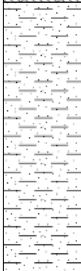
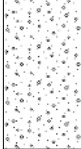


				Trial Pit Log			Trialpit No TP02 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road				Project No. 2551		Co-ords: 435798.00 - 408599.00 Level:		Date 01/06/2017	
Location: Barnsley						Dimensions (m):		Scale 1:25	
Client: Keepmoat Homes						Depth 1.90		Logged MAR	

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	J&T		0.30			Brown slightly gravelly clayey slightly or SAND. (TOPSOIL)	
							Stiff to very stiff orange grey gleyed slightly sandy CLAY. (COHESIVE RESIDUAL SOIL)	
	1.00	D		1.20				1
	1.30	D		1.40			Firm black sandy slightly gravelly CLAY. Gravel is angular to sub-angular fine of dark mudstone and rare coal. (COHESIVE RESIDUAL SOIL)	
	1.60	D					Orangish brown sandy GRAVEL of sandstone. (GRANULAR RESIDUAL SOIL)	
				1.90			At 1.9m, excavation terminated on competent rock. End of pit at 1.90 m	2
								3
								4
								5

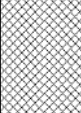
Remarks: 1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. The sides of the trial pit remained stable during excavation. 4. Backfilled with materials arising upon completion. 5. Co-ordinates from handheld GPS.	
Stability:	

				Trial Pit Log			Trialpit No TP03 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road				Project No. 2551		Co-ords: 435786.00 - 408583.00 Level:		Date 01/06/2017	
Location: Barnsley				Dimensions (m):				Scale 1:25	
Client: Keepmoat Homes				Depth 1.70				Logged MAR	

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	J&T					MADE GROUND: Dark brown very gravelly slightly clayey slightly organic SAND. Gravel is fine to coarse of brick and concrete. (MADE GROUND TOPSOIL)	
	0.40	J&T					MADE GROUND: Yellow sandy fine to coarse GRAVEL of limestone. (SUB-BASE)	
				0.60			Stiff to very stiff orange grey mottled slightly sandy CLAY. (COHESIVE RESIDUAL SOIL) <i>From ground level to 0.6m, spalling.</i>	1
	1.00	D						
				1.20			Stiff dark grey to black slightly gravelly CLAY. Gravel is fine of dark mudstone and rare coal. (COHESIVE RESIDUAL SOIL)	
	1.40	D						
				1.60			Orange thinly bedded SANDSTONE. (PENNINE MIDDLE COAL MEASURES) <i>At 1.7m, excavation terminated on competent rock.</i> <i>End of pit at 1.70 m</i>	2
	1.70							
								3
								4
								5

Remarks: 1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. The sides of the trial pit spalled during excavation. 4. Backfilled with materials arising upon completion. 5. Co-ordinates from handheld GPS.		
Stability:		

				Trial Pit Log			Trialpit No TP04 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road				Project No. 2551		Co-ords: 435824.00 - 408552.00 Level:		Date 01/06/2017	
Location: Barnsley				Dimensions (m):				Scale 1:25	
Client: Keepmoat Homes				Depth 1.90				Logged MAR	

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.20	J&T	HVP=112	0.40			MADE GROUND: Grey very gravelly CLAY. Gravel is fine to coarse of brick, concrete and glass. With occasional whole bricks. Clay is loamy. (MADE GROUND TOPSOIL)	1
				1.40			Stiff orange grey mottled slightly sandy CLAY. (COHESIVE RESIDUAL SOIL)	
				1.70			Stiff black gravelly CLAY. Gravel is angular fine to coarse of carbonaceous mudstone. (COHESIVE RESIDUAL SOIL)	
				1.90			Orange and grey thinly bedded SANDSTONE. (PENNINE MIDDLE COAL MEASURES)	2
							At 1.9m, excavation terminated on competent rock. End of pit at 1.90 m	
								3
								4
								5

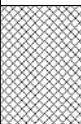
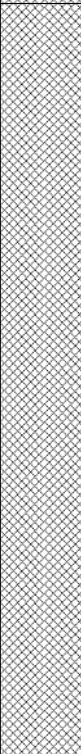
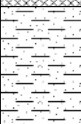
Remarks: Stability:	1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. The sides of the trial pit remained stable during excavation. 4. Backfilled with materials arising upon completion. 5. Co-ordinates from handheld GPS.	
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				Trial Pit Log			Trialpit No TP05 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road				Project No. 2551		Co-ords: 435835.00 - 408570.00 Level:		Date 01/06/2017	
Location: Barnsley						Dimensions (m):		Scale 1:25	
Client: Keepmoat Homes						Depth 2.70		Logged MAR	

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.10	J&T					MADE GROUND: Grey and brown clayey GRAVEL of brick, concrete and glass. Clay is loamy. (MADE GROUND TOPSOIL)		
	0.40	J&T		0.30				MADE GROUND: Grey and brown very cobbly clayey GRAVEL of brick, concrete and glass. (GRANULAR MADE GROUND)	
	1.00	J&T		0.80				MADE GROUND: Stiff brown and grey slightly sandy CLAY. (REWORKED CLAY) <i>From ground level to 0.8m, spalling.</i>	1
	2.10	J&T		2.00			MADE GROUND: Firm grey sandy CLAY. (RELICT TOPSOIL)	2	
				2.30			Stiff to very stiff orange sandy CLAY. (COHESIVE RESIDUAL SOIL)		
				2.70		End of pit at 2.70 m		3	
								4	
								5	

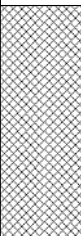
Remarks: 1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. The sides of the trial pit spalled during excavation. 4. Backfilled with materials arising upon completion. 5. Co-ordinates from handheld GPS.		
Stability:		

				Trial Pit Log			Trialpit No TP06 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road				Project No. 2551		Co-ords: 435878.00 - 408568.00 Level:		Date 01/06/2017	
Location: Barnsley				Dimensions (m):				Scale 1:25	
Client: Keepmoat Homes				Depth 3.30				Logged MAR	

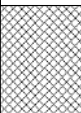
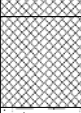
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.20	J&T		0.40		 MADE GROUND: Dark brown sandy gravelly CLAY. Gravel is fine to coarse of brick, sandstone and mudstone. (MADE GROUND TOPSOIL) <u>At 0.1m, in-situ geotextile layer.</u>		
	0.60	J&T				 MADE GROUND: Firm orange and grey slightly sandy CLAY. (REWORKED CLAY)		
	3.00	D		2.90		 Stiff orange grey gleyed slightly sandy CLAY. (COHESIVE RESIDUAL SOIL)		
				3.30		End of pit at 3.30 m		

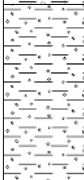
Remarks: 1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. The sides of the trial pit remained stable during excavation. 4. Backfilled with materials arising upon completion. 5. Co-ordinates from handheld GPS.		
Stability:		

				Trial Pit Log			Trialpit No TP07 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road				Project No. 2551		Co-ords: 435780.00 - 408550.00 Level:		Date 01/06/2017	
Location: Barnsley				Dimensions (m):				Scale 1:25	
Client: Keepmoat Homes				Depth 1.60				Logged MAR	

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.30	J&T					MADE GROUND: Brown slightly clayey sandy GRAVEL of brick, concrete, wood and rare clinker. Occasional whole bricks. (DEMOLITION RUBBLE)	
				0.80			Stiff brown slightly sandy CLAY. (COHESIVE RESIDUAL SOIL)	1
				1.30			Stiff dark grey and brown slightly gravelly CLAY. Gravel is fine of dark mudstone and occasional coal. (COHESIVE RESIDUAL SOIL)	
				1.50			Grey thinly bedded to thickly laminated SILTSTONE. (PENNINE MIDDLE COAL MEASURES)	
				1.60			At 1.6m, excavation terminated on competent rock. End of pit at 1.60 m	2
								3
								4
								5

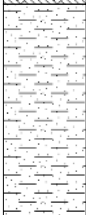
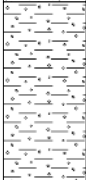
Remarks: 1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. The sides of the trial pit remained stable during excavation. 4. Backfilled with materials arising upon completion. 5. Co-ordinates from handheld GPS.		
Stability:		

				Trial Pit Log			Trialpit No TP08 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road				Project No. 2551		Co-ords: 435854.00 - 408566.00 Level:		Date 01/06/2017	
Location: Barnsley				Dimensions (m):				Scale 1:25	
Client: Keepmoat Homes				Depth 2.30				Logged MAR	
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.20	J&T		0.40			MADE GROUND: Brown and red slightly clayey sandy GRAVEL of brick, glass, concrete and metal. Clay is loamy. (MADE GROUND TOPSOIL)		
	0.60	J&T					MADE GROUND: Firm orange slightly gravelly sandy CLAY. Gravel is sub-angular to angular fine of brick. (REWORKED CLAY)		
	1.50	J&T		1.30			MADE GROUND: Soft grey slightly clayey slightly gravelly CLAY. Gravel is fine of sandstone. (RELICT TOPSOIL)		
	1.80	D		1.60			Stiff orange grey mottled slightly sandy CLAY. (COHESIVE RESIDUAL SOIL)		
					2.30		End of pit at 2.30 m		
Remarks: 1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. The sides of the trial pit remained stable during excavation. 4. Backfilled with materials arising upon completion. 5. Co-ordinates from handheld GPS.									
Stability:									

				Trial Pit Log			Trialpit No TP09 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road				Project No. 2551		Co-ords: 435850.00 - 408523.00 Level:		Date 01/06/2017	
Location: Barnsley						Dimensions (m):		Scale 1:25	
Client: Keepmoat Homes						Depth 2.10		Logged MAR	
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.10	J&T		0.30			Grey sandy slightly organic CLAY. (TOPSOIL)		
							Stiff orange grey mottled sandy CLAY. (COHESIVE RESIDUAL SOIL)		
	1.00	D		1.20			Stiff black gravelly CLAY. Gravel is of carbonaceous mudstone lithorelicts. (COHESIVE RESIDUAL SOIL)		
							Orange thinly bedded SANDSTONE. (PENNINE MIDDLE COAL MEASURES)		
				2.10			At 2.1m, excavation terminated on competent rock. End of pit at 2.10 m		
Remarks: 1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. The sides of the trial pit remained stable during excavation. 4. Backfilled with materials arising upon completion. 5. Co-ordinates from handheld GPS.									
Stability:									



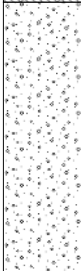
				Trial Pit Log			Trialpit No TP10 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road				Project No. 2551		Co-ords: 435817.00 - 408524.00 Level:		Date 01/06/2017	
Location: Barnsley						Dimensions (m):		Scale 1:25	
Client: Keepmoat Homes						Depth 1.80		Logged MAR	

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	J&T		0.30			Grey slightly gravelly sandy slightly organic CLAY. Gravel is fine of flint. (TOPSOIL)	1
							Stiff orange slightly sandy CLAY. (COHESIVE RESIDUAL SOIL)	
	0.90	D		1.00			Stiff black gravelly CLAY. Gravel is lithorelicts of carbonaceous mudstone. (COHESIVE RESIDUAL SOIL)	
	1.20	D					Grey thickly laminated MUDSTONE.	
				1.60				2
				1.80				
						<i>At 1.8m, excavation terminated on competent rock.</i> End of pit at 1.80 m		
								3
								4
								5

Remarks: 1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. The sides of the trial pit remained stable during excavation. 4. Backfilled with materials arising upon completion. 5. Co-ordinates from handheld GPS.		
Stability:		

				Trial Pit Log			Trialpit No TP11 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road				Project No. 2551		Co-ords: 435870.00 - 408506.00 Level:		Date 01/06/2017	
Location: Barnsley						Dimensions (m):		Scale 1:25	
Client: Keepmoat Homes						Depth 2.10		Logged MAR	
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.10	J&T					Grey sandy slightly organic CLAY. (TOPSOIL)		
				0.60					
	0.90	D	HVP=110				Stiff orange grey mottled sandy CLAY. (COHESIVE RESIDUAL SOIL)		
				1.50					
	1.70	D					Firm black gravelly CLAY. Gravel is angular fine to coarse of carbonaceous mudstone lithorelicts. (COHESIVE RESIDUAL SOIL)		
				2.00					
				2.10			Orange thinly bedded SANDSTONE. (PENNINE MIDDLE COAL MEASURES) <i>At 2.1m, excavation terminated on competent rock.</i> <i>End of pit at 2.10 m</i>		
Remarks: 1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. The sides of the trial pit remained stable during excavation. 4. Backfilled with materials arising upon completion. 5. Co-ordinates from handheld GPS. Stability: 									

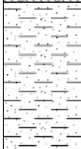
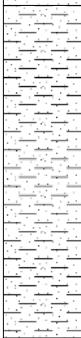
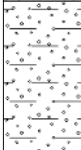
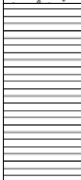
				Trial Pit Log			Trialpit No TP12 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road				Project No. 2551		Co-ords: 435818.00 - 408488.00 Level:		Date 01/06/2017	
Location: Barnsley				Dimensions (m):				Scale 1:25	
Client: Keepmoat Homes				Depth 1.40				Logged MAR	

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.30			Grey sandy slightly organic CLAY. (TOPSOIL)	
							Grey slightly clayey sandy angular fine to coarse GRAVEL of mudstone. (GRANULAR RESIDUAL SOIL)	1
				1.20			Orange and grey thinly bedded to thickly laminated MUDSTONE.	
				1.40			(PENNINE MIDDLE COAL MEASURES) <i>At 1.4m, excavation terminated on competent rock.</i> End of pit at 1.40 m	
								2
								3
								4
								5

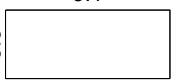
Remarks: 1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. The sides of the trial pit remained stable during excavation. 4. Backfilled with materials arising upon completion. 5. Co-ordinates from handheld GPS.		
Stability:		

				Trial Pit Log				Trialpit No TP13 Sheet 1 of 1	
Project Name: St Helens Boulevard, Carlton Road				Project No. 2551		Co-ords: 435868.00 - 408374.00 Level:		Date 04/01/2018	
Location: Barnsley						Dimensions (m): 2.8 Depth 3.20		Scale 1:25 Logged LNA	
Client: Keepmoat Homes									
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.10	J,K&T		0.30			TOPSOIL: Dark brown slightly sandy CLAY with rootlets. (TOPSOIL)		
			HVP=60				Firm light brown-orange sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse mudstone and sandstone. (COHESIVE RESIDUAL SOIL)		
			HVP=80	0.80			Stiff light grey sandy gravelly CLAY. Gravel is angular to subangular fine to medium of mudstone and sandstone with tabular cobbles which show horizontal orientations. (COHESIVE RESIDUAL SOIL)		
	1.80	D		2.40			Weak black very thinly bedded MUDSTONE recovered as an angular fine to coarse clayey gravel. (PENNINE MIDDLE COAL MEASURES)		
				3.20			End of pit at 3.20 m		
Remarks: 1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. Backfilled with materials arising upon completion. 4. Co-ordinates from hand held GPS, hole not surveyed in.									
Stability: 1. The sides of the trial pit remained stable during excavation.									

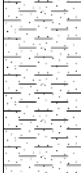
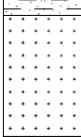


				Trial Pit Log				Trialpit No TP14 Sheet 1 of 1	
Project Name: St Helens Boulevard, Carlton Road				Project No. 2551		Co-ords: 435898.00 - 408400.00 Level:		Date 04/01/2018	
Location: Barnsley						Dimensions (m): 2.9 Depth 3.00		Scale 1:25 Logged LNA	
Client: Keepmoat Homes									
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.10	J,K&T		0.30			TOPSOIL: Dark brown slightly sandy CLAY with rootlets. (TOPSOIL)		
			HVP=80	0.80			Stiff light brown grey sandy CLAY. (COHESIVE RESIDUAL SOIL)		
			HVP=70	1.90			Stiff grey mottled orange-brown sandy CLAY. (COHESIVE RESIDUAL SOIL)		
	1.30	D		2.40			Dark grey wet clayey sandy GRAVEL of angular fine to coarse mudstone and rare coal. (WEATHERED PENNINE MIDDLE COAL MEASURES)		
				3.00			Weak black horizontally orientated MUDSTONE with siderite nodules recovered as an angular fine to coarse gravel and tabular cobbles. (PENNINE MIDDLE COAL MEASURES)		
						End of pit at 3.00 m			
Remarks: 1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. Backfilled with materials arising upon completion. 4. Co-ordinates from hand held GPS, hole not surveyed in.									
Stability: 1. The sides of the trial pit remained stable during excavation.									



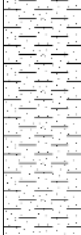
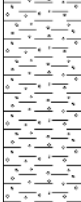
				Trial Pit Log			Trialpit No TP15 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road				Project No. 2551		Co-ords: 435836.00 - 408441.00 Level:		Date 04/01/2018	
Location: Barnsley				Dimensions (m):		3.1		Scale 1:25	
Client: Keepmoat Homes				Depth 3.00				Logged LNA	
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.10	J,K&T		0.30			TOPSOIL: Dark brown slightly sandy CLAY with rootlets. (TOPSOIL)		
			HVP=70	0.80			Stiff light brown grey sandy CLAY. (COHESIVE RESIDUAL SOIL)		
	1.20	D	HVP=80	2.00			Stiff dark grey brown sandy gravelly CLAY. Gravel is angular to subangular fine to medium of mudstone and mudstone lithorelicts. (COHESIVE RESIDUAL SOIL)		
				3.00			Very weak black horizontally orientated MUDSTONE with siderite nodules recovered as an angular fine to coarse gravel. (PENNINE MIDDLE COAL MEASURES)		
				3.00			End of pit at 3.00 m		
Remarks: 1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. Backfilled with materials arising upon completion. 4. Co-ordinates from hand held GPS, hole not surveyed in.									
Stability: 1. The sides of the trial pit remained stable during excavation.									



