APPENDIX 7

Pam Brown Associates
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Lancaster Park
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Borehole Log

Borehole No.
WS1
Sheet 1 of 1

Project Name: Dearne Valley Parkway	Project No. 2023-20	Co-ords: 630327.00 - 406320.00	Hole Type WS
Location: Dearne Valley, Barnsley		Level:	Scale 1:50
Client: Glanville		Dates: 07/07/2020 - 07/07/2020	Logged By GR

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10			Grass and rushes over firm, light grey, sandy slightly gravelly clay. Sand is fine. Gravel is fine to medium, subangular to subrounded of mudstone. Abundant roots and rootlets. [Made Ground]
		0.35 - 0.50	ES		0.35			Firm, yellowish grey and black, sandy slightly gravelly clay. Sand is fine. Gravel is fine to coarse, subangular to subrounded of mudstone, possible ironstone and rare coal. Abundant rootlets. [Made Ground]
		0.50 - 0.70	ES					Grey, clayey slightly sandy gravel. Sand is fine. Gravel is fine to coarse, subangular to subrounded of mudstone and sandstone. [Made Ground]
					2.10			Firm, friable, dark grey to black slightly sandy gravelly clay. Sand is fine to medium. Gravel is fine to coarse, subangular to subrounded of mudstone, coal, brick and rare ironstone. [Made Ground]
		2.50 - 2.80	ES					
					4.18			Black, slightly clayey gravelly sand. Sand is fine to medium. Gravel is fine to medium, subangular to subrounded of coal and mudstone. [Made Ground]
					4.35			Dark grey, slightly clayey gravelly sand. Sand is fine to medium. Gravel is fine to coarse, subangular to subrounded of mudstone, coal and brick. [Made Ground]
					5.00			Stiff, friable, dark grey to black, sandy gravelly clay. Sand is fine to medium. Gravel is fine to medium, subangular to subrounded of coal, brick and mudstone. [Made Ground]
					6.00			End of borehole at 6.00 m

1 2 3 4 5 6 7 8 9 10

Remarks
Terminated at 6.00m bgl. No groundwater encountered.

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Borehole Log

Borehole No.
WS2
Sheet 1 of 1

Project Name: Dearne Valley Parkway	Project No. 2023-20	Co-ords: 630359.00 - 406324.00	Hole Type WS
Location: Dearne Valley, Barnsley		Level:	Scale 1:50
Client: Glanville		Dates: 07/07/2020 - 07/07/2020	Logged By GR

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.30 - 0.50	ES		0.30			Soft, light greyish brown, sandy gravelly clay. Sand is fine to medium. Gravel is fine to coarse, subrounded of mudstone, sandstone and rare tarmac. Abundant rootlets. [Made Ground]
					0.75			Yellowish grey, clayey very gravelly sand. Sand is fine to medium. Gravel is fine to coarse, subangular to subrounded of mudstone, occasional coal and ironstone. Occasional rootlets. [Made Ground]
		1.10 - 1.30	ES		1.07			Firm, grey mottled yellow and orange, slightly sandy slightly gravelly clay. Sand is fine. Gravel is fine to medium, subangular to subrounded of coal, brick and sandstone. [Made Ground]
		1.30 - 1.50	ES					Grey with yellow and orange, slightly clayey very sandy gravel. Sand is fine to medium. Gravel is fine to coarse, subangular to subrounded of mudstone, sandstone, occasional ironstone and rare coal. [Made Ground]
					2.85			Greyish yellow, slightly clayey gravelly sand. Sand is fine. Gravel is fine to coarse, subangular to subrounded of mudstone and coal. [Made Ground] Black from 3.5m bgl. Very weak, friable, grey mudstone gravel between 3.4m and 3.5m bgl.
					3.70			End of borehole at 3.70 m

Remarks
Terminated at 3.70m bgl due to refusal. No groundwater encountered.

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Borehole Log

Borehole No.
WS3
Sheet 1 of 1

Project Name: Dearne Valley Parkway	Project No. 2023-20	Co-ords: 630360.00 - 406354.00	Hole Type WS
Location: Dearne Valley, Barnsley		Level:	Scale 1:50
Client: Glanville		Dates: 07/07/2020 - 07/07/2020	Logged By GR

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.50 - 0.70	ES					Firm, grey mottled orange and yellow slightly sandy gravelly clay. Sand is fine to medium. Gravel is fine to coarse, subangular to subrounded of mudstone, brick and sandstone. [Made Ground]
		0.70 - 1.00	ES					Rootlets between 0.0m and 0.2m bgl.
					1.25			Firm, light grey to dark grey slightly sandy gravelly clay. Sand is fine. Gravel is fine to coarse, subangular to subrounded of mudstone and sandstone. [Made Ground]
		1.70 - 2.00	ES					Occasional rootlets from 1.25m to 1.65m bgl.
					2.00			Light grey and yellow, clayey sandy gravel. Sand is fine to medium. Gravel is fine to coarse, subangular to subrounded of weak mudstone. [Made Ground]
					2.80			Firm, friable, grey slightly sandy gravelly clay. Sand is fine. Gravel is fine to coarse, subangular to subrounded of mudstone and occasional sandstone. [Made Ground]
					3.55			Light grey to grey, clayey sandy gravel. Sand is fine. Gravel is fine to coarse, subangular to subrounded of mudstone and occasional sandstone. [Made Ground]
	▼							Bands of gravelly clay between 4.3m - 4.5m bgl.
					5.00			Soft to firm, grey, slightly sandy gravelly clay. Sand is fine. Gravel is fine to medium, subangular to subrounded of mudstone. Wet. [Made Ground]
					5.47			Grey, clayey sandy gravel. Sand is fine. Gravel is fine to coarse, subangular to subrounded of mudstone. [Made Ground]
					6.00			End of borehole at 6.00 m

Remarks
Terminated at 6.00m bgl. Groundwater Strike at 5.1m bgl.

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Borehole Log

Borehole No. **BH1**

Sheet 1 of 3

Project Name: Dearne Valley Parkway	Project No. 2023-20	Co-ords: 630339.00 - 406294.00	Hole Type BH
Location: Dearne Valley, Barnsley		Level:	Scale 1:50
Client: Glanville		Dates: 08/07/2020 - 09/07/2020	Logged By SW

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.00 - 0.14	D		0.14			Grass and rushes over soft to firm, friable grey slightly silty slightly gravelly clay. Gravel is fine to coarse, subangular of mudstone, limestone and occasional fine coal. Frequent roots and rootlets. [Made Ground]
		0.14 - 0.32	D		0.32			Firm, friable brownish grey slightly silty clay. [Made Ground]
		0.14 - 0.32	ES		0.44			Firm, friable dark grey slightly sandy slightly gravelly clay. Sand is fine. Gravel is fine to coarse subangular to angular of mudstone, carbonaceous mudstone, and possible occasional coal. Occasional cobbles of subangular to angular mudstone [Made Ground]
		0.32 - 0.44	D					
		0.32 - 0.44	ES					
		0.44 - 0.60	B					
		0.44 - 0.60	D					
		0.60 - 1.00	ES					
		1.00		50 (25 for 95mm/50 for 105mm)				
		1.00 - 1.45	SPTL S		1.65			
		1.65 - 2.00	B		1.80			Firm, very friable light grey slightly silty slightly sandy gravelly clay. Sand is fine. Gravel is fine to coarse, subangular to angular of mudstone. Occasional cobbles of subangular to angular mudstone. Occasional boulders of mudstone. [Made Ground]. Sand component absent below 0.6m bgl.
		1.80		50 (25 for 85mm/50 for 125mm)				
		1.80 - 2.25	D		2.25			
		1.80 - 2.25	SPTL S					
		2.25 - 2.50	B					
		2.50 - 3.00	D					
		2.50 - 3.00	ES					
		3.20 - 3.50	D		3.20			Light grey slightly silty gravel. Gravel is fine to coarse, angular to subangular of mudstone. Frequent cobbles of angular to subangular mudstone [Made Ground]
		3.50		N=24 (4,4/4,5,6,9)	3.50			
		3.50 - 3.90	B					Light grey slightly sandy clayey gravel. Sand is fine. Gravel is fine to coarse, angular to subangular of mudstone and rare ironstone. [Made Ground]
		3.50 - 3.95	SPTL S					
		4.00 - 4.30	D					
		4.30		N=24 (3,4/4,7,6,7)				Stiff, friable dark grey/black gravelly clay. Gravel is fine to coarse, angular of carbonaceous mudstone and coal. Rare angular brick in upper 0.25m . [Made Ground]
		4.30 - 4.75	SPTL S					
		4.30 - 5.30	D					
		5.30		N=40 (5,7/7,10,11,12)	5.30			Stiff, friable grey slightly silty gravelly clay. Gravel is medium to coarse, subangular of ironstone, mudstone and occasional carbonaceous mudstone. Frequent cobbles of subangular mudstone and ironstone [Made Ground]
		5.30 - 5.75	SPTL S					
▼		5.30 - 6.30	B					Firm to stiff, friable dark grey/black slightly sandy slightly gravelly clay. Sand is fine, gravel is fine to medium, angular of mudstone, ironstone, carbonaceous mudstone and rare brick and coal. [Made Ground] Pocket of light grey gravelly fine sand from 3.9m to 4.0m. Gravel is fine to medium, angular of mudstone.
		5.30 - 6.30	D					
		7.00 - 7.50	D					Firm to stiff, dark grey slightly silty gravelly clay. Gravel is fine to coarse, angular to subrounded of mudstone, carbonaceous mudstone, coal and occasional ironstone. [Made Ground] Very stiff from 6.3m bgl.
		7.80		N=23 (4,4/4,4,6,9)				
		7.80 - 8.25	SPTL S					
		8.50 - 9.00	D					
		9.30		50 (4,5/50 for 20mm)	9.30			
		9.30 - 9.75	SPTL S					Very weak, light grey mottled dark grey MUDSTONE. Extremely closely bedded. Medium spaced subhorizontal (ca 5°) rough discontinuities. No

Continued on next sheet

Remarks

BH Terminated at 30.0m bgl. Hand Excavated Pit to 0.6m bgl (Ground Density).
Dynamic Sampling to 4.3m. Rotary Coring to 12.3m. Rotary open hole coring to 30.0m.
Groundwater strikes at 5.99m and 24.5m bgl.

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Borehole Log

Borehole No. **BH1**
Sheet 2 of 3

Project Name: Dearne Valley Parkway	Project No. 2023-20	Co-ords: -	Hole Type BH
Location: Dearne Valley, Barnsley		Level:	Scale 1:50
Client: Glanville		Dates: 08/07/2020 - 09/07/2020	Logged By SW

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								obvious partings. Possible bioturbation noted in upper 1m.
		10.55 - 10.75	C		10.50			Weak to medium strong, light grey MUDSTONE. No visible bedding. Very closely spaced subhorizontal (ca. 0-5°) and diagonal (ca. 45°) discontinuities from 10.8m.
					11.50			Medium strong light grey MUDSTONE. No visible bedding. Very closely spaced subhorizontal discontinuities. No obvious partings.
		12.03 - 12.30	C		12.30			Light grey MUDSTONE. Recovered as medium light grey angular gravel.

Continued on next sheet

Remarks
BH Terminated at 30.0m bgl. Hand Excavated Pit to 0.6m bgl (Ground Density).
Dynamic Sampling to 4.3m. Rotary Coring to 12.3m. Rotary open hole coring to 30.0m.
Groundwater strikes at 5.99m and 24.5m bgl.

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Borehole Log

Borehole No.
BH1
Sheet 3 of 3

Project Name: Dearne Valley Parkway	Project No. 2023-20	Co-ords: -	Hole Type BH
Location: Dearne Valley, Barnsley		Level:	Scale 1:50
Client: Glanville		Dates: 08/07/2020 - 09/07/2020	Logged By SW

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
	▼				30.00			End of borehole at 30.00 m

21 22 23 24 25 26 27 28 29 30

Remarks
BH Terminated at 30.0m bgl. Hand Excavated Pit to 0.6m bgl (Ground Density).
Dynamic Sampling to 4.3m. Rotary Coring to 12.3m. Rotary open hole coring to 30.0m.
Groundwater strikes at 5.99m and 24.5m bgl.

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Borehole Log

Borehole No. **BH2**

Sheet 1 of 3

Project Name: Dearne Valley Parkway	Project No. 2023-20	Co-ords: 630326.00 - 406331.00	Hole Type BH
Location: Dearne Valley, Barnsley		Level:	Scale 1:50
Client: Glanville		Dates: 09/07/2020 - 09/07/2020	Logged By SW

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.00 - 0.40	B					Grass and rushes over soft, friable grey slightly silty gravelly clay. Gravel is fine to coarse, angular to subangular of mudstone and occasional sandstone and carbonaceous mudstone. Frequent cobbles of angular to subangular mudstone. [Made Ground] Occasional boulders of mudstone.
		0.00 - 0.40	D					
		0.00 - 0.40	ES		0.40			
		0.40 - 0.52	B					
		0.40 - 0.52	D					
		0.40 - 0.52	ES					
		0.80 - 1.00	ES					
		1.00		N=17 (3,3/4,4,4,5)				
		1.00 - 1.45	B					Firm, friable grey/light grey slightly silty gravelly clay. Gravel is fine to coarse, angular to subangular of mudstone, carbonaceous mudstone, rare ironstone and coal. [Made Ground] Firm to stiff from 0.52m bgl.
		1.00 - 1.45	SPTL S		1.45			
		1.60 - 2.00	D		1.60			
		2.00		N=16 (1,2/3,3,4,6)				
		2.00 - 2.40	ES					
		2.00 - 2.45	SPTL S		2.40			Mudstone boulder recovered as coarse dark grey angular gravel and cobbles. [Made Ground]
		2.40 - 3.00	B					Soft, grey slightly silty slightly sandy gravelly clay. Sand is fine. Gravel is fine to coarse, angular of mudstone and carbonaceous mudstone. [Made Ground] Wet.
		3.00		N=23 (3,4/4,5,5,9)	3.00			
		3.00 - 3.20	D					
		3.00 - 3.45	SPTL S					
		3.20 - 4.00	B					Firm to stiff, friable grey slightly silty gravelly clay. Gravel is fine to coarse, angular to subangular of mudstone sandstone and rare ironstone. [Made Ground]
		4.00		N=19 (2,2/2,3,5,9)				Firm to stiff, friable grey slightly silty slightly sandy gravelly clay. Sand is fine. Gravel is fine to coarse, angular of mudstone, rare ironstone and carbonaceous mudstone. [Made Ground] Cobbly from 4.0m Cobbles are angular of mudstone.
		4.00 - 4.45	SPTL S					
		4.60 - 5.00	D		4.60			
		5.00 - 5.45	SPTL S					Firm, friable dark grey/black slightly silty gravelly clay. Gravel is fine to coarse, angular of mudstone, sandstone and coal. [Made Ground] Rare brick from 6.4m bgl.
	▼	5.00 - 6.00	B					
		6.00		N=16 (2,4/3,4,4,5)				
		6.00 - 6.20	D					
		6.00 - 6.45	SPTL S					
		6.20 - 7.00	B					
		7.00		N=16 (2,3/3,3,3,7)				
		7.00 - 7.45	SPTL S					
		7.20 - 7.60	B					
		7.60 - 7.80	D		7.60			
		7.80 - 8.60	B					Stiff, friable dark grey/black slightly silty slightly gravelly clay. Gravel is fine to coarse, angular to subrounded of mudstone, carbonaceous mudstone, rare ironstone, coal and brick.
		8.60		N=45 (2,5/11,13,11,10)	8.60			Stiff, friable dark grey/black slightly silty slightly sandy slightly gravelly clay. Sand is fine to medium. Gravel is fine to coarse, angular to rounded of mudstone, carbonaceous mudstone, rare ironstone, coal, brick. and quartzite. [Made Ground]
		8.60 - 9.05	SPTL S					
		8.80	D					
		8.80 - 10.10	B					

Continued on next sheet

Remarks

BH Terminated at 30.0m bgl. Hand Excavated Pit to 0.52m bgl (Ground Density).
Dynamic Sampling to 7.6m. Rotary Coring to 14.1.0m. Rotary open hole coring to 30.0m.
Groundwater strike at 5.4m bgl.

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Borehole Log

Borehole No. **BH2**
Sheet 2 of 3

Project Name: Dearne Valley Parkway	Project No. 2023-20	Co-ords: -	Hole Type BH
Location: Dearne Valley, Barnsley		Level:	Scale 1:50
Client: Glanville		Dates: 09/07/2020 - 09/07/2020	Logged By SW

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		10.10		N=0 (1,0/0,0,0,0)	10.10			Dark grey/black gravel. Gravel is coarse, angular to subangular of mudstone, sandstone and possible anthracite. Cobbles are angular to subangular of mudstone and possible anthracite. [Made Ground]
		10.10 - 10.30	D		10.30			
		10.30 - 10.50	D		10.50			
		10.50 - 11.00	D					
		11.10		50 (2,13/50 for 125mm)	11.10			Stiff, friable dark grey/black slightly silty slightly sandy slightly gravelly clay. Sand is fine to medium. Gravel is fine to coarse, angular to rounded of mudstone, carbonaceous mudstone, rare ironstone and coal. [Made Ground]
		11.10 - 11.55	SPTL S		11.50			
		12.03 - 12.23	C		12.20			Stiff, light grey slightly sandy gravelly clay. Gravel is fine to coarse, angular to subangular of mudstone and rare ironstone and coal. [Made Ground]
								Extremely weak light grey MUDSTONE. Recovered as coarse angular gravel between 11.1m - 11.2m and 11.4m-11.5m. [Destructured /completely weathered bedrock]
								Very weak light grey MUDSTONE. Extremely closely, horizontally bedded. Very closely spaced subhorizontal (0-5°) discontinuities. No obvious partings. Bedding absent 11.7-11.9m. Recovered as coarse, angular gravel of mudstone between 11.85m and 11.9m bgl. Diagonal (ca. 45°) discontinuity at 12.1m
		13.56 - 13.87	C		14.10			Medium strong light grey MUDSTONE. No obvious bedding. Very closely spaced diagonal (ca. 45°) discontinuities between 12.35m and 12.5m. No obvious partings. Occasional organic inclusions (horizontal veins of organic material) at 11.45m Very closely spaced subhorizontal discontinuities from 12.8m. Coarse angular gravel adjacent discontinuities at 12.8m and 13.05m bgl. Iron staining of discontinuities from 13.46m.
								Light grey MUDSTONE. Recovered as medium light grey angular gravel.

Continued on next sheet

Remarks
BH Terminated at 30.0m bgl. Hand Excavated Pit to 0.52m bgl (Ground Density).
Dynamic Sampling to 7.6m. Rotary Coring to 14.1.0m. Rotary open hole coring to 30.0m.
Groundwater strike at 5.4m bgl.

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Borehole Log

Borehole No.
BH2
Sheet 3 of 3

Project Name: Dearne Valley Parkway	Project No. 2023-20	Co-ords: -	Hole Type BH
Location: Dearne Valley, Barnsley		Level:	Scale 1:50
Client: Glanville		Dates: 09/07/2020 - 09/07/2020	Logged By SW

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					30.00			End of borehole at 30.00 m

21
22
23
24
25
26
27
28
29
30

Remarks
BH Terminated at 30.0m bgl. Hand Excavated Pit to 0.52m bgl (Ground Density).
Dynamic Sampling to 7.6m. Rotary Coring to 14.1.0m. Rotary open hole coring to 30.0m.
Groundwater strike at 5.4m bgl.

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Borehole Log

Borehole No. **BH3**

Sheet 1 of 3

Project Name: Dearne Valley Parkway	Project No. 2023-20	Co-ords: 630372.00 - 406340.00	Hole Type BH
Location: Dearne Valley, Barnsley		Level:	Scale 1:50
Client: Glanville		Dates: 10/07/2020 - 13/07/2020	Logged By SW

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.00 - 0.38	B					Grass and shrubs over firm, friable brownish grey slightly silty slightly sandy gravelly clay. Sand is fine to medium. Gravel is fine to coarse., angular to subangular of mudstone, carbonaceous mudstone, and rare coal and ironstone. Frequent cobbles of subangular mudstone and ironstone. [Made Ground]
		0.00 - 0.38	D					
		0.00 - 0.38	ES		0.38			
		0.38 - 0.83	B					
		0.38 - 0.83	D					
		0.38 - 0.83	ES					
		1.00		N=28 (14,6/7,6,7,8)	1.00			
		1.00 - 1.45	SPTLS					Firm, friable slightly silty slightly sandy gravelly clay. Sand is fine. Gravel is fine to coarse, subangular to angular of mudstone, rare carbonaceous mudstone, brick and concrete. Frequent cobbles of subangular to angular mudstone. [Made Ground]
		1.30 - 1.70	ES		1.30			
		1.70 - 2.00	D		1.70			
		2.00		N=22 (4,4/4,5,6,7)	2.00			Boulder of mudstone recovered as light grey subangular cobbles.
		2.00 - 2.45	SPTLS					Stiff, friable greyish brown slightly silty slightly sandy gravelly clay. Sand is fine. Gravel is fine to coarse, angular to subangular of mudstone, sandstone and rare coal. [Made Ground]
		2.00 - 2.50	D		2.50			
		2.50 - 3.00	ES					
		3.00		N=28 (1,5/6,7,7,8)	3.00			Stiff, friable light grey slightly silty gravelly clay. Gravel is fine to coarse, angular to subangular of mudstone. [Made Ground]
		3.00 - 3.45	SPTLS					Soft, grey slightly silty slightly sandy clay. Sand is fine [Made Ground] Wet
		3.00 - 4.00	D					
		4.00		N=26 (2,3/4,5,7,10)				Stiff, grey slightly silty gravelly clay. Gravel is fine to coarse, angular to subangular of mudstone.
		4.00 - 4.45	SPTLS					Stiff, friable, grey/light grey slightly silty gravelly clay. Gravel is fine to coarse, angular to subangular of mudstone, ironstone and rare carbonaceous mudstone. [Made Ground] Cobbly from 4.5m. Cobbles are subangular to angular of mudstone.
		4.00 - 5.00	B					
	▼	5.00		N=39 (2,5/9,8,8,14)	5.00			Rare coal, recovered as coarse, angular gravel from 4.5m.
		5.00 - 5.45	SPTLS					
		5.00 - 5.75	D					Grey, slightly clayey slightly silty gravel. Gravel is medium to coarse. Gravel is angular to subangular of mudstone and occasional carbonaceous mudstone. Occasional cobbles of angular to subangular mudstone. [Made Ground]
		5.75 - 6.30	D		5.75			
		6.50		N=37 (10,4/7,8,9,13)				Stiff, friable grey slightly silty gravelly clay. Gravel is fine to coarse, angular to subangular of mudstone. [Made Ground][Limited recovery.
		6.50 - 6.95	SPTLS					
					7.10			Very stiff, friable black slightly silty, gravelly clay. Gravel is fine to coarse, subangular to angular of coal, mudstone, carbonaceous mudstone, rare possible anthracite and rare brick. Frequent cobbles of subangular to angular mudstone. [Made Ground]
		7.70 - 8.00	B					
		8.00		N=34 (3,4/7,8,8,11)	8.00			Dark grey/black gravel. Gravel is coarse, subangular of mudstone and possible anthracite. Frequent cobbles of subangular mudstone and possible anthracite. [Made Ground]
		8.00 - 8.45	SPTLS		8.20			
		8.20 - 8.40	D					
		8.40 - 9.50	B					Dark grey/black slightly sandy gravelly clay. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded of mudstone, carbonaceous mudstone and occasional coal. Occasional cobbles of angular to subrounded mudstone. [Made Ground]
		9.50		50 (4,17/50 for 20mm)	9.50			Extremely weak grey/light grey MUDSTONE. Bedding not visible. Very closely to closely spaced horizontal to 20°
		9.50 - 9.95	SPTLS					
								Continued on next sheet

Remarks

BH Terminated at 30.0m bgl. Hand Excavated Pit to 0.83m bgl (Ground Density).
Dynamic Sampling to 3.0m. Rotary Coring to 9.5m. Rotary open hole coring to 30.0m.
Groundwater strike at 5.0m rising to 2.93m bgl.

