

Particle Diameter	Percentage Passing
0.02	14
0.006	8
0.002	5

Soil Fraction	Total Percentage
Cobbles	0
Gravel	37
Sand	41
Silt	17
Clay	5

Remarks:

See Summary of Soil Descriptions



Cudworth Parkway

Contract No:
PSL24/2887
Client Ref:
4674

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

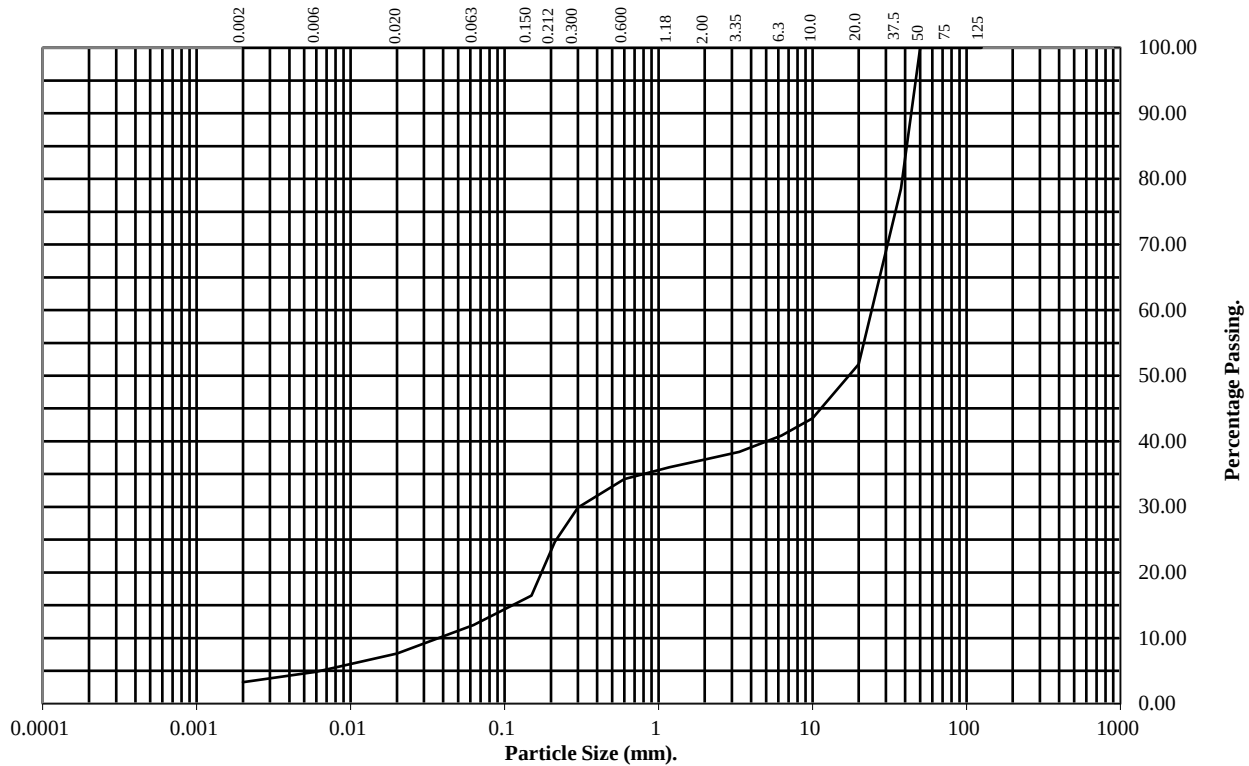
Hole Number: TP07

Top Depth (m): 1.60

Sample Number: 3

Base Depth(m):

Sample Type: D&B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
50	100
37.5	79
20	52
10	44
6.3	41
3.35	38
2	37
1.18	36
0.6	34
0.3	30
0.212	25
0.15	16
0.063	12

Particle Diameter	Percentage Passing
0.02	8
0.006	5
0.002	3

Soil Fraction	Total Percentage
Cobbles	0
Gravel	63
Sand	25
Silt	9
Clay	3

Remarks:

See Summary of Soil Descriptions



Cudworth Parkway

Contract No:
PSL24/2887
Client Ref:
4674

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

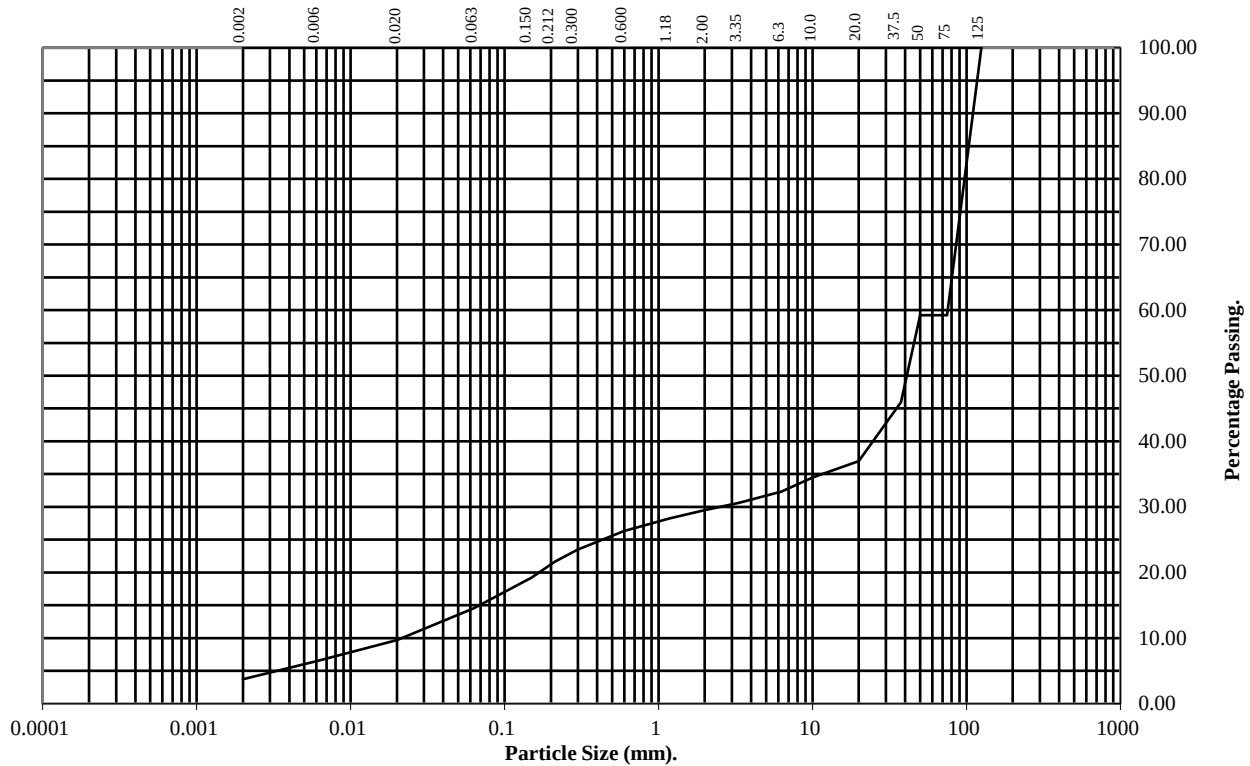
Hole Number: TP09

Top Depth (m): 0.70

Sample Number: 2

Base Depth(m):

Sample Type: D&B



BS Test Sieve (mm)	Percentage Passing
125	100
75	59
50	59
37.5	46
20	37
10	34
6.3	32
3.35	31
2	30
1.18	28
0.6	26
0.3	23
0.212	22
0.15	19
0.063	15

Particle Diameter	Percentage Passing
0.02	10
0.006	6
0.002	4

Soil Fraction	Total Percentage
Cobbles	41
Gravel	29
Sand	15
Silt	11
Clay	4

Remarks:

See Summary of Soil Descriptions



Cudworth Parkway

Contract No:
PSL24/2887
Client Ref:
4674

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

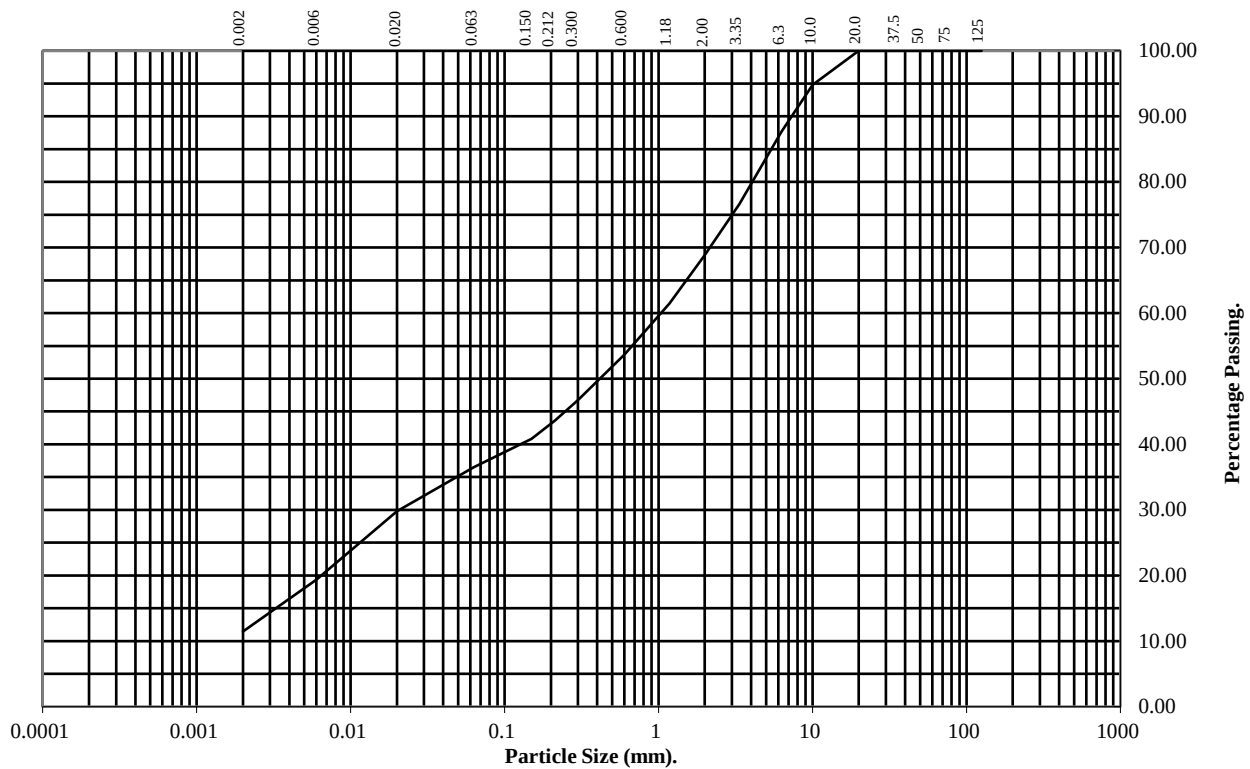
Hole Number: TP10

Top Depth (m): 0.60

Sample Number: 2

Base Depth(m):

Sample Type: D&B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
50	100
37.5	100
20	100
10	95
6.3	88
3.35	77
2	69
1.18	61
0.6	54
0.3	47
0.212	44
0.15	41
0.063	36

Particle Diameter	Percentage Passing
0.02	30
0.006	19
0.002	11

Soil Fraction	Total Percentage
Cobbles	0
Gravel	31
Sand	33
Silt	25
Clay	11

Remarks:

See Summary of Soil Descriptions



Cudworth Parkway

Contract No:

PSL24/2887

Client Ref:

4674

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

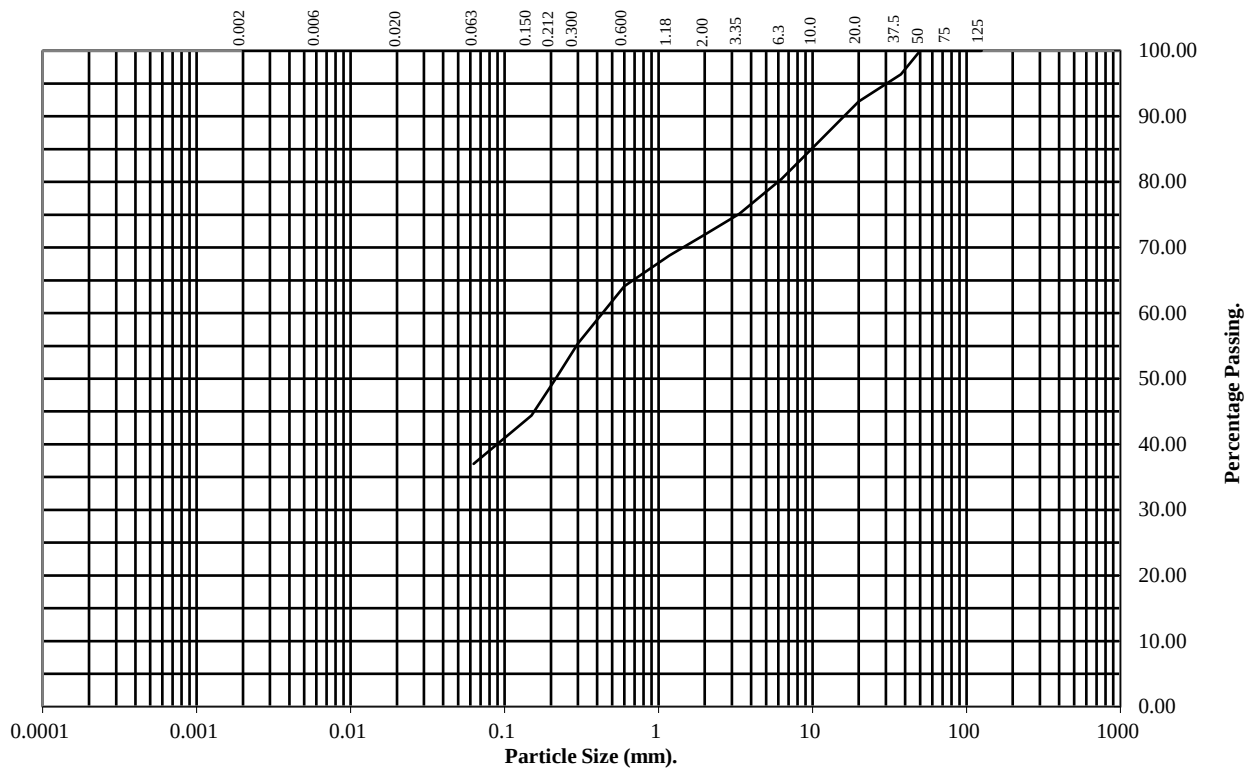
Hole Number: TP13

Top Depth (m): 0.90

Sample Number: 2

Base Depth(m):

Sample Type: D&B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
50	100
37.5	96
20	92
10	85
6.3	80
3.35	75
2	72
1.18	69
0.6	64
0.3	55
0.212	50
0.15	44
0.063	37

Soil Fraction	Total Percentage
Cobbles	0
Gravel	28
Sand	35
Silt/Clay	37

Remarks:

See Summary of Soil Descriptions



Cudworth Parkway

Contract No:
PSL24/2887
Client Ref:
4674

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

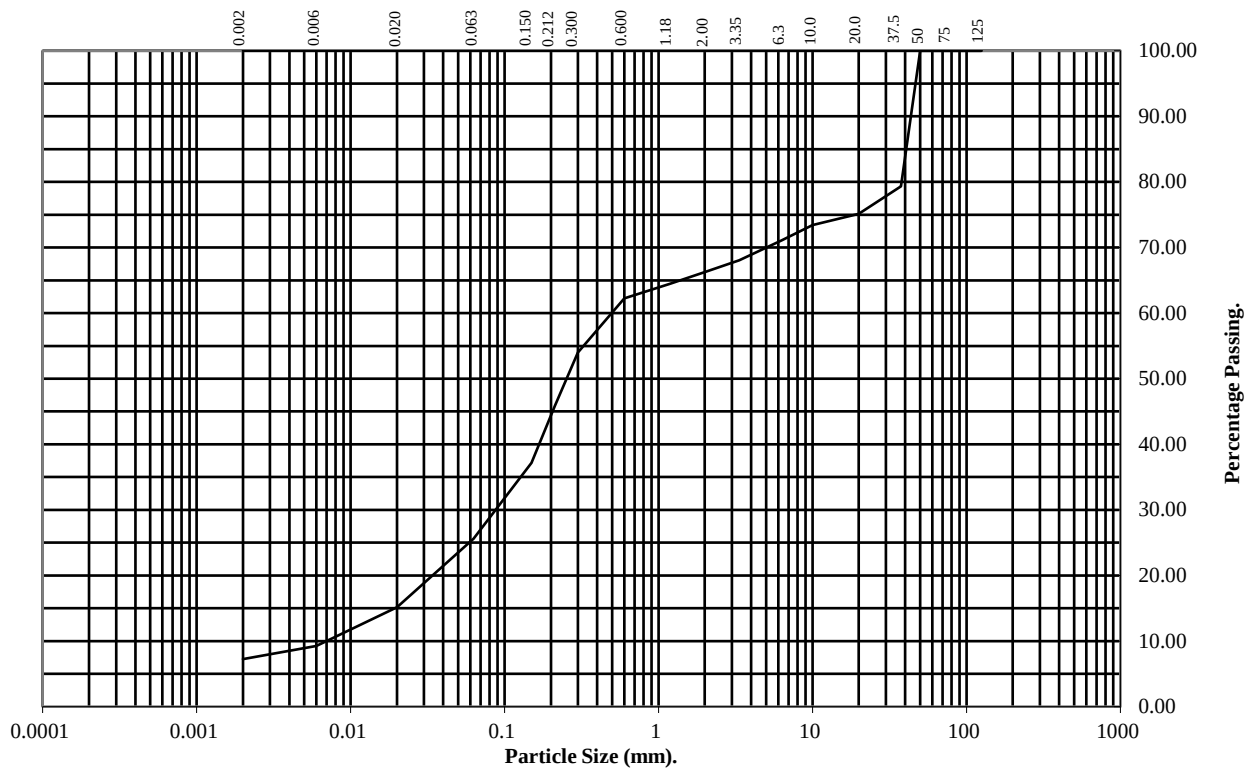
Hole Number: TP19

Top Depth (m): 0.20

Sample Number: 2

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
50	100
37.5	79
20	75
10	73
6.3	71
3.35	68
2	66
1.18	64
0.6	62
0.3	54
0.212	46
0.15	37
0.063	26

Particle Diameter	Percentage Passing
0.02	15
0.006	9
0.002	7

Soil Fraction	Total Percentage
Cobbles	0
Gravel	34
Sand	40
Silt	19
Clay	7

Remarks:

