

		EXPLORATORY HOLE PHOTOGRAPHS		Remarks Hand excavated inspection pit from GL to 1.20m. Dynamic sampling from 1.20m to 11.00m. Rotary open hole from 11.00m to 12.00m. Rotary coring from 12.00m to 17.00m. Rotary open hole from 17.00m to 20.00m.		Exploratory Hole S1-BH106
Project	Global Centre of Rail Excellence	Easting	284928.61	Equipment	Hand tools/Beretta T44	Sheet 5 of 5
Client	Walters UK Limited	Northing	210637.41	Method	IP/DS/RO/RC	
Project No	G22069	Level	241.27 mAOD	Termination Reason	Scheduled depth	



S1-BH106 14.00 m to 15.50 m



S1-BH106 15.50 m to 17.00 m



Exploratory Hole Progress by Time				Exploratory Hole	
Date and Time	Depth	Casing Depth	Water Depth	S1-BH107	
01/12/2022 08:00	0.00				
01/12/2022 16:00	8.00	5.00	-1.10	Sheet 1 of 2	
02/12/2022 07:30	8.00	5.00	0.00	Scale	1:25
02/12/2022 09:00	8.00	5.00	0.00	Drilled	KO
				Logged	JJ
				Checked	

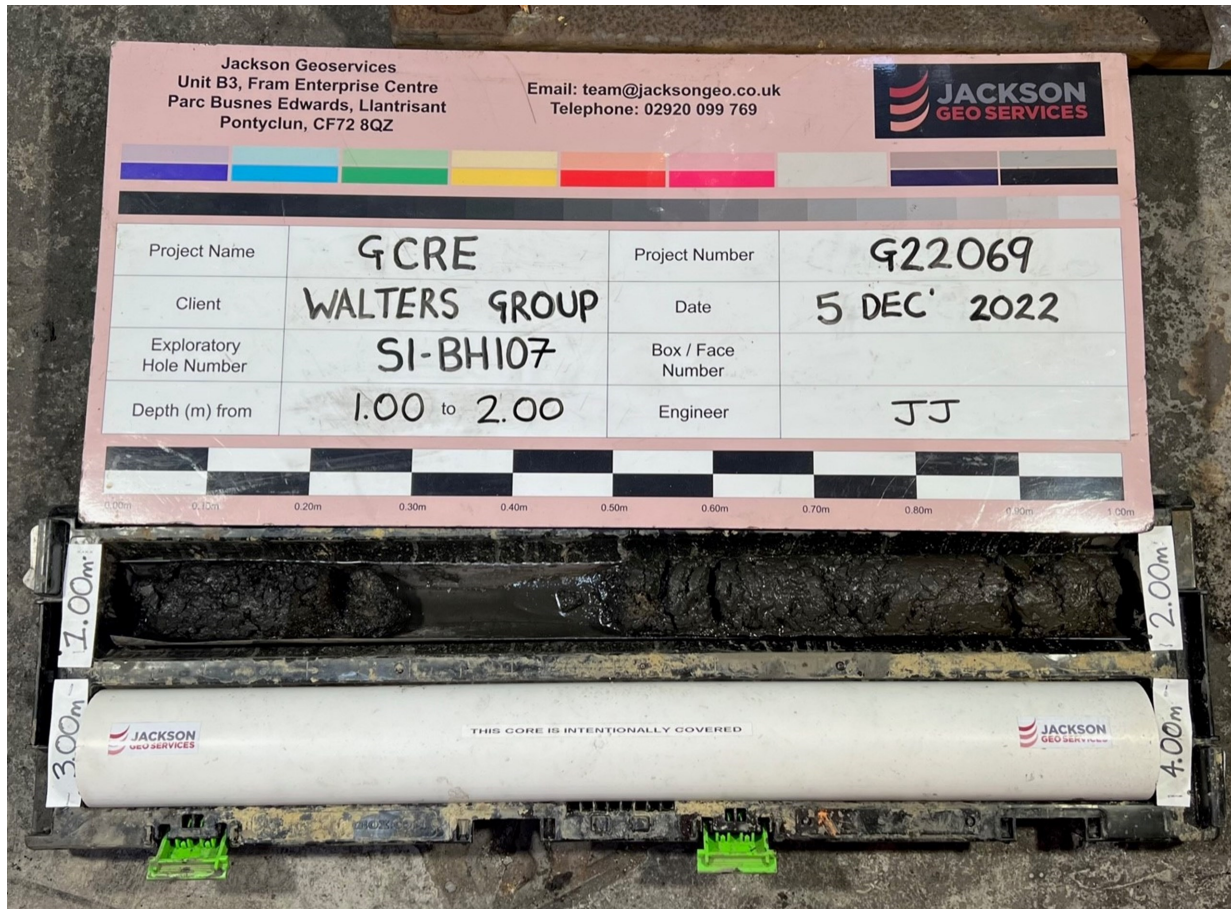
Drilling Flush					Hole Diameter		Casing Diameter		Water Added		Water Strikes						
Depth Top	Depth Base	Type	Colour	Returns	Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Date and Time	Casing	Strike	Sealed	Rising to	Time	Remarks
0.70	8.00	Air/Mist	Grey	100%	8.00	104mm	5.00	168mm			01/12/2022 12:48 01/12/2022 15:12	0.00 5.00	0.70 7.00	0.00	0.60 -1.10	20mins 20mins	Artesian
Drill Bit Type		PCD			Drill Bit Condition		Good		Core Barrel Type		Conventional Double Tube		Core Barrel Length			1.50	