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Borehole Log

Borehole No. **BH3**

Sheet 2 of 3

Project Name: Dearne Valley Parkway	Project No. 2023-20	Co-ords: -	Hole Type BH
Location: Dearne Valley, Barnsley		Level:	Scale 1:50
Client: Glanville		Dates: 10/07/2020 - 13/07/2020	Logged By SW

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		10.75 - 10.95	C		10.85			rough discontinuities. No visible partings. Very weak from 9.7m bgl. Rough, undulating subhorizontal discontinuity at 9.9m Weak from 10.4m bgl. Very closely spaced subhorizontal to diagonal (0-45°) discontinuities from 10.4m bgl.
		11.10 - 11.33	C					Medium strong grey/light grey MUDSTONE. No visible bedding. Very closely spaced rough subhorizontal to 20° discontinuities with no partings from 12.4m bgl. Sub-vertical fracture/discontinuity between 11.7m and 12.5m bgl.
					12.50			Light grey MUDSTONE. Recovered as medium light grey angular gravel.

Continued on next sheet

Remarks

BH Terminated at 30.0m bgl. Hand Excavated Pit to 0.83m bgl (Ground Density).
Dynamic Sampling to 3.0m. Rotary Coring to 9.5m. Rotary open hole coring to 30.0m.
Groundwater strike at 5.0m rising to 2.93m bgl.

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Borehole Log

Borehole No.
BH3
Sheet 3 of 3

Project Name: Dearne Valley Parkway	Project No. 2023-20	Co-ords: -	Hole Type BH
Location: Dearne Valley, Barnsley		Level:	Scale 1:50
Client: Glanville		Dates: 10/07/2020 - 13/07/2020	Logged By SW

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					30.00			End of borehole at 30.00 m

21
22
23
24
25
26
27
28
29
30

Remarks
BH Terminated at 30.0m bgl. Hand Excavated Pit to 0.83m bgl (Ground Density).
Dynamic Sampling to 3.0m. Rotary Coring to 9.5m. Rotary open hole coring to 30.0m.
Groundwater strike at 5.0m rising to 2.93m bgl.

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Borehole Log

Borehole No.
TP1
Sheet 1 of 1

Project Name: Dearne Valley Parkway	Project No. 2023-20	Co-ords: 630353.00 - 406364.00	Hole Type TP
Location: Dearne Valley, Barnsley		Level:	Scale 1:50
Client: Glanville		Dates: 09/07/2020 - 09/07/2020	Logged By SW

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.50 - 0.70	ES					Soft, friable grey slightly silty slightly sandy gravelly clay. Sand is fine. Gravel is fine to coarse, subangular to subrounded of mudstone, sandstone and brick. Frequent cobbles of subangular to subrounded mudstone. [Made Ground]
		0.70 - 1.00	ES					Rootlets between 0.0m and 0.7m bgl.
	▼							Boulder of concrete at 0.7m.
	▼				1.35			Rare plastic, glass and ceramic artefacts.
								Mudstone boulder at 0.8m bgl.
								Pocket of light yellow silty clayey very gravelly sand between 0.97m and 1.35m bgl. Sand is fine to medium. Gravel is fine to coarse, subangular to subrounded of brick, sandstone and rare tarmac.
		2.50 - 2.90	ES					Soft to firm, friable grey slightly silty, gravelly clay. Gravel is fine to coarse, subangular to subrounded of mudstone, ironstone, sandstone and occasional brick. Frequent cobbles of subangular to subrounded mudstone and ironstone. [Made Ground]
	▼				2.90			Occasional boulders of mudstone.
								Possible evidence of bioturbation in mudstone.
								End of borehole at 2.90 m

1 2 3 4 5 6 7 8 9 10

Remarks
Trial Pit ended at 2.9m. Groundwater seepage at 1.27m bgl. Groundwater Strike at 2.75 bgl. Slight hydrocarbon fluorescence on groundwater.

Soakaway testing carried out on completion.

APPENDIX 8

Dynamic Probe Test Results Sheet

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DE13 9PD

Site: **PLOT 7, DEARNE VALLEY PARKWAY** Date: 07-Jul-20

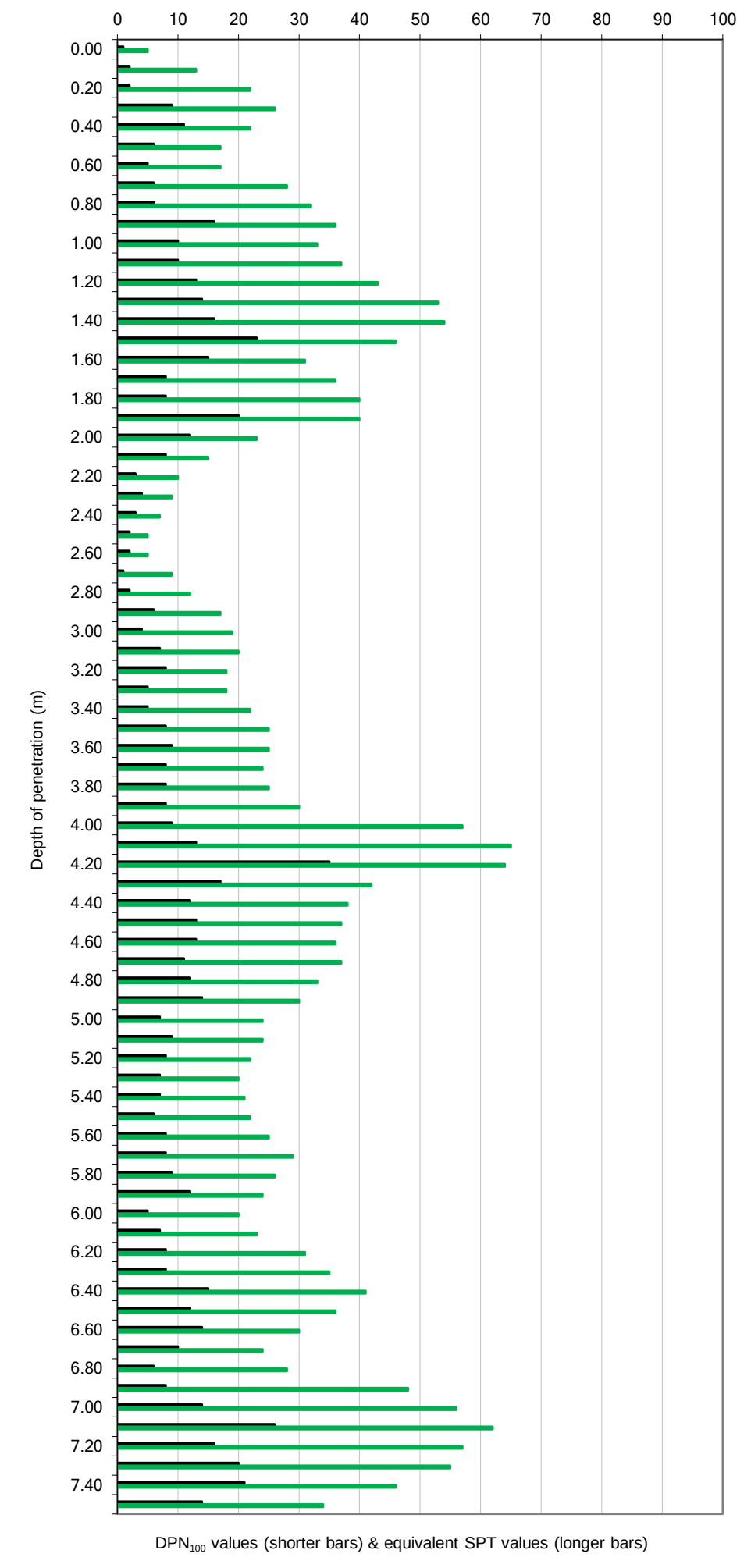
Job Number: **2023-20** Test Type: DPSH

Client: Glanville Group Final Depth: 8.30

Rig Type: Competitor 130 Sheet 1 of 2 DP No: **1**

Penetration Test Results			
Depth (m)	DPN_{100}	DPN_{300}	SPT N *
0.00	1	5	5
0.10	2	13	13
0.20	2	22	22
0.30	9	26	26
0.40	11	22	22
0.50	6	17	17
0.60	5	17	17
0.70	6	28	28
0.80	6	32	32
0.90	16	36	36
1.00	10	33	33
1.10	10	37	37
1.20	13	43	43
1.30	14	53	53
1.40	16	54	54
1.50	23	46	46
1.60	15	31	31
1.70	8	36	36
1.80	8	40	40
1.90	20	40	40
2.00	12	23	23
2.10	8	15	15
2.20	3	10	10
2.30	4	9	9
2.40	3	7	7
2.50	2	5	5
2.60	2	5	5
2.70	1	9	9
2.80	2	12	12
2.90	6	17	17
3.00	4	19	19
3.10	7	20	20
3.20	8	18	18
3.30	5	18	18
3.40	5	22	22
3.50	8	25	25
3.60	9	25	25
3.70	8	24	24
3.80	8	25	25
3.90	8	30	30
4.00	9	57	57
4.10	13	65	65
4.20	35	64	64
4.30	17	42	42
4.40	12	38	38
4.50	13	37	37
4.60	13	36	36
4.70	11	37	37
4.80	12	33	33
4.90	14	30	30
5.00	7	24	24
5.10	9	24	24
5.20	8	22	22
5.30	7	20	20
5.40	7	21	21
5.50	6	22	22
5.60	8	25	25
5.70	8	29	29
5.80	9	26	26
5.90	12	24	24
6.00	5	20	20
6.10	7	23	23
6.20	8	31	31
6.30	8	35	35
6.40	15	41	41
6.50	12	36	36
6.60	14	30	30
6.70	10	24	24
6.80	6	28	28
6.90	8	48	48
7.00	14	56	56
7.10	26	62	62
7.20	16	57	57
7.30	20	55	55
7.40	21	46	46
7.50	14	34	34

Hammer Mass: 63.5 kg Cone Dia: 50.5mm
Drop Height: 750 mm Test by: PM



General Remarks:
DPN_{100} = Dynamic penetration resistance for 100mm penetration.
DPN_{300} = Dynamic penetration resistance for 300mm penetration (ie: sum of 3 consecutive DPN_{100} values), starting at the depth given.
* Equivalent SPT N-values (for 300mm penetration) assumed to approximate the DPN_{300} values for dynamic probe "super-heavy" test (DPSH).
For dynamic probe "heavy" test (DPH), equivalent SPT N-values estimated using the theoretical relationship DPN_{300} = 1.5 SPT-N. [see Card,G.B., Roche,D.P. & Herbert,S.M., in Geol. Soc. Special Publication No 6, *Field Testing in Engineering Geology* (1990)]. SPT values are estimated and are for general guidance only.

Dynamic Probe Test Results Sheet

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DE13 9PD

Site: **PLOT 7, DEARNE VALLEY PARKWAY**

Date: 07-Jul-20

Job Number: **2023-20**

Test Type: DPSH

Client: **Glanville Group**

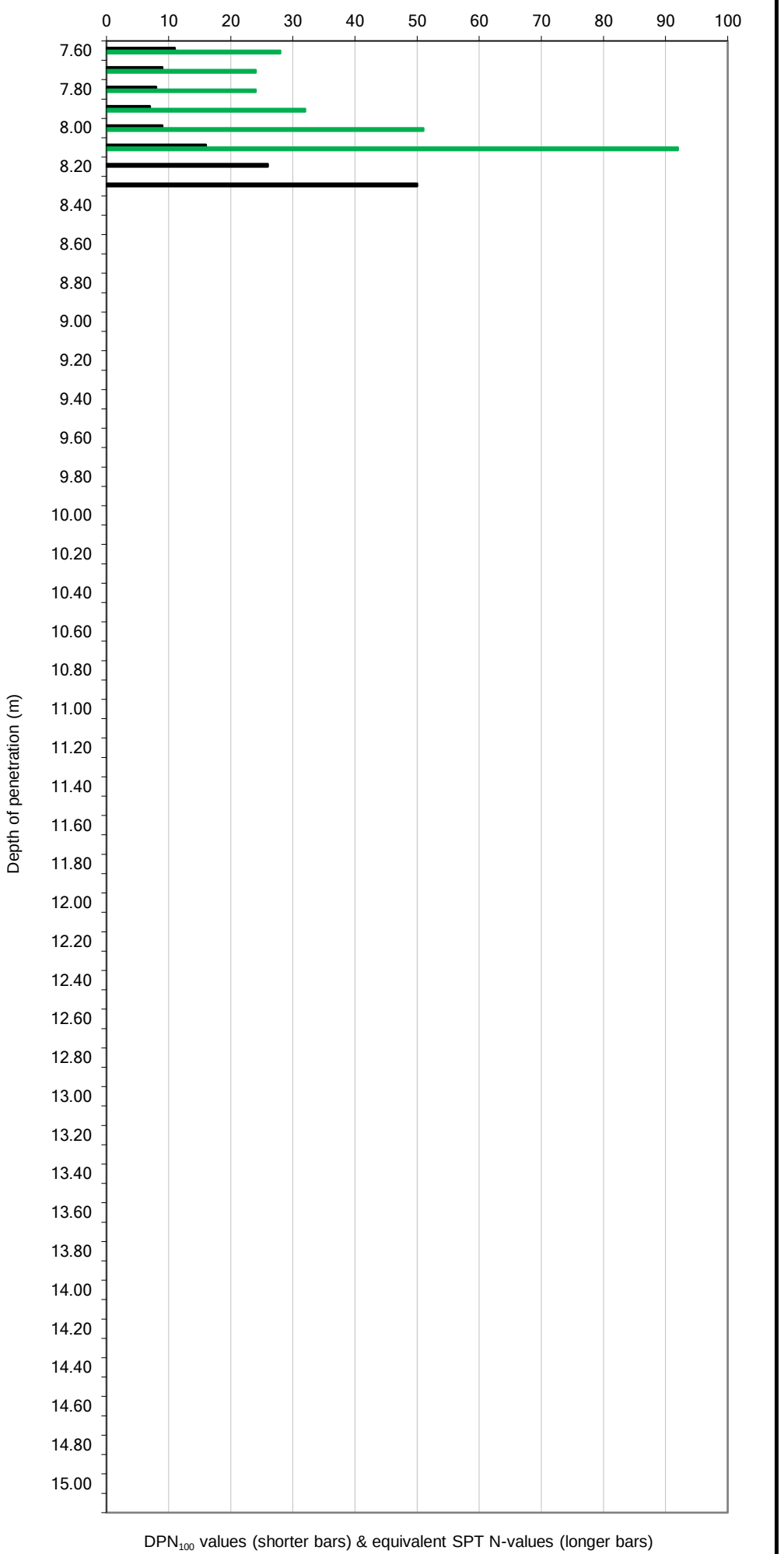
Final Depth: 8.30

Rig Type: Competitor 130

Sheet 2 of 2

DP No: **1**

Penetration Test Results			
Depth (m)	DPN_{100}	DPN_{300}	SPT N *
7.60	11	28	28
7.70	9	24	24
7.80	8	24	24
7.90	7	32	32
8.00	9	51	51
8.10	16	92	92
8.20	26		
8.30	50		
8.40			
8.50			
8.60			
8.70			
8.80			
8.90			
9.00			
9.10			
9.20			
9.30			
9.40			
9.50			
9.60			
9.70			
9.80			
9.90			
10.00			
10.10			
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12.80			
12.90			
13.00			
13.10			
13.20			
13.30			
13.40			
13.50			
13.60			
13.70			
13.80			
13.90			
14.00			
14.10			
14.20			
14.30			
14.40			
14.50			
14.60			
14.70			
14.80			
14.90			
15.00			



Hammer Mass: 63.5 kg Cone Dia: 50.5mm

Drop Height: 750 mm Test by: PM

General Remarks:

DPN_{100} = Dynamic penetration resistance for 100mm penetration.

DPN_{300} = Dynamic penetration resistance for 300mm penetration (ie: sum of 3 consecutive DPN_{100} values), starting at the depth given.

* Equivalent SPT N-values (for 300mm penetration) assumed to approximate the DPN_{300} values for dynamic probe "super-heavy" test (DPSH).

For dynamic probe "heavy" test (DPH), equivalent SPT N-values estimated using the theoretical relationship DPN_{300} = 1.5 SPT-N. [see Card,G.B., Roche,D.P. & Herbert,S.M., in Geol. Soc. Special Publication No 6, Field Testing in Engineering Geology (1990)]. SPT values are estimated and are for general guidance only.

Dynamic Probe Test Results Sheet

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Site: **PLOT 7, DEARNE VALLEY PARKWAY** Date: 07-Jul-20

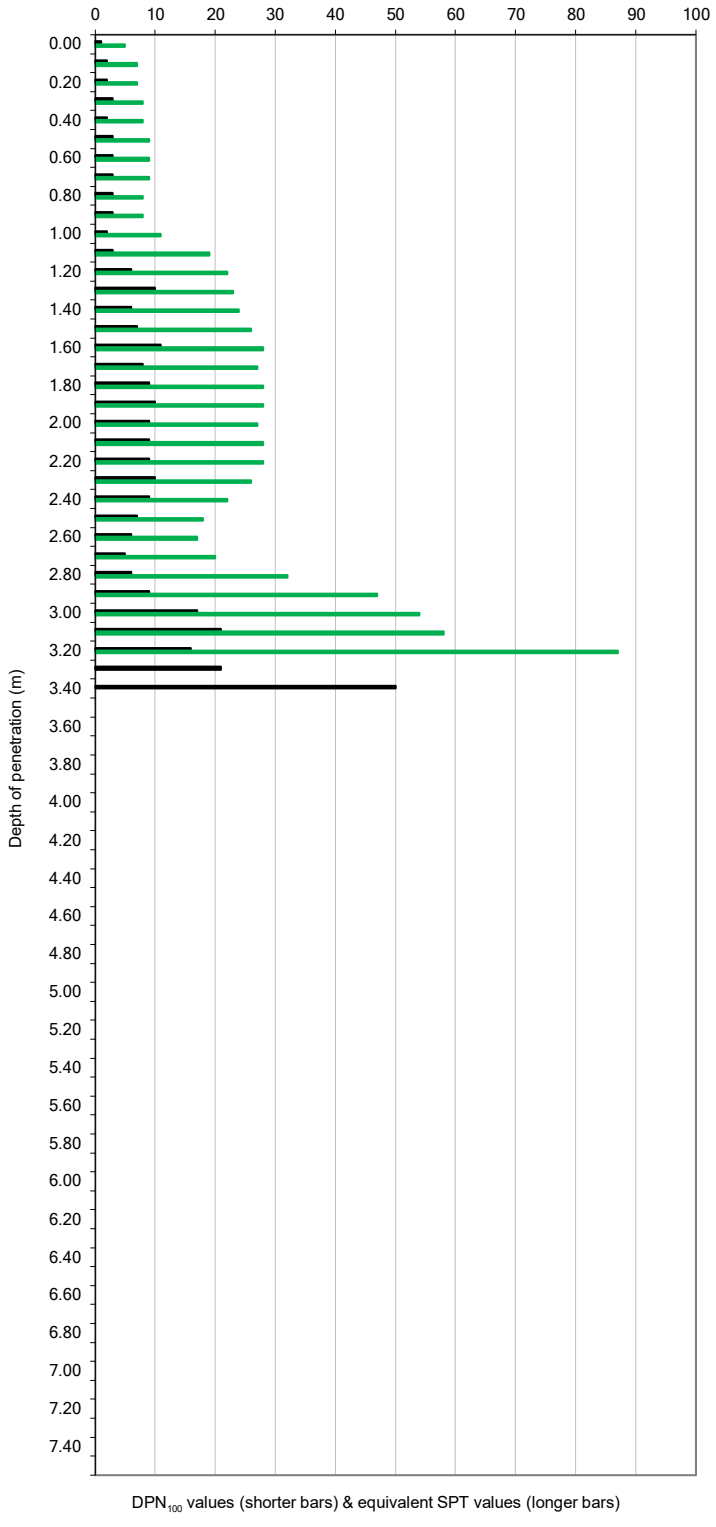
Job Number: **2023-20** Test Type: DPSH

Client: Glanville Group Final Depth: 3.40

Rig Type: Competitor 130 Sheet 1 of 1 DP No: **2**

Penetration Test Results

Depth (m)	DPN_{100}	DPN_{300}	SPT N *
0.00	1	5	5
0.10	2	7	7
0.20	2	7	7
0.30	3	8	8
0.40	2	8	8
0.50	3	9	9
0.60	3	9	9
0.70	3	9	9
0.80	3	8	8
0.90	3	8	8
1.00	2	11	11
1.10	3	19	19
1.20	6	22	22
1.30	10	23	23
1.40	6	24	24
1.50	7	26	26
1.60	11	28	28
1.70	8	27	27
1.80	9	28	28
1.90	10	28	28
2.00	9	27	27
2.10	9	28	28
2.20	9	28	28
2.30	10	26	26
2.40	9	22	22
2.50	7	18	18
2.60	6	17	17
2.70	5	20	20
2.80	6	32	32
2.90	9	47	47
3.00	17	54	54
3.10	21	58	58
3.20	16	87	87
3.30	21		
3.40	50		
3.50			
3.60			
3.70			
3.80			
3.90			
4.00			
4.10			
4.20			
4.30			
4.40			
4.50			
4.60			
4.70			
4.80			
4.90			
5.00			
5.10			
5.20			
5.30			
5.40			
5.50			
5.60			
5.70			
5.80			
5.90			
6.00			
6.10			
6.20			
6.30			
6.40			
6.50			
6.60			
6.70			
6.80			
6.90			
7.00			
7.10			
7.20			
7.30			
7.40			
7.50			



Hammer Mass: 63.5 kg Cone Dia: 50.5mm

Drop Height: 750 mm Test by: PM

General Remarks:

DPN_{100} = Dynamic penetration resistance for 100mm penetration.

DPN_{300} = Dynamic penetration resistance for 300mm penetration (ie: sum of 3 consecutive DPN_{100} values), starting at the depth given.

* Equivalent SPT N-values (for 300mm penetration) assumed to approximate the DPN_{300} values for dynamic probe "super-heavy" test (DPSH).