				Trial Pit Log				Trialpit No TP16 Sheet 1 of 1	
Project Name: St Helens Boulevard, Carlton Road				Project No. 2551		Co-ords: 435904.00 - 408321.00 Level:		Date 04/01/2018	
Location: Barnsley						Dimensions (m): 3 0.6		Scale 1:25	
Client: Keepmoat Homes						Depth 2.20		Logged LNA	
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.10	J,K&T		0.30			TOPSOIL: Dark brown slightly sandy CLAY with rootlets. (TOPSOIL)		
							Stiff brown very sandy slightly gravelly CLAY. Gravel is angular to subangular fine to medium of mudstone. (COHESIVE RESIDUAL SOIL)		
	1.00	D	HVP=80	0.90			Stiff grey mottled orange-brown sandy CLAY. (COHESIVE RESIDUAL SOIL)		
			HVP=90	1.20			Stiff bluish grey sandy CLAY with many angular fine to medium mudstone lithorelicts. (COHESIVE RESIDUAL SOIL)		
				1.60			Strong grey SANDSTONE recovered as an angular to subangular fine to coarse gravel with many tabular cobbles (5cm thick). (UNNAMED SANDSTONE)		
				2.00			Black GRAVEL of angular fine to coarse mudstone, sandstone and rare coal. (WEATHERED PENNINE MIDDLE COAL MEASURES)		
				2.20			End of pit at 2.20 m		
Remarks: 1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. Backfilled with materials arising upon completion. 4. Co-ordinates from hand held GPS, hole not surveyed in.									
Stability: 1. The sides of the trial pit remained stable during excavation.									

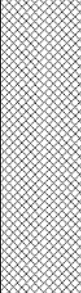


				Trial Pit Log			Trialpit No TP101 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road				Project No. 2551		Co-ords: 435770.00 - 408578.00 Level:		Date 01/06/2017	
Location: Barnsley						Dimensions (m):		Scale 1:25	
Client: Keepmoat Homes						Depth 2.10		Logged MAR	

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	J&T					Greyish brown clayey slightly organic SAND. (TOPSOIL)	
				0.40			Stiff orange grey mottled slightly sandy CLAY. (COHESIVE RESIDUAL SOIL) <i>At 0.4m, grey plastic service duct with black cable inside.</i>	1
				1.20			Stiff grey slightly gravelly CLAY. Gravel is fine of dark mudstone. (COHESIVE RESIDUAL SOIL)	
				1.90			Orange very thinly bedded SANDSTONE. (PENNINE MIDDLE COAL MEASURES)	2
				2.10			<i>At 2.1m, excavation terminated on competent rock.</i> End of pit at 2.10 m	3
								4
								5

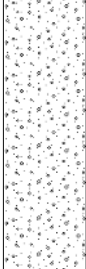
Remarks: 1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. The sides of the trial pit remained stable during excavation. 4. Backfilled with materials arising upon completion. 5. Co-ordinates from handheld GPS.		
Stability:		

				Trial Pit Log			Trialpit No TP102 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road				Project No. 2551		Co-ords: 435886.00 - 408525.00 Level:		Date 01/06/2017	
Location: Barnsley						Dimensions (m):		Scale 1:25	
Client: Keepmoat Homes						Depth 2.50		Logged MAR	

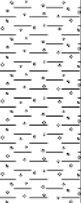
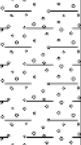
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	J&T		0.30			Greyish brown slightly gravelly clayey organic SAND. (TOPSOIL)	1
							MADE GROUND: Orange and grey slightly sandy CLAY. (REWORKED CLAY)	
	1.50	J&T					MADE GROUND: Dark grey sandy slightly organic CLAY. (RELICT TOPSOIL)	
	1.80	D		1.60			Stiff orange grey gleyed slightly sandy CLAY. (COHESIVE RESIDUAL SOIL)	2
				2.50		End of pit at 2.50 m		3
								4
								5

Remarks: 1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. The sides of the trial pit remained stable during excavation. 4. Backfilled with materials arising upon completion. 5. Co-ordinates from handheld GPS.		
Stability:		

				Trial Pit Log			Trialpit No TP103 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road				Project No. 2551		Co-ords: 435826.00 - 408467.00 Level:		Date 01/06/2017	
Location: Barnsley						Dimensions (m):		Scale 1:25	
Client: Keepmoat Homes						Depth 1.70		Logged MAR	

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	J&T					Greyish brown sandy slightly organic CLAY. (TOPSOIL)	
				0.30			Very stiff grey and brown slightly sandy CLAY. (COHESIVE RESIDUAL SOIL)	
	0.80	D		0.60			Grey sandy angular GRAVEL of mudstone. (GRANULAR RESIDUAL SOIL)	1
	1.60	D		1.50			Orange and grey thinly bedded SANDSTONE with occasional siderite nodules. (OAKS ROCK SANDSTONE)	
				1.70			At 1.7m, excavation terminated on competent rock. End of pit at 1.70 m	2
								3
								4
								5

Remarks: 1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. The sides of the trial pit remained stable during excavation. 4. Backfilled with materials arising upon completion. 5. Co-ordinates from handheld GPS.		
Stability:		

				Trial Pit Log			Trialpit No TP104 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road				Project No. 2551		Co-ords: 435837.00 - 408361.00 Level:		Date 04/01/2018	
Location: Barnsley				Dimensions (m):		3.15		Scale 1:25	
Client: Keepmoat Homes				Depth 2.50				Logged LNA	
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.10	J,K&T	HVP=60	0.20			TOPSOIL: Dark brown slightly sandy CLAY with rootlets. (TOPSOIL)		
				0.80			Firm light brown gleyed grey slightly sandy gravelly CLAY. Gravel is angular to subangular fine to medium of carbonaceous mudstone. (COHESIVE RESIDUAL SOIL)		
				1.50			Stiff gleyed grey orange-brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to medium of mudstone with many angular fine to medium lithorelicts of mudstone. (COHESIVE RESIDUAL SOIL)		
	1.80	D		1.70			Black horizontally orientated organic rich sandy weathered MUDSTONE. (WEATHERED PENNINE MIDDLE COAL MEASURES)		
				2.20			Dark grey very clayey slightly sandy GRAVEL. Gravel is angular to subangular fine to coarse of mudstone with faint horizontal orientations. (WEATHERED PENNINE MIDDLE COAL MEASURES)		
				2.50			Weak black horizontally orientated MUDSTONE recovered as an angular fine to coarse gravel. (PENNINE MIDDLE COAL MEASURES)		
							End of pit at 2.50 m		
Remarks: 1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. Backfilled with materials arising upon completion. 4. Co-ordinates from hand held GPS, hole not surveyed in. Stability: 1. The sides of the trial pit remained stable during excavation. 									

				Trial Pit Log			Trialpit No TP105 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road				Project No. 2551		Co-ords: 435846.00 - 408407.00 Level:		Date 04/01/2018	
Location: Barnsley				Dimensions (m):		3.1		Scale 1:25	
Client: Keepmoat Homes				Depth 2.80				Logged LNA	
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.10	J,K&T					TOPSOIL: Dark brown slightly sandy CLAY with rootlets. (TOPSOIL)		
				0.30			Firm light orange-brown gleyed grey sandy CLAY. (COHESIVE RESIDUAL SOIL)		
			HVP=50						
				0.70			Stiff light grey mottled orange-brown sandy CLAY. (COHESIVE RESIDUAL SOIL)		
	0.90	D	HVP=80	0.80			Stiff light grey slightly gravelly CLAY. Gravel is angular to subangular fine to medium of mudstone and rare coal. (COHESIVE RESIDUAL SOIL)		
				2.00			Stiff light brown gleyed grey slightly gravelly CLAY. Gravel is angular to subangular fine to medium of mudstone and rare coal. (COHESIVE RESIDUAL SOIL)		
				2.50			Weak black very thinly bedded MUDSTONE recovered as an angular fine to coarse gravel. (PENNINE MIDDLE COAL MEASURES)		
				2.80		End of pit at 2.80 m			
Remarks: 1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. Backfilled with materials arising upon completion. 4. Co-ordinates from hand held GPS, hole not surveyed in.									
Stability: 1. The sides of the trial pit remained stable during excavation.									

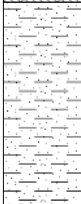
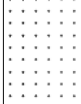
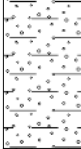
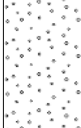


				Trial Pit Log			Trialpit No TP106 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road				Project No. 2551		Co-ords: 435887.00 - 408441.00 Level:		Date 04/01/2018	
Location: Barnsley				Dimensions (m):		2.9		Scale 1:25	
Client: Keepmoat Homes				Depth 2.50				Logged LNA	
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.10	J,K&T					TOPSOIL: Dark brown slightly sandy CLAY with rootlets. (TOPSOIL)		
			HVP=80	0.30			Stiff light grey mottled orange-brown sandy CLAY. (COHESIVE RESIDUAL SOIL)		
			HVP=120	0.60			Very stiff gleyed grey mottled orange-brown slightly sandy gravelly CLAY with horizontal orientations. Gravel is angular to subangular fine to medium of carbonaceous mudstone and mudstone lithorelicts. (COHESIVE RESIDUAL SOIL)		
				1.60			Black GRAVEL of weak angular fine to coarse mudstone. (WEATHERED PENNINE MIDDLE COAL MEASURES)		
	1.90	D		1.80			Bluish grey GRAVEL of angular fine to medium mudstone in a stiff clay matrix. (WEATHERED PENNINE MIDDLE COAL MEASURES)		
				2.00			Weak black very thinly bedded MUDSTONE with oxidation staining recovered as an angular fine to coarse gravel. (PENNINE MIDDLE COAL MEASURES)		
				2.50			End of pit at 2.50 m		

Remarks: 1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. Backfilled with materials arising upon completion. 4. Co-ordinates from hand held GPS, hole not surveyed in.

Stability: 1. The sides of the trial pit remained stable during excavation.

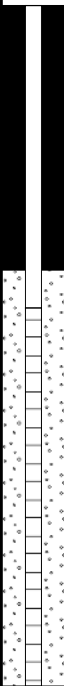
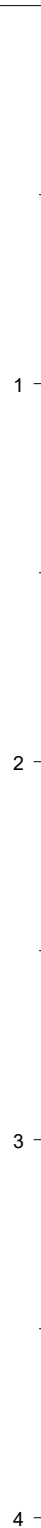


				Trial Pit Log				Trialpit No TP107 Sheet 1 of 1	
Project Name: St Helens Boulevard, Carlton Road				Project No. 2551		Co-ords: 435906.00 - 408341.00 Level:		Date 04/01/2018	
Location: Barnsley						Dimensions (m): 2.9 Depth 3.00		Scale 1:25 Logged LNA	
Client: Keepmoat Homes									
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.10	J,K&T		0.30			TOPSOIL: Dark brown slightly sandy CLAY with rootlets and angular pieces of tile. (TOPSOIL)		
							Firm orange-brown sandy CLAY. (COHESIVE RESIDUAL SOIL)		
	0.90	D	HVP=60	1.00			Stiff orange-brown gleyed grey sandy CLAY. (COHESIVE RESIDUAL SOIL)		
			HVP=70	1.10			Strong grey SANDSTONE recovered as an angular to subangular fine to coarse gravel with many tabular cobbles (5cm thick). (UNNAMED SANDSTONE)		
				1.50			Grey clayey sandy GRAVEL of angular to subangular fine to coarse sandstone, mudstone and rare coal. (GRANULAR RESIDUAL SOIL)		
				2.00			Black GRAVEL of weak angular fine to coarse carbonaceous mudstone. (GRANULAR RESIDUAL SOIL)		
				2.50			Brown slightly clayey sandy GRAVEL of angular to subrounded fine to medium sandstone and mudstone. (GRANULAR RESIDUAL SOIL)		
				2.80			Weak dark grey black horizontally orientated MUDSTONE. (PENNINE MIDDLE COAL MEASURES)		
				3.00			End of pit at 3.00 m		
	Remarks: 1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. Backfilled with materials arising upon completion. 4. Co-ordinates from hand held GPS, hole not surveyed in.								
Stability: 1. The sides of the trial pit remained stable during excavation.									



Appendix G
Dynamic Sample Borehole Logs

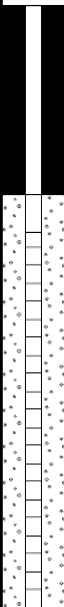
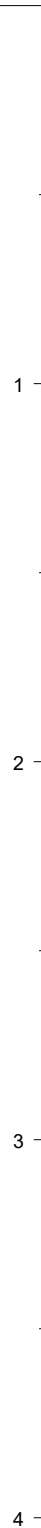
				Borehole Log				Borehole No. WS01 Sheet 1 of 1	
Project Name: St Helens Boulevard, Carlton Road				Project No. 2551		Co-ords: 435790.00 - 408607.00		Hole Type WS	
Location: Barnsley				Level:		Scale 1:20		Logged By MAR	
Client: Keepmoat Homes				Dates: 06/06/2017 - 06/06/2017					

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30		 Dark brown sandy slightly organic CLAY. (TOPSOIL)		
							 Stiff orange grey gleyed slightly sandy CLAY. (COHESIVE RESIDUAL SOIL)		
					0.90		 Stiff black slightly sandy slightly gravelly CLAY. Gravel is fine of dark mudstone and occasional coal. (COHESIVE RESIDUAL SOIL)		
					1.00		 Stiff grey slightly sandy CLAY. (COHESIVE RESIDUAL SOIL)		
					1.50		 Stiff black slightly sandy slightly gravelly CLAY. Gravel is fine of dark mudstone and occasional coal. (COHESIVE RESIDUAL SOIL)		
					1.70		 Orangish brown thinly bedded SANDSTONE. (PENNINE MIDDLE COAL MEASURES)		
					1.80		End of borehole at 1.80 m		

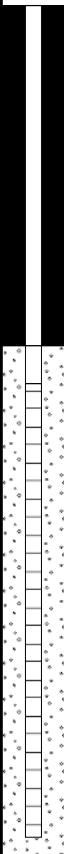
Remarks
 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Co-ordinates from handheld GPS.

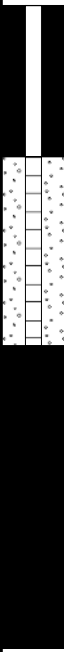
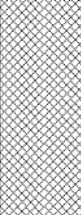
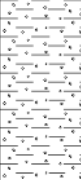


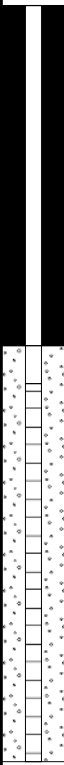
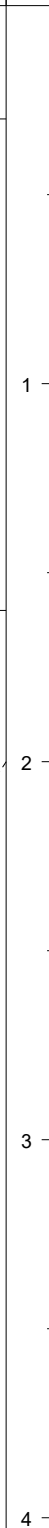
				Borehole Log				Borehole No. WS02 Sheet 1 of 1	
Project Name: St Helens Boulevard, Carlton Road				Project No. 2551		Co-ords: 435807.00 - 408540.00		Hole Type WS	
Location: Barnsley				Level:		Scale 1:20		Logged By MAR	
Client: Keepmoat Homes				Dates: 06/06/2017 - 06/06/2017					

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30		 Dark brown sandy slightly organic CLAY with abundant rootlets. (TOPSOIL)		
					0.90		 Stiff friable orange sandy CLAY. (COHESIVE RESIDUAL SOIL)		
					1.60		 Stiff black and dark grey gravelly CLAY. Gravel is fine of dark mudstone and occasional coal. (COHESIVE RESIDUAL SOIL)		
							At 1.6m, refusal on competent rock. End of borehole at 1.60 m		
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Co-ordinates from handheld GPS.									

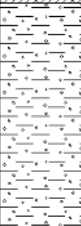
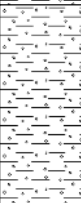


				Borehole Log				Borehole No. WS03 Sheet 1 of 1	
Project Name: St Helens Boulevard, Carlton Road				Project No. 2551		Co-ords: 435869.00 - 408572.00		Hole Type WS	
Location: Barnsley				Level:		Scale 1:20			
Client: Keepmoat Homes				Dates: 06/06/2017 - 06/06/2017		Logged By MAR			
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.35	J		0.30 0.40		MADE GROUND: Greyish brown gravelly slightly organic CLAY. Gravel is sub-angular to rounded fine to coarse of sandstone and concrete. (MADE GROUND TOPSOIL) MADE GROUND: Red sandy angular fine to coarse GRAVEL of burnt shale. (BURNT SHALE) MADE GROUND: Stiff yellow slightly sandy slightly gravelly CLAY. Gravel is fine of mudstone. (REWORKED CLAY)	1	
		1.00		HVP=48 N=7 (1,1/1,2,2,2)	1.60 1.80		MADE GROUND: Soft grey sandy CLAY. (REWORKED CLAY) MADE GROUND: Stiff yellow and grey slightly sandy CLAY. (REWORKED CLAY)	2	
		2.00		N=11 (2,2/2,3,3,3)	2.10 2.40		MADE GROUND: Grey sandy CLAY. (RELICT TOPSOIL) Very stiff orange grey mottled slightly sandy CLAY, becoming slightly gravelly with depth. Gravel is fine of sandstone lithorelicts. (COHESIVE RESIDUAL SOIL)	3	
					3.10		At 3.1m, refusal on competent rock. End of borehole at 3.10 m	4	
	Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Co-ordinates from handheld GPS.								

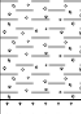
					Borehole Log			Borehole No. WS04 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road					Project No. 2551		Co-ords: 435882.00 - 408508.00		Hole Type WS	
Location: Barnsley					Level:		Scale 1:20			
Client: Keepmoat Homes					Dates: 06/06/2017 - 06/06/2017		Logged By MAR			
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		1.00		N=10 (1,2/2,2,3,3)	0.30		 Dark grey slightly gravelly clayey slightly organic SAND. Gravel is fine of mudstone. (TOPSOIL)			
						 MADE GROUND: Stiff locally firm grey slightly gravelly CLAY. Gravel is fine of mudstone. (REWORKED CLAY)				
					0.90	 Stiff to very stiff orange slightly sandy CLAY. (COHESIVE RESIDUAL SOIL)				
					1.10	 Stiff black gravelly CLAY. Gravel is fine of dark mudstone and occasional coal. (COHESIVE RESIDUAL SOIL)				
					1.60	 Pale brown SANDSTONE. (PENNINE MIDDLE COAL MEASURES)				
					1.70	At 1.7m, refusal on competent rock. End of borehole at 1.70 m				
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Co-ordinates from handheld GPS.										