See Summary of Soil Descriptions



Cudworth Parkway

Contract No:
PSL24/2887
Client Ref:
4674

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

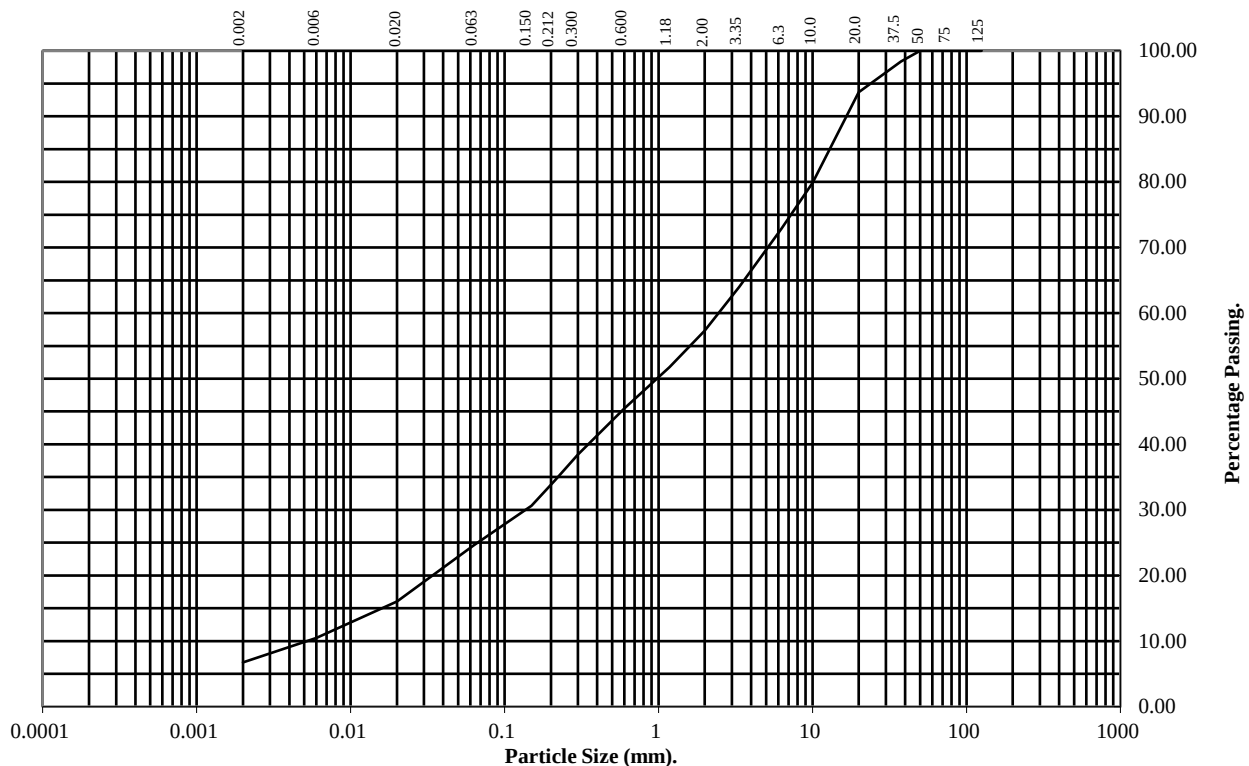
Hole Number: TP22

Top Depth (m): 1.00

Sample Number: 2

Base Depth(m):

Sample Type: D&B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
50	100
37.5	98
20	94
10	80
6.3	73
3.35	64
2	57
1.18	52
0.6	45
0.3	38
0.212	34
0.15	31
0.063	25

Particle Diameter	Percentage Passing
0.02	16
0.006	10
0.002	7

Soil Fraction	Total Percentage
Cobbles	0
Gravel	43
Sand	32
Silt	18
Clay	7

Remarks:

See Summary of Soil Descriptions



Cudworth Parkway

Contract No:
PSL24/2887
Client Ref:
4674

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

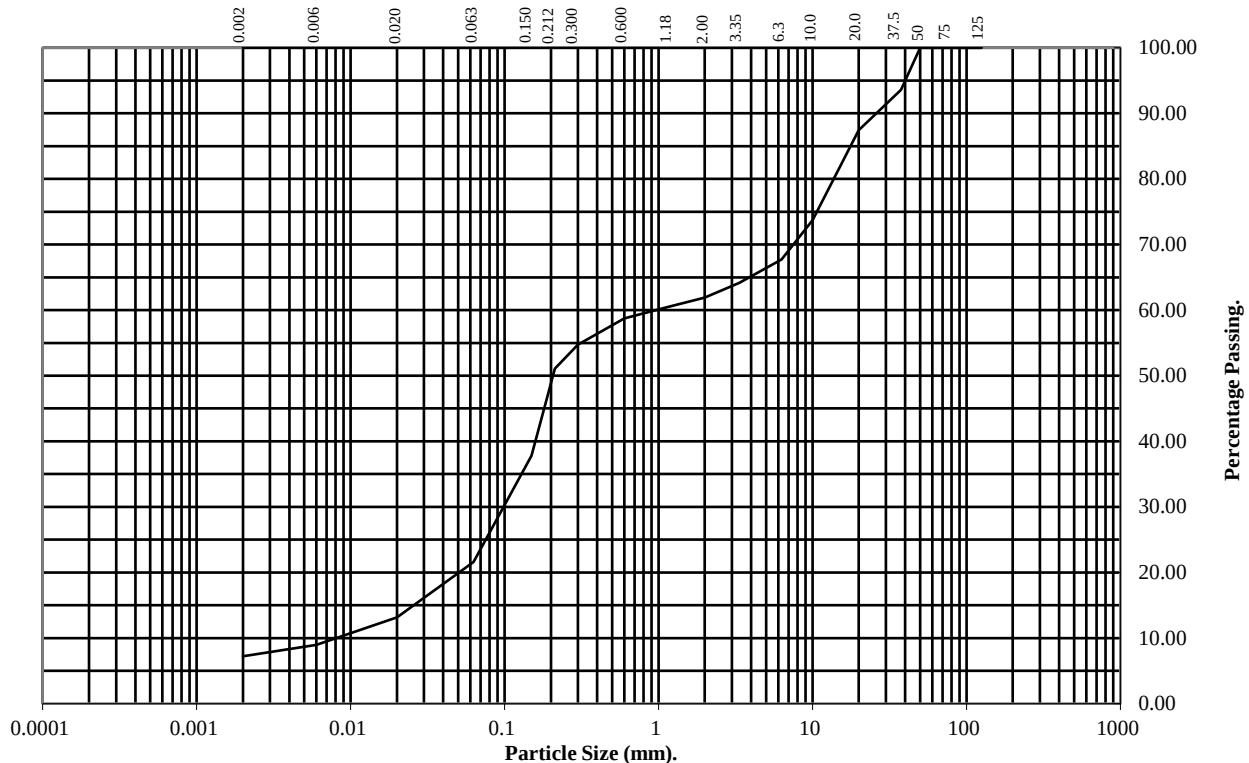
Hole Number: TP24

Top Depth (m): 0.90

Sample Number: 2

Base Depth(m):

Sample Type: D&B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
50	100
37.5	94
20	87
10	74
6.3	68
3.35	64
2	62
1.18	61
0.6	59
0.3	55
0.212	51
0.15	38
0.063	22

Particle Diameter	Percentage Passing
0.02	13
0.006	9
0.002	7

Soil Fraction	Total Percentage
Cobbles	0
Gravel	38
Sand	40
Silt	15
Clay	7

Remarks:

See Summary of Soil Descriptions



Cudworth Parkway

Contract No:
PSL24/2887
Client Ref:
4674

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

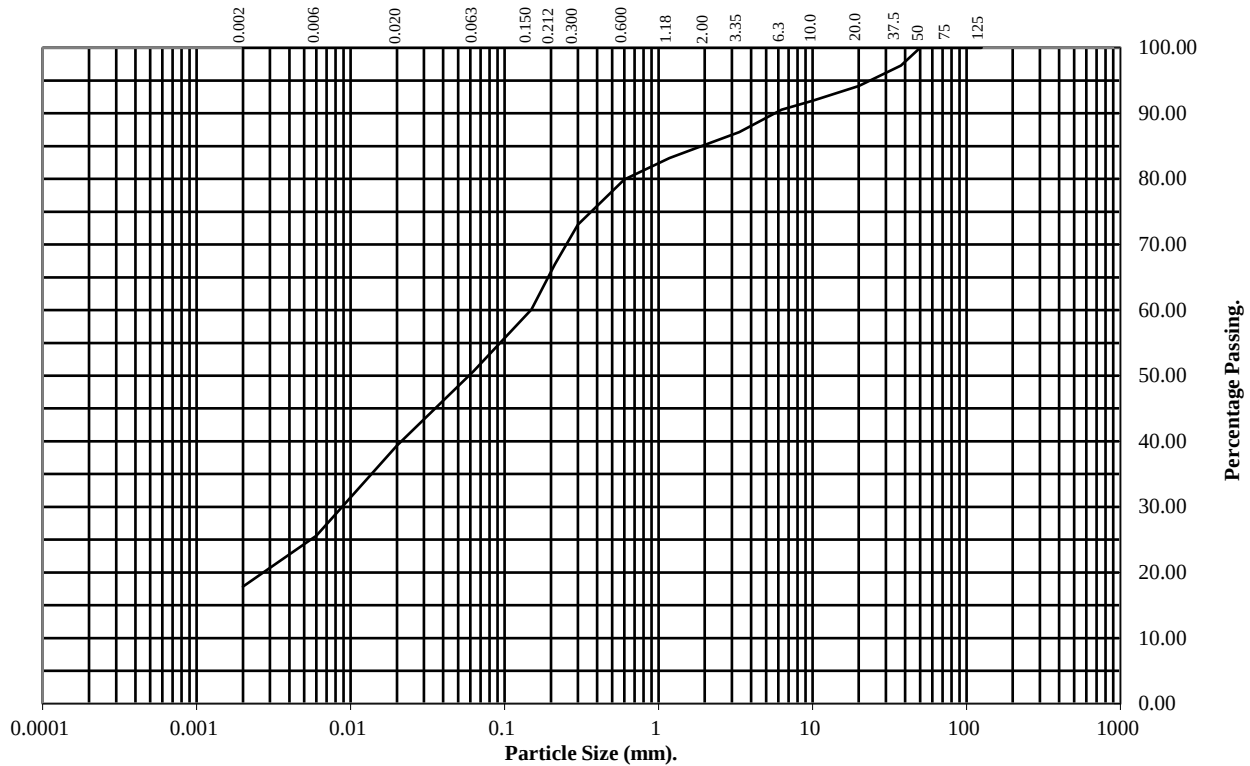
Hole Number: TP25

Top Depth (m): 1.20

Sample Number: 1

Base Depth(m):

Sample Type: D&B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
50	100
37.5	97
20	94
10	92
6.3	91
3.35	87
2	85
1.18	83
0.6	80
0.3	73
0.212	67
0.15	60
0.063	51

Particle Diameter	Percentage Passing
0.02	39
0.006	26
0.002	18

Soil Fraction	Total Percentage
Cobbles	0
Gravel	15
Sand	34
Silt	33
Clay	18

Remarks:

See Summary of Soil Descriptions



Cudworth Parkway

Contract No:

PSL24/2887

Client Ref:

4674

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

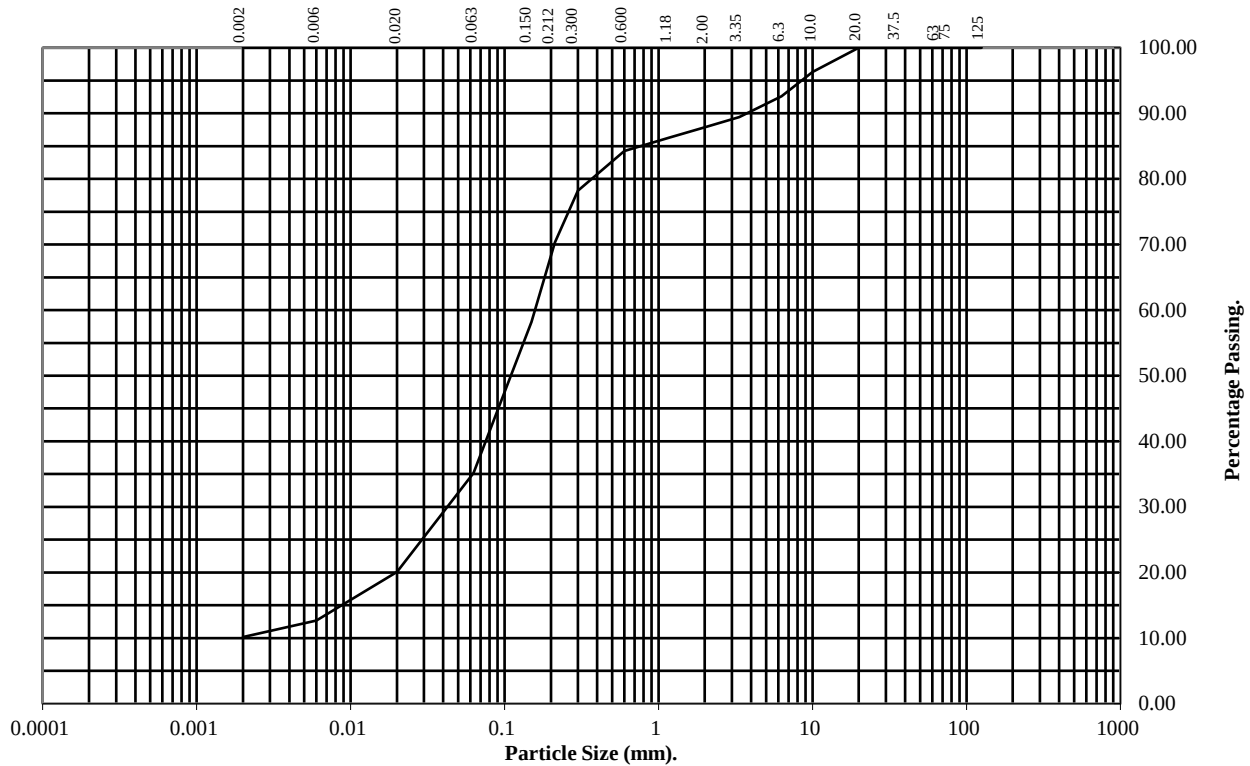
Hole Number: TP28

Top Depth (m): 0.20

Sample Number: 2

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	96
6.3	93
3.35	89
2	88
1.18	86
0.6	84
0.3	78
0.212	70
0.15	58
0.063	35

Particle Diameter	Percentage Passing
0.02	20
0.006	13
0.002	10

Soil Fraction	Total Percentage
Cobbles	0
Gravel	12
Sand	53
Silt	25
Clay	10

Remarks:

See Summary of Soil Descriptions



Cudworth Parkway

Contract No:
PSL24/2887
Client Ref:
4674

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

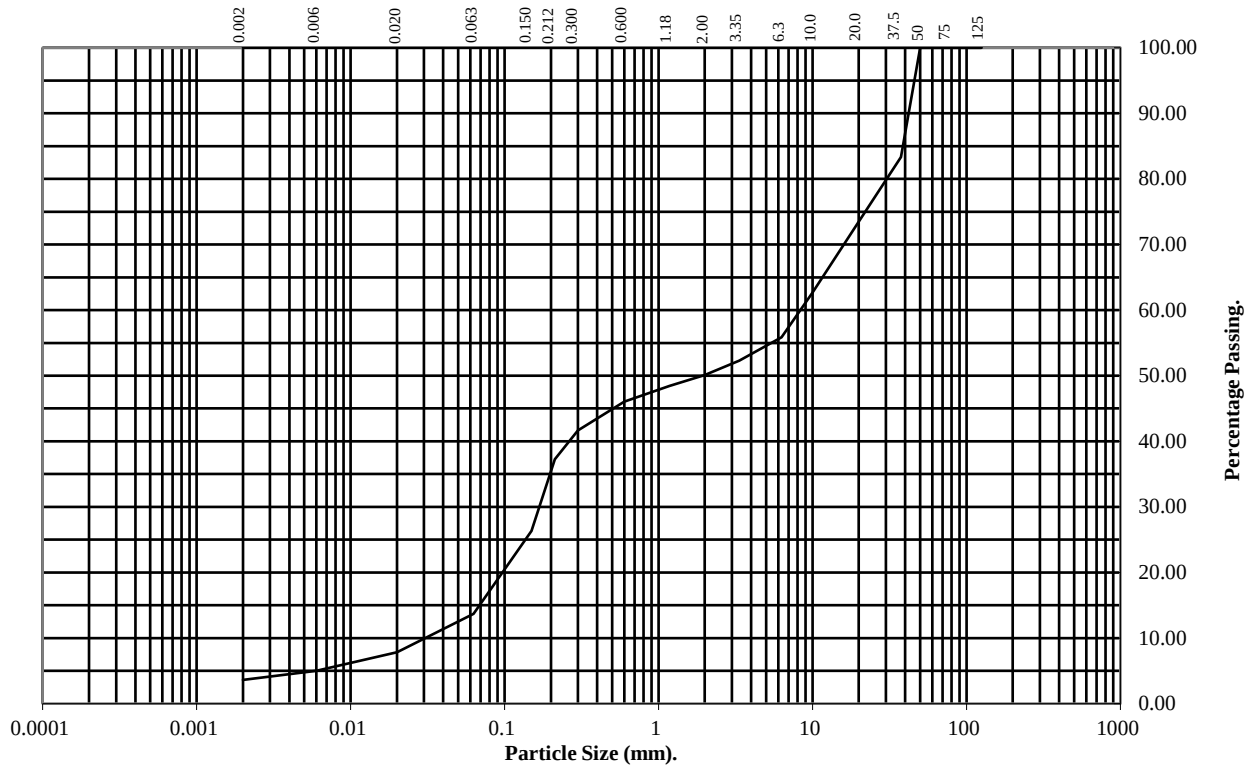
Hole Number: TP29

Top Depth (m): 1.00

Sample Number: 2

Base Depth(m):

Sample Type: D&B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
50	100
37.5	83
20	73
10	63
6.3	56
3.35	52
2	50
1.18	48
0.6	46
0.3	42
0.212	37
0.15	26
0.063	14

Particle Diameter	Percentage Passing
0.02	8
0.006	5
0.002	4

Soil Fraction	Total Percentage
Cobbles	0
Gravel	50
Sand	36
Silt	10
Clay	4

Remarks:

See Summary of Soil Descriptions



Cudworth Parkway

Contract No:
PSL24/2887
Client Ref:
4674

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

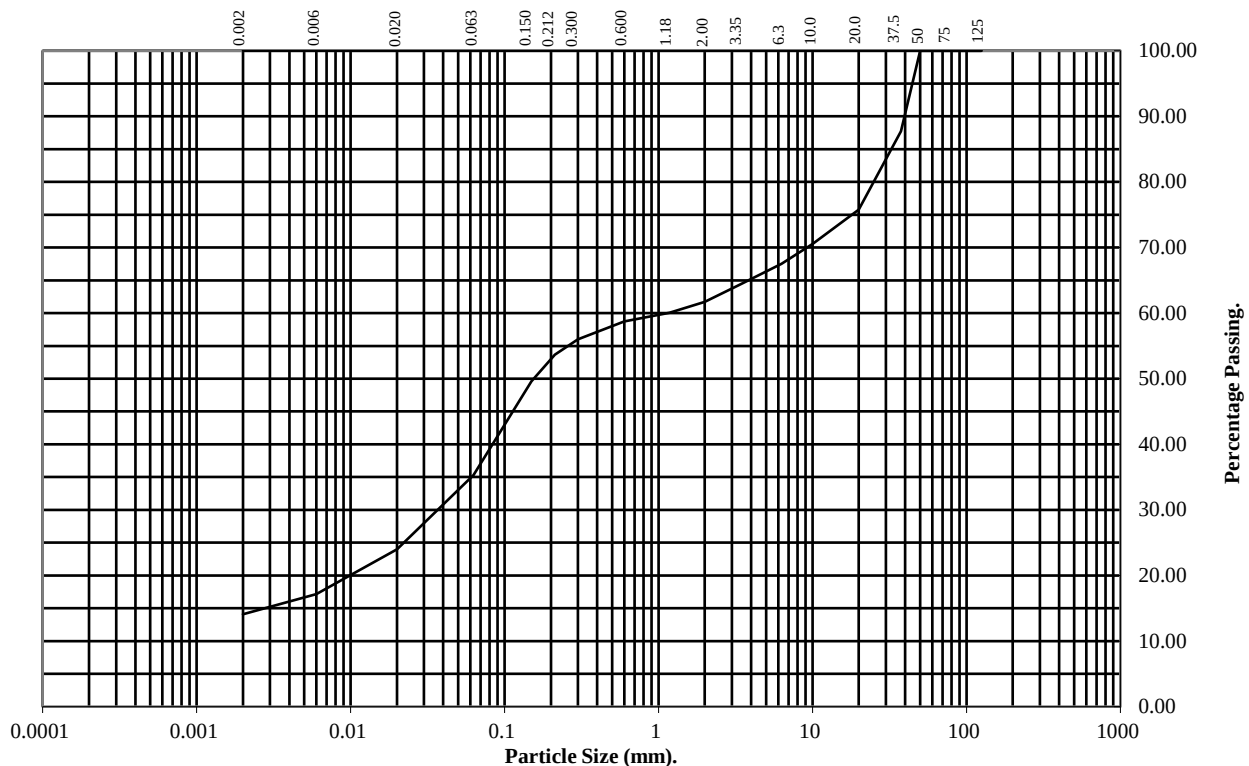
Hole Number: TP34

Top Depth (m): 0.70

Sample Number: 3

Base Depth(m):

Sample Type: D&B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
50	100
37.5	88
20	76
10	71
6.3	68
3.35	64
2	62
1.18	60
0.6	59
0.3	56
0.212	54
0.15	50
0.063	35

Particle Diameter	Percentage Passing
0.02	24
0.006	17
0.002	14

Soil Fraction	Total Percentage
Cobbles	0
Gravel	38
Sand	27
Silt	21
Clay	14

Remarks:

See Summary of Soil Descriptions



Cudworth Parkway

Contract No:
PSL24/2887
Client Ref:
4674

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

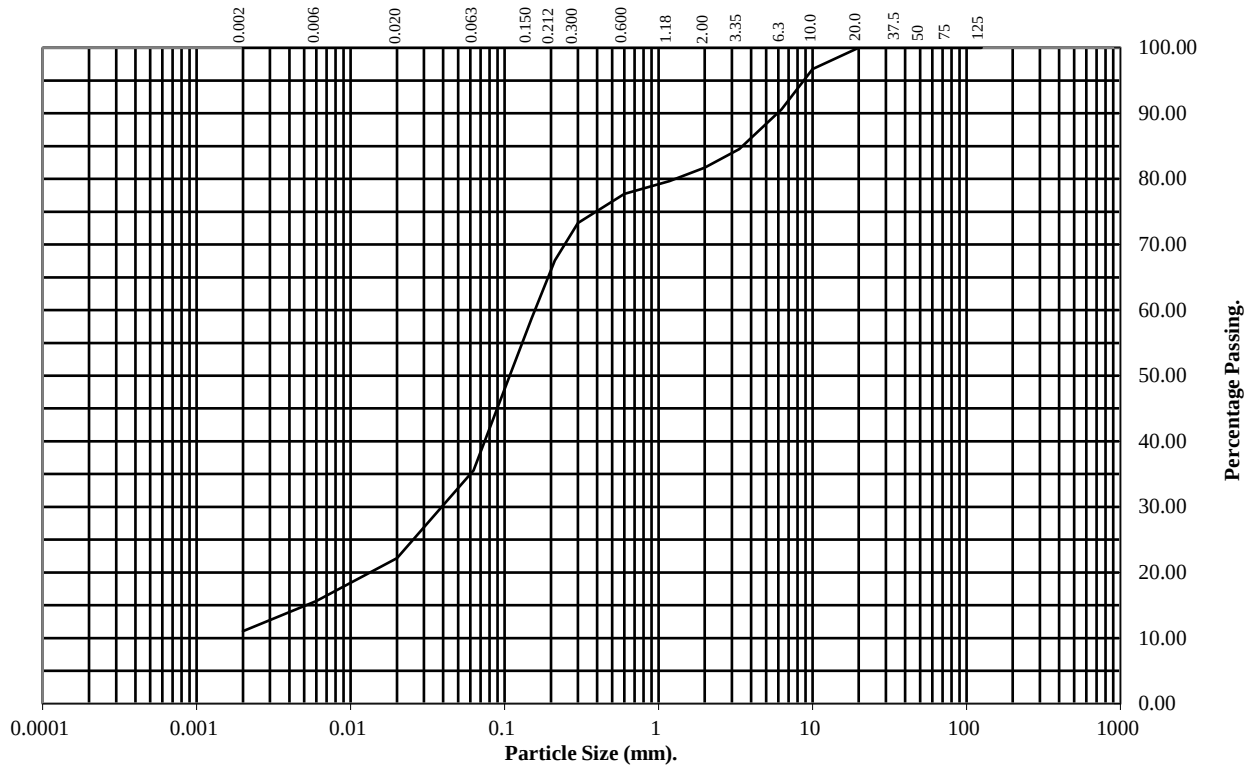
Hole Number: TP37

Top Depth (m): 0.20

Sample Number: 2

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
50	100
37.5	100
20	100
10	97
6.3	91
3.35	85
2	82
1.18	80
0.6	78
0.3	73
0.212	68
0.15	59
0.063	36

Particle Diameter	Percentage Passing
0.02	22
0.006	16
0.002	11

Soil Fraction	Total Percentage
Cobbles	0
Gravel	18
Sand	46
Silt	25
Clay	11

Remarks:

See Summary of Soil Descriptions



Cudworth Parkway

Contract No:

PSL24/2887

Client Ref:

4674

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

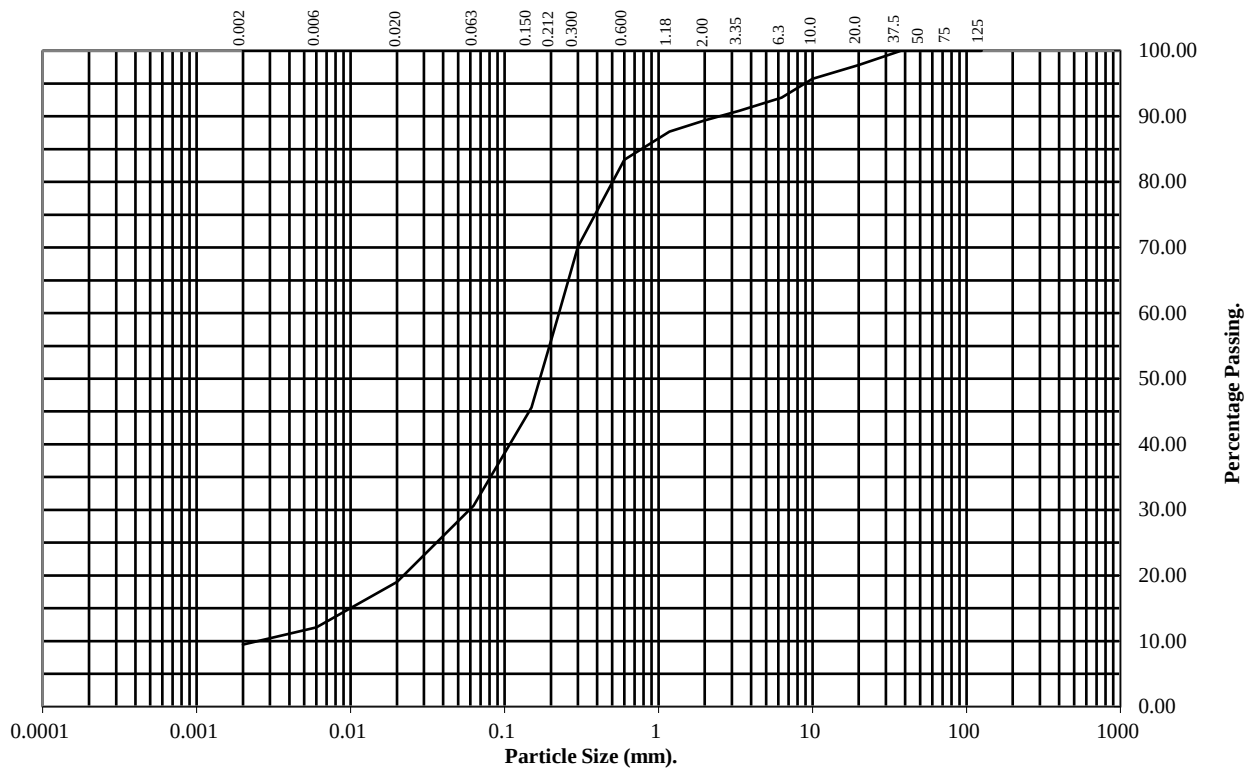
Hole Number: TP40

Top Depth (m): 0.20

Sample Number: 2

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
50	100
37.5	100
20	98
10	96
6.3	93
3.35	91
2	89
1.18	88
0.6	83
0.3	70
0.212	58
0.15	46
0.063	31

Particle Diameter	Percentage Passing
0.02	19
0.006	12
0.002	9

Soil Fraction	Total Percentage
Cobbles	0
Gravel	11
Sand	58
Silt	22
Clay	9

Remarks:

See Summary of Soil Descriptions



Cudworth Parkway

Contract No:
PSL24/2887
Client Ref:
4674

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

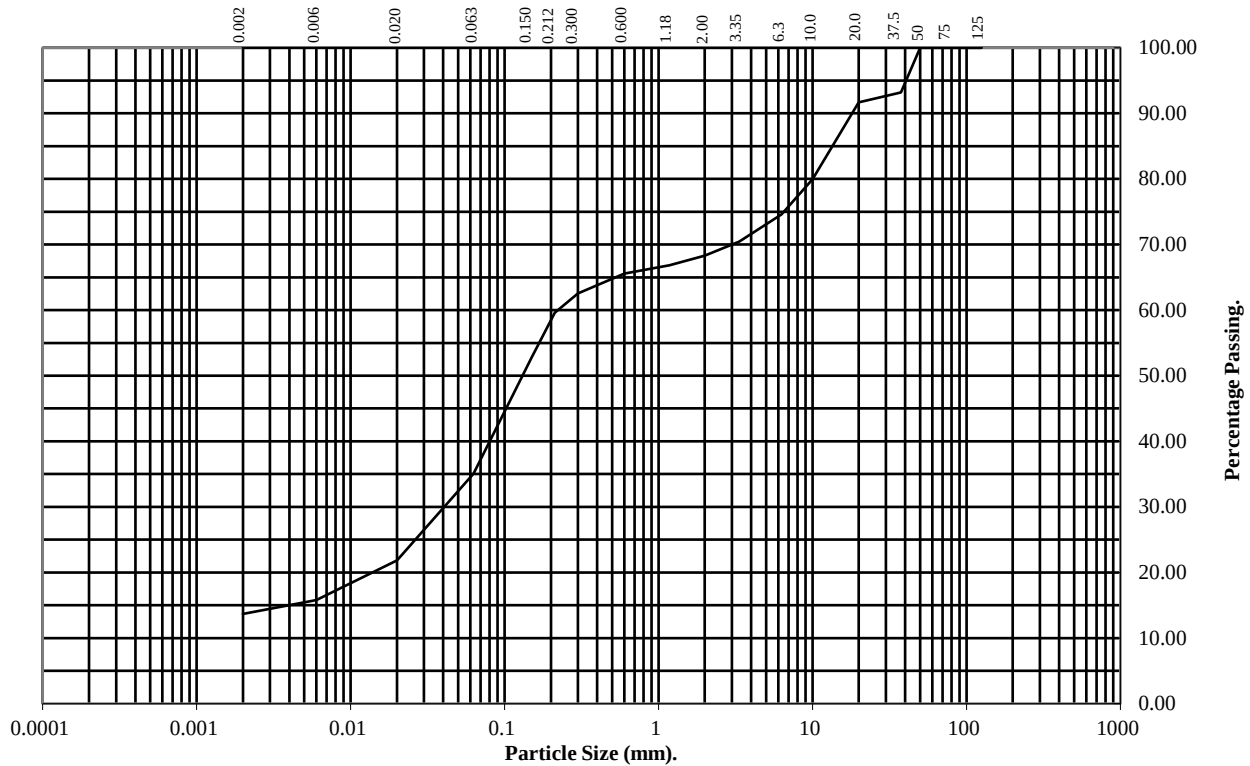
Hole Number: TP44

Top Depth (m): 0.90

Sample Number: 2

Base Depth(m):

Sample Type: D&B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
50	100
37.5	93
20	92
10	80
6.3	75
3.35	70
2	68
1.18	67
0.6	66
0.3	63
0.212	60
0.15	53
0.063	35

Particle Diameter	Percentage Passing
0.02	22
0.006	16
0.002	14

Soil Fraction	Total Percentage
Cobbles	0
Gravel	32
Sand	33
Silt	21
Clay	14

Remarks:

See Summary of Soil Descriptions



Cudworth Parkway

Contract No:
PSL24/2887
Client Ref:
4674

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

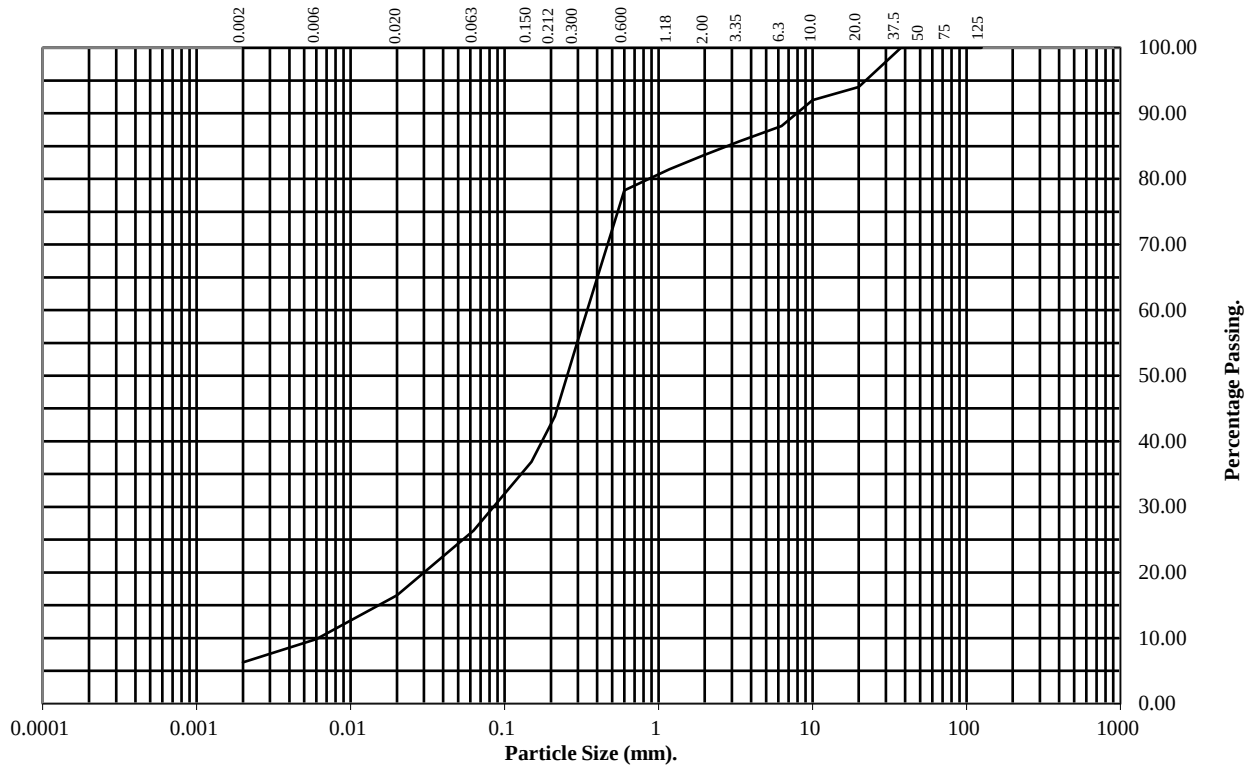
Hole Number: TP47

Top Depth (m): 1.30

Sample Number: 2

Base Depth(m):

Sample Type: D&B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
50	100
37.5	100
20	94
10	92
6.3	88
3.35	86
2	84
1.18	81
0.6	78
0.3	55
0.212	44
0.15	37
0.063	26

Particle Diameter	Percentage Passing
0.02	17
0.006	10
0.002	6

Soil Fraction	Total Percentage
Cobbles	0
Gravel	16
Sand	58
Silt	20
Clay	6

Remarks:

See Summary of Soil Descriptions



Cudworth Parkway

Contract No:
PSL24/2887
Client Ref:
4674

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.6 : 1990

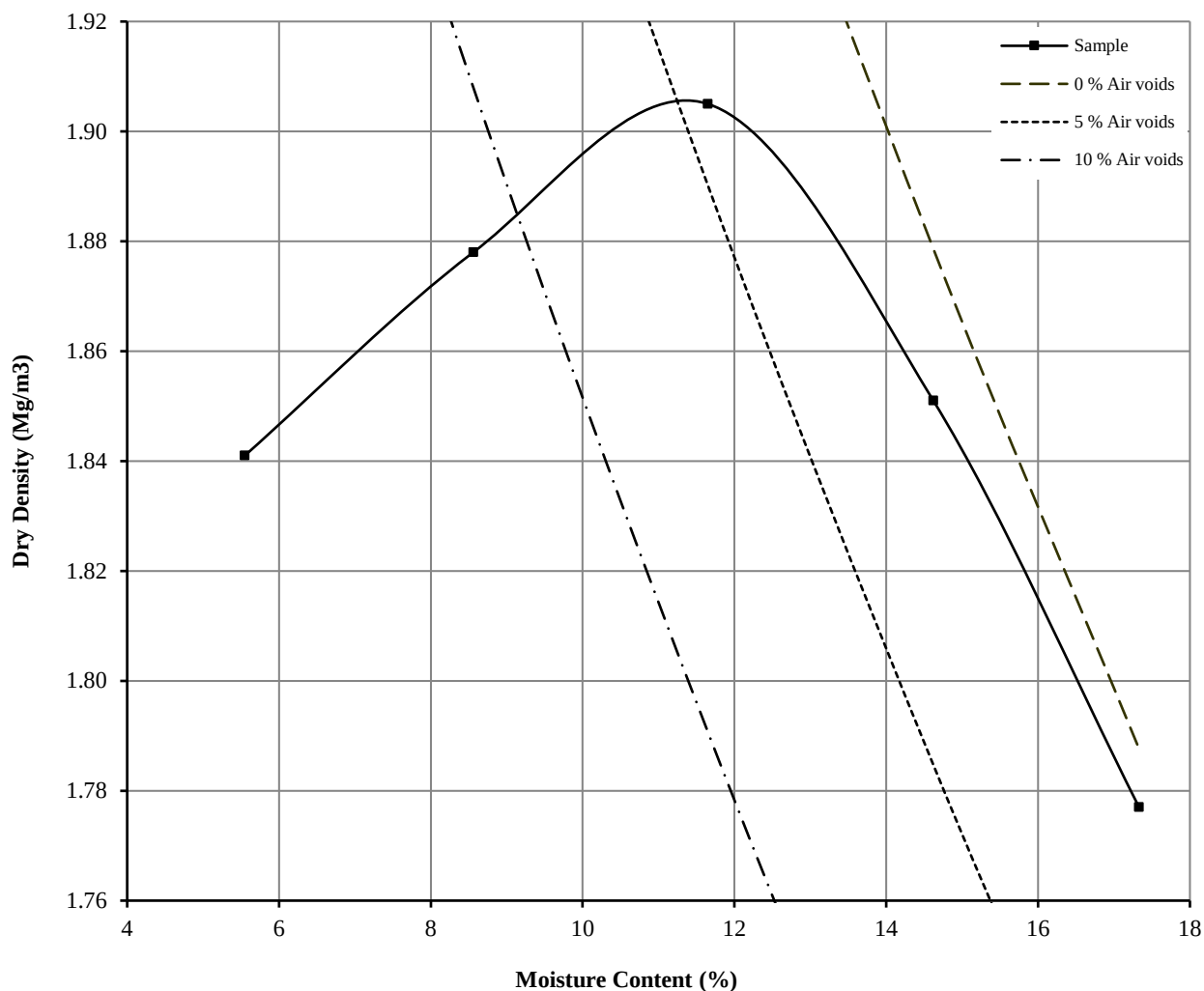
Hole Number: TP07

Top Depth (m) : 1.60

Sample Number: 3

Base Depth (m) :