For dynamic probe "heavy" test (DPH), equivalent SPT N-values estimated using the theoretical relationship DPN_{300} = 1.5 SPT-N. [see Card,G.B., Roche,D.P. & Herbert,S.M., in Geol. Soc. Special Publication No 6, *Field Testing in Engineering Geology* (1990)]. SPT values are estimated and are for general guidance only.

Dynamic Probe Test Results Sheet

Pam Brown Associates
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Site: **PLOT 7, DEARNE VALLEY PARKWAY**

Date: 07-Jul-20

Job Number: **2023-20**

Test Type: DPSH

Client: Glanville Group

Final Depth: 9.90

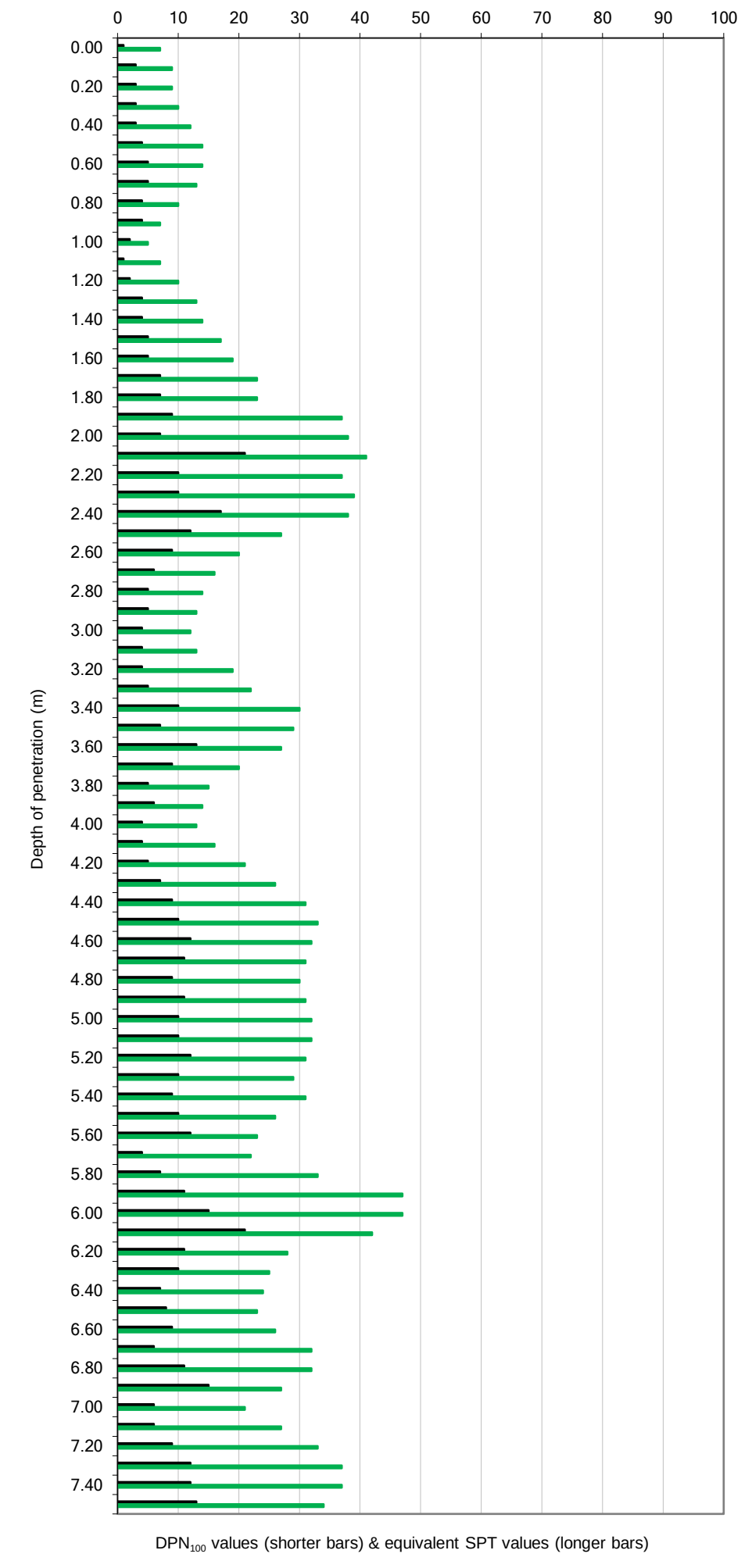
Rig Type: Competitor 130

Sheet 1 of 2

DP No: **3**

Penetration Test Results			
Depth (m)	DPN_{100}	DPN_{300}	SPT N *
0.00	1	7	7
0.10	3	9	9
0.20	3	9	9
0.30	3	10	10
0.40	3	12	12
0.50	4	14	14
0.60	5	14	14
0.70	5	13	13
0.80	4	10	10
0.90	4	7	7
1.00	2	5	5
1.10	1	7	7
1.20	2	10	10
1.30	4	13	13
1.40	4	14	14
1.50	5	17	17
1.60	5	19	19
1.70	7	23	23
1.80	7	23	23
1.90	9	37	37
2.00	7	38	38
2.10	21	41	41
2.20	10	37	37
2.30	10	39	39
2.40	17	38	38
2.50	12	27	27
2.60	9	20	20
2.70	6	16	16
2.80	5	14	14
2.90	5	13	13
3.00	4	12	12
3.10	4	13	13
3.20	4	19	19
3.30	5	22	22
3.40	10	30	30
3.50	7	29	29
3.60	13	27	27
3.70	9	20	20
3.80	5	15	15
3.90	6	14	14
4.00	4	13	13
4.10	4	16	16
4.20	5	21	21
4.30	7	26	26
4.40	9	31	31
4.50	10	33	33
4.60	12	32	32
4.70	11	31	31
4.80	9	30	30
4.90	11	31	31
5.00	10	32	32
5.10	10	32	32
5.20	12	31	31
5.30	10	29	29
5.40	9	31	31
5.50	10	26	26
5.60	12	23	23
5.70	4	22	22
5.80	7	33	33
5.90	11	47	47
6.00	15	47	47
6.10	21	42	42
6.20	11	28	28
6.30	10	25	25
6.40	7	24	24
6.50	8	23	23
6.60	9	26	26
6.70	6	32	32
6.80	11	32	32
6.90	15	27	27
7.00	6	21	21
7.10	6	27	27
7.20	9	33	33
7.30	12	37	37
7.40	12	37	37
7.50	13	34	34

Hammer Mass: 63.5 kg Cone Dia: 50.5mm
Drop Height: 750 mm Test by: PM



General Remarks:
DPN_{100} = Dynamic penetration resistance for 100mm penetration.
DPN_{300} = Dynamic penetration resistance for 300mm penetration (ie: sum of 3 consecutive DPN_{100} values), starting at the depth given.
* Equivalent SPT N-values (for 300mm penetration) assumed to approximate the DPN_{300} values for dynamic probe "super-heavy" test (DPSH).
For dynamic probe "heavy" test (DPH), equivalent SPT N-values estimated using the theoretical relationship DPN_{300} = 1.5 SPT-N. [see Card,G.B., Roche,D.P. & Herbert,S.M., in Geol. Soc. Special Publication No 6, *Field Testing in Engineering Geology* (1990)]. SPT values are estimated and are for general guidance only.

Dynamic Probe Test Results Sheet

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Site: **PLOT 7, DEARNE VALLEY PARKWAY**

Date: 07-Jul-20

Job Number: **2023-20**

Test Type: DPSH

Client: Glanville Group

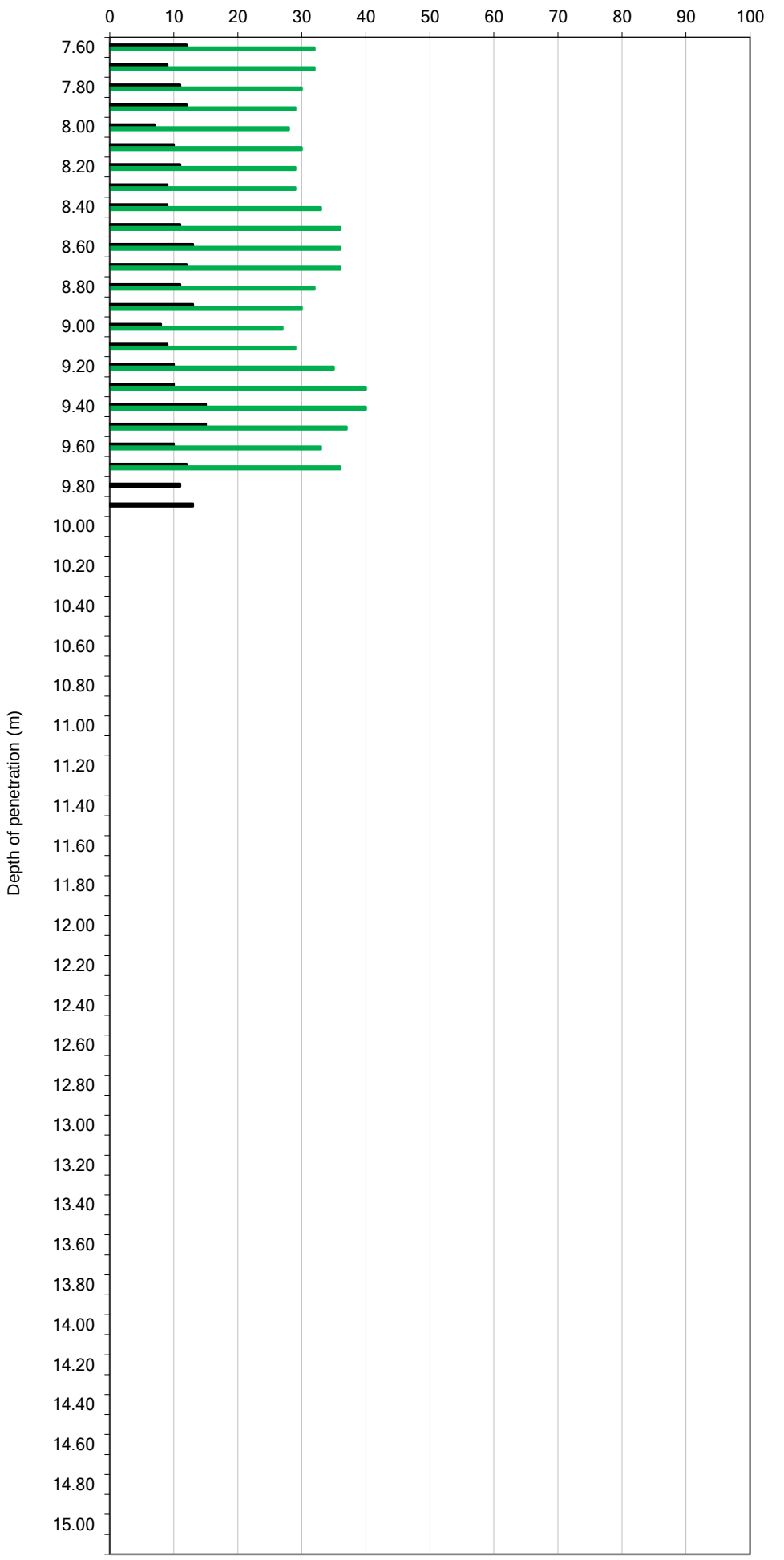
Final Depth: 9.90

Rig Type: Competitor 130

Sheet 2 of 2

DP No: **3**

Penetration Test Results			
Depth (m)	DPN_{100}	DPN_{300}	SPT N *
7.60	12	32	32
7.70	9	32	32
7.80	11	30	30
7.90	12	29	29
8.00	7	28	28
8.10	10	30	30
8.20	11	29	29
8.30	9	29	29
8.40	9	33	33
8.50	11	36	36
8.60	13	36	36
8.70	12	36	36
8.80	11	32	32
8.90	13	30	30
9.00	8	27	27
9.10	9	29	29
9.20	10	35	35
9.30	10	40	40
9.40	15	40	40
9.50	15	37	37
9.60	10	33	33
9.70	12	36	36
9.80	11		
9.90	13		
10.00			
10.10			
10.20			
10.30			
10.40			
10.50			
10.60			
10.70			
10.80			
10.90			
11.00			
11.10			
11.20			
11.30			
11.40			
11.50			
11.60			
11.70			
11.80			
11.90			
12.00			
12.10			
12.20			
12.30			
12.40			
12.50			
12.60			
12.70			
12.80			
12.90			
13.00			
13.10			
13.20			
13.30			
13.40			
13.50			
13.60			
13.70			
13.80			
13.90			
14.00			
14.10			
14.20			
14.30			
14.40			
14.50			
14.60			
14.70			
14.80			
14.90			
15.00			



Hammer Mass: 63.5 kg Cone Dia: 50.5mm

Drop Height: 750 mm Test by: PM

General Remarks:

DPN_{100} = Dynamic penetration resistance for 100mm penetration.

DPN_{300} = Dynamic penetration resistance for 300mm penetration (ie: sum of 3 consecutive DPN_{100} values), starting at the depth given.

* Equivalent SPT N-values (for 300mm penetration) assumed to approximate the DPN_{300} values for dynamic probe "super-heavy" test (DPSH).

For dynamic probe "heavy" test (DPH), equivalent SPT N-values estimated using the theoretical relationship DPN_{300} = 1.5 SPT-N. [see Card,G.B., Roche,D.P. & Herbert,S.M., in Geol. Soc. Special Publication No 6, Field Testing in Engineering Geology (1990)]. SPT values are estimated and are for general guidance only.

Dynamic Probe Test Results Sheet

Pam Brown Associates
2 Needwood House
Lancaster Park
Newborough Road
Needwood
Burton-on-Trent
DE13 9PD

Site: **PLOT 7, DEARNE VALLEY PARKWAY**

Date: 07-Jul-20

Job Number: **2023-20**

Test Type: DPSH

Client: Glanville Group

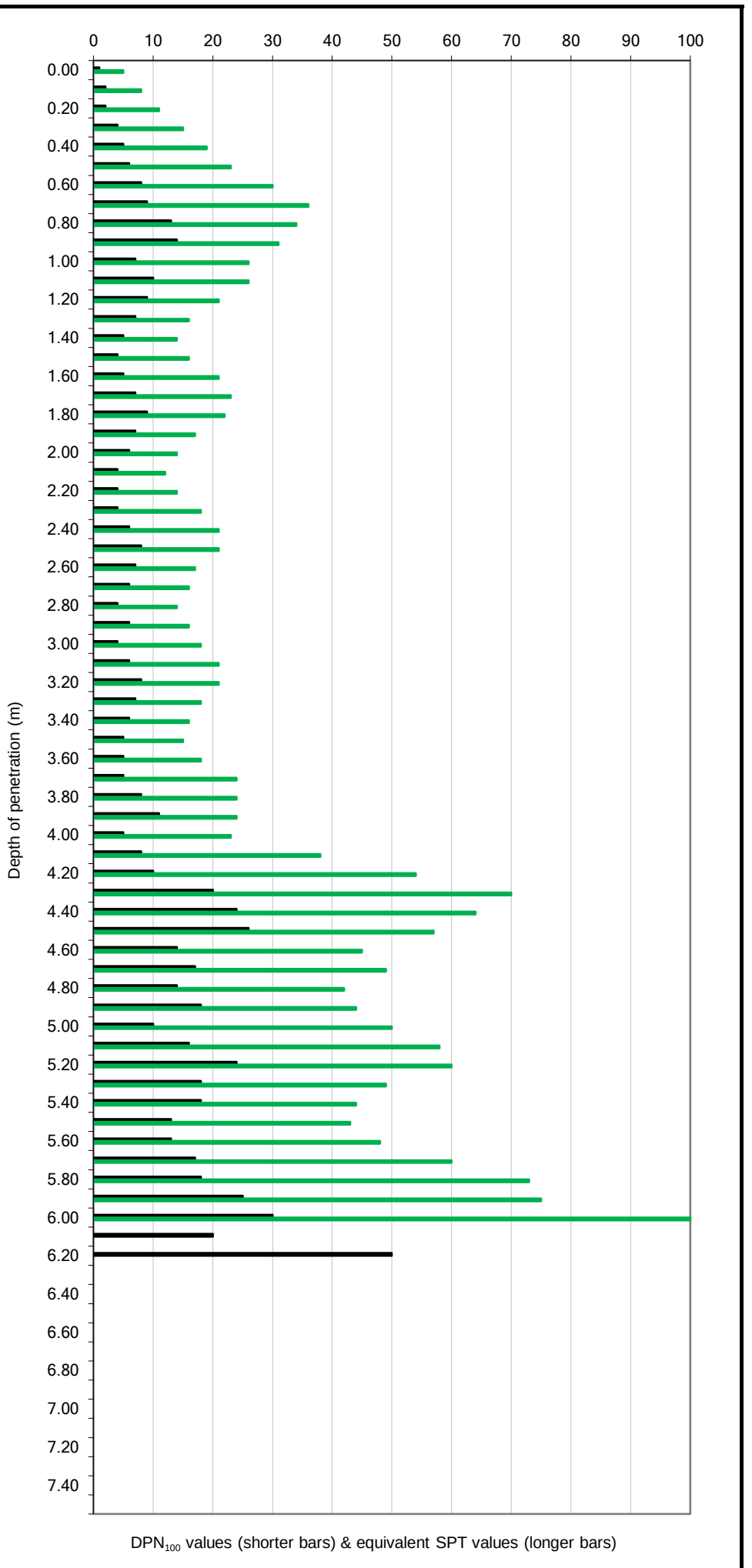
Final Depth: 6.20

Rig Type: Competitor 130

Sheet 1 of 1

DP No: **4**

Penetration Test Results			
Depth (m)	DPN_{100}	DPN_{300}	SPT N *
0.00	1	5	5
0.10	2	8	8
0.20	2	11	11
0.30	4	15	15
0.40	5	19	19
0.50	6	23	23
0.60	8	30	30
0.70	9	36	36
0.80	13	34	34
0.90	14	31	31
1.00	7	26	26
1.10	10	26	26
1.20	9	21	21
1.30	7	16	16
1.40	5	14	14
1.50	4	16	16
1.60	5	21	21
1.70	7	23	23
1.80	9	22	22
1.90	7	17	17
2.00	6	14	14
2.10	4	12	12
2.20	4	14	14
2.30	4	18	18
2.40	6	21	21
2.50	8	21	21
2.60	7	17	17
2.70	6	16	16
2.80	4	14	14
2.90	6	16	16
3.00	4	18	18
3.10	6	21	21
3.20	8	21	21
3.30	7	18	18
3.40	6	16	16
3.50	5	15	15
3.60	5	18	18
3.70	5	24	24
3.80	8	24	24
3.90	11	24	24
4.00	5	23	23
4.10	8	38	38
4.20	10	54	54
4.30	20	70	70
4.40	24	64	64
4.50	26	57	57
4.60	14	45	45
4.70	17	49	49
4.80	14	42	42
4.90	18	44	44
5.00	10	50	50
5.10	16	58	58
5.20	24	60	60
5.30	18	49	49
5.40	18	44	44
5.50	13	43	43
5.60	13	48	48
5.70	17	60	60
5.80	18	73	73
5.90	25	75	75
6.00	30	100	100
6.10	20		
6.20	50		
6.30			
6.40			
6.50			
6.60			
6.70			
6.80			
6.90			
7.00			
7.10			
7.20			
7.30			
7.40			
7.50			



Hammer Mass: 63.5 kg Cone Dia: 50.5mm

Drop Height: 750 mm Test by: PM

General Remarks:

DPN_{100} = Dynamic penetration resistance for 100mm penetration.

DPN_{300} = Dynamic penetration resistance for 300mm penetration (ie: sum of 3 consecutive DPN_{100} values), starting at the depth given.

* Equivalent SPT N-values (for 300mm penetration) assumed to approximate the DPN_{300} values for dynamic probe "super-heavy" test (DPSH).

For dynamic probe "heavy" test (DPH), equivalent SPT N-values estimated using the theoretical relationship DPN_{300} = 1.5 SPT-N. [see Card,G.B., Roche,D.P. & Herbert,S.M., in Geol. Soc. Special Publication No 6, *Field Testing in Engineering Geology* (1990)]. SPT values are estimated and are for general guidance only.

Dynamic Probe Test Results Sheet

Site: **PLOT 7, DEARNE VALLEY PARKWAY** Date: 07-Jul-20

Job Number: **2023-20** Test Type: DPSH

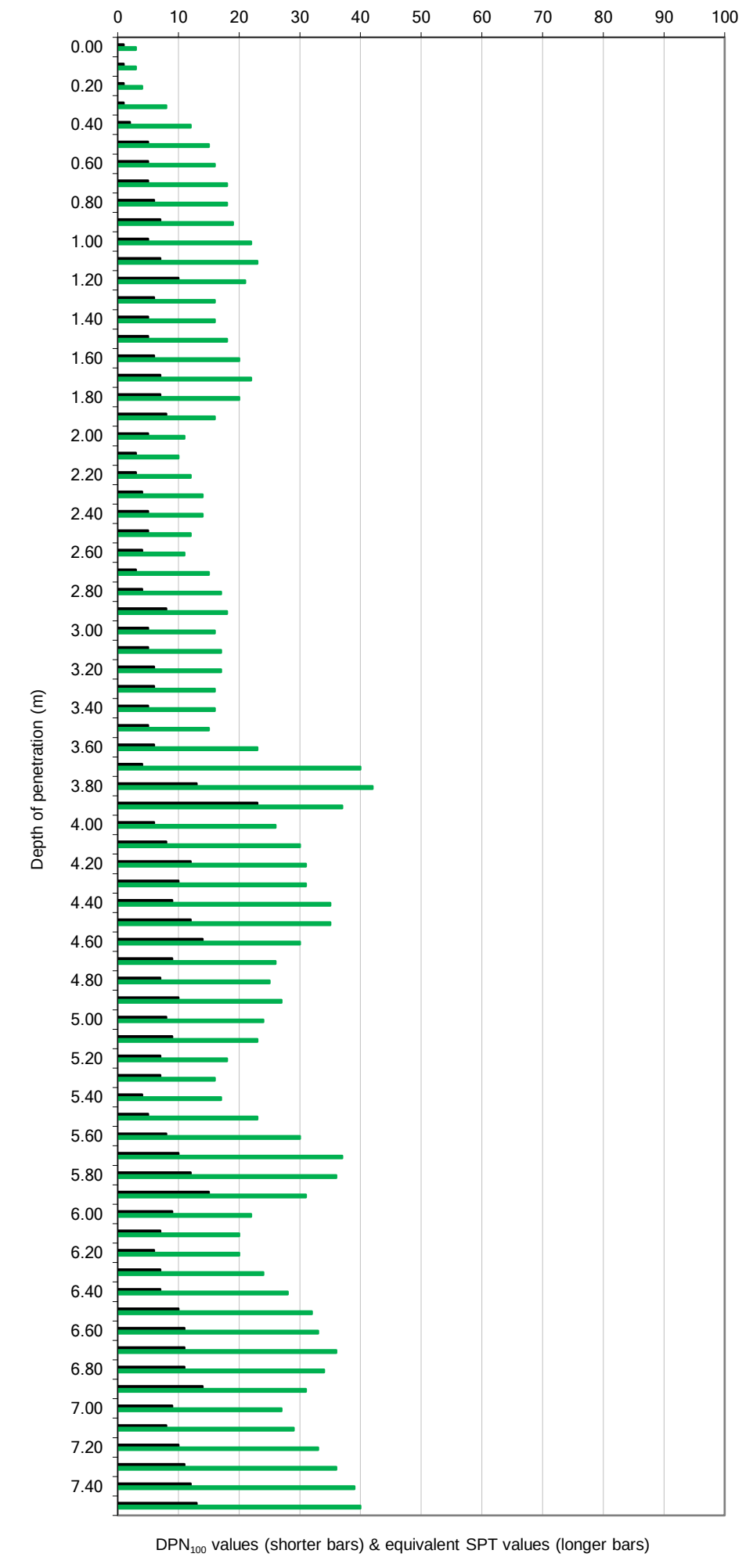
Client: Glanville Group Final Depth: 9.90

Rig Type: Competitor 130 Sheet 1 of 2 DP No: **5**

Penetration Test Results			
Depth (m)	DPN_{100}	DPN_{300}	SPT N *
0.00	1	3	3
0.10	1	3	3
0.20	1	4	4
0.30	1	8	8
0.40	2	12	12
0.50	5	15	15
0.60	5	16	16
0.70	5	18	18
0.80	6	18	18
0.90	7	19	19
1.00	5	22	22
1.10	7	23	23
1.20	10	21	21
1.30	6	16	16
1.40	5	16	16
1.50	5	18	18
1.60	6	20	20
1.70	7	22	22
1.80	7	20	20
1.90	8	16	16
2.00	5	11	11
2.10	3	10	10
2.20	3	12	12
2.30	4	14	14
2.40	5	14	14
2.50	5	12	12
2.60	4	11	11
2.70	3	15	15
2.80	4	17	17
2.90	8	18	18
3.00	5	16	16
3.10	5	17	17
3.20	6	17	17
3.30	6	16	16
3.40	5	16	16
3.50	5	15	15
3.60	6	23	23
3.70	4	40	40
3.80	13	42	42
3.90	23	37	37
4.00	6	26	26
4.10	8	30	30
4.20	12	31	31
4.30	10	31	31
4.40	9	35	35
4.50	12	35	35
4.60	14	30	30
4.70	9	26	26
4.80	7	25	25
4.90	10	27	27
5.00	8	24	24
5.10	9	23	23
5.20	7	18	18
5.30	7	16	16
5.40	4	17	17
5.50	5	23	23
5.60	8	30	30
5.70	10	37	37
5.80	12	36	36
5.90	15	31	31
6.00	9	22	22
6.10	7	20	20
6.20	6	20	20
6.30	7	24	24
6.40	7	28	28
6.50	10	32	32
6.60	11	33	33
6.70	11	36	36
6.80	11	34	34
6.90	14	31	31
7.00	9	27	27
7.10	8	29	29
7.20	10	33	33
7.30	11	36	36
7.40	12	39	39
7.50	13	40	40

Hammer Mass: 63.5 kg Cone Dia: 50.5mm

Drop Height: 750 mm Test by: PM



General Remarks:

DPN_{100} = Dynamic penetration resistance for 100mm penetration.