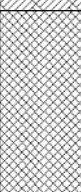
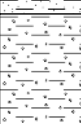
					Borehole Log			Borehole No. WS05 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road					Project No. 2551		Co-ords: 435886.00 - 408463.00		Hole Type WS	
Location: Barnsley					Level:		Scale 1:20			
Client: Keepmoat Homes					Dates: 06/06/2017 - 06/06/2017		Logged By MAR			
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		1.00		N=14 (2,2/3,3,4,4)	0.30			Greyish brown clayey slightly organic SAND. (TOPSOIL)		
								Stiff orangish brown grey mottled slightly sandy CLAY. (COHESIVE RESIDUAL SOIL)		
								Greyish brown angular GRAVEL and COBBLES of sandstone. (GRANULAR RESIDUAL SOIL)		
							At 2.0m, refusal on competent rock. End of borehole at 2.00 m			
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Co-ordinates from handheld GPS.										

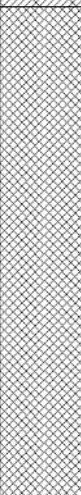
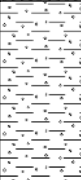
					Borehole Log			Borehole No. WS101 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road					Project No. 2551		Co-ords: 435864.00 - 408478.00		Hole Type WS	
Location: Barnsley					Level:		Scale 1:20		Logged By MAR	
Client: Keepmoat Homes					Dates: 06/06/2017 - 06/06/2017					

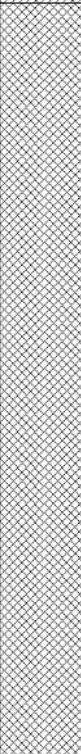
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		1.00		N=18 (2,2/3,4,5,6)	0.20		 Greyish brown sandy slightly organic CLAY. (TOPSOIL)	1	
					0.80		 Stiff orange grey mottled slightly sandy slightly gravelly CLAY. Gravel is fine of sandstone. (COHESIVE RESIDUAL SOIL)		
					1.35		 Stiff to very stiff grey slightly gravelly sandy CLAY. Gravel is of angular sandstone lithorelicts. (COHESIVE RESIDUAL SOIL)		
					1.45		 Pale grey orange stained SANDSTONE. (PENNINE MIDDLE COAL MEASURES) <i>At 1.45m, refusal on competent rock.</i> End of borehole at 1.45 m		
									2
									3
									4

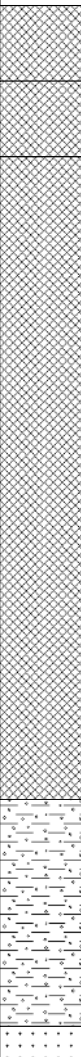
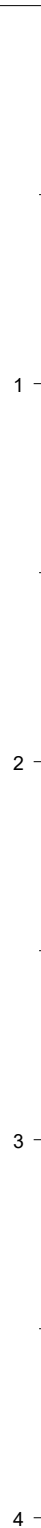
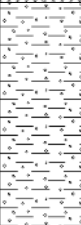
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Co-ordinates from handheld GPS.									
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					Borehole Log			Borehole No. WS102 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road					Project No. 2551		Co-ords: 435842.00 - 408502.00		Hole Type WS	
Location: Barnsley					Level:		Scale 1:20			
Client: Keepmoat Homes					Dates: 06/06/2017 - 06/06/2017		Logged By MAR			
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
					0.30			Greyish brown sandy slightly organic CLAY. (TOPSOIL)		
					0.60			Stiff orange grey mottled slightly sandy CLAY. (COHESIVE RESIDUAL SOIL)		
					0.90			Stiff grey slightly gravelly slightly sandy CLAY. Gravel is fine of sandstone lithorelicts. (COHESIVE RESIDUAL SOIL)		
					1.00			Grey orange stained SANDSTONE. (PENNINE MIDDLE COAL MEASURES)		
At 1.0m, refusal on competent rock. End of borehole at 1.00 m										
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Co-ordinates from handheld GPS.										

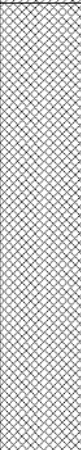
					Borehole Log			Borehole No. WS103 Sheet 1 of 1			
Project Name: St Helens Boulevard, Carlton Road					Project No. 2551		Co-ords: 435865.00 - 408523.00		Hole Type WS		
Location: Barnsley					Level:		Scale 1:20				
Client: Keepmoat Homes					Dates: 06/06/2017 - 06/06/2017		Logged By MAR				
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
		1.00		N=11 (1,2/3,2,3,3)	0.40		 Greyish brown sandy slightly organic CLAY. (TOPSOIL)	1 2 3 4			
					0.90	 MADE GROUND: Stiff grey slightly gravelly CLAY. Gravel is fine of mudstone. (REWORKED CLAY)					
					1.30	 Stiff orange grey mottled slightly sandy CLAY. (COHESIVE RESIDUAL SOIL)					
					1.60	 Stiff black gravelly CLAY. Gravel is fine of dark mudstone and coal. (COHESIVE RESIDUAL SOIL)					
					1.70	 Orange and grey SANDSTONE. (PENNINE MIDDLE COAL MEASURES)					
					At 1.7m, refusal on competent rock. End of borehole at 1.70 m						
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Co-ordinates from handheld GPS.											

					Borehole Log			Borehole No. WS104 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road					Project No. 2551		Co-ords: 435875.00 - 408536.00		Hole Type WS	
Location: Barnsley					Level:		Scale 1:20			
Client: Keepmoat Homes					Dates: 06/06/2017 - 06/06/2017		Logged By MAR			
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		1.00		N=5 (1,1/1,1,1,2)	0.30			Grey slightly sandy slightly organic CLAY. (TOPSOIL)	1	
								MADE GROUND: Firm grey sandy CLAY. (REWORKED CLAY)		
		2.00		N=16 (2,2/3,3,4,6)	1.60			MADE GROUND: Grey sandy CLAY with occasional rootlets. (REWORKED CLAY)	2	
					1.80			Very stiff orangish brown slightly gravelly CLAY. Gravel is of sandstone lithorelicts. (COHESIVE RESIDUAL SOIL)		
					2.30			Pale orange SANDSTONE. (PENNINE MIDDLE COAL MEASURES)		
			2.45		At 2.45m, refusal on competent rock. End of borehole at 2.45 m		4			
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Co-ordinates from handheld GPS.										

					Borehole Log			Borehole No. WS105 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road					Project No. 2551		Co-ords: 435879.00 - 408553.00		Hole Type WS	
Location: Barnsley					Level:		Scale 1:20			
Client: Keepmoat Homes					Dates: 06/06/2017 - 06/06/2017		Logged By MAR			
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
					0.20		 Dark brown gravelly organic sand. Gravel is fine of mudstone and coal. (TOPSOIL)	 MADE GROUND: Stiff locally firm orange grey mottled slightly sandy slightly gravelly CLAY. Gravel is fine to coarse of sandstone, mudstone and occasional brick. (REWORKED CLAY)	1	
		1.00		N=6 (1,1/2,1,1,2)					2	
		2.00		N=15 (2,2/3,3,4,5)						
					2.20		 Medium dense grey sandy GRAVEL of sandstone. (GRANULAR RESIDUAL SOIL)			
					2.40		 Pale brown thinly bedded SANDSTONE. (PENNINE MIDDLE COAL MEASURES)			
					2.45		At 2.45m, refusal on competent rock. End of borehole at 2.45 m			
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Co-ordinates from handheld GPS.										

					Borehole Log			Borehole No. WS106 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road					Project No. 2551		Co-ords: 435864.00 - 408559.00		Hole Type WS	
Location: Barnsley					Level:		Scale 1:20			
Client: Keepmoat Homes					Dates: 06/06/2017 - 06/06/2017		Logged By MAR			
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.20	J&T		0.20			MADE GROUND: Grey slightly gravelly slightly sandy organic CLAY. Gravel is fine of brick and sandstone. (MADE GROUND TOPSOIL)		
		0.35			0.40			MADE GROUND: Red sandy angular fine to coarse GRAVEL of shale. (BURNT SHALE)		
		1.00			N=10 (1,1/2,2,3,3)			MADE GROUND: Firm grey gravelly slightly sandy CLAY. Gravel is fine of mudstone and sandstone, (REWORKED CLAY)		
		2.00			N=20 (3,3/4,4,5,7)					
		2.10								
		2.70			2.70			Stiff orange grey gleyed slightly gravelly CLAY. Gravel is lithorelicts of sandstone. (COHESIVE RESIDUAL SOIL)		
		2.80			2.80			Brown SANDSTONE. (PENNINE MIDDLE COAL MEASURES) <i>At 2.8m, refusal on competent rock.</i> End of borehole at 2.80 m		
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Co-ordinates from handheld GPS.										

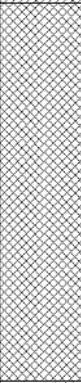
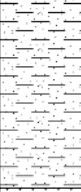
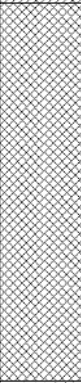
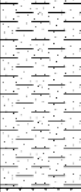
					Borehole Log			Borehole No. WS107 Sheet 1 of 1			
Project Name: St Helens Boulevard, Carlton Road					Project No. 2551		Co-ords: 435846.00 - 408552.00		Hole Type WS		
Location: Barnsley					Level:		Scale 1:20				
Client: Keepmoat Homes					Dates: 06/06/2017 - 06/06/2017		Logged By MAR				
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
					0.20			Greyish brown gravelly slightly organic CLAY. Gravel is fine to coarse of sandstone and brick. (TOPSOIL)			
								MADE GROUND: Firm grey very gravelly CLAY. Gravel is fine to coarse of brick and sandstone. (REWORKED CLAY)			
					0.90			At 0.9m, refusal on unknown obstruction. End of borehole at 0.90 m			
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Co-ordinates from handheld GPS.											

					Borehole Log			Borehole No. WS108 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road					Project No. 2551		Co-ords: 435842.00 - 408551.00		Hole Type WS	
Location: Barnsley					Level:		Scale 1:20			
Client: Keepmoat Homes					Dates: 06/06/2017 - 06/06/2017		Logged By MAR			
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		1.00		N=18 (2,2/3,4,4,7)	0.20		 Greyish brown gravelly slightly organic CLAY. Gravel is fine to coarse of sandstone and brick. (TOPSOIL)	 MADE GROUND: Firm grey very gravelly CLAY. Gravel is fine to coarse of brick and sandstone. (REWORKED CLAY)	1	
					1.40		 Stiff to very stiff orange slightly sandy CLAY. (COHESIVE RESIDUAL SOIL)			
					1.60		 Pale brown SANDSTONE. (PENNINE MIDDLE COAL MEASURES)			
					1.80		At 1.8m, refusal on competent rock. End of borehole at 1.80 m			
										3
										4

Remarks

1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Co-ordinates from handheld GPS.



					Borehole Log			Borehole No. WS109 Sheet 1 of 1			
Project Name: St Helens Boulevard, Carlton Road					Project No. 2551		Co-ords: 435819.00 - 408562.00		Hole Type WS		
Location: Barnsley					Level:		Scale 1:20		Logged By MAR		
Client: Keepmoat Homes					Dates: 06/06/2017 - 06/06/2017						
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
					0.20		 Grey slightly gravelly CLAY. (TOPSOIL)				
					1.20		 MADE GROUND: Grey gravelly CLAY. Gravel is predominantly fine to coarse of sandstone, with occasional cobbles. (REWORKED CLAY)				
					1.70		 Stiff grey orange mottled CLAY. (COHESIVE RESIDUAL SOIL)				
					1.80		 Grey orange stained SANDSTONE. (PENNINE MIDDLE COAL MEASURES) End of borehole at 1.80 m				
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling. 3. Co-ordinates from handheld GPS.											

					Borehole Log			Borehole No. WS111 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road					Project No. 2551		Co-ords: 435824.00 - 408337.00		Hole Type WS	
Location: Barnsley					Level:		Scale 1:20		Logged By LNA	
Client: Keepmoat Homes					Dates: 05/01/2018 - 05/01/2018					

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.20		 TOPSOIL: Dark brown sandy gravelly CLAY with rootlets. Gravel is angular fine to medium of coal and rare glass. (TOPSOIL)		
					0.40		 Stiff brown sandy gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone and mudstone. (COHESIVE RESIDUAL SOIL)		
					1.00		 Stiff light brown grey sandy horizontally orientated CLAY with cobbles of yellow-brown sandstone. (COHESIVE RESIDUAL SOIL)		1
					1.60		 Stiff black organic rich sandy CLAY. (COHESIVE RESIDUAL SOIL)		
					1.80		 Weak black horizontally orientated COAL. (PENNINE MIDDLE COAL MEASURES)		
					2.20		 Weak grey fine grained SANDSTONE with orange staining recovered as sandy angular to subangular fine to coarse gravel. (PENNINE MIDDLE COAL MEASURES)		2
							Refusal at 2.2m.		
							End of borehole at 2.20 m		
									3
									4

HVP=70

Remarks
 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not encountered.

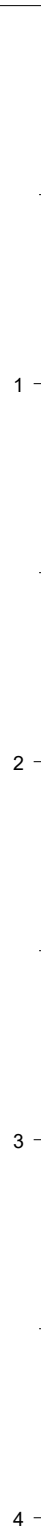




					Borehole Log			Borehole No. WS114 Sheet 1 of 1	
Project Name: St Helens Boulevard, Carlton Road					Project No. 2551		Co-ords: -		Hole Type WS
Location: Barnsley					Level:		Scale 1:20		
Client: Keepmoat Homes					Dates: 05/01/2018 - 05/01/2018		Logged By LNA		
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								TOPSOIL: Dark brown sandy gravelly CLAY with rootlets. Gravel is angular to subangular fine to medium of mudstone. (TOPSOIL)	
				HVP=50	0.40			Firm light brown grey sandy CLAY. (COHESIVE RESIDUAL SOIL)	
					0.60			Firm light grey mottled orange sandy CLAY. (COHESIVE RESIDUAL SOIL)	
					0.90			Stiff grey mottled orange-brown sandy slightly gravelly CLAY. Gravel is angular fine to medium of mudstone. (COHESIVE RESIDUAL SOIL)	1
				HVP=105	1.10			Stiff grey brown sandy gravelly organic rich CLAY. Gravel is angular fine to medium of carbonaceous mudstone and mudstone lithorelicts. (COHESIVE RESIDUAL SOIL)	
					2.00			Refusal at 2.0m. End of borehole at 2.00 m	2
3 4									
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not encountered.									

					Borehole Log			Borehole No. BH01 Sheet 1 of 1			
Project Name: St Helens Boulevard, Carlton Road					Project No. 2551		Co-ords: 435763.00 - 408631.00		Hole Type WS		
Location: Barnsley					Level:		Scale 1:20				
Client: Keepmoat Homes					Dates: 17/01/2018 - 17/01/2018		Logged By LNA				
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
					0.05			MADE GROUND: Strong black TARMAC. Approximately 70% aggregate of angular to subangular fine gravel. (SURFACE COURSE)			
					0.25			MADE GROUND: Black GRAVEL of angular to subangular fine to coarse sandstone. (SUB-BASE)			
					0.40			MADE GROUND: White-yellow sandy GRAVEL of angular fine to coarse chalk and limestone. (SUB-BASE)			
					0.42			MADE GROUND: Black ashy angular to subangular fine to medium GRAVEL. (GRANULAR MADE GROUND)			
					0.90			Stiff orange-brown gleyed grey sandy CLAY. (COHESIVE RESIDUAL SOIL)			
								End of borehole at 0.90 m			
1 2 3 4											
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not encountered.											

					Borehole Log			Borehole No. BH02 Sheet 1 of 1			
Project Name: St Helens Boulevard, Carlton Road					Project No. 2551		Co-ords: 435743.00 - 408639.00		Hole Type WS		
Location: Barnsley					Level:		Scale 1:20				
Client: Keepmoat Homes					Dates: 17/01/2018 - 17/01/2018		Logged By LNA				
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
					0.05		 MADE GROUND: Strong black TARMAC. Approximately 70% aggregate of angular fine gravel. (SURFACE COURSE)				
					0.60		 MADE GROUND: White-yellow sandy GRAVEL of angular fine to coarse chalk and limestone. (SUB-BASE)				
					0.90		 Firm orange-brown sandy CLAY with weak sandstone cobbles. (COHESIVE RESIDUAL SOIL)				
							End of borehole at 0.90 m				
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not encountered.											

					Borehole Log			Borehole No. BH03 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road					Project No. 2551		Co-ords: 435738.00 - 408631.00		Hole Type WS	
Location: Barnsley					Level:		Scale 1:20		Logged By LNA	
Client: Keepmoat Homes					Dates: 17/01/2018 - 17/01/2018					
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
					0.10 0.15		 MADE GROUND: Strong black TARMAC. Approximately 70% aggregate of angular fine to medium gravel. (SURFACE COURSE)			
						 MADE GROUND: Weak black TARMAC. Approximately 60-70% aggregate of angular fine to coarse gravel. (BASE COURSE)				
					0.65	 MADE GROUND: White-yellow sandy GRAVEL of angular fine to coarse chalk and limestone. (SUB-BASE)				
					0.80	 Orange-brown very clayey fine to medium SAND. (COHESIVE RESIDUAL SOIL)				
					0.90	 Strong grey fine grained SANDSTONE. (PENNINE MIDDLE COAL MEASURES)				
								End of borehole at 0.90 m		
Remarks 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not encountered.										
										

					Borehole Log			Borehole No. BH04 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road					Project No. 2551		Co-ords: 435784.00 - 408630.00		Hole Type WS	
Location: Barnsley					Level:		Scale 1:20		Logged By LNA	
Client: Keepmoat Homes					Dates: 17/01/2018 - 17/01/2018					

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.05			MADE GROUND: Strong black TARMAC. Approximately 60% aggregate of angular to subangular fine to medium gravel. (SURFACE COURSE)	
					0.10			MADE GROUND: Strong black TARMAC. Approximately 70-80% aggregate of angular to subangular fine to coarse gravel of chalk. 2% small to large voids. (BASE COURSE)	
					0.40			MADE GROUND: White-yellow sandy GRAVEL of angular fine to coarse chalk and limestone. (SUB-BASE)	
					0.70			Stiff orange-brown mottled grey sandy CLAY. (COHESIVE RESIDUAL SOIL)	
					0.90			Stiff orange-brown gleyed grey sandy CLAY with horizontal orientations. (COHESIVE RESIDUAL SOIL)	1
								End of borehole at 0.90 m	
									2
									3
									4

Remarks
 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not encountered.