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		DYNAMIC SAMPLING AND ROTARY DRILLING EXPLORATORY HOLE LOG						Exploratory Hole Progress by Time				Exploratory Hole					
								Date and Time		Depth	Casing Depth	Water Depth	S1-BH107				
Project		Global Centre of Rail Excellence				Equipment		Insulated Hand Tools/Berretta T44				Sheet 2 of 2					
Client		Walters UK Limited				Method		IP/RC/WLS				Scale 1:25					
Project No		G22069		Level		229.89 mAOD		Inclination		90 degrees		Drilled KO					
Easting		284280.50		Northing		210636.35		SPT Hammer Serial Number		TECH1		Logged JJ					
Termination Reason		Artesian water encountered				SPT Hammer Energy Ratio		66 %				Checked					
Samples	Sampling and Testing Depths		Insitu Testing and Depth Related Remarks			Drill Runs	TCR SCR RQD	Depth (Thickness)	Level (mAOD)	Legend	Description		If (min ave max)	Scale	Backfill		
106 B	5.00 - 6.00 5.00					RC 5.00 - 6.00	53% 0% 0%	(1.00)	6.00	223.89	Extremely weak dark grey friable MUDSTONE recovered as loose dark grey clayey angular fine and medium GRAVEL of mudstone. (LOWER SOUTH WALES COAL MEASURES FORMATION) Geology Code: SWCM 2nd Geology Code: MST 5.40m - 6.00m Clay becomes absent.		5.50				
	RC 6.00 - 7.00	100% 49% 31%														(0.65)	6.65
						RC 7.00 - 8.00	67% 32% 10%	(1.35)	221.89	Medium strong grey fine grained SANDSTONE. NI, recovered as angular to subangular cobbles and some angular medium to coarse gravel. Possible sub-horizontal and randomly orientated very closely to close spaced discontinuities. (LOWER SOUTH WALES COAL MEASURES FORMATION) Geology Code: SWCM 2nd Geology Code: SST	Set 1 NI NI NI	7.00					
	End of Exploratory Hole at 8.00m															8.00	
												8.50					
													9.00				
													9.50				
													10.00				
Drilling Flush					Hole Diameter		Casing Diameter		Water Added		Water Strikes						
Depth Top	Depth Base	Type	Colour	Returns	Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Date and Time	Casing	Strike	Sealed	Rising to	Time	Remarks
0.70	8.00	Air/Mist	Grey	100%	8.00	104mm	5.00	168mm			01/12/2022 12:48 01/12/2022 15:12	0.00 5.00	0.70 7.00	0.00	0.60 -1.10	20mins 20mins	Artesian
Drill Bit Type		PCD		Drill Bit Condition		Good		Core Barrel Type		Conventional Double Tube		Core Barrel Length		1.50			
Remarks Hand excavated inspection pit from GL to 0.70m depth. Dynamic sampling from 0.70m to 4.00m depth. Rotary coring from 4.00m to 8.00m depth.																	