DPN_{300} = Dynamic penetration resistance for 300mm penetration (ie: sum of 3 consecutive DPN_{100} values), starting at the depth given.

* Equivalent SPT N-values (for 300mm penetration) assumed to approximate the DPN_{300} values for dynamic probe "super-heavy" test (DPSH).

For dynamic probe "heavy" test (DPH), equivalent SPT N-values estimated using the theoretical relationship DPN_{300} = 1.5 SPT-N. [see Card,G.B., Roche,D.P. & Herbert,S.M., in Geol. Soc. Special Publication No 6, *Field Testing in Engineering Geology* (1990)]. SPT values are estimated and are for general guidance only.

Dynamic Probe Test Results Sheet

Site: **PLOT 7, DEARNE VALLEY PARKWAY**

Job Number: **2023-20**

Client: Glanville Group

Rig Type: Competitor 130

Date: 07-Jul-20

Test Type: DPSH

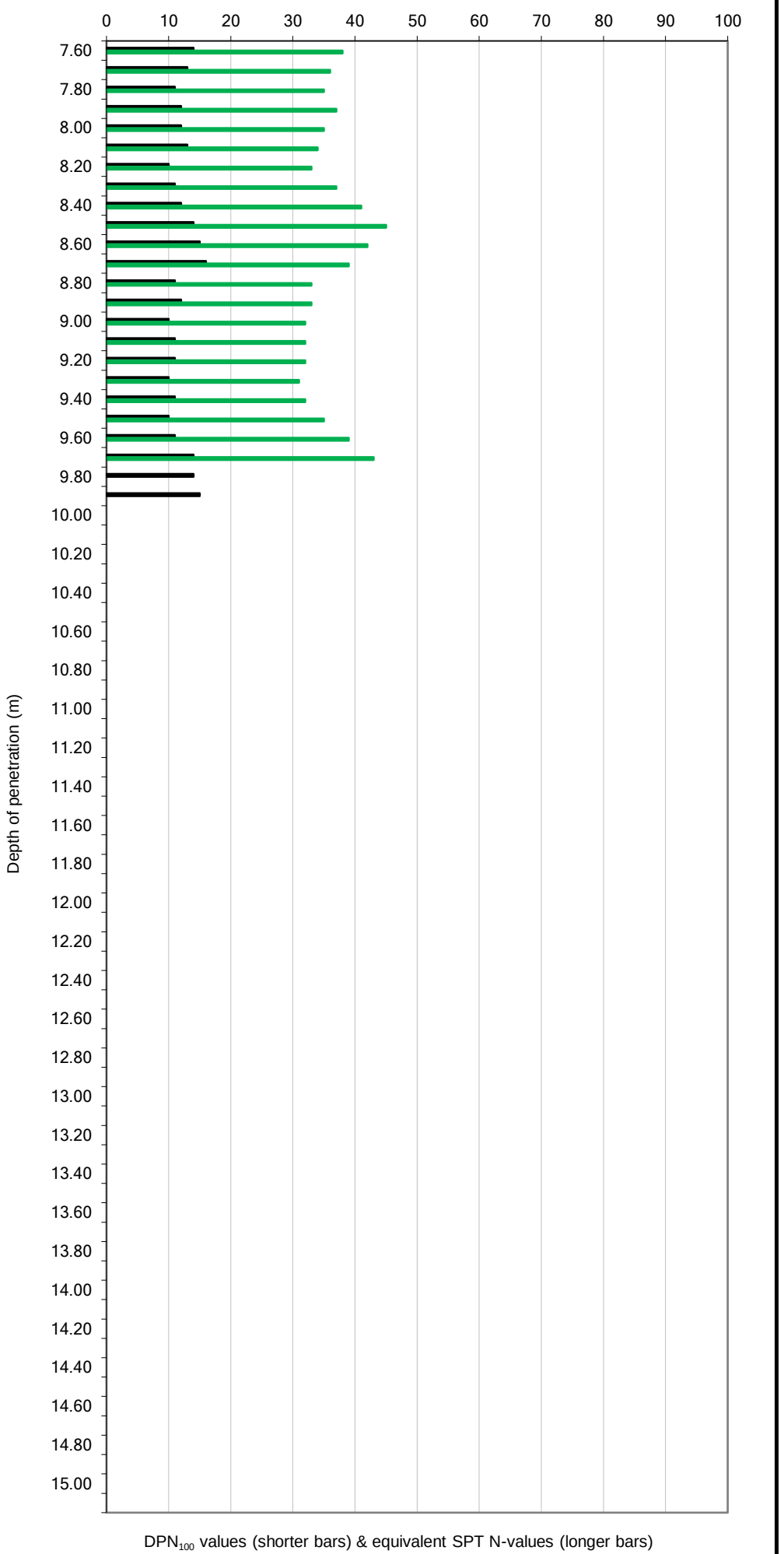
Final Depth: 9.90

Sheet 2 of 2

DP No: **5**

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Lancaster Park
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Needwood
Burton-on-Trent
DE13 9PD

Penetration Test Results			
Depth (m)	DPN_{100}	DPN_{300}	SPT N *
7.60	14	38	38
7.70	13	36	36
7.80	11	35	35
7.90	12	37	37
8.00	12	35	35
8.10	13	34	34
8.20	10	33	33
8.30	11	37	37
8.40	12	41	41
8.50	14	45	45
8.60	15	42	42
8.70	16	39	39
8.80	11	33	33
8.90	12	33	33
9.00	10	32	32
9.10	11	32	32
9.20	11	32	32
9.30	10	31	31
9.40	11	32	32
9.50	10	35	35
9.60	11	39	39
9.70	14	43	43
9.80	14		
9.90	15		
10.00			
10.10			
10.20			
10.30			
10.40			
10.50			
10.60			
10.70			
10.80			
10.90			
11.00			
11.10			
11.20			
11.30			
11.40			
11.50			
11.60			
11.70			
11.80			
11.90			
12.00			
12.10			
12.20			
12.30			
12.40			
12.50			
12.60			
12.70			
12.80			
12.90			
13.00			
13.10			
13.20			
13.30			
13.40			
13.50			
13.60			
13.70			
13.80			
13.90			
14.00			
14.10			
14.20			
14.30			
14.40			
14.50			
14.60			
14.70			
14.80			
14.90			
15.00			



Hammer Mass: 63.5 kg Cone Dia: 50.5mm

Drop Height: 750 mm Test by: PM

General Remarks:

DPN_{100} = Dynamic penetration resistance for 100mm penetration.

DPN_{300} = Dynamic penetration resistance for 300mm penetration (ie: sum of 3 consecutive DPN_{100} values), starting at the depth given.

* Equivalent SPT N-values (for 300mm penetration) assumed to approximate the DPN_{300} values for dynamic probe "super-heavy" test (DPSH).

For dynamic probe "heavy" test (DPH), equivalent SPT N-values estimated using the theoretical relationship DPN_{300} = 1.5 SPT-N. [see Card,G.B., Roche,D.P. & Herbert,S.M., in Geol. Soc. Special Publication No 6, Field Testing in Engineering Geology (1990)]. SPT values are estimated and are for general guidance only.

Dynamic Probe Test Results Sheet

Pam Brown Associates
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Needwood
Burton-on-Trent
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Site: **PLOT 7, DEARNE VALLEY PARKWAY**

Date: 07-Jul-20

Job Number: **2023-20**

Test Type: DPSH

Client: Glanville Group

Final Depth: 7.20

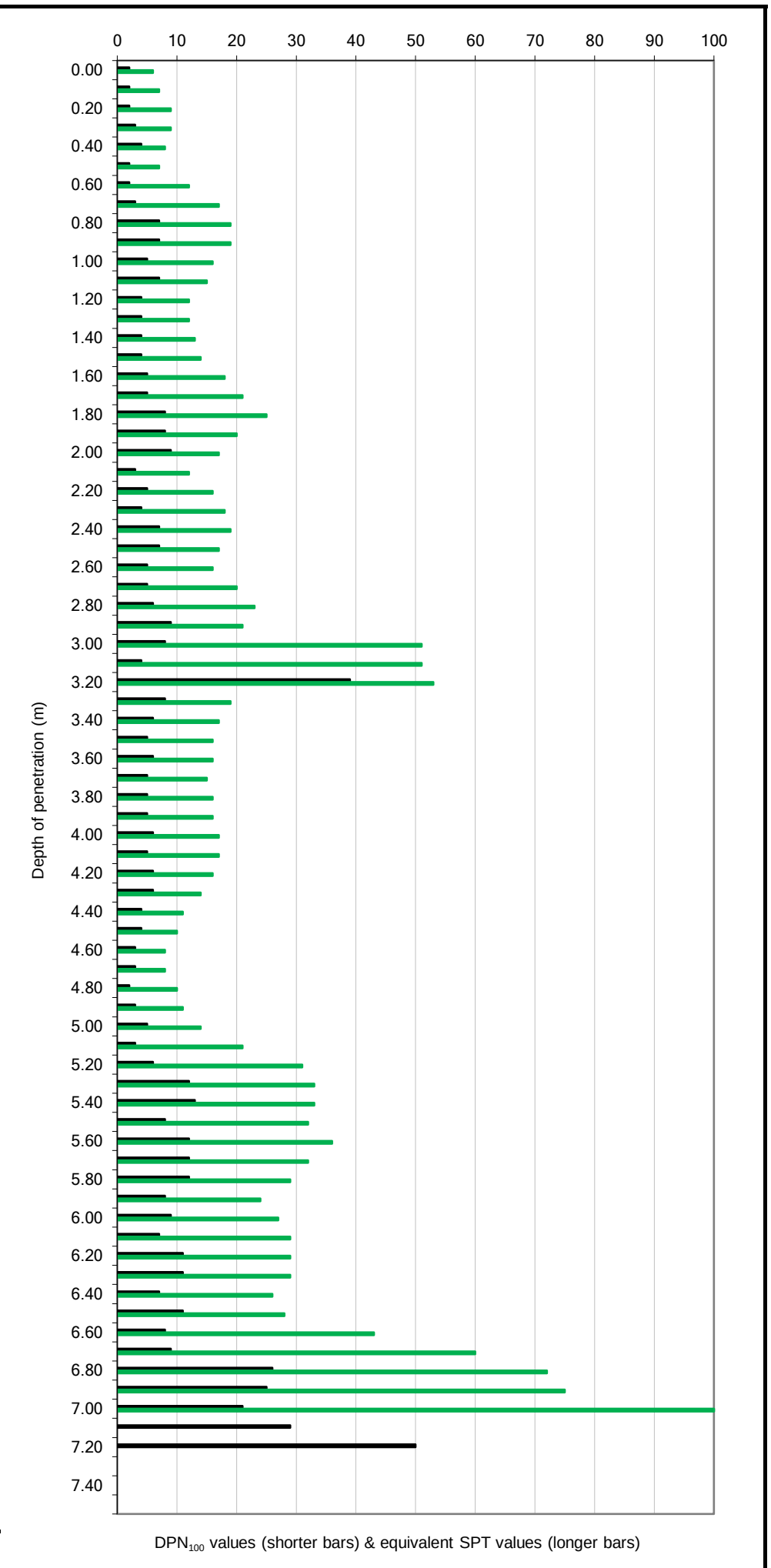
Rig Type: Competitor 130

Sheet 1 of 1

DP No: **6**

Penetration Test Results			
Depth (m)	DPN_{100}	DPN_{300}	SPT N *
0.00	2	6	6
0.10	2	7	7
0.20	2	9	9
0.30	3	9	9
0.40	4	8	8
0.50	2	7	7
0.60	2	12	12
0.70	3	17	17
0.80	7	19	19
0.90	7	19	19
1.00	5	16	16
1.10	7	15	15
1.20	4	12	12
1.30	4	12	12
1.40	4	13	13
1.50	4	14	14
1.60	5	18	18
1.70	5	21	21
1.80	8	25	25
1.90	8	20	20
2.00	9	17	17
2.10	3	12	12
2.20	5	16	16
2.30	4	18	18
2.40	7	19	19
2.50	7	17	17
2.60	5	16	16
2.70	5	20	20
2.80	6	23	23
2.90	9	21	21
3.00	8	51	51
3.10	4	51	51
3.20	39	53	53
3.30	8	19	19
3.40	6	17	17
3.50	5	16	16
3.60	6	16	16
3.70	5	15	15
3.80	5	16	16
3.90	5	16	16
4.00	6	17	17
4.10	5	17	17
4.20	6	16	16
4.30	6	14	14
4.40	4	11	11
4.50	4	10	10
4.60	3	8	8
4.70	3	8	8
4.80	2	10	10
4.90	3	11	11
5.00	5	14	14
5.10	3	21	21
5.20	6	31	31
5.30	12	33	33
5.40	13	33	33
5.50	8	32	32
5.60	12	36	36
5.70	12	32	32
5.80	12	29	29
5.90	8	24	24
6.00	9	27	27
6.10	7	29	29
6.20	11	29	29
6.30	11	29	29
6.40	7	26	26
6.50	11	28	28
6.60	8	43	43
6.70	9	60	60
6.80	26	72	72
6.90	25	75	75
7.00	21	100	100
7.10	29		
7.20	50		
7.30			
7.40			
7.50			

Hammer Mass: 63.5 kg Cone Dia: 50.5mm
Drop Height: 750 mm Test by: PM



General Remarks:
DPN_{100} = Dynamic penetration resistance for 100mm penetration.
DPN_{300} = Dynamic penetration resistance for 300mm penetration (ie: sum of 3 consecutive DPN_{100} values), starting at the depth given.
* Equivalent SPT N-values (for 300mm penetration) assumed to approximate the DPN_{300} values for dynamic probe "super-heavy" test (DPSH).
For dynamic probe "heavy" test (DPH), equivalent SPT N-values estimated using the theoretical relationship DPN_{300} = 1.5 SPT-N. [see Card,G.B., Roche,D.P. & Herbert,S.M., in Geol. Soc. Special Publication No 6, *Field Testing in Engineering Geology* (1990)]. SPT values are estimated and are for general guidance only.

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DYNAMIC CONE PENETROMETER - CBR RELATIONSHIP

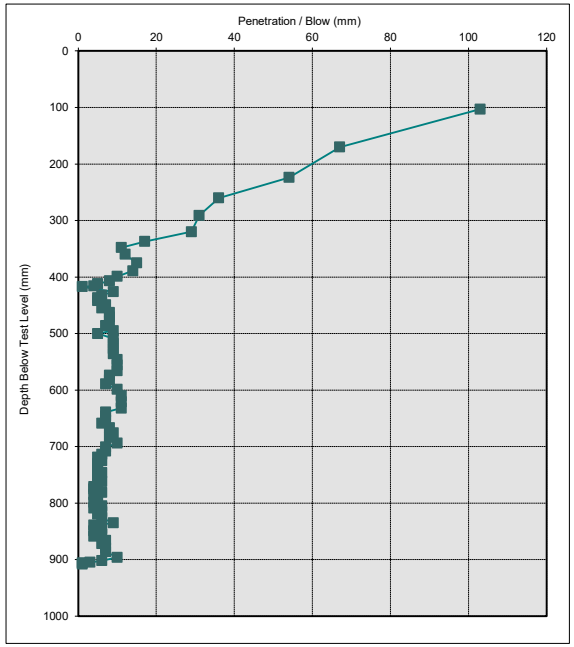
(To: Transport Research Laboratory Road Notes 8 & 31)

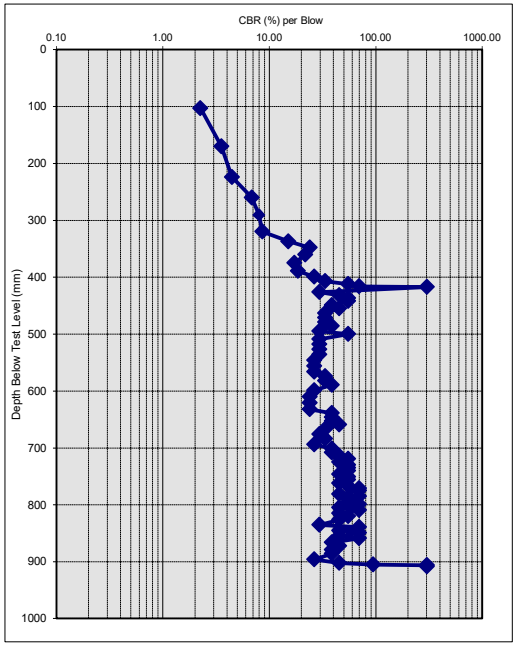
Job No:	2023-20
Site:	Dearne Valley
Client:	Glanville Group

Location Reference:	DCP1
Date of Test:	10 July 2020
Material at Surface / Subgrade:	Topsoil
Anticipated Depth to Subgrade (mm):	
Test Start Depth (mm):	55
Access to Test Depth:	Ground level.

Weight (kg):	8
Drop Height (mm):	575
Cone:	60 degrees; 20mm diameter
Test Procedure & Specification:	TRL Road Notes 8 & 3 TRL Dynamic Cone Penetrometer, Information Note (1986)
DCP / CBR Relationship:	Log_{10} (CBR) = 2.480 - 1.057 x Log_{10} (penetration / mm) (after TRL Road Note 8)

Remarks:





Measured Depth (mm)	Depth below test level (mm)	Blows	Penetration per blow (mm)	Log 10 CBR per blow (%)	CBR per blow (%)
55	0	0			
158	103	1	103	0.35	2.25
225	170	2	67	0.55	3.55
279	224	3	54	0.65	4.46
315	260	4	36	0.83	6.84
346	291	5	31	0.90	8.01
375	320	6	29	0.93	8.59
392	337	7	17	1.18	15.12
403	348	8	11	1.38	23.95
415	360	9	12	1.34	21.84
430	375	10	15	1.24	17.25
444	389	11	14	1.27	18.56
454	399	12	10	1.42	26.49
462	407	13	8	1.53	33.53
467	412	14	5	1.74	55.10
471	416	15	4	1.84	69.76
472	417	16	1	2.48	302.00
481	426	17	9	1.47	29.61
487	432	18	6	1.66	45.45
492	437	19	5	1.74	55.10
497	442	20	5	1.74	55.10
504	449	21	7	1.59	38.61
510	455	22	6	1.66	45.45
518	463	23	8	1.53	33.53
526	471	24	8	1.53	33.53
534	479	25	8	1.53	33.53
541	486	26	7	1.59	38.61
550	495	27	9	1.47	29.61
555	500	28	5	1.74	55.10
564	509	29	9	1.47	29.61
573	518	30	9	1.47	29.61
582	527	31	9	1.47	29.61
591	536	32	9	1.47	29.61
601	546	33	10	1.42	26.49
611	556	34	10	1.42	26.49
621	566	35	10	1.42	26.49
629	574	36	8	1.53	33.53
637	582	37	8	1.53	33.53
644	589	38	7	1.59	38.61
654	599	39	10	1.42	26.49
665	610	40	11	1.38	23.95
676	621	41	11	1.38	23.95
687	632	42	11	1.38	23.95
694	639	43	7	1.59	38.61
701	646	44	7	1.59	38.61
708	653	45	7	1.59	38.61
714	659	46	6	1.66	45.45
722	667	47	8	1.53	33.53
731	676	48	9	1.47	29.61
739	684	49	8	1.53	33.53
749	694	50	10	1.42	26.49
756	701	51	7	1.59	38.61
763	708	52	7	1.59	38.61
769	714	53	6	1.66	45.45
774	719	54	5	1.74	55.10
780	725	55	6	1.66	45.45
785	730	56	5	1.74	55.10
790	735	57	5	1.74	55.10
795	740	58	5	1.74	55.10
801	746	59	6	1.66	45.45

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DYNAMIC CONE PENETROMETER - CBR RELATIONSHIP

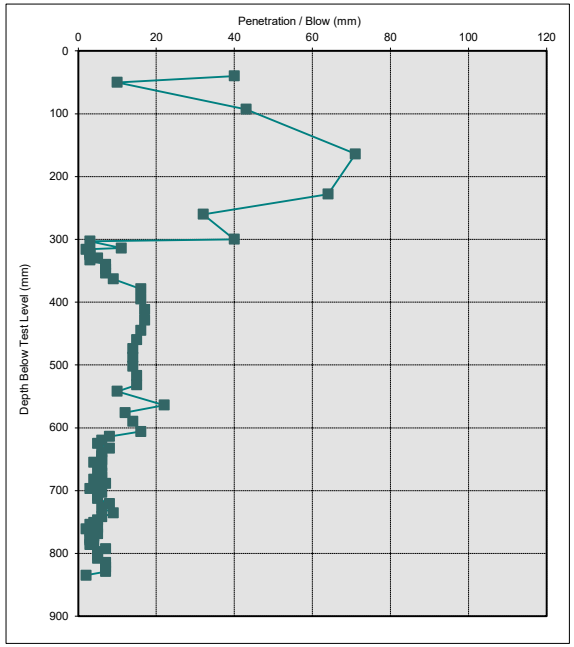
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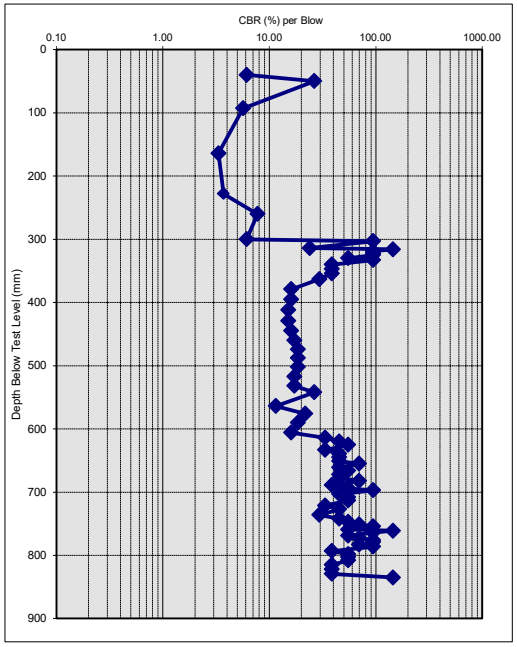
Job No: 2023-20
Dearne Valley

Location Reference:	DCP2
Date of Test:	10 July 2020
Material at Surface / Subgrade:	Topsoil
Anticipated Depth to Subgrade (mm):	
Test Start Depth (mm):	130
Access to Test Depth:	Ground level.