					Borehole Log			Borehole No. BH06 Sheet 1 of 1		
Project Name: St Helens Boulevard, Carlton Road					Project No. 2551		Co-ords: 435810.00 - 408630.00		Hole Type WS	
Location: Barnsley					Level:		Scale 1:20		Logged By LNA	
Client: Keepmoat Homes					Dates: 17/01/2018 - 17/01/2018					

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.05			MADE GROUND: Strong black TARMAC. Approximately 60% aggregate of angular to subangular fine to medium gravel. (SURFACE COURSE)	
					0.10				
					0.30			MADE GROUND: Strong black TARMAC. Approximately 70% aggregate of angular to subangular fine to coarse gravel of chalk. (BASE COURSE)	
					0.60			MADE GROUND: Red and grey GRAVEL of angular to subangular fine to coarse brick, tarmac and burnt shale. (GRANULAR MADE GROUND)	
					0.90			MADE GROUND: Firm brown sandy gravelly CLAY. Gravel is angular fine to medium of chalk, brick and burnt shale. (GRANULAR MADE GROUND)	
								Firm brown mottled grey sandy gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone. (COHESIVE RESIDUAL SOIL)	1
								End of borehole at 0.90 m	
									2
									3
									4

Remarks
 1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not encountered.





BH01 – final depth 0.9m



BH02 – final depth 0.9m





BH03 – final depth 0.9m



BH04 – final depth 0.9m





BH05 – final depth 0.9m



BH03 – final depth 0.9m



Appendix H
Chemical Test Results



Certificate of Analysis

Certificate Number 17-03198

29-Jun-17

Client Lithos Consulting Ltd
Parkhill
Walton Rd
Wetherby
LS22 5DZ

Our Reference 17-03198

Client Reference 2551

Order No 11669/2551/MAR

Contract Title St Helens Boulevard, Carlton Road

Description 19 Soil samples.

Date Received Thursday, June 22, 2017

Date Started Thursday, June 22, 2017

Date Completed Thursday, June 29, 2017

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

Notes Opinions and interpretations are outside the laboratory's scope of ISO 10725 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Adam Fenwick
Contracts Manager



Summary of Chemical Analysis

Soil Samples

Our Ref 17-03198

Client Ref 2551

Contract Title St Helens Boulevard, Carlton Road

Lab No	1193138	1193139	1193140	1193141	1193142	1193143
Sample ID	TP07	TP05	TP03	TP04	TP05	TP06
Depth	0.30	0.40	0.10	0.20	0.10	0.20
Other ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date	01-Jun-17	01-Jun-17	01-Jun-17	01-Jun-17	01-Jun-17	01-Jun-17
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Metals									
Arsenic	DETSC 2301#	0.2	mg/kg	8	11	9.3	9	12	13
Boron, Water Soluble	DETSC 2123#	0.2	mg/kg	0.6	0.5	0.7	0.9	0.3	0.7
Cadmium	DETSC 2301#	0.1	mg/kg	0.3	0.9	1.2	0.4	0.4	0.6
Chromium	DETSC 2301#	0.15	mg/kg	24	38	33	65	22	24
Chromium III	DETSC 2301*	0.15	mg/kg	24	38	33	65	22	24
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	33	120	50	45	36	33
Lead	DETSC 2301#	0.3	mg/kg	140	160	170	66	23	45
Mercury	DETSC 2325#	0.05	mg/kg	0.08	0.1	0.15	0.11	0.11	0.12
Nickel	DETSC 2301#	1	mg/kg	14	20	16	18	20	18
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	0.8	< 0.5	1.3	< 0.5	0.9
Zinc	DETSC 2301#	1	mg/kg	110	92	170	83	670	86
Inorganics									
pH	DETSC 2008#			10.2	8.8	9.9	11.1	10.5	7.8
FOC	DETSC 2002	0.001		0.019	0.018	0.039	0.019	0.019	0.046
Total Organic Carbon	DETSC 2002	0.1	%	1.9	1.8	3.9	1.9	1.9	4.6
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	380	140				
Petroleum Hydrocarbons									
EPH (C6-C10)	DETSC 3321*	0.1	mg/kg	< 0.1	< 0.1		< 0.1	< 0.1	
EPH (C10-C12)	DETSC 3311	10	mg/kg	< 10	< 10		< 10	< 10	
EPH (C12-C16)	DETSC 3311	10	mg/kg	12	< 10		< 10	20	
EPH (C16-C21)	DETSC 3311	10	mg/kg	87	66		41	120	
EPH (C21-C35)	DETSC 3311	10	mg/kg	360	140		210	320	
EPH (C35-C40)	DETSC 3311	10	mg/kg	79	28		45	50	
EPH (C10-C40)	DETSC 3311#	10	mg/kg	540	240		310	510	
PAHs									
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.05	0.07	0.03	0.04
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.03	0.04	< 0.03	< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	0.09	< 0.03	0.05	0.09	0.09	0.05
Fluorene	DETSC 3303	0.03	mg/kg	0.09	< 0.03	0.05	0.1	0.09	0.04
Phenanthrene	DETSC 3303#	0.03	mg/kg	1.3	0.19	0.8	1.2	0.96	0.76
Anthracene	DETSC 3303	0.03	mg/kg	0.22	0.04	0.25	0.29	0.24	0.22
Fluoranthene	DETSC 3303#	0.03	mg/kg	2.4	0.41	2.3	2.6	1.9	3.1
Pyrene	DETSC 3303#	0.03	mg/kg	1.9	0.35	2	2.3	1.6	2.2
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	0.76	0.13	1	1.1	0.66	0.81
Chrysene	DETSC 3303	0.03	mg/kg	0.72	0.13	0.95	1.1	0.6	0.89
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.79	0.14	1.2	1.4	0.78	1.1
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	0.32	0.05	0.45	0.53	0.25	0.51
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	0.51	0.09	0.9	1	0.54	0.8
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	0.27	0.05	0.49	0.51	0.23	0.46
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	0.07	< 0.03	0.1	0.11	0.07	0.11

Summary of Chemical Analysis Soil Samples

Our Ref 17-03198

Client Ref 2551

Contract Title St Helens Boulevard, Carlton Road

Lab No	1193138	1193139	1193140	1193141	1193142	1193143
Sample ID	TP07	TP05	TP03	TP04	TP05	TP06
Depth	0.30	0.40	0.10	0.20	0.10	0.20
Other ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date	01-Jun-17	01-Jun-17	01-Jun-17	01-Jun-17	01-Jun-17	01-Jun-17
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	0.29	0.05	0.52	0.58	0.26	0.47
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	9.7	1.6	11	13	8.2	12

Summary of Chemical Analysis

Soil Samples

Our Ref 17-03198

Client Ref 2551

Contract Title St Helens Boulevard, Carlton Road

Lab No	1193144	1193145	1193146	1193147	1193148	1193149
Sample ID	TP08	TP05	TP102	TP05	TP06	TP08
Depth	0.20	2.10	1.50	1.00	0.60	0.60
Other ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date	01-Jun-17	01-Jun-17	01-Jun-17	01-Jun-17	01-Jun-17	01-Jun-17
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Metals									
Arsenic	DETSC 2301#	0.2	mg/kg	9.7	20	20	7.5	13	4.7
Boron, Water Soluble	DETSC 2123#	0.2	mg/kg	< 0.2	1	0.8	0.9	0.2	< 0.2
Cadmium	DETSC 2301#	0.1	mg/kg	0.3	0.2	0.2	< 0.1	< 0.1	0.1
Chromium	DETSC 2301#	0.15	mg/kg	20	25	25	24	21	25
Chromium III	DETSC 2301*	0.15	mg/kg	20	25	25	24	21	25
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	31	38	31	30	27	27
Lead	DETSC 2301#	0.3	mg/kg	36	16	45	22	27	17
Mercury	DETSC 2325#	0.05	mg/kg	0.08	0.13	0.09	0.07	0.09	0.08
Nickel	DETSC 2301#	1	mg/kg	12	40	20	23	25	30
Selenium	DETSC 2301#	0.5	mg/kg	0.6	< 0.5	1	< 0.5	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	71	89	78	52	62	64
Inorganics									
pH	DETSC 2008#			9.5	6.9	7.1	5.4	6	6.6
FOC	DETSC 2002	0.001		0.015	0.011	0.039	0.01	0.013	0.01
Total Organic Carbon	DETSC 2002	0.1	%	1.5	1.1	3.9	1	1.3	1
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l		22	73	39	59	38
Petroleum Hydrocarbons									
EPH (C6-C10)	DETSC 3321*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1		< 0.1
EPH (C10-C12)	DETSC 3311	10	mg/kg	< 10	< 10	< 10	< 10		< 10
EPH (C12-C16)	DETSC 3311	10	mg/kg	< 10	< 10	< 10	< 10		< 10
EPH (C16-C21)	DETSC 3311	10	mg/kg	28	< 10	< 10	< 10		< 10
EPH (C21-C35)	DETSC 3311	10	mg/kg	190	< 10	43	< 10		< 10
EPH (C35-C40)	DETSC 3311	10	mg/kg	43	< 10	< 10	< 10		< 10
EPH (C10-C40)	DETSC 3311#	10	mg/kg	270	< 10	63	< 10		< 10
PAHs									
Naphthalene	DETSC 3303#	0.03	mg/kg	0.06	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	0.05	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	0.09	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	0.07	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	1.3	< 0.03	0.13	< 0.03	< 0.03	0.04
Anthracene	DETSC 3303	0.03	mg/kg	0.35	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	3.6	< 0.03	0.18	< 0.03	< 0.03	0.12
Pyrene	DETSC 3303#	0.03	mg/kg	3.1	< 0.03	0.16	< 0.03	< 0.03	0.11
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	1.4	< 0.03	0.05	< 0.03	< 0.03	0.05
Chrysene	DETSC 3303	0.03	mg/kg	1.3	< 0.03	0.08	< 0.03	< 0.03	0.05
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	1.5	< 0.03	0.08	< 0.03	< 0.03	0.05
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	0.53	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	1.1	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	0.58	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	0.14	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03



Summary of Chemical Analysis Soil Samples

Our Ref 17-03198

Client Ref 2551

Contract Title St Helens Boulevard, Carlton Road

Lab No	1193144	1193145	1193146	1193147	1193148	1193149
Sample ID	TP08	TP05	TP102	TP05	TP06	TP08
Depth	0.20	2.10	1.50	1.00	0.60	0.60
Other ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date	01-Jun-17	01-Jun-17	01-Jun-17	01-Jun-17	01-Jun-17	01-Jun-17
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	0.58	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	16	< 0.10	0.68	< 0.10	< 0.10	0.4

Summary of Chemical Analysis

Soil Samples

Our Ref 17-03198

Client Ref 2551

Contract Title St Helens Boulevard, Carlton Road

Lab No	1193150	1193151	1193152	1193153	1193154	1193155
Sample ID	TP03	TP01	TP09	TP10	TP101	TP102
Depth	0.40	0.10	0.10	0.10	0.10	0.10
Other ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date	01-Jun-17	01-Jun-17	01-Jun-17	01-Jun-17	01-Jun-17	01-Jun-17
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Metals									
Arsenic	DETSC 2301#	0.2	mg/kg	1.9	18	16	17	15	15
Boron, Water Soluble	DETSC 2123#	0.2	mg/kg	< 0.2	0.4	0.3	< 0.2	0.3	0.2
Cadmium	DETSC 2301#	0.1	mg/kg	0.5	0.3	0.2	0.3	0.3	0.3
Chromium	DETSC 2301#	0.15	mg/kg	4.3	25	19	25	23	21
Chromium III	DETSC 2301*	0.15	mg/kg	4.3	25	19	25	23	21
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	7.1	29	26	31	30	32
Lead	DETSC 2301#	0.3	mg/kg	7.2	45	45	54	48	33
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	0.13	0.12	0.08	0.08
Nickel	DETSC 2301#	1	mg/kg	1.9	22	16	22	20	27
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	1	0.7	1	< 0.5	0.9
Zinc	DETSC 2301#	1	mg/kg	45	88	67	85	87	75
Inorganics									
pH	DETSC 2008#			8.7	6.8	6.4	6.3	6.4	6.8
FOC	DETSC 2002	0.001		< 0.001	0.021	0.027	0.029	0.036	0.02
Total Organic Carbon	DETSC 2002	0.1	%	< 0.1	2.1	2.7	2.9	3.6	2
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	47					
Petroleum Hydrocarbons									
EPH (C6-C10)	DETSC 3321*	0.1	mg/kg	< 0.1					
EPH (C10-C12)	DETSC 3311	10	mg/kg	< 10					
EPH (C12-C16)	DETSC 3311	10	mg/kg	< 10					
EPH (C16-C21)	DETSC 3311	10	mg/kg	< 10					
EPH (C21-C35)	DETSC 3311	10	mg/kg	< 10					
EPH (C35-C40)	DETSC 3311	10	mg/kg	< 10					
EPH (C10-C40)	DETSC 3311#	10	mg/kg	< 10					
PAHs									
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.06	0.1	0.06	0.07	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.04	0.13	0.27	0.13	0.17	0.06
Pyrene	DETSC 3303#	0.03	mg/kg	0.03	0.12	0.22	0.11	0.13	0.05
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	0.05	0.09	0.05	0.06	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03	0.05	0.1	0.05	0.07	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	0.05	0.13	0.07	0.07	0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.05	0.05	< 0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.06	< 0.03	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03

Summary of Chemical Analysis Soil Samples

Our Ref 17-03198

Client Ref 2551

Contract Title St Helens Boulevard, Carlton Road

Lab No	1193150	1193151	1193152	1193153	1193154	1193155
Sample ID	TP03	TP01	TP09	TP10	TP101	TP102
Depth	0.40	0.10	0.10	0.10	0.10	0.10
Other ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date	01-Jun-17	01-Jun-17	01-Jun-17	01-Jun-17	01-Jun-17	01-Jun-17
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	< 0.10	0.46	1	0.52	0.59	0.14

Summary of Chemical Analysis

Soil Samples

Our Ref 17-03198

Client Ref 2551

Contract Title St Helens Boulevard, Carlton Road

Lab No	1193156
Sample ID	TP11
Depth	0.10
Other ID	
Sample Type	SOIL
Sampling Date	01-Jun-17
Sampling Time	n/s

Test	Method	LOD	Units	
Metals				
Arsenic	DETSC 2301#	0.2	mg/kg	15
Boron, Water Soluble	DETSC 2123#	0.2	mg/kg	< 0.2
Cadmium	DETSC 2301#	0.1	mg/kg	0.3
Chromium	DETSC 2301#	0.15	mg/kg	27
Chromium III	DETSC 2301*	0.15	mg/kg	27
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	27
Lead	DETSC 2301#	0.3	mg/kg	42
Mercury	DETSC 2325#	0.05	mg/kg	0.11
Nickel	DETSC 2301#	1	mg/kg	21
Selenium	DETSC 2301#	0.5	mg/kg	1
Zinc	DETSC 2301#	1	mg/kg	110
Inorganics				
pH	DETSC 2008#			6.9
FOC	DETSC 2002	0.001		0.021
Total Organic Carbon	DETSC 2002	0.1	%	2.1
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	
Petroleum Hydrocarbons				
EPH (C6-C10)	DETSC 3321*	0.1	mg/kg	
EPH (C10-C12)	DETSC 3311	10	mg/kg	
EPH (C12-C16)	DETSC 3311	10	mg/kg	
EPH (C16-C21)	DETSC 3311	10	mg/kg	
EPH (C21-C35)	DETSC 3311	10	mg/kg	
EPH (C35-C40)	DETSC 3311	10	mg/kg	
EPH (C10-C40)	DETSC 3311#	10	mg/kg	
PAHs				
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	0.05
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.09
Pyrene	DETSC 3303#	0.03	mg/kg	0.06
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03

Summary of Chemical Analysis

Soil Samples

Our Ref 17-03198

Client Ref 2551

Contract Title St Helens Boulevard, Carlton Road

Lab No	1193156
Sample ID	TP11
Depth	0.10
Other ID	
Sample Type	SOIL
Sampling Date	01-Jun-17
Sampling Time	n/s

Test	Method	LOD	Units	
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	0.2

Summary of Asbestos Analysis

Soil Samples

Our Ref 17-03198

Client Ref 2551

Contract Title St Helens Boulevard, Carlton Road

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1193138	TP07 0.30	SOIL	NAD	none	Colin Patrick
1193139	TP05 0.40	SOIL	NAD	none	Colin Patrick
1193140	TP03 0.10	SOIL	NAD	none	Colin Patrick
1193141	TP04 0.20	SOIL	NAD	none	Colin Patrick
1193142	TP05 0.10	SOIL	NAD	none	Colin Patrick
1193143	TP06 0.20	SOIL	NAD	none	Colin Patrick
1193144	TP08 0.20	SOIL	NAD	none	Colin Patrick
1193145	TP05 2.10	SOIL	NAD	none	Colin Patrick
1193146	TP102 1.50	SOIL	NAD	none	Colin Patrick
1193147	TP05 1.00	SOIL	NAD	none	Colin Patrick
1193148	TP06 0.60	SOIL	NAD	none	Colin Patrick
1193149	TP08 0.60	SOIL	NAD	none	Colin Patrick
1193150	TP03 0.40	SOIL	NAD	none	Colin Patrick
1193151	TP01 0.10	SOIL	NAD	none	Colin Patrick
1193152	TP09 0.10	SOIL	NAD	none	Colin Patrick
1193153	TP10 0.10	SOIL	NAD	none	Colin Patrick
1193154	TP101 0.10	SOIL	NAD	none	Colin Patrick
1193155	TP102 0.10	SOIL	NAD	none	Colin Patrick
1193156	TP11 0.10	SOIL	NAD	none	Colin Patrick