Sample Type: D&B



Initial Moisture Content:	15	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.59	Measured	Material Retained on 37.5 mm Test Sieve (%):	21
Maximum Dry Density (Mg/m3):	1.91		Material Retained on 20.0 mm Test Sieve (%):	27
Optimum Moisture Content (%):	12			
Remarks See summary of soil descriptions				

 4043	 A PHENNA GROUP COMPANY	Cudworth Parkway	Contract
			PSL24/2887
			Client Ref
			4674

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.6 : 1990

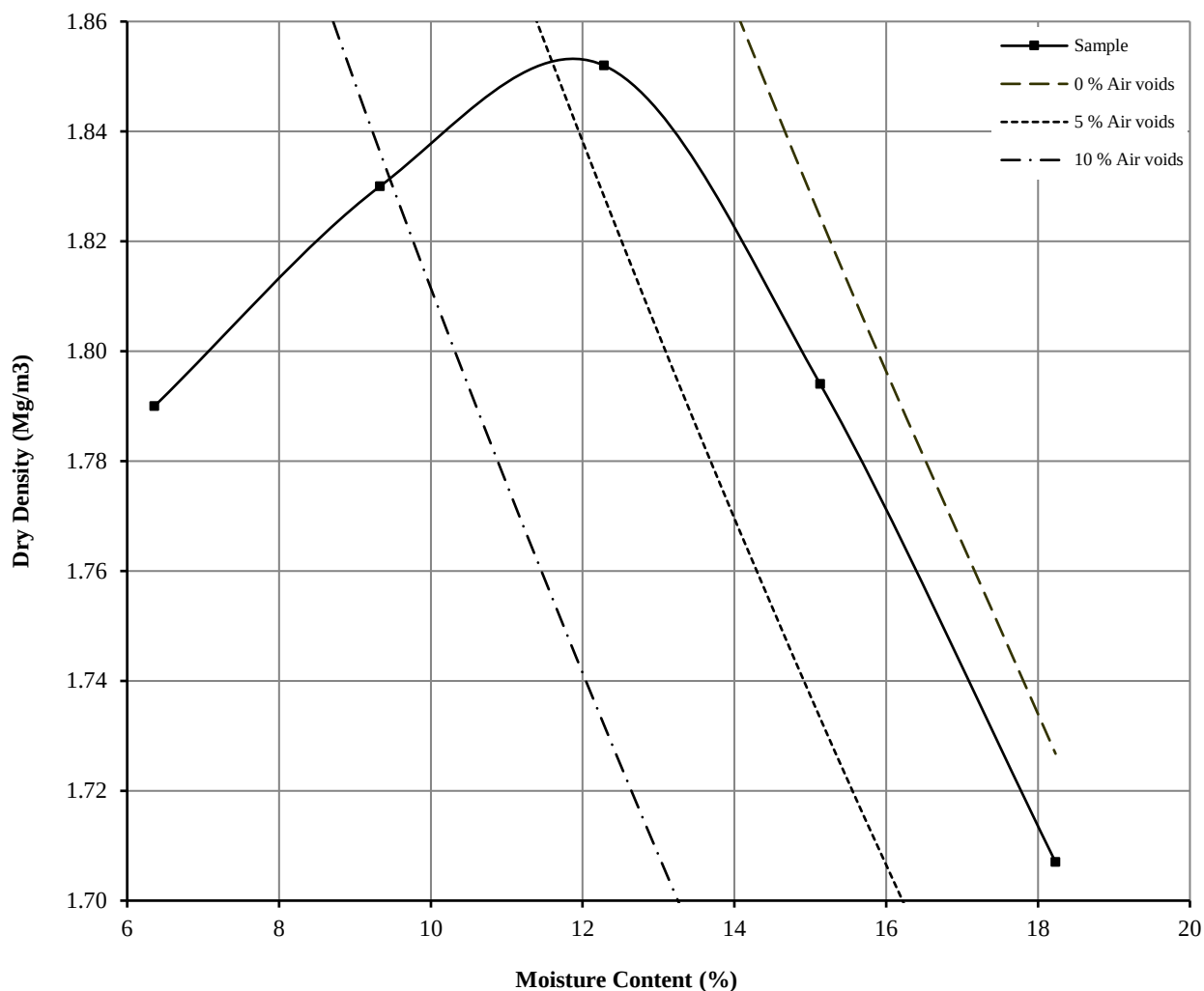
Hole Number: TP09

Top Depth (m) : 0.70

Sample Number: 2

Base Depth (m) :

Sample Type: D&B



Initial Moisture Content:	18	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.52	Measured	Material Retained on 37.5 mm Test Sieve (%):	54
Maximum Dry Density (Mg/m3):	1.85	Material Retained on 20.0 mm Test Sieve (%):	9	
Optimum Moisture Content (%):	12			
Remarks See summary of soil descriptions				

 4043	 A PHENNA GROUP COMPANY	Cudworth Parkway	Contract
			PSL24/2887
			Client Ref
			4674

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.5 : 1990

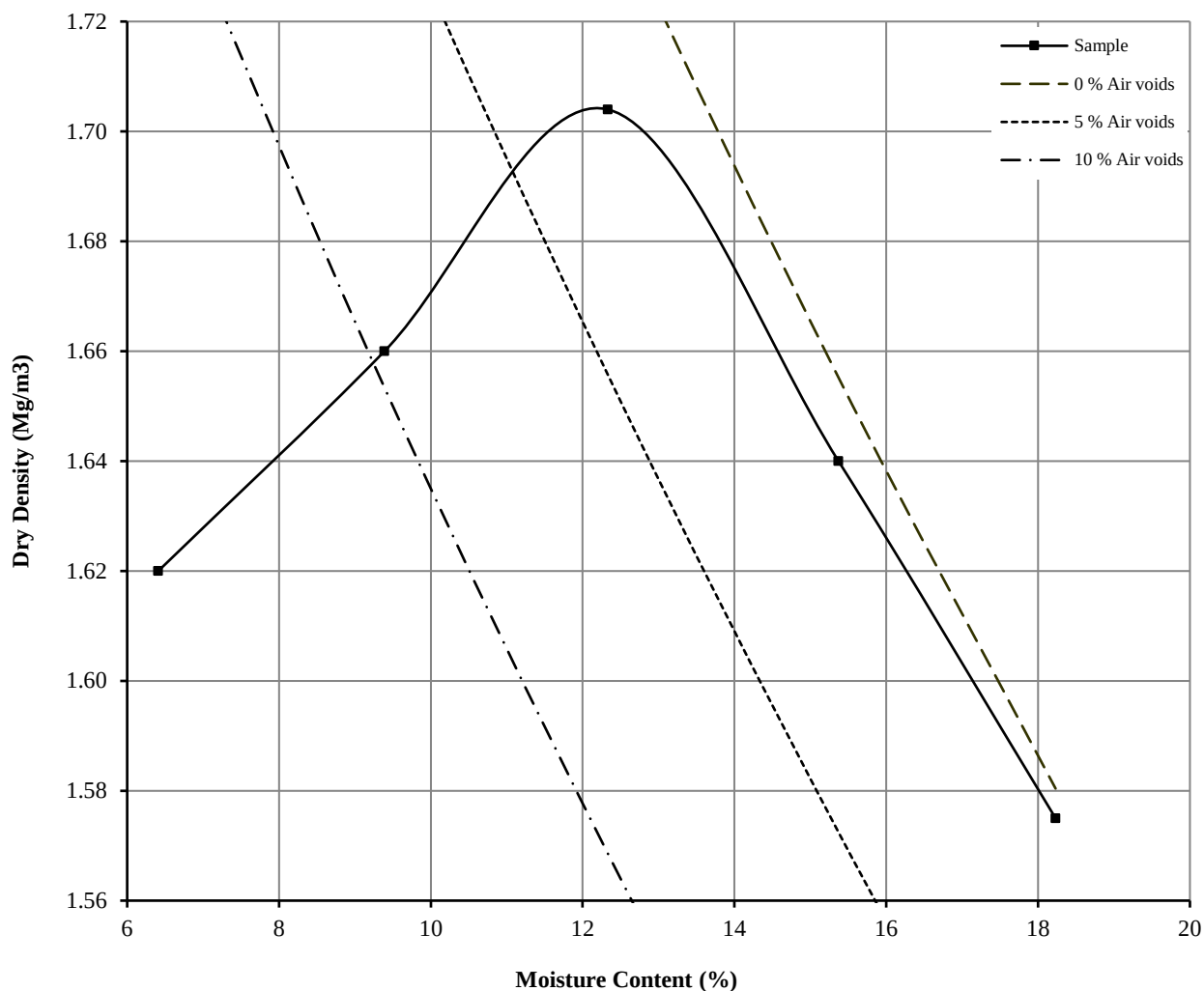
Hole Number: TP10

Top Depth (m) : 0.60

Sample Number: 2

Base Depth (m) :

Sample Type: D&B



Initial Moisture Content:	18	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.22	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m3):	1.70		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Moisture Content (%):	12			
Remarks See summary of soil descriptions				

 4043	 A PHENIA GROUP COMPANY	Cudworth Parkway	Contract
			PSL24/2887
			Client Ref
			4674

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.6 : 1990

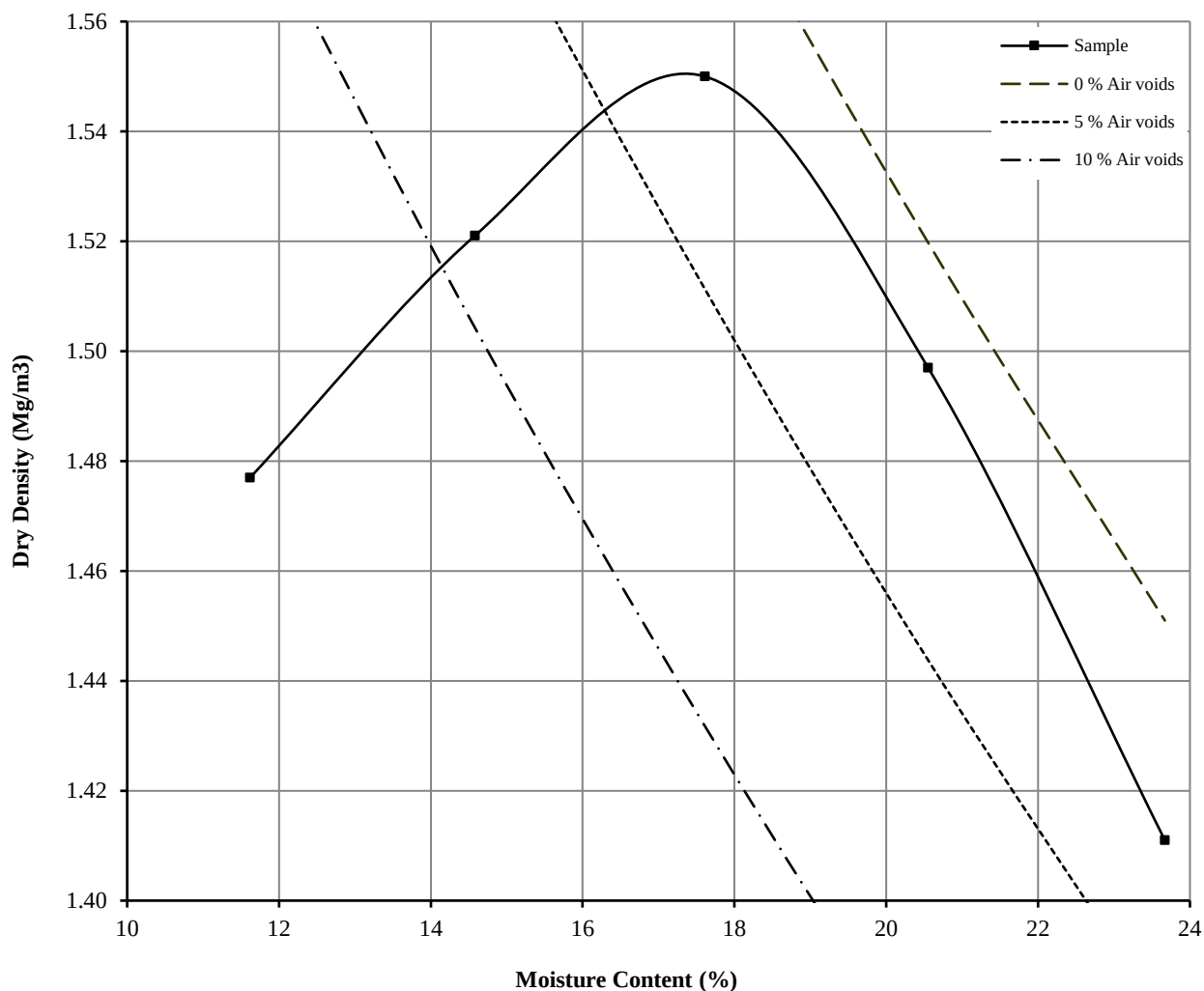
Hole Number: TP13

Top Depth (m) : 0.90

Sample Number: 2

Base Depth (m) :

Sample Type: D&B



Initial Moisture Content:	24	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.21	Measured	Material Retained on 37.5 mm Test Sieve (%):	4
Maximum Dry Density (Mg/m3):	1.55		Material Retained on 20.0 mm Test Sieve (%):	4
Optimum Moisture Content (%):	18			
Remarks See summary of soil descriptions				

		Cudworth Parkway	Contract
			PSL24/2887
			Client Ref
			4674

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.6 : 1990

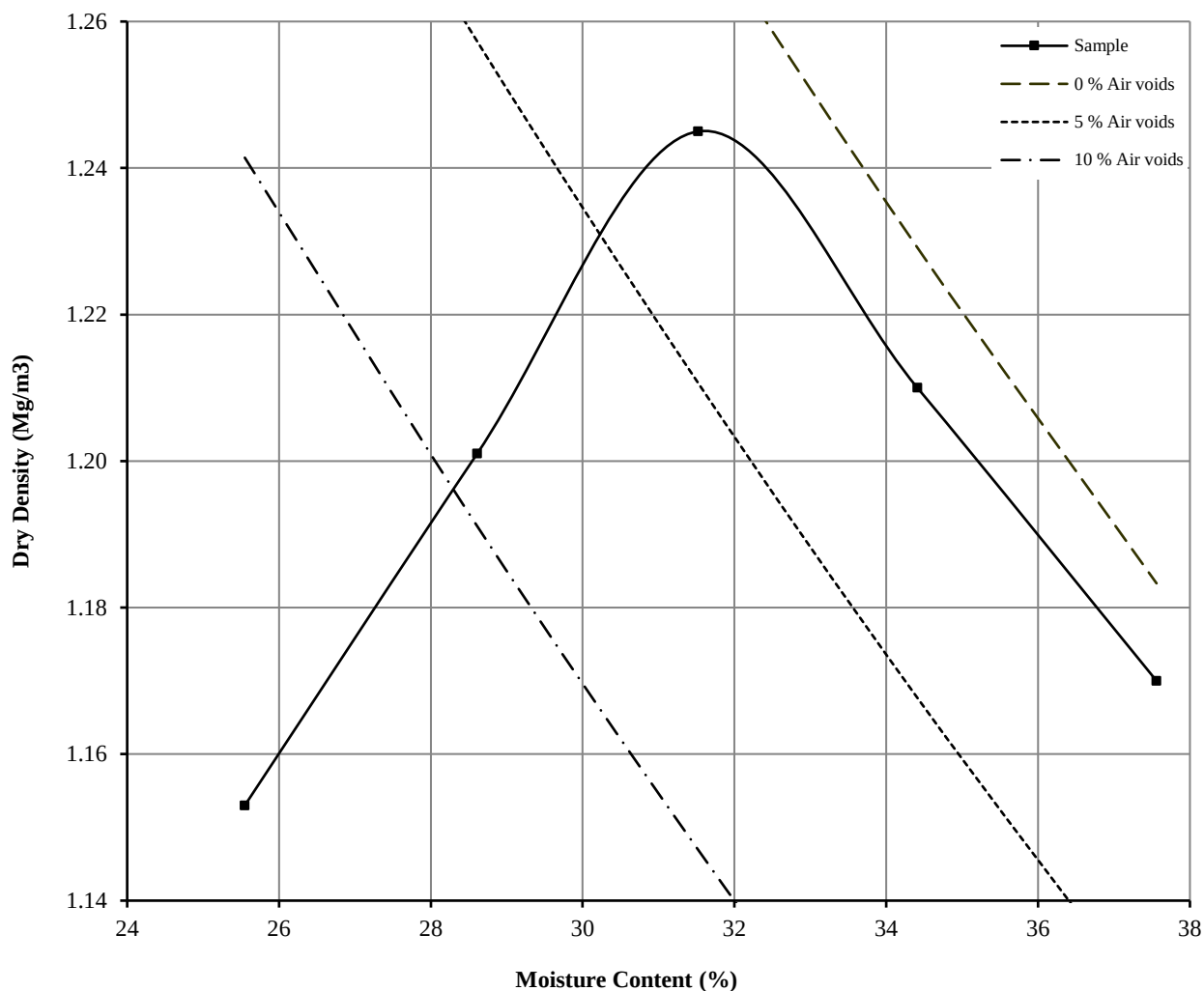
Hole Number: TP22

Top Depth (m) : 1.00

Sample Number: 2

Base Depth (m) :

Sample Type: D&B



Initial Moisture Content:	41	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.13	Measured	Material Retained on 37.5 mm Test Sieve (%):	2
Maximum Dry Density (Mg/m3):	1.25		Material Retained on 20.0 mm Test Sieve (%):	4
Optimum Moisture Content (%):	32			
Remarks See summary of soil descriptions				