Weight (kg):	8
Drop Height (mm):	575
Cone:	60 degrees; 20mm diameter
Test Procedure & Specification:	TRL Road Notes 8 & 3 TRL Dynamic Cone Penetrometer, Information Note (1986)
DCP / CBR Relationship:	Log_{10} (CBR) = 2.480 - 1.057 x Log_{10} (penetration / mm) (after TRL Road Note 8)

Remarks:





Measured Depth (mm)	Depth below test level (mm)	Blows	Penetration per blow (mm)	Log 10 CBR per blow (%)	CBR per blow (%)
130	0	0			
170	40	1	40	0.79	6.12
180	50	2	10	1.42	26.49
223	93	3	43	0.75	5.67
294	164	4	71	0.52	3.34
358	228	5	64	0.57	3.72
390	260	6	32	0.89	7.75
430	300	7	40	0.79	6.12
433	303	8	3	1.98	94.55
444	314	9	11	1.38	23.95
446	316	10	2	2.16	145.15
449	319	11	3	1.98	94.55
452	322	12	3	1.98	94.55
455	325	13	3	1.98	94.55
460	330	14	5	1.74	55.10
463	333	15	3	1.98	94.55
470	340	16	7	1.59	38.61
477	347	17	7	1.59	38.61
484	354	18	7	1.59	38.61
493	363	19	9	1.47	29.61
509	379	20	16	1.21	16.12
525	395	21	16	1.21	16.12
542	412	22	17	1.18	15.12
559	429	23	17	1.18	15.12
575	445	24	16	1.21	16.12
590	460	25	15	1.24	17.25
604	474	26	14	1.27	18.56
618	488	27	14	1.27	18.56
632	502	28	14	1.27	18.56
647	517	29	15	1.24	17.25
662	532	30	15	1.24	17.25
672	542	31	10	1.42	26.49
694	564	32	22	1.06	11.51
706	576	33	12	1.34	21.84
720	590	34	14	1.27	18.56
736	606	35	16	1.21	16.12
744	614	36	8	1.53	33.53
750	620	37	6	1.66	45.45
755	625	38	5	1.74	55.10
763	633	39	8	1.53	33.53
769	639	40	6	1.66	45.45
775	645	41	6	1.66	45.45
781	651	42	6	1.66	45.45
785	655	43	4	1.84	69.76
791	661	44	6	1.66	45.45
796	666	45	5	1.74	55.10
802	672	46	6	1.66	45.45
808	678	47	6	1.66	45.45
812	682	48	4	1.84	69.76
819	689	49	7	1.59	38.61
824	694	50	5	1.74	55.10
827	697	51	3	1.98	94.55
833	703	52	6	1.66	45.45
838	708	53	5	1.74	55.10
843	713	54	5	1.74	55.10
851	721	55	8	1.53	33.53
857	727	56	6	1.66	45.45
866	736	57	9	1.47	29.61
872	742	58	6	1.66	45.45
877	747	59	5	1.74	55.10

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DYNAMIC CONE PENETROMETER - CBR RELATIONSHIP

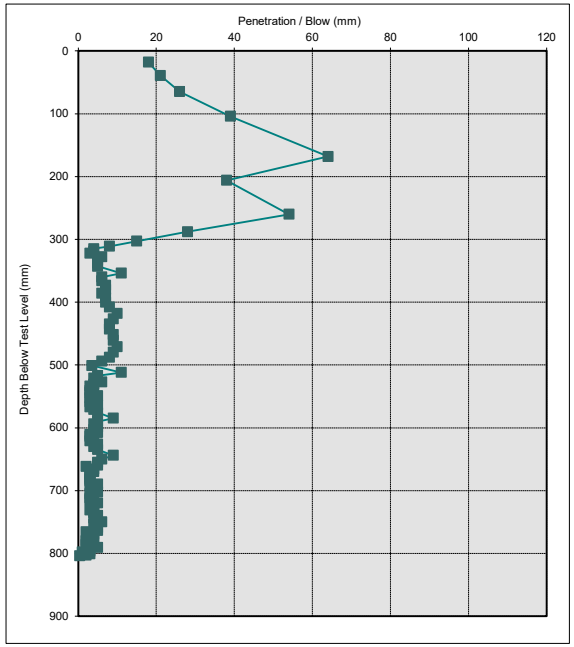
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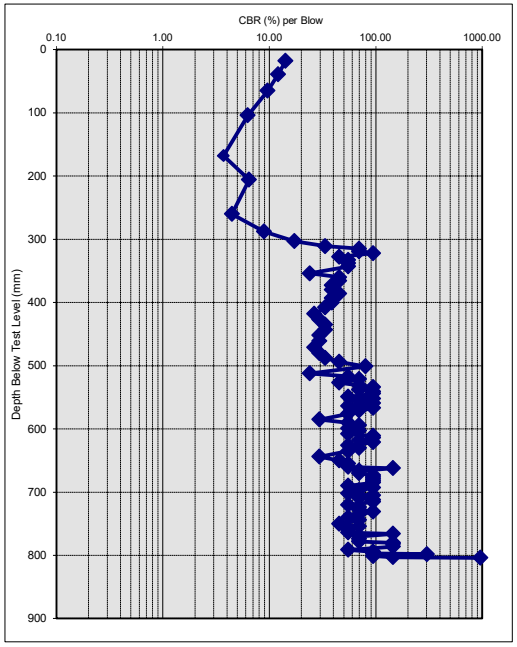
Job No: 2023-20
Dearne Valley

Location Reference:	DCP3
Date of Test:	10 July 2020
Material at Surface / Subgrade:	Topsoil
Anticipated Depth to Subgrade (mm):	
Test Start Depth (mm):	70
Access to Test Depth:	Ground level.

Weight (kg):	8
Drop Height (mm):	575
Cone:	60 degrees; 20mm diameter
Test Procedure & Specification:	TRL Road Notes 8 & 3 TRL Dynamic Cone Penetrometer, Information Note (1986)
DCP / CBR Relationship:	Log_{10} (CBR) = 2.480 - 1.057 x Log_{10} (penetration / mm) (after TRL Road Note 8)

Remarks:





Measured Depth (mm)	Depth below test level (mm)	Blows	Penetration per blow (mm)	Log 10 CBR per blow (%)	CBR per blow (%)
70	0	0			
88	18	1	18	1.15	14.23
109	39	2	21	1.08	12.09
135	65	3	26	0.98	9.65
174	104	4	39	0.80	6.28
238	168	5	64	0.57	3.72
276	206	6	38	0.81	6.46
330	260	7	54	0.65	4.46
358	288	8	28	0.95	8.92
373	303	9	15	1.24	17.25
381	311	10	8	1.53	33.53
385	315	11	4	1.84	69.76
389	319	12	4	1.84	69.76
392	322	13	3	1.98	94.55
398	328	14	6	1.66	45.45
403	333	15	5	1.74	55.10
408	338	16	5	1.74	55.10
413	343	17	5	1.74	55.10
424	354	18	11	1.38	23.95
430	360	19	6	1.66	45.45
436	366	20	6	1.66	45.45
443	373	21	7	1.59	38.61
450	380	22	7	1.59	38.61
456	386	23	6	1.66	45.45
463	393	24	7	1.59	38.61
470	400	25	7	1.59	38.61
478	408	26	8	1.53	33.53
488	418	27	10	1.42	26.49
497	427	28	9	1.47	29.61
505	435	29	8	1.53	33.53
513	443	30	8	1.53	33.53
522	452	31	9	1.47	29.61
531	461	32	9	1.47	29.61
541	471	33	10	1.42	26.49
550	480	34	9	1.47	29.61
558	488	35	8	1.53	33.53
564	494	36	6	1.66	45.45
571	501	38	3.5	1.90	80.34
582	512	39	11	1.38	23.95
587	517	40	5	1.74	55.10
591	521	41	4	1.84	69.76
597	527	42	6	1.66	45.45
601	531	43	4	1.84	69.76
604	534	44	3	1.98	94.55
608	538	45	4	1.84	69.76
611	541	46	3	1.98	94.55
614	544	47	3	1.98	94.55
619	549	48	5	1.74	55.10
622	552	49	3	1.98	94.55
626	556	50	4	1.84	69.76
629	559	51	3	1.98	94.55
634	564	52	5	1.74	55.10
637	567	53	3	1.98	94.55
641	571	54	4	1.84	69.76
646	576	55	5	1.74	55.10
655	585	56	9	1.47	29.61
660	590	57	5	1.74	55.10
664	594	58	4	1.84	69.76
669	599	59	5	1.74	55.10
673	603	60	4	1.84	69.76

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DYNAMIC CONE PENETROMETER - CBR RELATIONSHIP

(To: Transport Research Laboratory Road Notes 8 & 31)

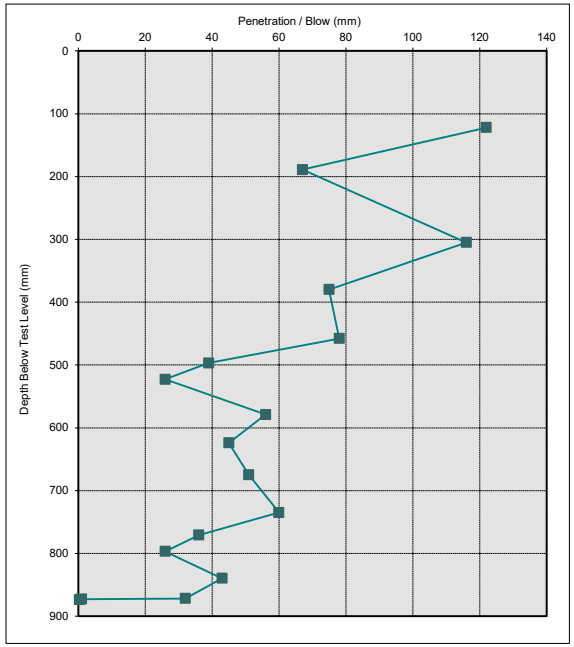
Job No: 2023-20
Dearne Valley

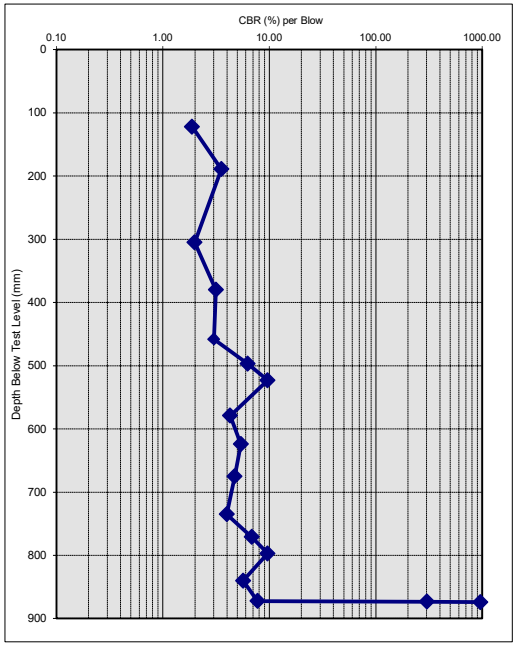
Location Reference:	DCP4
Date of Test:	10 July 2020
Material at Surface / Subgrade:	Topsoil
Anticipated Depth to Subgrade (mm):	
Test Start Depth (mm):	90
Access to Test Depth:	Ground level.

Weight (kg):	8
Drop Height (mm):	575
Cone:	60 degrees; 20mm diameter
Test Procedure & Specification:	TRL Road Notes 8 & 3 TRL Dynamic Cone Penetrometer, Information Note (1986)
DCP / CBR Relationship:	Log_{10} (CBR) = 2.480 - 1.057 x Log_{10} (penetration / mm) (after TRL Road Note 8)

Remarks:

Measured Depth (mm)	Depth below test level (mm)	Blows	Penetration per blow (mm)	Log 10 CBR per blow (%)	CBR per blow (%)
90	0	0			
212	122	1	122	0.27	1.88
279	189	2	67	0.55	3.55
395	305	3	116	0.30	1.99
470	380	4	75	0.50	3.15
548	458	5	78	0.48	3.02
587	497	6	39	0.80	6.28
613	523	7	26	0.98	9.65
669	579	8	56	0.63	4.29
714	624	9	45	0.73	5.40
765	675	10	51	0.68	4.73
825	735	11	60	0.60	3.99
861	771	12	36	0.83	6.84
887	797	13	26	0.98	9.65
930	840	14	43	0.75	5.67
962	872	15	32	0.89	7.75
963	873	16	1	2.48	302.00
964	874	19	0.333333333	2.98	964.53
		Average	51.37	0.91	79.08





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DYNAMIC CONE PENETROMETER - CBR RELATIONSHIP

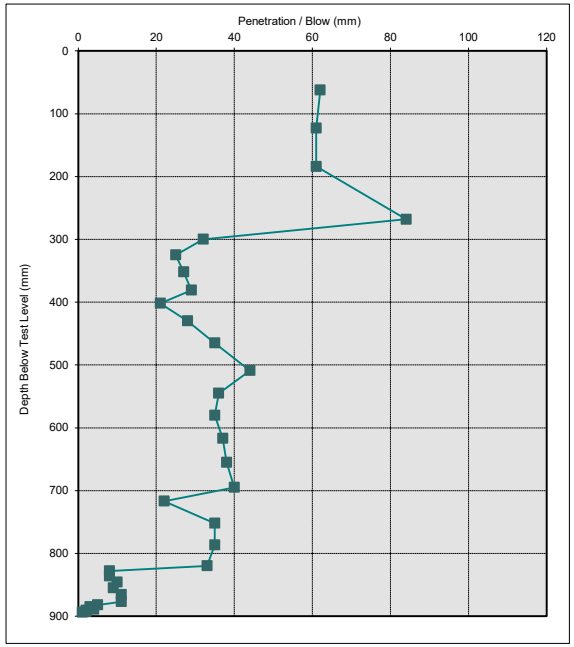
(To: Transport Research Laboratory Road Notes 8 & 31)

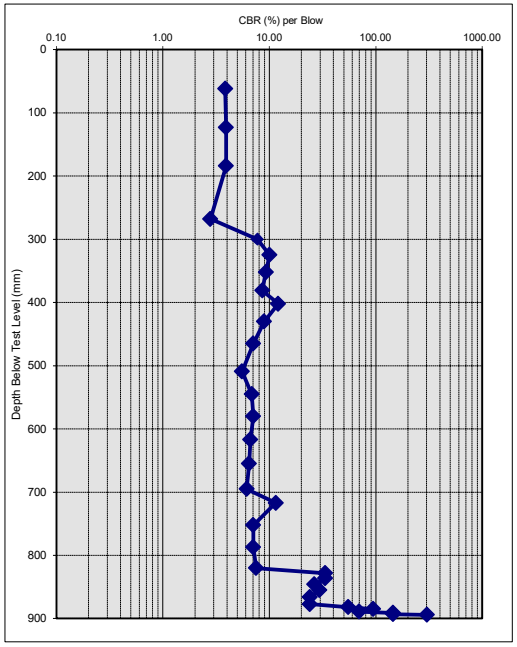
Job No: 2023-20
Dearne Valley

Location Reference:	DCP5
Date of Test:	10 July 2020
Material at Surface / Subgrade:	Topsoil
Anticipated Depth to Subgrade (mm):	
Test Start Depth (mm):	55
Access to Test Depth:	Ground level.

Weight (kg):	8
Drop Height (mm):	575
Cone:	60 degrees; 20mm diameter
Test Procedure & Specification:	TRL Road Notes 8 & 3 TRL Dynamic Cone Penetrometer, Information Note (1986)
DCP / CBR Relationship:	Log_{10} (CBR) = 2.480 - 1.057 x Log_{10} (penetration / mm) (after TRL Road Note 8)

Remarks:





Measured Depth (mm)	Depth below test level (mm)	Blows	Penetration per blow (mm)	Log 10 CBR per blow (%)	CBR per blow (%)
70	0	0			
132	62	1	62	0.59	3.85
193	123	2	61	0.59	3.92
254	184	3	61	0.59	3.92
338	268	4	84	0.45	2.79
370	300	5	32	0.89	7.75
395	325	6	25	1.00	10.05
422	352	7	27	0.97	9.27
451	381	8	29	0.93	8.59
472	402	9	21	1.08	12.09
500	430	10	28	0.95	8.92
535	465	11	35	0.85	7.05
579	509	12	44	0.74	5.53
615	545	13	36	0.83	6.84
650	580	14	35	0.85	7.05
687	617	15	37	0.82	6.64
725	655	16	38	0.81	6.46
765	695	17	40	0.79	6.12
787	717	18	22	1.06	11.51
822	752	19	35	0.85	7.05
857	787	20	35	0.85	7.05
890	820	21	33	0.87	7.50
898	828	22	8	1.53	33.53
906	836	23	8	1.53	33.53
916	846	24	10	1.42	26.49
925	855	25	9	1.47	29.61
936	866	26	11	1.38	23.95
947	877	27	11	1.38	23.95
952	882	28	5	1.74	55.10
955	885	29	3	1.98	94.55
959	889	30	4	1.84	69.76
961	891	31	2	2.16	145.15
963	893	32	2	2.16	145.15
964	894	33	1	2.48	302.00

Average	27.09	1.16	34.32

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DYNAMIC CONE PENETROMETER - CBR RELATIONSHIP

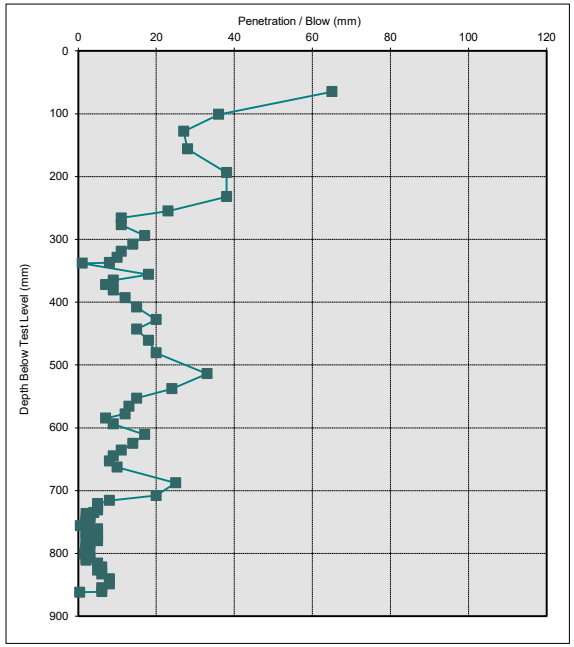
(To: Transport Research Laboratory Road Notes 8 & 31)

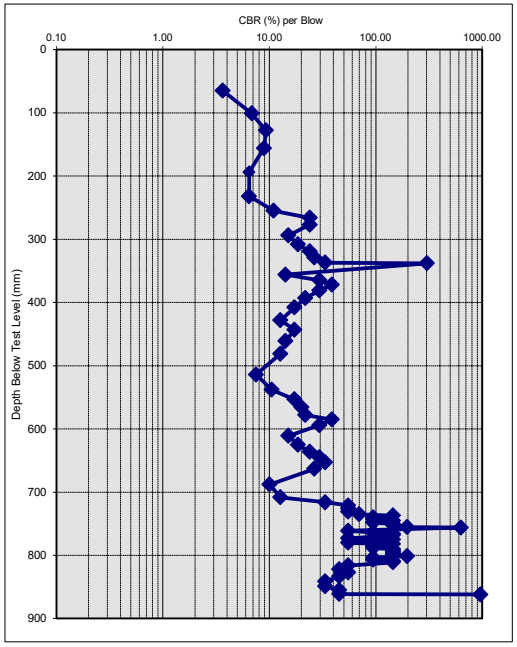
Job No: 2023-20
Dearne Valley

Location Reference:	DCP6
Date of Test:	10 July 2020
Material at Surface / Subgrade:	Topsoil
Anticipated Depth to Subgrade (mm):	
Test Start Depth (mm):	105
Access to Test Depth:	Ground level.