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

Information in Support of the Analytical Results

Our Ref 17-03198
 Client Ref 2551
 Contract St Helens Boulevard, Carlton Road

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1193138	TP07 0.30 SOIL	01-06-17	GJ 250ml, PT 1L	BTEX (14 days), Naphthalene (14 days), PAH MS (14 days), pH + Conductivity (7 days), EPH/TPH (14 days)	
1193139	TP05 0.40 SOIL	01-06-17	GJ 500ml, PT 1L	BTEX (14 days), Naphthalene (14 days), PAH MS (14 days), pH + Conductivity (7 days), EPH/TPH (14 days)	BTEX
1193140	TP03 0.10 SOIL	01-06-17	GJ 500ml, PT 1L	Naphthalene (14 days), PAH MS (14 days), pH + Conductivity (7 days)	
1193141	TP04 0.20 SOIL	01-06-17	GJ 500ml, PT 1L	BTEX (14 days), Naphthalene (14 days), PAH MS (14 days), pH + Conductivity (7 days), EPH/TPH (14 days)	BTEX
1193142	TP05 0.10 SOIL	01-06-17	GJ 500ml, PT 1L	BTEX (14 days), Naphthalene (14 days), PAH MS (14 days), pH + Conductivity (7 days), EPH/TPH (14 days)	BTEX
1193143	TP06 0.20 SOIL	01-06-17	GJ 250ml, PT 1L	Naphthalene (14 days), PAH MS (14 days), pH + Conductivity (7 days)	
1193144	TP08 0.20 SOIL	01-06-17	GJ 500ml, PT 1L	BTEX (14 days), Naphthalene (14 days), PAH MS (14 days), pH + Conductivity (7 days), EPH/TPH (14 days)	BTEX
1193145	TP05 2.10 SOIL	01-06-17	PT 1L	BTEX (14 days), Naphthalene (14 days), PAH MS (14 days), pH + Conductivity (7 days), EPH/TPH (14 days)	BTEX, Naphthalene, PAH MS, EPH/TPH
1193146	TP102 1.50 SOIL	01-06-17	GJ 250ml, PT 1L	BTEX (14 days), Naphthalene (14 days), PAH MS (14 days), pH + Conductivity (7 days), EPH/TPH (14 days)	
1193147	TP05 1.00 SOIL	01-06-17	GJ 250ml x2, PT 1L	BTEX (14 days), Naphthalene (14 days), PAH MS (14 days), pH + Conductivity (7 days), EPH/TPH (14 days)	
1193148	TP06 0.60 SOIL	01-06-17	GJ 500ml, PT 1L	Naphthalene (14 days), PAH MS (14 days), pH + Conductivity (7 days)	
1193149	TP08 0.60 SOIL	01-06-17	GJ 500ml, PT 1L	BTEX (14 days), Naphthalene (14 days), PAH MS (14 days), pH + Conductivity (7 days), EPH/TPH (14 days)	BTEX
1193150	TP03 0.40 SOIL	01-06-17	GJ 250ml, PT 1L	BTEX (14 days), Naphthalene (14 days), PAH MS (14 days), pH + Conductivity (7 days), EPH/TPH (14 days)	

Information in Support of the Analytical Results

Our Ref 17-03198
 Client Ref 2551
 Contract St Helens Boulevard, Carlton Road

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1193151	TP01 0.10 SOIL	01-06-17	PT 1L	Naphthalene (14 days), PAH MS (14 days), pH + Conductivity (7 days)	Naphthalene, PAH MS
1193152	TP09 0.10 SOIL	01-06-17	GJ 500ml, PT 1L	Naphthalene (14 days), PAH MS (14 days), pH + Conductivity (7 days)	
1193153	TP10 0.10 SOIL	01-06-17	GJ 250ml, PT 1L	Naphthalene (14 days), PAH MS (14 days), pH + Conductivity (7 days)	
1193154	TP101 0.10 SOIL	01-06-17	GJ 250ml x2, PT 1L x2	Naphthalene (14 days), PAH MS (14 days), pH + Conductivity (7 days)	
1193155	TP102 0.10 SOIL	01-06-17	GJ 250ml, PT 1L	Naphthalene (14 days), PAH MS (14 days), pH + Conductivity (7 days)	
1193156	TP11 0.10 SOIL	01-06-17	GJ 250ml	Naphthalene (14 days), PAH MS (14 days), pH + Conductivity (7 days)	

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

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

Soil Analysis Notes

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

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

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

Disposal

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

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



Certificate of Analysis

Certificate Number 17-02252

16-Jun-17

Client Lithos Consulting Ltd
Parkhill
Walton Rd
Wetherby
LS22 5DZ

Our Reference 17-02252

Client Reference 2551

Order No PO11669

Contract Title ST HELENS BOULEVARD, CARLTON ROAD

Description 2 Soil samples.

Date Received 12-Jun-17

Date Started 12-Jun-17

Date Completed 16-Jun-17

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

Notes Opinions and interpretations are outside the laboratory's scope of ISO 10725 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Adam Fenwick
Contracts Manager



Summary of Chemical Analysis

Soil Samples

Our Ref 17-02252

Client Ref 2551

Contract Title ST HELENS BOULEVARD, CARLTON ROAD

Lab No	1187133	1187134
Sample ID	WS03	WS106
Depth	0.35	0.35
Other ID		
Sample Type	SOIL	SOIL
Sampling Date	01/06/17	01/06/17
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Metals					
Arsenic	DETSC 2301#	0.2	mg/kg	6.8	8.5
Boron, Water Soluble	DETSC 2123#	0.2	mg/kg	1.2	1
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	0.2
Chromium	DETSC 2301#	0.15	mg/kg	17	20
Chromium III	DETSC 2301*	0.15	mg/kg	17	20
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	18	29
Lead	DETSC 2301#	0.3	mg/kg	16	23
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	19	24
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	27	56
Inorganics					
pH	DETSC 2008#			7.8	7.6
Calorific Value	DETSC 5008	1	MJ/kg	< 1.0	< 1.0
Total Organic Carbon	DETSC 2002	0.1	%	0.1	0.4
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	72	110
Petroleum Hydrocarbons					
EPH (C6-C10)	DETSC 3321*	0.1	mg/kg		< 0.1
EPH (C10-C12)	DETSC 3311	10	mg/kg		< 10
EPH (C12-C16)	DETSC 3311	10	mg/kg		< 10
EPH (C16-C21)	DETSC 3311	10	mg/kg		< 10
EPH (C21-C35)	DETSC 3311	10	mg/kg		< 10
EPH (C35-C40)	DETSC 3311	10	mg/kg		< 10
EPH (C10-C40)	DETSC 3311#	10	mg/kg		< 10
PAHs					
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	0.25	0.09
Anthracene	DETSC 3303	0.03	mg/kg	0.25	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.47	0.21
Pyrene	DETSC 3303#	0.03	mg/kg	0.4	0.2
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	0.2	0.09
Chrysene	DETSC 3303	0.03	mg/kg	0.24	0.11
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.25	0.12
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	0.12	0.05
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	0.18	0.08
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	0.12	0.05
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	0.03	< 0.03

Summary of Chemical Analysis Soil Samples

Our Ref 17-02252

Client Ref 2551

Contract Title ST HELENS BOULEVARD, CARLTON ROAD

Lab No	1187133	1187134
Sample ID	WS03	WS106
Depth	0.35	0.35
Other ID		
Sample Type	SOIL	SOIL
Sampling Date	01/06/17	01/06/17
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	0.13	0.05
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	2.6	1

Summary of Asbestos Analysis Soil Samples

Our Ref 17-02252

Client Ref 2551

Contract Title ST HELENS BOULEVARD, CARLTON ROAD

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1187133	WS03 0.35	SOIL	NAD	none	Colin Patrick
1187134	WS106 0.35	SOIL	NAD	none	Colin Patrick

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

Information in Support of the Analytical Results

Our Ref 17-02252
 Client Ref 2551
 Contract ST HELENS BOULEVARD, CARLTON ROAD

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1187133	WS03 0.35 SOIL	01/06/17	GB to 500ml	pH + Conductivity (7 days)	
1187134	WS106 0.35 SOIL	01/06/17	GB to 500ml, PT 1L	pH + Conductivity (7 days)	BTEX

Key: G-Glass B-Bottle P-Plastic T-Tub

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

Soil Analysis Notes

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

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

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

Disposal

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

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



Certificate of Analysis

Certificate Number 18-00466

15-Jan-18

Client Lithos Consulting Ltd
Parkhill
Walton Rd
Wetherby
LS22 5DZ

Our Reference 18-00466

Client Reference 2551

Order No 12472

Contract Title St Helens Boulevard, Carlton Road

Description 6 Soil samples.

Date Received 09-Jan-18

Date Started 09-Jan-18

Date Completed 15-Jan-18

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

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

Approved By

A handwritten signature in blue ink, appearing to read "A Fenwick", is written over a light blue horizontal line.

Adam Fenwick
Contracts Manager



Summary of Chemical Analysis

Soil Samples

Our Ref 18-00466

Client Ref 2551

Contract Title St Helens Boulevard, Carlton Road

Lab No	1281620	1281621	1281622	1281623	1281624	1281625
Sample ID	TP107	TP104	TP105	TP106	TP15	TP16
Depth	0.10	0.10	0.10	0.10	0.10	0.10
Other ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date	04/01/18	04/01/18	04/01/18	04/01/18	04/01/18	04/01/18
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Metals									
Arsenic	DETSC 2301#	0.2	mg/kg	17	20	16	15	12	18
Boron, Water Soluble	DETSC 2123#	0.2	mg/kg	1	1.3	0.9	1.2	1	1
Cadmium	DETSC 2301#	0.1	mg/kg	0.2	0.3	0.2	0.2	0.2	0.2
Chromium	DETSC 2301#	0.15	mg/kg	15	13	10	11	9.1	14
Chromium III	DETSC 2301*	0.15	mg/kg	15	13	10	11	9.1	14
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	22	32	21	24	19	35
Lead	DETSC 2301#	0.3	mg/kg	46	54	45	43	33	51
Mercury	DETSC 2325#	0.05	mg/kg	0.13	0.08	0.16	0.14	0.09	0.11
Nickel	DETSC 2301#	1	mg/kg	9.8	9.6	8.6	7.5	6.6	12
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.9
Zinc	DETSC 2301#	1	mg/kg	49	54	41	35	33	55
Inorganics									
pH	DETSC 2008#			7.6	6.6	7.4	7.3	7.4	7.3
Total Organic Carbon	DETSC 2084#	0.5	%	2.6	6.8	3.2	3	3.2	3.5
PAHs									
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	0.26	0.17	0.08	0.07	0.04	0.04
Anthracene	DETSC 3303	0.03	mg/kg	0.09	0.05	< 0.03	< 0.03	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.24	0.29	0.12	0.1	0.06	0.04
Pyrene	DETSC 3303#	0.03	mg/kg	0.17	0.24	0.09	0.08	0.05	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	0.06	0.11	0.05	< 0.03	< 0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	0.06	0.13	0.05	0.04	< 0.03	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.06	0.19	0.06	0.04	< 0.03	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	0.06	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	0.04	0.13	< 0.03	< 0.03	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.08	< 0.03	< 0.03	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	0.08	< 0.03	< 0.03	< 0.03	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	0.98	1.5	0.45	0.33	0.15	< 0.10

Summary of Asbestos Analysis

Soil Samples

Our Ref 18-00466

Client Ref 2551

Contract Title St Helens Boulevard, Carlton Road

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1281620	TP107 0.10	SOIL	NAD	none	Colin Patrick
1281621	TP104 0.10	SOIL	NAD	none	Colin Patrick
1281622	TP105 0.10	SOIL	NAD	none	Colin Patrick
1281623	TP106 0.10	SOIL	NAD	none	Colin Patrick
1281624	TP15 0.10	SOIL	NAD	none	Colin Patrick
1281625	TP16 0.10	SOIL	NAD	none	Colin Patrick

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

Information in Support of the Analytical Results

Our Ref 18-00466
 Client Ref 2551
 Contract St Helens Boulevard, Carlton Road

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1281620	TP107 0.10 SOIL	04/01/18	GJ 250ml, GJ 60ml, PT 1L x2		
1281621	TP104 0.10 SOIL	04/01/18	GJ 250ml, GJ 60ml, PT 1L x2		
1281622	TP105 0.10 SOIL	04/01/18	GJ 250ml, GJ 60ml, PT 1L x2		
1281623	TP106 0.10 SOIL	04/01/18	GJ 250ml, GJ 60ml, PT 1L x2		
1281624	TP15 0.10 SOIL	04/01/18	GJ 250ml, GJ 60ml, PT 1L x2		
1281625	TP16 0.10 SOIL	04/01/18	GJ 250ml, GJ 60ml, PT 1L x2		

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

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Soil Analysis Notes

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

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

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

Disposal

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

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

Appendix I
Geotechnical Test Results



LABORATORY REPORT REPORT



4043

Contract Number: PSL17/3152

Report Date: 05 July 2017
Client's Reference: 2551
Client Name: Lithos Consulting
Parkhill
Walton Road
Wetherby
North Yorkshire
LS22 5DZ

For the attention of: Martin Thompson

Contract Title: St Helens Boulevard, Carlton Road
Date Received: 30/6/2017
Date Commenced: 30/6/2017
Date Completed: 5/7/2017

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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

Checked and Approved Signatories:

R Gunson
(Director)

A Watkins
(Director)

R Berriman
(Quality Manager)

L Knight
(Senior Technician)

C Marshall
(Laboratory Manager)

A Fry
(Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
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e-mail: rgunson@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

PSL
Professional Soils Laboratory

St Helens Boulevard, Carlton Road

Contract No:

PSL17/3152

Client Ref:

2551

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS : NP : Non Plastic

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



PSL
Professional Soils Laboratory

St Helens Boulevard, Carlton Road

Contract No:

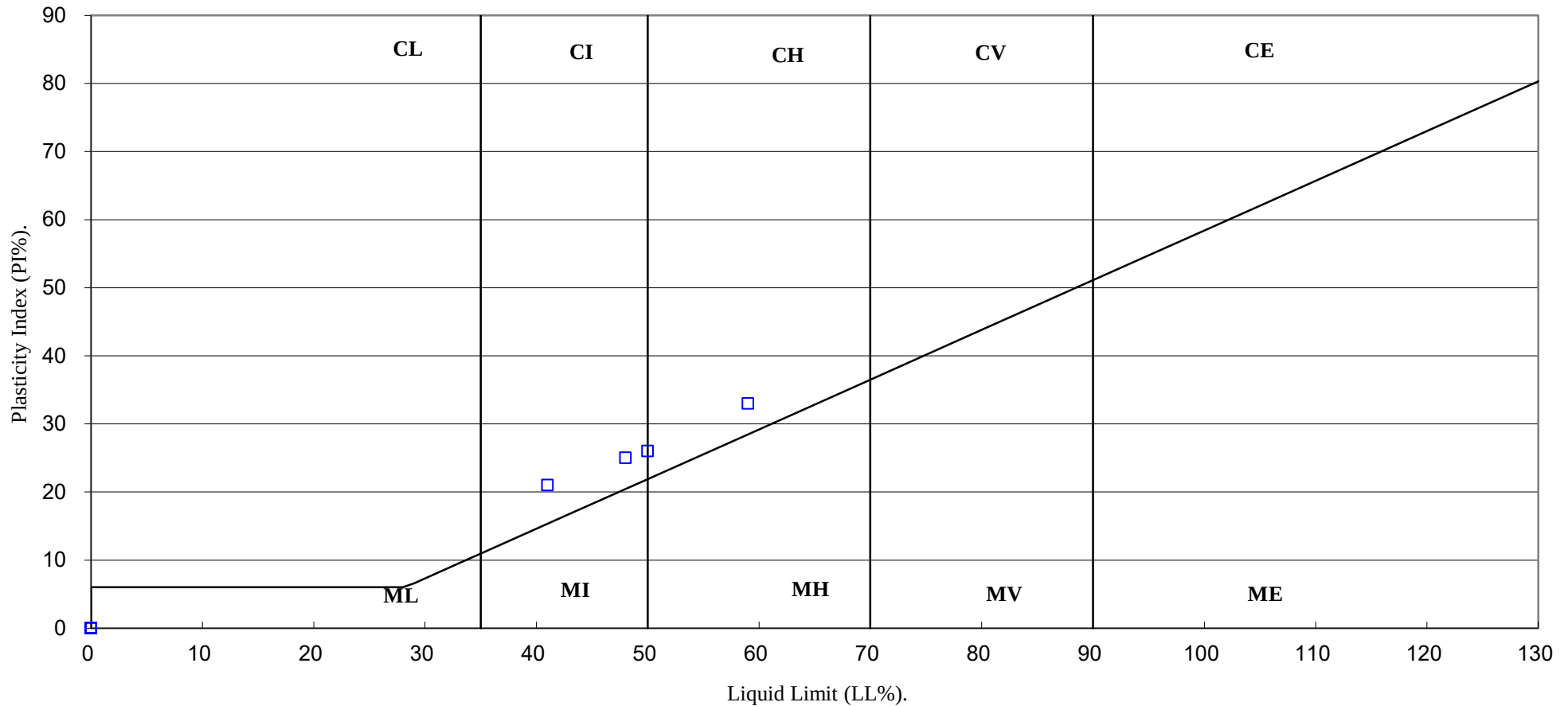
PSL17/3152

Client Ref:

2551

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(BS5930 :2015)



PSL
Professional Soils Laboratory

St Helens Boulevard, Carlton Road

Contract No:

PSL17/3152

Client Ref:

2551



Certificate of Analysis

Certificate Number 17-04301

11-Jul-17

Client Professional Soils Laboratory Ltd
5/7 Hexthorpe Road
Hexthorpe
DN4 0AR

Our Reference 17-04301

Client Reference PSL17/3152

Order No (not supplied)

Contract Title St Helens Boulevard, Carlton Road

Description 8 Soil samples.

Date Received 04-Jul-17

Date Started 04-Jul-17

Date Completed 11-Jul-17

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

Notes Opinions and interpretations are outside the laboratory's scope of ISO 10725 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

A handwritten signature in black ink, appearing to read "A Fenwick", is written over a light blue horizontal line.