 4043	 A PHENIA GROUP COMPANY	Cudworth Parkway	Contract
			PSL24/2887
			Client Ref
			4674

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.6 : 1990

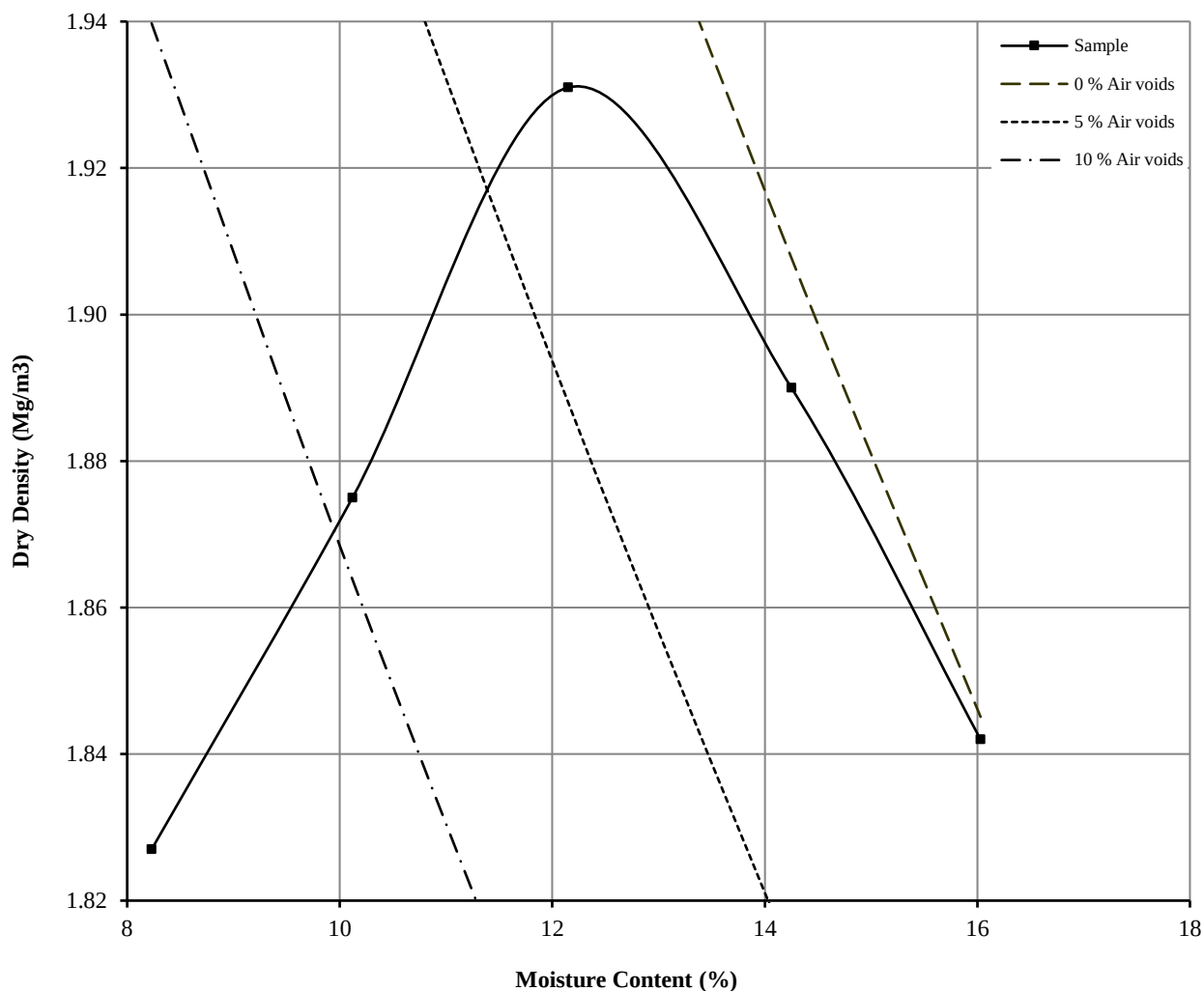
Hole Number: TP24

Top Depth (m) : 0.90

Sample Number: 2

Base Depth (m) :

Sample Type: D&B



Initial Moisture Content:	16	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.62	Measured	Material Retained on 37.5 mm Test Sieve (%):	6
Maximum Dry Density (Mg/m ³):	1.93		Material Retained on 20.0 mm Test Sieve (%):	7
Optimum Moisture Content (%):	12			
Remarks See summary of soil descriptions				

 4043	 A PHENNA GROUP COMPANY	Cudworth Parkway	Contract
			PSL24/2887
			Client Ref
			4674

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.6 : 1990

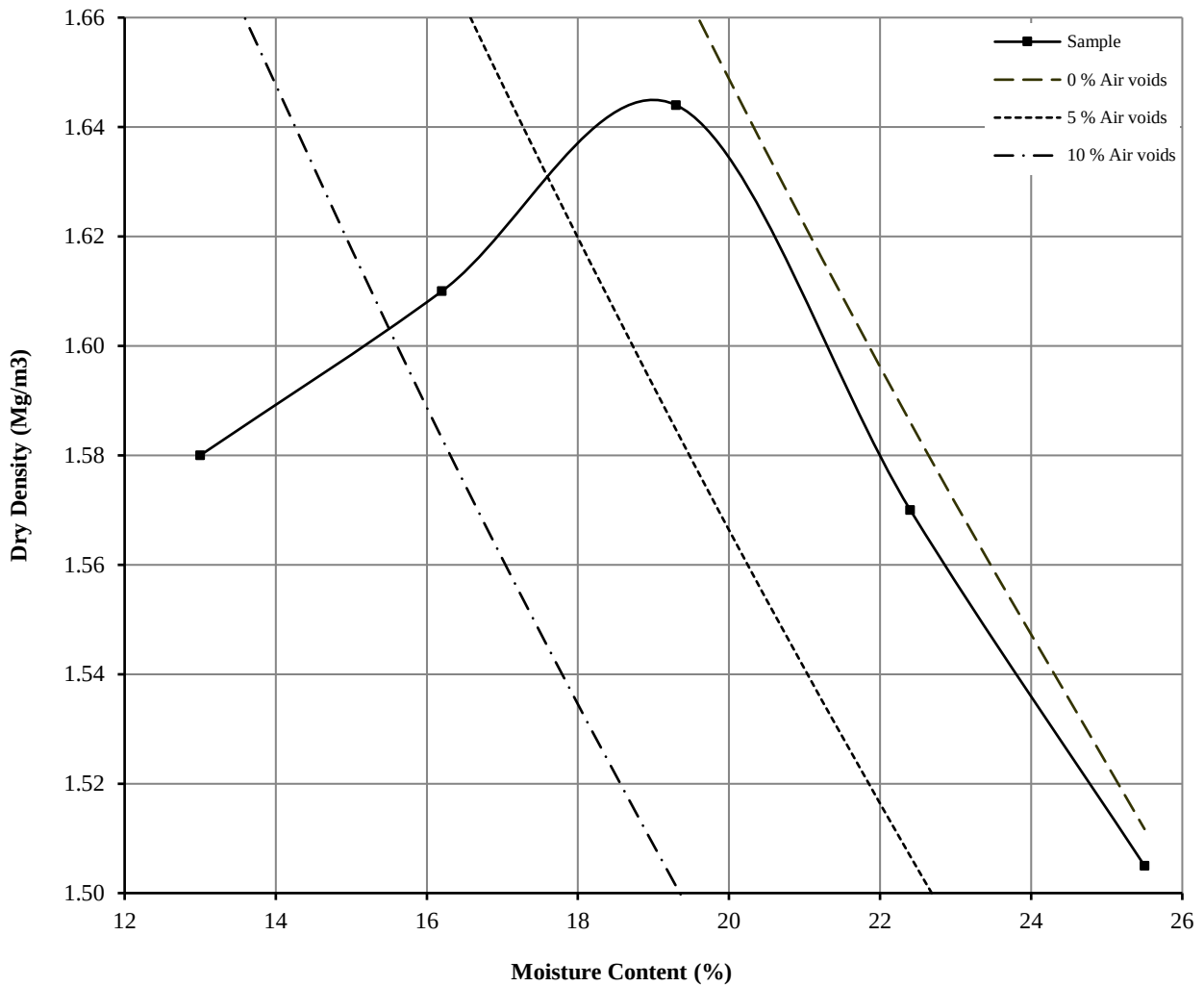
Hole Number: TP25

Top Depth (m) : 1.20

Sample Number: 1

Base Depth (m) :

Sample Type: D&B



Initial Moisture Content:	25	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.46	Measured	Material Retained on 37.5 mm Test Sieve (%):	3
Maximum Dry Density (Mg/m3):	1.64		Material Retained on 20.0 mm Test Sieve (%):	3
Optimum Moisture Content (%):	19			
Remarks See summary of soil descriptions				



Cudworth Parkway

Contract
PSL24/2887
Client Ref
4674

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.6 : 1990

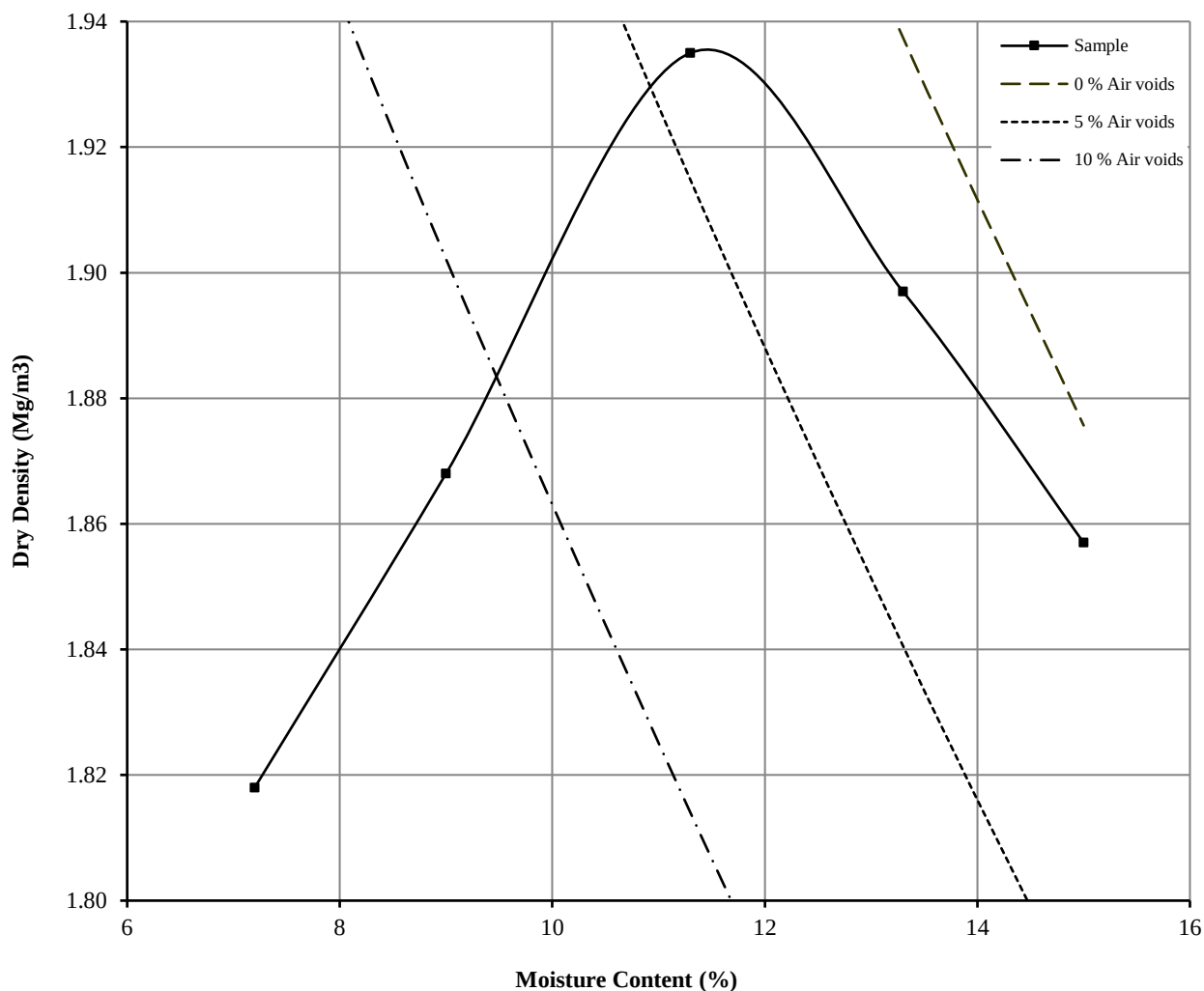
Hole Number: TP29

Top Depth (m) : 1.00

Sample Number: 2

Base Depth (m) :

Sample Type: D&B



Initial Moisture Content:	15	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.61	Measured	Material Retained on 37.5 mm Test Sieve (%):	17
Maximum Dry Density (Mg/m3):	1.94		Material Retained on 20.0 mm Test Sieve (%):	10
Optimum Moisture Content (%):	11			
Remarks See summary of soil descriptions				

 4043	 A PHENNA GROUP COMPANY	Cudworth Parkway	Contract
			PSL24/2887
			Client Ref
			4674

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.6 : 1990

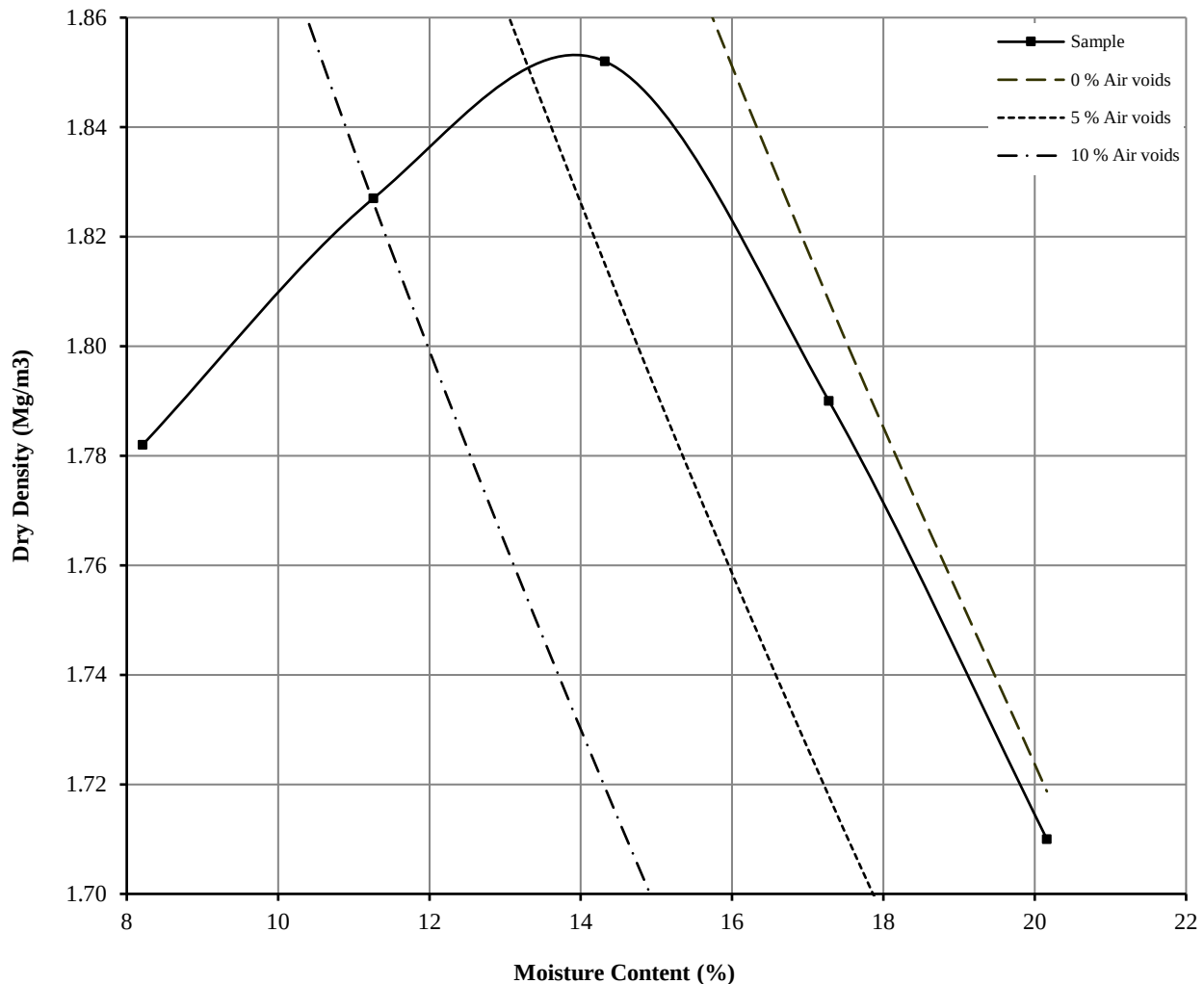
Hole Number: TP34

Top Depth (m) : 0.70

Sample Number: 3

Base Depth (m) :

Sample Type: D&B



Initial Moisture Content:	20	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.63	Measured	Material Retained on 37.5 mm Test Sieve (%):	12
Maximum Dry Density (Mg/m ³):	1.85		Material Retained on 20.0 mm Test Sieve (%):	12
Optimum Moisture Content (%):	14			
Remarks See summary of soil descriptions				



Cudworth Parkway

Contract
PSL24/2887
Client Ref
4674

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.6 : 1990

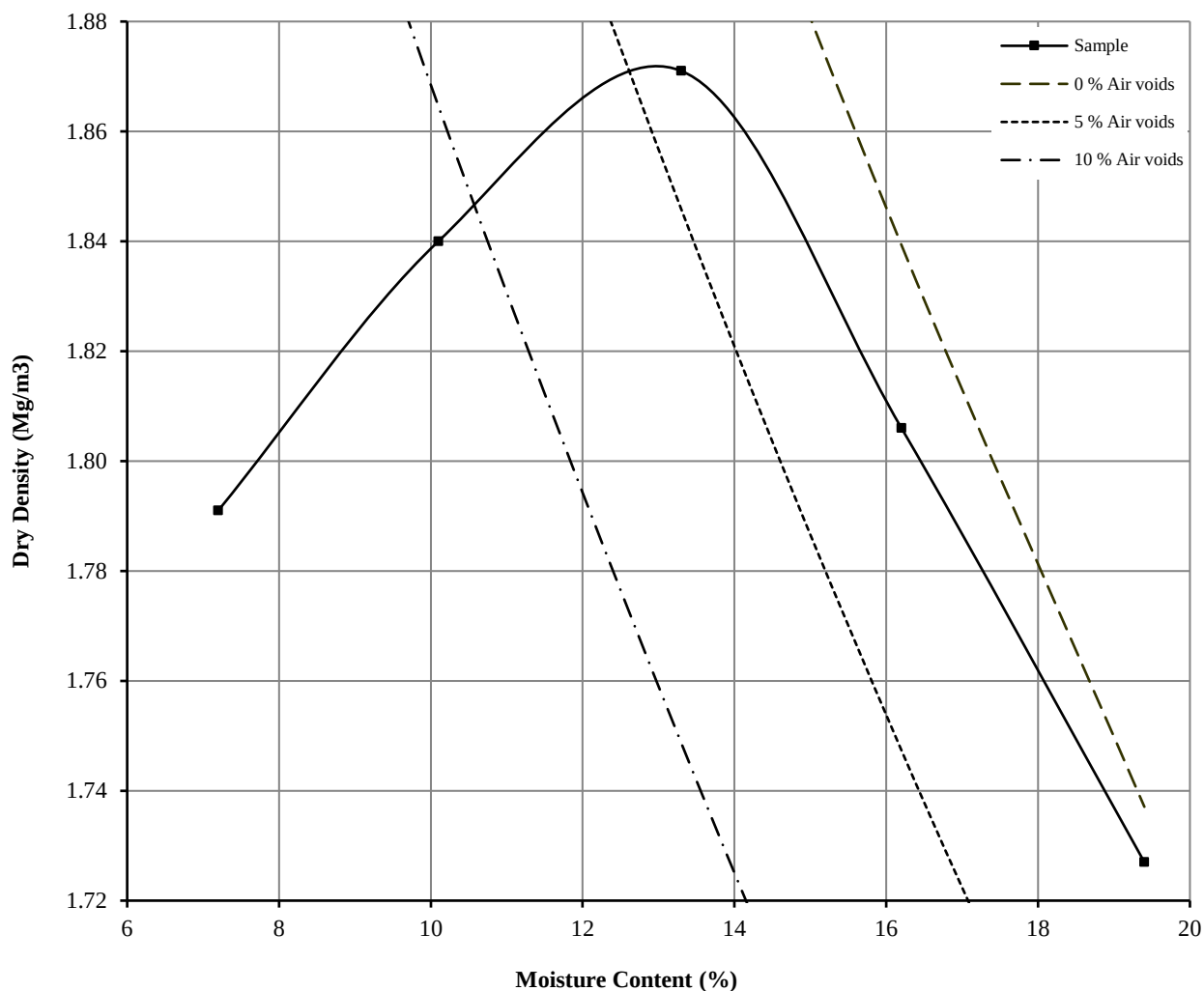
Hole Number: TP44

Top Depth (m) : 0.90

Sample Number: 2

Base Depth (m) :