Weight (kg):	8
Drop Height (mm):	575
Cone:	60 degrees; 20mm diameter
Test Procedure & Specification:	TRL Road Notes 8 & 3 TRL Dynamic Cone Penetrometer, Information Note (1986)
DCP / CBR Relationship:	Log_{10} (CBR) = 2.480 - 1.057 x Log_{10} (penetration / mm) (after TRL Road Note 8)

Remarks:





Measured Depth (mm)	Depth below test level (mm)	Blows	Penetration per blow (mm)	Log 10 CBR per blow (%)	CBR per blow (%)
105	0	0			
170	65	1	65	0.56	3.66
206	101	2	36	0.83	6.84
233	128	3	27	0.97	9.27
261	156	4	28	0.95	8.92
299	194	5	38	0.81	6.46
337	232	6	38	0.81	6.46
360	255	7	23	1.04	10.98
371	266	8	11	1.38	23.95
382	277	9	11	1.38	23.95
399	294	10	17	1.18	15.12
413	308	11	14	1.27	18.56
424	319	12	11	1.38	23.95
434	329	13	10	1.42	26.49
442	337	14	8	1.53	33.53
443	338	15	1	2.48	302.00
461	356	16	18	1.15	14.23
470	365	17	9	1.47	29.61
477	372	18	7	1.59	38.61
486	381	19	9	1.47	29.61
498	393	20	12	1.34	21.84
513	408	21	15	1.24	17.25
533	428	22	20	1.10	12.73
548	443	23	15	1.24	17.25
566	461	24	18	1.15	14.23
586	481	25	20	1.10	12.73
619	514	26	33	0.87	7.50
643	538	27	24	1.02	10.50
658	553	28	15	1.24	17.25
671	566	29	13	1.30	20.07
683	578	30	12	1.34	21.84
690	585	31	7	1.59	38.61
699	594	32	9	1.47	29.61
716	611	33	17	1.18	15.12
730	625	34	14	1.27	18.56
741	636	35	11	1.38	23.95
750	645	36	9	1.47	29.61
758	653	37	8	1.53	33.53
768	663	38	10	1.42	26.49
793	688	39	25	1.00	10.05
813	708	40	20	1.10	12.73
821	716	41	8	1.53	33.53
826	721	42	5	1.74	55.10
831	726	43	5	1.74	55.10
836	731	44	5	1.74	55.10
840	735	45	4	1.84	69.76
842	737	46	2	2.16	145.15
845	740	47	3	1.98	94.55
848	743	48	3	1.98	94.55
850	745	49	2	2.16	145.15
853	748	50	3	1.98	94.55
855	750	51	2	2.16	145.15
857	752	52	2	2.16	145.15
860	755	54	1.5	2.29	196.73
861	756	56	0.5	2.80	628.33
866	761	57	5	1.74	55.10
869	764	58	3	1.98	94.55
871	766	59	2	2.16	145.15
873	768	60	2	2.16	145.15
878	773	61	5	1.74	55.10

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DYNAMIC CONE PENETROMETER - CBR RELATIONSHIP

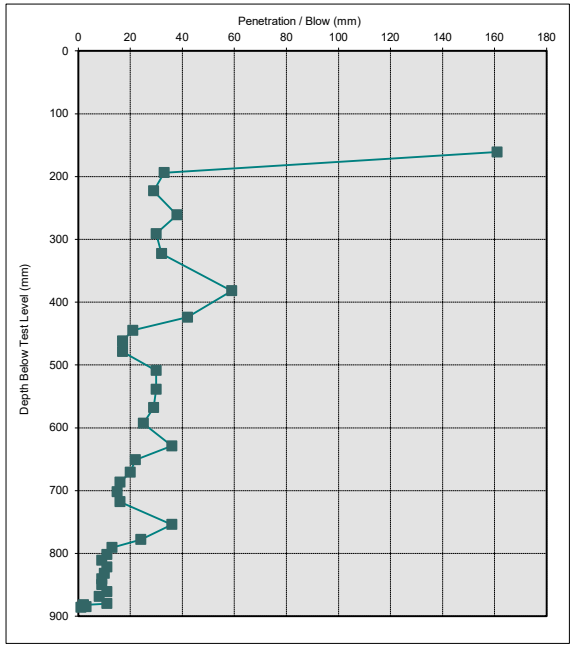
(To: Transport Research Laboratory Road Notes 8 & 31)

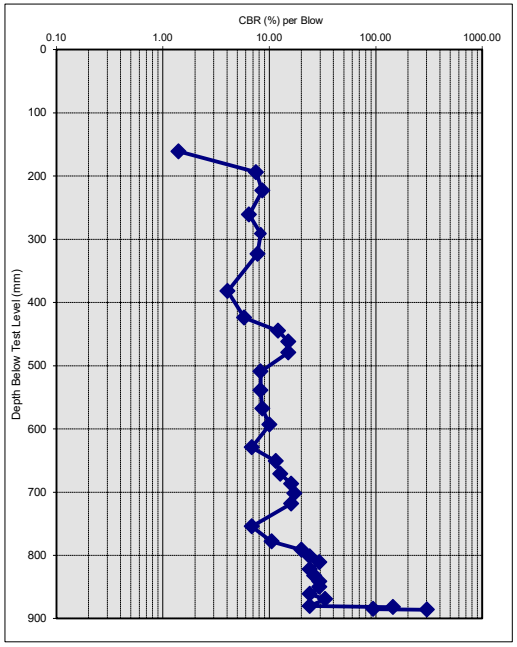
Job No: 2023-20
Dearne Valley

Location Reference:	DCP7
Date of Test:	10 July 2020
Material at Surface / Subgrade:	Topsoil
Anticipated Depth to Subgrade (mm):	
Test Start Depth (mm):	80
Access to Test Depth:	Ground level.

Weight (kg):	8
Drop Height (mm):	575
Cone:	60 degrees; 20mm diameter
Test Procedure & Specification:	TRL Road Notes 8 & 3 TRL Dynamic Cone Penetrometer, Information Note (1986)
DCP / CBR Relationship:	Log_{10} (CBR) = 2.480 - 1.057 x Log_{10} (penetration / mm) (after TRL Road Note 8)

Remarks:





Measured Depth (mm)	Depth below test level (mm)	Blows	Penetration per blow (mm)	Log 10 CBR per blow (%)	CBR per blow (%)
80	0	0			
241	161	1	161	0.15	1.40
274	194	2	33	0.87	7.50
303	223	3	29	0.93	8.59
341	261	4	38	0.81	6.46
371	291	5	30	0.92	8.29
403	323	6	32	0.89	7.75
462	382	7	59	0.61	4.06
504	424	8	42	0.76	5.81
525	445	9	21	1.08	12.09
542	462	10	17	1.18	15.12
559	479	11	17	1.18	15.12
589	509	12	30	0.92	8.29
619	539	13	30	0.92	8.29
648	568	14	29	0.93	8.59
673	593	15	25	1.00	10.05
709	629	16	36	0.83	6.84
731	651	17	22	1.06	11.51
751	671	18	20	1.10	12.73
767	687	19	16	1.21	16.12
782	702	20	15	1.24	17.25
798	718	21	16	1.21	16.12
834	754	22	36	0.83	6.84
858	778	23	24	1.02	10.50
871	791	24	13	1.30	20.07
882	802	25	11	1.38	23.95
891	811	26	9	1.47	29.61
902	822	27	11	1.38	23.95
912	832	28	10	1.42	26.49
921	841	29	9	1.47	29.61
930	850	30	9	1.47	29.61
941	861	31	11	1.38	23.95
949	869	32	8	1.53	33.53
960	880	33	11	1.38	23.95
962	882	34	2	2.16	145.15
965	885	35	3	1.98	94.55
966	886	36	1	2.48	302.00

Average	24.61	1.18	28.66

APPENDIX 9

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	20-18191-1
Initial Date of Issue:	24-Jul-2020
Client	Pam Brown Associates
Client Address:	Needwood House, Lancaster Park Newborough Road Needwood Staffordshire DE13 9PD
Contact(s):	Enquiries Gabriele Rudokaite
Project	2023-20 Dearne Valley Parkway

Quotation No.:		**Date Received:**	16-Jul-2020
Order No.:		**Date Instructed:**	17-Jul-2020
No. of Samples:	4		
Turnaround (Wkdays):	5	**Results Due:**	23-Jul-2020
Date Approved:	24-Jul-2020		

Approved By:



Details: Glynn Harvey, Technical Manager

Results - Soil

Project: 2023-20 Dearne Valley Parkway

Client: Pam Brown Associates			**Chemtest Job No.:**		20-18191	20-18191	20-18191	20-18191
Quotation No.:			**Chemtest Sample ID.:**		1032341	1032342	1032343	1032348
			Client Sample ID.:		BH1	BH1	BH2	BH3
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.60	2.50	0.00	0.38
			Bottom Depth (m):		1.00	3.00	0.04	0.83
			Date Sampled:		08-Jul-2020	08-Jul-2020	08-Jul-2020	08-Jul-2020
			Asbestos Lab:		COVENTRY		COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
ACM Type	U	2192		N/A	-		-	
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected		No Asbestos Detected	
ACM Detection Stage	U	2192		N/A	-		-	
Moisture	N	2030	%	0.020	4.8	6.7	12	12
pH	U	2010		4.0	8.5	9.1	8.4	8.4
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	< 0.40	1.6	0.51	0.68
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.27	0.35	0.18	0.096
Sulphur (Elemental)	U	2180	mg/kg	1.0	5.5	17	8.6	8.6
Cyanide (Complex)	U	2300	mg/kg	0.50	1.4	< 0.50	< 0.50	< 0.50
Cyanide (Free)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	U	2300	mg/kg	0.50	1.4	< 0.50	< 0.50	< 0.50
Thiocyanate	U	2300	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	1.3	1.7	1.6	1.6
Ammonium (Extractable)	U	2425	mg/kg	0.50	6.3	20	3.0	2.4
Sulphate (Total)	U	2430	%	0.010	0.16	2.9	0.30	0.18
Arsenic	U	2450	mg/kg	1.0	5.9	23	10	7.7
Cadmium	U	2450	mg/kg	0.10	0.14	< 0.10	0.25	0.22
Chromium	U	2450	mg/kg	1.0	21	11	18	17
Copper	U	2450	mg/kg	0.50	25	42	46	42
Mercury	U	2450	mg/kg	0.10	< 0.10	0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	45	30	38	40
Lead	U	2450	mg/kg	0.50	11	20	22	27
Selenium	U	2450	mg/kg	0.20	0.21	0.96	< 0.20	< 0.20
Zinc	U	2450	mg/kg	0.50	83	41	93	100
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	3.1	17	4.1	3.8
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: 2023-20 Dearne Valley Parkway

Client: Pam Brown Associates			**Chemtest Job No.:**		20-18191	20-18191	20-18191	20-18191
Quotation No.:			**Chemtest Sample ID.:**		1032341	1032342	1032343	1032348
			Client Sample ID.:		BH1	BH1	BH2	BH3
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.60	2.50	0.00	0.38
			Bottom Depth (m):		1.00	3.00	0.04	0.83
			Date Sampled:		08-Jul-2020	08-Jul-2020	08-Jul-2020	08-Jul-2020
			Asbestos Lab:		COVENTRY		COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	0.76	< 0.10
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	0.15	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	0.73	< 0.10
Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	0.94	< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	< 2.0	2.6	< 2.0
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2425	Extractable Ammonium in soils	Ammonium	Extraction with potassium chloride solution / analysis by 'Aquakem 600' Discrete Analyser using sodium salicylate and sodium dichloroisocyanurate.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	20-18338-1
Initial Date of Issue:	24-Jul-2020
Client	Pam Brown Associates
Client Address:	Needwood House, Lancaster Park Newborough Road Needwood Staffordshire DE13 9PD
Contact(s):	Enquiries Gabriele Rudokaite
Project	2023-20 Dearne Valley Parkway

Quotation No.:		**Date Received:**	16-Jul-2020
Order No.:		**Date Instructed:**	17-Jul-2020
No. of Samples:	4		
Turnaround (Wkdays):	5	**Results Due:**	23-Jul-2020
Date Approved:	24-Jul-2020		

Approved By:



Details: Glynn Harvey, Technical Manager

Results - Soil

Project: 2023-20 Dearne Valley Parkway

Client: Pam Brown Associates			**Chemtest Job No.:**		20-18338	20-18338	20-18338	20-18338
Quotation No.:			**Chemtest Sample ID.:**		1033012	1033014	1033018	1033019
			Client Sample ID.:		WS1	WS2	WS3	WS3
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.50	1.10	0.70	1.70
			Bottom Depth (m):		0.70	1.30	1.00	2.00
			Date Sampled:		07-Jul-2020	07-Jul-2020	07-Jul-2020	07-Jul-2020
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
ACM Type	U	2192		N/A	-	-	-	
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	
ACM Detection Stage	U	2192		N/A	-	-	-	
Moisture	N	2030	%	0.020	7.8	7.2	14	12
pH	U	2010		4.0	8.3	8.0	8.1	8.3
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	< 0.40	0.42	0.56	< 0.40
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.085	0.43	0.18	0.026
Sulphur (Elemental)	U	2180	mg/kg	1.0	4.3	4.0	40	5.3
Cyanide (Complex)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cyanide (Free)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Thiocyanate	U	2300	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	1.1	1.9	2.0	1.1
Ammonium (Extractable)	U	2425	mg/kg	0.50	4.2	7.9	3.1	2.7
Sulphate (Total)	U	2430	%	0.010	0.083	0.21	0.18	0.16
Arsenic	U	2450	mg/kg	1.0	4.9	5.9	8.2	12
Cadmium	U	2450	mg/kg	0.10	0.15	0.17	0.14	0.16
Chromium	U	2450	mg/kg	1.0	18	22	20	25
Copper	U	2450	mg/kg	0.50	34	38	31	35
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	41	51	45	58
Lead	U	2450	mg/kg	0.50	16	18	19	80
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Zinc	U	2450	mg/kg	0.50	89	120	90	110
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	1.1	0.91	2.9	1.5
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: 2023-20 Dearne Valley Parkway

Client: Pam Brown Associates			**Chemtest Job No.:**		20-18338	20-18338	20-18338	20-18338
Quotation No.:			**Chemtest Sample ID.:**		1033012	1033014	1033018	1033019
			Client Sample ID.:		WS1	WS2	WS3	WS3
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.50	1.10	0.70	1.70
			Bottom Depth (m):		0.70	1.30	1.00	2.00
			Date Sampled:		07-Jul-2020	07-Jul-2020	07-Jul-2020	07-Jul-2020
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.98
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.56
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.61
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	2.7
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.33
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.99
Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	1.3
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0	7.6
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2425	Extractable Ammonium in soils	Ammonium	Extraction with potassium chloride solution / analysis by 'Aquakem 600' Discrete Analyser using sodium salicylate and sodium dichloroisocyanurate.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
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I/S	Insufficient Sample
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N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	20-18340-1
Initial Date of Issue:	27-Jul-2020
Client	Pam Brown Associates
Client Address:	Needwood House, Lancaster Park Newborough Road Needwood Staffordshire DE13 9PD
Contact(s):	Enquiries Gabriele Rudokaite
Project	2023-20 Dearne Valley Parkway

Quotation No.:		**Date Received:**	17-Jul-2020
Order No.:		**Date Instructed:**	17-Jul-2020
No. of Samples:	3		
Turnaround (Wkdays):	7	**Results Due:**	27-Jul-2020
Date Approved:	27-Jul-2020		

Approved By:



Details: Glynn Harvey, Technical Manager

Results - 2 Stage WAC

Project: 2023-20 Dearne Valley Parkway

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-18340								
Chemtest Sample ID:	1033025								
Sample Ref:							**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample ID:									
Sample Location:	WS1								
Top Depth(m):	0.35								
Bottom Depth(m):	0.5								
Sampling Date:	07-Jul-2020								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			0.61	3	5	6
Loss On Ignition	2610	M	%			4.6	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	M	mg/kg			< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			< 2.0	100	--	--
pH	2010	M				8.3	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.037	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.5	2	25
Barium	1450	U	0.018	0.039	< 0.50	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.00010	< 0.010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.5	10	70
Copper	1450	U	0.0033	0.0011	< 0.050	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.06	0.7	5
Selenium	1450	U	0.0010	< 0.0010	< 0.010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0070	0.0026	< 0.50	< 0.50	4	50	200
Chloride	1220	U	8.5	1.6	17	22	800	15000	25000
Fluoride	1220	U	0.55	0.19	1.1	2.2	10	150	500
Sulphate	1220	U	170	28	350	420	1000	20000	50000
Total Dissolved Solids	1020	N	380	130	750	1500	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	4.3	3.8	< 50	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	4.8

Leachate Test Information	
Leachant volume 1st extract/l	0.341
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.162

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: 2023-20 Dearne Valley Parkway

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-18340								
Chemtest Sample ID:	1033026								
Sample Ref:							**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample ID:									
Sample Location:	WS2								
Top Depth(m):	1.30								
Bottom Depth(m):	1.5								
Sampling Date:	07-Jul-2020								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			2.0	3	5	6
Loss On Ignition	2610	M	%			8.2	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	M	mg/kg			< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			< 2.0	100	--	--
pH	2010	M				8.1	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.018	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.5	2	25
Barium	1450	U	0.025	0.025	< 0.50	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.00010	< 0.010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.5	10	70
Copper	1450	U	0.0025	0.0010	< 0.050	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.5	10	30
Nickel	1450	U	0.0021	< 0.0010	< 0.050	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.06	0.7	5
Selenium	1450	U	0.0016	< 0.0010	< 0.010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.021	0.010	< 0.50	< 0.50	4	50	200
Chloride	1220	U	4.6	1.9	< 10	22	800	15000	25000
Fluoride	1220	U	0.19	0.13	< 1.0	1.4	10	150	500
Sulphate	1220	U	630	68	1300	1300	1000	20000	50000
Total Dissolved Solids	1020	N	780	170	1600	2400	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	3.8	< 2.5	< 50	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	5.0

Leachate Test Information	
Leachant volume 1st extract/l	0.341
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.202

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: 2023-20 Dearne Valley Parkway

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-18340								
Chemtest Sample ID:	1033027								
Sample Ref:							**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample ID:									
Sample Location:	WS3								
Top Depth(m):	0.5								
Bottom Depth(m):	0.7								
Sampling Date:	07-Jul-2020								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			0.70	3	5	6
Loss On Ignition	2610	M	%			5.1	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	M	mg/kg			10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			< 2.0	100	--	--
pH	2010	M				8.5	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.033	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.5	2	25
Barium	1450	U	0.0083	0.0056	< 0.50	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.00010	< 0.010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.5	10	70
Copper	1450	U	0.0019	< 0.0010	< 0.050	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0030	0.0018	< 0.50	< 0.50	4	50	200
Chloride	1220	U	1.6	6.3	< 10	58	800	15000	25000
Fluoride	1220	U	0.69	0.31	1.4	3.5	10	150	500
Sulphate	1220	U	26	13	52	140	1000	20000	50000
Total Dissolved Solids	1020	N	230	120	450	1300	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	4.6	< 2.5	< 50	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	11

Leachate Test Information	
Leachant volume 1st extract/l	0.328
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.175

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

APPENDIX 10

E S S

Environmental Site Sampling Ltd

24th July 2020

Environmental Site Sampling Ltd
94 Dillotford Avenue
Styvechale
Coventry
CV3 5DU

Tel/Fax: (024) 7669 0514
Mobile : 07971 664 118

e.mail: cosgrove_patrick@hotmail.com

Ms G Rudokaite
Pam Brown Associates Ltd
2 Needwood House
Newborough Road
Needwood
Burton -On-Trent
DE13 9PD

In-situ Analysis Report: PBA/5790

Dear Ms Rudokaite,

Please find enclosed a copy of the in-situ gas and vapour monitoring results undertaken at Plot 7, Dearne Valley Parkway, Barnsley, S70 5SZ, on 24th July 2020.

I trust you find these satisfactory. Should you have any queries please contact us.

Yours Sincerely,

Patrick Cosgrove

P V Cosgrove BSc MSc
Environmental Site Sampling Ltd

In-situ Analysis: PBA/5790

Client: Pam Brown Associates Ltd
Project: 2023-20, Plot 7, Dearne Valley Parkway, Barnsley, S70 5SZ

24/07/20

Borehole	Gas Flow (l/hr)	Borehole Pressure (mb)	PID VOC (ppm)	Methane (%vol)		Methane (%LEL)		Carbon Dioxide (%vol)		Oxygen (%vol)		Other Gases (ppm)		Water Level (Meters)
			Peak	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	H_2S	CO	
BH 1	<0.1	0.02	0.1	<0.1	<0.1	<2	<2	0.4	0.4	19.9	19.9	<1	<1	Dry 24.60m
BH 2	<0.1	0.07	0.1	0.3	0.2	6	4	4.7	4.4	11.2	11.9	<1	<1	Dry 6.99m
BH 3	<0.1	0.04	0.2	<0.1	<0.1	<2	<2	1.9	1.9	18.8	18.8	<1	<1	2.23m

Notes:
Monitoring order is from left to right.
Steady concentrations are measured up to 3 minutes.

Additional Information	
Date Monitoring Undertaken:	24th July 2020
Monitoring Undertaken By:	P Cosgrove
Equipment Used:	GA2000+ S/N 11567, Minirae 2000 PID S/N 110-003253
Atmospheric Pressure Barnsley a.m. (mb):	1012mb
Atmospheric Pressure On-site (mb):	1010mb
Atmospheric Pressure Barnsley p.m. (mb):	1009mb
Weather During Visit:	Sunny, Dry, Wind SW, 3m/s, 18°C
Comments:	

E S S

Environmental Site Sampling Ltd

12th August 2020

Environmental Site Sampling Ltd
94 Dillotford Avenue
Styvechale
Coventry
CV3 5DU

Tel/Fax: (024) 7669 0514
Mobile : 07971 664 118

e.mail: cosgrove_patrick@hotmail.com

Ms G Rudokaite
Pam Brown Associates Ltd
2 Needwood House
Newborough Road
Needwood
Burton -On-Trent
DE13 9PD

In-situ Analysis Report: PBA/5809

Dear Ms Rudokaite,

Please find enclosed a copy of the in-situ gas and vapour monitoring results undertaken at Plot 7, Dearne Valley Parkway, Barnsley, S70 5SZ, on 12th August 2020.

I trust you find these satisfactory. Should you have any queries please contact us.

Yours Sincerely,

Patrick Cosgrove

P V Cosgrove BSc MSc
Environmental Site Sampling Ltd

In-situ Analysis: PBA/5809

Client: Pam Brown Associates Ltd
Project: 2023-20, Plot 7, Dearne Valley Parkway, Barnsley, S70 5SZ

12/08/20

Borehole	Gas Flow (l/hr)	Borehole Pressure (mb)	PID VOC (ppm)	Methane (%vol)		Methane (%LEL)		Carbon Dioxide (%vol)		Oxygen (%vol)		Other Gases (ppm)		Water Level (Meters)
			Peak	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	H_2S	CO	
BH 1	<0.1	0.05	0.1	<0.1	<0.1	<2	<2	3.4	3.4	12.8	12.8	<1	<1	Dry 24.60m
BH 2	<0.1	0.03	<0.1	<0.1	<0.1	<2	<2	2.5	2.5	15.4	15.4	<1	<1	Dry 6.99m
BH 3	<0.1	0.07	0.2	<0.1	<0.1	<2	<2	3.7	3.7	16.3	16.3	<1	<1	2.54m

Notes:
Monitoring order is from left to right.
Steady concentrations are measured up to 3 minutes.

Additional Information	
Date Monitoring Undertaken:	12th August 2020
Monitoring Undertaken By:	P Cosgrove
Equipment Used:	GA2000+ S/N 11567, Minirae 2000 PID S/N 110-003253
Atmospheric Pressure Barnsley a.m. (mb):	1008mb
Atmospheric Pressure On-site (mb):	1002mb
Atmospheric Pressure Barnsley p.m. (mb):	1001mb (Falling)
Weather During Visit:	Sunny, Dry, Wind NE, 1m/s, 24°C
Comments:	

E S S

Environmental Site Sampling Ltd

12th August 2020

Environmental Site Sampling Ltd
94 Dillotford Avenue
Styvechale
Coventry
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e.mail: cosgrove_patrick@hotmail.com

Ms G Rudokaite
Pam Brown Associates Ltd
2 Needwood House
Newborough Road
Needwood
Burton -On-Trent
DE13 9PD

In-situ Analysis Report: PBA/5810

Dear Ms Rudokaite,

Please find enclosed a copy of the in-situ water level monitoring results undertaken at Plot 7, Dearne Valley Parkway, Barnsley, S70 5SZ, on 12th August 2020.