Adam Fenwick
Contracts Manager



Summary of Chemical Analysis

Soil Samples

Our Ref 17-04301

Client Ref PSL17/3152

Contract Title St Helens Boulevard, Carlton Road

Lab No	1199273	1199274	1199275	1199276	1199277	1199278	1199279	1199280
Sample ID	TP01	TP06	TP08	TP10	TP11	TP01	TP02	TP103
Depth	0.90	3.00	1.80	1.20	0.90	1.20	1.60	1.60
Other ID	2	3	4	3	2	3	4	3
Sample Type	D	D	D	D	D	D	D	D
Sampling Date	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units								
Inorganics											
pH	DETSC 2008#			7.2	7.4	7.1	5.4	6.4	6.8	5.8	6.4
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	1000	240	150	79	46	82	19	36

Information in Support of the Analytical Results

Our Ref 17-04301
 Client Ref PSL17/3152
 Contract St Helens Boulevard, Carlton Road

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1199273	TP01 0.90 SOIL		PT 500ml	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	
1199274	TP06 3.00 SOIL		PT 500ml	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	
1199275	TP08 1.80 SOIL		PT 500ml	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	
1199276	TP10 1.20 SOIL		PT 500ml	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	
1199277	TP11 0.90 SOIL		PT 500ml	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	
1199278	TP01 1.20 SOIL		PT 500ml	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	
1199279	TP02 1.60 SOIL		PT 500ml	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	
1199280	TP103 1.60 SOIL		PT 500ml	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	

Key: P-Plastic T-Tub

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

Soil Analysis Notes

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

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

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

Disposal

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

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



LABORATORY REPORT



4043

Contract Number: PSL18/0161

Report Date: 12 February 2018

Client's Reference: 2551

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

For the attention of: Matt Thompson

Contract Title: St Helens Boulevard, Carlton Road

Date Received: 9/1/2018

Date Commenced: 9/1/2018

Date Completed: 12/2/2018

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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

Checked and Approved Signatories:

R Gunson
(Director)

A Watkins
(Director)

R Berriman
(Quality Manager)

L Knight
(Senior Technician)

C Marshall
(Laboratory Manager)

A Fry
(Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
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fax: +44 (0)844 815 6642
e-mail: rgunson@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

PSL
Professional Soils Laboratory

St Helens Boulevard, Carlton Road

Contract No:

PSL18/0161

Client Ref:

2551

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS : NP : Non Plastic

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



4043

PSL

Professional Soils Laboratory

St Helens Boulevard, Carlton Road

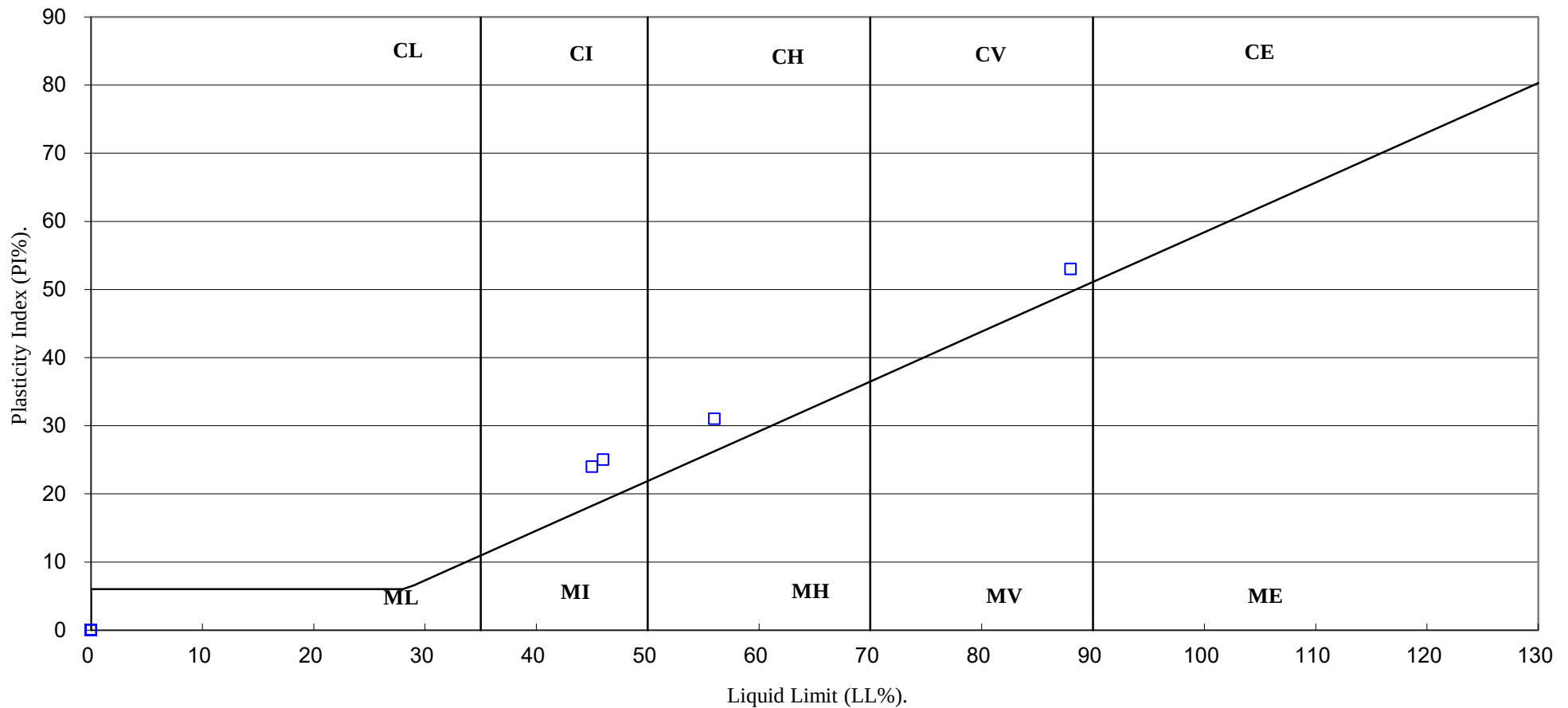
Contract No:

PSL18/0161

Client Ref:

2551

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



4043

PSL

Professional Soils Laboratory

St Helens Boulevard, Carlton Road

Contract No:

PSL18/0161

Client Ref:

2551



Certificate of Analysis

Certificate Number 18-03318

14-Feb-18

Client Professional Soils Laboratory Ltd
5/7 Hexthorpe Road
Hexthorpe
DN4 0AR

Our Reference 18-03318

Client Reference PSL18/0161

Order No (not supplied)

Contract Title St Helens Boulevard - Carlton Road

Description 3 Soil samples.

Date Received 10-Feb-18

Date Started 10-Feb-18

Date Completed 14-Feb-18

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

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

Approved By

A handwritten signature in black ink, appearing to read "A Fenwick", is written over a light blue horizontal line.

Adam Fenwick
Contracts Manager



Summary of Chemical Analysis

Soil Samples

Our Ref 18-03318

Client Ref PSL18/0161

Contract Title St Helens Boulevard - Carlton Road

Lab No	1296476	1296477	1296478
Sample ID	TP15	TP104	TP106
Depth	1.20	1.80	1.90
Other ID			
Sample Type	D	D	D
Sampling Date	n/s	n/s	n/s
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
Inorganics						
pH	DETSC 2008#			5.4	6.3	6.6
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	16	29	31

Information in Support of the Analytical Results

Our Ref 18-03318
 Client Ref PSL18/0161
 Contract St Helens Boulevard - Carlton Road

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1296476	TP15 1.20 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	
1296477	TP104 1.80 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	
1296478	TP106 1.90 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	

Key: P-Plastic T-Tub

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

Soil Analysis Notes

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

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

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

Disposal

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

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

Appendix J

Gas Monitoring Results

Job Title:							Job No:		
Carlton Road, Barnsley							2551		
Client:							Sheet :		
Keepmoat Homes							1 of 1		
Date:		Arrival Time:		Depart Time:		Operator:			
12/06/2017		10:15		10:58		K Gurney			



Gas Monitoring Results:							
Ambient Concentration (% Volume):		CH ₄ :	0.0	CO ₂ :	0.0	O ₂ :	20.5

Monitoring Point	Groundwater level	Concentrations					Gas Flow Rates			Bottom of well	Remarks
		Initial / Highest		Steady concentrations		Lowest concn	Initial / Maximum	Steady	Time to fall from highest to steady		
		CH ₄	CO ₂	CH ₄	CO ₂	O ₂					
		(m) bgl	% v/v	(%)	% v/v	(%)					
WS01	ND	ND	1.7	ND	1.7	18.9	ND	ND	ND	1.72	
WS02	ND	ND	1.9	ND	1.9	18.2	ND	ND	ND	1.64	
WS03	ND	ND	1.8	ND	1.8	18.8	ND	ND	ND	1.97	
WS04	ND	ND	5.1	ND	5.1	16.3	ND	ND	ND	1.90	
WS05	ND	ND	0.7	ND	0.7	19.7	ND	ND	ND	2.06	

Notes

Equipment Used:		Next Calibration Date		Key	
Gas Data GFM436 Infrared Gas Analyser Geotechnical Instruments Dipmeter		30/01/2018		ND	None Detected
				NR	Not Recorded
				1.0	Recorded value does not breach trigger levels
				5.0	Recorded value breaches trigger level 1
				10.0	Recorded value breaches trigger level 2

	Site Data:			Weather Station Data (Innovation Way Station)					
	Temp (°C):	13		Barometric Pressure Trend:			Rising		
Time:	10:25	10:37	10:52	00:19	04:00	07:39	10:40	14:22	
Pressure (mb):	1002	1002	1002	1010.4	1010.7	1012.4	1014.4	1016.8	
	Weather Conditions:		Windy and cloudy						
	Surface Ground Conditions:		Dry						

Remarks:	Trigger level 1	1.0	5.0	16.0
	Trigger level 2	5.0	10.0	10.0

Job Title:							Job No:			LITHOS CONSULTING			
Carlton Road, Barnsley							2551						
Client:							Sheet :						
Keepmoat Homes							1 of 1						
Date:		Arrival Time:		Depart Time:		Operator:							
14/07/2017		10:15		10:50		K Gurney							
Gas Monitoring Results:													
Ambient Concentration (% Volume):				CH ₄ :	0.0	CO ₂ :	0.0	O ₂ :	20.6				
Monitoring Point	Groundwater level	Concentrations					Gas Flow Rates			Bottom of well	Remarks		
		Initial / Highest		Steady concentrations		Lowest concn	Initial / Maximum	Steady	Time to fall from highest to steady				
		CH ₄	CO ₂	CH ₄	CO ₂	O ₂							
		(m) bgl	% v/v	(%)	% v/v	(%)	(%)	litre/hr	litre/hr			secs	m
WS01	1.71	ND	2.2	ND	2.2	19.1	ND	ND	ND	1.73			
WS02	ND	ND	1.3	ND	1.3	19.3	ND	ND	ND	1.63			
WS03	ND	ND	3.2	ND	3.2	18.0	ND	ND	ND	1.99			
WS04	ND	ND	4.9	ND	4.9	15.9	ND	ND	ND	1.90			
WS05	1.99	ND	0.7	ND	0.7	20.2	ND	ND	ND	2.08			
Notes													
Equipment Used:						Next Calibration Date			Key				
Gas Data GFM436 Infrared Gas Analyser						30/01/2018			ND None Detected				
Geotechnical Instruments Dipmeter									NR Not Recorded				
									1.0 Recorded value does not breach trigger levels				
									5.0 Recorded value breaches trigger level 1				
									10.0 Recorded value breaches trigger level 2				
	Site Data:			Weather Station Data (Innovation Way Station)									
	Temp (°C):	15		Barometric Pressure Trend:			rising						
Time:	10:20	10:37	10:45	00:06	03:47	07:08	10:38	14:08		Trigger level 1	1.0	5.0	16.0
Pressure (mb):	1006	1006	1005	1017.2	1017.5	1018.2	1019.9	1021.2		Trigger level 2	5.0	10.0	10.0
	Weather Conditions:		Cloudy and windy										
	Surface Ground Conditions:		Wet										
Remarks:													



Job Title:				Job No:	
Carlton Road, Barnsley				2551	
Client:				Sheet :	
Keepmoat Homes				1 of 1	
Date:	Arrival Time:	Depart Time:	Operator:		
17/08/2017	12:00	12:35	K Gurney		

Gas Monitoring Results:														
Ambient Concentration (% Volume):			CH ₄ :		0.0		CO ₂ :		0.0		O ₂ :		20.8	
Monitoring Point	Groundwater level	Concentrations						Gas Flow Rates			Bottom of well	Remarks		
		Initial / Highest		Steady concentrations		Lowest concn	Initial / Maximum	Steady	Time to fall from highest to steady					
		CH ₄	CO ₂	CH ₄	CO ₂	O ₂								
		(m) bgl	% v/v	(%)	% v/v	(%)	(%)	litre/hr	litre/hr	secs			m	
WS01	1.74	ND	1.4	ND	1.4	19.6	ND	ND	ND	1.77				
WS02	1.63	ND	0.9	ND	0.9	19.7	ND	ND	ND	1.64				
WS03	ND	ND	1.8	ND	1.8	18.5	ND	ND	ND	1.99				
WS04	ND	ND	3.9	ND	3.9	16.3	ND	ND	ND	1.92				
WS05	ND	ND	0.7	ND	0.7	20.3	ND	ND	ND	2.05				

Notes													
Equipment Used:						Next Calibration Date			Key				
Gas Data GFM436 Infrared Gas Analyser						30/01/2018			ND None Detected				
Geotechnical Instruments Dipmeter									NR Not Recorded				
									1.0 Recorded value does not breach trigger levels				
									5.0 Recorded value breaches trigger level 1				
									10.0 Recorded value breaches trigger level 2				
	Site Data:			Weather Station Data (Innovation Way Station)						CH ₄	CO ₂	O ₂	
	Temp (°C):	17		Barometric Pressure Trend:			steady						
Time:	12:05	12:17	12:31	00:17	04:38	08:49	12:20	15:10	20:59	Trigger level 1	1.0	5.0	16.0
Pressure (mb):	996	996	996	1008.4	1006.3	1007.7	1008	1008.4	1007.9	Trigger level 2	5.0	10.0	10.0
	Weather Conditions:		Sunny and slightly windy										
	Surface Ground Conditions:		Wet										

Remarks:	
----------	--

Job Title:

Carlton Road, Barnsley

Client:

Keepmoat Homes

Date:

08/09/2017

Arrival Time:

10:10

Depart Time:

10:37

Operator:

K Gurney

Job No:

2551

Sheet :

1 of 1

Gas Monitoring Results:

Ambient Concentration (% Volume):

CH₄:

0.0

CO₂:

0.0

O₂:

20.7

Monitoring Point	Groundwater level	Concentrations					Gas Flow Rates			Bottom of well	Remarks
		Initial / Highest		Steady concentrations		Lowest concn	Initial / Maximum	Steady	Time to fall from highest to steady		
		CH ₄	CO ₂	CH ₄	CO ₂	O ₂					
		(m) bgl	% v/v	(%)	% v/v	(%)					
WS01	ND	ND	1.1	ND	1.1	19.6	ND	ND	ND	1.77	
WS02	ND	ND	1.0	ND	1.0	18.5	ND	ND	ND	1.63	
WS03	ND	ND	1.5	ND	1.5	17.6	ND	ND	ND	2.00	
WS04	ND	ND	4.1	ND	4.1	16.9	ND	ND	ND	1.91	
WS05	ND	ND	0.5	ND	0.5	20.0	ND	ND	ND	2.03	

Notes

Equipment Used:

Gas Data GFM436 Infrared Gas Analyser
Geotechnical Instruments Dipmeter

Next Calibration Date

30/01/2018

Key

ND

None Detected

NR

Not Recorded

1.0

Recorded value does not breach trigger levels

5.0

Recorded value breaches trigger level 1

10.0

Recorded value breaches trigger level 2

	Site Data:			Weather Station Data (Innovation Way Station)							CH ₄	CO ₂	O ₂	
	Temp (°C):	15		Barometric Pressure Trend:			falling							
Time:	10:15	10:30	10:37	00:02	04:02	07:13	10:32	14:56	18:25	Trigger level 1	1.0	5.0	16.0	
Pressure (mb):	983	983	983	999.9	998.9	996.8	995.8	993.8	993.8	Trigger level 2	5.0	10.0	10.0	
	Weather Conditions:			Sunny spells and breezy										
	Surface Ground Conditions:			Wet										

Remarks:

Job Title:										Job No:					
Carlton Road, Barnsley										2551					
Client:										Sheet :					
Keepmoat Homes										1 of 1					
Date:		Arrival Time:		Depart Time:		Operator:									
27/09/2017		12:58		14:00		M Naylor & M Thompson									

Gas Monitoring Results:															
Ambient Concentration (% Volume):				CH ₄ :		0.0		CO ₂ :		0.0		O ₂ :		20.7	

Monitoring Point	Groundwater level	Concentrations					Gas Flow Rates			Bottom of well	Remarks
		Initial / Highest		Steady concentrations		Lowest concn	Initial / Maximum	Steady	Time to fall from highest to steady		
		CH ₄	CO ₂	CH ₄	CO ₂	O ₂					
		% v/v	(%)	% v/v	(%)	(%)					
	(m) bgl	% v/v	(%)	% v/v	(%)	(%)	litre/hr	litre/hr	secs	m	
WS01	1.76	ND	0.8	ND	0.8	20.0	ND	ND	ND	1.77	Water dip is likely to be condensation at base of well.
WS02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Couldn't find borehole
WS03	ND	ND	2.2	ND	2.2	18.7	ND	ND	ND	1.98	
WS04	ND	ND	3.4	ND	3.4	17.5	-0.3	ND	1.0	0.91	
WS05	ND	ND	0.7	ND	0.7	20.0	ND	ND	ND	2.05	

Notes											
Equipment Used:						Next Calibration Date				Key	
Gas Data GFM436 Infrared Gas Analyser						30/01/2018				ND	
Geotechnical Instruments Dipmeter										NR	
										1.0	
										5.0	
										10.0	

	Site Data:			Weather Station Data (Monk Bretton Station)									
	Temp (°C):	13 to 17		Barometric Pressure Trend:			Falling						
Time:	12:58	13:29	13:53	00:07	03:01	07:04	12:04	15:04	18:00	Trigger level 1	1.0	5.0	16.0
Pressure (mb):	1008	1006	1005	1022.9	1021.9	1021.6	1020.2	1017.5	1016.1	Trigger level 2	5.0	10.0	10.0
	Weather Conditions:		Cloudy with a slight breeze										
	Surface Ground Conditions:		Wet										
Remarks:													

Job Title:										Job No:					
Carlton Road, Barnsley										2551					
Client:										Sheet :					
Keepmoat Homes										1 of 1					
Date:		Arrival Time:		Depart Time:		Operator:									
09/10/2017		15:20		16:10		M Naylor									

Gas Monitoring Results:															
Ambient Concentration (% Volume):				CH ₄ :		0.0		CO ₂ :		0.0		O ₂ :		20.9	

Monitoring Point	Groundwater level	Concentrations					Gas Flow Rates			Bottom of well	Remarks
		Initial / Highest		Steady concentrations		Lowest concn	Initial / Maximum	Steady	Time to fall from highest to steady		
		CH ₄	CO ₂	CH ₄	CO ₂	O ₂					
		(m) bgl	% v/v	(%)	% v/v	(%)					
WS01	1.74	ND	1.6	ND	1.6	19.1	ND	ND	ND	1.75	
WS02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Couldn't find borehole.
WS03	1.53	ND	4.0	ND	4.0	17.9	ND	ND	ND	1.97	
WS04	ND	ND	3.1	ND	3.1	18.0	0.1	ND	1.0	0.88	
WS05	ND	ND	0.7	ND	0.7	20.2	ND	ND	ND	2.04	

Notes											
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Equipment Used:						Next Calibration Date				Key							
Gas Data GFM436 Infrared Gas Analyser						30/01/2018				ND				None Detected			
Geotechnical Instruments Dipmeter										NR				Not Recorded			
										1.0				Recorded value does not breach trigger levels			
										5.0				Recorded value breaches trigger level 1			
										10.0				Recorded value breaches trigger level 2			

Site Data:				Weather Station Data (Monk Bretton Station)										
Temp (°C):	10 to 16			Barometric Pressure Trend:			Falling							
Time:	15:21	15:45	16:10	00:05	03:04	07:00	12:04	15:03	18:02	Trigger level 1	1.0	5.0	16.0	
Pressure (mb):	1004	1002	1002	1020.5	1019.5	1018.5	1018.2	1017.2	1016.1	Trigger level 2	5.0	10.0	10.0	
Weather Conditions:				Sunny with scattered clouds, and a slight breeze.										
Surface Ground Conditions:				Slightly damp.										