		EXPLORATORY HOLE PHOTOGRAPHS		Remarks Hand excavated inspection pit from GL to 0.70m depth. Dynamic sampling from 0.70m to 4.00m depth. Rotary coring from 4.00m to 8.00m depth.		Exploratory Hole S1-BH107
Project	Global Centre of Rail Excellence	Easting	284280.50	Equipment	Insulated Hand Tools/Berretta T44	
Client	Walters UK Limited	Northing	210636.35	Method	IP/RC/WLS	
Project No	G22069	Level	229.89 mAOD	Termination Reason	Artesian water encountered	

Sheet 1 of 4



S1-BH107 1.00 m to 2.00 m



S1-BH107 2.00 m to 3.00 m

		EXPLORATORY HOLE PHOTOGRAPHS		Remarks Hand excavated inspection pit from GL to 0.70m depth. Dynamic sampling from 0.70m to 4.00m depth. Rotary coring from 4.00m to 8.00m depth.		Exploratory Hole S1-BH107
Project	Global Centre of Rail Excellence	Easting	284280.50	Equipment	Insulated Hand Tools/Berretta T44	
Client	Walters UK Limited	Northing	210636.35	Method	IP/RC/WLS	
Project No	G22069	Level	229.89 mAOD	Termination Reason	Artesian water encountered	

Sheet 2 of 4



S1-BH107 3.00 m to 4.00 m



S1-BH107 4.00 m to 5.00 m

		EXPLORATORY HOLE PHOTOGRAPHS		Remarks Hand excavated inspection pit from GL to 0.70m depth. Dynamic sampling from 0.70m to 4.00m depth. Rotary coring from 4.00m to 8.00m depth.		Exploratory Hole S1-BH107
Project	Global Centre of Rail Excellence	Easting	284280.50	Equipment	Insulated Hand Tools/Berretta T44	
Client	Walters UK Limited	Northing	210636.35	Method	IP/RC/WLS	
Project No	G22069	Level	229.89 mAOD	Termination Reason	Artesian water encountered	



S1-BH107 5.00 m to 6.00 m



S1-BH107 6.00 m to 7.00 m

		EXPLORATORY HOLE PHOTOGRAPHS		Remarks Hand excavated inspection pit from GL to 0.70m depth. Dynamic sampling from 0.70m to 4.00m depth. Rotary coring from 4.00m to 8.00m depth.		Exploratory Hole S1-BH107
Project	Global Centre of Rail Excellence	Easting	284280.50	Equipment	Insulated Hand Tools/Berretta T44	Sheet 4 of 4
Client	Walters UK Limited	Northing	210636.35	Method	IP/RC/WLS	
Project No	G22069	Level	229.89 mAOD	Termination Reason	Artesian water encountered	



S1-BH107 7.00 m to 8.00 m

DYNAMIC SAMPLING AND ROTARY DRILLING EXPLORATORY HOLE LOG

Project	Global Centre of Rail Excellence		Equipment	Beretta T44/Insulated Hand Tools	
Client	Walters UK Limited		Method	WLS/IP/RC	
Project No	G22069	Level	231.95 mAOD	Inclination	90 degrees
Easting	284415.11	Northing	210631.95	SPT Hammer Serial Number	TECH1
Termination Reason	Scheduled depth		SPT Hammer Energy Ratio	66 %	