I trust you find these satisfactory. Should you have any queries please contact us.

Yours Sincerely,

Patrick Cosgrove

P V Cosgrove BSc MSc
Environmental Site Sampling Ltd

In-situ Analysis: PBA/5810

Client: Pam Brown Associates Ltd
Project: 2023-20, Plot 7, Dearne Valley Parkway, Barnsley, S70 5SZ

12/08/20

Location Reference	Date	Water Level (Meters)	Installation Depth (Meters)	Free Product (mm)	Comments
BH 1	12/08/20	Dry 24.60m	24.60m	-	BH Dry, No Sample Recovered.
BH 2	12/08/20	Dry 6.99m	6.99m	-	BH Dry, No Sample Recovered.
BH 3	12/08/20	2.54m	4.10m	None Detected	Water Sample Recovered. Grey, No Obvious Odour, No Oily Film Observed.

Additional Information	
Date Monitoring Undertaken:	12th August 2020
Monitoring Undertaken By:	P Cosgrove
Atmospheric Pressure Barnsley a.m. (mb):	1008mb
Atmospheric Pressure On-site (mb):	1002mb
Atmospheric Pressure Barnsley p.m. (mb):	1001mb (Falling)
Weather During Visit:	Sunny, Dry, Wind NE, 1m/s, 24°C
Comments:	

E S S

Environmental Site Sampling Ltd

19th August 2020

Environmental Site Sampling Ltd
94 Dillotford Avenue
Styvechale
Coventry
CV3 5DU

Tel/Fax: (024) 7669 0514
Mobile : 07971 664 118

e.mail: cosgrove_patrick@hotmail.com

Ms G Rudokaite
Pam Brown Associates Ltd
2 Needwood House
Newborough Road
Needwood
Burton -On-Trent
DE13 9PD

In-situ Analysis Report: PBA/5816

Dear Ms Rudokaite,

Please find enclosed a copy of the in-situ gas and vapour monitoring results undertaken at Plot 7, Dearne Valley Parkway, Barnsley, S70 5SZ, on 19th August 2020.

I trust you find these satisfactory. Should you have any queries please contact us.

Yours Sincerely,

Patrick Cosgrove

P V Cosgrove BSc MSc
Environmental Site Sampling Ltd

In-situ Analysis: PBA/5816

Client: Pam Brown Associates Ltd
Project: 2023-20, Plot 7, Dearne Valley Parkway, Barnsley, S70 5SZ

19/08/20

Borehole	Gas Flow (l/hr)	Borehole Pressure (mb)	PID VOC (ppm)	Methane (%vol)		Methane (%LEL)		Carbon Dioxide (%vol)		Oxygen (%vol)		Other Gases (ppm)		Water Level (Meters)
			Peak	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	H_2S	CO	
BH 1	<0.1	0.06	0.1	<0.1	<0.1	<2	<2	3.6	3.6	12.2	12.8	<1	<1	Dry 24.60m
BH 2	<0.1	0.08	0.1	<0.1	<0.1	<2	<2	2.1	2.1	15.6	15.4	<1	<1	Dry 6.99m
BH 3	<0.1	0.03	0.2	<0.1	<0.1	<2	<2	3.9	3.9	15.9	16.3	<1	<1	2.61m

Notes:
Monitoring order is from left to right.
Steady concentrations are measured up to 3 minutes.

Additional Information	
Date Monitoring Undertaken:	19th August 2020
Monitoring Undertaken By:	P Cosgrove
Equipment Used:	GA2000+ S/N 11567, Minirae 2000 PID S/N 110-003253
Atmospheric Pressure Barnsley a.m. (mb):	1005mb
Atmospheric Pressure On-site (mb):	0999mb
Atmospheric Pressure Barnsley p.m. (mb):	0997mb (Falling)
Weather During Visit:	Overcast, Dry, Wind SE, 3m/s, 18°C
Comments:	

E S S

Environmental Site Sampling Ltd

27th August 2020

Environmental Site Sampling Ltd
94 Dillotford Avenue
Styvechale
Coventry
CV3 5DU

Tel/Fax: (024) 7669 0514
Mobile : 07971 664 118

e.mail: cosgrove_patrick@hotmail.com

Ms G Rudokaite
Pam Brown Associates Ltd
2 Needwood House
Newborough Road
Needwood
Burton -On-Trent
DE13 9PD

In-situ Analysis Report: PBA/5820

Dear Ms Rudokaite,

Please find enclosed a copy of the in-situ gas and vapour monitoring results undertaken at Plot 7, Dearne Valley Parkway, Barnsley, S70 5SZ, on 27th August 2020.

I trust you find these satisfactory. Should you have any queries please contact us.

Yours Sincerely,

Patrick Cosgrove

P V Cosgrove BSc MSc
Environmental Site Sampling Ltd

In-situ Analysis: PBA/5820

Client: Pam Brown Associates Ltd
Project: 2023-20, Plot 7, Dearne Valley Parkway, Barnsley, S70 5SZ

27/08/20

Borehole	Gas Flow (l/hr)	Borehole Pressure (mb)	PID VOC (ppm)	Methane (%vol)		Methane (%LEL)		Carbon Dioxide (%vol)		Oxygen (%vol)		Other Gases (ppm)		Water Level (Meters)
			Peak	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	H_2S	CO	
BH 1	<0.1	0.08	0.1	<0.1	<0.1	<2	<2	4.1	4.0	11.2	11.4	<1	<1	Dry 24.60m
BH 2	<0.1	0.02	0.2	<0.1	<0.1	<2	<2	3.8	3.8	12.3	12.3	<1	<1	Dry 6.99m
BH 3	<0.1	0.09	0.1	<0.1	<0.1	<2	<2	4.6	4.6	15.5	15.5	<1	<1	2.26m

Notes:
Monitoring order is from left to right.
Steady concentrations are measured up to 3 minutes.

Additional Information	
Date Monitoring Undertaken:	27th August 2020
Monitoring Undertaken By:	P Cosgrove
Equipment Used:	GA2000+ S/N 11567, Minirae 2000 PID S/N 110-003253
Atmospheric Pressure Barnsley a.m. (mb):	1010mb
Atmospheric Pressure On-site (mb):	0999mb
Atmospheric Pressure Barnsley p.m. (mb):	1000mb (Falling)
Weather During Visit:	Overcast, Raining, Wind S, 6m/s, 16°C
Comments:	

APPENDIX 11

MURRAY RIX
CONSULTANCY, SITE INVESTIGATION
CONSTRUCTION MATERIALS TESTING

TEST REPORT

Client	Earth Environmental & Geotechnical Ltd
Address	Houldsworth Mills Business & Arts Centre Houldsworth Street Reddish Stockport SK5 6DA
Contract	B1348 - Dearne Valley Parkway
Job Number	MRN 3787/58
Date of Issue	03 August 2020
Page	**1 of 15**

Approved Signatories

S J Hutchings, O P Davies

Notes

1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.

2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.

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

4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted. This does not, however, guarantee the balance of the materials from which the tested samples have been taken to be of equal quality.

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

UKAS TESTING
1580

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.2: 1990

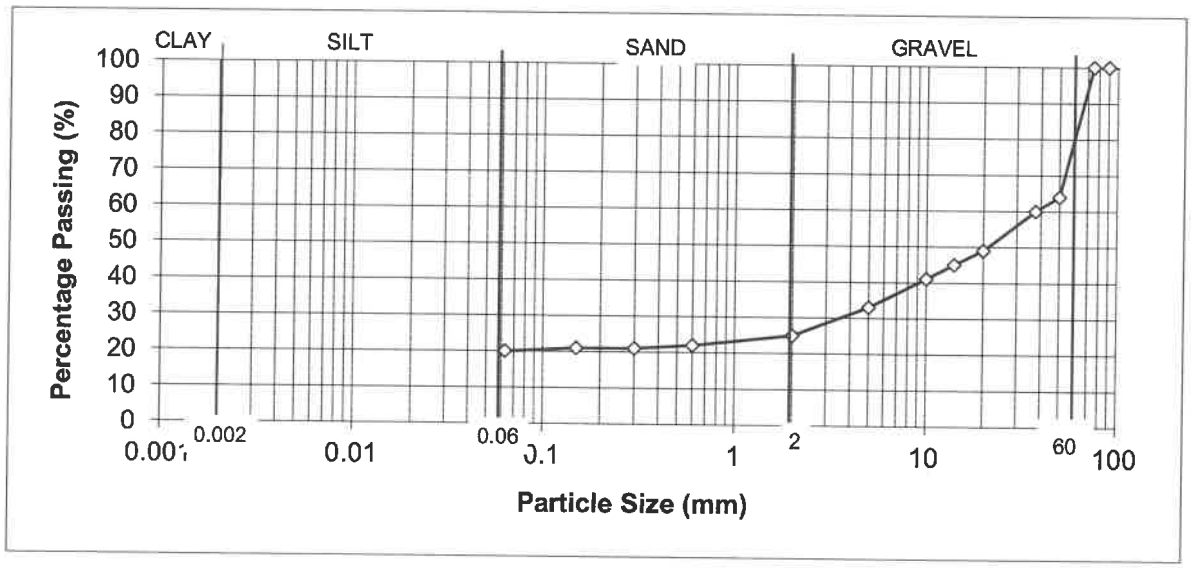
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	B1348 - Dearne Vally Parkway
JOB NUMBER	MRN 3787/58

SAMPLE LABEL	BH1 B 1.65-2.00	DATE SAMPLED	Not advised
LAB SAMPLE No	90823	DATE RECEIVED	10-Jul-20
DATE TESTED	21-Jul-20	SAMPLED BY	Client

MATERIAL	Grey clayey silty sandy GRAVEL
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		10	41	
90	100		5	33	
75	100		2	25	
50	64		0.6	22	
37.5	60		0.3	21	
20	49		0.15	21	
14	45		0.063	20	



REMARKS

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 03-Aug-20

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

UKAS TESTING 1580

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.2: 1990

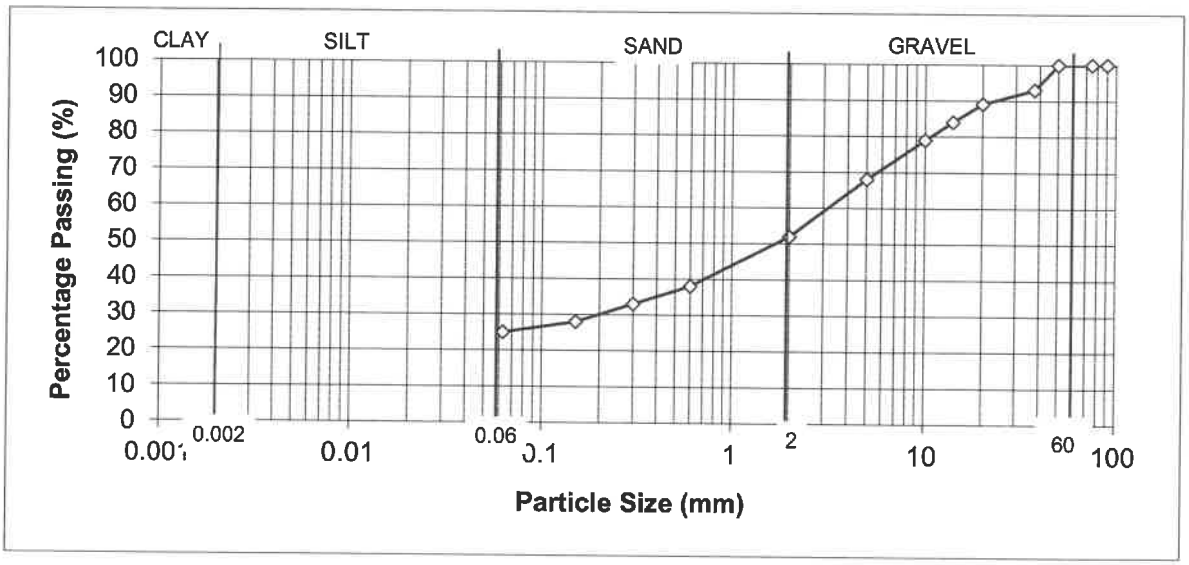
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	B1348 - Dearne Vally Parkway
JOB NUMBER	MRN 3787/58

SAMPLE LABEL	BH1 B 5.30-6.30	DATE SAMPLED	Not advised
LAB SAMPLE No	90824	DATE RECEIVED	10-Jul-20
DATE TESTED	21-Jul-20	SAMPLED BY	Client

MATERIAL	Grey silty SAND and GRAVEL
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		10	79	
90	100		5	68	
75	100		2	52	
50	100		0.6	38	
37.5	93		0.3	33	
20	89		0.15	28	
14	84		0.063	25	



REMARKS

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 03-Aug-20

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

TEST CERTIFICATE

pH and Sulphate as SO_4
BS 1377: PART 3: 1990

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	B1348 – Dearne Valley Parkway
JOB NUMBER	MRN 3787/58

SAMPLE LABEL	BH1 B 5.30-6.30	DATE SAMPLED	Not advised
LAB SAMPLE No	90824	DATE RECEIVED	10 July 2020
DATE TESTED	21 July 2020	SAMPLED BY	Client

ADVISED SOURCE	Site Investigation Sample
PRE TREATMENT	Air Dried

PH Value	6.8	
Sulphate as SO_4 (2:1 Water Extract)	0.37	g/l

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 03 August 2020

MURRAY RIX

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

DETERMINATION OF POINT LOAD STRENGTH INDEX OF ROCK
METHOD IN ACCORDANCE WITH ASTM STANDARD D 5731

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	B1348 - Dearne Vally Parkway
JOB NUMBER	MRN 3787/58

SAMPLE LABEL	BH1 C 10.55-10.75	DATE SAMPLED	Not advised
LAB SAMPLE No	90825	DATE RECEIVED	10-Jul-20
DATE TESTED	21-Jul-20	SAMPLED BY	Client

MATERIAL	Rock Core
ADVISED SOURCE	Site Investigation Sample

Sample Number	Test Type	D (mm)	*W (mm)	Load (P) (kN)	D_e^2 (mm^2)	D_e (mm)	Is (MPa)	F	$I_{s(50)}$ (MPa)
1	D	89.5		0.5	8010.25	89.50	0.06	1.30	0.08
2					0.00	0.00	0.00	0.00	0.00
3					0.00	0.00	0.00	0.00	0.00
4					0.00	0.00	0.00	0.00	0.00
5					0.00	0.00	0.00	0.00	0.00
6					0.00	0.00	0.00	0.00	0.00
7					0.00	0.00	0.00	0.00	0.00
8					0.00	0.00	0.00	0.00	0.00
9					0.00	0.00	0.00	0.00	0.00
1					0.00	0.00	0.00	0.00	0.00
11					0.00	0.00	0.00	0.00	0.00
12					0.00	0.00	0.00	0.00	0.00
13					0.00	0.00	0.00	0.00	0.00
14					0.00	0.00	0.00	0.00	0.00
15					0.00	0.00	0.00	0.00	0.00
16					0.00	0.00	0.00	0.00	0.00
17					0.00	0.00	0.00	0.00	0.00
18					0.00	0.00	0.00	0.00	0.00
19					0.00	0.00	0.00	0.00	0.00
20					0.00	0.00	0.00	0.00	0.00

*W Entry required if test type is not Diametrical

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 03-Aug-20

MURRAY RIX

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TEST CERTIFICATE

DETERMINATION OF POINT LOAD STRENGTH INDEX OF ROCK
METHOD IN ACCORDANCE WITH ASTM STANDARD D 5731

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	B1348 - Dearne Vally Parkway
JOB NUMBER	MRN 3787/58

SAMPLE LABEL	BH1 C 12.03-12.30	DATE SAMPLED	Not advised
LAB SAMPLE No	90826	DATE RECEIVED	10-Jul-20
DATE TESTED	21-Jul-20	SAMPLED BY	Client

MATERIAL	Rock Core
ADVISED SOURCE	Site Investigation Sample

Sample Number	Test Type	D (mm)	*W (mm)	Load (P) (kN)	D_e^2 (mm^2)	D_e (mm)	Is (MPa)	F	$I_{s(50)}$ (MPa)
1	D	89.5		2.4	8010.25	89.50	0.30	1.30	0.39
2					0.00	0.00	0.00	0.00	0.00
3					0.00	0.00	0.00	0.00	0.00
4					0.00	0.00	0.00	0.00	0.00
5					0.00	0.00	0.00	0.00	0.00
6					0.00	0.00	0.00	0.00	0.00
7					0.00	0.00	0.00	0.00	0.00
8					0.00	0.00	0.00	0.00	0.00
9					0.00	0.00	0.00	0.00	0.00
1					0.00	0.00	0.00	0.00	0.00
11					0.00	0.00	0.00	0.00	0.00
12					0.00	0.00	0.00	0.00	0.00
13					0.00	0.00	0.00	0.00	0.00
14					0.00	0.00	0.00	0.00	0.00
15					0.00	0.00	0.00	0.00	0.00
16					0.00	0.00	0.00	0.00	0.00
17					0.00	0.00	0.00	0.00	0.00
18					0.00	0.00	0.00	0.00	0.00
19					0.00	0.00	0.00	0.00	0.00
20					0.00	0.00	0.00	0.00	0.00

*W Entry required if test type is not Diametrical

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 03-Aug-20

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DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING
1580

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.2: 1990

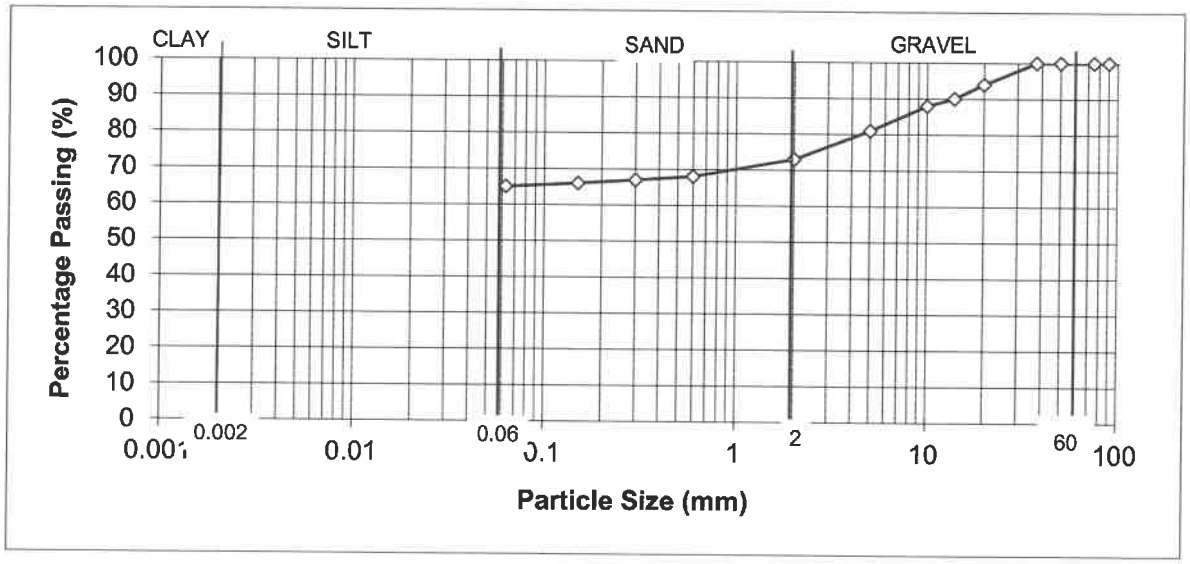
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	B1348 - Dearne Vally Parkway
JOB NUMBER	MRN 3787/58

SAMPLE LABEL	BH2 B 2.40-3.00	DATE SAMPLED	Not advised
LAB SAMPLE No	90827	DATE RECEIVED	10-Jul-20
DATE TESTED	21-Jul-20	SAMPLED BY	Client

MATERIAL	Stiff grey silty sandy CLAY with frequent gravel
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		10	88	
90	100		5	81	
75	100		2	73	
50	100		0.6	68	
37.5	100		0.3	67	
20	94		0.15	66	
14	90		0.063	65	



REMARKS

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 03-Aug-20

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TEST CERTIFICATE

pH and Sulphate as SO_4
BS 1377: PART 3: 1990

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	B1348 – Dearne Valley Parkway
JOB NUMBER	MRN 3787/58

SAMPLE LABEL	BH2 B 2.40-3.00	DATE SAMPLED	Not advised
LAB SAMPLE No	90827	DATE RECEIVED	10 July 2020
DATE TESTED	21 July 2020	SAMPLED BY	Client

ADVISED SOURCE	Site Investigation Sample
PRE TREATMENT	Air Dried

PH Value	6.7	
Sulphate as SO_4 (2:1 Water Extract)	0.39	g/l

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 03 August 2020

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UKAS TESTING
1580

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.2: 1990

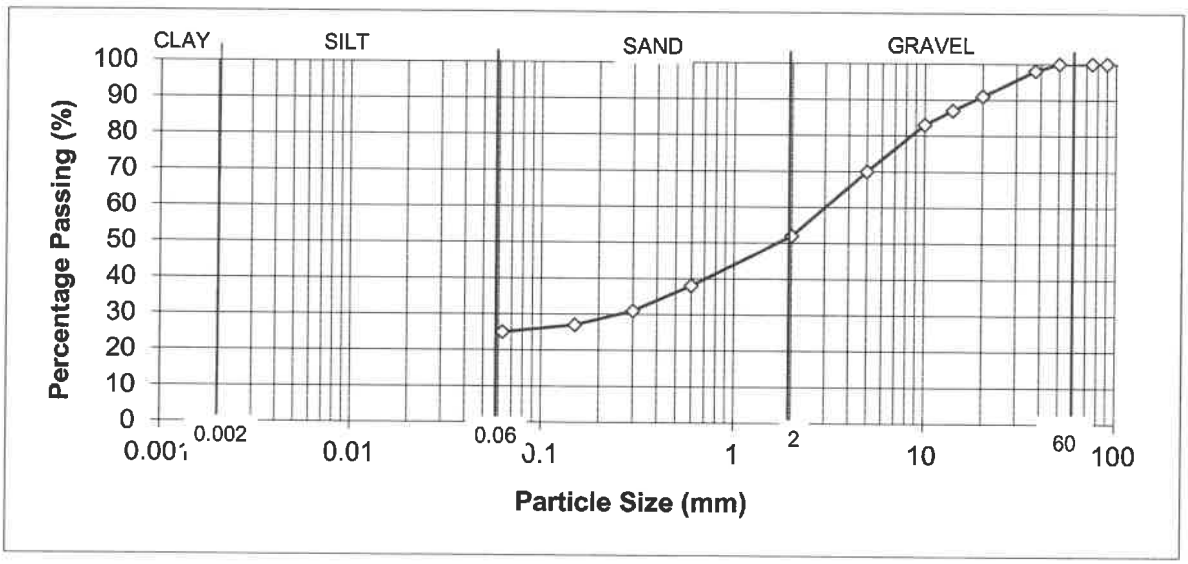
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	B1348 - Dearne Vally Parkway
JOB NUMBER	MRN 3787/58