Remarks:													
----------	--	--	--	--	--	--	--	--	--	--	--	--	--

Job Title:							Job No:						
Carlton Road, Barnsley							2551						
Client:							Sheet :						
Keepmoat Homes							1 of 1						
Date:		Arrival Time:		Depart Time:		Operator:							
09/11/2017		09:50		10:30		M Naylor							

Gas Monitoring Results:														
Ambient Concentration (% Volume):			CH ₄ :		0.0		CO ₂ :		0.0		O ₂ :		20.7	

Monitoring Point	Groundwater level	Concentrations					Gas Flow Rates			Bottom of well	Remarks
		Initial / Highest		Steady concentrations		Lowest concn	Initial / Maximum	Steady	Time to fall from highest to steady		
		CH ₄	CO ₂	CH ₄	CO ₂	O ₂					
		(m) bgl	% v/v	(%)	% v/v	(%)					
WS01	1.73	-0.1	1.4	-0.1	1.4	19.3	ND	ND	ND	1.74	
WS02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Couldn't find borehole.
WS03	1.79	-0.1	3.3	-0.1	3.3	18.1	ND	ND	ND	1.96	
WS04	ND	-0.1	2.2	-0.1	2.2	18.6	ND	ND	ND	0.89	
WS05	ND	-0.1	0.8	-0.1	0.8	19.8	ND	ND	ND	2.03	

Notes										
Equipment Used:						Next Calibration Date			Key	
Gas Data GFM436 Infrared Gas Analyser						30/01/2018			ND None Detected	
Geotechnical Instruments Dipmeter									NR Not Recorded	
									1.0 Recorded value does not breach trigger levels	
									5.0 Recorded value breaches trigger level 1	
									10.0 Recorded value breaches trigger level 2	

	Site Data:			Weather Station Data (Monk Bretton Station)						CH ₄	CO ₂	O ₂		
	Temp (°C):	7 to 12		Barometric Pressure Trend:			Rising							
Time:	09:50	10:10	10:30	00:02	03:01	07:01	12:04	15:04	17:25	Trigger level 1	1.0	5.0	16.0	
Pressure (mb):	1008	1008	1008	1021.9	1020.2	1019.5	1021.2	1022.2	1022.2	Trigger level 2	5.0	10.0	10.0	
	Weather Conditions:			Overcast and windy.										
	Surface Ground Conditions:			Damp.										
Remarks:														



Job Title:				Job No:	
Carlton Road, Barnsley				2551	
Client:				Sheet :	
Keepmoat Homes				1 of 1	
Date:	Arrival Time:	Depart Time:	Operator:		
14/12/2017	13:20	14:10	M Naylor		

Gas Monitoring Results:							
Ambient Concentration (% Volume):		CH ₄ :	0.0	CO ₂ :	0.0	O ₂ :	20.2

Monitoring Point	Groundwater level	Concentrations					Gas Flow Rates			Bottom of well	Remarks
		Initial / Highest		Steady concentrations		Lowest concn	Initial / Maximum	Steady	Time to fall from highest to steady		
		CH ₄	CO ₂	CH ₄	CO ₂	O ₂					
		(m) bgl	% v/v	(%)	% v/v	(%)	(%)	litre/hr	litre/hr	secs	
WS01	1.72	ND	1.2	ND	1.2	19.1	ND	ND	ND	1.74	Couldn't find borehole.
WS02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
WS03	1.94	ND	2.4	ND	2.4	18.0	ND	ND	ND	1.96	
WS04	ND	ND	2.0	ND	2.0	18.4	ND	ND	ND	0.88	
WS05	ND	ND	0.7	ND	0.7	19.3	ND	ND	ND	2.05	

Notes											
Equipment Used:						Next Calibration Date			Key		
Gas Data GFM436 Infrared Gas Analyser						30/01/2018			ND None Detected		
Geotechnical Instruments Dipmeter									NR Not Recorded		
									1.0 Recorded value does not breach trigger levels		
									5.0 Recorded value breaches trigger level 1		
									10.0 Recorded value breaches trigger level 2		
		Site Data:		Weather Station Data (Barnsley Station)							
		Temp (°C):	1 to 5	Barometric Pressure Trend:			Steady				
Time:	13:20	13:45	14:10	00:04	03:06	07:04	12:00	13:05	21:09	Trigger level 1	1.0 5.0 16.0
Pressure (mb):	973	971	971	988.4	989.1	989.1	987.4	986.3	986.7	Trigger level 2	5.0 10.0 10.0
		Weather Conditions:		Sunny but cold.							
		Surface Ground Conditions:		Wet.							

Remarks:	
----------	--

Appendix K

Soakaway Test Results

SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365: 1991



Client:	Keepmoat Homes Yorkshire
Job Name:	Carlton Road, Barnsley
Job No.:	2551

Trial Pit No.	TP101
Test No.	1

Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
10:54	0	1.11	1110
10:55	1	1.11	1110
10:56	2	1.11	1110
10:57	3	1.12	1120
10:58	4	1.12	1120
10:59	5	1.12	1120
11:04	10	1.12	1120
11:14	20	1.12	1120
11:24	30	1.13	1130
11:58	64	1.13	1130
13:12	138	1.15	1150
13:49	175	1.15	1150

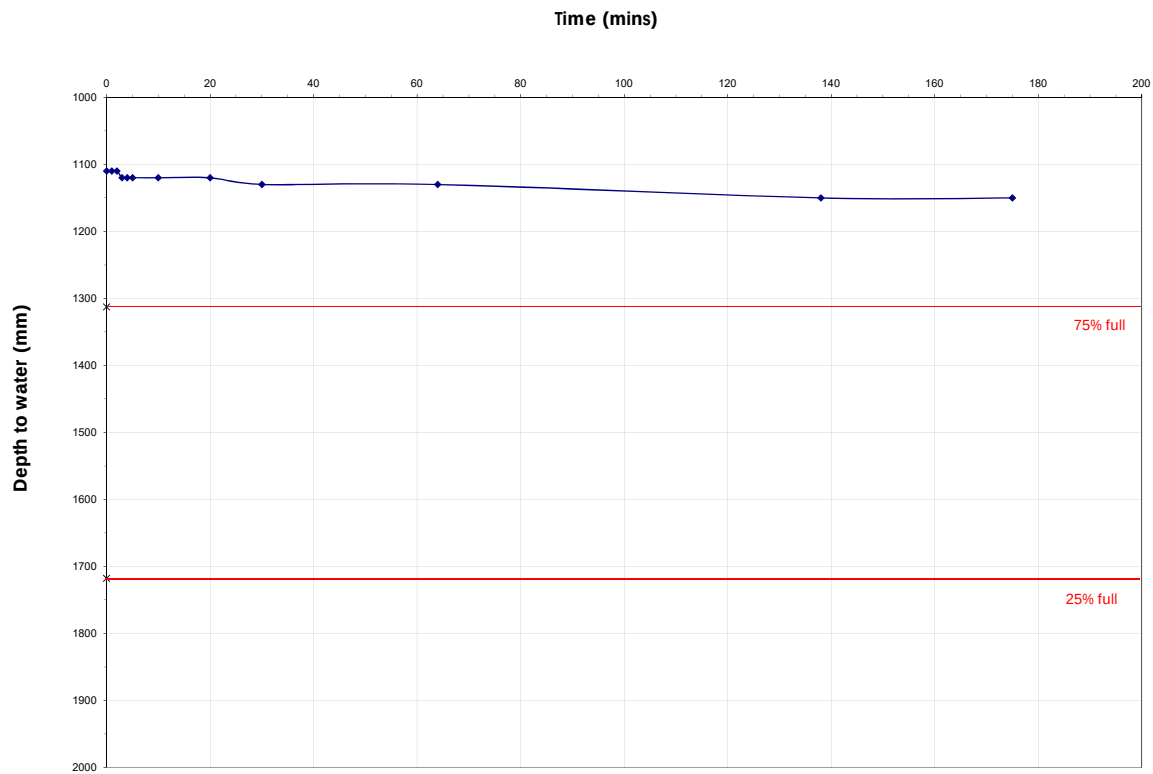
SOAKAWAY TRIAL PIT			
Dimensions		(m)	(mm)
Length	=	1.80	1800
Width	=	0.65	650
Depth	=	1.92	1920

Effective Depth (% full)		(mm)	(m)
0.25	=	1717.5	1.72
0.50	=	1515	1.52
0.75	=	1312.5	1.31

Depth at start of test (mm)	=	1110
Depth at end of test (mm)	=	1150

Base area of pit	=	1.17
a_{p50} - 50% internal surface area inc. base	=	3.1545
V_{p75-25} - Volume 75 - 25%	=	0.47385

Read from the graph:			
t_{p75} (min)	=	N/A	
t_{p25} (min)	=	N/A	



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

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Client:	Keepmoat Homes Yorkshire
Job Name:	Carlton Road, Barnsley
Job No.:	2551

Trial Pit No.	TP102
Test No.	1

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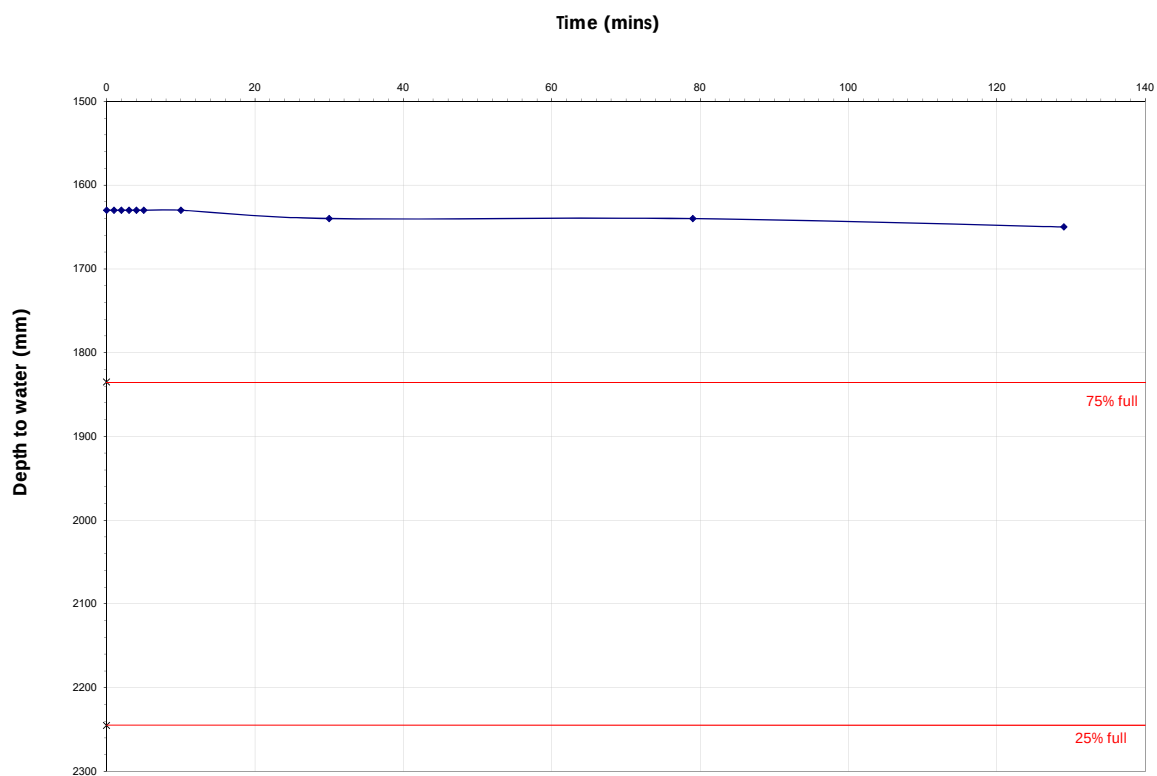
SOAKAWAY TRIAL PIT			
Dimensions		(m)	(mm)
Length	=	1.90	1900
Width	=	0.60	600
Depth	=	2.45	2450

Effective Depth (% full)		(mm)	(m)
0.25	=	2245	2.25
0.50	=	2040	2.04
0.75	=	1835	1.84

Depth at start of test (mm)	=	1630
Depth at end of test (mm)	=	1650

Base area of pit	=	1.14
a_{p50} - 50% internal surface area inc. base	=	3.19
V_{p75-25} - Volume 75 - 25%	=	0.4674

Read from the graph:		
$t_{p\ 75}$ (min)	=	N/A
$t_{p\ 25}$ (min)	=	N/A



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

SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365: 1991



Client:	Keepmoat Homes Yorkshire
Job Name:	Carlton Road, Barnsley
Job No.:	2551

Trial Pit No.	TP103
Test No.	1

Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
12:09	0	0.87	870
10:10	1	0.88	880
12:11	2	0.88	880
12:12	3	0.88	880
12:13	4	0.88	880
12:14	5	0.89	890
12:19	10	0.89	890
12:29	20	0.89	890
12:49	40	0.90	900
13:09	60	0.91	910
13:39	90	0.93	930
14:09	120	0.94	940
14:39	150	0.95	950

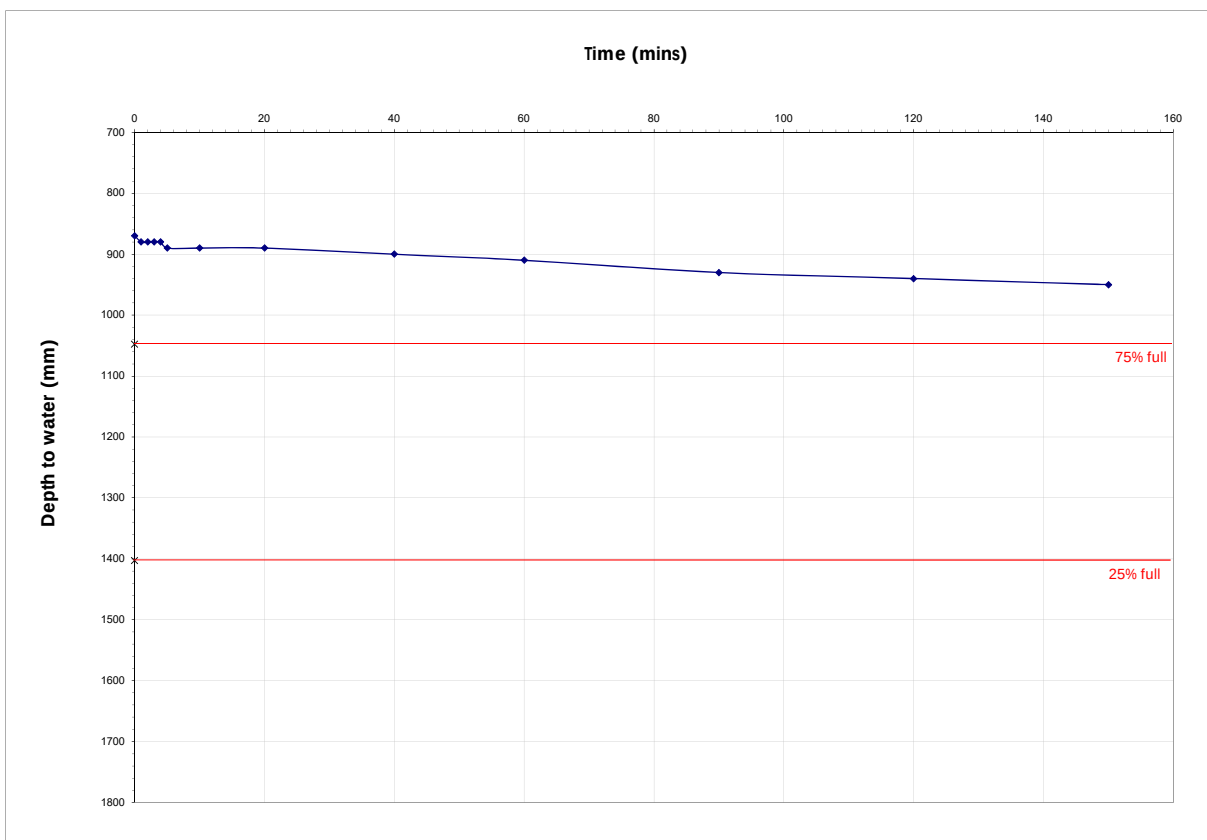
SOAKAWAY TRIAL PIT			
Dimensions		(m)	(mm)
Length	=	1.90	1900
Width	=	0.65	650
Depth	=	1.58	1580