Exploratory Hole Progress by Time				Exploratory Hole	
Date and Time	Depth	Casing Depth	Water Depth	S1-BH108	
17/11/2022 13:51	0.00				
17/11/2022 16:00	2.45	2.00	0.40	Sheet 1 of 6	
21/11/2022 09:16	12.00	3.00	0.80		
21/11/2022 16:00	21.00	3.00	0.80	Scale	1:25
24/11/2022 08:41	21.00	3.00	0.80	Drilled	KO
24/11/2022 16:00	27.00	3.00	0.80	Logged	AF/JJ
25/11/2022 08:16	27.00	3.00	0.80	Checked	
25/11/2022 13:00	30.00	3.00	0.80		

Samples	Sampling and Testing Depths	Insitu Testing and Depth Related Remarks	Drill Runs	TCR SCR RQD	Depth (Thickness)	Level (mAOD)	Legend	Description	If (min ave max)	Scale	Backfill
2 B	0.10 - 0.40				0.00			Black and dark grey sandy silty angular and subrounded fine to coarse GRAVEL of mudstone, siltstone, coal and rare fine and medium possible slag with a low cobble content. Sand is fine to coarse. Cobbles are subangular of mudstone. (MADE GROUND)			
1 ES	0.30 - 0.40	PID: 0.0ppmv			(0.40)						
101 D	0.30	SPT(S)			0.40	231.55		Geology Code: MGR 2nd Geology Code: GR			
3 D	0.40 - 0.85	N=12 (3,3/3,2,3,4)						Medium dense dark grey to black silty very sandy angular to subangular fine to coarse GRAVEL of mudstone, siltstone, sandstone and coal. Sand is fine to coarse. (MADE GROUND)		0.50	
	0.40 - 1.00	Casing: 0.00 Water: 0.4 Recovered as D from DS 0.40-1.00m.	DS	17% 0% 0%	(0.60)			Geology Code: MGR 2nd Geology Code: GR			
	0.40							Firm grey mottled brown slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is very angular to subangular fine lithorelicts of extremely weak and very weak mudstone. (Residual Soil - SOUTH WALES LOWER COAL MEASURES FORMATION)			
102 D	1.00 - 1.45	SPT(S)			1.00	230.95		Geology Code: SWCM 2nd Geology Code: CL		1.00	
4 D	1.00 - 2.00	N=12 (2,3/3,3,3,3)			(0.45)			Partial recovery. Core loss presumed to be weaker/ more weathered material. Recovered core comprises medium dense brown clayey sandy angular fine to medium locally coarse GRAVEL of extremely weak and very weak siltstone and occasional medium strong sandstone. (Possible Weathered SOUTH WALES LOWER COAL MEASURES FORMATION.)		1.50	
	1.00	Casing: 1.00 Water: 0.5 Recovered as D from DS 1.00-2.00m.	DS	10% 0% 0%	1.45	230.50		Geology Code: SWCM 2nd Geology Code: GR			
								Partial recovery. Core loss presumed to be weaker more weathered material. Possible interbedded SANDSTONE with sub-ordinate MUDSTONE. NI. Recovered material comprises angular to subangular fine to coarse gravel of medium strong dark grey fine grained sandstone with a little extremely weak dark grey stained brown carbonaceous mudstone. (Weathered SOUTH WALES LOWER COAL MEASURES FORMATION)		2.00	
5 D	2.00 - 2.45	SPT(S)			(1.55)			Geology Code: SWCM 2nd Geology Code: SST			
	2.00	N=11 (1,2/2,3,3,3)						Weak locally very weak thickly laminated locally very thinly bedded dark grey slightly carbonaceous SILTSTONE locally grading to MUDSTONE. Weathering: increased fracture spacing and loss of strength throughout rock mass. Some orangish brown staining penetrating 1-2mm on fracture. Discontinuities: sub-horizontal to 10 degree extremely closely locally closely spaced planar smooth tight bedding fractures, with <1-2mm silt infill. Joints sub-vertical and randomly orientated stepped planar and rough tight. Recovered core is typically NI due to drilling disturbance. (SOUTH WALES LOWER COAL MEASURES FORMATION)		2.50	
103 ES	2.40 - 2.50	PID: 0.0ppmv	DS	40% 0% 0%				Geology Code: SWCM 2nd Geology Code: SZT			
	2.50							3.60m - 3.70m Thin bed of moderately weak SILTSTONE.			
6 D	3.00 - 3.45	SPT SW: 75mm			3.00	228.95		Medium strong dark grey slightly carbonaceous fine grained SANDSTONE. NI, recovered as angular to subangular cobbles and some angular medium to coarse gravel. Possible sub-horizontal and randomly orientated very closely spaced discontinuities. (LOWER SOUTH WALES COAL MEASURES FORMATION)	Set 1 NI NI NI	3.00	
	3.00	SPT(S)	RC	50% 0% 0%	(0.50)			Geology Code: SWCM 2nd Geology Code: SST			
		N=40 (5,6/8,8,10,14)						Weak locally moderately weak thinly locally medium bedded grey to dark grey slightly carbonaceous SILTSTONE locally with some thin fine sandstone laminae. Weathering: occasional zones with increased fracture spacing and loss of strength. Occasional brown staining penetrating 1-2mm on fracture surfaces above 5.10m. Discontinuities: sub-horizontal to 20 degree closely spaced locally medium and very closely spaced planar and undulating smooth tight bedding fractures, with <1-3mm sandy silt infill. Joints are sub-vertical and randomly orientated undulating planar rough tight. (SOUTH WALES LOWER COAL MEASURES FORMATION)	Set 1 NI NI NI	3.50	
	3.50	Casing: 3.00 Water: 2.3						Geology Code: SWCM 2nd Geology Code: SZT			
		PID: 0.0ppmv	RC	100% 35% 10%	(1.00)	228.45		4.70m - 5.10m NI, recovered as very angular fine to medium gravel of very weak mudstone. Possible extremely closely spaced fractures.	Set 1 NI NI NI	4.00	
								Continued on next Sheet	Set 1 <10 120 220	4.50	
	4.50				4.50	227.45					
					(0.20)						
					4.70	227.25					