Sample Type: D&B



Initial Moisture Content:	19	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.62	Measured	Material Retained on 37.5 mm Test Sieve (%):	7
Maximum Dry Density (Mg/m3):	1.87		Material Retained on 20.0 mm Test Sieve (%):	1
Optimum Moisture Content (%):	13			
Remarks See summary of soil descriptions				

 4043	 A PHENIA GROUP COMPANY	Cudworth Parkway	Contract
			PSL24/2887
			Client Ref
			4674

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.6 : 1990

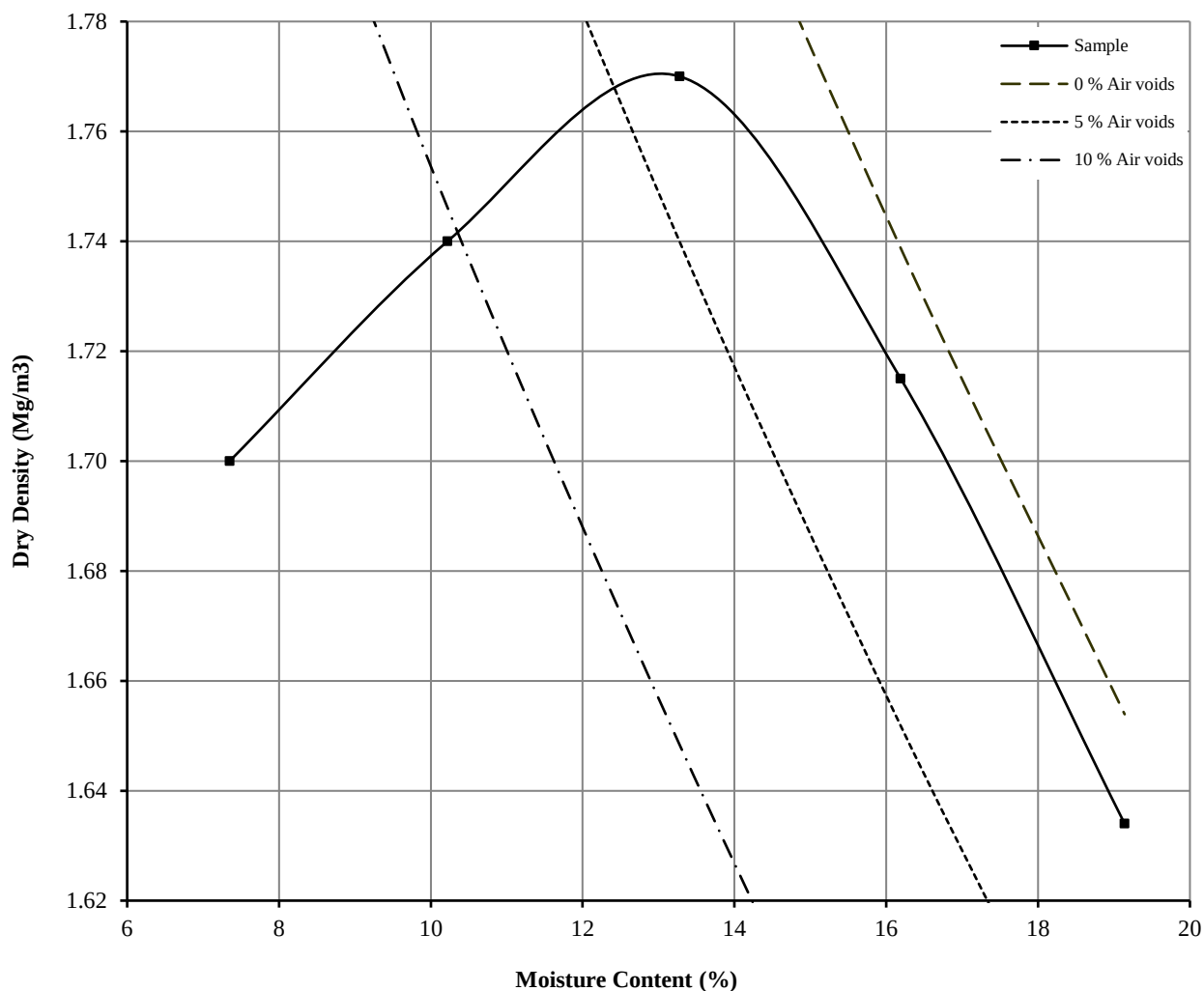
Hole Number: TP47

Top Depth (m) : 1.30

Sample Number: 2

Base Depth (m) :

Sample Type: D&B



Initial Moisture Content:	19	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.42	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.77		Material Retained on 20.0 mm Test Sieve (%):	6
Optimum Moisture Content (%):	13			
Remarks See summary of soil descriptions				

 	Cudworth Parkway		Contract
			PSL24/2887
			Client Ref
			4674



7 - 11 Harding Street
Leicester
LE1 4DH

Professional Soils Laboratory
5/7 Hexthorpe Road
Hexthorpe
Doncaster
DN4 0AR

Analytical Test Report: L24/04055/PSL - 24-44906

Your Project Reference:	PSL24/2887 Cudworth Parkway		
Your Order Number:	PSL24/2887	Samples Received / Instructed:	07/05/2024 / 07/05/2024
Report Issue Number:	1	Sample Tested:	07/05 to 13/05/2024
Samples Analysed:	6 soil samples	Report issued:	13/05/2024

Signed

James Gane
Analytical Services Manager
CTS Group

Notes:

General

Please refer to Methodologies page for details pertaining to the analytical methods undertaken.

Samples will be retained for 14 days after issue of this report unless otherwise requested.

Moisture Content was determined in accordance with CTS method statement MS - CL - Sample Prep, oven dried at <30°C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Where specification limits are included these are for guidance only. Where a measured value has been highlighted this is not implying acceptance or failure and certainty of measurement values have not been taken into account.

Uncertainty of measurement values are available on request.

Samples were supplied by customer, results apply to the samples as received.

Deviating Samples

On receipt samples are compared against our sample holding and handling protocols, where any deviations have been noted these are reported on our deviating sample page (if present)

Accreditation Key

UKAS = UKAS Accreditation, MCERTS = MCERTS Accreditation, u = Unaccredited, subUKAS - Subcontracted to a laboratory UKAS accredited for this test, subMCERTS - Subcontracted to a laboratory MCERTS accredited for this test

MCERTS Accreditation only covers the SAND, CLAY and LOAM matrices

Date of Issue: 13.05.2024

Issued by: J. Gane

Issue No: 4

Rev No: 9



7 - 11 Harding Street
Leicester
LE1 4DH

L24/04055/PSL - 24-44906

Project Reference - PSL24/2887 Cudworth Parkway

Analytical Test Results - Chemical Analysis

Lab Reference			361930	361931	361932	361933	361934	361935
Client Sample ID			-	-	-	-	-	-
Client Sample Location			TP18	TP34	TP44	TP29	TP46	TP31
Client Sample Type			D	D&B	D&B	D&B	D	D
Client Sample Number			2	3	2	2	2	3
Depth - Top (m)			0.70	0.70	0.90	1.00	1.50	2.50
Depth - Bottom (m)			0.70	0.70	0.90	1.00	1.50	2.50
Date of Sampling			-	-	-	-	-	-
Time of Sampling			-	-	-	-	-	-
Sample Matrix			Clay	Clay	Clay	Clay	Clay	Clay
Determinant	Units	Accreditation						
Water soluble sulphate (as SO ₄)	(mg/l)	u	< 10	24	< 10	< 10	13	20
pH Value	pH Units	MCERTS	7.8	8.4	7.8	7.6	7.5	5.0



7 - 11 Harding Street
Leicester
LE1 4DH

L24/04055/PSL - 24-44906

Project Reference - PSL24/2887 Cudworth Parkway

Sample Descriptions

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Description	Moisture Content (%)	Stone Content (%)	Passing 2mm test sieve (%)
361930	-	TP18	D	2	Brown gravelly sandy silty clay with rare rootlets	-	-	69
361931	-	TP34	D&B	3	Brown gravelly sandy silty clay with rare rootlets	-	-	74
361932	-	TP44	D&B	2	Brown gravelly sandy silty clay with rare rootlets	-	-	60
361933	-	TP29	D&B	2	Brown gravelly sandy silty clay	-	-	74
361934	-	TP46	D	2	Brown gravelly sandy silty clay	-	-	100
361935	-	TP31	D	3	Greyish brown slightly sandy silty clay with rare rootlets	-	-	94



7 - 11 Harding Street
Leicester
LE1 4DH

L24/04055/PSL - 24-44906

Project Reference - PSL24/2887 Cudworth Parkway

Sample Comments

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Comments
361930	-	TP18	D	2	
361931	-	TP34	D&B	3	
361932	-	TP44	D&B	2	
361933	-	TP29	D&B	2	
361934	-	TP46	D	2	
361935	-	TP31	D	3	



7 - 11 Harding Street
Leicester
LE1 4DH

L24/04055/PSL - 24-44906

Project Reference - PSL24/2887 Cudworth Parkway

Analysis Methodologies

Test Code	Test Name / Reference	Sample condition for analysis	Sample Preparation	Test Details
ANIONSS	MS - CL - Anions by Aquakem (2:1Extract)	Oven dried	Passing 2mm test sieve	Determination of Anions (inc Sulphate, chloride etc.) in soils by Aquakem. Analysis is based on a 2:1 water to soil extraction ratio
PHS	MS - CL - pH in Soils	As received	Passing 10mm test sieve	Determination of pH in soils using a pH probe (using a 1:3 soil to water extraction)
SAMPLEPREP	MS - CL - Sample Preparation	-	-	Preparation of samples (including determination of moisture content) to allow for subsequent analysis



7 - 11 Harding Street
Leicester
LE1 4DH

L24/04055/PSL - 24-44906

Project Reference - PSL24/2887 Cudworth Parkway

Sample Deviations

Deviations are listed below against each sample and associated test method, where deviation(s) are noted it means data may not be representative of the sample at the time of sampling and it is possible that results provided may be compromised.

Observations on receipt

A - No date of sampling provided

C - Received in inappropriate container

H - Contains headspace

T - Temperature on receipt exceeds storage temperature

R - Sample(s) received with less than 96 hours for testing to commence/complete, any result formally classed as deviating will be marked with an X against the applicable test (i.e. RX)

Observations whilst in laboratory

X - Exceeds sampling to extraction or analysis timescales

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Test	Deviations
361930	-	TP18	D	2		A
361931	-	TP34	D&B	3		A
361932	-	TP44	D&B	2		A
361933	-	TP29	D&B	2		A
361934	-	TP46	D	2		A
361935	-	TP31	D	3		A



LABORATORY REPORT



Contract Number: PSL24/2888

Report Date: 23 May 2024

Client's Reference: 4674

Client Name: Lithos Consulting
Parkhill
Walton Road
Wetherby
North Yorkshire
LS22 5DZ

For the attention of: Lewis Whiteley/Alan Swales

Contract Title: Cudworth Parkway

Date Received: 24/4/2024

Date Commenced: 24/4/2024

Date Completed: 14/5/2024

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Managing Director)

R Berriman
(Associate Director)

S Royle
(Laboratory Manager)


L Knight
(Assistant Laboratory Manager)

S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

5 – 7 Hexthorpe Road,
Hexthorpe,
Doncaster,
DN4 0AR
Tel: 01302 768098
Email: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

Cudworth Parkway

Contract No:

PSL24/2888

Client Ref:

4674

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS : NP : Non Plastic

*** : Liquid Limit and Plastic Limit Wet Sieved.**



Cudworth Parkway

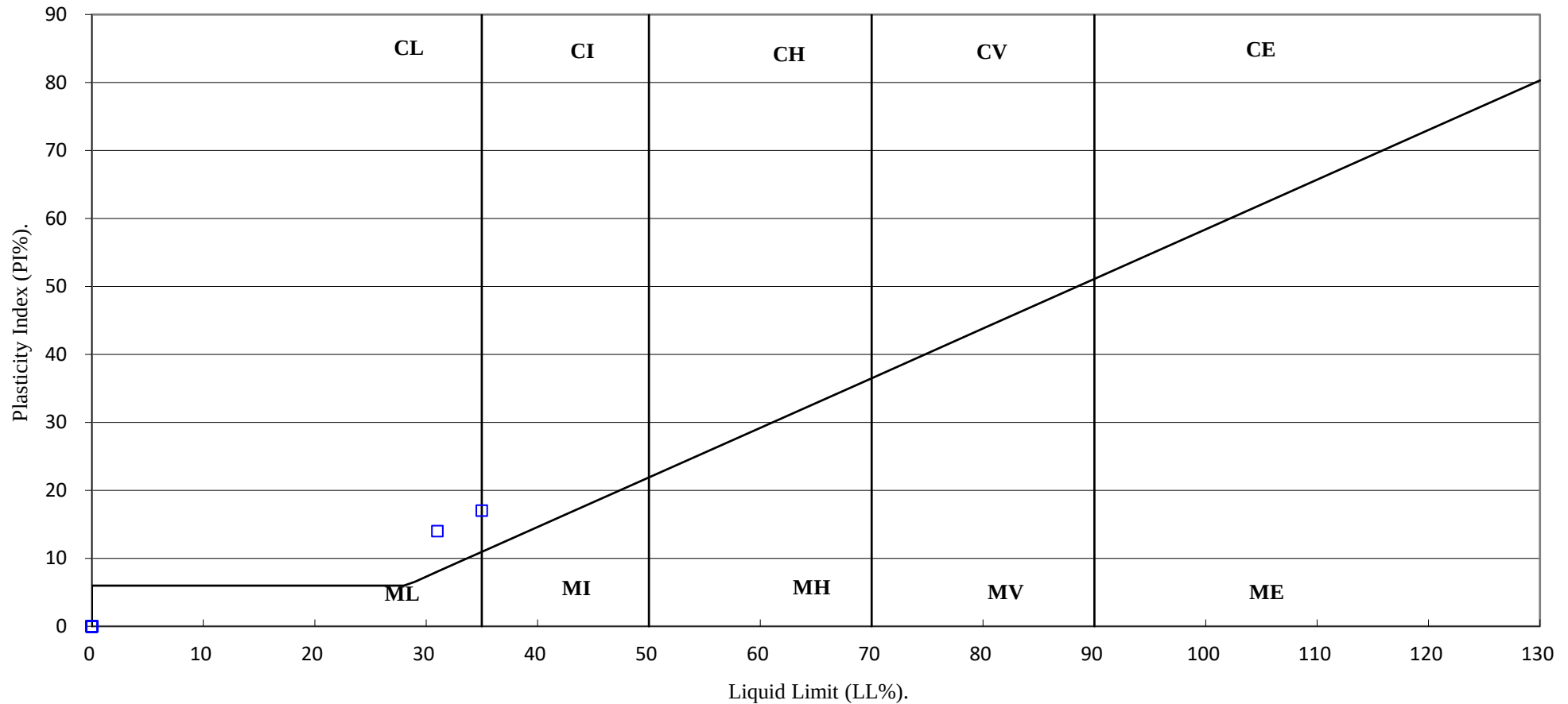
Contract No:

PSL24/2888

Client Ref:

4674

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



Cudworth Parkway

Contract No:

PSL24/2888

Client Ref:

4674

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

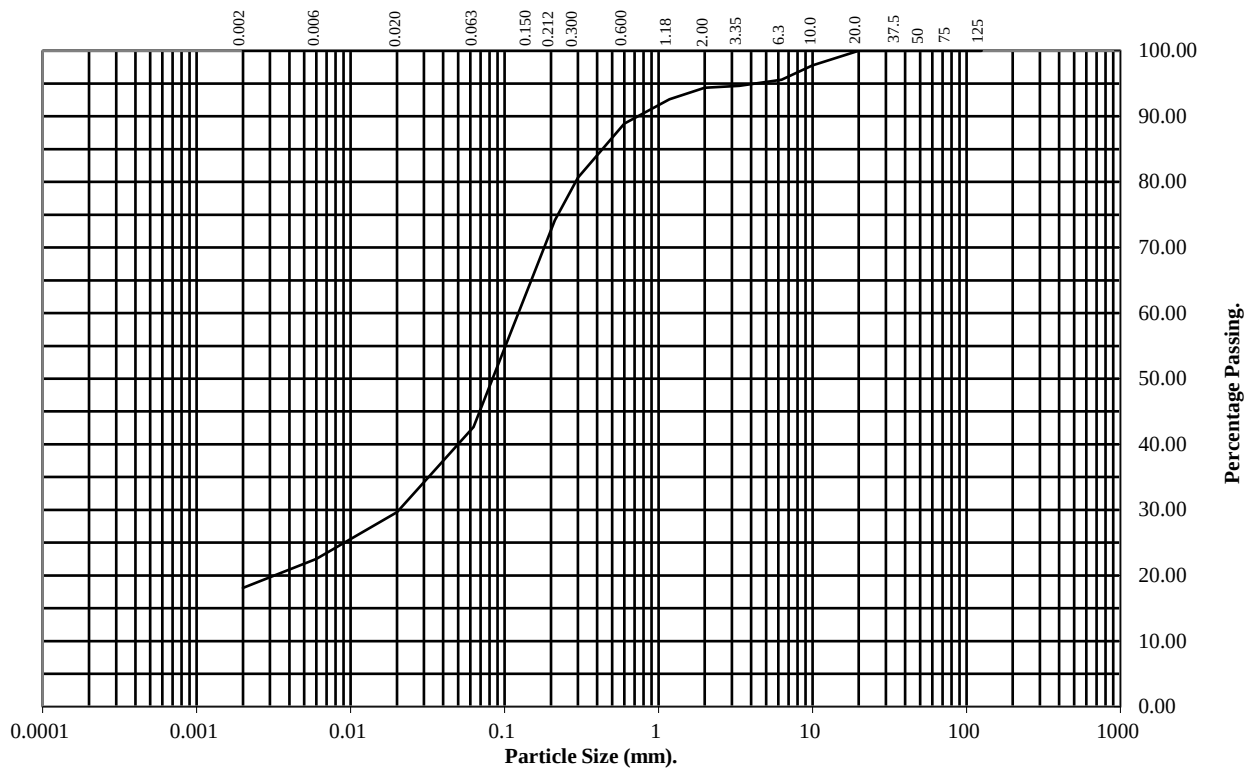
Hole Number: TP46

Top Depth (m): 1.00

Sample Number: 1

Base Depth(m):