Effective Depth (% full)		(mm)	(m)
0.25	=	1402.5	1.40
0.50	=	1225	1.23
0.75	=	1047.5	1.05

Depth at start of test (mm)	=	870
Depth at end of test (mm)	=	950

Base area of pit	=	1.235
a _{p50} - 50% internal surface area inc. base	=	3.0455
V _{p75-25} - Volume 75 - 25%	=	0.438425

Read from the graph:			
t _{p 75} (min)	=	N/A	
t _{p 25} (min)	=	N/A	



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

SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365: 1991

Client:	Keepmoat
Job Name:	Carlton Road, Barnsley
Job No.:	2551



Trial Pit No.	TP 104
Test No.	1

Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
09:55	0	1.57	1570
09:56	1	1.57	1570
09:57	2	1.58	1580
09:58	3	1.59	1590
09:59	4	1.59	1590
10:00	5	1.59	1590
10:05	10	1.59	1590
10:15	20	1.59	1590
10:37	42	1.59	1590
10:55	60	1.59	1590
11:27	92	1.59	1590
11:55	120	1.59	1590
12:35	160	1.59	1590
13:35	220	1.59	1590
14:35	280	1.55	1550

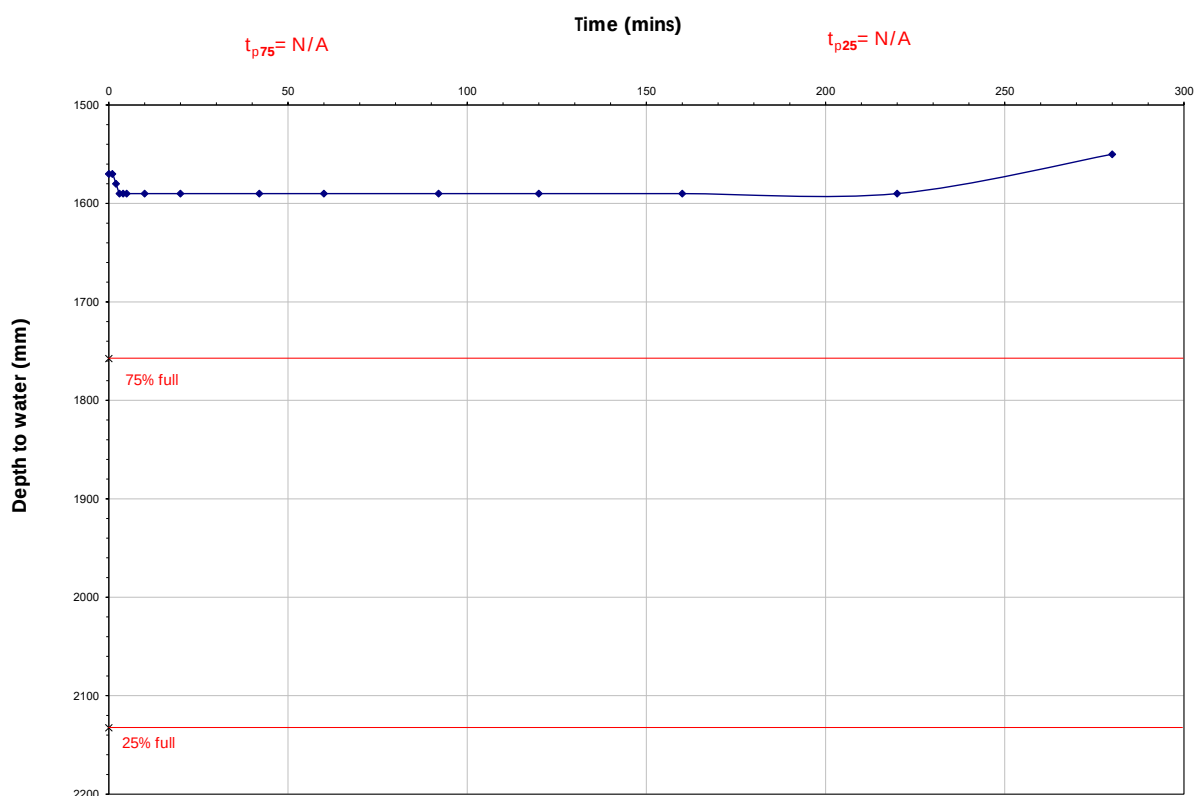
SOAKAWAY TRIAL PIT			
Dimensions		(m)	(mm)
Length	=	3.15	3150
Width	=	0.60	600
Depth	=	2.32	2320

Effective Depth (% full)		(mm)	(m)
0.25	=	2132.5	2.13
0.50	=	1945	1.95
0.75	=	1757.5	1.76

Depth at start of test (mm)	=	1570
Depth at end of test (mm)	=	1590

Base area of pit	=	1.89
a _{p50} - 50% internal surface area inc. base	=	4.7025
V _{p75-25} - Volume 75 - 25%	=	0.70875

Read from the graph:			
t _{p 75} (min)	=	N/A	
t _{p 25} (min)	=	N/A	



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

SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365: 1991

Client:	Keepmoat
Job Name:	Carlton Road, Barnsley
Job No.:	2551



Trial Pit No.	TP 105
Test No.	1

Time	Elpsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
10:30	0	1.71	1710
10:31	1	1.78	1780
10:32	2	1.78	1780
10:33	3	1.78	1780
10:34	4	1.78	1780
10:35	5	1.78	1780
10:40	10	1.78	1780
10:50	20	1.78	1780
11:20	50	1.78	1780
11:30	60	1.78	1780
12:00	90	1.79	1790
12:30	120	1.79	1790
13:30	180	1.79	1790
14:30	240	1.79	1790

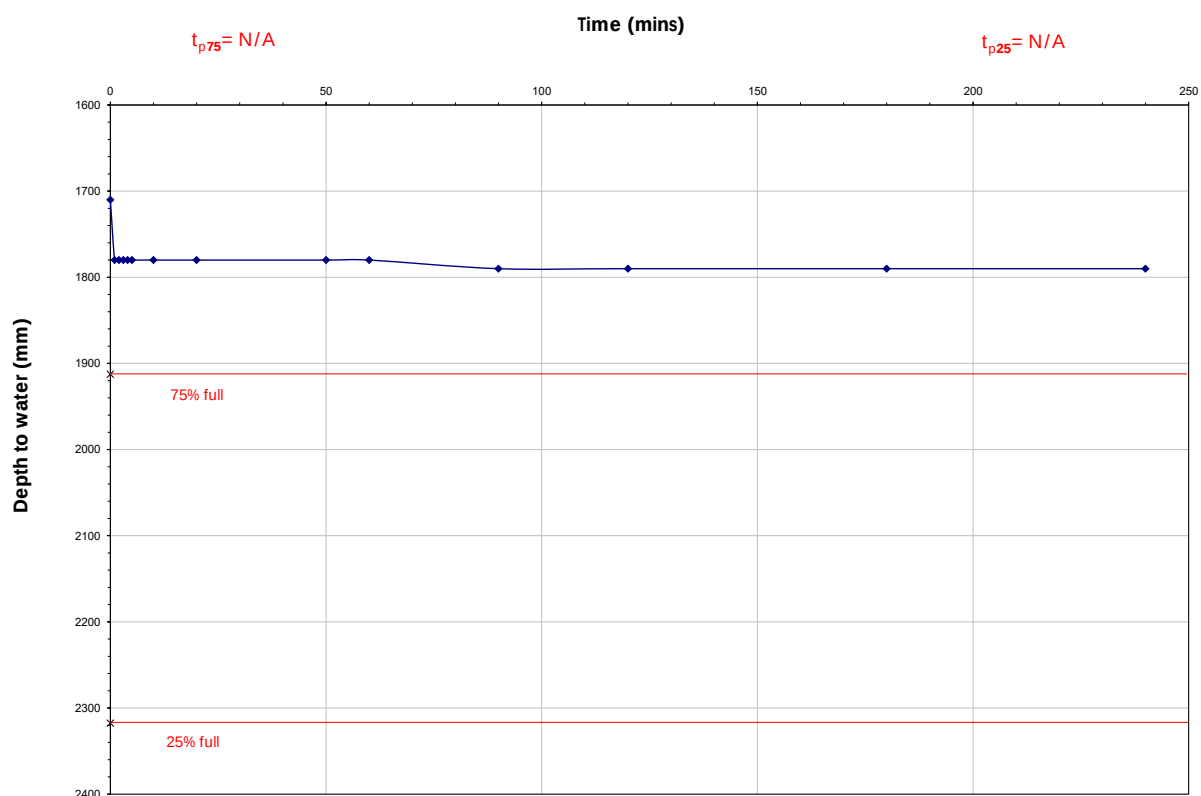
SOAKAWAY TRIAL PIT			
Dimensions		(m)	(mm)
Length	=	3.10	3100
Width	=	0.60	600
Depth	=	2.52	2520

Effective Depth (% full)		(mm)	(m)
0.25	=	2317.5	2.32
0.50	=	2115	2.12
0.75	=	1912.5	1.91

Depth at start of test (mm)	=	1710
Depth at end of test (mm)	=	1790

Base area of pit	=	1.86
a _{p50} - 50% internal surface area inc. base	=	4.857
V _{p75-25} - Volume 75 - 25%	=	0.7533

Read from the graph:			
t _{p 75} (min)	=	N/A	
t _{p 25} (min)	=	N/A	



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

SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365: 1991

Client:	Keepmoat
Job Name:	Carlton Road, Barnsley
Job No.:	2551



Trial Pit No.	TP 106
Test No.	1

Time	Elpsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
11:10	0	1.63	1630
11:11	1	1.64	1640
11:12	2	1.64	1640
11:13	3	1.64	1640
11:14	4	1.64	1640
11:15	5	1.64	1640
11:20	10	1.64	1640
11:30	20	1.64	1640
11:58	48	1.64	1640
12:10	60	1.64	1640
12:40	90	1.62	1620
13:18	128	1.62	1620
14:20	190	1.62	1620

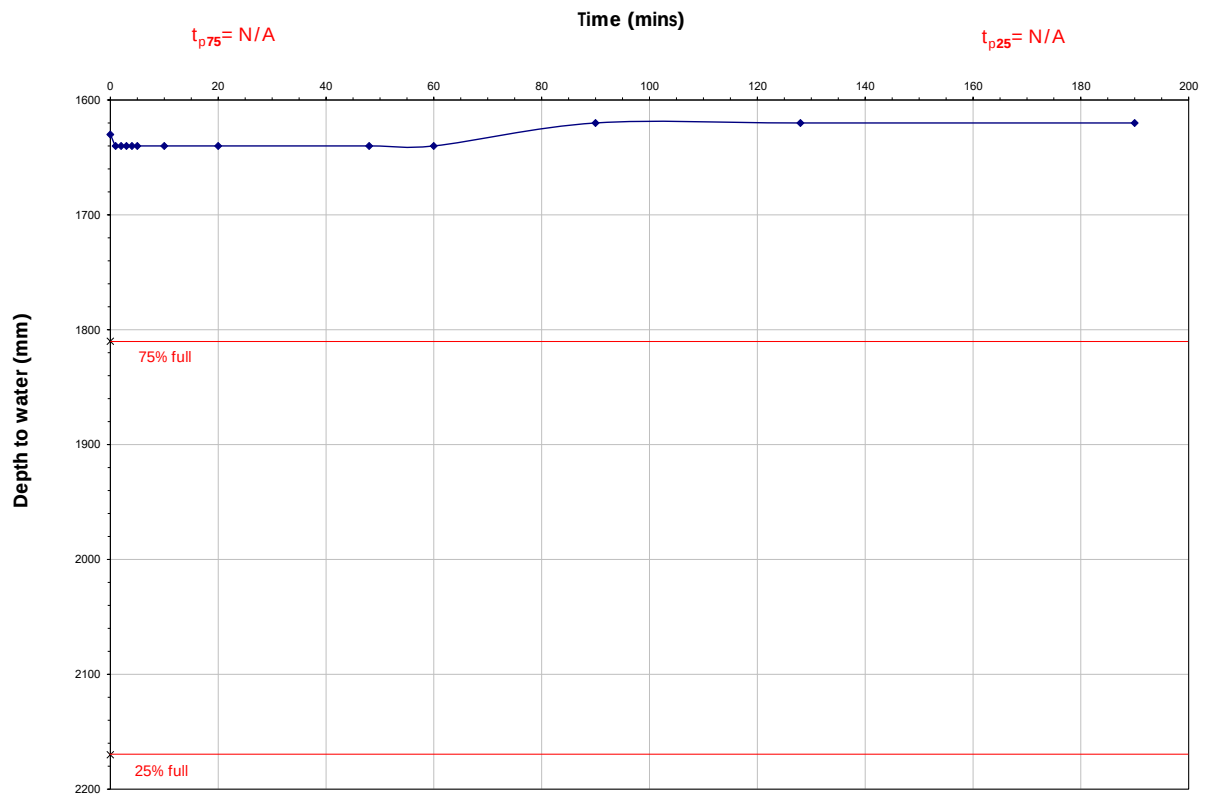
SOAKAWAY TRIAL PIT			
Dimensions		(m)	(mm)
Length	=	2.90	2900
Width	=	0.60	600
Depth	=	2.35	2350

Effective Depth (% full)		(mm)	(m)
0.25	=	2170	2.17
0.50	=	1990	1.99
0.75	=	1810	1.81

Depth at start of test (mm)	=	1630
Depth at end of test (mm)	=	1640

Base area of pit	=	1.74
a _{p50} - 50% internal surface area inc. base	=	4.26
V _{p75-25} - Volume 75 - 25%	=	0.6264

Read from the graph:			
t _{p 75} (min)	=	N/A	
t _{p 25} (min)	=	N/A	



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

SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365: 1991

Client:	Keepmoat
Job Name:	Carlton Road, Barnsley
Job No.:	2551



Trial Pit No.	TP 107
Test No.	1

Time	Elpsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
11:46	0	1.71	1710
11:47	1	1.71	1710
11:48	2	1.71	1710
11:49	3	1.71	1710
11:50	4	1.71	1710
11:51	5	1.71	1710
11:56	10	1.71	1710
12:06	20	1.72	1720
12:26	40	1.72	1720
12:48	62	1.72	1720
13:25	99	1.72	1720
14:28	162	1.73	1730

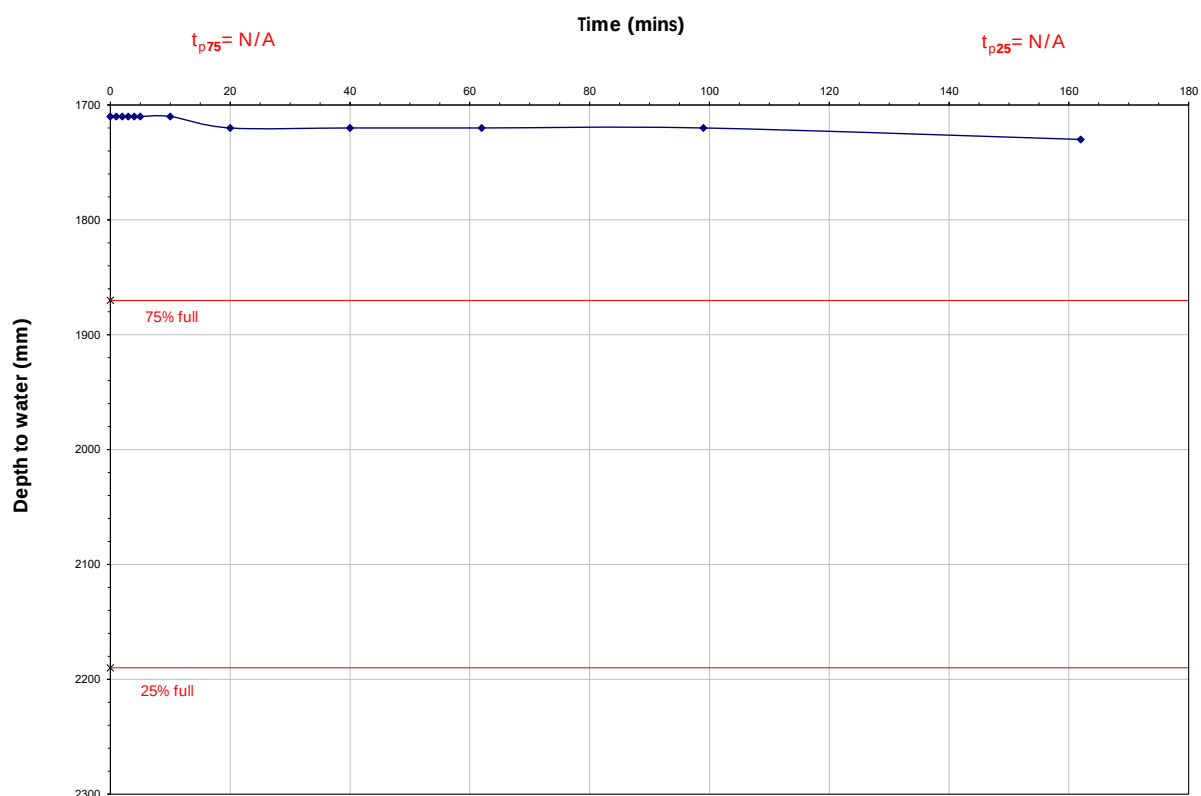
SOAKAWAY TRIAL PIT			
Dimensions		(m)	(mm)
Length	=	2.90	2900
Width	=	0.60	600
Depth	=	2.35	2350

Effective Depth (% full)		(mm)	(m)
0.25	=	2190	2.19
0.50	=	2030	2.03
0.75	=	1870	1.87

Depth at start of test (mm)	=	1710
Depth at end of test (mm)	=	1730

Base area of pit	=	1.74
a _{p50} - 50% internal surface area inc. base	=	3.98
V _{p75-25} - Volume 75 - 25%	=	0.5568

Read from the graph:			
t _{p 75} (min)	=	N/A	
t _{p 25} (min)	=	N/A	



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