Drilling Flush					Hole Diameter		Casing Diameter		Water Added		Water Strikes						
Depth Top	Depth Base	Type	Colour	Returns	Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Date and Time	Casing	Strike	Sealed	Rising to	Time	Remarks
0.00	30.00	Air/Mist	Black/ Grey	100%	30.00	145mm	3.00	150mm			17/11/2022 14:05		0.40		0.40	20mins	
Drill Bit Type		PCD			Drill Bit Condition		Good		Core Barrel Type		Conventional Triple Tube		Core Barrel Length			1.50	

Remarks
Hand excavated inspection pit from GL to 0.40m. Dynamic sampling from 0.40m to 3.00m. Rotary coring from 3.00m to 30.00m.

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Exploratory Hole Progress by Time				Exploratory Hole									
Date and Time	Depth	Casing Depth	Water Depth	S1-BH108 Sheet 3 of 6 <table><tr><td>Scale</td><td>1:25</td></tr><tr><td>Drilled</td><td>KO</td></tr><tr><td>Logged</td><td>AF/JJ</td></tr><tr><td>Checked</td><td></td></tr></table>		Scale	1:25	Drilled	KO	Logged	AF/JJ	Checked	
Scale	1:25												
Drilled	KO												
Logged	AF/JJ												
Checked													

Drilling Flush					Hole Diameter		Casing Diameter		Water Added		Water Strikes						
Depth Top	Depth Base	Type	Colour	Returns	Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Date and Time	Casing	Strike	Sealed	Rising to	Time	Remarks
0.00	30.00	Air/Mist	Black/ Grey	100%	30.00	145mm	3.00	150mm			17/11/2022 14:05		0.40		0.40	20mins	
Drill Bit Type		PCD			Drill Bit Condition		Good		Core Barrel Type		Conventional Triple Tube		Core Barrel Length			1.50	

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