Sample Type: D&B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
50	100
37.5	100
20	100
10	98
6.3	96
3.35	95
2	94
1.18	93
0.6	89
0.3	81
0.212	74
0.15	65
0.063	43

Particle Diameter	Percentage Passing
0.02	30
0.006	23
0.002	18

Soil Fraction	Total Percentage
Cobbles	0
Gravel	6
Sand	51
Silt	25
Clay	18

Remarks:

See Summary of Soil Descriptions



Cudworth Parkway

Contract No:
PSL24/2888
Client Ref:
4674

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.5 : 1990

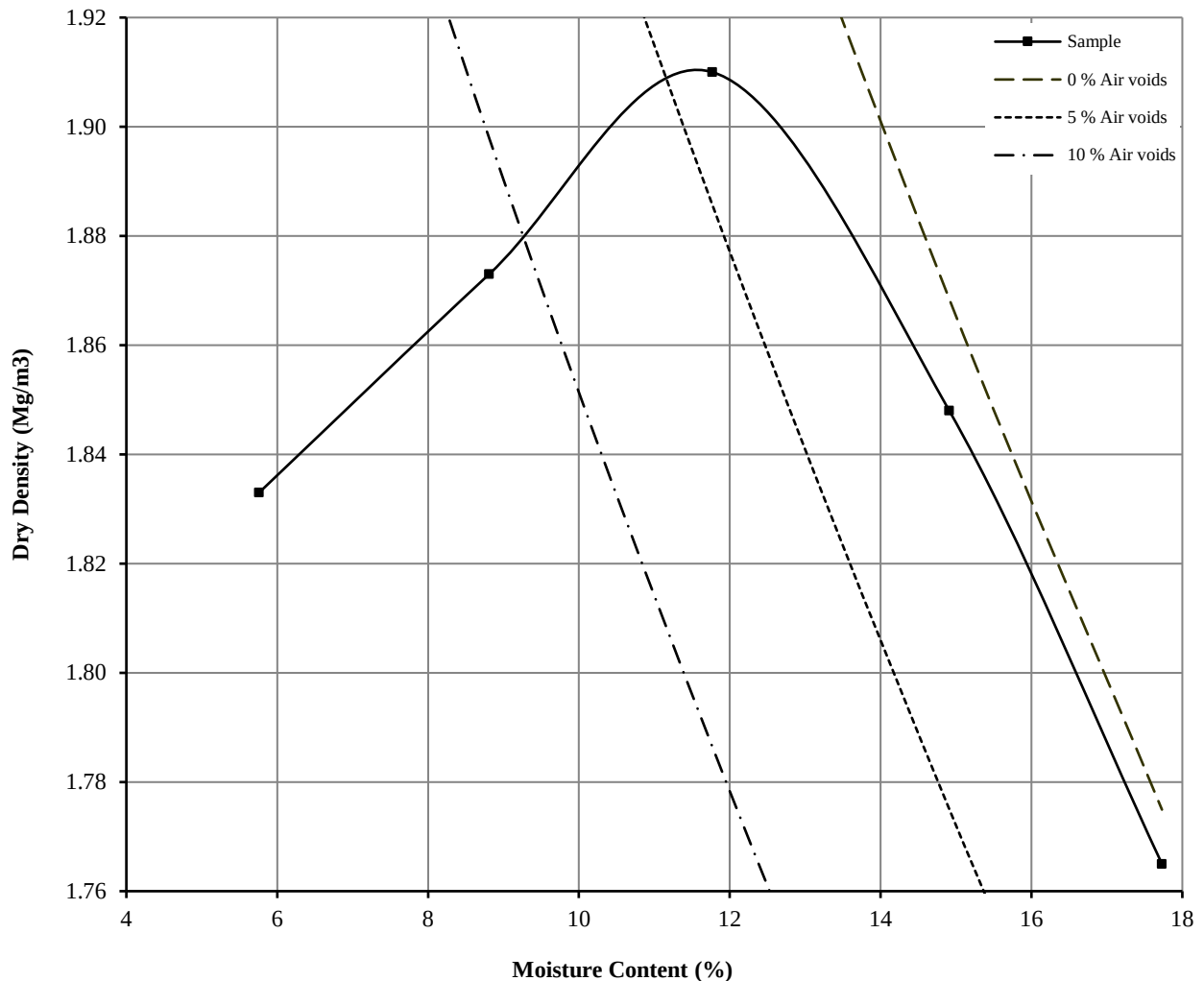
Hole Number: TP46

Top Depth (m) : 1.00

Sample Number: 1

Base Depth (m) :

Sample Type: D&B



Initial Moisture Content:	18	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.59	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.91		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Moisture Content (%):	12			
Remarks See summary of soil descriptions				



Cudworth Parkway

Contract
PSL24/2888
Client Ref
4674

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

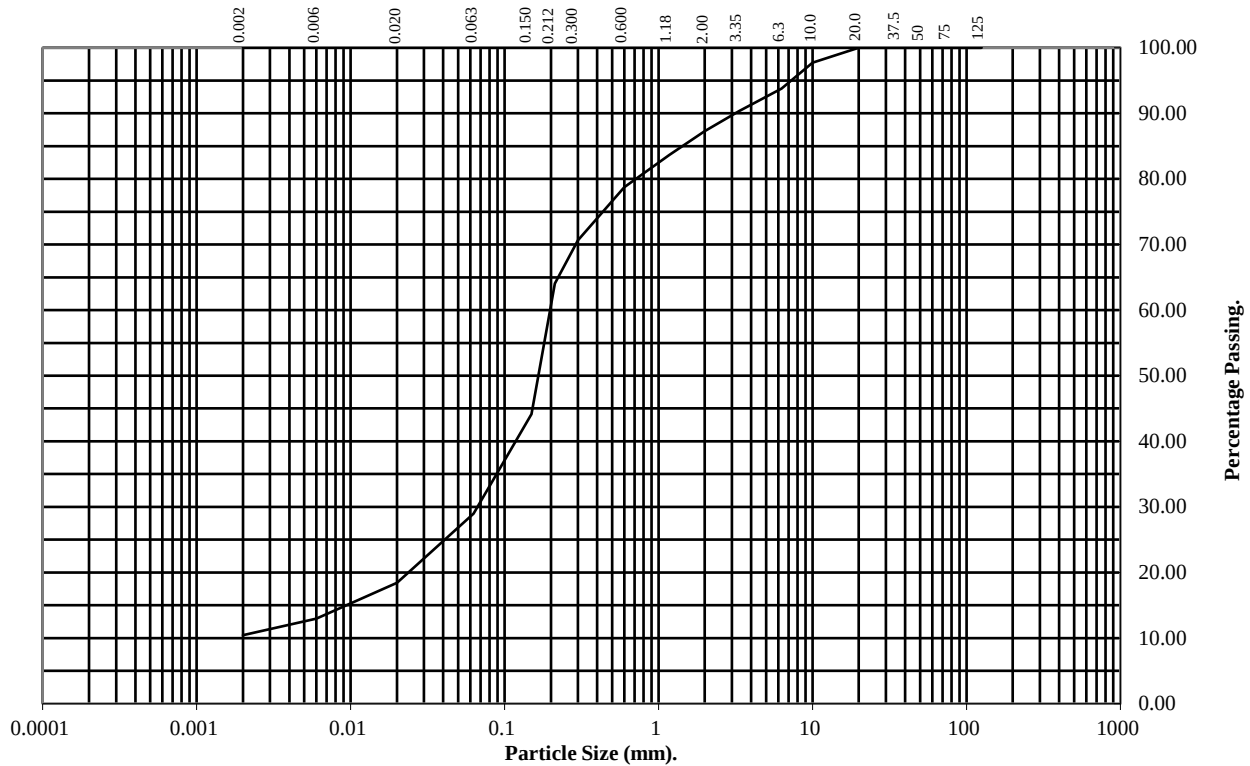
Hole Number: TP17

Top Depth (m): 1.30

Sample Number: 3

Base Depth(m):

Sample Type: D&B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
50	100
37.5	100
20	100
10	98
6.3	94
3.35	90
2	87
1.18	84
0.6	79
0.3	71
0.212	64
0.15	44
0.063	29

Particle Diameter	Percentage Passing
0.02	18
0.006	13
0.002	10

Soil Fraction	Total Percentage
Cobbles	0
Gravel	13
Sand	58
Silt	19
Clay	10

Remarks:

See Summary of Soil Descriptions



Cudworth Parkway

Contract No:

PSL24/2888

Client Ref:

4674

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.5 : 1990

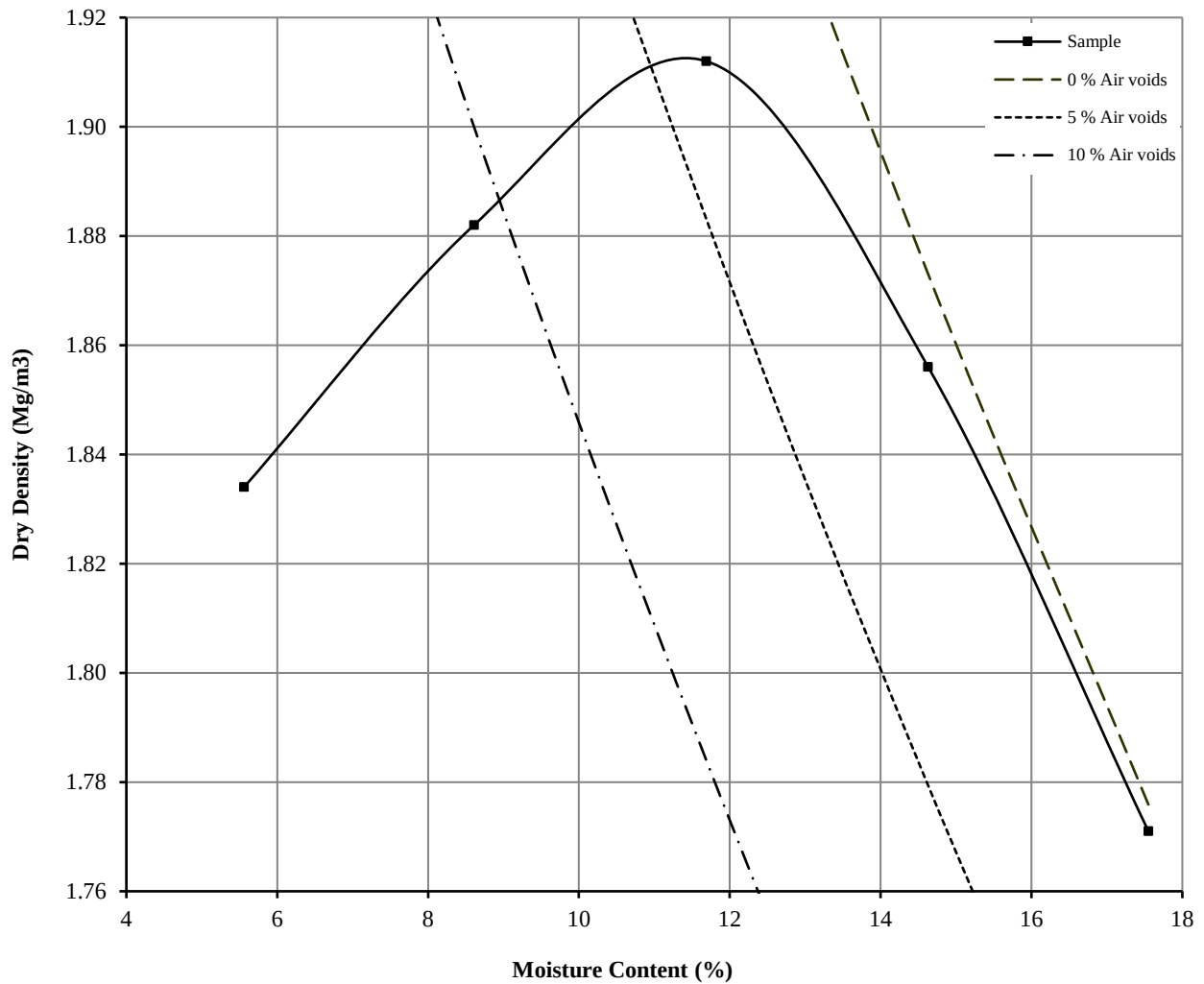
Hole Number: TP17

Top Depth (m) : 1.30

Sample Number: 3

Base Depth (m) :

Sample Type: D&B



Initial Moisture Content:	18	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.58	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.91		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Moisture Content (%):	12			
Remarks See summary of soil descriptions				



Cudworth Parkway

Contract
PSL24/2888
Client Ref
4674

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

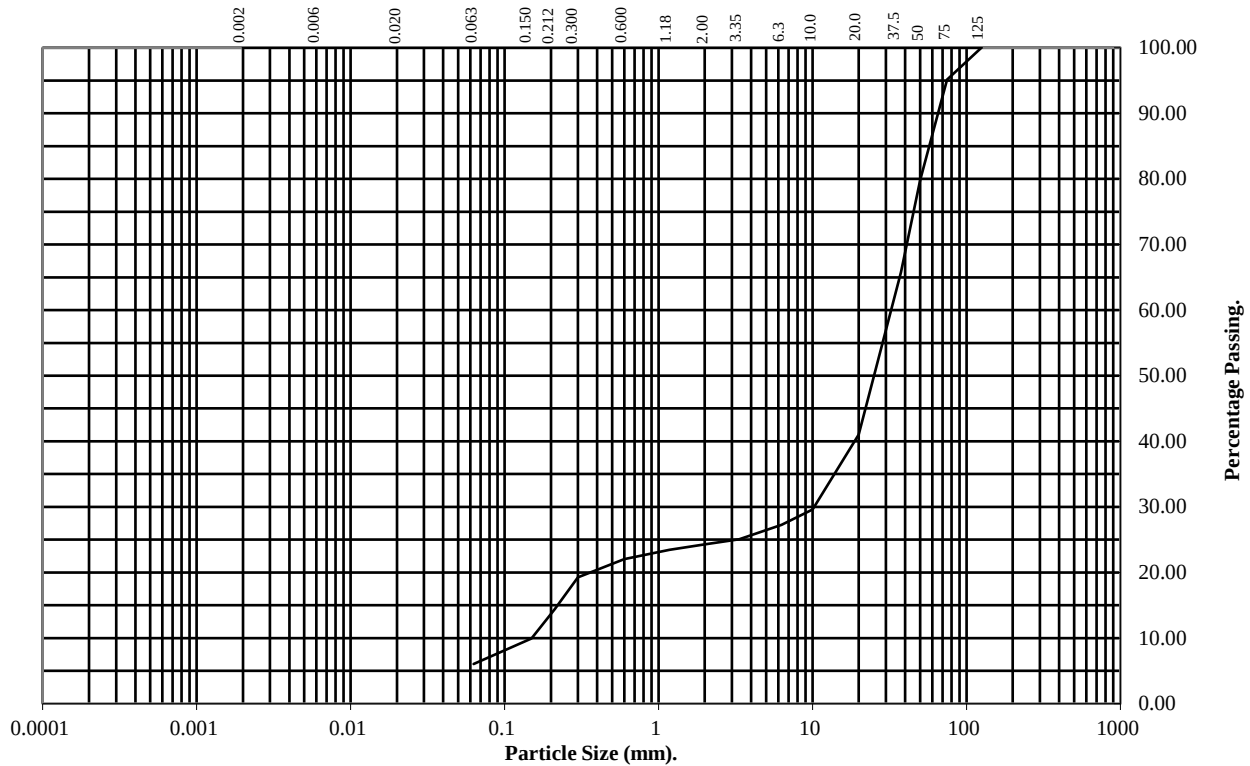
Hole Number: TP36

Top Depth (m): 1.40

Sample Number: 1

Base Depth(m):

Sample Type: D&B



BS Test Sieve (mm)	Percentage Passing
125	100
75	95
50	80
37.5	66
20	41
10	30
6.3	27
3.35	25
2	24
1.18	23
0.6	22
0.3	19
0.212	14
0.15	10
0.063	6

Soil Fraction	Total Percentage
Cobbles	20
Gravel	56
Sand	18
Silt/Clay	6

Remarks:

See Summary of Soil Descriptions



Cudworth Parkway

Contract No:
PSL24/2888
Client Ref:
4674

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.6 : 1990

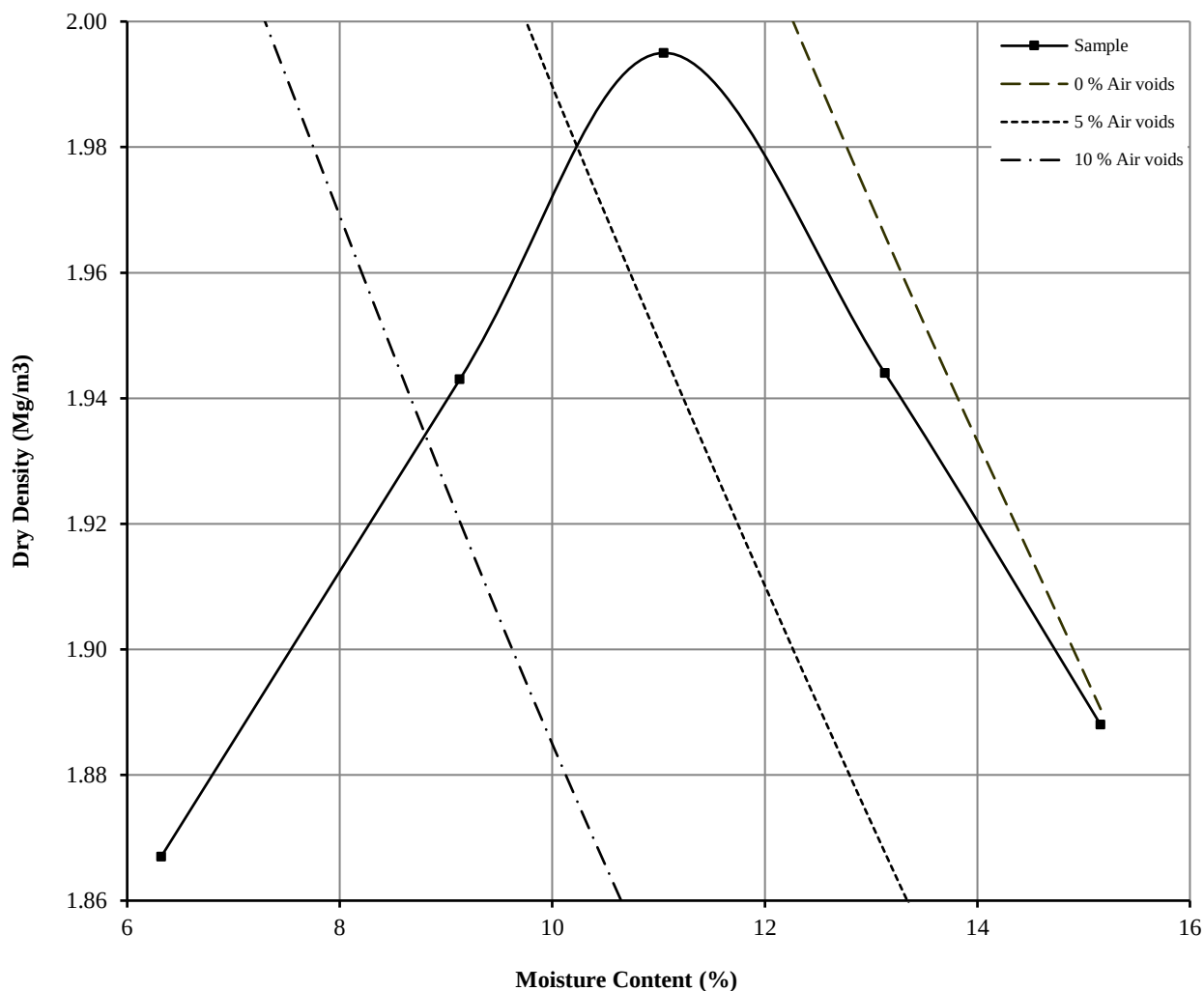
Hole Number: TP36

Top Depth (m) : 1.40

Sample Number: 1

Base Depth (m) :