SAMPLE LABEL	BH21 D 8.80-10.10	DATE SAMPLED	Not advised
LAB SAMPLE No	90828	DATE RECEIVED	10-Jul-20
DATE TESTED	21-Jul-20	SAMPLED BY	Client

MATERIAL	Made Ground - Brown clay bound silty SAND & GRAVEL
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		10	83	
90	100		5	70	
75	100		2	52	
50	100		0.6	38	
37.5	98		0.3	31	
20	91		0.15	27	
14	87		0.063	25	



REMARKS

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 03-Aug-20

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TEL 0161 475 0870

TEST CERTIFICATE

pH and Sulphate as SO_4
BS 1377: PART 3: 1990

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	B1348 – Dearne Valley Parkway
JOB NUMBER	MRN 3787/58

SAMPLE LABEL	BH2 D 8.80-10.10	DATE SAMPLED	Not advised
LAB SAMPLE No	90828	DATE RECEIVED	10 July 2020
DATE TESTED	21 July 2020	SAMPLED BY	Client

ADVISED SOURCE	Site Investigation Sample
PRE TREATMENT	Air Dried

PH Value	7.0	
Sulphate as SO_4 (2:1 Water Extract)	0.41	g/l

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 03 August 2020

MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

DETERMINATION OF POINT LOAD STRENGTH INDEX OF ROCK
METHOD IN ACCORDANCE WITH ASTM STANDARD D 5731

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	B1348 - Dearne Vally Parkway
JOB NUMBER	MRN 3787/58

SAMPLE LABEL	BH2 C 12.03-12.23	DATE SAMPLED	Not advised
LAB SAMPLE No	90829	DATE RECEIVED	10-Jul-20
DATE TESTED	21-Jul-20	SAMPLED BY	Client

MATERIAL	Rock Core
ADVISED SOURCE	Site Investigation Sample

Sample Number	Test Type	D (mm)	*W (mm)	Load (P) (kN)	D_e^2 (mm^2)	D_e (mm)	Is (MPa)	F	$I_{s(50)}$ (MPa)
1	D	89.5		2.1	8010.25	89.50	0.26	1.30	0.34
2					0.00	0.00	0.00	0.00	0.00
3					0.00	0.00	0.00	0.00	0.00
4					0.00	0.00	0.00	0.00	0.00
5					0.00	0.00	0.00	0.00	0.00
6					0.00	0.00	0.00	0.00	0.00
7					0.00	0.00	0.00	0.00	0.00
8					0.00	0.00	0.00	0.00	0.00
9					0.00	0.00	0.00	0.00	0.00
1					0.00	0.00	0.00	0.00	0.00
11					0.00	0.00	0.00	0.00	0.00
12					0.00	0.00	0.00	0.00	0.00
13					0.00	0.00	0.00	0.00	0.00
14					0.00	0.00	0.00	0.00	0.00
15					0.00	0.00	0.00	0.00	0.00
16					0.00	0.00	0.00	0.00	0.00
17					0.00	0.00	0.00	0.00	0.00
18					0.00	0.00	0.00	0.00	0.00
19					0.00	0.00	0.00	0.00	0.00
20					0.00	0.00	0.00	0.00	0.00

*W Entry required if test type is not Diametrical

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 03-Aug-20

MURRAY RIX

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TEST CERTIFICATE

DETERMINATION OF POINT LOAD STRENGTH INDEX OF ROCK
METHOD IN ACCORDANCE WITH ASTM STANDARD D 5731

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	B1348 - Dearne Vally Parkway
JOB NUMBER	MRN 3787/58

SAMPLE LABEL	BH2 C 13.56-13.87	DATE SAMPLED	Not advised
LAB SAMPLE No	90830	DATE RECEIVED	10-Jul-20
DATE TESTED	21-Jul-20	SAMPLED BY	Client

MATERIAL	Rock Core
ADVISED SOURCE	Site Investigation Sample

Sample Number	Test Type	D (mm)	*W (mm)	Load (P) (kN)	D_e^2 (mm^2)	D_e (mm)	Is (MPa)	F	$I_{s(50)}$ (MPa)
1	D	90.0		5.4	8100.00	90.00	0.67	1.30	0.87
2					0.00	0.00	0.00	0.00	0.00
3					0.00	0.00	0.00	0.00	0.00
4					0.00	0.00	0.00	0.00	0.00
5					0.00	0.00	0.00	0.00	0.00
6					0.00	0.00	0.00	0.00	0.00
7					0.00	0.00	0.00	0.00	0.00
8					0.00	0.00	0.00	0.00	0.00
9					0.00	0.00	0.00	0.00	0.00
1					0.00	0.00	0.00	0.00	0.00
11					0.00	0.00	0.00	0.00	0.00
12					0.00	0.00	0.00	0.00	0.00
13					0.00	0.00	0.00	0.00	0.00
14					0.00	0.00	0.00	0.00	0.00
15					0.00	0.00	0.00	0.00	0.00
16					0.00	0.00	0.00	0.00	0.00
17					0.00	0.00	0.00	0.00	0.00
18					0.00	0.00	0.00	0.00	0.00
19					0.00	0.00	0.00	0.00	0.00
20					0.00	0.00	0.00	0.00	0.00

*W Entry required if test type is not Diametrical

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 03-Aug-20

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

TEST CERTIFICATE

pH and Sulphate as SO_4
BS 1377: PART 3: 1990

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	B1348 – Dearne Valley Parkway
JOB NUMBER	MRN 3787/58

SAMPLE LABEL	BH3 D 5.00-5.75	DATE SAMPLED	Not advised
LAB SAMPLE No	90831	DATE RECEIVED	14 July 2020
DATE TESTED	21 July 2020	SAMPLED BY	Client

ADVISED SOURCE	Site Investigation Sample
PRE TREATMENT	Air Dried

PH Value	6.8	
Sulphate as SO_4 (2:1 Water Extract)	0.28	g/l

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 03 August 2020

MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

DETERMINATION OF POINT LOAD STRENGTH INDEX OF ROCK
METHOD IN ACCORDANCE WITH ASTM STANDARD D 5731

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	B1348 - Dearne Vally Parkway
JOB NUMBER	MRN 3787/58

SAMPLE LABEL	BH3 C 10.75-10.95	DATE SAMPLED	Not advised
LAB SAMPLE No	90832	DATE RECEIVED	14-Jul-20
DATE TESTED	21-Jul-20	SAMPLED BY	Client

MATERIAL	Rock Core
ADVISED SOURCE	Site Investigation Sample

Sample Number	Test Type	D (mm)	*W (mm)	Load (P) (kN)	D_e^2 (mm^2)	D_e (mm)	Is (MPa)	F	$I_{s(50)}$ (MPa)
1	D	90.0		1.1	8100.00	90.00	0.14	1.30	0.18
2					0.00	0.00	0.00	0.00	0.00
3					0.00	0.00	0.00	0.00	0.00
4					0.00	0.00	0.00	0.00	0.00
5					0.00	0.00	0.00	0.00	0.00
6					0.00	0.00	0.00	0.00	0.00
7					0.00	0.00	0.00	0.00	0.00
8					0.00	0.00	0.00	0.00	0.00
9					0.00	0.00	0.00	0.00	0.00
1					0.00	0.00	0.00	0.00	0.00
11					0.00	0.00	0.00	0.00	0.00
12					0.00	0.00	0.00	0.00	0.00
13					0.00	0.00	0.00	0.00	0.00
14					0.00	0.00	0.00	0.00	0.00
15					0.00	0.00	0.00	0.00	0.00
16					0.00	0.00	0.00	0.00	0.00
17					0.00	0.00	0.00	0.00	0.00
18					0.00	0.00	0.00	0.00	0.00
19					0.00	0.00	0.00	0.00	0.00
20					0.00	0.00	0.00	0.00	0.00

*W Entry required if test type is not Diametrical

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 03-Aug-20

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TEL 0161 475 0870

TEST CERTIFICATE

DETERMINATION OF POINT LOAD STRENGTH INDEX OF ROCK
METHOD IN ACCORDANCE WITH ASTM STANDARD D 5731

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	B1348 - Dearne Vally Parkway
JOB NUMBER	MRN 3787/58

SAMPLE LABEL	BH3 C 11.10-11.33	DATE SAMPLED	Not advised
LAB SAMPLE No	90832	DATE RECEIVED	14-Jul-20
DATE TESTED	21-Jul-20	SAMPLED BY	Client

MATERIAL	Rock Core
ADVISED SOURCE	Site Investigation Sample

Sample Number	Test Type	D (mm)	*W (mm)	Load (P) (kN)	D_e^2 (mm^2)	D_e (mm)	Is (MPa)	F	$I_{s(50)}$ (MPa)
1	D	89.5		2.6	8010.25	89.50	0.32	1.30	0.42
2					0.00	0.00	0.00	0.00	0.00
3					0.00	0.00	0.00	0.00	0.00
4					0.00	0.00	0.00	0.00	0.00
5					0.00	0.00	0.00	0.00	0.00
6					0.00	0.00	0.00	0.00	0.00
7					0.00	0.00	0.00	0.00	0.00
8					0.00	0.00	0.00	0.00	0.00
9					0.00	0.00	0.00	0.00	0.00
1					0.00	0.00	0.00	0.00	0.00
11					0.00	0.00	0.00	0.00	0.00
12					0.00	0.00	0.00	0.00	0.00
13					0.00	0.00	0.00	0.00	0.00
14					0.00	0.00	0.00	0.00	0.00
15					0.00	0.00	0.00	0.00	0.00
16					0.00	0.00	0.00	0.00	0.00
17					0.00	0.00	0.00	0.00	0.00
18					0.00	0.00	0.00	0.00	0.00
19					0.00	0.00	0.00	0.00	0.00
20					0.00	0.00	0.00	0.00	0.00

*W Entry required if test type is not Diametrical

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 03-Aug-20

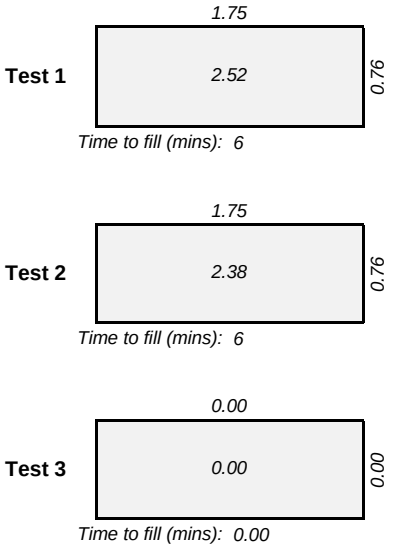
APPENDIX 12

Pam Brown Associates Ltd
2 Lancaster Park
Newborough Road
Needwood
DE13 9PD

Soil Infiltration Test
Summary of Results

Client:	Glanville Group	Weather:	Raining, cool	Location	
Project:	2023-20	Engineer:	GR		
	Dearne Valley Parkway, Barnsley	Date:	09 July 2020	**TP1**	

Trial Pit Dimensions

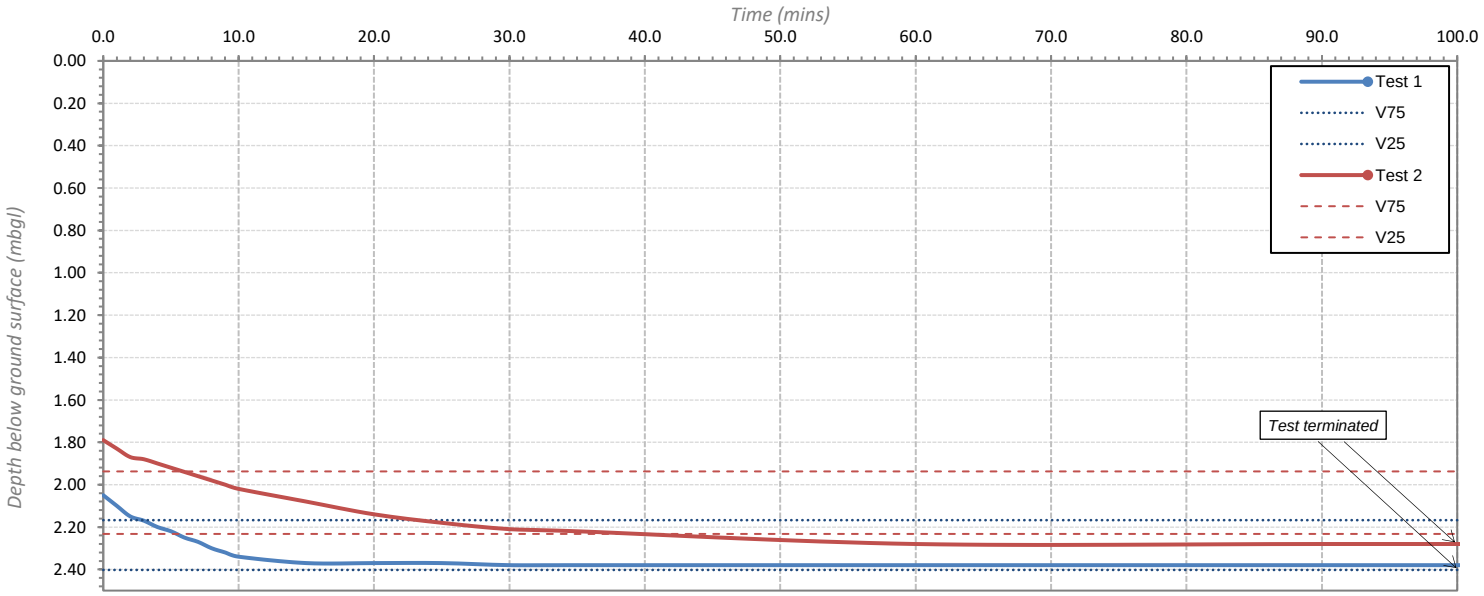


All dimensions in metres unless stated otherwise

Soil Infiltration Rate = $\frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

	Test 1	Test 2	Test 3	
V_{p75-25}	0.31	0.39		m^3
a_{p50}	2.51	2.81		m^2
t_{p75-25}	147.00	33.16		*mins*
Infiltration:	1.41E-05	7.02E-05		*m/s*
	0.00001	*0.00006*		*m/s*

(mbgl)	Ground Conditions Summary
GL - 1.35	Made Ground: Soft, friable, grey silty slightly sandy gravelly clay.
1.35 - 2.90	Made Ground: Soft to firm, friable, grey slightly silty gravelly clay.



Comments

1. Test 1 commenced when groundwater level in the trial pit stabilised.
2. Test 2 undertaken approximately 30 minutes after completion of Test 1.
3. Water removed and trial pit backfilled with arisings upon termination of the test.

		Test 1	Test 2	Test 3
Effective storage depth	(m)	*0.47*	*0.59*	
75% effective storage depth	(m)	*0.12*	*0.1475*	
(i.e. Depth below GL)	(m)	*2.17*	*1.9375*	
25% effective storage depth	(m)	*0.35*	*0.4425*	
(i.e. Depth below GL)	(m)	*2.40*	*2.23*	
Time to fall to 75% effective depth	(mins)	*3*	*6*	
Time to fall to 25% effective depth	(mins)	*150*	*39.16*	

APPENDIX 13

Soil Assessment Criteria for land under COMMERCIAL /INDUSTRIAL USE

Parameters	**C4SLs[1] (mg kg^{-1})**	**Suitable for Use Levels[2] (mg kg^{-1})**		
Antimony	-	7500[3]		
Arsenic (inorganic)	640	640		
Barium	-	22000[3]		
Beryllium	-	12		
Boron	-	240000		
Cadmium	410	190		
Chromium	49 ($^{6+}$)	8600($^{3+}$) 33($^{6+}$)		
Copper	-	68000		
Lead	2300	-		
Mercury (inorganic)		1100		
Molybdenum	-	17000[3]		
Nickel		980		
Selenium		12000		
Zinc	-	730000		
Vanadium	-	9000		
Petroleum Hydrocarbons		**1%SOM**	**2.5%SOM**	**6%SOM**
TPH aliphatic >C5-C6		3200	5900	12000
TPH aliphatic >C6-C8		7800	17000	40000
TPH aliphatic >C8-C10		2000	4800	11000
TPH aliphatic >C10-C12		9700	23000	47000
TPH aliphatic >C12-C16		59000	82000	90000
TPH aliphatic >C16-C35		1600000	1700000	1800000
TPH aliphatic >C35-C44		1600000	1700000	1800000
TPH aromatic >C5-C7		26000	46000	86000
TPH aromatic >C7-C8		56000	110000	180000
TPH aromatic >C8-C10		3500	8100	17000
TPH aromatic >C10-12		16000	28000	34000
TPH aromatic >C12-C16		36000	37000	38000
TPH aromatic >C16-C21		28000	28000	28000
TPH aromatic >C21-C35		28000	28000	28000
TPH aromatic >C35-C44		28000	28000	28000
Polyaromatic Hydrocarbons				
Napthalene		190	460	1100
Acenaphthylene		83000	97000	100000
Acenaphthene		84000	97000	100000
Fluorene		63000	68000	71000
Phenanthrene		22000	22000	23000
Anthracene		520000	540000	540000
Fluoranthene		23000	23000	23000
Pyrene		54000	54000	54000
Benz[a]anthracene		170	170	180
Chrysene		350	350	350
Benzo[b]fluoranthene		44	44	45
Benzo[k]fluoranthene		1200	1200	1200
Benzo[a]pyrene	77	35	35	36
Dibenz[a,h]anthracene		3.5	3.6	3.6
Indeno[1,2,3c-d]pyrene		500	510	510
Benzo[g,h,i]perylene		3900	4000	4000

Parameters	C4SLs[1] (mg kg^{-1})	Suitable for Use Levels[2] (mg kg^{-1}) Generic Assessment Criteria[3] (mg kg^{-1})		
BTEX		**1% SOM**	**2.5% SOM**	**6% SOM**
Benzene	98	27	47	90
Toluene		56000	110000	180000
Ethylbenzene		5700	13000	27000
m-xylene		6200	14000	31000
p-xylene		5900	14000	30000
o-xylene		6600	15000	33000
Phenol and Chlorophenols				
Phenols		760	1500	3200
Chlorophenols (4 congeners)		3500	4000	4300
Pentachlorophenol		400	400	400
Volatile Organic Compounds				
1,2-Dichloroethane		0.67	0.97	1.7
1,1,1-Trichloroethane		660	1300	3000
1,1,2,2 Tetrachloroethane		270	550	1100
1,1,1,2 Tetrachloroethane		110	250	560
Tetrachloroethene		19	42	95
Tetrachloromethane (carbon tetrachloride)		2.9	6.3	14
Trichloroethene (TCE)		1.2	2.6	5.7
Trichloromethane (chloroform)		99	170	350
Chloroethene (vinyl chloride)		0.059	0.077	0.12
1,1,2, Trichloroethane		94	190	400
1,1-Dichloroethane		280	450	850
1,1-Dichloroethene		26	46	92
1,2,4-Trimethylbenzene		42	99	220
1,2-Dichloropropane		3.3	5.9	12
2,4-Dimethylphenol		16000	24000	30000
2,4-Dinitrotoluene		3700	3700	3800
2,6-Dinitrotoluene		1900	1900	1900
2-Chloronaphthalene		390	960	2200
Biphenyl		18000	33000	48000
Bis (2-ethylhexyl) phthalate		85000	86000	86000
Bromobenzene		97	220	520
Bromodichloromethane		2.1	3.7	7.6
Bromoform		760	1500	3100
Butyl benzyl phthalate		940000	940000	950000
Carbon Disulphide		11	22	47
Chlorobenzene		56	130	290
Chloroethane		960	1300	2100
Chloromethane		1.0	1.2	1.6
Cis 1,2 Dichloroethene		14	24	47
Dichloromethane		270	360	560
Diethyl Phthalate		150000	220000	290000
Di-*n*-butyl phthalate		15000	15000	15000
Di-*n*-octyl phthalate		89000	89000	89000
Hexachlorobutadiene		31	66	120
Hexachloroethane		22	53	120
Isopropylbenzene		1400	3300	7700
Methyl *tert*-butyl ether		7900	13000	24000
Propylbenzene		4100	9700	21000
Styrene		3300	6500	11000

Parameters	C4SLs[4] (mg kg^{-1})	Suitable for Use Levels[2] (mg kg^{-1}) Generic Assessment Criteria[3] (mg kg^{-1})		
		1% SOM	2.5% SOM	6% SOM
Total Cresols (2-,3-&4-methylphenol)		160000	180000	180000
Trans 1,2 Dichloroethene		22	40	81
Tributyl tin oxide		130	180	200
Chlorobenzenes				
Chlorobenzene		56	130	290
1,2-Dichlorobenzene		2000	4800	11000
1,3-Dichlorobenzene		30	73	170
1,4-Dichlorobenzene		4400	10000	25000
1,2,3-Trichlorobenzene		102	250	590
1,2,4-Trichlorobenzene		220	530	1300
1,3,5-Trichlorobenzene		23	55	130
1,2,3,4-Tetraclorobenzene		1700	3080	4400
1,2,3,5-Tetrachlorobenzene		49	120	240
1,2,4,5-Tetrachlorobenzene		42	72	96
Pentachlorobenzene		640	770	830
Hexachlorobenzene		110	120	120
Polychlorinated Biphenyls	0.24[1]			
Explosives				
2,4,6 Trinitrotoluene (TNT)		1000	1000	1000
RDX		210000	210000	210000
HMX		110000	110000	110000
Pesticides				
Aldrin		170	170	170
Dieldrin		170	170	170
Atrazine		9300	9400	9400
Dichlorvos		140	140	140
Alpha-Endosulfan		5600	7400	8400
Beta-Endoulfan		6300	7800	8700
Alpha-Hexachlorocyclohexane		170	180	180
Beta-Hexachlorocyclohexane		65	65	65
Gamma-Hexachlorocyclohexane (including Lindane)		67	69	70

References

[1] Environment Agency (2009) 'Soil Guideline Values for 'Arsenic', 'Cadmium', 'Mercury', 'Nickel', 'Selenium', 'Benzene', 'Ethlybenzene', 'Toluene', 'Xylenes', 'Phenol', 'Dioxins, Furans and Dioxin-like PCBs in soil'. Science Report SC050021. UK.

[2] Nathanail, C.P., McCaffrey, C., Gillett, A.G., Ogden, R.C. and Nathanail, J.F. 2015. The LQM/CIEH S4ULs for Human Health Risk Assessment. Land Quality Press, Nottingham.

[3] EIC/AGS/CL:AIRE (2010) 'Soil Generic Assessment Criteria for Human Health Risk Assessment'. UK.

[4] CL:AIRE (2014) SP1010-Development of Category 4 Screening Levels for assessment of Land Affected by Contamination. Final Project Report (Revision 2). Appendix H Provisional C4SL.

*Note for xylenes the most health protective value in each scenario is highlighted in **bold** see ref 1, section 16.5 para 28 for further detail.*