Sample Type: D&B



Initial Moisture Content:	11	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.65	Measured	Material Retained on 37.5 mm Test Sieve (%):	34
Maximum Dry Density (Mg/m3):	2.00		Material Retained on 20.0 mm Test Sieve (%):	25
Optimum Moisture Content (%):	11			
Remarks See summary of soil descriptions				

 4043	 A PHENNA GROUP COMPANY	Cudworth Parkway	Contract
			PSL24/2888
			Client Ref
			4674



LABORATORY REPORT



Contract Number: PSL24/2886

Report Date: 13 May 2024
Client's Reference: 4674
Client Name: Lithos Consulting
Parkhill
Walton Road
Wetherby
North Yorkshire
LS22 5DZ

For the attention of: Lewis Whiteley/Alan Swales

Contract Title: Cudworth Parkway

Date Received: 24/4/2024
Date Commenced: 24/4/2024
Date Completed: 13/5/2024

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Managing Director)

R Berriman
(Associate Director)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager) (Senior Technical Coordinator)

S Eyre

T Watkins
(Senior Technician)

5 – 7 Hexthorpe Road,
Hexthorpe,
Doncaster,
DN4 0AR
Tel: 01302 768098
Email: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation Par / Perp	Dimensions (mm)		Area (mm ²)	D _c ²	D _e (mm)	Failure Load (P)		I _s (MPa)	Corr Fac F	I _{s50} (MPa)	Failure Type	Remarks
					W	D				(Mpa)	(kN)					
RC01	5.30		A	Perp	85	37	3145	4004.34	63.28	-	1.22	0.30	1.112	0.34	Valid	
RC01	7.05		A	Perp	86	56	4816	6131.92	78.31	-	6.04	0.99	1.224	1.21	Valid	
RC01	8.40		A	Perp	86	73	6278	7993.40	89.41	-	7.09	0.89	1.299	1.15	Valid	
RC01	9.90		A	Perp	86	46	3956	5036.94	70.97	-	3.70	0.73	1.171	0.86	Valid	
RC01	10.70		A	Perp	86	40	3440	4379.94	66.18	-	2.82	0.64	1.134	0.73	Valid	
RC01	11.30		A	Perp	86	58	4988	6350.92	79.69	-	6.14	0.97	1.233	1.19	Valid	
RC02	3.35		A	Perp	86	46	3956	5036.94	70.97	-	3.49	0.69	1.171	0.81	Valid	
RC02	4.80		A	Perp	85	56	4760	6060.62	77.85	-	2.39	0.39	1.220	0.48	Valid	
RC02	5.40		A	Perp	86	63	5418	6898.41	83.06	-	9.87	1.43	1.257	1.80	Valid	
RC02	6.70		A	Perp	86	43	3698	4708.44	68.62	-	8.21	1.74	1.153	2.01	Valid	
RC02	7.70		A	Perp	86	57	4902	6241.42	79.00	-	7.11	1.14	1.229	1.40	Valid	
RC02	8.20		A	Perp	86	50	4300	5474.93	73.99	-	6.07	1.11	1.193	1.32	Valid	
RC03	3.25		I	Perp	87	49	4263	5427.82	73.67	-	2.14	0.39	1.191	0.47	Valid	
RC03	5.70		A	Perp	85	50	4250	5411.27	73.56	-	0.49	0.09	1.190	0.11	Valid	
RC03	6.10		A	Perp	86	58	4988	6350.92	79.69	-	5.78	0.91	1.233	1.12	Valid	
RC03	7.40		A	Perp	86	55	4730	6022.42	77.60	-	2.80	0.46	1.219	0.57	Valid	
RC03	8.75		A	Perp	86	48	4128	5255.93	72.50	-	1.67	0.32	1.182	0.38	Valid	
RC03	9.00		A	Perp	86	55	4730	6022.42	77.60	-	4.37	0.73	1.219	0.88	Valid	

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

 	Cudworth Parkway	Contract No:
		PSL24/2886
		Client Ref:
		4674

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random



Cudworth Parkway

Contract No:

PSL24/2886

Client Ref:

4674

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number: RC01 **Top Depth (m):** 7.10
Sample Number: - **Base Depth (m):** -
Sample Type: UCS **Sample Date:** -
Storage Condition: Sealed in plastic **Date of Receipt** 24/04/2024
Sample Description: Mexborough Rock

Specimen Details/Conditions	
Diameter - mm:	86.53
Height - mm:	214.02
Water Content - %:	6.1
Sample Mass - g:	2897.8
Bulk Density - Mg/m ³ :	2.30
Dry Density - Mg/m ³ :	2.17
Height Ratio: * Sample does not comply with H:D ratio	2.5
Degree of Saturation - %:	53
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	09/05/2024
Test Duration - mins:	00:39
Orientation:	Unknown
Stress Rate - MPa/s:	0.76
Strain at Failure - kN:	173.30
Unconfined Compressive Strength - Mpa:	29.5
Mode of Failure:	Vertical Shear

Remarks: -

		Cudworth Parkway	Contract No:
			PSL24/2886
			Client Ref:
			4674

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number: RC01 **Top Depth (m):** 10.00
Sample Number: - **Base Depth (m):** -
Sample Type: UCS **Sample Date:** -
Storage Condition: Sealed in plastic **Date of Receipt** 24/04/2024
Sample Description: Mexborough Rock

Specimen Details/Conditions	
Diameter - mm:	86.61
Height - mm:	215.66
Water Content - %:	6.6
Sample Mass - g:	2942.9
Bulk Density - Mg/m ³ :	2.32
Dry Density - Mg/m ³ :	2.17
Height Ratio: * Sample does not comply with H:D ratio	2.5
Degree of Saturation - %:	57
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	09/05/2024
Test Duration - mins:	00:29
Orientation:	Unknown
Stress Rate - MPa/s:	0.80
Strain at Failure - kN:	136.10
Unconfined Compressive Strength - Mpa:	23.1
Mode of Failure:	Vertical Shear

Remarks: -

		Cudworth Parkway	Contract No:
			PSL24/2886
			Client Ref:
			4674

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number: RC02 **Top Depth (m):** 3.50
Sample Number: - **Base Depth (m):** -
Sample Type: UCS **Sample Date:** -
Storage Condition: Sealed in plastic **Date of Receipt** 24/04/2024
Sample Description: Mexborough Rock

Specimen Details/Conditions	
Diameter - mm:	86.65
Height - mm:	130.38
Water Content - %:	7.3
Sample Mass - g:	1835.8
Bulk Density - Mg/m ³ :	2.39
Dry Density - Mg/m ³ :	2.23
Height Ratio: * Sample does not comply with H:D ratio	1.5
Degree of Saturation - %:	70
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	09/05/2024
Test Duration - mins:	00:37
Orientation:	Unknown
Stress Rate - MPa/s:	0.78
Strain at Failure - kN:	170.80
Unconfined Compressive Strength - Mpa:	29
Mode of Failure:	Vertical Shear

Remarks: -



Cudworth Parkway

Contract No:
PSL24/2886
Client Ref:
4674

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number: RC02 **Top Depth (m):** 6.95
Sample Number: - **Base Depth (m):** -
Sample Type: UCS **Sample Date:** -
Storage Condition: Sealed in plastic **Date of Receipt** 24/04/2024
Sample Description: Mexborough Rock

Specimen Details/Conditions	
Diameter - mm:	86.53
Height - mm:	215.85
Water Content - %:	10.1
Sample Mass - g:	2983.2
Bulk Density - Mg/m ³ :	2.35
Dry Density - Mg/m ³ :	2.13
Height Ratio: * Sample does not comply with H:D ratio	2.5
Degree of Saturation - %:	82
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	09/05/2024
Test Duration - mins:	00:33
Orientation:	Unknown
Stress Rate - MPa/s:	0.77
Strain at Failure - kN:	148.90
Unconfined Compressive Strength - Mpa:	25.3
Mode of Failure:	Vertical Shear

Remarks: -



Cudworth Parkway

Contract No:
PSL24/2886
Client Ref:
4674

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number: RC03 **Top Depth (m):** 5.85

Sample Number: - **Base Depth (m):** -

Sample Type: UCS **Sample Date:** -

Storage Condition: Sealed in plastic **Date of Receipt** 24/04/2024

Sample Description: Mexborough Rock

Specimen Details/Conditions	
Diameter - mm:	86.25
Height - mm:	214.27
Water Content - %:	9.4
Sample Mass - g:	2951.7
Bulk Density - Mg/m ³ :	2.36
Dry Density - Mg/m ³ :	2.16
Height Ratio: * Sample does not comply with H:D ratio	2.5
Degree of Saturation - %:	79
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	09/05/2024
Test Duration - mins:	00:17
Orientation:	Unknown
Stress Rate - MPa/s:	0.78
Strain at Failure - kN:	77.80
Unconfined Compressive Strength - Mpa:	13.3
Mode of Failure:	Vertical Shear

Remarks: -



Cudworth Parkway

Contract No:
PSL24/2886
Client Ref:
4674

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number: RC03 **Top Depth (m):** 7.80
Sample Number: - **Base Depth (m):** -
Sample Type: UCS **Sample Date:** -
Storage Condition: Sealed in plastic **Date of Receipt** 24/04/2024
Sample Description: Mexborough Rock

Specimen Details/Conditions	
Diameter - mm:	86.78
Height - mm:	214.30
Water Content - %:	6.2
Sample Mass - g:	3071.9
Bulk Density - Mg/m ³ :	2.42
Dry Density - Mg/m ³ :	2.28
Height Ratio: * Sample does not comply with H:D ratio	2.5
Degree of Saturation - %:	66
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	09/05/2024
Test Duration - mins:	00:30
Orientation:	Unknown
Stress Rate - MPa/s:	0.76
Strain at Failure - kN:	135.00
Unconfined Compressive Strength - Mpa:	22.8
Mode of Failure:	Vertical Shear

Remarks: -



Cudworth Parkway

Contract No:
PSL24/2886
Client Ref:
4674

Appendix N
Gas Monitoring Results

Visit 1											
Job Title:										Job No:	
Cudworth Parkway, Barnsley										4674	
Client:										Sheet :	
Fenwood Estates Limited										1 of 2	
Date:		Arrival Time:		Depart Time:		Operator:					
03/05/2024		07:45		10:15		Erin Waddilove and Liam Barton					



Gas Monitoring Results:											
Ambient Concentration (% Volume):				CH ₄ :	ND	CO ₂ :	ND	O ₂ :	20.6		

Monitoring Point	Groundwater level	Concentrations					Gas Flow Rates			Bottom of well	Remarks
		Initial / Highest		Steady concentrations		Lowest concn	Initial / Maximum	Steady	Time to fall from highest to steady		
		CH ₄	CO ₂	CH ₄	CO ₂	O ₂					
		% v/v	(%)	% v/v	(%)	(%)					
	(m) bgl						litre/hr	litre/hr	secs	m	
PH01	ND	ND	2.3	ND	2.3	17.0	ND	ND	30.0	3.78	
PH02	3.55	ND	2.1	ND	2.1	17.5	ND	ND	30.0	3.56	
PH04	ND	ND	1.3	ND	1.3	17.1	ND	ND	30.0	2.42	
PH05	2.39	ND	2.3	ND	2.3	17.4	ND	ND	30.0	2.46	
PH07	ND	ND	7.2	ND	7.2	7.2	ND	ND	30.0	2.10	
PH12	ND	ND	7.7	ND	7.7	5.6	ND	ND	30.0	1.79	
PH14	ND	ND	5.3	ND	5.3	11.9	ND	ND	30.0	2.63	
WS01	ND	ND	3.3	ND	3.3	16.0	ND	ND	30.0	1.70	
WS02	ND	ND	4.2	ND	4.2	14.8	ND	ND	30.0	1.43	
WS04	ND	ND	2.3	ND	2.3	11.9	ND	ND	30.0	1.55	
WS05	ND	ND	2.2	ND	2.2	18.4	ND	ND	30.0	1.38	
WS06	ND	ND	1.6	ND	1.6	18.5	ND	ND	30.0	1.28	
WS07	ND	ND	1.0	ND	1.0	18.4	ND	ND	30.0	1.52	
WS08	ND	ND	4.9	ND	4.9	13.1	1.0	ND	180.0	1.92	
WS09	1.72	ND	2.2	ND	2.2	16.2	ND	ND	30.0	1.83	
WS10	ND	ND	1.5	ND	1.5	18.2	ND	ND	30.0	1.40	
WS11	1.24	ND	2.0	ND	2.0	17.4	0.1	ND	45.0	1.67	
WS12	ND	ND	2.2	ND	2.2	18.2	ND	ND	30.0	1.70	
WS13	1.48	ND	1.5	ND	1.5	17.3	ND	ND	30.0	1.70	
WS14	ND	ND	2.0	ND	2.0	18.5	ND	ND	30.0	0.87	
WS15	ND	ND	1.4	ND	1.4	18.2	ND	ND	30.0	1.56	

Equipment Used:						Next Calibration Date				Key				
Gas Data GFM436 Infrared Gas Analyser Geotechnical Instruments Dipmeter						27/03/2025				ND				None Detected
										NR				Not Recorded
										1.0				Recorded value does not breach trigger levels
										5.0				Recorded value breaches trigger level 1
10.0				Recorded value breaches trigger level 2										

	Site Data:			Weather Station Data (Brierley - Norwood Drive Station)							CH ₄	CO ₂	O ₂	
	Temp (°C):	9 to 12		Barometric Pressure Trend:										
				Steady										
Time:	07:45	09:00	10:15	01:03	05:47	07:48	08:59	10:15	12:15	Trigger level 1	1.0	5.0	16.0	
Pressure (mb):	995	993	992	995	995	995	995	995		Trigger level 2	5.0	10.0	10.0	
	Weather Conditions:			Heavy cloud, light winds, mild, dry										
	Surface Ground Conditions:			Dry										

Remarks:	Brierley - Norwood Drive weather station located approximately 3 miles east from the site (Cudworth Parkway).													
----------	---	--	--	--	--	--	--	--	--	--	--	--	--	--

Job Title:				Job No:	
Cudworth Parkway, Barnsley				4674	
Client:				Sheet :	
Fenwood Estates Limited				2 of 2	
Date:	Arrival Time:	Depart Time:	Operator:		
17/05/2024	08:30	11:00	Erin Waddilove		



Gas Monitoring Results:

Ambient Concentration (% Volume):	CH ₄ :	ND	CO ₂ :	ND	O ₂ :	20.1
-----------------------------------	-------------------	----	-------------------	----	------------------	------

Monitoring Point	Groundwater level	Concentrations					Gas Flow Rates			Bottom of well	Remarks
		Initial / Highest		Steady concentrations		Lowest concn	Initial / Maximum	Steady	Time to fall from highest to steady		
		CH ₄	CO ₂	CH ₄	CO ₂	O ₂	litre / hr	litre / hr	secs		
	(m) bgl	% v/v	(%)	% v/v	(%)	(%)				m	
PH01	ND	ND	2.3	ND	2.3	17.6	ND	ND	30.0	3.80	
PH02	3.56	ND	2.9	ND	2.9	16.2	ND	ND	30.0	3.58	
PH04	ND	ND	2.1	ND	2.1	16.7	ND	ND	30.0	2.40	
PH05	2.41	ND	3.3	ND	3.3	13.6	ND	ND	30.0	2.45	
PH07	ND	ND	4.9	ND	4.9	14.2	ND	ND	30.0	2.10	
PH12	ND	ND	9.2	ND	9.2	8.5	ND	ND	30.0	1.74	
PH14	ND	ND	6.2	ND	6.2	12.7	ND	ND	30.0	2.62	
WS01	ND	ND	1.4	ND	1.4	18.3	ND	ND	30.0	1.70	
WS02	ND	ND	5.6	ND	5.6	13.9	ND	ND	30.0	1.43	
WS04	ND	ND	4.2	ND	4.2	11.2	ND	ND	30.0	1.54	
WS05	ND	ND	2.2	ND	2.2	18.1	ND	ND	30.0	1.38	
WS06	ND	ND	3.1	ND	3.1	17.4	ND	ND	30.0	1.28	
WS07	ND	ND	3.3	ND	3.3	17.4	ND	ND	30.0	1.50	
WS08	ND	ND	6.1	ND	6.1	15.2	ND	ND	30.0	1.92	
WS09	1.80	ND	2.9	ND	2.9	15.5	ND	ND	30.0	1.83	
WS10	ND	ND	2.3	ND	2.3	17.0	ND	ND	30.0	1.42	
WS11	ND	ND	2.8	ND	2.8	16.9	ND	ND	30.0	1.52	
WS12	1.60	ND	0.4	ND	0.4	19.2	ND	ND	30.0	1.66	
WS13	1.66	ND	3.1	ND	3.1	14.8	ND	ND	30.0	1.70	
WS14	ND	ND	3.2	ND	3.2	17.1	ND	ND	30.0	0.74	
WS15	ND	ND	1.4	ND	1.4	18.0	ND	ND	30.0	1.55	

Equipment Used:

Gas Data GFM436 Infrared Gas Analyser
Geotechnical Instruments Dipmeter

Next Calibration Date

27/03/2025

Key

ND	None Detected
NR	Not Recorded
1.0	Recorded value does not breach trigger levels
5.0	Recorded value breaches trigger level 1
10.0	Recorded value breaches trigger level 2

	Site Data:			Weather Station Data (Brierley - Norwood Drive Station)					
	Temp (°C):	13 to 18		Barometric Pressure Trend:					
Time:	08:30	09:45	11:00	01:03	06:33	08:34	09:45	11:01	13:03
Pressure (mb):	998	997	996	995	997	999	999	1000	1000
Weather Conditions:		Dry, light breeze, mild, moderate cloud							
Surface Ground Conditions:		Damp							

Remarks:

Brierley - Norwood Drive weather station located approximately 3 miles east from the site (Cudworth Parkway).